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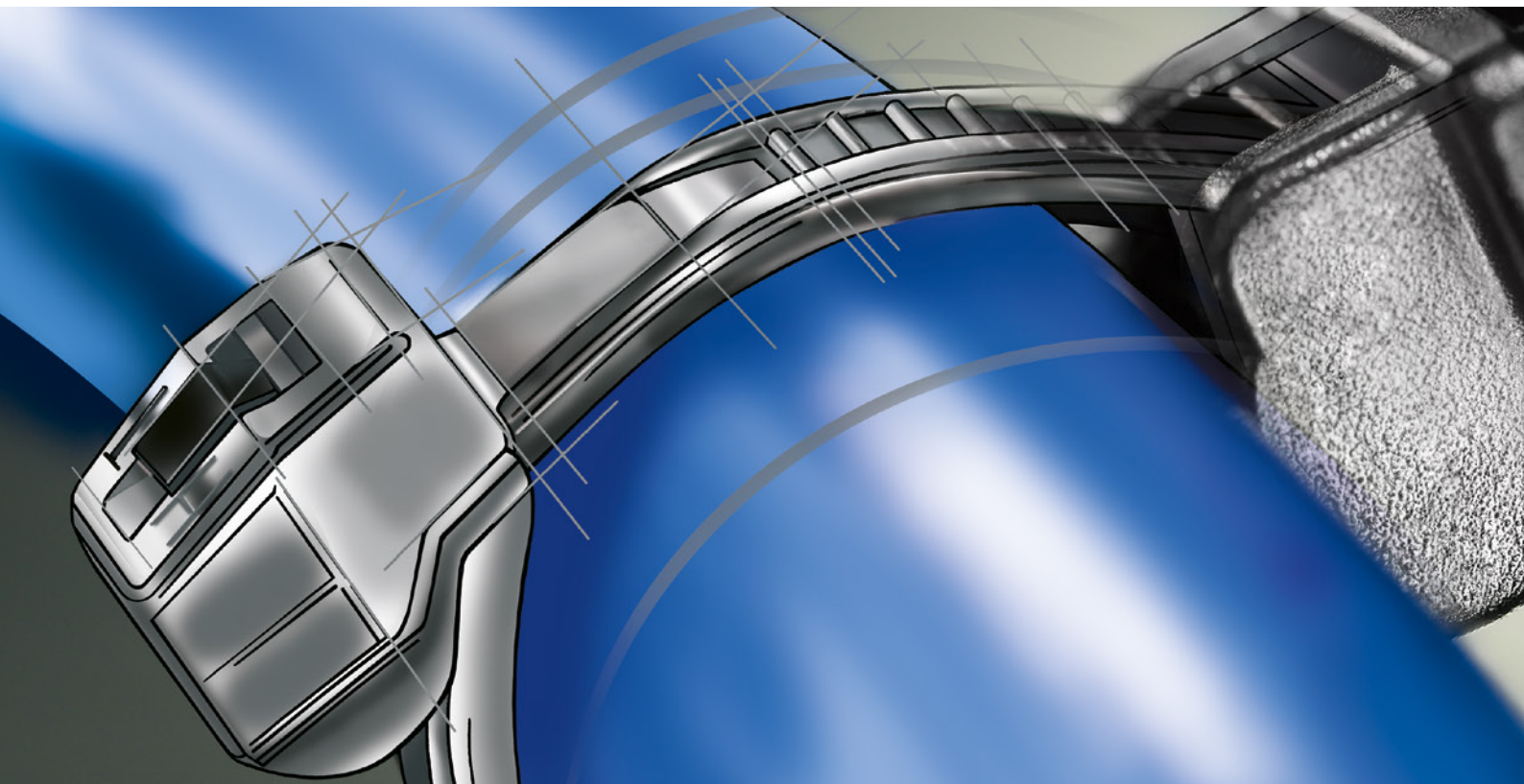
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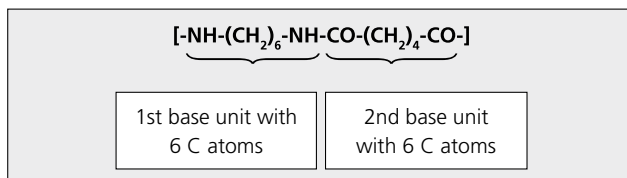
## Properties of polyamide PA66

Polyamides are among the most important thermoplastic synthetic materials. Thermoplastics can be reshaped by heating as often as required without undergoing chemical decomposition or other negative changes. This makes polyamide ideal for processing via injection moulding into high quality products. About 90% of cable ties and fixings from HellermannTyton are made from this material.

Polyamide is also known under the brand name of Nylon®, which was introduced by the Dupont company.

The inner structure of polyamide displays a partial order of polymer chains, i.e. polyamides are partially crystalline. Due to the tighter packing of the individual molecular chains polyamide only has limited transparency to light. The plastic is therefore described as translucent

## The molecular chains of PA66 are made from two base units:



Each base unit contains 6 carbon atoms (C). Hence the name PA66.

The polyamide PA66 has many properties which are highly advantageous for HellermannTyton cable ties and fixings, such as:

- High strength, rigidity and hardness
- High dimensional stability, even under the effect of heat
- High abrasion resistance

Having a wide range of polyamides and additives allows for an optimum adaptation of the properties of the finished product to suit the respective requirements.

The following PA66 variants are used for HellermannTyton products:

- Polyamide 6.6 standard (PA66) for temperature conditions of up to +85 °C
- Polyamide 6.6 Heat Stabilised (PA66HS) for temperature conditions of up to +105 °C
- Polyamide 6.6 UV Stabilised (PA66W) for exterior use
- Polyamide 6.6 Heat Stabilised and UV Stabilised (PA66HSW) for exterior use up to +105 °C
- Polyamide 6.6 Impact Resistant (PA66HIR) for high elasticity requirements
- Polyamide 6.6 Impact Resistant and Heat Stabilised (PA66HIRHS) for high elasticity requirements and temperatures up to +105 °C
- Polyamide 6.6 V0 for high standards of fire protection

## Water content in polyamide

Polyamide is a hygroscopic material - this means that it absorbs and releases water. The mechanical properties are significantly affected by the water content – especially flexibility and minimum tensile strength.

In a standard atmosphere of 23 °C and 50% relative humidity, the degree of water saturation of polyamide is around 2.5%. For optimal processing of cable ties it is therefore important that the polyamide has a water content of approximately 2.5% in a state of equilibrium.

The quality and functionality of the products are thus affected by the water content, therefore the correct storage of our products is crucial. Please read our separate instructions on storage.

### Since humidity is so critical to the quality of the tie, the question arises: What happens if the tie is installed and the water content in the tie alters?

The water content determines the flexibility and strength of a tie. At a water content of approximately 2.5% the tie has the ideal flexibility for installation. When the strap is being threaded through the head of the tie, the pawl must be flexible enough to 'see-saw' over the serration of the strap without breaking. On the other hand, there must also be adequate material rigidity for the serrations of the pawl to engage with the serrations of the strap during the tying process so that a 'positive locking' action is achieved. After achieving the positive locking action the tie is in a static condition. Changes in the mechanical properties of the tie as a function of water content are insignificant during this status.

### Properties of UV-stabilised polyamide (PA66W)

The question constantly arises as to whether a black cable tie is suitable for use outside. This is dependant on the application of the tie, but in general the following statements can be made:

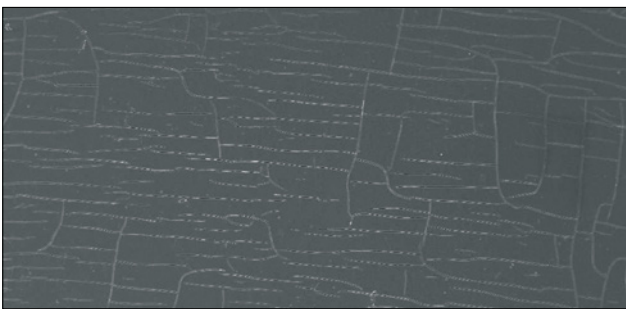
A black cable tie made of polyamide 6.6 standard (PA66) is only coloured black with a low proportion of carbon black. This is not sufficient to protect the material from damage caused by UV-radiation in the long term.

Products made from UV-stabilised polyamide PA66W are produced in accordance with ASTM standard D6779 with a higher carbon black percentage of approx. 2%. So they resist UV-radiation in the European area for a considerably longer period than standard PA66.

This is clearly illustrated by the comparison of the two images:

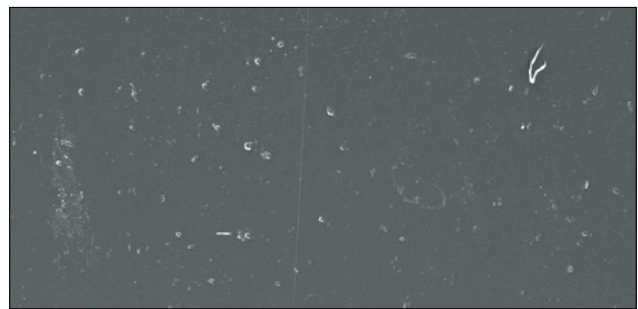
### After 500 hours of UV- radiation exposure

Polyamide 6.6 standard (PA66) dyed black:



The joint has been damaged throughout by UV-radiation.

Polyamide 6.6 UV-stabilised (PA66W) with approx. 2% carbon black:

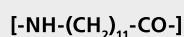


The joint has only been altered at isolated points by the UV-radiation.

**For outdoor use, therefore, we recommend our range of products made from UV-stabilised polyamide (PA66W).**

### Properties of polyamide PA12

Apart from PA66, there are polyamides which are less hygroscopic. These include PA12, which has a molecular chain made of a base unit with 12 carbon atoms:



#### PA12 has the following advantages over PA66:

- Less hygroscopic - saturation at 23 °C and 50% relative humidity is approximately 1%
- Better impact performance
- Good weather resistance, even without a special additive

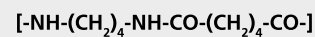
These three properties make PA12 ideal for use outdoors, in particular when requirements may include impact resistance.

The water absorption of PA12 is not only less than that of PA66 but also slower. This is the requirement where the mechanical properties need to remain relatively unaffected by changing environmental conditions

### Properties of polyamide PA46

Polyamide PA66, despite the use of additives, is not suitable for long-term use in temperatures of +105 °C. Due to considerably better heat resistance, polyamide PA46 is more suitable for temperatures of up to and exceeding 150 °C (depending on the length of time of operation).

The molecular chain of PA46 is composed of two base units:



1st base unit with  
4 C atoms

2nd base unit  
with 6 C atoms

#### Advantages of PA46 over PA66:

- Greater rigidity, even at higher temperatures
- Higher operating temperature ranges of up to +150 °C (5,000 hours)
- Greater form stability at higher temperatures
- Excellent chemical resistance

#### A simple practical test: 'the hammer test'

You can quickly determine whether or not a cable tie is UV stabilised. Strike with a hammer the tail of the strap on the tie. Hold up this flattened end to the light. Cable ties with a carbon black content of about 2% allow no light through and look black throughout. Standard black ties, however, are transparent on the flattened end.



### Properties of Polyetheretherketone PEEK

PEEK, a linear aromatic polymer is semi-crystalline and is widely regarded as the highest performance thermoplastic material currently available. A summary of key physical properties is as follows:

#### High temperature performance

- Melting temperature of 343 °C (649 °F)
- Continuous Use Temperature of 240 °C (464 °F) (UL 746B)

#### Wear resistance

- Outstanding wear resistance over wide ranges of pressure, velocity, temperature and counter facial roughness

#### Chemical resistance

- Excellent resistance to a wide range of chemical environments, even at elevated temperatures
- The only common environment that dissolves it is concentrated sulfuric acid

#### Fire, smoke and toxicity

- Highly stable and requires no flame-retardant additives to achieve a V-0 rating at 1.45 mm thickness
- The composition and inherent purity of the material results in extremely low smoke and toxic gas emission in fire situations

#### Hydrolysis resistance

- PEEK is not attacked by water or pressurized steam
- Components that are constructed from these materials retain a high level of mechanical properties when continuously conditioned in water at elevated temperatures and pressures

#### Radiation Resistance

- Excellent Radiation Resistance due to the energetically stable chemical structure of PEEK

#### Purity

- PEEK materials are inherently pure with exceptionally low levels of ionic extractables
- Excellent out gassing characteristics

This makes PEEK the right choice for any high performance application in any industry with a clearly outstanding continuous use temperature of 240 °C.

### Properties of Ethyltertrafluorineethylen (E/TFE) - Tefzel®

E/TFE can be best described as a rugged thermoplastic with an outstanding balance of properties.

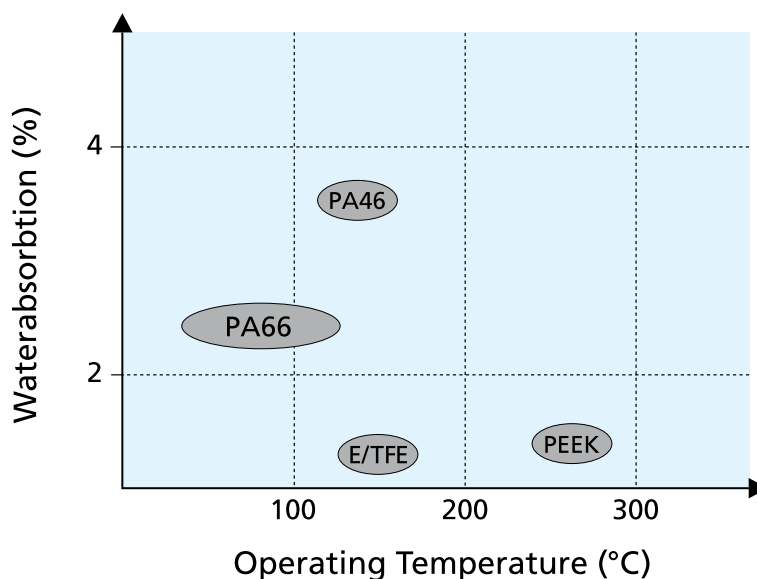
Mechanically, it is tough, has medium stiffness, impact and abrasion resistance.

E/TFE can perform successfully in applications where other materials are lacking in mechanical toughness, broad thermal capability, ability to meet severe environmental conditions.

Tefzel® is a registered trademark of DuPont.

#### Summary of key properties:

- No load continuous use temperature of 170 °C
- Weather resistant
- Inert to most solvents and chemicals
- Hydrolytically stable
- Substantially better resistance to radiation than other plastic materials

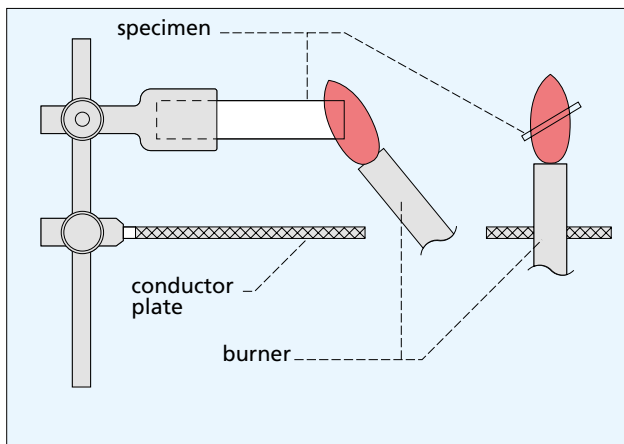


## What does Flammability UL94 mean?

UL is the shortcut for Underwriters Laboratories. This is an independent organisation in the United States to control and certificate product safety.

Beside a lot of product standards UL also specified the flammability test UL94 for plastic materials. UL94 is a material burning test done on defined specimen of the raw material but not a test on final products.

UL94 differs between a horizontal burning test UL94 HB (picture 1) and a vertical burning test UL94 V (picture 2). For the vertical test UL94 V there are three flame ratings defined: UL94 V0, UL94 V1 and UL94 V2.



### UL94 HB:

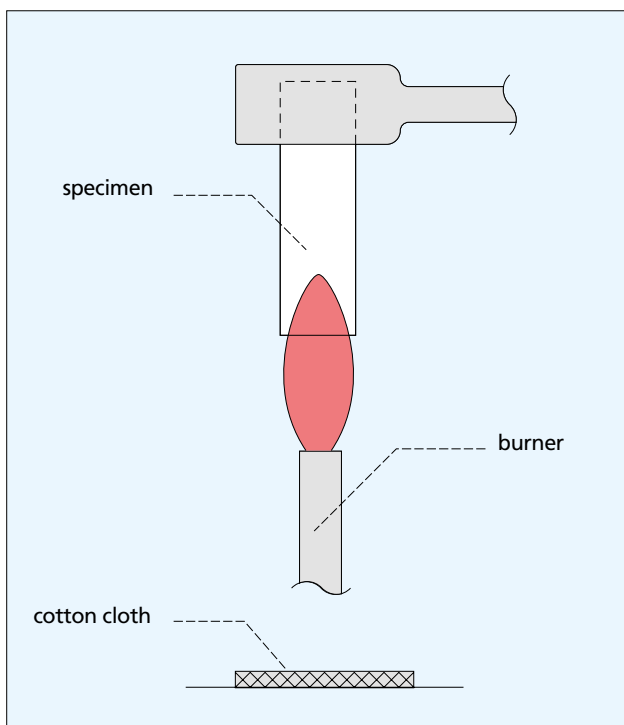
horizontal burning test

#### Test criteria:

- burning rate of specimen in mm/min.

#### Classification:

- according to HB



### UL94 V:

Vertical burning test

#### Test criteria:

- afterflame time of specimen
- drip of flaming particles

#### Classification:

- according to V0, V1 or V2

In all these burning tests an open flame is applied for a certain time to the specimen. As the burning behaviour also depends on the thickness of the material it is important to classify the material not only according to HB, V0, V1 or V2 but also to mention the thickness of specimen.



Following table is a summary of test procedures and requirements of the UL94 classification.

Classification	Horizontal Test UL94		Vertical Test UL94		
	HB		V0	V1	V2
Number of specimen	3	3	5	5	5
Thickness of specimen	< 3 mm	3 to 13 mm	up to max. 13 mm		
1st flame application	30 sec.	30 sec.	10 sec.	10 sec.	10 sec.
2nd flame application	-	-	10 sec.	10 sec.	10 sec.
Burning rate	max. 75 mm/min	max. 40 mm/min	-	-	-
Afterflame time after 1st flame application for each individual specimen	-	-	max. 10 sec.	max. 30 sec.	max. 30 sec.
Afterflame time after 2nd flame application for each individual specimen	-	-	max. 30 sec.	max. 60 sec.	max. 60 sec.
Total afterflame time for all 5 specimen after 1st and 2nd flame application	-	-	max. 50 sec.	max. 250 sec.	max. 250 sec.
Afterflame or afterglow of any specimen up to its end allowed	yes	yes	no	no	no
Cotton indicator ignited by flaming particles or drops allowed	-	-	no	no	yes

Flammability behaviour on the following product pages are always related to the raw material burning rate according to UL94. Most commonly used raw materials for cable ties and fixing elements are Polyamide 6.6 standard, Polyamide 6.6 weather resistant and Polyamide 6.6 heat stabilised. These materials normally fulfill UL94 V2 requirement.

## Chemical resistance of various plastics

▲ = resistant  
 △ = partly resistant  
 ○ = not resistant

These values are only rough guides. They should be regarded as a material specification and are no substitute for a suitability test. Please see our technical datasheets for further details.

	Conc. (%)	Temp. (°C)	PA66	PA46	PA12	POM	PP	E/TFE (Tefzel®)	TPU	PEEK
Acetaldehyde, liquid	100	23 °C	▲	○		▲	△	▲	○	▲
Acetowne	100	23 °C	▲	▲	▲	▲	▲	▲	○	▲
Allyl chloride	100	23 °C					▲		○	
Aniline	100	23 °C	▲	△	△	△	▲	▲	○	▲
Aromatic compounds						▲	○	▲	△	▲
Benzaldehyde		23 °C	▲	△		▲	▲	▲	○	▲
Benzine/Benzol mix		23 °C	▲	▲	▲	▲	△	▲	△	▲
Benzol	100	23 °C	▲		▲	△	△	▲	△	▲
Bromine		23 °C		○	○		○		○	
Carbon bisulphide	100	23 °C	▲	○	▲	▲	○	▲	○	▲
Carbon tetrachloride	100	23 °C	▲	▲	△	▲	△	▲	○	▲
CFC							△			
Chlorine, gaeous	100	23 °C	○				○	▲	△	
Chlorine, liquefied	100	23 °C	○	○			○			
Chlorobenzene	100	23 °C			○	△	▲			
Chloroform	100	23 °C		○	○	○	△		○	
Chromic acid 10%	20	23 °C	○	○		○	▲	▲	○	▲
Chromic acid 20%	10	20 °C	△	○		△	▲	▲		▲
Chromic acid 50%	50	20 °C	○	○		○	▲	▲	○	
Cyclohexane	100	23 °C	▲			▲	▲	▲	▲	▲
Cyclohexanone	100	23 °C	▲			▲	▲	▲		▲
Decahydronaphthlene	100	23 °C	▲			▲	△	▲	▲	▲
Diethyl ether	100	23 °C	▲			▲	△	▲		▲
Di-isopropyl ether	100	23 °C					△			
Dimethyl formamide	100	23 °C	▲	▲		▲	▲	▲		▲
Diocyl phthalate		23 °C	▲	▲		▲	▲	▲	○	▲
Engine oil	100	23 °C			▲	▲	▲		▲	▲
Ethanonic acid 10%	10	20 °C	○	△	△	▲	▲	▲		
Ethanonic acid 100%	100	23 °C	○	○		△	▲	▲		
Ethanonic acid 25%	25	20 °C	○			△	▲	▲		
Ethanonic acid 50%	50	20 °C	○			△	▲	▲		
Ethyl acetate	100	23 °C		▲	▲	△	△		△	▲
Formic acid	98	23 °C	○		○	○	▲	▲	○	△
Freon		23 °C					▲			▲
Heptane	100	23 °C	▲	▲	▲	▲	▲	▲	▲	▲
Hydrogen peroxide 10%	10	20 °C	△			▲	▲	▲	△	
Hydrogen peroxide 30%	30	23 °C	○	○		▲	▲	▲	△	
Ketone			▲	▲		▲	▲	▲		▲
Medium										
Methisobutylketone	100	23 °C	▲			▲	▲	▲		▲
Methylethylketone	100	23 °C	▲	▲		△	▲	▲	○	▲
Nitric acid 10%	10	20 °C	○		○	○	▲	▲	○	▲
Nitric acid 50%	50	23 °C	○		○	○	○	▲	○	○
Nitrobenzene	100	23 °C	▲	△		▲	▲	▲	○	▲
Ordinary petrol		23 °C		▲		▲	▲			▲
Paraffin oil		23 °C	▲	▲	▲	▲	▲	▲	▲	▲
Perchloroethylene		23 °C	▲		▲	▲	△	▲	○	▲
Petroleum		23 °C	▲	▲	▲	▲	▲	▲	▲	▲
Phenol	65	23 °C	○	○	○	○	▲	▲	○	
Potass. Permanganate	6	23 °C	○	○	○	▲	▲	▲	△	▲
Salad oil		23 °C		△			▲			▲
Silicon oil		23 °C	▲	▲	▲	▲	▲	▲	▲	▲
Sulphuric acid 10%	10	20 °C	○		△	○	▲	▲	○	△
Sulphuric acid 50%	50	20 °C	○			○	▲	▲	○	○
Sulphuric acid 96%	96	23 °C	○	○		○	○	▲	○	○
Toluol	100	23 °C	▲		▲	▲	△	▲	○	▲
Trichlorethylene	100	23 °C	▲	△	△	△	△	▲	○	▲
Water, cold			▲		▲	▲			▲	▲
Water, hot							▲		△	▲
Xylene	100	23 °C	▲	▲	▲	▲	△	▲	○	▲

Tefzel® is a registered trademark of DuPont.

General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers.

## Determination of minimum tensile strength

The minimum tensile strength is a critical selection criterion for cable ties. It expresses how much loading a cable tie can bear. This minimum tensile strength is determined in accordance with the

Military Specification and Standards of the USA. Test conditions being laid down precisely in MIL-S-23190E:

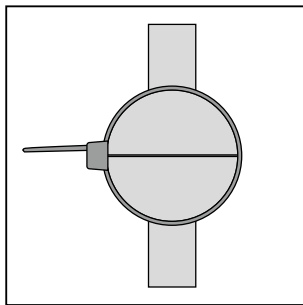
### The test procedure to determine minimum tensile strength:

- Conditioning of the test pieces
- Construction of the test apparatus
- Application of the tie on a split test probe
- Test speed

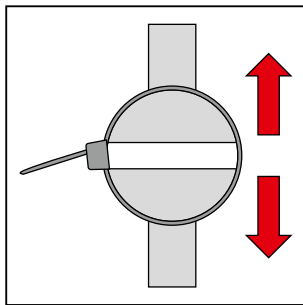
### Explanation of minimum tensile strengths

#### What does a minimum tensile strength of 225 N (50LBS) mean?

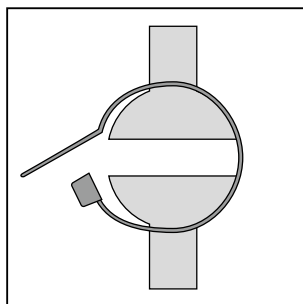
To explain what this value means, the mass with which the tie can be loaded is calculated. The unit of measurement of the mass is stated in kg. To do so, the unit Newton (N) is shown in the following way:



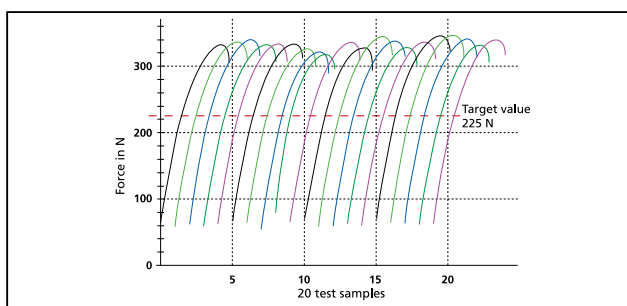
The cable tie is fixed onto a split mandrel test probe with the suitable cable tie application tool.



The mandril is opened at a defined speed.



The loading at which the cable tie fails is determined. This value is stated in Newtons (N) and is recorded through a computer programme reading the tests. This programme produces graphs as outlined below.



Typical measurement protocol of a T50R made of PA66 with a minimum tensile strength of 225 N.

$$[N] = [kg * m/s^2]$$

The formula for calculating the mass is:

$$\text{Mass} = \text{minimum tensile strength} / \text{acceleration due to gravity}$$

The acceleration due to gravity is 9.81 m/s<sup>2</sup>

$$\text{Mass} = \text{minimum tensile strength} / [kg * m/s^2 / 9.81 [m/s^2]]$$

At a minimum tensile strength of 225 N (50LBS) the mass is:

$$\text{Mass} = 225 [kg * m/s^2] / 9.81 [m/s^2]$$

The units m/s<sup>2</sup> cancel each other out, leaving the unit [kg] for the mass. Thus:

$$\text{Mass} = 225 / 9.81 \text{ kg} = 22.9 \text{ kg}$$

Therefore, a T50R cable tie with a minimum tensile strength of 225 N (50LBS) can be loaded with 22.9 kg.

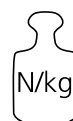
Conversely, with the required loading capacity the minimum tensile strength can be calculated by a mass:

$$\text{Min. tensile strength} = \text{mass} * 9.81 [m/s^2]$$

If the tie is to be loaded with, for example, 53 kg this produces:

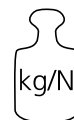
$$\text{Minimum tensile strength} = [53 \text{ kg}] * 9.81 [m/s^2] = 520 \text{ N}$$

In order to withstand a load of 53 kg, the tie must therefore have a minimum tensile strength of 520 N. In this case, select our T120R with a minimum tensile strength of 535 N (120LBS).



$$225 \text{ N} / 9.81 = 22.9 \text{ kg}$$

$$53 \text{ kg} * 9.81 = 520 \text{ N}$$





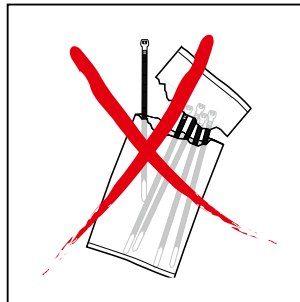
### Optimum storage conditions for cable ties made of polyamide (PA)

HellermannTyton cable ties, fastenings and fixings are manufactured from high-quality polyamide (PA). This industrial synthetic material is mainly processed using injection moulding, but can also be extruded.

Polyamide is a hygroscopic material. This means that the material absorbs and loses moisture. For optimum handling of cable ties it is important that the material is in a condition of equilibrium with a water content of approximately 2.5%.

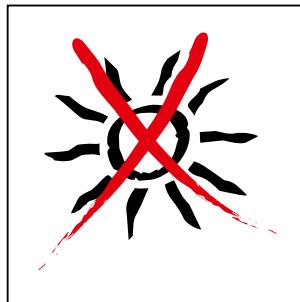
The packaging used by HellermannTyton ensures that the water content in the material remains constant. Therefore, it is important to store the products in their original packaging to preserve the quality of the ties.

1. Once opened you should use the ties as quickly as possible.



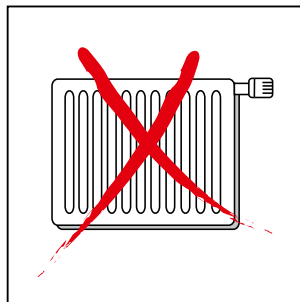
2. Always store ties in the sealed plastic bag made of polyethylene!

3. Do not expose the product to direct sunlight!



4. Do not store the product in sunlight; for example, on the windowsill.

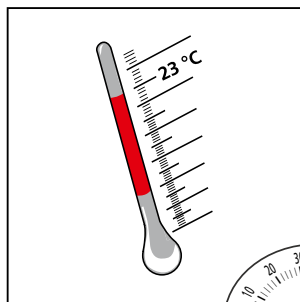
5. Store the product away from direct sources of heat.



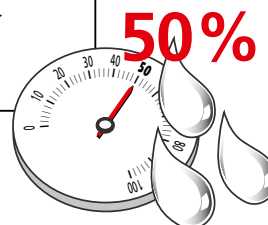
6. Avoid contact with heat: for example, do not place on the radiators.

7. The ideal storage conditions are those of the central European standard climate:

23 °C



50% relative humidity



## Material Specification Overview

Material	Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	
Aluminium-alloy	AL	-40 °C to +180 °C	Natural (NA)		<ul style="list-style-type: none"> <li>Corrosion resistant</li> <li>Antimagnetic</li> </ul>	RoHS
Chloroprene	CR	-20 °C to +80 °C	Black (BK)		<ul style="list-style-type: none"> <li>Weather-resistant</li> <li>High yield strength</li> </ul>	RoHS
Ethylenterafluorineethylen	E/TFE	-80 °C to +170 °C	Blue (BU)	UL94 V0	<ul style="list-style-type: none"> <li>Resistance to radioactivity</li> <li>UV-resistant, not moisture sensitive</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul>	RoHS
Polyacetal	POM	-40 °C to +90 °C, (+110 °C, 500 h)	Natural (NA)	UL94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Flexible at low temperature</li> <li>Not moisture sensitive</li> <li>Robust on impacts</li> </ul>	RoHS
Polyamide 11	PA11	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Bio-plastic, derived from vegetable oil</li> <li>Strong impact resistance at low temperature</li> <li>Very low moisture absorption</li> <li>Weather-resistant</li> <li>Good chemical resistance</li> </ul>	RoHS HF
Polyamide 12	PA12	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> <li>UV-resistant</li> </ul>	RoHS HF
Polyamide 4.6	PA46	-40 °C to +150 °C (5000 h), +195 °C (500 h)	Natural (NA), Grey (GY)	UL94 V2	<ul style="list-style-type: none"> <li>Resistance to high temperatures</li> <li>Very moisture sensitive</li> <li>Low smoke sensitive</li> </ul>	RoHS HF LFH
Polyamide 6	PA6	-40 °C to +80 °C	Black (BK)	UL94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> </ul>	RoHS
Polyamide 6.6	PA66	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK), Natural (NA)	UL94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> </ul>	RoHS HF
Polyamide 6.6, Glassfibre reinforced	PA66GF13, PA66GF15	-40 °C to +105 °C	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Good resistance to: lubricants, vehicle fuel, salt water and many solvents</li> </ul>	RoHS HF
Polyamide 6.6 heat and UV stabilised	PA66HSW	-40 °C to +105 °C	Black (BK)	UL94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Modified elevated max. temperature</li> <li>UV-resistant</li> </ul>	RoHS HF
Polyamide 6.6 Heat Stabilised	PA66HS	-40 °C to +105 °C	Black (BK), Natural (NA)	UL94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Modified elevated max. temperature</li> </ul>	RoHS HF
Polyamide 6.6 High Imp. Mod., Heat Stab.	PA66HIRHS	-40 °C to +105 °C	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> <li>Modified elevated max. temperature</li> </ul>	RoHS
Polyamide 6.6 High Imp. Mod. scan black	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>	RoHS HF
Polyamide 6.6 High Impact Modified	PA66HIR	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>	RoHS
Polyamide 6.6 high impact modified, heat and UV stabilised	PA66-HIRHSW	-40 °C to +110 °C	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> <li>Modified elevated max. temperature</li> <li>High yield strength, UV-resistant</li> </ul>	RoHS HF

Tefzel® is a registered trademark of DuPont.  
General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers.

\*\*More colours on request.

\*These details are only rough guide values. They should be regarded as a material specification and are no substitute for a suitability test. Please see our datasheets for further details.

 = Minimum Tensile Strength

## Material Specification Overview

Material	Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	RoHS	HF	LFH
<b>Polyamide 6.6</b> UV Resistant	PA66W	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> <li>UV-resistant</li> </ul>	RoHS	HF	
<b>Polyamide 6.6 V0</b>	PA66V0	-40 °C to +85 °C	White (WH)	UL94 V0	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Low smoke emission</li> </ul>	RoHS	HF	LFH
<b>Polyamide 6.6 V0</b> High Oxygen Index	PA66V0-HOI	-40 °C to +85 °C, (+105 °C, 500 h)	White (WH)	UL94 V0	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Low smoke emissions</li> </ul>	RoHS	HF	LFH
<b>Polyamide 6.6</b> with metal particles	PA66MP	-40 °C to +85 °C, (+105 °C, 500 h)	Blue (BU)	UL94 HB	<ul style="list-style-type: none"> <li>High yield strength</li> </ul>	RoHS	HF	
<b>Polyamide 6</b> high impact modified	PA6HIR	-40 °C to +80 °C	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>	RoHS		
<b>Polyester</b>	SP	-50 °C to +150 °C	Black (BK)		<ul style="list-style-type: none"> <li>UV-resistant</li> <li>Good chemical resistance to: most acids, alkalis and oils</li> </ul>	RoHS	HF	LFH
<b>Polyetheretherketone</b>	PEEK	-55 °C to +240 °C	Beige (BGE)	UL94 V0	<ul style="list-style-type: none"> <li>Resistance to radioactivity</li> <li>Not moisture sensitive</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul>	RoHS	HF	LFH
<b>Polyethylene</b>	PE	-40 °C to +50 °C	Black (BK), Grey (GY)	UL94 HB	<ul style="list-style-type: none"> <li>Low moisture absorption</li> <li>Good chemical resistance to: most acids, alcohol and oils</li> </ul>	RoHS	HF	
<b>Polyolefin</b>	PO	-40 °C to +90 °C	Black (BK)	UL94 V0	<ul style="list-style-type: none"> <li>Low smoke emissions</li> </ul>	RoHS	HF	LFH
<b>Polypropylene</b>	PP	-40 °C to +115 °C	Black (BK), Natural (NA)	UL94 HB	<ul style="list-style-type: none"> <li>Floats in water</li> <li>Moderate yield strength</li> <li>Good chemical resistance to: organic acids</li> </ul>	RoHS	HF	
<b>Polypropylene, Ethylene-Propylene-Dien-Terpoly- mere-rubber free of Nitrosamine</b>	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>Good resistance to high temperatures</li> <li>Good chemical and abrasion resistance</li> </ul>	RoHS	HF	
<b>Polyvinylchloride</b>	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL94 V0	<ul style="list-style-type: none"> <li>Low moisture absorption</li> <li>Good chemical resistance to: acids, ethanol, oil</li> </ul>	RoHS		
<b>Stainless Steel</b>	SS304, SS316	-80 °C to +538 °C	Natural (NA)		<ul style="list-style-type: none"> <li>Corrosion resistant</li> <li>Antimagnetic</li> </ul>	RoHS	HF	LFH
<b>Thermoplastic Polyurethane</b>	TPU	-40 °C to +85 °C	Black (BK)	UL94 HB	<ul style="list-style-type: none"> <li>High elastic</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul>	RoHS	HF	

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\*\*More colours on request.

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= Minimum Tensile Strength



# Discover the HellermannTyton product world on the web!

**HellermannTyton**

www.hellermanntyton.co.uk | Competences | Cable Ties and Fixings

**Cable Ties and fixing elements for your applications!**

Intro | Product range | Selected products | Technical information | Storage conditions

**Cable ties and fixing elements from HellermannTyton – for a good reason.**

Cable ties and fixing elements have to be able to meet the most varied demands used in the widest range of operations – from the simple bundling of cables to specific uses of cable ties under extreme conditions. As one of the leading manufacturers of cable ties and fixing elements, HellermannTyton sets the standards in the production of reliable, releasable cable ties and cable ties without serration. The range is completed by cable ties made of stainless steel and also cable ties with fixing elements.

With its high-quality cable ties and fixing elements, HellermannTyton provides practical solutions for every challenge. They do not just fulfil the most up to date requirements of cable tie systems, but HellermannTyton constantly pushes back the boundaries of what is possible.

developed jointly with customers which can be used in a wide variety of applications. Cable ties and fixing elements from HellermannTyton offer a wide variety of selections of colour and size of cable ties. The latest example of innovative cable tie design, which is ideally suited for the blind installation of cables, is the MBT-FC-Series, which are defined and monitored by international standards.

With such excellent quality assurance behind every situation.

**Cable Ties and fixing elements for your applications!**

Intro | Product range | Selected products | Technical information | Storage conditions

**The new cable tie system Q-Series offers intelligent, innovative fixing solutions with tailor-made cable ties SOFTFIX**

SOFTFIX cable ties are elastic, tear-proof and weather resistant. In addition, these cable ties can be removed and thus used multiple times. The SRT cable ties are often used for temporary tie-offs in service or maintenance work.

The SRT cable tie range offers solutions to numerous bundling applications. The elasticity of the material makes the SRT cable ties particularly suitable for use on data and fibre-optic cables. The elasticity of the material makes the SRT cable ties ideal for securing young trees to support posts, and other applications within the gardening and landscaping industry as well as bundling cables in temporary applications such as musical events, theatres, cable harnesses. Due to larger packaging units SOFTFIX cable ties can also be delivered in industry quantities.

**Cable Ties KR-Series**

The special curved head design of the KR cable ties ensures a seal around the full circumference of the hose/pipe. The patented design of this cable tie offers a smooth stop which is locked into place with a glass fibre reinforcement pin, and when assembled the cable tie offers a very secure and vibration resistant fixing.

In addition to offering a secure method of bundling cables the design of the KR cable ties make them ideal for use as a method of securing bellows on steering racks, water hoses and vacuum lines.

**Stainless Steel Cable Ties MBT-FC-Series**

The rustproof MBT stainless steel cable ties resist acids and high temperature. These cable ties are available both coated and uncoated. Their patented, non-releasable locking mechanism with one or two balls is a major safety feature.

Stainless Steel cable ties with a polyester coating are chosen when a high tensile strength is demanded and a coal mining or in the petrochemical industry. These cable ties are used in various industries, like shipbuilding, theatres or at fairs.

**Cable Ties OS-Series**

The ever increasing demands within the mass transit, automotive and data cable installation industries for lighter bundles has led to problems with the conventional inside serrated cable tie design causing damage to cable insulation, especially in vibration environments. The OS range of outside serrated cable ties have overcome these problems. The design of these cable ties offers high tensile strength, low insertion forces and a smooth surface to the cable insulation - minimising any indentation or damage. The curved shape of the head allows the cable tie to follow the contours of the cable and takes up less space than other designs of cable ties.

Designed originally for the automotive market these cable ties are now being used in many areas where thin-walled or soft insulation wires and cables are being installed, e.g. railways, aircraft, data cable installations, electronics. With T50LCS a minimum bundle diameter of 1.5 mm is possible. The T120RDS is suitable for heavy bundles with a minimum tensile strength of 535 N.

**Cable Ties MCT-Series**

The Metal Content Tie is a cable tie specifically designed for use in the food & pharmaceutical processing industries. A unique manufacturing process, involving the inclusion of a metallic pigment, enables even small metal content sections of the cable tie to be detected by standard metal detecting equipment. The MCT cable ties have the HACCP process. The 'unique' blue colour of the cable ties assists in the visual detection and greatly reduces the risk of contamination.

The Metal Content Tie is a cable tie specifically designed for use in the food & pharmaceutical processing industries. Ideally suited for the installation of cabling in and around the manufacturing process.

**Cable Ties inside serrated**

Plastic cable ties are suitable for bundling materials, lengths and colours.

**Cable Ties outside serrated**

Outside serrated cable ties are particularly suitable for different remarks, materials, lengths and colours.

**Releasable cable ties**

Releasable cable ties can be produced in different remarks, materials, lengths and colours. Releasable cable ties are available in different remarks, materials, lengths and colours.

**Cable Ties without serration**

The robust cable ties without serration are available in different remarks, materials, lengths and colours. Cable ties without serration are available in different remarks, materials, lengths and colours.

**Cable Ties for direct fixing**

Cable ties for direct fixing are available in different remarks, materials, lengths and colours. Cable ties for direct fixing are available in different remarks, materials, lengths and colours.

**Stainless Steel Cable Ties**

Stainless steel cable ties are available in different remarks, materials, lengths and colours. Stainless steel cable ties are available in different remarks, materials, lengths and colours.

**Cable Ties with fixing elements**

Optimal fixing solutions for each cause offer the cable ties with fixing elements in different remarks, materials, lengths and colours. Optimal fixing solutions for each cause offer the cable ties with fixing elements in different remarks, materials, lengths and colours.

**Cable Tie Mounts**

Cable Tie Mounts are available in either screw or self adhesive mounting. Different sizes and designs of cable tie mounts offer a secure fixing with a wide variety of cable ties. Cable Tie Mounts are available in either screw or self adhesive mounting. Different sizes and designs of cable tie mounts offer a secure fixing with a wide variety of cable ties.

**Fixing Elements**

A wide variety of fixing elements offer a direct fixation in holes of a panel or at the edges. A wide variety of fixing elements offer a direct fixation in holes of a panel or at the edges.



One Step to the Web!

www.HellermannTyton.co.uk  
**HellermannTyton**

## Introduction to the main locking technologies used for cable ties

HellermannTyton offers a wide range of cable ties for use in different applications. By constantly refining our products and satisfying the ever-changing demands of the market, various locking technologies

have been developed. Below you will find a brief overview of three most common locking technologies and their characteristics.

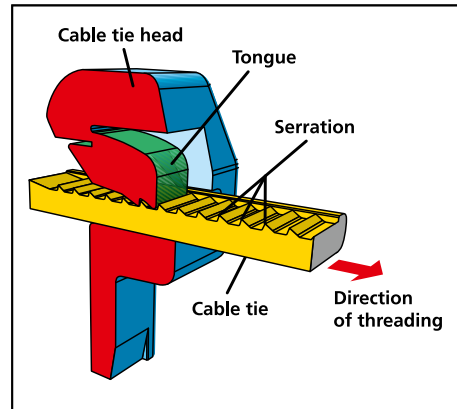
### Cable ties with plastic pawls

This technology is used in 90% of all polyamide (PA) cable ties applied by HellermannTyton. In order to cover a variety of applications, there are different variants of this system, for example: releasable versions, in-line versions, open head versions.

These are one-piece cable ties, the pawl is moulded as an integral part of the cable tie, thereby building in inherent strengths.

#### Locking technology

Positive locking is achieved by engaging the pawl with the strap serrations. This allows the cable tie to perform to the published minimum tensile strength, that is the loading that the cable tie can hold under application.

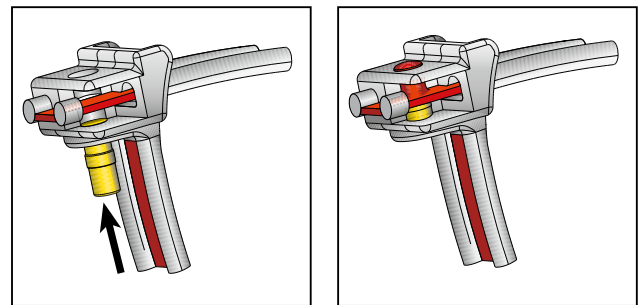


### KR series cable ties

This cable tie is distinguished by its smooth strap and unique locking mechanism. With the KR series the chamfered head achieves an especially firm fit around the bundled material.

#### Locking technology

This patented lock technology takes advantage of the excellent deformation properties of polyamide (PA). Here, the glass fibre-reinforced (GRP) locking pin (yellow) is forced into the strap by the use of an application tool - either the KR6/8 or KR8PNSE. The strap is deformed into the head of the tie by the application of the pin, thereby locking the cable tie in position and allowing for the bundling of heavy loads.



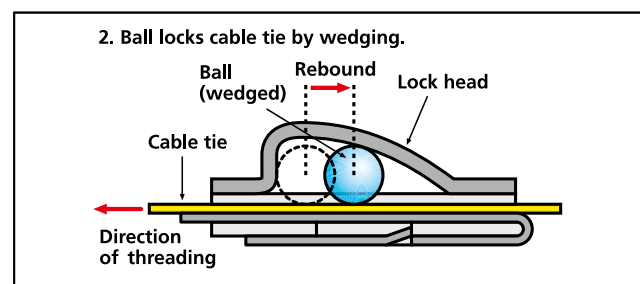
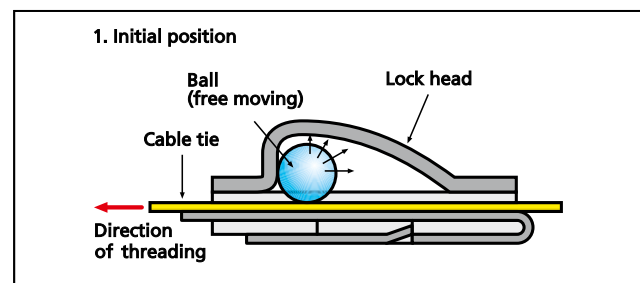
### MBT series of cable ties

Made of stainless steel grade 304 or 316, the MBT range of cable ties have no serrations on the strap and are threaded parallel through the head, gliding under a metal ball-bearing locking mechanism. By using the MK9SST application tool the cable tie is tensioned and the strap cut to a flush finish.

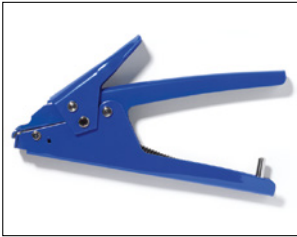
#### Locking technology

The strap is locked into the head by means of the small ball-bearing. The ball locks into the small end of the wedged shaped housing, forming a positive locking with the strap.

This cable tie is not suitable for rigid objects. Retraction of the ball-bearing (see drawing) is required into the small end of the wedged shaped housing to allow for a positive locking of the strap and also to make a flush cut of the end of the strap. Retraction, therefore, cannot take place with the bundling of inflexible materials. To bundle rigid objects LFPC channel should be laid as buffer between strap and bundled material to compensate for this retraction. This locking technology allows for minimum tensile strengths of up to 7,000 Newton.



### Processing Tools for Cable Ties



**MK10-SB**  
see page 446.



**MK20, MK21**  
see page 446.



**MK3SP**  
see page 447.



**MK3PNP2**  
see page 447.



**EVO7 / EVO7SP**  
see page 448.



**MK7**  
see page 449.



**MK7HT**  
see page 449.



**MK7P**  
see page 450.



**MK6**  
see page 451.



**MK9**  
see page 451.



**MK9HT**  
see page 452.



**MK9P**  
see page 453.

### Processing Tools for Cable Ties KR-Series



**KR6/8**  
see page 454.



**KR8PNSE**  
see page 454.



**MK9SST**  
see page 455.



**MK9PSST**  
see page 455.

### Processing Tools for Metal Ties

### Processing Tools for Metal Ties



**HDT16**  
see page 456.



**KST-STG200**  
see page 456.

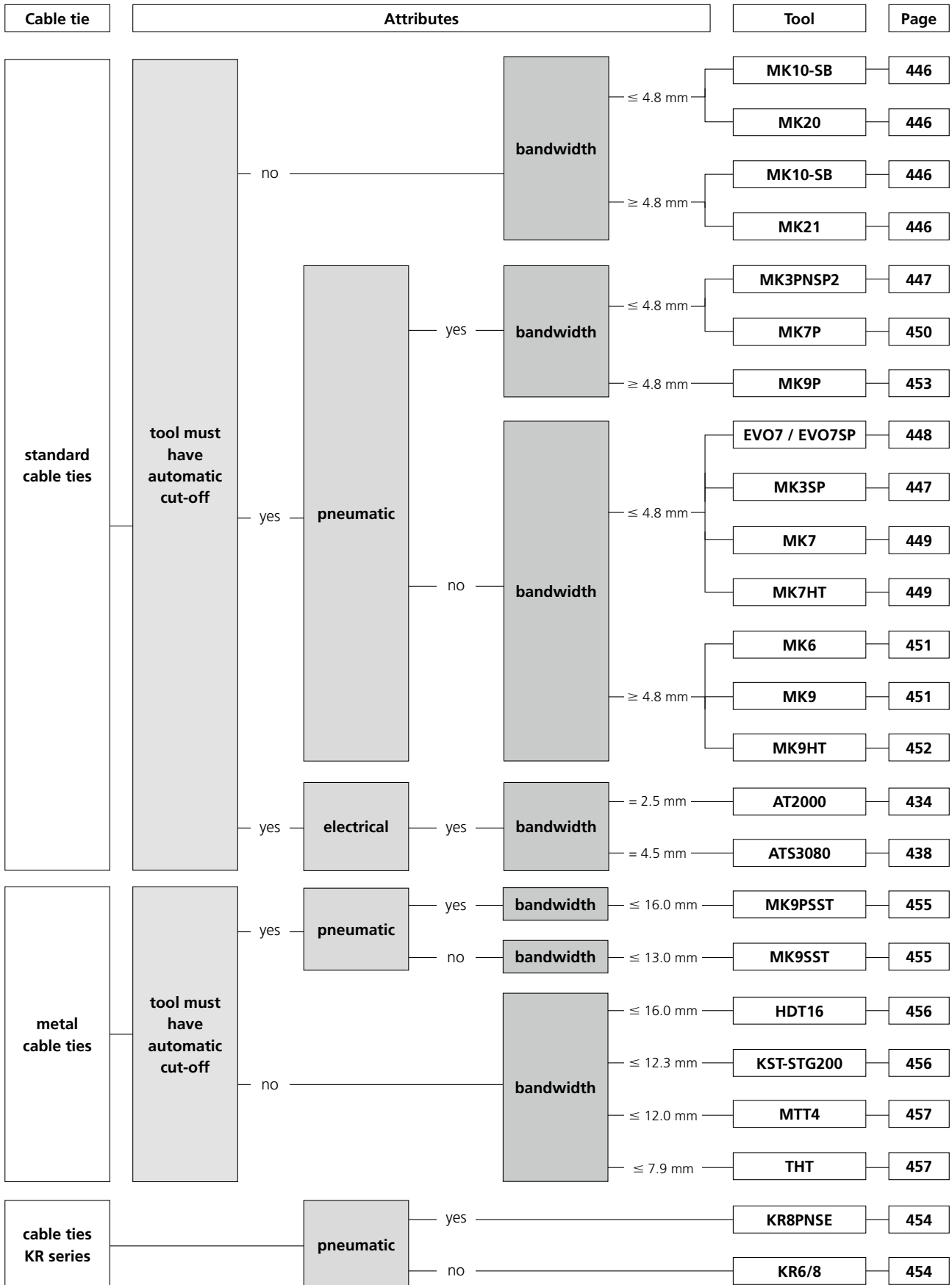


**MTT4**  
see page 457.



**THT**  
see page 457.

## Product Selection







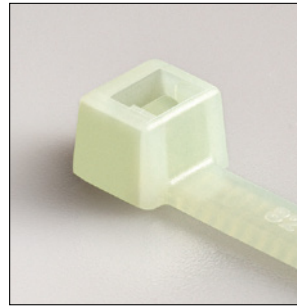
## Cable Ties Polyamide 6.6 standard

### • T-Series in PA66 natural

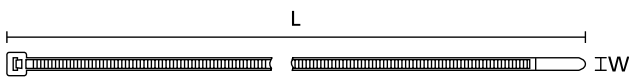
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Standard natural cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail



T-Series.



T-Series

**Application tools  
please see page 442.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T18S	2.3	83.0	16.0	80	PA66	Natural (NA)	1,000	111-02809
T18R	2.5	100.0	22.0	80	PA66	Natural (NA)	100	111-01919
T18I	2.5	145.0	35.0	80	PA66	Natural (NA)	100	111-02319
T18L	2.5	205.0	55.0	80	PA66	Natural (NA)	100	111-02119
T25L	2.8	240.0	65.0	110	PA66	Natural (NA)	100	111-02519
T25LL	2.8	330.0	95.0	110	PA66	Natural (NA)	100	111-02619
T30R	3.5	150.0	35.0	135	PA66	Natural (NA)	100	111-03219
T30L	3.5	198.0	50.0	135	PA66	Natural (NA)	100	111-03419
T30LL	3.5	290.0	80.0	135	PA66	Natural (NA)	100	111-03529
T40R	4.0	175.0	40.0	180	PA66	Natural (NA)	100	111-03819
T50S	4.6	150.0	35.0	225	PA66	Natural (NA)	100	111-05819
T50R	4.6	200.0	50.0	225	PA66	Natural (NA)	100	111-05013
T50M	4.6	245.0	65.0	225	PA66	Natural (NA)	100	111-06201
T50I	4.6	300.0	85.0	225	PA66	Natural (NA)	100	111-05219
T50L	4.6	390.0	110.0	225	PA66	Natural (NA)	100	111-05409
T80R	4.7	210.0	55.0	355	PA66	Natural (NA)	100	111-05019
T80I	4.7	300.0	85.0	355	PA66	Natural (NA)	100	111-08229
T80L	4.7	390.0	110.0	355	PA66	Natural (NA)	100	111-05419
T120S	7.6	225.0	55.0	535	PA66	Natural (NA)	50	111-12829
T120I	7.6	300.0	80.0	535	PA66	Natural (NA)	100	111-12219
T150R	7.6	365.0	100.0	670	PA66	Natural (NA)	100	111-14819
T120R(E)	7.6	387.0	100.0	535	PA66	Natural (NA)	100	111-12019
T120M	7.6	460.0	125.0	535	PA66	Natural (NA)	100	111-12619
T120XM	7.6	600.0	175.0	535	PA66	Natural (NA)	50	111-12704
T120L	7.6	760.0	225.0	535	PA66	Natural (NA)	50	111-12429
T150L	8.8	820.0	245.0	780	PA66	Natural (NA)	25	111-15419
T150M	8.9	530.0	150.0	780	PA66	Natural (NA)	25	111-15619

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Cable Ties Polyamide 6.6 standard

- T-Series in PA66 natural

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
T150XL	8.9	1,095.0	330.0	780	PA66	Natural (NA)	25	111-15519
T150XLL	8.9	1,325.0	405.0	780	PA66	Natural (NA)	25	111-15304
T250S	12.5	225.0	55.0	1,115	PA66	Natural (NA)	100	111-24705
T250R	12.5	515.0	125.0	1,115	PA66	Natural (NA)	25	111-24803
T250M	12.5	565.3	150.0	1,115	PA66	Natural (NA)	25	111-25002
T250I	12.5	730.0	203.0	1,115	PA66	Natural (NA)	25	111-25219
T250XL	12.5	1,030.0	305.0	1,115	PA66	Natural (NA)	25	111-00466

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

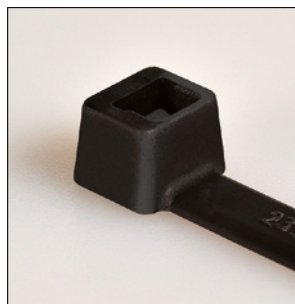
### Cable Ties for outdoor use (UV-resistant)

- T-Series in PA66W black

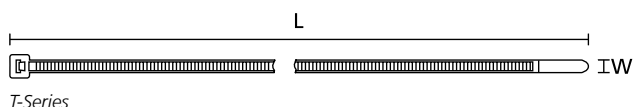
These cable ties are used for routing, bundling and securing of cables, pipes and hoses.

#### Features and Benefits

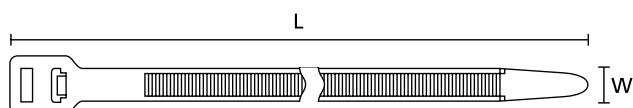
- Weather-resistant black cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold onto bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- UV-resistant



T-Series.



T-Series



T250-series

**Material specification please see page 30.**

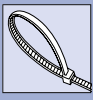
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	PA66W	Black (BK)	100	111-01960
T18I	2.5	145.0	35.0	80	PA66W	Black (BK)	100	111-02360
T18L	2.5	205.0	55.0	80	PA66W	Black (BK)	100	111-02160

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.




Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Cable Ties for outdoor use (UV-resistant)

- T-Series in PA66W black

Application tools  
please see page 442.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T25LL	2.8	330.0	95.0	110	PA66W	Black (BK)	100	111-02660
T30R	3.5	150.0	35.0	135	PA66W	Black (BK)	100	111-03260
T30L	3.5	198.0	50.0	135	PA66W	Black (BK)	100	111-03460
T30LL	3.5	290.0	80.0	135	PA66W	Black (BK)	100	111-03570
T40R	4.0	175.0	40.0	180	PA66W	Black (BK)	100	111-03860
T50S	4.6	150.0	35.0	225	PA66W	Black (BK)	100	111-05860
T50R	4.6	200.0	50.0	225	PA66W	Black (BK)	100	111-04889
T50M	4.6	245.0	65.0	225	PA66W	Black (BK)	100	111-06206
T50I	4.6	300.0	85.0	225	PA66W	Black (BK)	100	111-05260
T50L	4.6	390.0	110.0	225	PA66W	Black (BK)	100	111-05440
T50LL	4.6	445.0	130.0	225	PA66W	Black (BK)	100	111-06000
T80R	4.7	210.0	55.0	355	PA66W	Black (BK)	100	111-05060
T80I	4.7	300.0	85.0	355	PA66W	Black (BK)	100	111-08290
T80L	4.7	390.0	110.0	355	PA66W	Black (BK)	100	111-05460
T120S	7.6	225.0	55.0	535	PA66W	Black (BK)	50	111-12830
T120I	7.6	300.0	80.0	535	PA66W	Black (BK)	100	111-12230
T150R(H)	7.6	365.0	100.0	670	PA66W	Black (BK)	100	111-14860
T120R(E)	7.6	387.0	100.0	535	PA66W	Black (BK)	100	111-12060
T120M	7.6	460.0	125.0	535	PA66W	Black (BK)	100	111-12660
T120L	7.6	760.0	225.0	535	PA66W	Black (BK)	50	111-12430
T150L	8.8	820.0	245.0	780	PA66W	Black (BK)	25	111-15460
T150M	8.9	530.0	150.0	780	PA66W	Black (BK)	25	111-15660
T150XL	8.9	1,095.0	330.0	780	PA66W	Black (BK)	25	111-15502
T150XLL	8.9	1,325.0	405.0	780	PA66W	Black (BK)	25	111-15305
T250R	12.5	515.0	125.0	1,115	PA66HIRHSUV	Black (BK)	25	111-24805

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



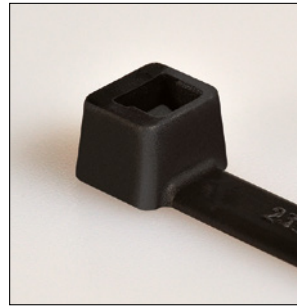
### Cable Ties Polyamide 6.6 standard

- T-Series in PA66 black

These cable ties are used for routing, bundling and securing cables, pipes and hoses.

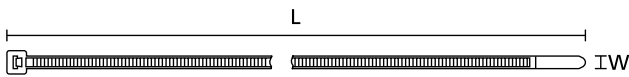
#### Features and Benefits

- Standard black cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail

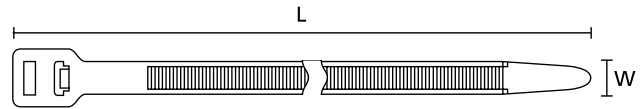


T-Series.

**Material specification  
please see page 30.**



T-Series



T250-series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	PA66	Black (BK)	100	111-01910
T18I	2.5	145.0	35.0	80	PA66	Black (BK)	100	111-02370
T18L	2.5	205.0	55.0	80	PA66	Black (BK)	100	111-02110
T25L	2.8	240.0	65.0	110	PA66	Black (BK)	100	111-02500
T30R	3.5	150.0	35.0	135	PA66	Black (BK)	100	111-03210
T30L	3.5	198.0	50.0	135	PA66	Black (BK)	100	111-03410
T30LL	3.5	290.0	80.0	135	PA66	Black (BK)	100	111-03500
T50S	4.6	150.0	35.0	225	PA66	Black (BK)	100	111-05810
T50R	4.6	200.0	50.0	225	PA66	Black (BK)	100	111-05000
T50M	4.6	245.0	65.0	225	PA66	Black (BK)	100	111-06200
T50I	4.6	300.0	85.0	225	PA66	Black (BK)	100	111-05210
T50L	4.6	390.0	110.0	225	PA66	Black (BK)	100	111-05400
T50LL	4.6	445.0	130.0	225	PA66	Black (BK)	500	111-06002
T80R	4.7	210.0	55.0	355	PA66	Black (BK)	100	111-08010
T80I	4.7	300.0	85.0	355	PA66	Black (BK)	100	111-08210
T80L	4.7	390.0	110.0	355	PA66	Black (BK)	100	111-05410
T120I	7.6	300.0	80.0	535	PA66	Black (BK)	100	111-12210
T150R	7.6	365.0	100.0	670	PA66	Black (BK)	100	111-14810
T120R(E)	7.6	387.0	100.0	535	PA66	Black (BK)	100	111-12010
T120M	7.6	460.0	125.0	535	PA66	Black (BK)	100	111-12610
T120XM	7.6	600.0	175.0	535	PA66	Black (BK)	50	111-12701
T120L	7.6	760.0	225.0	535	PA66	Black (BK)	50	111-12403
T150L	8.8	820.0	245.0	780	PA66	Black (BK)	25	111-15405
T150XL	8.9	1,095.0	330.0	780	PA66	Black (BK)	25	111-15500
T150XLL	8.9	1,325.0	405.0	780	PA66	Black (BK)	25	111-15300

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Cable Ties Polyamide 6.6 standard

#### • T-Series in PA66 black

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T250X	12.5	370.0	100.0	1,115	PA66	Black (BK)	100	111-25102
T250M	12.5	565.3	150.0	1,115	PA66	Black (BK)	25	111-25001
T250L	12.5	880.0	254.0	1,115	PA66	Black (BK)	25	111-24601
T250XL	12.5	1,030.0	305.0	1,115	PA66	Black (BK)	25	111-25200

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

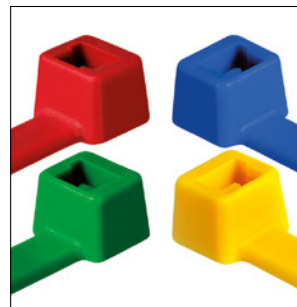
### Cable Ties Polyamide 6.6 standard

#### • T-Series in PA66 coloured

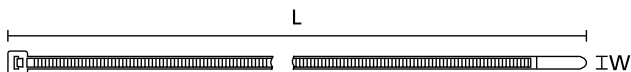
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Coloured cable ties available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail



T-Series.



T-Series

**Application tools  
please see page 442.**

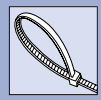
TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T30R	3.5	150.0	35.0	135	PA66	Blue (BU)	100	111-03008
	3.5	150.0	35.0	135	PA66	Green (GN)	100	111-03014
	3.5	150.0	35.0	135	PA66	Red (RD)	100	111-03004
	3.5	150.0	35.0	135	PA66	Yellow (YE)	100	111-03006
T50R	4.6	200.0	50.0	225	PA66	Blue (BU)	100	111-04800
	4.6	200.0	50.0	225	PA66	Green (GN)	100	111-04801
	4.6	200.0	50.0	225	PA66	Red (RD)	100	111-04804
	4.6	200.0	50.0	225	PA66	Yellow (YE)	100	111-04805
T50L	4.6	390.0	110.0	225	PA66	Blue (BU)	100	111-05404
	4.6	390.0	110.0	225	PA66	Green (GN)	100	111-05402
	4.6	390.0	110.0	225	PA66	Red (RD)	100	111-05406
	4.6	390.0	110.0	225	PA66	Yellow (YE)	100	111-05428
T120R(E)	7.6	387.0	100.0	535	PA66	Green (GN)	100	111-12001
	7.6	387.0	100.0	535	PA66	Red (RD)	100	111-12002

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



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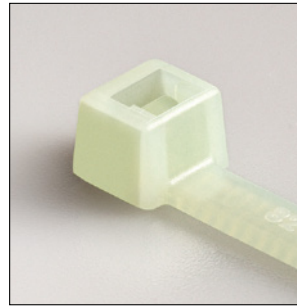
### Cable Ties for temperatures up to + 105°C (heat stabilised)

- T-Series in PA66HS natural

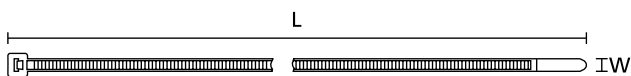
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Heat stabilised cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- Higher temperature resistance up to +105 °C



T-Series.



T-Series

**Material specification please see page 30.**

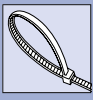
TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	PA66HS	Natural (NA)	100	111-01959
T18I	2.5	145.0	35.0	80	PA66HS	Natural (NA)	1,000	111-02359
T18L	2.5	205.0	55.0	80	PA66HS	Natural (NA)	100	111-02159
T30R	3.5	150.0	35.0	135	PA66HS	Natural (NA)	100	111-03259
T30L	3.5	198.0	50.0	135	PA66HS	Natural (NA)	100	111-03459
T30LL	3.5	290.0	80.0	135	PA66HS	Natural (NA)	100	111-03569
T40R	4.0	175.0	40.0	180	PA66HS	Natural (NA)	100	111-03859
T50S	4.6	150.0	35.0	225	PA66HS	Natural (NA)	100	111-05859
T50I	4.6	300.0	85.0	225	PA66HS	Natural (NA)	100	111-05259
T50L	4.6	390.0	110.0	225	PA66HS	Natural (NA)	100	111-05436
T80R	4.7	210.0	55.0	355	PA66HS	Natural (NA)	100	111-05059
T80I	4.7	300.0	85.0	355	PA66HS	Natural (NA)	100	111-08259
T80L	4.7	390.0	110.0	355	PA66HS	Natural (NA)	100	111-05459
T120S	7.6	225.0	55.0	535	PA66HS	Natural (NA)	50	111-12824
T150R(H)	7.6	365.0	100.0	670	PA66HS	Natural (NA)	100	111-15069
T120R(E)	7.6	387.0	100.0	535	PA66HS	Natural (NA)	100	111-12059
T120XM	7.6	600.0	175.0	535	PA66HS	Natural (NA)	50	111-12719
T120L	7.6	760.0	225.0	535	PA66HS	Natural (NA)	50	111-12449

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



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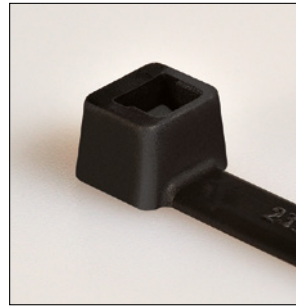
### Cable Ties for temperatures up to + 105°C (heat stabilised)

- T-Series in PA66HS black

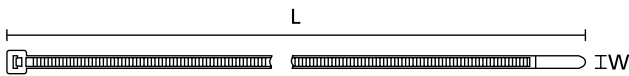
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Heat stabilised black cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- Higher temperature resistance up to +105 °C



T-Series.



T-Series

**Application tools  
please see page 442.**

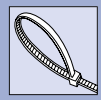
TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	PA66HS	Black (BK)	100	111-01950
T18I	2.5	145.0	35.0	80	PA66HS	Black (BK)	100	111-02358
T18L	2.5	205.0	55.0	80	PA66HS	Black (BK)	100	111-02049
T30R	3.5	150.0	35.0	135	PA66HS	Black (BK)	100	111-03050
T30L	3.5	198.0	50.0	135	PA66HS	Black (BK)	100	111-03450
T30LL	3.5	290.0	80.0	135	PA66HS	Black (BK)	1,000	111-03660
T40R	4.0	175.0	40.0	180	PA66HS	Black (BK)	100	111-03970
T50S	4.6	150.0	35.0	225	PA66HS	Black (BK)	100	111-05850
T50R	4.6	200.0	50.0	225	PA66HS	Black (BK)	100	111-04950
T50I	4.6	300.0	85.0	225	PA66HS	Black (BK)	100	111-05250
T50L	4.6	390.0	110.0	225	PA66HS	Black (BK)	100	111-05450
T80R	4.7	210.0	55.0	355	PA66HS	Black (BK)	1,000	117-08070
T80I	4.7	300.0	85.0	355	PA66HS	Black (BK)	100	111-08250
T80L	4.7	390.0	110.0	355	PA66HS	Black (BK)	100	111-00388
T120S	7.6	225.0	55.0	535	PA66HS	Black (BK)	50	111-12850
T150R(H)	7.6	365.0	100.0	670	PA66HS	Black (BK)	100	111-15050
T120R(E)	7.6	387.0	100.0	535	PA66HS	Black (BK)	100	111-12050
T120M	7.6	460.0	125.0	535	PA66HS	Black (BK)	100	111-00153
T120XM	7.6	600.0	175.0	535	PA66HS	Black (BK)	50	111-12700
T120L	7.6	760.0	225.0	535	PA66HS	Black (BK)	50	111-12440
T150L	8.8	820.0	245.0	780	PA66HS	Black (BK)	100	111-15410
T150M	8.9	530.0	150.0	780	PA66HS	Black (BK)	25	111-15609
T150XL	8.9	1,095.0	330.0	780	PA66HS	Black (BK)	25	111-15510

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



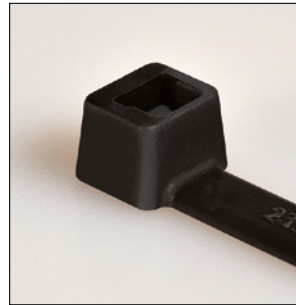
### Cable Ties for higher impact resistant Polyamide 6.6 ScanBlack

- T-Series in PA66HIR(S)

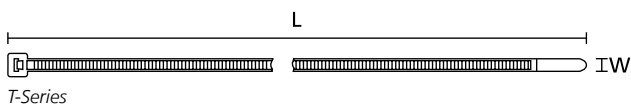
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Impact resistant black cable tie available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- Higher flexibility in cold environments



T-Series.



**Material specification please see page 30.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T50R	4.6	200.0	50.0	225	PA66HIR(S)	Black (BK)	100	111-04890
T50I	4.6	300.0	85.0	225	PA66HIR(S)	Black (BK)	100	111-00222
T50L	4.6	390.0	110.0	225	PA66HIR(S)	Black (BK)	100	111-05441
T120I	7.6	300.0	80.0	535	PA66HIR(S)	Black (BK)	100	111-12203
T120R(E)	7.6	387.0	100.0	535	PA66HIR(S)	Black (BK)	100	111-12032
T120L	7.6	760.0	225.0	535	PA66HIR(S)	Black (BK)	50	111-12402

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





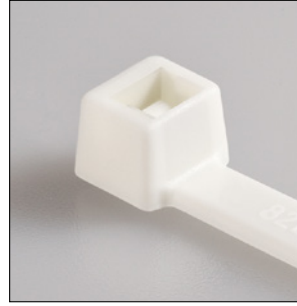
## Cable Ties for higher fire-protection

### • T-Series in PA66V0

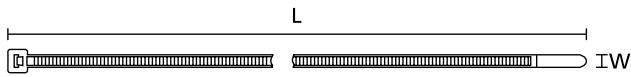
T-Series cable ties for bundling and securing of cables, pipes and hoses. These cable ties can be used for nearly all kinds of applications, especially where safety regulations are high, e.g. the reduction of smoke and dangerous gases.

### Features and Benefits

- White cable tie for higher fire-protection, available in a wide range of sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- High safety rating due to low fire hazard




T-Series.



T-Series

Application tools  
please see page 442.

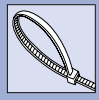
TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	PA66V0	White (WH)	100	111-91819
T18L	2.5	205.0	55.0	80	PA66V0	White (WH)	1,000	111-02043
T30R	3.5	150.0	35.0	135	PA66V0	White (WH)	100	111-93019
T50R	4.6	200.0	50.0	225	PA66V0	White (WH)	100	111-95019
T50I	4.6	300.0	85.0	225	PA66V0	White (WH)	100	111-00317
T120R(E)	7.6	387.0	100.0	535	PA66V0	White (WH)	100	111-91210

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



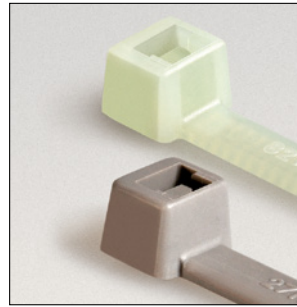
### Cable Ties for temperatures up to + 150°C in Polyamide 4.6

- **T-Series in PA46**

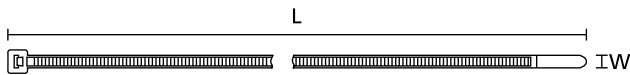
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Higher temperature cable tie available in a wide range sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- Higher temperature resistance up to +150 °C



T-Series.



T-Series

**Material specification please see page 30.**

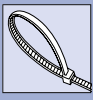
TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	PA46	Natural (NA)	1,000	114-01879
T30R	3.5	150.0	35.0	135	PA46	Natural (NA)	100	114-03079
T50R	4.6	200.0	50.0	225	PA46	Grey (GY)	100	111-00824
	4.6	200.0	50.0	225	PA46	Natural (NA)	100	111-00525
T50I	4.6	300.0	85.0	225	PA46	Natural (NA)	100	111-05220
T50L	4.6	390.0	110.0	225	PA46	Natural (NA)	100	111-00526
T120R(E)	7.6	387.0	100.0	535	PA46	Natural (NA)	100	114-12179

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



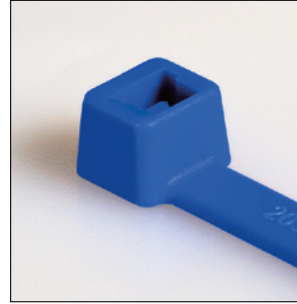
### Cable Ties for higher chemical resistance and for temperatures up to +170°C in Ethylentetrafluorineethylene

- T-Series in E/TFE

T-Series cable ties for bundling and securing cables, pipes and hoses. These cable ties can be used for nearly all kinds of applications, especially when a high chemical resistance is required.

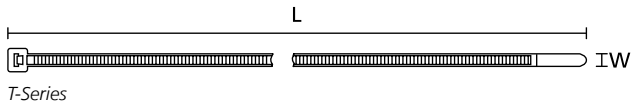
#### Features and Benefits

- Blue higher chemical resistance cable tie available in a wide range sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold onto bundles
- Easy application either manually or with a processing tool
- Simple to insert due to bent tail
- High temperature resistance
- No moisture absorption




T-Series.

**Application tools  
please see page 442.**



T-Series

**For more information on E/TFE sockets  
please refer to KR-Series on page 123.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	80	E/TFE	Blue (BU)	100	111-00659
T30R	3.5	150.0	36.0	133	E/TFE	Blue (BU)	100	111-00698
T50R	4.7	201.0	50.0	222	E/TFE	Blue (BU)	100	111-00732
T50L	4.7	382.0	105.0	222	E/TFE	Blue (BU)	100	111-00718
T120R	7.4	387.0	105.0	535	E/TFE	Blue (BU)	50	111-01125

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellaermannTyton is also using equivalent E/TFE raw material from other suppliers. Tefzel® is a registered trademark of DuPont.



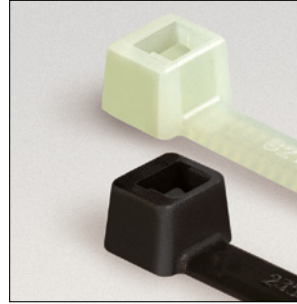
### Cable Ties for higher chemical resistance for temperatures up to +115°C in Polypropylene

- T-Series in PP

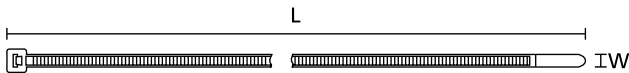
These cable ties are used for routing, bundling and securing cables, pipes and hoses.

#### Features and Benefits

- Higher chemical resistant cable tie available in a wide range sizes
- Made from 100% high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simple to insert due to the ergonomically bent tail
- Floats in water
- High chemical resistance



T-Series.



T-Series

**Material specification please see page 30.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
T18R	2.5	100.0	22.0	36	PP	Black (BK)	100	111-01917
	2.5	100.0	22.0	36	PP	Natural (NA)	1,000	111-01922
T30R	3.6	148.0	32.0	89	PP	Natural (NA)	100	111-03017
T50R	4.8	202.0	44.5	111	PP	Black (BK)	100	111-04928
	4.8	202.0	44.5	111	PP	Natural (NA)	100	111-04931
T120S	7.6	225.0	55.0	267	PP	Black (BK)	500	111-12827
T120R	7.6	390.0	105.0	267	PP	Black (BK)	500	111-12066

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



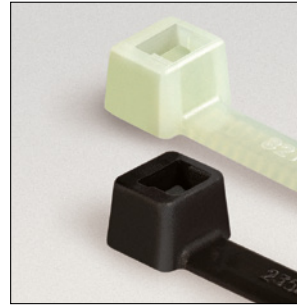
### Cable Ties in-between size to T-Series

- LK-Series

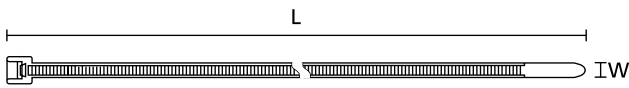
For routing, bundling and securing of cables, pipes and hoses.

#### Features and Benefits

- Wide range of materials and sizes
- Inside serrated ties for a strong hold around bundles
- High tensile strength with very low insertion force
- Simple and quick to install
- Easy application either manually or with a processing tool



LK-Series.



LK-Series

**Application tools  
please see page 442.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
LK2A	4.6	270.0	73.0	225	PA66	Black (BK)	100	111-60110
	4.6	270.0	73.0	225	PA66	Natural (NA)	100	111-60119
	4.6	270.0	73.0	225	PA66HIR(S)	Black (BK)	100	111-00127
	4.6	270.0	73.0	225	PA66HS	Black (BK)	100	111-60150
	4.6	270.0	73.0	225	PA66HS	Natural (NA)	100	111-60159
	4.6	270.0	73.0	225	PA66W	Black (BK)	100	111-60160
LK2	4.8	120.0	28.0	135	PA66	Natural (NA)	200	111-60219
LK5	13.2	535.0	150.0	1,115	PA66	Black (BK)	50	111-60510
	13.2	535.0	150.0	1,115	PA66	Natural (NA)	50	111-60519
	13.2	535.0	150.0	1,115	PA66HIR(S)	Black (BK)	50	111-60501
	13.2	535.0	150.0	1,115	PA66HS	Natural (NA)	50	111-60559
	13.2	535.0	150.0	1,115	PA66W	Black (BK)	50	111-60560

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



# Be the fastest with HellermannTyton: More than a 25% time saving with Q-series!

Extensive customer trials and speed tests fully audited and approved by DEKRA.

## Test our Q-series!



More information on the world wide web.



[www.HellermannTyton.co.uk](http://www.HellermannTyton.co.uk)

**HellermannTyton**



One Step to the Web!

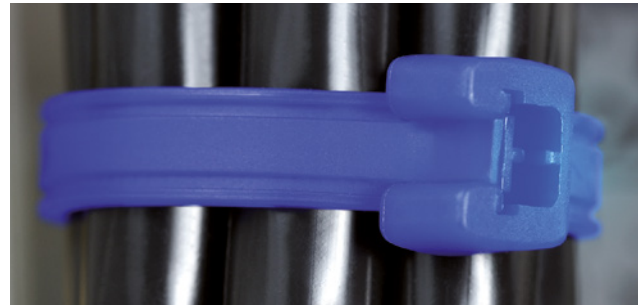


## Cable Ties, Q-tie

### Innovative – Effective – Safe!

The new Q-tie has not only an innovative but also a revolutionary design. The open head of the cable tie enables a simple and quick installation. Just insert the ergonomically bent tail into the open side of the head and tighten the cable tie.

With Q-ties you can save time and money!



Q-ties in different colours are ideal for marking and bundling in one step.

### Easy application for every situation!

Q-tie is the perfect product solution for applications under difficult working conditions. It is designed for use in applications where working with gloves is necessary or for blind applications with a limited view of the work.

The new Q-tie allows a quick and simple installation even with work gloves and restricted view.

Features for quick and easy application:

- Curved and large ribbed tail
- Open head with easily detectable slot

This saves time and trouble!

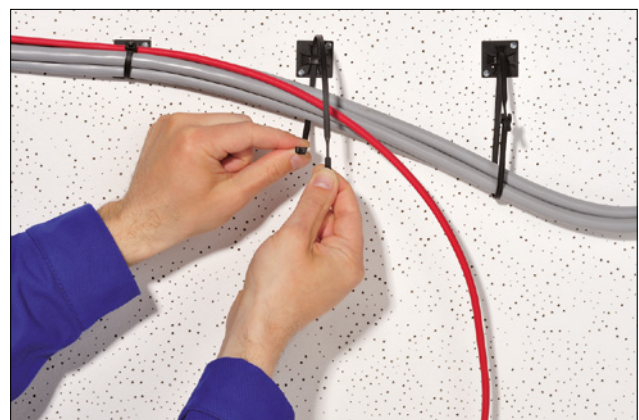


Even under difficult circumstances the Q-tie cable tie is very fast and easy to apply.

### Integrated Pre-Locking Functionality!

Due to several simultaneous working processes, it is not always possible to install all cables and conduits in one single step. Thus, working with standard cable ties means either destroying the cable tie of the first installation or applying additional cable ties. The integrated pre-locking function of the Q-tie offers both temporary and final cable fastening solution.

This saves material and time!

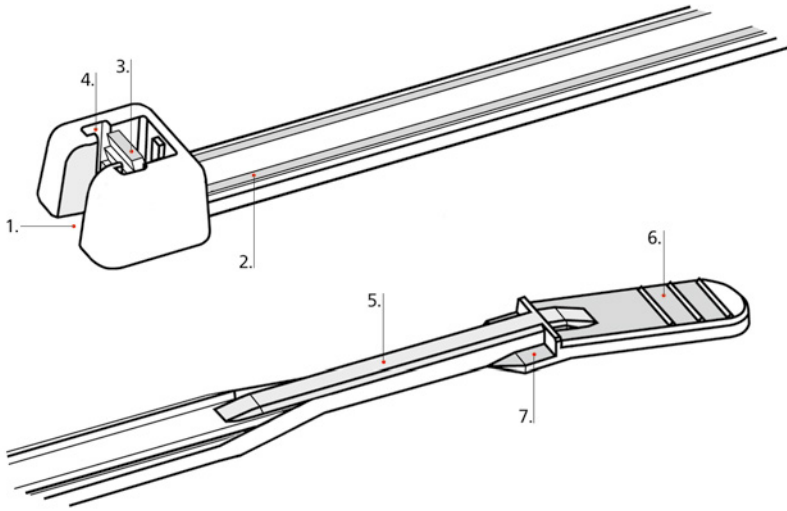


Without additional effort only Q-ties can be used for temporary and final cable bundling.



One Step to the Web!





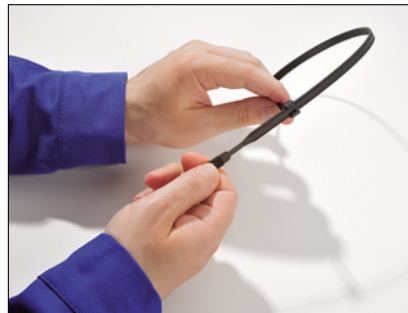
### Features of Q-ties:

1. Open lock head for quick and easy insertion.
2. Two rails on the strap ensure perfect guidance for the tracks in the head.
3. The locking device interacts safely with the serration of the cable tie.
4. The tracks prevent a deformation of the head under load.
5. The thin part of the cable tie can be simply placed into the open lock head.
6. The large ribbed tail allows a safe and ergonomic installation.
7. Integrated pre locking feature (starts with type Q30).

### Application Method:



1. Insert the thin part of the cable tie into the open lock head.



2. Pull the tie through the head until the bundle is fixed.

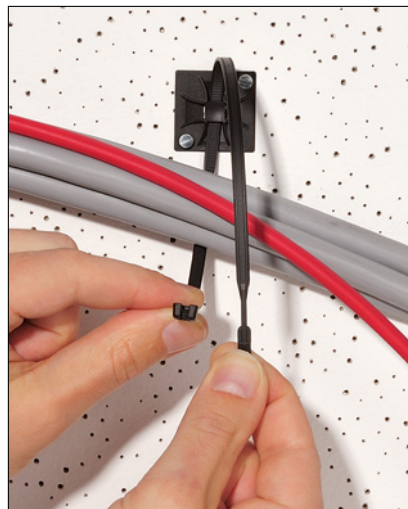
3. Cut off the remaining part of the tie with an application tool.

**Please find more Q-Series products for your system solution on page 121 and 412.**

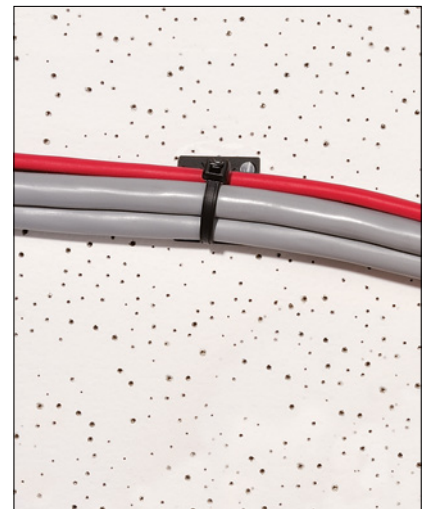
### Pre-locking Function of the Q-tie:



1. Insert tail into the open head and push the tail partly into the head.



2. To release the tie push tail end slightly out of head.



3. When the installation is complete, the Q-tie can be tightened and cut off - either manually or with an application tool.



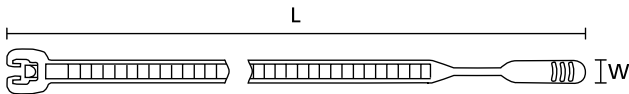
## Cable Ties with open head

- Q-ties, Polyamide 6.6 (PA66), natural and black

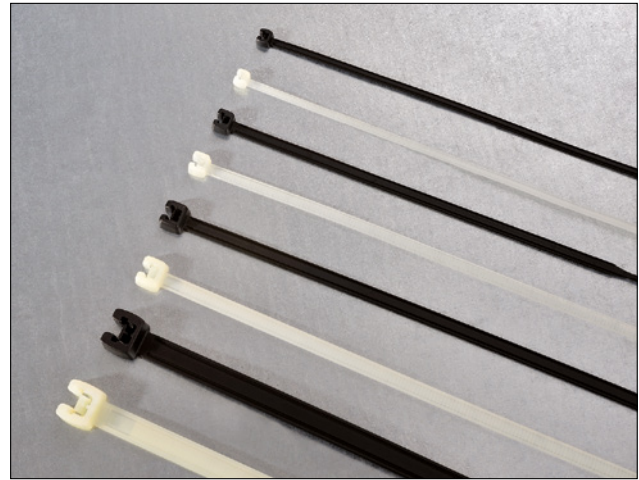


Material specification  
please see page 30.

One Step to the Web!



Q-tie cable tie



Q-tie cable ties: choose from a wide product range in different materials.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
Q18R	2.6	105.0	24.0	80	PA66	Black (BK)	100	109-00030
	2.6	105.0	24.0	80	PA66	Natural (NA)	100	109-00001
Q18I	2.6	155.0	40.0	80	PA66	Black (BK)	100	109-00033
	2.6	155.0	40.0	80	PA66	Natural (NA)	100	109-00004
Q18L	2.6	195.0	50.0	80	PA66	Black (BK)	100	109-00036
	2.6	195.0	50.0	80	PA66	Natural (NA)	100	109-00007
Q30R	3.6	160.0	38.0	130	PA66	Black (BK)	100	109-00039
	3.6	160.0	38.0	130	PA66	Natural (NA)	100	109-00010
Q30L	3.6	200.0	50.0	130	PA66	Black (BK)	100	109-00041
	3.6	200.0	50.0	130	PA66	Natural (NA)	100	109-00012
Q30LR	3.6	250.0	65.0	130	PA66	Black (BK)	100	109-00043
	3.6	250.0	65.0	130	PA66	Natural (NA)	100	109-00014
Q50R	4.7	210.0	50.0	220	PA66	Black (BK)	100	109-00047
	4.7	210.0	50.0	220	PA66	Natural (NA)	100	109-00018
Q50I	4.7	290.0	75.0	220	PA66	Black (BK)	100	109-00049
	4.7	290.0	75.0	220	PA66	Natural (NA)	100	109-00020
Q50L	4.7	410.0	110.0	220	PA66	Black (BK)	100	109-00051
	4.7	410.0	110.0	220	PA66	Natural (NA)	100	109-00022
Q120I	7.7	300.0	70.0	530	PA66	Black (BK)	100	109-00053
	7.7	300.0	70.0	530	PA66	Natural (NA)	100	109-00024
Q120R	7.7	420.0	110.0	530	PA66	Black (BK)	100	109-00055
	7.7	420.0	110.0	530	PA66	Natural (NA)	100	109-00026
Q120M	7.7	520.0	130.0	530	PA66	Black (BK)	100	109-00057
	7.7	520.0	130.0	530	PA66	Natural (NA)	100	109-00028

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

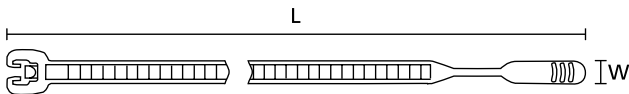


### Cable Ties with open head

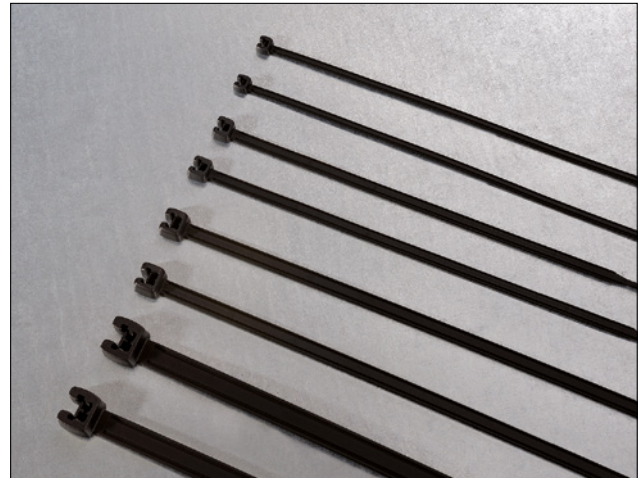
- Q-ties, Polyamide 6.6 UV-resistant (PA66W), black

Application tools  
please see page 442.

Please find more Q-Series products for your  
system solution on page 51, 121 and 412.



Q-tie cable tie



Q-tie cable ties: choose from a wide product range in different sizes.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
Q18R	2.6	105.0	24.0	80	PA66W	Black (BK)	100	109-00059
Q18I	2.6	155.0	40.0	80	PA66W	Black (BK)	100	109-00062
Q18L	2.6	195.0	50.0	80	PA66W	Black (BK)	100	109-00065
Q30R	3.6	160.0	38.0	130	PA66W	Black (BK)	100	109-00068
Q30L	3.6	200.0	50.0	130	PA66W	Black (BK)	100	109-00070
Q30LR	3.6	250.0	65.0	130	PA66W	Black (BK)	100	109-00072
Q50R	4.7	210.0	50.0	220	PA66W	Black (BK)	100	109-00076
Q50I	4.7	290.0	75.0	220	PA66W	Black (BK)	100	109-00078
Q50L	4.7	410.0	110.0	220	PA66W	Black (BK)	100	109-00080
Q120I	7.7	300.0	70.0	530	PA66W	Black (BK)	100	109-00082
Q120R	7.7	420.0	110.0	530	PA66W	Black (BK)	100	109-00084
Q120M	7.7	520.0	130.0	530	PA66W	Black (BK)	100	109-00086

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

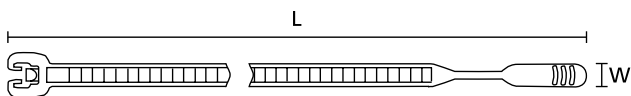
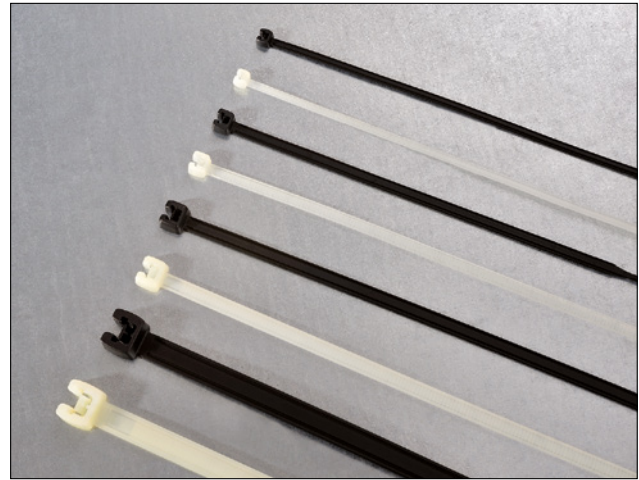




### Cable Ties with open head

- Q-ties, Polyamide 6.6 heat stabilised (PA66HS), natural and black

Material specification  
please see page 30.



Q-tie cable tie

Q-tie cable ties: choose from a wide product range in different materials.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
Q18R	2.6	105.0	24.0	80	PA66HS	Black (BK)	100	109-00088
	2.6	105.0	24.0	80	PA66HS	Natural (NA)	100	109-00117
Q18I	2.6	155.0	40.0	80	PA66HS	Black (BK)	100	109-00091
	2.6	155.0	40.0	80	PA66HS	Natural (NA)	100	109-00120
Q18L	2.6	195.0	50.0	80	PA66HS	Black (BK)	100	109-00094
	2.6	195.0	50.0	80	PA66HS	Natural (NA)	100	109-00123
Q30R	3.6	160.0	38.0	130	PA66HS	Black (BK)	100	109-00097
	3.6	160.0	38.0	130	PA66HS	Natural (NA)	100	109-00126
Q30L	3.6	200.0	50.0	130	PA66HS	Black (BK)	100	109-00099
	3.6	200.0	50.0	130	PA66HS	Natural (NA)	100	109-00128
Q30LR	3.6	250.0	65.0	130	PA66HS	Black (BK)	100	109-00101
	3.6	250.0	65.0	130	PA66HS	Natural (NA)	100	109-00130
Q50R	4.7	210.0	50.0	220	PA66HS	Black (BK)	100	109-00105
	4.7	210.0	50.0	220	PA66HS	Natural (NA)	100	109-00134
Q50I	4.7	290.0	75.0	220	PA66HS	Black (BK)	100	109-00107
	4.7	290.0	75.0	220	PA66HS	Natural (NA)	100	109-00136
Q50L	4.7	410.0	110.0	220	PA66HS	Black (BK)	100	109-00109
	4.7	410.0	110.0	220	PA66HS	Natural (NA)	100	109-00138
Q120I	7.7	300.0	70.0	530	PA66HS	Black (BK)	100	109-00111
	7.7	300.0	70.0	530	PA66HS	Natural (NA)	100	109-00140
Q120R	7.7	420.0	110.0	530	PA66HS	Black (BK)	100	109-00113
	7.7	420.0	110.0	530	PA66HS	Natural (NA)	100	109-00142
Q120M	7.7	520.0	130.0	530	PA66HS	Black (BK)	100	109-00115
	7.7	520.0	130.0	530	PA66HS	Natural (NA)	100	109-00144

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

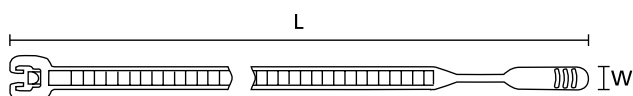


### Cable Ties with open head

- Q-ties, Polyamide 6.6 (PA66), coloured

Application tools  
please see page 442.

Please find more Q-Series products for your  
system solution on page 51, 121 and 412.



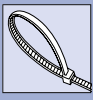
Q-tie cable tie

Q-ties in different colours are ideal for marking and bundling in one step.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
Q18R	2.6	105.0	24.0	80	PA66	Blue (BU)	100	109-00147
	2.6	105.0	24.0	80	PA66	Brown (BN)	100	109-00146
	2.6	105.0	24.0	80	PA66	Green (GN)	100	109-00148
	2.6	105.0	24.0	80	PA66	Red (RD)	100	109-00149
	2.6	105.0	24.0	80	PA66	Yellow (YE)	100	109-00150
Q18I	2.6	155.0	40.0	80	PA66	Blue (BU)	100	109-00152
	2.6	155.0	40.0	80	PA66	Brown (BN)	100	109-00151
	2.6	155.0	40.0	80	PA66	Green (GN)	100	109-00153
	2.6	155.0	40.0	80	PA66	Red (RD)	100	109-00154
	2.6	155.0	40.0	80	PA66	Yellow (YE)	100	109-00155
Q18L	2.6	195.0	50.0	80	PA66	Blue (BU)	100	109-00157
	2.6	195.0	50.0	80	PA66	Brown (BN)	100	109-00156
	2.6	195.0	50.0	80	PA66	Green (GN)	100	109-00158
	2.6	195.0	50.0	80	PA66	Red (RD)	100	109-00159
	2.6	195.0	50.0	80	PA66	Yellow (YE)	100	109-00160
Q30R	3.6	160.0	38.0	130	PA66	Blue (BU)	100	109-00162
	3.6	160.0	38.0	130	PA66	Brown (BN)	100	109-00161
	3.6	160.0	38.0	130	PA66	Green (GN)	100	109-00163
	3.6	160.0	38.0	130	PA66	Red (RD)	100	109-00164
	3.6	160.0	38.0	130	PA66	Yellow (YE)	100	109-00165
Q30L	3.6	200.0	50.0	130	PA66	Blue (BU)	100	109-00167
	3.6	200.0	50.0	130	PA66	Brown (BN)	100	109-00166
	3.6	200.0	50.0	130	PA66	Green (GN)	100	109-00168
	3.6	200.0	50.0	130	PA66	Red (RD)	100	109-00169
	3.6	200.0	50.0	130	PA66	Yellow (YE)	100	109-00170

All dimensions in mm. Subject to technical changes.


Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



## Cable Ties with open head

- Q-ties, Polyamide 6.6 (PA66), coloured

Material specification  
please see page 30.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
Q30LR	3.6	250.0	65.0	130	PA66	Blue (BU)	100	109-00172
	3.6	250.0	65.0	130	PA66	Brown (BN)	100	109-00171
	3.6	250.0	65.0	130	PA66	Green (GN)	100	109-00173
	3.6	250.0	65.0	130	PA66	Red (RD)	100	109-00174
	3.6	250.0	65.0	130	PA66	Yellow (YE)	100	109-00175
Q50R	4.7	210.0	50.0	220	PA66	Blue (BU)	100	109-00182
	4.7	210.0	50.0	220	PA66	Brown (BN)	100	109-00181
	4.7	210.0	50.0	220	PA66	Green (GN)	100	109-00183
	4.7	210.0	50.0	220	PA66	Red (RD)	100	109-00184
	4.7	210.0	50.0	220	PA66	Yellow (YE)	100	109-00185
Q50I	4.7	290.0	75.0	220	PA66	Blue (BU)	100	109-00187
	4.7	290.0	75.0	220	PA66	Brown (BN)	100	109-00186
	4.7	290.0	75.0	220	PA66	Green (GN)	100	109-00188
	4.7	290.0	75.0	220	PA66	Red (RD)	100	109-00189
	4.7	290.0	75.0	220	PA66	Yellow (YE)	100	109-00190
Q50L	4.7	410.0	110.0	220	PA66	Blue (BU)	100	109-00192
	4.7	410.0	110.0	220	PA66	Brown (BN)	100	109-00191
	4.7	410.0	110.0	220	PA66	Green (GN)	100	109-00193
	4.7	410.0	110.0	220	PA66	Red (RD)	100	109-00194
	4.7	410.0	110.0	220	PA66	Yellow (YE)	100	109-00195
Q120I	7.7	300.0	70.0	530	PA66	Blue (BU)	100	109-00197
	7.7	300.0	70.0	530	PA66	Brown (BN)	100	109-00196
	7.7	300.0	70.0	530	PA66	Green (GN)	100	109-00198
	7.7	300.0	70.0	530	PA66	Red (RD)	100	109-00199
	7.7	300.0	70.0	530	PA66	Yellow (YE)	100	109-00200
Q120R	7.7	420.0	110.0	530	PA66	Blue (BU)	100	109-00202
	7.7	420.0	110.0	530	PA66	Brown (BN)	100	109-00201
	7.7	420.0	110.0	530	PA66	Green (GN)	100	109-00203
	7.7	420.0	110.0	530	PA66	Red (RD)	100	109-00204
	7.7	420.0	110.0	530	PA66	Yellow (YE)	100	109-00205
Q120M	7.7	520.0	130.0	530	PA66	Blue (BU)	100	109-00207
	7.7	520.0	130.0	530	PA66	Brown (BN)	100	109-00206
	7.7	520.0	130.0	530	PA66	Green (GN)	100	109-00208
	7.7	520.0	130.0	530	PA66	Red (RD)	100	109-00209
	7.7	520.0	130.0	530	PA66	Yellow (YE)	100	109-00210

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



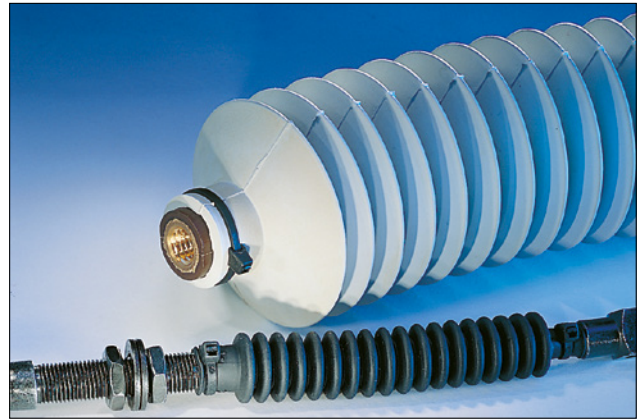
### Cable Ties for hose and gaiter

- CTT-Series up to 265 N loop tensile strength

Designed to secure pipes, hoses and gaiters, where low pressures are being secured. These ties can be used in many industries, including: automotive, white goods manufacturers and construction.

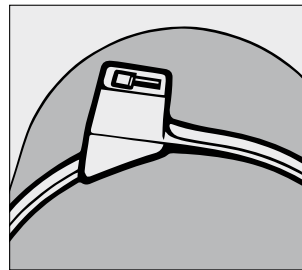
#### Features and Benefits

- Curved design of head offers a good fit to the bundle
- Inside serration for a positive hold onto bundles
- Easy application either manually or with a processing tool

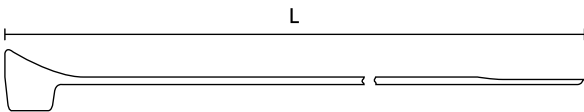


CTT ties installed on flexible gaiters.

**Application tools  
please see page 442.**



For secure fixing of round and solid shapes.



CTT Hose Ties

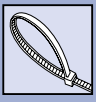
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
CTT20R	2.5	101.6	13.0	90	PA66	Natural (NA)	100	112-51919
	2.5	101.6	13.0	90	PA66HS	Black (BK)	1,000	112-51960
CTT60R	4.7	205.0	45.0	265	PA66	Natural (NA)	100	112-56019
	4.7	205.0	45.0	265	PA66HS	Black (BK)	100	112-52112

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Cable Ties for parallel routing

### • DH-Series

Ideal for running two cables in parallel, that need to be separated. These ties allow for installation of a second cable run without the need for additional cable ties.

The DH ties are also widely used within the packaging industry - the first loop closes and secures the bag, whilst the second loop can be made into a carrying handle (subject to weight).

### Features and Benefits

- Available in a wide range of materials
- Cable tie designed with two heads which creates an inside and outside serrated loop
- For parallel routing of two bundles with only one cable tie
- Bundles can be of different diameter
- Easy application either manually or with a processing tool



Parallel routing of two cable bundles using DH-Series. The double head creates an inside and an outside serrated loop.



DH-Series

**Material specification  
please see page 30.**

TYPE	Width (W)	Length (L)	Ø max. side loops		Min. Tensile Strength 2nd loop (N)	Material	Colour	Pack Cont.	Article-No.
T50RDH	4.7	210.0	19.0	225	180 N	PA46	Grey (GY)	100	117-05168
	4.7	210.0	19.0	225	180 N	PA66	Black (BK)	100	117-05000
	4.7	210.0	19.0	225	180 N	PA66	Natural (NA)	100	117-05002
	4.7	210.0	19.0	225	180 N	PA66HS	Black (BK)	100	117-05050
	4.7	210.0	19.0	225	180 N	PA66W	Black (BK)	500	117-05060
T50IDH	4.7	305.0	38.1	225	180 N	PA66	Natural (NA)	1,000	117-05303
	4.7	305.0	38.1	225	180 N	PA66HS	Black (BK)	1,000	117-05350
	4.7	305.0	38.1	225	180 N	PA66W	Black (BK)	100	117-05360
T50LDH	4.7	395.0	50.8	225	180 N	PA66	Natural (NA)	1,000	117-05461
	4.7	395.0	50.8	225	180 N	PA66HS	Black (BK)	100	117-00008

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



HellermannTyton's extensive product range provides full end to end solutions for cabling projects of any size to all types of business.

the sky is the limit

AlphaSnap   RapidNet   Deca<sup>10</sup>   EcoBand   Global  
GigaBand   FibreBand   iD   iDActive   MegaBand

Better   Technology   through   Innovation



Find more information in our  
Connectivity Catalogue.

[www.HellermannTyton.co.uk](http://www.HellermannTyton.co.uk)

**HellermannTyton**



### Cable Ties for thin-walled bundles

- OS-Series

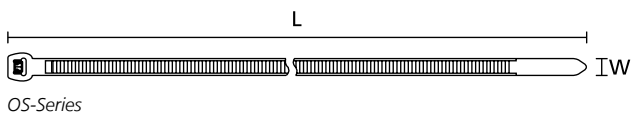
OS-Series cable ties are used in many areas where thin-walled or soft insulation wires and cable are being installed, e. g. automotive and aircraft industry. OS ties made from PA66V0 material are suitable for applications where safety regulations are required, e.g. reduction of smoke and dangerous gases.

#### Features and Benefits

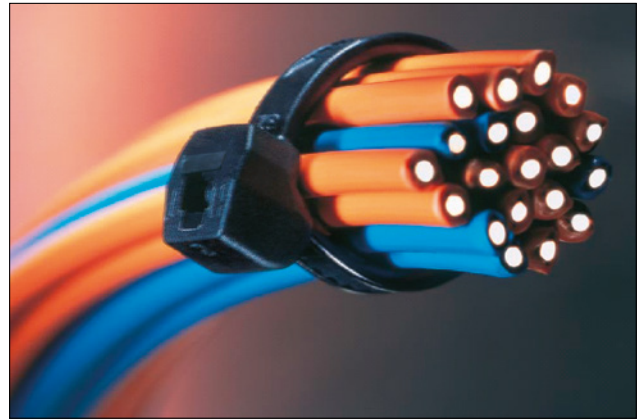
- Outside serrated cable tie with smooth surface to the bundle
- Tie follows the contours of the cable bundle perfectly
- Takes up less space due to curved head
- Easy insertion and high tensile strength
- For higher temperature or Limited Fire Hazard demand: Material PA46 or PA66V0
- Easy application either manually or with a processing tool



The new head design of the OS Series



OS-Series



The contoured head needs less installation space, provides low insertion force and offers high strength.

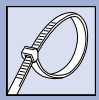
**Application tools  
please see page 442.**

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
T18ROS	2.5	100.0	1.6	20.0	80	PA66HS	Black (BK)	500	118-04701
	2.5	100.0	1.6	20.0	80	PA66HS	Natural (NA)	1,000	118-00035
	2.5	100.0	1.6	20.0	80	PA66V0-HOI	White (WH)	100	118-00079
T30ROS	3.4	145.0	1.6	35.0	135	PA66HS	Natural (NA)	100	118-00064
	3.4	145.0	1.6	35.0	135	PA66HS	Black (BK)	100	118-04800
T30LOS	3.4	200.0	1.6	50.0	135	PA66HS	Natural (NA)	100	118-00044
	3.4	200.0	1.6	50.0	135	PA66V0-HOI	White (WH)	100	118-00080
	3.4	200.0	1.6	50.0	135	PA66HS	Black (BK)	100	118-04900
T50SOS	4.6	150.0	1.6	35.0	225	PA66HS	Black (BK)	100	118-05850
T50ROS	4.6	200.0	1.6	50.0	225	PA46	Grey (GY)	500	118-05078
	4.6	200.0	1.6	50.0	225	PA66HS	Black (BK)	500	118-05040
	4.6	200.0	1.6	50.0	225	PA66HS	Natural (NA)	100	118-05059
T50MOS	4.6	245.0	1.6	66.0	225	PA66HS	Black (BK)	100	118-00018
	4.6	245.0	1.6	66.0	225	PA66HS	Natural (NA)	100	118-00055
	4.6	245.0	1.6	66.0	225	PA66V0-HOI	White (WH)	100	118-00081
T50LOS	4.6	384.0	1.6	110.0	225	PA66HS	Black (BK)	100	118-05900
T120ROS	7.6	385.0	5.0	105.0	535	PA66HS	Black (BK)	100	118-00066
	7.6	385.0	5.0	105.0	535	PA66HS	Natural (NA)	100	118-00067
	7.6	385.0	5.0	105.0	535	PA66V0-HOI	White (WH)	100	118-00082

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





### Cable Ties for high temperature application up to +240°C

PEEK ties have been designed for the use in hazardous environments. Their suitability for high temperature applications makes them ideal for use in the drilling industry, railway, offshore or automotive industry. The excellent chemical and radiation resistance is predestined for applications in medical engineering, chemical industry and power stations. With regard to the aerospace industry, PEEK ties are suitable due to their good weight to tensile strength ratio. Because of this combination of different properties, PEEK ties can replace metal solutions.

#### Features and Benefits

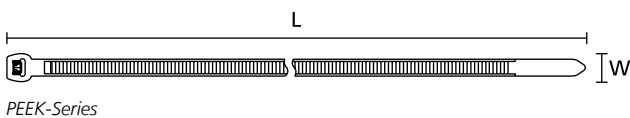
- For high temperature applications from -55° C up to +240° C
- Outside serrated cable tie with smooth surface to the bundle
- Close fit to the cable bundle due to the deepening head shape
- Easy insertion combined with high tensile strength
- Takes up less space due to the curved head
- Combines the performance of a metal tie with the ease of use of a polyamide cable tie
- Easy application either manually or with a processing tool



The contoured head takes up less space, gives a low insertion force and offers high strength.



Please find more PEEK products for your system solutions:  
**Foot Part P1SFT65, see page 90.**  
**Screw Mount CTAM, see page 124.**



Material specification please see page 30.



One Step to the Web!

#### • PEEK Ties, outside serrated

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Colour	Material	Pack Cont.	Article-No.
PT2A	3.4	145.0	4.0	35.0	230	Beige (BGE)	PEEK	100	118-00032

All dimensions in mm. Subject to technical changes.  
 Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### • PEEK Ties, inside serrated

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
PT220	4.7	220.0	8.0	56.0	380	PEEK	Beige (BGE)	100	111-01235

All dimensions in mm. Subject to technical changes.  
 Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Cable tie with 90° angled head

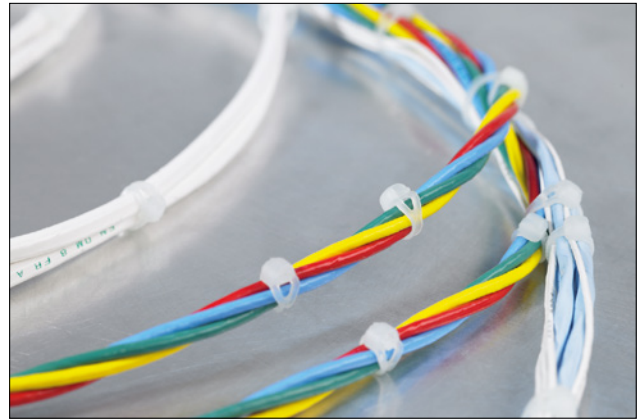
- V-Series

Due to its low profile head, V-Series outside serrated cable ties are perfectly suited for applications with restricted space, such as camera and alarm systems and automation systems (Remote I/O Systems)

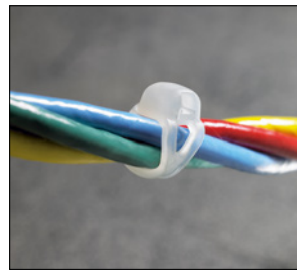
Where bundles are fed through a grommet or ductwork, V-Series provides a practical solution due to its unique rounded design.

#### Features and Benefits

- Outside serrated cable tie with smooth surface to the bundle
- Lentiform, 90° angled head
- Rounded head design minimises the risk of damage to insulation, especially for parallel routed bundles
- Low profile head takes up less space above the bundle
- Close fit to the cable bundle
- Easy insertion and high tensile strength
- Easy application either manually or with a processing tool



V-Series is perfect for parallel bundles.

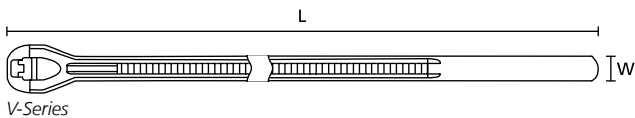


V-Series - less high above the bundle.



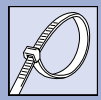
Outside serration means no damage of insulation.

**Application tools  
please see page 442.**



TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
V100R	2.5	102.5	20.0	100	PA46	Grey (GY)	100	118-00109
	2.5	102.5	20.0	100	PA66HS	Natural (NA)	1,000	118-00074
V150R	3.3	150.0	35.0	150	PA46	Grey (GY)	100	118-00107
	3.3	150.0	35.0	150	PA66HS	Natural (NA)	100	118-00089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable ties with low profile head

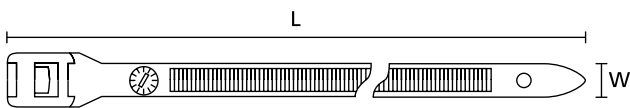
Designed primarily for use within the electrical supply industry these ties are particularly useful in areas with limited space. Due to their low profile head the coloured cable ties are ideal for securing foam padding to playground equipment. This ensures that there are no sharp edges and ultimate safety.

#### Features and Benefits

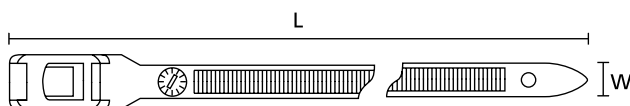
- Outside serrated cable tie with a smooth surface to the bundle
- Protects against damage to insulation
- Broad contact area with cable, minimising risk of damage
- PE/RPE-range partly approved by E.R.D.F. (French Electricity Board)
- Low profile head for use in restricted areas
- Parallel bundling for secure applications



RPE, PE Series.



PE-Series



RPE-Series

**Material specification please see page 30.**

#### • PE-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
PE400	9.0	400.0	116.0	445	PA66	Blue (BU)	100	112-18101
	9.0	400.0	116.0	445	PA66	Green (GN)	100	112-18100
	9.0	400.0	116.0	445	PA66	Red (RD)	100	112-18102
	9.0	400.0	116.0	445	PA66	Yellow (YE)	100	112-18103

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### • PE-Series E.R.D.F. approved

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
PE180	9.0	180.0	42.0	445	PA66HSW	Black (BK)	100	112-18060
PE530	9.0	535.0	146.0	445	PA66HSW	Black (BK)	100	112-53060

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### • RPE-Series releasable E.R.D.F. approved

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
RPE275	9.0	275.0	69.0	445	PA66HSW	Black (BK)	100	112-27560
RPE350	9.0	350.0	92.0	445	PA66HSW	Black (BK)	100	112-35060

All dimensions in mm. Subject to technical changes.

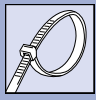
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



**E.R.D.F.**

Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Cable ties with low profile head

- LPH-Series

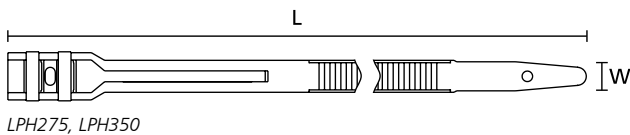
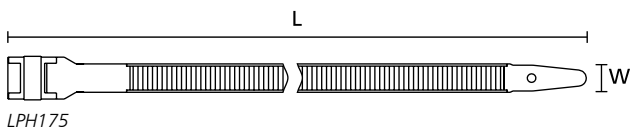
Designed primarily for use within the electrical supply industry, these ties are particularly useful in areas with limited space due to their low profile head.

#### Features and Benefits


- Outside serrated cable tie with a smooth surface to the bundle
- Protects against damage to insulation
- Broad contact area with cable, minimising risk of damage
- Low profile head for use in restricted areas
- Parallel bundling for secure applications



LPH-Series.



Application tools  
please see page 442.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
LPH175	9.0	175.0	40.0	310	PA66	Black (BK)	100	112-00203
LPH275	9.0	265.0	62.0	480	PA66	Black (BK)	100	112-00303
LPH350	9.0	355.0	92.0	480	PA66	Black (BK)	100	112-00403

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Cable ties with low profile head

- **Robusto-Series**

Robusto cable ties have many technical features which make them suitable for use in many applications for fixing and supporting cables, pipes and other elements. The polyamide 11 used to manufacture these ties offers excellent resistance to chemicals in even the most challenging environments such as offshore, oil rigs, construction vehicles, trucks and trailers.

These cable ties have excellent UV resistance as well as being highly resistant to chemicals like chlorides: recommended for use on galvanised steel, especially on solar panel installations.

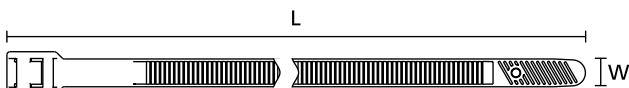
In addition, the material has a high impact resistance to low temperatures which enables Robusto ties to be used in areas where it is cold, for example at high altitudes or Nordic countries.



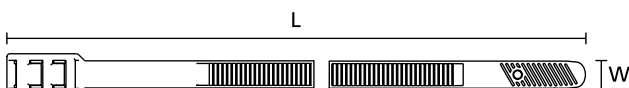
Low profile head cable tie, Robusto-Series.

#### Features and Benefits

- Made of polyamide 11, a completely sustainable bioplastic derived from vegetable oil
- Outside serrated with a round, innovative head and one or two flexible stop pawls
- Low insertion force for manual, tool-free application
- High tensile strength
- Soft material for easy handling without damaging cables
- High UV resistance for long-term outdoor application
- Stable technical performance even at very low temperatures
- High resistance to chemicals, including chlorides
- Low water absorption rate for consistent technical performance and high durability
- Pre-locking feature



LPH942




LPH962/LPH992

**Material specification please see page 30.**

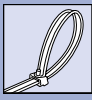


One Step to the Web!

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
LPH942	9.0	180.0	42.0	360	PA11	Black (BK)	100	112-00011
LPH962	9.0	260.0	62.0	530	PA11	Black (BK)	100	112-00012
LPH992	9.0	355.0	92.0	530	PA11	Black (BK)	100	112-00013

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

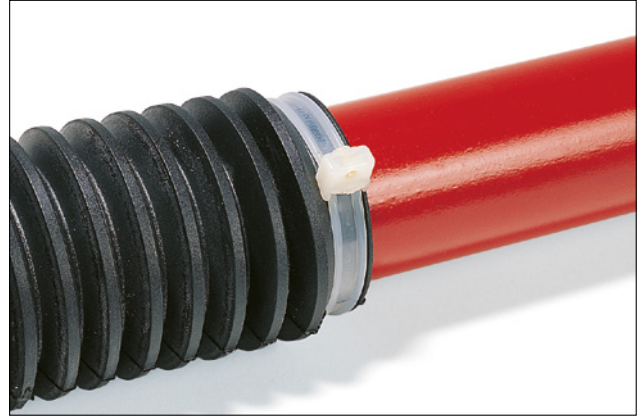


#### Cable Tie locked by glass fibre pin

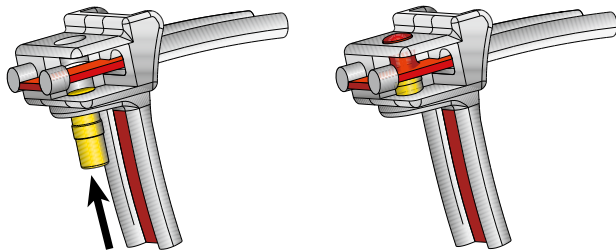
In addition to offering a secure method of bundling cables, the design of the KR ties makes them ideal for use as a method of securing bellows on steering racks, water hoses and vacuum lines.

#### Features and Benefits

- Patented cable tie system
- Smooth strap which is locked into place with a glass-fibre reinforced pin
- For assembly a special KR-tool is needed
- Very secure and vibration resistant fixing
- KR-ties up to 426 mm are made as one piece
- Available in various materials, including PA12 which is less hygroscopic



The KR8/33 has been repeatedly proven in High Vibration applications.

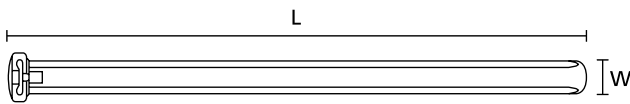


The unlocked head of a KR-tie.

The cable tie (red) is locked into place with the pin.



KR Series is available in different sizes.



KR-Series

**Application tools  
please see page 442.**

#### • KR-Series, 1-Piece

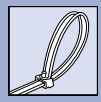
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
KR6/35	6.0	360.0	93.0	490	PA66	Natural (NA)	50	121-63519
	6.0	360.0	93.0	490	PA66HS	Natural (NA)	50	121-63555
	6.0	360.0	93.0	490	PA66W	Black (BK)	50	121-63560
KR8/21	8.0	210.0	47.0	785	PA66HS	Natural (NA)	50	121-82155
	8.0	210.0	47.0	785	PA66	Natural (NA)	50	121-82119
	8.0	210.0	47.0	785	PA66W	Black (BK)	50	121-82160

All dimensions in mm. Subject to technical changes.

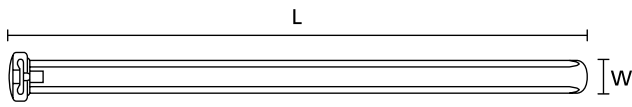
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Cable Tie locked by glass fibre pin



KR-Series

**Material specification please see page 30.**

#### • KR-Series, 1-Piece

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
KR8/33	8.0	337.0	86.0	390	PA12	Black (BK)	50	121-83380
	8.0	337.0	86.0	785	PA66	Natural (NA)	50	121-83319
	8.0	337.0	86.0	785	PA46	Grey (GY)	50	121-83378
	8.0	337.0	86.0	785	PA66HS	Natural (NA)	50	121-83355
	8.0	337.0	86.0	785	PA66W	Black (BK)	50	121-83360
KR8/43	8.0	426.0	105.0	785	PA66HS	Black (BK)	50	121-74360
	8.0	426.0	105.0	785	PA66HS	Natural (NA)	50	121-74359

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



KR-Series, ultrasonic welded

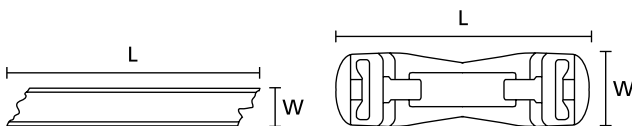
**Other dimensions are available on request.**

#### • KR-Series, ultrasonic welded

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
KR8/50	8.0	500.0	152.0	785	PA66	Natural (NA)	50	121-05019
KR8/60	8.0	600.0	184.0	785	PA66W	Black (BK)	50	121-06060

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Cable ties KR8S1

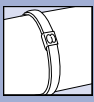
Double-head KR8C5

#### • KR-Series, endless

TYPE	Width (W)	Length (L)	N	Material	Colour	Pack Cont.	Article-No.
KR8/S1	8.0	50.0 m	720	PA66HS	Natural (NA)	50.0 m	121-98151
	8.0	50.0 m	785	PA66W	Black (BK)	50.0 m	121-98160
KR8/C5	11.7	38.0	-	PA66HS	Natural (NA)	200	121-58551
	11.7	38.0	-	PA66W	Black (BK)	200	121-58560

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



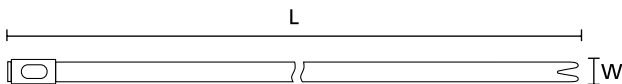
## Cable Ties with Ball-Lock

### • MBT-Series

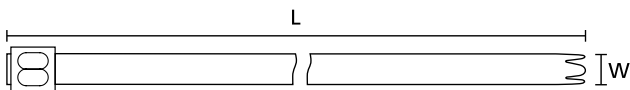
Metal ties are ideal for all applications that require high strength, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industries and on oil platforms as well as in mass transit, shipbuilding and mining industries. MBT ties are also suitable for machine building, apparatus construction and in the outside area of radio technology. Additionally, MBT ties are ideal for securing lighting in theatres and exhibition halls.

### Features and Benefits

- MBT cable ties made from stainless steel 304
- Patented non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- Antimagnetic
- High temperature resistance
- Non-burning



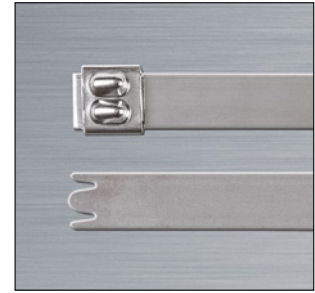
MBT\_SS, MBT\_HS



MBT\_XHS



MBT\_SS, MBT\_HS.



MBT\_XHS.

Application tools  
please see page 442.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MBT5SS	4.6	127.0	25.0	900	SS304	100	111-93058
MBT8SS	4.6	201.0	50.0	900	SS304	100	111-93088
MBT14SS	4.6	362.0	102.0	900	SS304	100	111-93148
MBT20SS	4.6	521.0	152.0	900	SS304	100	111-93208
MBT27SS	4.6	685.0	203.0	900	SS304	100	111-93278
MBT33SS	4.6	838.0	254.0	900	SS304	100	111-93338
MBT8HS	7.9	201.0	50.0	2,000	SS304	50	111-94088
MBT14HS	7.9	362.0	102.0	2,000	SS304	50	111-94148
MBT20HS	7.9	521.0	152.0	2,000	SS304	50	111-94208
MBT27HS	7.9	685.0	203.0	2,000	SS304	50	111-94278
MBT33HS	7.9	838.0	254.0	2,000	SS304	50	111-94338
MBT14XHS	12.3	362.0	102.0	2,700	SS304	50	111-95148
MBT20XHS	12.3	521.0	152.0	2,700	SS304	50	111-95208
MBT27XHS	12.3	681.0	203.0	2,700	SS304	50	111-95278
MBT33XHS	12.3	838.0	254.0	2,700	SS304	50	111-95338

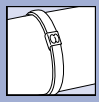
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





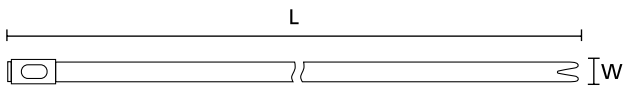
### Cable Ties with Ball-Lock

- **MBT-Series**

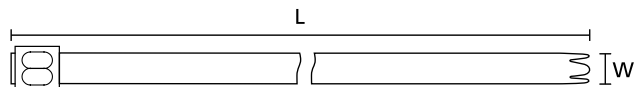
Metal ties are ideal for all applications that require high strength, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industries and on oil platforms as well as in mass transit, shipbuilding and mining industries. MBT ties are also suitable for machine building, apparatus construction and in the outside area of radio technology. Additionally, MBT ties are ideal for securing lighting in theatres and exhibition halls.

#### Features and Benefits

- MBT cable ties made from stainless steel 316
- Patented non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- Antimagnetic
- High temperature resistance
- Non-burning



MBT\_S, MBT\_H



MBT\_XH



MBT\_S, MBT\_H.



MBT\_XH.

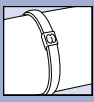


MBTUH.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Pack Cont.	Article-No.
MBT5S	4.6	127.0	25.0	900	SS316	100	111-93059
MBT8S	4.6	201.0	50.0	900	SS316	100	111-93089
MBT14S	4.6	362.0	102.0	900	SS316	100	111-93149
MBT20S	4.6	521.0	152.0	900	SS316	100	111-93209
MBT27S	4.6	685.0	203.0	900	SS316	100	111-93279
MBT33S	4.6	838.0	254.0	900	SS316	100	111-93339
MBT8H	7.9	201.0	50.0	2,000	SS316	50	111-94089
MBT14H	7.9	362.0	102.0	2,000	SS316	50	111-94149
MBT20H	7.9	521.0	152.0	2,000	SS316	50	111-94209
MBT27H	7.9	685.0	203.0	2,000	SS316	50	111-94279
MBT33H	7.9	838.0	254.0	2,000	SS316	50	111-94339
MBT14XH	12.3	362.0	102.0	2,700	SS316	50	111-95149

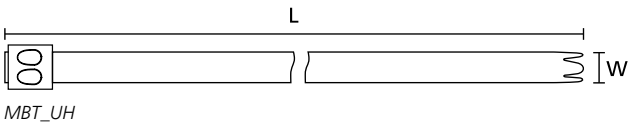
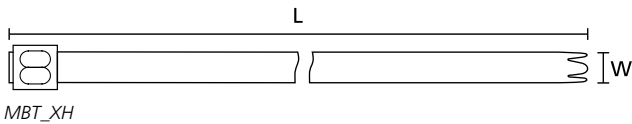
All dimensions in mm. Subject to technical changes.


Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



## Cable Ties with Ball-Lock

## • MBT-Series



TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MBT20XH	12.3	521.0	152.0	2,700	SS316	50	111-95209
MBT27XH	12.3	681.0	203.0	2,700	SS316	50	111-95279
MBT33XH	12.3	838.0	254.0	2,700	SS316	50	111-95339
MBT14UH	16.0	362.0	102.0	4,100	SS316	50	111-01301
MBT20UH	16.0	521.0	152.0	4,100	SS316	50	111-01302
MBT27UH	16.0	681.0	203.0	4,100	SS316	50	111-01303
MBT33UH	16.0	838.0	254.0	4,100	SS316	50	111-01304
MBT43UH	16.0	1,092.0	330.0	4,100	SS316	25	111-01305
MBT49UH	16.0	1,245.0	380.0	4,100	SS316	25	111-01306

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Double Wrap Cable Ties with Ball-Lock

- **MBTXHD- / MBTUHD-Series**

The double wrap ties of the MBT-series are used in applications where a fixing requires an extraordinary high tensile strength.

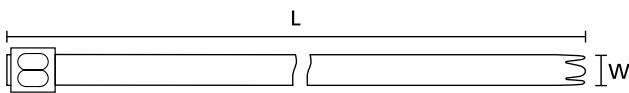
#### Features and Benefits

- Stainless steel MBT ties with double wrap operation
- Wraps around the bundle and passes through the head twice
- Very high tensile strength to carry enormous applied loads
- Head with two locking balls
- Resistant to arduous conditions and environments

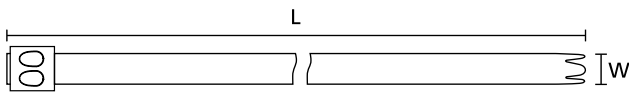
**Material specification please see page 30.**



MBT\_UHD.




MBT\_XHD



MBT\_UHD



MBT\_UHD Double Band.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MBT27XHD	12.3	681.0	100.0	5,000	SS316	50	111-01307
MBT33XHD	12.3	838.0	120.0	5,000	SS316	50	111-01308
MBT43XHD	12.3	1,092.0	160.0	5,000	SS316	25	111-01309
MBT49XHD	12.3	1,245.0	180.0	5,000	SS316	25	111-01310
MBT60XHD	12.3	1,524.0	230.0	5,000	SS316	25	111-01311
MBT27UHD	16.0	681.0	100.0	7,000	SS316	50	111-01312
MBT33UHD	16.0	838.0	120.0	7,000	SS316	50	111-01313
MBT43UHD	16.0	1,092.0	160.0	7,000	SS316	25	111-01314
MBT49UHD	16.0	1,245.0	180.0	7,000	SS316	25	111-01315
MBT60UHD	16.0	1,524.0	230.0	7,000	SS316	25	111-01316

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable Ties with Ball-Lock and Coating

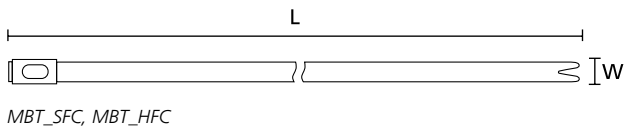
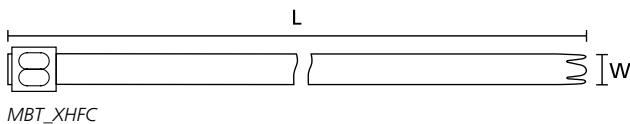
- MBT-FC-Series

#### Features and Benefits

- Fully coated MBT, made from type 316 stainless steel with polyester coating
- Patented non-releasable locking feature
- Coated cable tie with smooth edges
- Comfortable handling and installation
- Eliminates contact corrosion between dissimilar materials during application



MBT\_SFC, MBT\_HFC.



MBT\_XHFC.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MBT5SFC	4.6	127.0	25.0	540	SS316, SP	100	111-00288
MBT8SFC	4.6	201.0	50.0	540	SS316, SP	100	111-00289
MBT14SFC	4.6	362.0	102.0	540	SS316, SP	100	111-00290
MBT20SFC	4.6	521.0	152.0	540	SS316, SP	100	111-00291
MBT27SFC	4.6	681.0	203.0	540	SS316, SP	100	111-00292
MBT33SFC	4.6	838.0	254.0	540	SS316, SP	100	111-00293
MBT8HFC	7.9	201.0	50.0	1,020	SS316, SP	50	111-00294
MBT14HFC	7.9	362.0	102.0	1,020	SS316, SP	50	111-00295
MBT20HFC	7.9	521.0	152.0	1,020	SS316, SP	50	111-00296
MBT27HFC	7.9	681.0	203.0	1,020	SS316, SP	50	111-00297
MBT33HFC	7.9	838.0	254.0	1,020	SS316, SP	50	111-00298
MBT14XHFC	12.3	362.0	102.0	1,620	SS316, SP	50	111-00299
MBT17XHFC	12.3	434.0	125.0	1,620	SS316, SP	50	111-01500
MBT20XHFC	12.3	521.0	152.0	1,620	SS316, SP	50	111-00300
MBT23XHFC	12.3	575.0	168.0	1,620	SS316, SP	50	111-01501
MBT27XHFC	12.3	681.0	203.0	1,620	SS316, SP	50	111-00301
MBT30XHFC	12.3	754.0	225.0	1,620	SS316, SP	50	111-01502
MBT33XHFC	12.3	838.0	254.0	1,620	SS316, SP	50	111-00302
MBT43XHFC	12.3	1,092.0	330.0	1,620	SS316, SP	25	111-01503

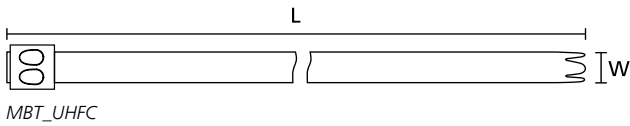
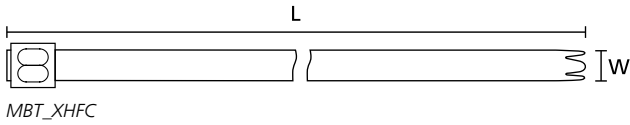
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable Ties with Ball-Lock and Coating

- MBT-FC-Series

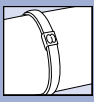


TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MBT49XHFC	12.3	1,245.0	380.0	1,620	SS316, SP	25	111-01504
MBT14UHFC	16.0	362.0	102.0	2,500	SS316, SP	50	111-01512
MBT17UHFC	16.0	434.0	125.0	2,500	SS316, SP	50	111-01513
MBT20UHFC	16.0	521.0	152.0	2,500	SS316, SP	50	111-01514
MBT23UHFC	16.0	575.0	168.0	2,500	SS316, SP	50	111-01515
MBT27UHFC	16.0	681.0	203.0	2,500	SS316, SP	50	111-01516
MBT30UHFC	16.0	754.0	225.0	2,500	SS316, SP	50	111-01517
MBT33UHFC	16.0	838.0	254.0	2,500	SS316, SP	50	111-01518
MBT43UHFC	16.0	1,092.0	330.0	2,500	SS316, SP	25	111-01519
MBT49UHFC	16.0	1,245.0	380.0	2,500	SS316, SP	25	111-01520

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





### Double Wrap Cable Ties with Ball-Lock and Coating

- MBTXHDFC- / MBTUHDFC-Series

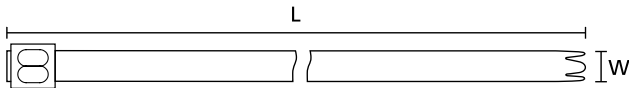
The MBT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition halls. In the event of a fire, cables will remain securely held in place and will not fall to block emergency exits.

#### Features and Benefits

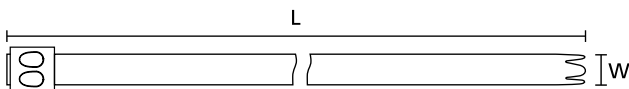
- MBT cable ties, made from stainless steel SS316 with a polyester coating
- Patented non-releasable locking feature
- Double wrap operation
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- Antimagnetic
- High temperature resistant
- Non-burning



MBT\_UHDFC.



MBT\_XHDFC



MBT\_UHDFC

**Material specification  
please see page 30.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MBT27XHDFC	12.3	681.0	100.0	2,500	SS316, SP	50	111-01505
MBT33XHDFC	12.3	838.0	120.0	2,500	SS316, SP	50	111-01506
MBT43XHDFC	12.3	1,092.0	160.0	2,500	SS316, SP	25	111-01507
MBT49XHDFC	12.3	1,245.0	180.0	2,500	SS316, SP	25	111-01508
MBT60XHDFC	12.3	1,524.0	230.0	2,500	SS316, SP	25	111-01509
MBT27UHDFC	16.0	681.0	100.0	5,000	SS316, SP	50	111-01521
MBT33UHDFC	16.0	838.0	120.0	5,000	SS316, SP	50	111-01522
MBT43UHDFC	16.0	1,092.0	160.0	5,000	SS316, SP	25	111-01523
MBT49UHDFC	16.0	1,245.0	180.0	5,000	SS316, SP	25	111-01524
MBT60UHDFC	16.0	1,524.0	230.0	5,000	SS316, SP	25	111-01525

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Metal Banding for Heavy Duty Application

- **AMT-Series**

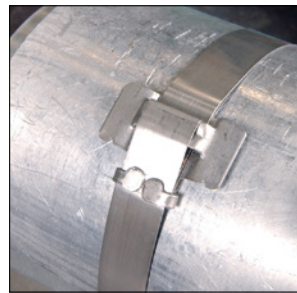
The AMT tie is designed for heavy duty applications. The folding mechanism ensures that the tie will not become loose under vibration. Therefore in all safety relevant areas where vibration is normal, such as in the rail, ship or construction industry, this product is ideal.

#### Features and Benefits

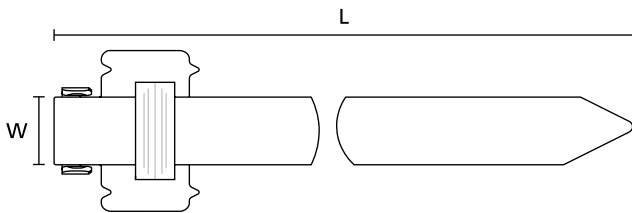
- AMT ties for heavy-duty application
- Available in type 316 stainless steel
- Suitable for applications with high vibrations



AMT Ties with and without protective profile.



The high strength banding system - AMT Ties.

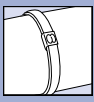


AMT-Series

TYPE	Width (W)	Length (L)	Thickness (T)	N	Material	Pack Cont.	Article-No.
AMT5L16SB	16.0	500.0	0.40	2,500	SS316	10	111-00327
AMT5H16SB	16.0	500.0	0.75	2,500	SS316	10	111-00338
AMT6L16SB	16.0	600.0	0.40	2,500	SS316	10	111-00328
AMT6H16SB	16.0	600.0	0.75	2,500	SS316	10	111-00339
AMT8L16SB	16.0	800.0	0.40	2,500	SS316	10	111-00329
AMT8H16SB	16.0	800.0	0.75	2,500	SS316	10	111-00340
AMT10L16SB	16.0	1,000.0	0.40	2,500	SS316	10	111-00330
AMT10H16SB	16.0	1,000.0	0.75	2,500	SS316	10	111-00341
AMT15L16SB	16.0	1,500.0	0.40	2,500	SS316	10	111-00331
AMT15H16SB	16.0	1,500.0	0.75	2,500	SS316	10	111-00342

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

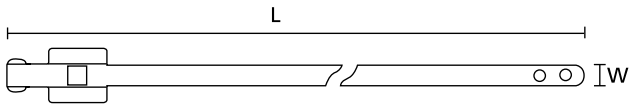


### Cable Ties with Fold Locking

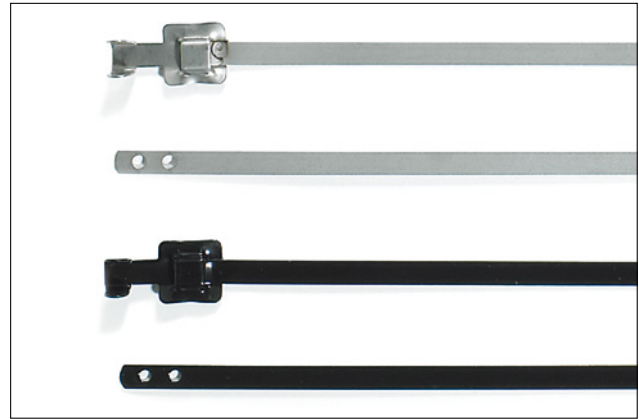
The MLT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition halls. In the event of a fire, cables will remain securely held in place and will not fall to block emergency exits.

#### Features and Benefits

- Releasable stainless steel buckle tie, MLT-series
- Heavy-duty type 316 stainless steel
- Can be re-opened and re-used
- Available also with polyester coating which prevents corrosion between dissimilar materials




MLT-Series



These Metal ties are available with and without coating.

**Material specification  
please see page 30.**


#### • MLT-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MLT8SS5	5.0	230.0	60.0	420	SS316	100	111-94080
MLT12SS5	5.0	330.0	90.0	420	SS316	100	111-94120
MLT16SS5	5.0	430.0	120.0	420	SS316	100	111-94161
MLT24SS5	5.0	630.0	180.0	420	SS316	100	111-91400
MLT8SS10	10.0	230.0	60.0	850	SS316	100	111-95080
MLT12SS10	10.0	330.0	90.0	850	SS316	100	111-95120
MLT16SS10	10.0	430.0	120.0	850	SS316	100	111-91300
MLT24SS10	10.0	630.0	180.0	850	SS316	100	111-95241

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### • MLT-C-Series coated

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Pack Cont.	Article-No.
MLT8SSC5	5.3	230.0	60.0	420	SS316, SP	100	111-91000
MLT12SSC5	5.3	330.0	90.0	420	SS316, SP	100	111-91121
MLT16SSC5	5.3	430.0	120.0	420	SS316, SP	100	111-91161
MLT24SSC5	5.3	630.0	180.0	420	SS316, SP	100	111-91180
MLT8SSC10	10.3	230.0	60.0	850	SS316, SP	100	111-91001
MLT12SSC10	10.3	330.0	90.0	850	SS316, SP	100	111-91123
MLT16SSC10	10.3	430.0	120.0	850	SS316, SP	100	111-91163
MLT24SSC10	10.3	630.0	180.0	850	SS316, SP	100	111-91181

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Protective Channel for Stainless Steel Ties

- LFPC

When used in conjunction with the MBT range of stainless steel cable ties this channel gives the cable protection against chafing, vibration and shock. Ideal for use in arduous conditions such as those found on board ships, oil rigs or in nuclear power stations.

#### Features and Benefits

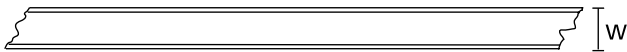
- LFPC channel, manufactured from Polyolefin
- Works with MBT- and AMT-Series
- Smooth surface protects bundle against chafing caused by vibrations and shocks
- Can be cut from roll (50 m) to any length
- Halogenfree
- Flame retardant



Cable tie MBTXH with LFPC Protective Channel.

**The fire protection properties of the material relate to the test performed on defined test samples. This is a test under laboratory conditions and not directly transferable to the product made from this material.**

**Material specification please see page 30.**



LFPC

TYPE	Width (W)	For Ties	Material	Pack Cont.	Article-No.
LFPC70	7.0	MBTS	PO	25 m	111-93000
LFPC83	8.3	MBTH	PO	25 m	111-00257
LFPC103	10.3	MBTH	PO	25 m	111-94000
LFPC129	12.9	MBTXH	PO	50 m	111-00253
LFPC132	13.2	MBTXH	PO	25 m	111-00254
LFPC150	15.0	MBTXH	PO	25 m	111-95000
LFPC163	16.3	AMT, MBTUH	PO	50 m	111-00255

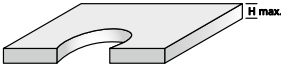
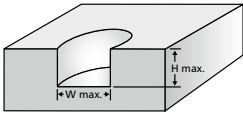

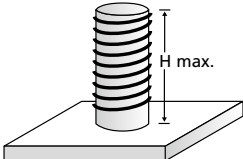
All dimensions in mm. Subject to technical changes.

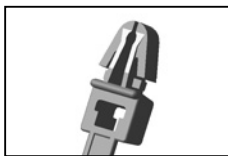
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

## User guide for fixing ties

Application	Arrowhead	Fir Tree Mount	Rivet Wall Plug	Screw Mount	EdgeClip	Weld Stud Mount
	●	●		●		
		●	●	●		
					●	
						●



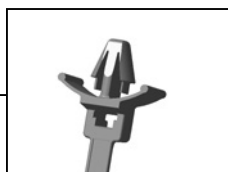
### Arrowhead

This fixing tie is based on an arrowhead offering high extraction forces. The arrowhead is securely in place when a click can be heard and felt by the user.



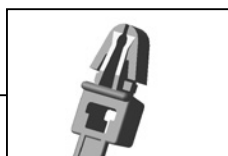
### Arrowhead with disc

The disc minimises the ingress of dust, dirt and water. Furthermore a safe fixation inside the drill hole is assured that withstands pressure from various directions.



### Arrowhead with supporting legs

Arrowhead fixings with supporting legs offer good and stable fixation in drilled holes. The supporting legs generate additional pressure to assure a firm and secure fixing while taking up any variation in panel thickness. These ties are also suitable in high vibration applications.



### Arrowhead without supporting legs

The arrowhead design assures good fixation while utilising lowest possible space.



### Fir Tree Mount

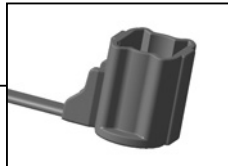
Fir Tree Mounts can be pushed into pre-punched holes easily in panels or threaded, blind holes based on the low insertion forces. The design is ideally suited for a wide range of sheet thicknesses. The disc on top of the fir tree covers the hole and minimises the ingress of dust, dirt and water.





### Weld Stud Mount

Various HellermannTyton weld stud mounts can easily be attached by hand ('soft push') - the design offers very low insertion forces that require no tools. The mounts can be removed by twisting to the left. SB9 and SB14 are based on 'hard push' technology and require a hammer to be applied.



### Weld Stud Fixings with lateral adjustment

The special oval shape of these mounts provides a 5-6 mm lateral adjustment to cater for any misalignment of the stud or incorrect positioning of ties on the cables. The bundle can therefore be moved when mounted.



### EdgeClip

The EdgeClips are specifically designed to bundle and guide cable and wires on edges. Cost intensive drill holes for fixing are no longer required. EdgeClips are easily mounted by hand, the integrated metal clamp, securely keeping the clips on the edge.



### EdgeClip twistable

Ideally suited for fixations where bundles need to be flexibly guided. These EdgeClips are available with facilities for 90° or 360° rotation.



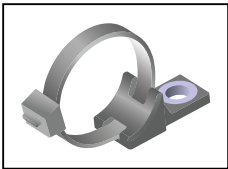
### EdgeClip without metal clamp

These EdgeClips are easily attached. The holding tap snaps into the drill hole securely.



### Cable and Hose Attachment

Excellent solution for subsequent attachment of pipes and wires to installed tubes.



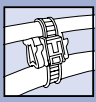
### Heavy Duty Application

These sturdy fixing ties can withstand vibrations. They are easy to apply and give a secure alignment to the bundle. There will be High tightening torque through metal bushing.



### Two Piece Fixing Ties with Clip Coupler

The Coupler is an article to connect two cable ties maximum for parallel bundling of tubes, harnesses or cables. Its design enables the cable ties to rotate up to 90° and allows flexible installations.



### 1-Piece Fixing Tie with Arrowhead, with Disc

- 1-Piece Fixing Tie with Arrowhead, with Disc, for round holes

With a diverse range of fixing possibilities these ties are ideal for use in many different industries, including automotive, aerospace, white goods manufacture and panel building.

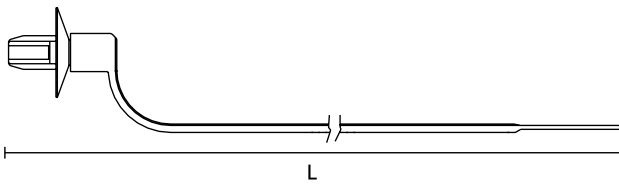
#### Features and Benefits

- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts for pressures from various directions and minimises access of dust, dirt and water
- Cable tie head always situated in a defined position
- KSFT-types with specially rounded arrowhead minimise the assembly height

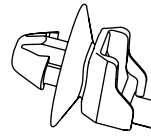


The flexible disc adjusts to take up variations in panel thickness - ensuring a firm fixing at all times.

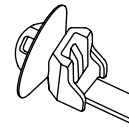
Application tools please see page 442.



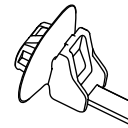
Special design without a gap between head and bundle; T50MD7



Common head/fixing design



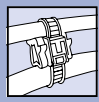
T50SOSKSFT65E



T50SOSKSFT62x122PT0.7-1.3

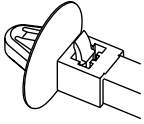
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T50SOSKSFT65E	4.6	156.0	35.0	180	16.0	6.3 - 6.7	0.7 - 1.3	PA66HS	Black (BK)	126-00081
T50SOSKSFT5SE	4.6	156.0	35.0	180	16.0	4.8 - 5.2	0.7 - 1.3	PA66HS	Natural (NA)	126-00111
T50SOSKSFT5.4E	4.6	156.0	35.0	180	16.0	5.2 - 5.6	0.7 - 1.3	PA66HS	Black (BK)	126-00075
T50SOSKSFT5SE	4.6	156.0	35.0	180	16.0	4.8 - 5.2	0.7 - 1.3	PA66HS	Black (BK)	126-00099
T50SOSKSFT6.5S2-E	4.6	157.0	35.0	225	16.0	6.3 - 6.7	1.7 - 2.3	PA66HS	Black (BK)	126-00086
T50SOSSFT6.5E	4.6	158.8	30.0	225	16.0	6.3 - 6.7	1.9 - 2.5	PA66HS	Black (BK)	126-03102
T50SST5	4.6	170.0	31.0	225	16.2	6.1 - 6.5	0.7 - 1.5	PA66	Natural (NA)	126-02300
	4.6	170.0	31.0	225	16.2	6.1 - 6.5	0.7 - 1.5	PA66HS	Black (BK)	126-00017
T50SD6	5.0	160.0	31.0	180	18.0	6.3 - 7.5	0.6 - 1.8	PA66HS	Black (BK)	111-85350
T50MD7	5.0	225.0	59.0	225	16.0	6.8 - 7.2	1.2 - 2.0	PA66HS	Black (BK)	111-85850

All dimensions in mm. Subject to technical changes.




### 1-Piece Fixing Tie with Arrowhead, with Disc

- 1-Piece Fixing Tie with Arrowhead, with Disc, releasable



RT50SD6

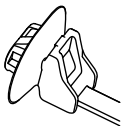
TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
RT50SD6	5.0	160.0	31.0	180	18.0	6.3 - 7.5	0.6 - 1.8	PA66HS	Black (BK)	111-85480

All dimensions in mm. Subject to technical changes.

- 1-Piece Fixing Tie with Arrowhead, with Disc, for oval holes


#### Features and Benefits

- For oval holes 6.2 x 12.2 mm

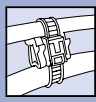


T50SOSKSFT62x122PT0.7-1.3

**Material specification please see page 30.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Panel Thickness	Material	Colour	Article-No.
T50SOSKSFT62x122PT0.7-1.3	4.6	153.5	35.0	225	16.0 x 21.0	0.7 - 1.3	PA66HS	Black (BK)	126-00141
T50SOSKSFT62x122PT0.7-1.3 90°	4.6	158.0	35.0	225	16.0 x 21.0	0.7 - 1.3	PA66HS	Black (BK)	126-00143
T50SOSKSFT62x122PT1.7-2.3 90°	4.6	159.0	35.0	225	16.0 x 21.0	1.5 - 2.3	PA66HS	Black (BK)	126-00144
T50SOSKSFT62x122PT1.7-2.3	4.6	159.0	35.0	225	16.0 x 21.0	1.7 - 2.3	PA66HS	Black (BK)	126-00142
T50SDOR	5.0	160.0	30.0	225	22.0	0.5 - 1.5	PA66HS	Black (BK)	126-01600
T50SDOP	5.0	160.0	30.0	225	22.0	0.7 - 2.0	PA66HS	Black (BK)	126-00015

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with disc, sealed

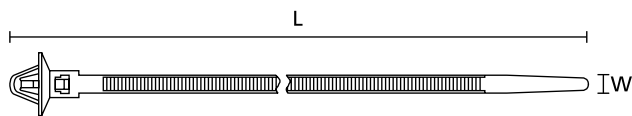
The parts are mainly used in the automotive industry, e.g. for door harnesses.

#### Features and Benefits

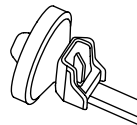
- One-piece fixing ties with cellular rubber disc
- Especially suitable for door and tailgate harnesses used for car body applications
- T50SOSSFT6,5E-MD with lasered seal and T60SOSSFT6,5E-MD made from PA6.6 HS are tested acc. IEC60529 and fulfill IP67
- Made from PA66 heat-stabilised material
- Welded cellular rubber disc minimises access of dust, dirt and water



The additional seal protects against the ingress of moisture or dirt.



One piece fixing tie with arrowhead and disc, standard design

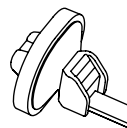


T50SOSSFT65E-MDL

#### • Fixing Ties, sealed, round holes

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T50SOSSFT6.5E-MDL	4.6	158.8	35.0	225	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Black (BK)	156-00264
T50SOSSFT6.5-E-MDL	4.6	158.8	35.0	225	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Natural (NA)	156-00271
T50SOSSFT6.5E-MDL	4.6	158.8	35.0	225	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Green (GN)	126-03100
T50SOSSFT6.5E-MS-MD	4.6	163.0	35.0	180	16.0	6.25 - 6.75	0.7 - 1.6	PA66HS	Natural (NA)	126-00065
T50XCROSSFT6.5EMDL	4.6	200.0	45.0	200	16.0	6.25 - 6.75	1.2 - 2.1	PA66HS	Black (BK)	156-00379

All dimensions in mm. Subject to technical changes.



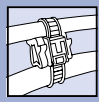
T60SOSSFT65x130E-MD

Application tools  
please see page 442.

#### • Fixing Ties, sealed, oval holes

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Material	Colour	Article-No.
T60SOSSFT62x122-E-MD	5.5	157.5	30.0	300	16.0 x 22.0	6.2 x 12.2	PA66HS	Black (BK)	126-00080
T60SOSSFT70x120-E-MD	5.5	157.5	30.0	300	16.0 x 22.0	7.0 x 12.0	PA66HS	Black (BK)	126-00079
T60SOSSFT65x130-E-MD	5.5	157.6	30.0	300	16.0 x 22.0	6.5 x 13.0	PA66HS	Natural (NA)	126-00076

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with Disc in the strap

These fixing ties are ideal for use in many different industries, including automotive, aerospace, rail and panel building.

#### Features and Benefits

- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust, dirt and water
- Cable tie head always situated in defined position
- Bundle runs directly across fixing point
- Simple assembly due to tab at the end of the head

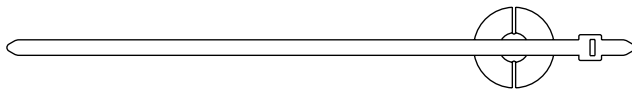


The 'tab' on the head of the tie makes it easy to locate and lift the head for assembly.


**Material specification please see page 30.**



T80RSFT

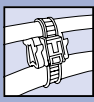


T80RSFT with flexible disc

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T80RSFT	4.6	190.0	45.0	355	24.4	5.7 - 6.3	1.0 - 3.5	PA66HS	Black (BK)	150-15493
	4.6	190.0	45.0	355	24.4	5.7 - 6.3	1.0 - 3.5	PA46	Grey (GY)	150-15498

All dimensions in mm. Subject to technical changes.





### 1-Piece Fixing Ties with Arrowhead, with wings

- 1-Piece Fixing Ties with Arrowhead, with wings, for round holes

For bundling and fixing of cable harnesses, pipes and hoses in many different industries, including automotive, aerospace, white goods manufacturing and panel building.

#### Features and Benefits

- Easy to assemble without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing in areas where space is limited

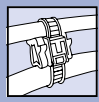


A wide range of arrowhead fixing ties which are suitable for different panel thicknesses and hole diameters.

**Application tools**  
please see page 442.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T18RSF		2.5	100.0	16.0	80	4.6 - 4.8	1.0 - 3.0	PA66HS	Natural (NA)	111-85519
		2.5	100.0	16.0	80	4.6 - 4.8	1.0 - 3.0	PA66W	Black (BK)	111-85560
T50SSL5		4.6	135.0	27.0	225	6.1 - 6.5	0.5 - 2.7	PA46	Grey (GY)	111-85395
		4.6	135.0	27.0	225	6.1 - 6.5	0.5 - 2.7	PA66	Natural (NA)	111-85339
		4.6	135.0	27.0	225	6.1 - 6.5	0.5 - 2.7	PA66HS	Black (BK)	126-02204
T50SL5		4.6	165.0	34.0	225	6.1 - 6.5	0.8 - 2.7	PA66	Natural (NA)	111-85369
		4.6	165.0	34.0	225	6.1 - 6.5	0.8 - 2.7	PA66-HIRHS	Black (BK)	126-00005
		4.6	165.0	34.0	225	6.1 - 6.5	0.8 - 2.7	PA66HS	Black (BK)	126-00001
T50SL6		4.6	165.0	34.0	225	6.3 - 7.5	0.5 - 2.5	PA66	Black (BK)	111-85460
T50SL7		4.6	165.0	34.0	225	6.9 - 7.1	0.8 - 2.5	PA66	Natural (NA)	111-85479
T50SSFMM		4.6	160.0	35.0	225	6.0 - 6.6	0.7 - 3.0	PA66	Natural (NA)	111-85739
		4.6	160.0	35.0	225	6.0 - 6.6	0.7 - 3.0	PA66HS	Black (BK)	126-00032
		4.6	160.0	35.0	225	6.0 - 6.6	0.7 - 3.0	PA66HS	Natural (NA)	126-01104
T50RSFM		4.7	205.0	45.0	225	6.0 - 6.6	0.7 - 3.0	PA66	Natural (NA)	111-85729
T50SAH		4.6	160.0	25.0	225	6.0 - 6.6	0.7 - 3.0	PA66HS	Natural (NA)	155-41102


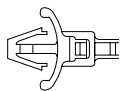
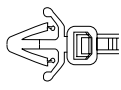
All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with wings


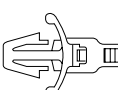
- 1-Piece Fixing Ties with Arrowhead, with wings, releasable

Material specification please see page 30.

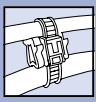
TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
RT50RSF		4.6	215.0	50.0	225	7.8 - 8.2	0.8 - 2.5	PA66	Black (BK)	115-07010
RT50SFK		5.0	225.0	50.0	225	6.4 - 7.0	0.8 - 3.0	PA66	Black (BK)	115-06960

All dimensions in mm. Subject to technical changes.

- 1-Piece Fixing Ties with Arrowhead, with wings, for oval holes

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T80RFT6X12		4.6	228.0	45.0	225	6.3 x 12.3	0.6 - 3.0	PA46	Grey (GY)	150-48397
		4.6	228.0	45.0	225	6.3 x 12.3	0.6 - 3.0	PA66	Black (BK)	150-48396

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with wings in the strap

This range of fixing ties is ideal for use in many different industries, including automotive, aerospace and panel building. The T80RSF6.5FW features a detent that fits securely into the profile of the tubing which prevents from lateral movement and slipping.

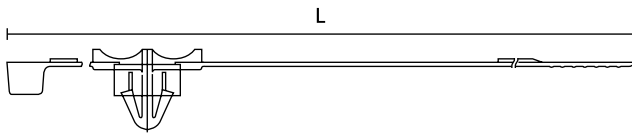
#### Features and Benefits

- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing in areas where space is limited
- Bundle runs central across fixing point
- Cable tie head always situated in defined position
- For parallel routing of two bundles

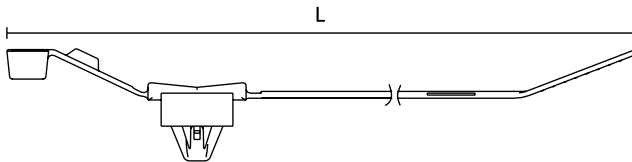


*Designed to secure battery cables the T80RSF6.5F offers a simple and secure fixing.*


**Application tools  
please see page 442.**



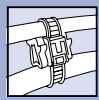
T80RSF6.5F



T80RSF6.5FW

TYPE	Width (W)	Length (L)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T80RSF6.5F	4.6	209.0	45.0	300	6.3 - 6.5	0.6 - 3.0	PA46	Grey (GY)	150-39395
	4.6	209.0	45.0	300	6.3 - 6.5	0.6 - 3.0	PA66HS	Black (BK)	126-02600
T80RSF6.5FW	4.6	209.0	45.0	300	6.3 - 6.5	0.6 - 3.0	PA66HS	Black (BK)	150-39385

All dimensions in mm. Subject to technical changes.

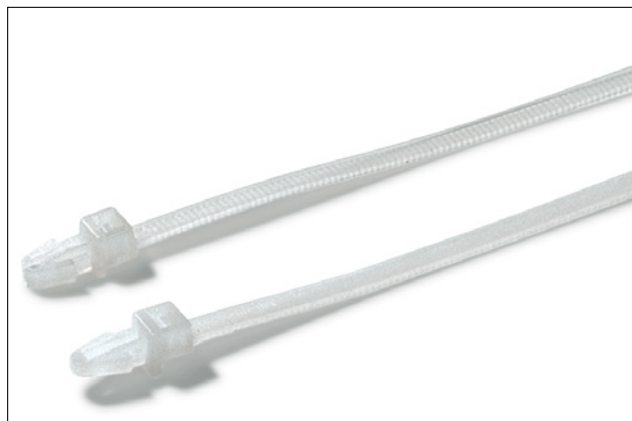


### 1-Piece Fixing Ties with Arrowhead

The arrowhead design allows these ties to be used in areas with limited space.

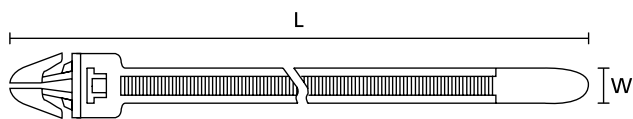
#### Features and Benefits

- Easy to assemble without the need for a tool
- Fixing tie with arrowhead without legs
- Arrowhead simply locks into place
- Cable tie head always situated in defined position

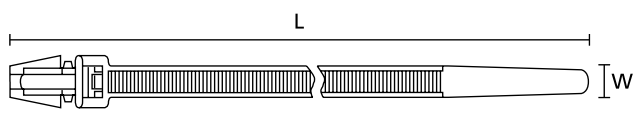


The arrowhead design allows these ties to be used in areas with limited space.

**Material specification please see page 30.**



T30RSF(U)



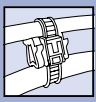
T50RSF(E)

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T30RSF(U)	3.6	161.0	31.0	135	4.8 - 5.6	0.9 - 2.4	PA66	Natural (NA)	111-85603
	3.6	161.0	31.0	135	4.8 - 5.6	0.9 - 2.4	PA66HS	Black (BK)	111-85610
T50RSF(E)	4.6	210.0	50.0	225	6.2 - 6.4	2.9 - 3.0	PA66	Natural (NA)	111-85799
	4.6	210.0	50.0	225	6.2 - 6.4	2.9 - 3.0	PA66	Black (BK)	126-01001

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## 2-Piece Fixing Ties with Arrowhead, with Disc

Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear and white goods manufacturing.

### Features and Benefits

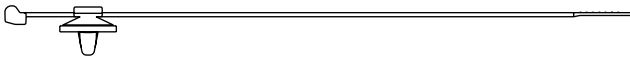
- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions



Being a two piece assembly allows the tie head to be located in the most convenient position.

**Application tools  
please see page 442.**

### • 2-Piece Fixing Ties with Arrowhead, with Disc, sealed



TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T50ROSSFT6.5-16-2-BK	4.6	200.0	45.0	225	16.0	6.3 - 6.7	0.7 - 1.2	PA66HS	PA66HIRHS	155-42002
T50ROSSFT6.5ZD 16-2	4.6	200.0	45.0	225	16.0	6.3 - 6.7	0.7 - 1.8	PA66HS	PA66HIRHS	150-93100
T50ROSSFT6.5 16-3MD	4.6	200.0	45.0	225	16.0	6.3 - 6.7	2.5 - 3.5	PA66HS	PA66HIRHS	150-37799

All dimensions in mm. Subject to technical changes.

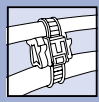
### • 2-Piece Fixing Ties with Arrowhead, for oval holes



TYPE	Width (W)	Length (L)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T50RFT62x122HR	4.6	200.0	45.0	225	6.3 x 12.2	0.6 - 3.0	PA46	PA46	156-00446
T50RFT6OVAL	4.6	200.0	45.0	225	6.3 x 12.2	0.6 - 3.0	PA66HS	PA66HIR	150-37591

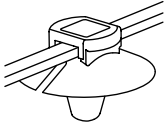
All dimensions in mm. Subject to technical changes.



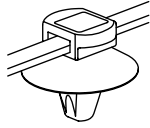


### 2-Piece Fixing Ties with Arrowhead, with Disc

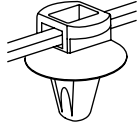
- 2-Piece Fixing Ties with Arrowhead, with Disc



T50SSFT6.5




T50RSFT6.5D18



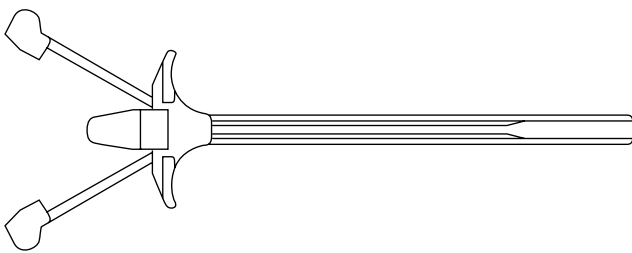
T50ROSSFT6.5 16-3

Material specification please see page 30.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T50SSFT6.5	4.6	150.0	31.0	225	22.4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	150-13593
T50SOSFT65162OD	4.6	150.0	35.0	225	16.0	6.3 - 6.7	1.5 - 2.2	PA66HS	PA66HIRHS	150-93130
T50RSFT6.5 16-3	4.6	200.0	45.0	225	16.0	6.3 - 6.7	2.5 - 3.5	PA66HS	PA66HIRHS	150-37792
T50ROS-SFT6.5 16-3	4.6	200.0	45.0	225	16.0	6.3 - 6.7	2.5 - 3.5	PA66HS	PA66HIRHS	150-37791
T50RSFT6.5D18	4.6	200.0	45.0	225	18.0	6.5 - 6.8	0.4 - 1.6	PA66HS	PA66HIRHS	150-37691
T50RSFT6.5	4.6	200.0	45.0	225	22.4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	150-13591
T80ISFT6.5	4.6	300.0	81.0	355	22.4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	150-13596
T50RDHSFT6.5	4.7	210.0	45.0	225	22.4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	117-05160


All dimensions in mm. Subject to technical changes.

- 2-Piece Fixing Ties with Arrowhead, for parallel routing

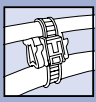


Other dimensions are available on request.

Being a two piece assembly allows the tie head to be located in the most convenient position

TYPE	Width (W)	Length (L)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T50SOSDSFT6.5	4.6	150.0	35.0	225	6.3 - 6.7	0.7 - 1.5	PA66HS	PA66HIRHS	156-00133

All dimensions in mm. Subject to technical changes.



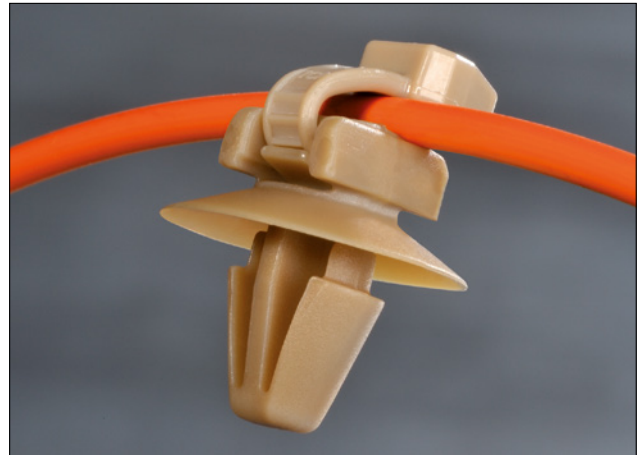
### 2-Piece Fixing Ties with Arrowhead, with Disc

- for temperatures up to +240 °C

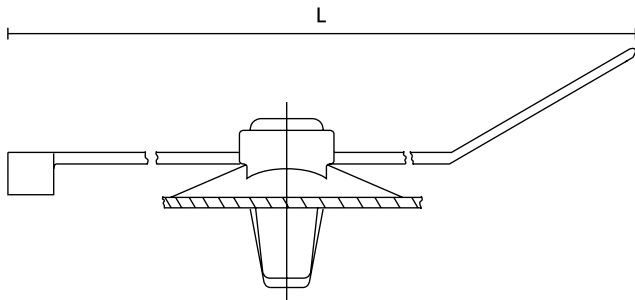
Primarily designed for fixing cable harnesses in the automotive industry their simplicity and ease of use has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Manufactured in PEEK material
- -55 °C to +240 °C operating temperature
- Excellent resistance against chemicals and gamma radiation



Peek FixingTies can be used for small diameters from 1.0 mm.



Application tools  
please see page 442.



One Step to the Web!

Please find more PEEK products for your system solutions:  
PEEK Ties, see page 61.  
Screw Mount CTAM, see page 124.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
PT2AP1SFT6.5	3.4	145.0	35.0	230	16.0	6.5	0.7 - 1.3	PEEK	BGE	156-01090
PT2AP2SFT6.5	3.4	145.0	35.0	230	16.0	6.5	1.7 - 2.3	PEEK	BGE	156-01091

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Fir Tree, with Disc

Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

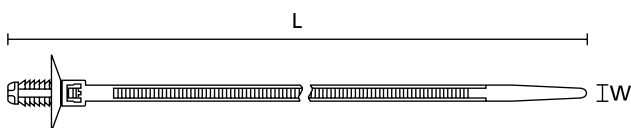
#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes

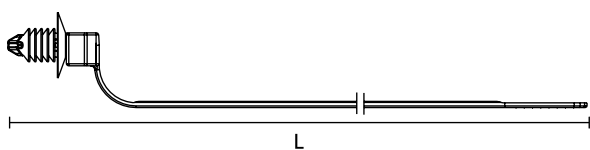


T50SOSFT6LG-E.

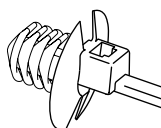
**Material specification  
please see page 30.**



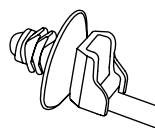
One piece fixing tie with fir tree mount, standard design



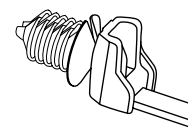
Special design without a gap between head and bundle; FT220DP7



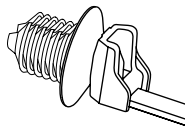
T18RDP5



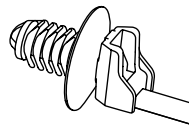
T50SOSFT6-E2



T50SOSFT6D10E



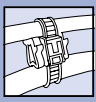
T50SOSFT8E



T50SOSFT6LGE

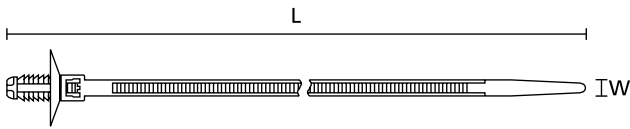
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
T18RDP5	2.5	110.0	20.0	80	13.0	4.9 - 5.1	3.0 - 4.0	PA66	Black (BK)	150-55610
T50SOSFT6-E2	4.6	160.0	35.0	180	16.0	6.3 - 7.0	0.6 - 4.2	PA66HS	Black (BK)	157-00085
T50SOSFT6D10E	4.6	163.0	32.0	180	9.8	5.8 - 6.2	0.8 - 5.5	PA46	Grey (GY)	157-00028
T50SOSFT8E	4.6	163.0	35.0	225	16.0	8.0 - 8.5	0.6 - 6.0	PA66HS	Black (BK)	157-00072
	4.6	163.0	35.0	225	16.0	8.0 - 8.5	0.6 - 6.0	PA46	Grey (GY)	157-00115
T50SOSFT6LGE	4.6	165.0	35.0	180	16.0	6.3 - 7.0	0.7 - 7.0	PA66HS	Black (BK)	157-00042
T50SOSFT6E1	4.7	161.4	35.0	150	16.0	-	3.0	PA66HIRHS	Black (BK)	157-00033
FT220DP7	4.7	232.0	40.0	225	16.0	6.8 - 7.2	0.8 - 5.0	PA66	Black (BK)	150-01700

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Fir Tree, with Disc

- 1-Piece Fixing Ties with Fir Tree, with Disc, releasable



Application tools  
please see page 442.

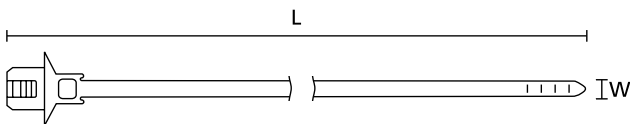
Material specification  
please see page 30.

One piece fixing tie with fir tree mount, standard design

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
REL30SDP6	5.0	170.0	31.0	135	22.0	6.3 - 7.0	3.0 - 7.0	PA66	Black (BK)	150-55500

All dimensions in mm. Subject to technical changes.

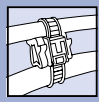
- 1-Piece Fixing Ties with Fir Tree, with Disc, releasable



T50SOS2DOP

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Material	Colour	Article-No.
T50SOS2DOP	4.6	164.0	35.0	200	6.2 - 12.2	PA46	Grey (GY)	157-00069
	4.6	164.0	35.0	200	6.2 x 12.2	PA66HIRHS	Black (BK)	157-00014
T50SOS3DOP65130E	4.6	165.0	35.0	180	6.5 x 13.0	PA66HS	Black (BK)	157-00016
T50SOSFT7X12U	5.1	165.0	35.0	225	7.0 x 12.0	PA66HS	Black (BK)	157-00053
T50ROSFT7X12U	5.1	216.0	50.0	225	7.0 x 12.0	PA66HS	Black (BK)	157-00054

All dimensions in mm. Subject to technical changes.



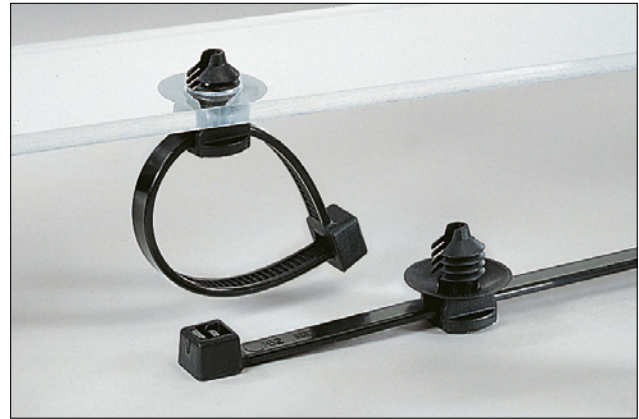
### 2-Piece Fixing Ties with Fir Tree, with Disc

- Fir Tree Parts FT5**

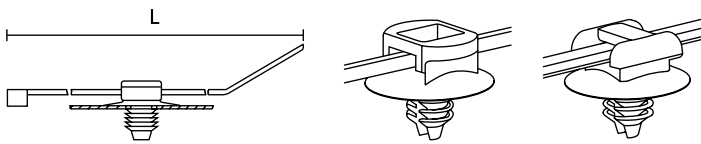
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with fir tree part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes



These Fir Tree fixings can also be used in threaded, blind holes.



One piece fixing tie with fir tree mount

T30RFT5

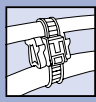
T50SOSFT5SD

**Other dimensions are available on request.**

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T30RFT5	3.5	150.0	34.0	135	16.0	4.5 - 5.0	0.7 - 3.0	PA46	PA46	150-55948
	3.5	150.0	34.0	135	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	150-55850
T50SOSFT5	4.6	150.0	31.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	156-06200
T50SOSFT5SD	4.6	150.0	35.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	156-00432
T50RFT5	4.6	200.0	45.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	156-00025

All dimensions in mm. Subject to technical changes.

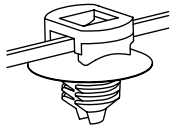




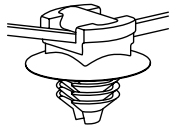
## 2-Piece Fixing Ties with Fir Tree, with Disc

- Fir Tree Parts FT6

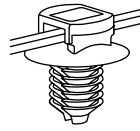
Application tools  
please see page 442.



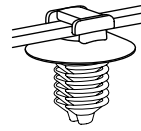
T18RFT6



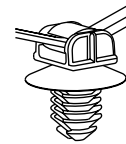
T30RFT6SD



T30RFT6LG



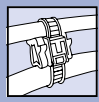
T50SFT6LG1SD



T50RFT6LGSD-HEX

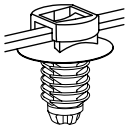
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T18RFT6	2.5	100.0	20.0	80	16.0	6.4 - 7.1	0.8 - 3.0	PA66	PA66	150-09110
T30RFT6LG	3.5	150.0	35.0	133	16.0	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	150-31090
T30RFT6SD	3.6	148.0	35.0	135	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	150-52690
T30RFT6	3.6	150.0	34.0	135	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	150-77950
T50SFT6LG1SD	4.6	160.0	30.0	225	16.0	6.5 - 7.0	0.6 - 6.0	PA66HS	PA66HIRHS	156-00154
T50RFT6LG	4.6	200.0	44.0	225	16.0	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	150-31091
T50RFT6LGSD-HEX	4.6	200.0	45.0	225	16.0	6.25 - 6.75	0.7 - 5.0	PA66HS	PA66HIRHS	156-00399
T50ROSFT6	4.6	200.0	45.0	225	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	156-00076
T50RFT6	4.6	200.0	45.0	225	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66	150-77941
	4.6	200.0	45.0	225	16.0	6.4 - 7.1	0.8 - 3.0	PA46	PA46	150-77938
T50ROSFT6SD	4.6	200.0	45.0	225	16.0	6.4 - 7.1	0.8 - 3.0	PA46	PA46	156-00085
	4.6	200.0	46.0	225	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIR	156-05902
T80IFT6LG	4.6	300.0	81.0	356	16.0	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	150-31096
T80LFT6	4.6	390.0	108.0	355	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	150-77934
T50RDHFT6	4.7	210.0	19.0	225	16.0	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	150-77936

All dimensions in mm. Subject to technical changes.

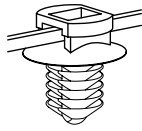


### 2-Piece Fixing Ties with Fir Tree, with Disc

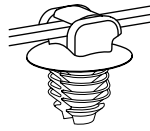
- Fir Tree Parts FT7 - FT10



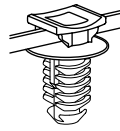
T50IFT7



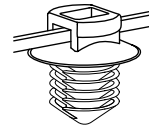
T50RFT8




T50RFT8GSD



T120IFT9

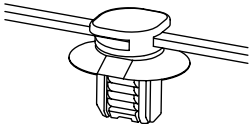


T50RFT10

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T40RFT8GSD	4.0	180.0	40.0	180	16.0	8.0 - 8.5	1.5 - 4.0	PA66HS	PA66HIRHS	156-00104
T50RFT7	4.6	200.0	44.0	225	16.0	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	111-85871
T50RFT8GSD	4.6	200.0	45.0	225	16.0	8.0 - 8.5	1.5 - 4.0	PA66HS	PA66HIRHS	133-00034
T50RFT8	4.6	200.0	45.0	225	16.0	7.7 - 8.0	0.8 - 6.0	PA66HS	PA66HS	111-85880
T50RFT10	4.6	200.0	45.0	225	18.0	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	111-85810
T50ROSFT10	4.6	200.0	45.0	225	18.0	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	156-00120
T50RFT8GSD	4.6	202.0	45.0	225	16.0	8.0 - 8.5	1.5 - 4.0	PA46	PA46	156-00235
T50IFT7	4.6	300.0	81.0	225	16.0	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	150-00700
T120IFT9	7.6	300.0	75.0	535	20.0	9.0 - 10.6	5.0 - 11.0	PA66HIR(S)	PA66HIR(S)	156-00200


All dimensions in mm. Subject to technical changes.

- 2-Piece Fixing Ties with Fir Tree, with disc, for oval holes

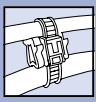


T50ROS1DOP

Material specification please see page 30.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
T50ROS-1DOP62x122	4.6	200.0	45.0	225	12.0 x 21.0	6.2 x 12.2	0.6 - 6.0	PA66HS	PA66HIRHS	156-05908

All dimensions in mm. Subject to technical changes.



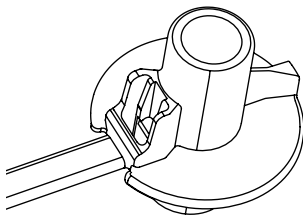
### 1-Piece Fixing Ties for Weld Studs

- With plate to fix isolation material

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Can retain insulation materials while fixing a cable bundle

**Application tools**  
please see page 442.



T50SOSBH5E



The new head design offers additional fixing of soft materials.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Article-No.
T50SOSBH5E	4.6	166.4	35.0	225	5.0	PA66HS	Black (BK)	155-05701

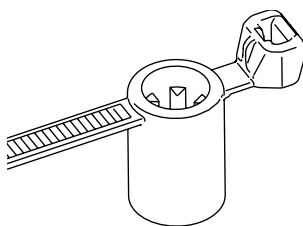
All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties for Weld Studs

- For cable routing above the stud

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Bundle runs directly above weld stud with defined stand-off from the panel



T50SSBS50TE

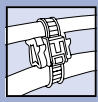


The T50SSBS50TE allows very precise routing of cable bundles.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Article-No.
T50SSBS50TE	4.0	160.0	35.0	200	5.0	PA66HS	Black (BK)	155-30602
T50SSBS60T-E	4.6	160.0	35.0	200	6.0	PA66HS	Black (BK)	157-00083

All dimensions in mm. Subject to technical changes.

Since the bundled cables lie directly above or on the weld stud, care must be taken to ensure that the length of the weld stud does not exceed the height of the sheath. To avoid damage, we recommend a maximum weld stud length of 16.5 mm.



### 1-Piece Fixing Ties for Weld Studs

- For cable routing alongside the stud

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundles are routed very close to stud

**Material specification  
please see page 30.**



T50SOSSBD-M8/10.



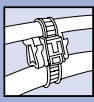
T50SOSSBU-M8/10 for bundles which run below the stud.



This outside serrated cable tie with weld stud mounting keeps the cables close to the fixing stud.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Article-No.
T50SOSSBD-M10		5.7	175.0	30.0	150	10.0	PA66HSW	Black (BK)	157-00040
T50SOSSBD-M8		5.7	175.0	30.0	150	8.0	PA66HSW	Black (BK)	157-00039
T50SOSSBU-M10		5.7	175.0	30.0	150	10.0	PA66HSW	Grey (GY)	157-00067
T50SOSSBU-M8		5.7	175.0	30.0	150	8.0	PA66HSW	Grey (GY)	157-00066
T50SOSSBS5E		4.7	160.0	35.0	225	5.0	PA66HS	Black (BK)	155-12300

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties for Weld Studs, moveable

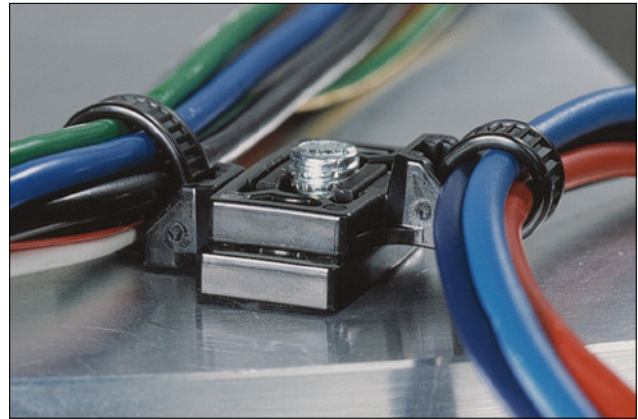
- T50SOSWSP5E-2 for 5 mm studs, retainer height 3.5 mm

#### Features and Benefits


- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides a 5 – 6 mm lateral adjustment possibility
- Very low profile, stackable design
- For parallel routing of several bundles



T50SOSWSP5E-2



T50SOSWSP5E, parallel installation using two fixing ties.

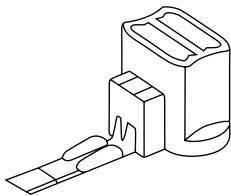
TYPE	Width (W)	Length (L)	Bundle Ø max.		Stud Ø	Material	Colour	Article-No.
T50SOSWSP5E-2	4.6	162.6	35.0	225	5.0	PA66HS	Black (BK)	133-00391

All dimensions in mm. Subject to technical changes.

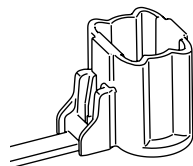
- T50SOSSB5-High-E-C-CC for 5 and 6 mm studs

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides a 5 – 6 mm lateral adjustment possibility



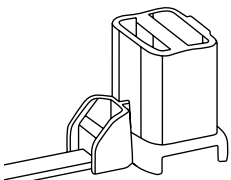
T50SOSSB5HEC



T50SOSSB6HE




T50SOSSB5-High-E-C-CC.



T60ROSSBH6HEC

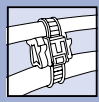
**Application tools**  
please see page 442.

**Material specification**  
please see page 30.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Stud Ø	Material	Colour	Article-No.
T50SOSSB6HE	4.7	160.0	35.0	170	6.0	PA66HS	Black (BK)	155-46302
T50SOSSB5-High-E-C-CC	5.0	167.0	35.0	225	5.0, 6.0	PA66HS	Black (BK)	157-00037
T60ROSSBH6HEC	5.5	227.4	55.0	300	6.0	PA66HS	Black (BK)	157-00101

All dimensions in mm. Subject to technical changes.



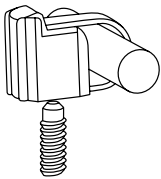


### 1-Piece Fixing Ties for Weld Studs

- LFC-Series for routing close to the stud

#### Features and Benefits

- 1-piece fixing tie for 5 mm studs
- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundle runs very close next to stud
- Closed stud retainer protects the bundle against damage
- Contact surface allows secure bundling with tensioning tool



LFC165-2 can be put on by hand



LFC165-2 for bundle diameters up to 35.0 mm.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Stud Ø	Material	Colour	Article-No.
LFC155	4.6	163.0	26.0	160	5.0	PA66	Black (BK)	131-60070
LFC165(PSA)	4.7	165.0	35.0	90	5.0	PA66HS	Black (BK)	155-34202
LFC165-2	4.7	165.0	35.0	150	5.0	PA66HS	Black (BK)	157-00047

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties for Weld Studs, for Heavy Duty Applications

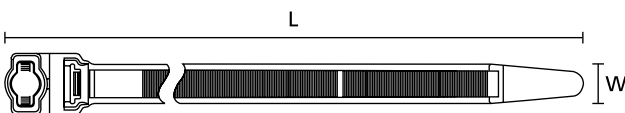
- WS-Series for threaded studs

#### Features and Benefits

- Very flexible strap and minimum pinching of soft hoses and convoluted tubing
- Low profile head for compact bundling
- Clamping rails to increase grip on round bundles
- Flexible hinge



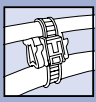
The wide strap stud mount cable tie minimizes pinching on soft bundles.



Wide Strap Heavy Duty Stud Mount Cable Ties

TYPE	Width (W)	Length (L)	Bundle Ø max.		Stud Ø	Material	Colour	Article-No.
WSS250	12.7	246.4	57.1	534	6.35	PA66HIRHSUV	Black (BK)	157-00400
WSI250	12.7	322.6	82.5	534	6.35	PA66HIRHSUV	Black (BK)	157-00401
WSI380	12.7	322.6	82.5	534	9.52	PA66HIRHSUV	Black (BK)	157-00404
WSR250	12.7	398.8	104.1	534	6.35	PA66HIRHSUV	Black (BK)	157-00402

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties for Weld Studs in the strap

#### Features and Benefits

- For 5 mm studs or 5 mm ISO threaded studs
- Soft-push versions for easy assembly, without tool
- Eyelet allows excess tail to be tucked neatly away



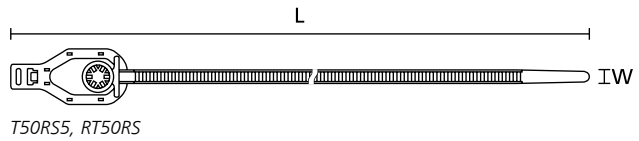
With the RT50RS5 and the SB14/172 you can mount pipes or cables to a weld stud.

**Application tools  
please see page 442.**



Simple fixing to a weld stud or 5mm ISO bolt.

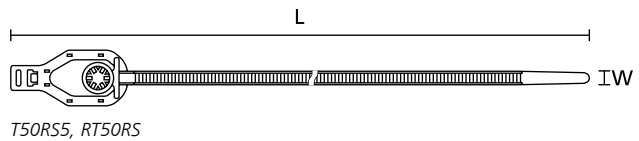
#### • 1-Piece Fixing Ties for Weld Studs (Softpush) in the strap



TYPE	Width (W)	Length (L)	Height (H2)	Bundle Ø max.	N	Material	Colour	Article-No.
T50RS5	4.6	190.0	14.5	40.0	222	PA66	Black (BK)	111-07110

All dimensions in mm. Subject to technical changes.

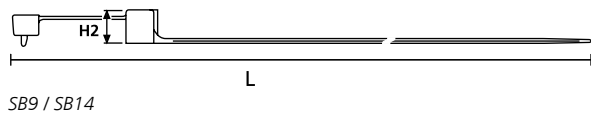
#### • 1-Piece Fixing Ties for Weld Studs (Softpush) in the strap, releasable



TYPE	Width (W)	Length (L)	Height (H2)	Bundle Ø max.	N	Material	Colour	Article-No.
RT50RS5	4.6	190.0	14.5	40.0	225	PA66	Black (BK)	115-07110

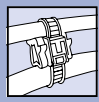
All dimensions in mm. Subject to technical changes.

#### • 1-Piece Fixing Ties for Weld Studs (Hardpush) in the strap, releasable



TYPE	Width (W)	Length (L)	Height (H2)	Bundle Ø max.	N	Material	Colour	Article-No.
SB14/172	5.0	172.0	15.5	40.0	225	PA66	Black (BK)	150-10690
SB9/230	5.0	230.0	10.0	65.0	225	PA66HS	Black (BK)	150-10900
SB14/230	5.0	230.0	15.5	60.0	245	PA66	Black (BK)	150-11400

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties for Weld Studs, releasable, with flexible strap

#### Features and Benefits

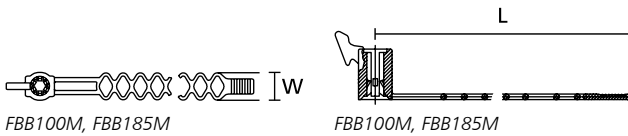
- Releasable fixing
- Soft-push versions for easy assembly without the need for a tool
- FBB\_M-types have a small recess for eventually welding burrs on the substructure
- Hard-push versions for special firm fit are hammered onto the stud
- SBR8S for M8 threaded studs



FBB one piece fixing ties for weld studs, can be easily removed by unscrewing in an anti-clockwise direction.

**Material specification please see page 30.**

#### • 1-Piece Fixing Ties for Weld Studs (Softpush), releasable, with flexible strap



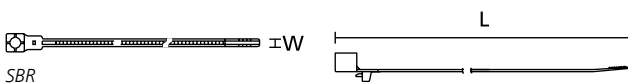
FBB100M, FBB185M

FBB100M, FBB185M


TYPE	Width (W)	Length (L)	Bundle Ø max.	Stud Ø	Material	Colour	Article-No.
FBB100M	10.0	110.0	23.0	5.0	PA66	Black (BK)	150-29100
FBB185M	10.0	200.0	50.0	5.0	PA66	Black (BK)	150-29180

All dimensions in mm. Subject to technical changes.

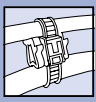
#### • 1-Piece Fixing Ties for Weld Studs (Hardpush) , releasable



SBR

TYPE	Width (W)	Length (L)	Bundle Ø max.		Stud Ø	Material	Colour	Article-No.
SBR8S	6.0	216.5	40.0	300	8.0	PA46	Grey (GY)	131-60058
SBR5	6.0	220.0	40.0	300	5.0	PA66HS	Black (BK)	131-60060

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Weld Studs

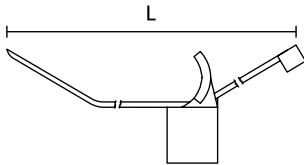
Series SBH5 and SBH5SD are used mainly in the automotive industry. The SD variant is for the smallest bundle diameters from 1.0 mm. Series SB5 and SBS5 are suitable for bundling and fastening cable looms and pipes in switch cabinet construction and automotive and construction machine industry.

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- SB5-types for 5 mm studs or 5 mm ISO threaded studs
- Types with discs can retain insulation materials while fixing a cable bundle
- Oval shape can be adjusted in a lateral position
- GBS8C for 8 mm retainer enables parallel routing



Cable ties illustrating the variety of application methods for weld stud fixing.



**Application tools  
please see page 442.**

#### • 2-Piece Fixing Ties for Weld Studs, moveable, oval hole

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Article-No.
T30RSB5		3.5	150.0	31.0	135	PA66HS	POM	150-10140
T50SOSSB5		4.6	150.0	31.0	225	PA66HS	POM	156-00080
T50SSB5		4.6	150.0	31.0	225	PA6HS	PA66HS	150-10144
T50RSB5		4.6	200.0	45.0	225	PA46	PA46	156-00084
		4.6	200.0	45.0	225	PA66HS	POM	150-10141
T50ROSSB5	4.6	200.0	45.0	225	PA66HS	POM	150-10149	
T50RSB5CSD		4.6	200.0	45.0	225	PA66HS	PA66HS	156-00083
T50ROSSB5CSD		4.6	200.0	45.0	225	PA66HS	PA66HS	156-05906

All dimensions in mm. Subject to technical changes.

#### • 2-Piece Fixing Ties for Weld Studs, moveable, round hole

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Article-No.
T30RSB55		3.5	150.0	31.0	135	PA66HS	PA66HS	150-21290
T50SSB55		4.6	150.0	31.0	225	PA66HS	PA66HS	150-21293
T50SOSSB55		4.6	150.0	31.0	225	PA66HS	PA66	156-00079
T50RSB55		4.6	200.0	45.0	225	PA66HS	PA66HS	150-21291
T50ROSSB55		4.6	200.0	45.0	225	PA66HS	PA66HS	150-21299
T80ISB55		4.6	300.0	81.0	355	PA66HS	PA66HS	150-21297
T50ROSGBS8CA		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00251
T50ROSGBS8CB		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00252
T50ROSGBS8CC		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00116


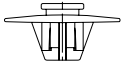

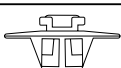

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Weld Studs

- M2-Piece Fixing Ties for Weld Studs, with disc

Material specification please see page 30.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Material Cable Tie	Material Foot Part	Article-No.
T50RSBH5		4.6	200.0	45.0	225	PA66HS	PA66HS	150-16943
T80ISBH5		4.6	300.0	81.0	355	PA66HS	PA66HS	150-16945
T50RSBH5-SD		4.6	200.0	45.0	225	PA66HS	PA66HS	150-92904
T50ROSSBH5SD		4.6	200.0	45.0	225	PA66HS	PA66HS	156-05905
T80ISBH5SD		4.6	300.0	78.0	355	PA66HS	PA66HS	150-92905
T50R-SBH5SD-14		4.6	200.0	45.0	222	PA66HS	PA66HS	150-77591
T50RSBH6SD		4.6	200.0	45.0	225	PA66HS	PA66HS	156-00819

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties for Weld Studs, for parallel routing

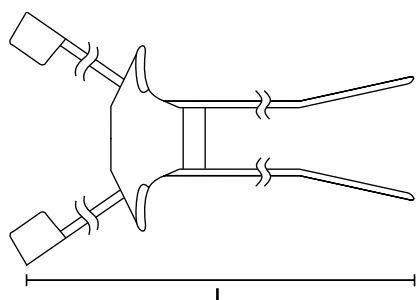
Many applications require cables to be run parallel to each other but separated to avoid abrasion. The double mounting base, when used with two cable ties, allow this to be achieved simply and quickly. Widely used for securing cables, pipes and hoses in the automotive and truck building industries, the mounting base is simply pushed onto a 5mm diameter weld stud or bolt.

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- For parallel routing of cables, hoses or harnesses
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- For 5 mm studs or 5 mm ISO threaded studs




Parallel fixation of two cables.



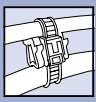
T50SDSBS5, T50ROSDSBS5

Other dimensions are available on request.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Stud Ø	Material Cable Tie	Material Foot Part	Article-No.
T50SDSBS5	4.6	150.0	31.0	225	5.0	PA66HS	PA66HIRHS	150-56193
T50ROSDSBS5	4.6	200.0	45.0	225	5.0	PA66HS	PA66HIRHS	150-56199

All dimensions in mm. Subject to technical changes.





### 1-Piece Fixing Ties for Edges

- **EdgeClip-Family**

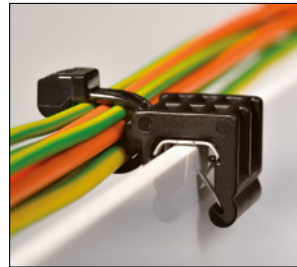
These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where, due to temperature problems, adhesives will fail. Once the cable tie is fastened around the cables the EdgeClip is presented ready for attaching to the panel. Widely used within the automotive and panel building industries these cable ties and EdgeClips save time and money.

#### Features and Benefits

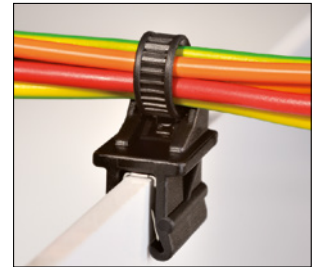
- Easy assembly by hand
- For edges of 1 – 3 mm or 3 – 6 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- Ideal for applications where holes or adhesives are not suitable



*T50ROSEC10 fitted onto a plastic panel to hold a Ø 6mm harness.*



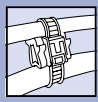
*T50ROSEC23 - the cable bundle runs parallel with the edge.*



*1-Piece-Fixing Tie T50SOSEC12 can be pushed easily on edges.*

The silver-grey clamp, the heart of our EdgeClips, consists of double-tempered spring steel in accordance with DIN EN 10132-4 C75S. The spring steel gives the clamp both the necessary rigidity to provide high pull-off forces and also sufficient flexibility for various possible applications. The double coating is applied initially with a zinc plate system followed by inorganic surface sealing. Naturally, no chromium (VI) is used in this process. The clamp therefore complies with the current EU

Directive 200/53/EC on end of life vehicles and the prohibition on heavy metals. The refined spring-steel clamp also fulfils the requirements for resistance to salt spray stipulated in DIN EN ISO 9227 NSS (min. 840 h without corrosion of base metal) and DIN EN ISO 6270-Z-CH (min. 720 h without corrosion of base material). This solution has therefore been approved by many OEMs for exposed installation locations, e.g. in engine compartments and the running-gear area.

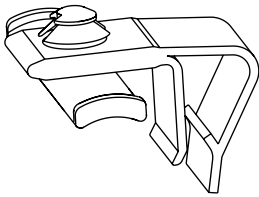


### 1-Piece Fixing Ties for Edges

- EdgeClip-Family

#### Features and Benefits

- Cable tie head always situated in defined position
- Suitable for minimum bundle diameters of 1 mm
- Outside serrated tie prevents bundle from being damaged
- For edges of 1 – 3 mm

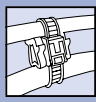


EdgeClips are also available on request for panelthickness from 4-7mm.

Material specification please see page 30.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Article-No.
T50SOSEC12E		4.6	160.0	35.0	180	PA66HS	Black (BK)	148-00200
T50SOSEC13E		4.6	160.0	35.0	180	PA66HS	Black (BK)	126-00000
T40XEC5SP-E		4.0	85.0	15.0	178	PA66HS	Black (BK)	133-00059
T50SOSEC34E		4.6	155.0	35.0	180	PA66HS	Black (BK)	126-00036

All dimensions in mm. Subject to technical changes.



## 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Top Fixing

### • EdgeClip-Family

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- EC9, EC10, EC21 and EC22 are for minimum bundle diameters of 1 mm
- For edges of 1 – 3 mm

Application tools  
please see page 442.

Material specification  
please see page 30.

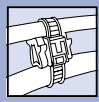
TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Material Cable Tie	Material Foot Part	Article-No.
T30REC4A		3.5	150.0	32.0	135	PA66HS	PA66HIRHS	150-76090
T50SOSEC4A		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	150-76093
T50REC4A		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-76091
T50ROSEC4A		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-76099
T50ROSEC4A-W		4.6	200.0	45.0	225	PA66UV	PA66UV	156-00570
T30REC4B		3.5	150.0	32.0	135	PA66HS	PA66HIRHS	150-76080
T50SOSEC4B		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	156-00109
T50ROSEC4B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-76079
T18REC10SD		2.5	100.0	20.0	80	PA66HS	PA66HIRHS	155-38304
T50SOSEC10		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	156-00015
T50ROSEC10		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-05904
T18REC9SD		2.5	100.0	20.0	80	PA66HS	PA66HIRHS	155-37104
T50SOSEC9SD		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	156-00019
T50ROSEC9		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-05903

All dimensions in mm. Subject to technical changes.

## 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Side Fixing

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Material Cable Tie	Material Foot Part	Article-No.
T30REC5A		3.6	150.0	33.0	135	PA66HS	PA66HIRHS	156-00003
T50SOSEC5A		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	150-40593
T50ROSEC5A		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-40591
T50SOSEC5B		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	150-40583
T50REC5B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-40582
T50ROSEC5B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-40581
T50SOSEC21		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	156-00017
T50ROSEC21		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00010
T50ROSEC22		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00011
		4.6	200.0	45.0	225	PA66UV	PA66HIRHS	156-00576

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Edges, 3.0 - 6.0 mm, Top Fixing

- EdgeClip-Family

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- For minimum bundle diameters of 1 mm
- For edges of 3 – 6 mm

**Other combinations  
between cable tie and foot  
part available on request.**

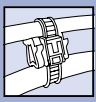
TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Article-No.
T18ROSEC19		2.5	100.0	20.0	80	PA66HS	PA66HIRHS	156-04600
T50SOSEC19		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	156-04601
T50ROSEC19		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-04602
T50SOSEC20		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	156-00016
T50ROSEC20		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00020

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties for Edges, 3.0 - 6.0 mm, Side Fixing

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Article-No.
T50ROSEC23		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00006
T50ROSEC24		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	156-00007

All dimensions in mm. Subject to technical changes.

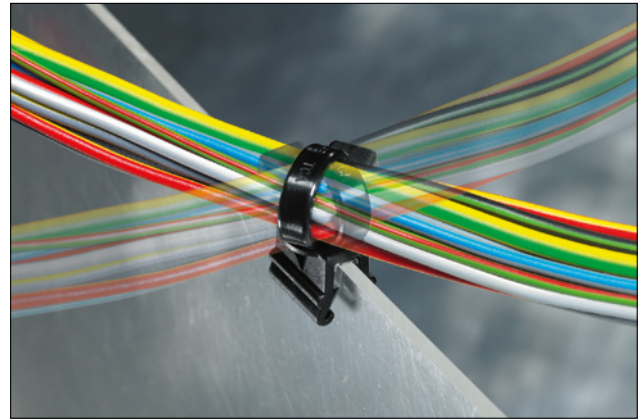


### 2-Piece Fixing Ties for Edges, twistable

- EdgeClip-Family


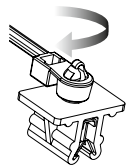
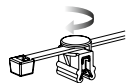
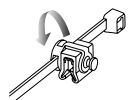
#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1 – 2.5 mm or 1 – 3 mm
- Can be rotated to the desired position during mounting



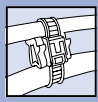
EdgeClip CBTO50R, rotatable 90°.

**Application tools  
please see page 442.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Panel Thickness	Material Cable Tie	Material Foot Part	Article-No.
CBT30MR		3.5	160.0	32.0	135	2.5	PA66HS	POM	156-00049
CBTO50R		4.6	200.0	47.0	225	3.0	PA66HS	PA66HIRHS	156-01601
CBTO50RSTUD5		4.6	200.0	50.0	225	3.0	PA66HS	PA66HIRHS	156-00380

All dimensions in mm. Subject to technical changes.





### 2-Piece Fixing Ties for Edges, for Holes

- **EdgeClip-Family**

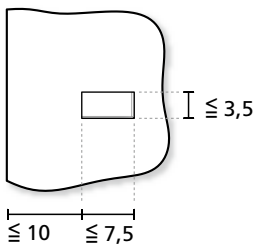
Due to the tie's reduced installation height it is ideal for use wherever space is at a premium.

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1.0 - 3.0 mm
- Secure fixing of the EdgeClip into drill hole
- Ideal for use wherever space is at its premium



The holding tab increases the tensile strength additionally.

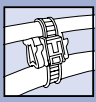


Position of the drill hole for the holding tab

**Material specification  
please see page 30.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Article-No.
T50REC2.5B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-45292
T50ROS-EC2,5		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	150-45299

All dimensions in mm. Subject to technical changes.

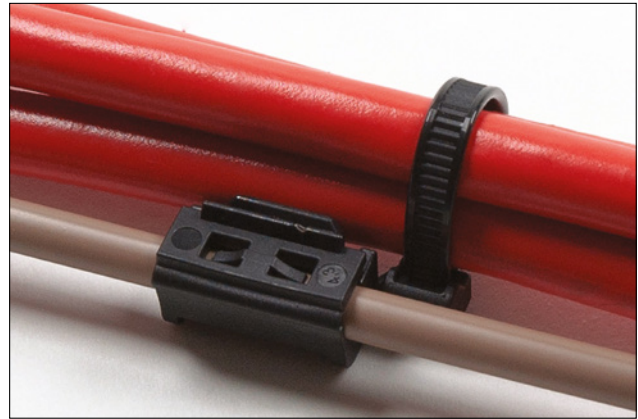


### 1-Piece Fixing Ties with Wire Clip


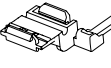
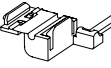
#### Features and Benefits

- Cable tie head always in defined position
- Easy to close by simply pressing the cover
- Firm fit around wires
- Suitable for post-installation of bundles
- Available in a range of sizes

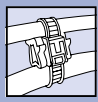
**Application tools  
please see page 442.**



T50SOSWA - The easy way for parallel guidance of cables next to a wire.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Attach to Ø	Material	Colour	Article-No.
T50SOSWA1.8E		4.6	150.0	35.0	225	1.8	PA66HS	Black (BK)	148-00089
T50SOSWA2.0E		4.6	150.0	35.0	225	2.0	PA66HS	Black (BK)	148-00088
T50SOSWA3.4E		4.6	150.0	35.0	225	3.4	PA66HS	Black (BK)	148-00095
T50SOSWA4.3E		4.6	150.0	35.0	225	4.3	PA66HS	Black (BK)	148-00092
T50SOSWB1.8E		4.6	150.0	35.0	225	1.8	PA66HS	Black (BK)	148-00090
T50SOSWB2.0E		4.6	150.0	35.0	225	2.0	PA66HS	Black (BK)	148-00093
T50SOSWB3.4E		4.6	150.0	35.0	225	3.4	PA66HS	Black (BK)	148-00096
T50SOSWB4.3E		4.6	150.0	35.0	225	4.3	PA66HS	Black (BK)	148-00091

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Pipe Clip, twistable 360°


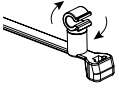
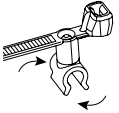
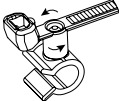
#### Features and Benefits

- Simply clip onto a wire or hose
- Fixing clip offers full 360° rotation
- Routed cable can move in any direction in relation to the fixing point
- Inside serrated cable tie
- Ideally used in the Automotive Industry

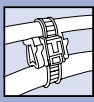


T50SVC5 rotates in any direction.

**Material specification  
please see page 30.**


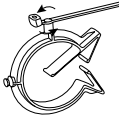
TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Attach to Ø	Material	Colour	Article-No.
T50SVC3.5		4.7	155.0	35.0	225	3.45 - 3.55	PA66HS, PA66HIRHS	BK	156-00791
T50SVC4S		4.7	155.0	35.0	225	3.8 - 4.2	PA66HS, PP	BK, NA	156-00318
T50SVC4		4.7	155.0	35.0	225	3.8 - 4.2	PA66HS, PA66HIRHS	BK	156-00447
T50SVC5		4.7	155.0	35.0	225	4.5 - 5.2	PA66HS	BK	155-31202
T50SVC65		4.7	155.0	35.0	225	6.5 - 8.0	PA66HS, PA66HIRHS	BK	156-00155

All dimensions in mm. Subject to technical changes.

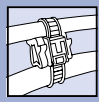


## 2-Piece Fixing Ties with Pipe Clip, twistable 360°

Application tools  
please see page 442.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Attach to Ø	Material	Colour	Article-No.
T50SVCOC10-14		4.7	155.0	35.0	225	10.0 - 14.0	PA66HS, PA66HIRHS	BK	156-00134
T50SVCOC15-18		4.7	155.0	35.0	225	15.0 - 18.0	PA66HS, PA66HIRHS	BK	156-00135
T50SVCOC19-245		4.7	155.0	35.0	225	19.0 - 24.5	PA66HS, PA66HIRHS	BK	156-00136
T50SVCOC25-31		4.7	155.0	35.0	225	25.0 - 31.0	PA66HS, PA66HIRHS	BK	156-00272
T50SVCOC31-39		4.7	155.0	35.0	225	31.0 - 39.0	PA66HS, PA66HIRHS	BK	156-00273
T50SVCOC39-45		4.7	155.0	35.0	225	39.0 - 45.0	PA66HS, PA66HIRHS	BK	156-00137
T50SMVCOC1014		4.7	210.0	50.0	225	10.0 - 14.0	PA66HS, PA66HIRHS	BK	156-00128
T50SMVCOC15-18		4.7	210.0	50.0	222	15.0 - 18.0	PA66HS, PA66HIRHS	BK	156-00129
T50SMVCOC19245		4.7	210.0	50.0	225	19.0 - 24.5	PA66HS, PA66HIRHS	BK	156-00130
		4.7	210.0	50.0	225	19.0 - 24.5	PA46	GY	156-00577
T50SMVCOC25-31		4.7	210.0	50.0	225	25.0 - 31.0	PA66HS, PA66HIRHS	BK	156-00303
T50SMVCOC31-39		4.7	210.0	50.0	225	31.0 - 39.0	PA66HS, PA66HIRHS	BK	156-00304
T50SMVCOC39-45SET		4.7	210.0	50.0	225	39.0 - 45.0	PA66HS, PA66HIRHS	BK	156-00131

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties with Pipe Clip

#### Features and Benefits

- For post-installation of additional cables for pre-assembled cable looms
- Variety of twist angles and even different loop directions provide flexibility for cable routing
- For OC1 and 2A additional cable tie dimensions are available
- CBTO-series for cable ties up to 5 mm



EdgeClip CBTO50R, verdrehbar um 90°.

**Material specification please see page 30.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Attach to Ø	Material	Colour	Article-No.
T30ROC2A		3.6	150.0	31.0	6.5 - 7.5	PA46	Grey (GY)	156-00014
		3.6	150.0	31.0	6.5 - 7.5	PA66HS, PA66HIRHS	Black (BK)	156-00013
T30ROC1A		3.6	150.0	31.0	4.0 - 10.0	PA66HS, PA66HIRHS	Black (BK)	156-00012
T50ROC1A		4.6	200.0	45.0	4.0 - 10.0	PA66HS, PA66HIRHS	Black (BK)	156-00036
T30ROC1B		3.6	150.0	31.0	4.0 - 10.0	PA66HS, PA66HIRHS	Black (BK)	156-00505
T50ROC1B		4.6	200.0	45.0	4.0 - 10.0	PA66HS, PA66HIRHS	Black (BK)	156-00306

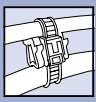
All dimensions in mm. Subject to technical changes.

#### • 2-Piece Fixing Ties with Pipe Clip, twistable 90°

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Attach to Ø	Material	Colour	Article-No.
T50ROC10-14CBTO-SD-SET		4.6	200.0	45.0	10.0 - 14.0	PA66HS, PA66HIRHS	Black (BK)	156-00416
T50ROC15-18CBTO-SD-SET		4.6	200.0	45.0	15.0 - 18.0	PA66HS, PA66HIRHS	Black (BK)	156-00419

All dimensions in mm. Subject to technical changes.





### 2-Piece Fixing Ties for Heavy Duty Applications, for Screws

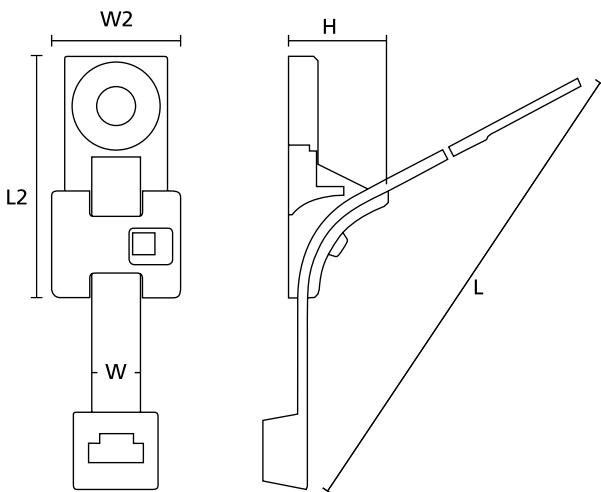
Used in the Automotive and Truck Industry for harness fixing in the engine body, these parts offer solutions in many other industrial applications within difficult environments.

#### Features and Benefits

- Pre-assembled 2-piece fixing tie
- Cable tie head can be moved after bundling
- Secure alignment to the bundle due to H-design
- A suitable alternative for metal clamps
- Withstands vibrations and displacement forces
- High tightening torque through metal bushing



These HDM can be assembled on either screw or stud.

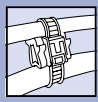


HDM with cable tie (L = length of the tie 'flat')

**Application tools please see page 442.**

TYPE	Width (W)	Width (W2)	Length (L)	Length (L2)	Height (H)	Bundle Ø max.	Mounting Screw Type	Material	Colour	Article-No.
T120RHDM6	7.6	20.0	380.0	38.0	15.5	100.0	M6	PA46	Grey (GY)	156-00407
	7.6	20.0	380.0	38.0	15.5	100.0	M6	PA66HIRHS	Black (BK)	156-00406
T120RHDM8	7.6	20.0	380.0	38.0	15.5	100.0	M8	PA66HIRHS	Black (BK)	156-00408
	7.6	20.0	380.0	38.0	15.5	100.0	M8	PA46	Grey (GY)	156-00409

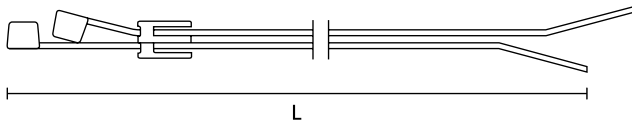
All dimensions in mm. Subject to technical changes.



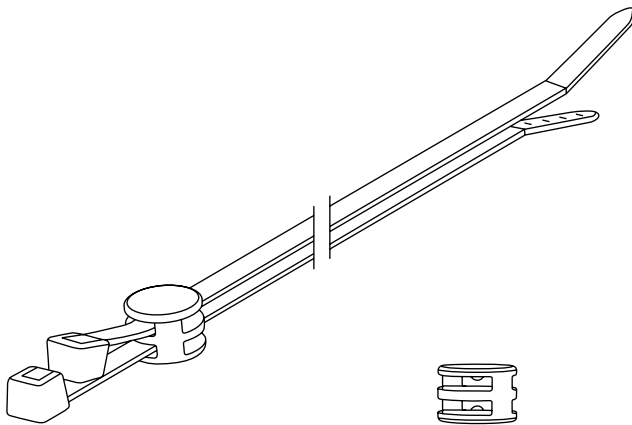
### 2-Piece Fixing Ties for parallel separation

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with coupler
- Cable tie head can be moved after bundling
- Easy addition of cables after assembly
- For parallel routing of bundles that can be twisted 90° even after setting



T120RCoupler with two ties



T120RCoupler

Fixing Element - Coupler



T120RCoupler can be used for parallel routing of two cable ties.

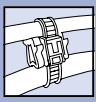


The second tie can be used for post-installations.

**Material specification please see page 30.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Article-No.
T50RCOUPLER	4.6	200.0	50.0	225	PA66HIR(S)	PA66HIRHS	156-00276
	4.6	200.0	50.0	225	PA46	PA46	156-00382
T120RSINGLECOUPLER	7.6	380.0	100.0	535	PA66HIR(S)	PA66HIRHS	156-00550
T120RCOUPLER	7.6	380.0	100.0	535	PA66HIR(S)	PA66HIRHS	156-00275

All dimensions in mm. Subject to technical changes.



### Cable Ties for single hole application (Chassis Tie)

Using a single hole these 'chassis ties' are widely used in the automotive, truck and heavy equipment markets. Ideal for applications which have access to both sides of the hole - for example truck frames.

#### Features and Benefits

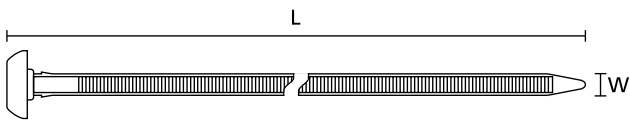
- Both sides of the cable tie serrated
- BHT-Series with round head for larger bearing area
- BHT375 for centred position
- CT- and DE-Series with small squared head for restricted space areas
- Tensioning with application tool



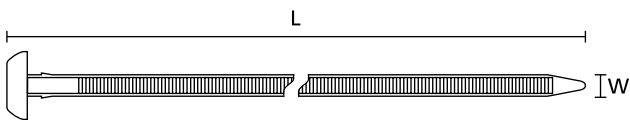
BHT375 - used for mounting cables via a single hole.

**Application tools**  
please see page 442.

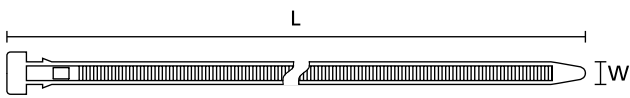
**Material specification**  
please see page 30.



BHT375



BHT375M

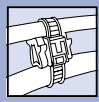


DE863220, CT375

**For your system solutions we offer suitable Fixing Elements: CGS1, see page 129.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Article-No.
BHT375		7.6	375.0	100.0	700	PA66HS	Black (BK)	150-37595
BHT375M		7.6	375.0	100.0	700	PA66HS	Black (BK)	150-47595
DE863220		6.0	300.0	80.0	135	PA66HS	Black (BK)	132-00200
CT375		7.6	375.0	100.0	700	PA66HS	Black (BK)	132-37540

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with rivet, releasable

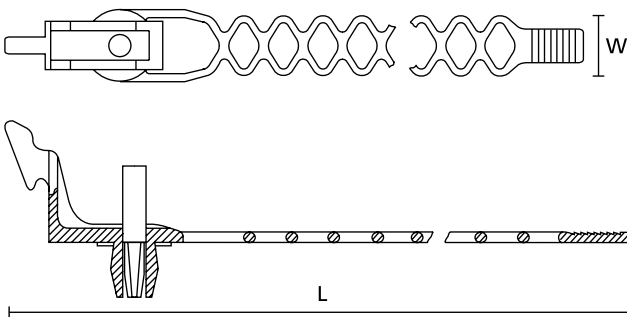
Offering a very secure fixing, particularly in applications suffering from vibration these rivet fixing ties are simple and quick to install. Designed originally for the automotive industry they are now widely used in many industries as diverse as Agriculture and Ship building.

#### Features and Benefits

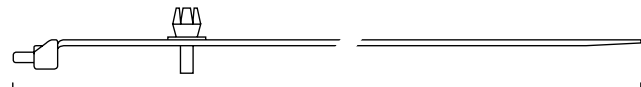
- Simple to install with wings to lock ties firmly in place
- Releasable and reusable
- RELF and RI ranges are conventional 'serrated' cable ties
- FBR range has a 'ladder-type' design for a very flexible strap



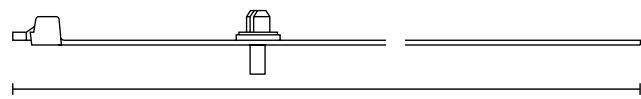
Fixing ties with rivet for especially safe fixing.



Fixing ties type FBR



Fixing ties type RI



Fixing ties type RELF

TYPE	Width (W)	Length (L)	Height (H)	Bundle Ø max.		Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
RI 80	7.0	80.0	-	16.0	265	6.9 - 7.1	0.8 - 2.2	PA12	Black (BK)	131-14080
RELF170	8.0	180.0	18.0	44.0	180	6.3	2.5 - 2.5	PA66HIR	Black (BK)	115-40902
RI 120	9.0	120.0	-	28.0	225	6.9 - 7.1	0.8 - 2.2	PA12	Black (BK)	131-14120
RI 160	9.0	160.0	-	41.0	265	6.9 - 7.1	0.8 - 2.2	PA12	Black (BK)	131-14160
FBR6/140	10.0	160.0	26.0	42.0	-	6.2 - 6.5	0.8 - 2.4	PA66	Black (BK)	150-27140

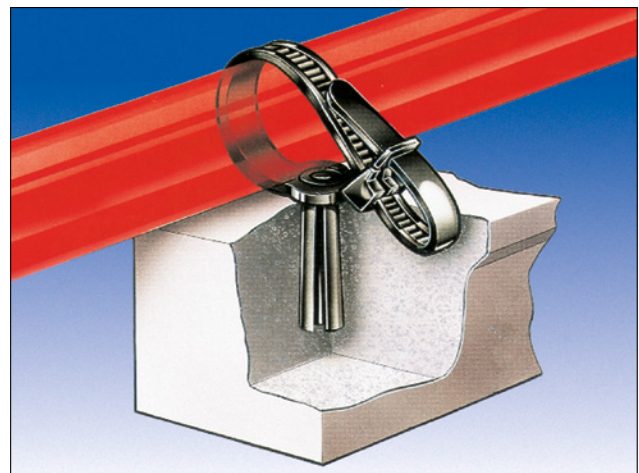
All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties with rivet, releasable

Simply drill an 8 mm hole and knock in the peg. Used to fasten cables, pipes or hoses in place.

#### Features and Benefits

- One-piece for fixing to brick, cement or wood
- Practical for the construction industry
- Time saving and versatile
- Depth of drill hole: 13.0 mm



Wall plug tie in application.

TYPE	Width (W)	Length (L)	Bundle Ø max.	Hole Ø (FH)	Material	Colour	Article-No.
WPT230	8.0	230.0	59.0	8.0	PA66HIR	Black (BK)	126-00020

All dimensions in mm. Subject to technical changes.

## Information and installation instructions for self-adhesive mounting bases

HellermannTyton uses two different types of adhesives for self-adhesive bases: acrylate and synthetic rubber. These differ in the operating temperature range and the 'pull off' force of the adhesive. Synthetic rubber has an excellent initial grip, allowing for almost immediate use. Acrylate adhesive has less initial grip, so there is a need to wait for a few hours before use, but has a higher 'pull off' force than synthetic rubber. This enables a permanent fixing lasting months

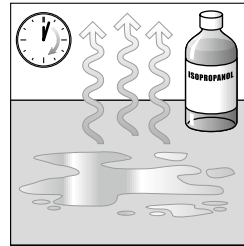
or even years. To use these adhesives the surface must be dry, and free of dust, oil, oxides, parting agents and other impurities. For this the use of isopropanol/water (50/50) is recommended. After cleaning allow the surface to dry completely. Peel off the protective backing on the self-adhesive base, ensuring the adhesive is not touched. Apply the part to the surface and press down firmly for several seconds.

ADHESIVE		Adhesive Operating Temperature
Synthetic rubber with base of polyethylene foam	Synthetic rubber	-20 °C to +50 °C
		-40 °C to +60 °C
Acrylate with base of polyurethane foam	Acrylate	to +105 °C
Acrylate with base of acrylic foam	mod. Acrylate	-40 °C to +90 °C

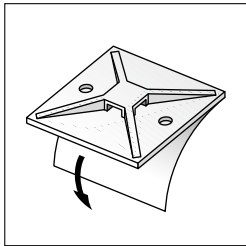
### Instructions for use



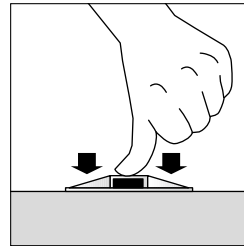
1. The surface must be dry, free from dust, oil, oxides, parting agents and other impurities. The surface to be glued should be cleaned using a clean cloth and isopropanol /water (50/50). When using other appropriate cleaning agents, ensure that they do not attack the surface nor leave any residues.



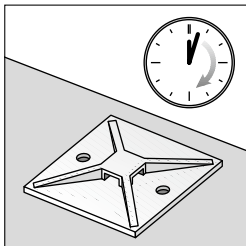
2. After cleaning allow the surface to air-dry completely.



3. Peel off protective backing and ensure the adhesive area is not touched.



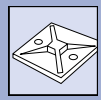
4. Press down firmly on the base with the thumbs for several seconds.



5. Depending on the type of adhesive, wait for several minutes (synthetic rubber) or hours (acrylate) so that the adhesive can bond completely with the surface.

**We will be happy to send you on request an up-to-date technical datasheet for whichever adhesive you are using.**





### Fixing Parts with Special Adhesive

- **SolidTack-Series**

These products work on varnished and powder coated surfaces as used in the railway, aviation or automotive industry. They can also be used on plastic covers, cases and parts as used in a variety of other industries.

#### Features and Benefits

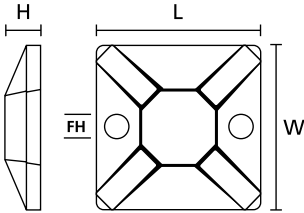
- MB mounts with homogeneous system of acrylic adhesive
- Very good initial adhesion, increases with time
- High cohesive strength combined with good weathering resistance
- Innovative fixing solution for low energy surfaces like PP, PE or painted / varnished surfaces
- Protective, easy peel backing



SolidTack products work on varnished and powder coated surfaces.

**Material specification please see page 30.**

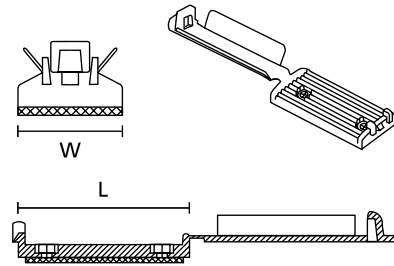
**For more information on the types of adhesive please see page 118.**



Cable Tie Mounts MB3, MB4, MB5



One Step to the Web!

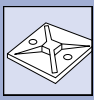


Flat Ribbon Cables FKH Series

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	For Cable Width max.	Material	Colour	Adhesive	Pack Cont.	Article-No.
MB3APT	19.0	19.0	3.8	3.1	4.1	-	PA66	Black (BK)	mod. Acrylate	100	151-00432
	19.0	19.0	3.8	3.1	4.1	-	PA66	Natural (NA)	mod. Acrylate	100	151-00514
MB4APT	28.0	28.0	4.7	4.0	5.4	-	PA66	Black (BK)	mod. Acrylate	100	151-00433
	28.0	28.0	4.7	4.0	5.4	-	PA66	Natural (NA)	mod. Acrylate	100	151-00587
MB5APT	38.0	38.0	6.4	4.7	10.0	-	PA66	Black (BK)	mod. Acrylate	100	151-00434
FKH50AVHB	25.0	56.5	-	3.1	-	50.0	PA66HIR	Black (BK)	mod. Acrylate	100	151-00312
FKH80AVHB	25.0	86.0	-	3.1	-	80.0	PA66HIR	Black (BK)	mod. Acrylate	100	151-00313

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Self Adhesive, Screw Fixing Cable Tie Mounts

- MB-Series Square-Cut, self adhesive, screwable

Where speed, simplicity and a firm fixing base are required these self adhesive clips are ideal. Particularly suitable for use in control cabinets, telecoms equipment or domestic appliances where the use of holes, screws or nuts and bolts are impractical or undesirable.

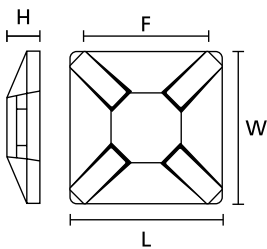
#### Features and Benefits

- Screw or self-adhesive versions
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration
- Maximum adhesive surface area to achieve high pull-off force
- 4-way entry for cable tie for quicker and more flexible installation

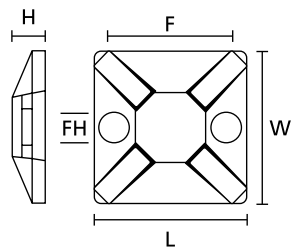


Cable Tie Mounts MB and TY.

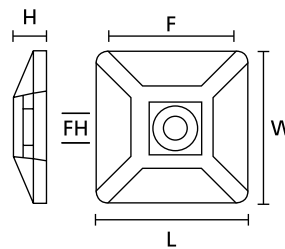
For more information on the types of adhesive please see page 118.



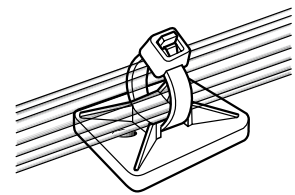
Cable Tie Mounts MB2A



Cable Tie Mounts MB3-5(A)



Cable Tie Mounts MB4CA



Cable Tie Mounts MB3A

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
MB2A	13.0	13.0	4.1	-	2.7	PA66	Natural (NA)	Synthetic rubber	100	151-01802
MB3A	19.0	19.0	3.8	3.1	4.1	PA66	Black (BK)	Synthetic rubber	100	151-28320
	19.0	19.0	3.8	3.1	4.1	PA66	Natural (NA)	Synthetic rubber	100	151-28349
MB4A3	28.0	28.0	4.7	4.0	5.4	PA66	Black (BK)	Acrylate	100	151-28430
MB4A	28.0	28.0	4.7	4.0	5.4	PA66	Black (BK)	Synthetic rubber	100	151-28412
	28.0	28.0	4.7	4.0	5.4	PA66	Natural (NA)	Synthetic rubber	100	151-28469
MB4CAS	29.0	29.0	5.7	4.2	5.4	PA66	Natural (NA)	Synthetic rubber	100	151-28449
MB4CA	29.0	29.0	5.7	4.2	5.4	PA66	Natural (NA)	Synthetic rubber	100	151-28459
MB5A	37.7	37.7	7.1	4.8	8.9	PA66	White (WH)	Synthetic rubber	100	151-28529
MB5A3	38.0	38.0	6.4	4.7	10.0	PA66	Black (BK)	Acrylate	100	151-28530

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



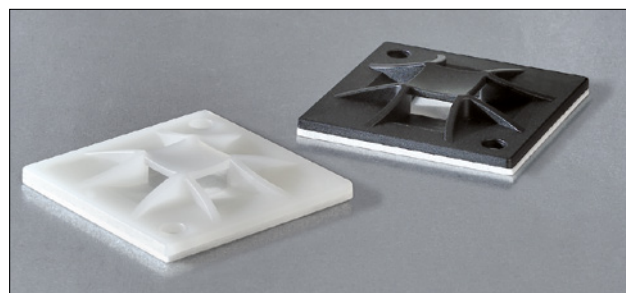
Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Q-Series

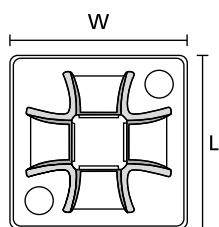
#### Features and Benefits

- Screw or self adhesive versions
- Perfect for combination with Q-ties
- 4-way entry for Q-tie
- Adhesive with high pull-off force
- Q-Mount base secures the Q-tie in a vertical position, leaving the hands free to apply cables

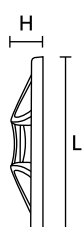


Q-mount QM, 4-way entry, adhesive, screwable.

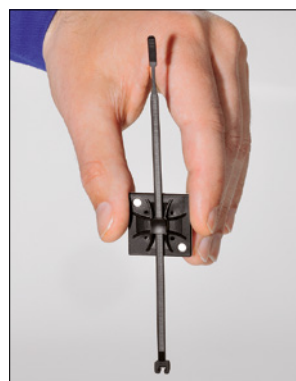
Please find more Q-Series products for your system solution on page 51 and 412.



Mounting Base Q-mount



Mounting Base Q-mount



The Q-mount base locks the Q-tie in vertical position, leaving the hands free to apply the cables.



One Step to the Web!

#### • Q-mount Series QMA, self adhesive, screwable

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
QM20A	20.0	20.0	3.7	3.1	4.0	PA66	Black (BK)	Synthetic rubber	100	151-10914
	20.0	20.0	3.7	3.1	4.0	PA66	Natural (NA)	Synthetic rubber	100	151-10904
QM30A	30.0	30.0	4.5	4.1	5.1	PA66	Black (BK)	Synthetic rubber	100	151-10915
	30.0	30.0	4.5	4.1	5.1	PA66	Natural (NA)	Synthetic rubber	100	151-10905
QM40A	40.0	40.0	5.5	4.1	8.4	PA66	Black (BK)	Synthetic rubber	50	151-10916
	40.0	40.0	5.5	4.1	8.4	PA66	Natural (NA)	Synthetic rubber	50	151-10906

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

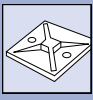
Material specification please see page 30.

#### • Q-mount Series QM, screwable

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
QM20	20.0	20.0	3.7	3.1	4.0	PA66	Black (BK)	100	151-10911
	20.0	20.0	3.7	3.1	4.0	PA66	Natural (NA)	100	151-10901
QM30	30.0	30.0	4.5	4.1	5.1	PA66	Black (BK)	100	151-10912
	30.0	30.0	4.5	4.1	5.1	PA66	Natural (NA)	100	151-10902
QM40	40.0	40.0	5.5	4.1	8.4	PA66	Natural (NA)	50	151-10903
	40.0	40.0	5.5	4.1	8.4	PA66	Black (BK)	50	151-10913

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Paste Adhesive Mount

- **PMB5**

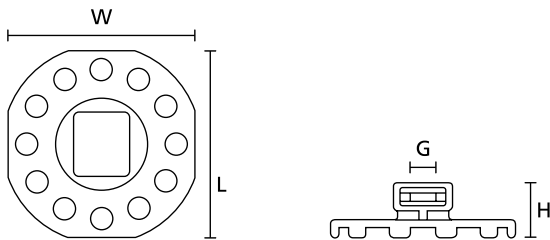
The PMB5 mount offers a fixing solution for applications where a screw fixing is not possible. Due to a larger diameter the mount can even be installed onto uneven surfaces. PMB5 mounts are used in the railway industry as well as in the renewable energy industry. Further applications can be seen in the ship building and electrical industries and the production of switching cabinets.

#### Features and Benefits

- PMB5 paste adhesive mount for fixings with paste / liquid adhesive
- Mount geometry offers a good form closure with cured adhesive
- Can even be installed onto uneven surfaces due to large diameter
- Can also be applied in combination with hot-melt adhesive, as mount is made of heat resistant PA66



*PMB5 mount with paste adhesive.*



*PMB5*

TYPE	Width (W)	Length (L)	Height (H)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
PMB5	36.0	36.0	10.7	4.8	PA66HS	Black (BK)	100	151-00498

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Screw Fixing Mounts

- with curved design

Designed specifically for holding heavier cable bundles these mounting bases can be used in many industries from agriculture to truck manufacture. They offer a very secure fixing and can be used with a wide variety of heavy duty cable ties up to 7.6mm wide.

#### Features and Benefits

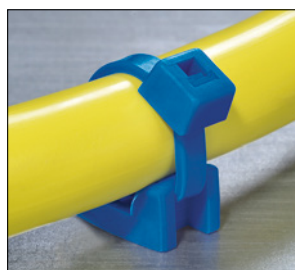
- Curved design for additional cable support
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration



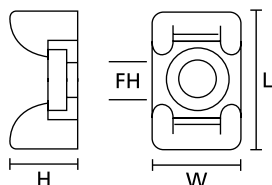
Cable Tie Mounts KR6G5, KR8G5 and CTM.

**Material specification  
please see page 30.**

**The KR-E/TFE mounts can  
ideally be combined with the  
E/TFE-cable ties on page 46.**



Fixing Tie Mount KR6G5-E/TFE.



Cable Tie Mounts KR6G5, KR8G5 and CTM

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
KR6G5	11.8	17.8	8.8	4.5	6.4	E/TFE	Blue (BU)	100	151-00653
	12.0	18.0	9.0	4.5	6.0	PA66	Natural (NA)	100	151-24619
	12.0	18.0	9.0	4.5	6.0	PA66W	Black (BK)	100	151-24660
KR8G5	14.3	24.8	12.1	6.5	8.3	E/TFE	Blue (BU)	100	151-00654
	14.5	25.0	12.0	6.5	8.0	PA66	Natural (NA)	100	151-24819
	14.5	25.0	12.0	6.5	8.0	PA66HS	Black (BK)	100	151-24850
CTM3	15.5	21.8	9.4	5.1	7.9	PA66	White (WH)	100	151-30605
	15.5	21.8	9.4	5.1	7.9	PA66	Black (BK)	100	151-30600

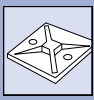
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Screw Fixing Mounts

- For applications where space is limited

Each of these products offer particular benefits, but all are designed for simple, yet robust, installation in a wide variety of applications. Particularly used in telecoms equipment, switchgear and control cabinets.

#### Features and Benefits

- Suitable for applications with minimal space
- Mounted before cable installation and in line with cable
- CTAM has 4-way entry design for use in line or at 90° angle to cable run



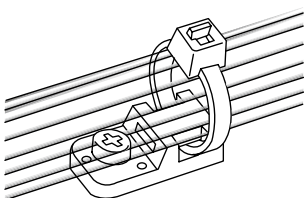
Peek Fixing solution PEEK containing of CTAM und PT2A.

**Material specification please see page 30.**

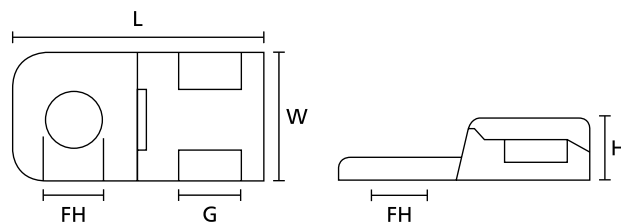
**The CTAM mounts made of PEEK are the ideal complement for the PEEK tie on page 61.**



One Step to the Web!



Cable Tie Mounts CTAM1/CTAM2



TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
CTAM1	10.2	20.5	5.5	4.3	4.6	PEEK	Beige (BGE)	100	151-00757
CTAM2	10.2	20.5	5.5	5.2	4.6	PEEK	Beige (BGE)	100	151-00758

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Harness Clip for Heavy Duty Applications, for Screws or Studs

Primarily designed for use in the automotive / truck industry, these parts can be used in a wide variety of industries and applications where bundles need mounting.

#### Features and Benefits

- Secure alignment to the bundle due to H-design
- Pre-fixing of clip with integrated nose (standard types)
- For cable ties up to 12.7 mm wide
- High tightening torque through metal bushing
- Easy maintenance of bundle by simply changing the cable tie



U.S. Patent Number 5,820,083.

#### • Standard Torque Mounts

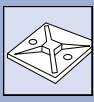
TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM25		19.0	35.8	16.7	6.2	12.7	PA66HIRHSUV	Black (BK)	100	151-00437
HDM19		19.3	36.3	16.7	4.7	12.7	PA66HIRHSUV	Black (BK)	100	151-00134
HDM312		19.3	36.3	16.7	7.8	12.7	PA66HIRHSUV	Black (BK)	100	151-00439

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### • Medium Torque Mounts

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM321		24.0	46.0	8.0	12.7	PA66HSW	Black (BK)	500	151-07100
HDM501		24.0	46.0	12.7	12.7	PA66HIRHSUV	Black (BK)	500	151-07500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



## Harness Clip for Heavy Duty Applications, for Screws or Studs

### • High Torque Mounts (metal bushing)

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM320		25.0	47.0	8.0	12.7	PA66HIRHSUV	Black (BK)	500	151-07000
HDM400		25.0	47.0	9.5	12.7	PA66HIRHSUV	Black (BK)	500	151-07200
HDM500		25.0	47.0	12.7	12.7	PA66HIRHS	Black (BK)	500	151-07400

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

### • High Torque Double Mounts (metal bushing)

TYPE	Drawing	Width (W)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM375		34.5	25.2	9.5	12.7	PA66HIRHSW	Black (BK)	100	151-00756

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

## Screw Fixing Mounts

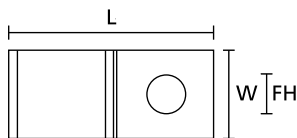
### • Stainless Steel 316 mounts for MBT Ties

#### Features and Benefits

- 2-way fixing for MBT-S and MBT-H ties
- High performance stainless steel 316 material
- 10mm slot width
- Single 4mm, 5mm or 6mm fixing hole
- Heavy duty design
- Robust and durable solution
- Resistant to a range of materials and conditions
- Quick and easy to install
- Safe and secure solution for cables, tubing, conduits and pipes
- Ideal for a range of industries and applications



Stainless Steel P-mount SSPC.



SSPC-Series

The SSPC-Mounts can ideally be combined with the MBT cable ties on page 68.



One Step to the Web!

TYPE	Length (L)	Width (W)	Height (H)	Hole Ø (FH)	Material	Colour	Pack Cont.	Article-No.
SSPC4	23.0	10.2	4.5	4.2	SS316	Metal (ML)	100	151-00837
SSPC5	23.0	10.2	4.5	5.3	SS316	Metal (ML)	100	151-00838
SSPC6	23.0	10.2	4.5	6.3	SS316	Metal (ML)	100	151-00839

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

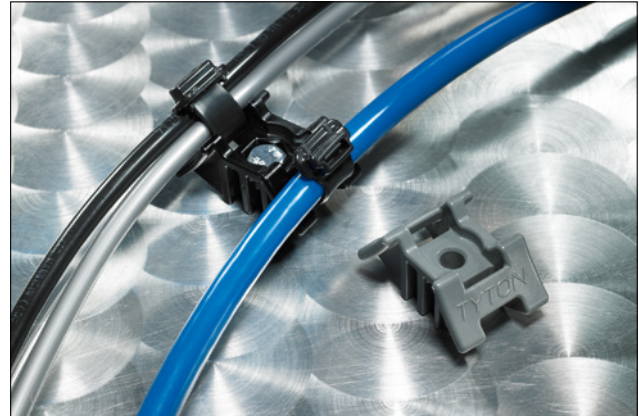


### Harness Clip for Heavy Duty Applications. for Screws or Studs, for parallel separation

This heavy duty harness clip helps to fix and secure cable and wires in railway, truck and agriculture vehicle construction as well as in ship building.

#### Features and Benefits

- For parallel routing of bundles
- Secure alignment to the bundle due to H-design
- Cable tie head can be moved after bundling
- For cable ties up to 12.7 mm wide
- Easy maintenance of bundle by simply changing the cable tie



*This saddle mount is installed between two bundles to separate them and prevent chafing and wear.*

**Material specification please see page 30.**

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Bundle Ø max.	Stud Ø	Material	Colour	Pack Cont.	Article-No.
<b>S2CM25</b>	30.0	45.0	23.0	6.0	89.0	6.35	PA66HIRHS	Grey (GY)	500	151-29400
<b>S2HM25</b>	30.0	45.0	23.0	6.0	89.0	6.35	PA66HIRHSUV	Black (BK)	500	151-29403

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

### Harness Clip for Heavy Duty Applications, for Screws or Studs for Edges

This heavy duty harness clip helps to fix and secure cable and wires in railway, truck and agriculture vehicle construction as well as in ship building.

#### Features and Benefits

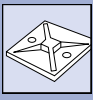
- Guides bundles securely above sharp edges
- For bolts or screws of D = 8 mm
- Cable tie head can be moved after bundling
- Secure alignment to the bundle due to H-design
- For cable ties up to 12.7 mm wide



*Axial oval mounts stand off bundles from frame rails and cross members to prevent them from rubbing and chafing.*

TYPE	Width (W)	Length (L)	Height (H)	Stud Ø	Material	Colour	Pack Cont.	Article-No.
<b>SAM83</b>	26.0	34.0	35.0	8.0	PA66HIRHS	Grey (GY)	500	151-29600
<b>SAOM82</b>	26.0	34.3	35.0	8.0	PA66HIRHSUV	Black (BK)	500	151-29701

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

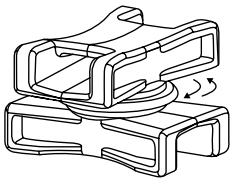


### Fixing elements for Parallel Routing, twistable

These fixing element for parallel routing can be used where bundles need separation from each other combined with the necessary functionality to support moving harnesses.

#### Features and Benefits

- For parallel routing of bundles that can be twisted 360° even after setting
- Secure alignment to the bundle due to H-design
- Cable tie head can be moved after bundling
- For cable ties up to 12.7 mm wide
- For post-installation of bundles



swivels



The spacers can be easily rotated by hand, allowing the bundles to be crossed and rotated at any angle.

**Material specification  
please see page 30.**

TYPE	Width (W)	Length (L)	Height (H)	Bundle Ø min.	Bundle Ø max.	Material	Colour	Pack Cont.	Article-No.
DSWS4	20.3	23.6	18.0	6.0	76.0	PA66HS, POM	Black (BK)	2,200	151-06500
DSWS5	25.4	40.6	23.6	16.0	152.0	PA66HS	Black (BK)	50	151-06502

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



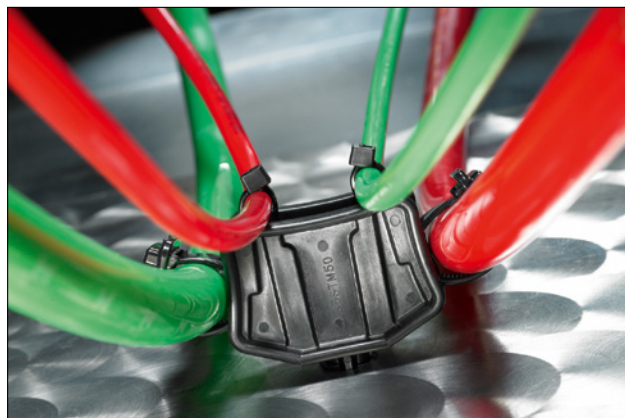


### Fixing Elements with Fir Tree, for Distance Routing

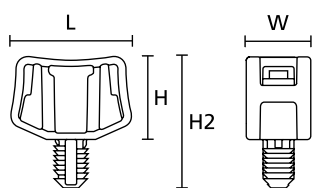
With its heavy duty fixing ability this product offers excellent performance for the truck, ship and construction vehicle industries.

#### Features and Benefits

- For parallel routing of four bundles
- Secure alignment to the bundle due to H-design
- For cable ties up to 12.7 mm wide
- Pre-fixing of tie with integrated nose



The mount can secure up to 4 separate bundles, providing parallel spacing between the frame rail and adjacent bundles.



Fir Tree Saddle Mounts

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Pack Cont.	Article-No.
S3STM50	22.0	50.0	35.0	55.0	12.7	1.9 - 13.0	PA66HIRHSUV	Black (BK)	100	151-29500

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

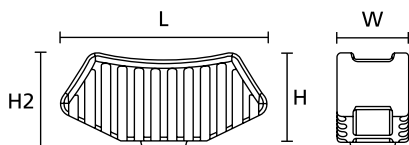
### Fixing Elements for BHT-Ties for Distance Routing

#### Features and Benefits

- For parallel routing of three bundles
- Retainer is fixed in the hole with BHT-tie
- Socket centres retainer in the hole and can protect tie from sharp edges



Saddle Mount MSBT120.



MSBT120

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Panel Thickness	Material	Colour	Pack Cont.	Article-No.
MSBT120	16.5	48.3	20.6	22.2	4.1	PA66HIRHSUV	Black (BK)	500	151-29301

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Arrowhead Cradle

- SFC

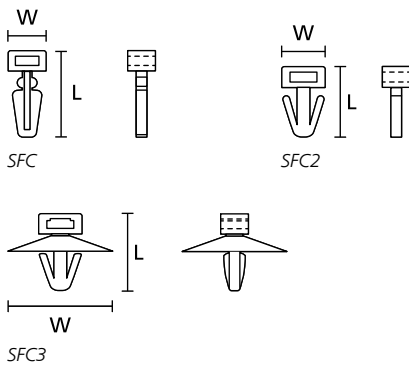
Offering simple and easy methods of securing cables or pipes these fixing accessories have many applications within a wide range of industries.

#### Features and Benefits

- Arrowhead fixing for use in pre-drilled or punched holes
- SFC and SFC2 for ties up to 5.3 mm wide
- SFC3 for ties up to 8.6 mm wide



Securely fix and route cables and pipes with SFC3.



**Material specification  
please see page 30.**

TYPE	Width (W)	Length (L)	Hole Ø (FH)	Panel Thickness	Strap Width max. (G)	Material	Colour	Article-No.
SFC2	6.0	14.5	6.0	0.8 - 1.0	5.3	PA66	Natural (NA)	151-02000
SFC	11.0	18.0	6.0	3.0 - 3.2	5.3	PA66	Natural (NA)	151-01600
SFC3	22.0	15.5	6.3	0.8 - 1.8	8.6	PA66	Black (BK)	151-01906
	22.0	15.5	6.3	0.8 - 1.8	8.6	PA66	Natural (NA)	151-01909

All dimensions in mm. Subject to technical changes.

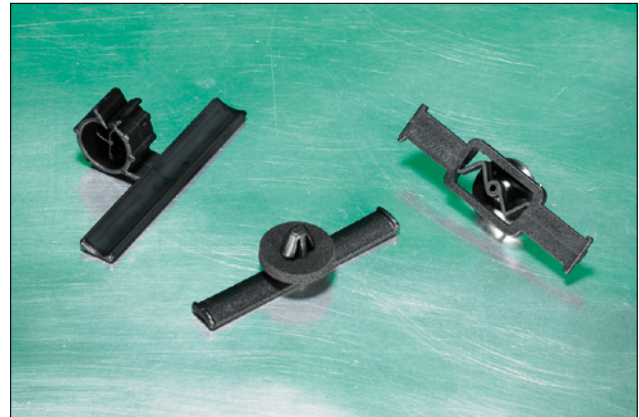


### Bundling Clips with Arrowhead

Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cable hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Easy to install without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- ATS fixing elements can be tied automatically with the ATS3080 tool
- Variants with pipe clips allow the addition of cables after installation



BundlingClip with OmegaClip, BundlingClip with foam, BundlingClip LRJ1.

#### • Bundling Clips with Arrowhead

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
LRJ1		55.0	6.2 - 6.7	0.7 - 2.0	PA6	Black (BK)	151-08101
BCSFT6.5 16-3		55.0	6.3 - 6.7	2.3 - 3.5	PA66HIRHS	Black (BK)	151-00431
ATSBCSFT6.5		39.0	6.3 - 6.7	2.3 - 3.3	PA66HIRHS	Black (BK)	102-69066

All dimensions in mm. Subject to technical changes.

#### • Bundling Clips with Arrowhead, sealed

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
BCSFT6.5 16-3MD		55.0	6.3 - 6.7	1.5 - 3.0	PA66HIRHS	Black (BK)	155-11601
ATSBCSFT6.5-MD		39.0	6.3 - 6.7	2.0 - 3.0	PA66HIRHS	Black (BK)	102-69065

All dimensions in mm. Subject to technical changes.

#### • Bundling Clips with additional Harness Clip

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
OCTC1		60.0	-	-	PA66HIRHS	Black (BK)	151-00447
Halter SFT6.5		60.0	6.3 - 6.7	0.6 - 1.5	PA66HIRHS	Black (BK)	133-00067

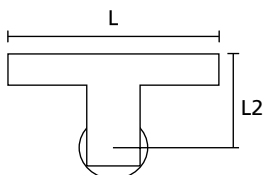
All dimensions in mm. Subject to technical changes.



## Bundling Clips with Arrowhead for Distance Routing

### Features and Benefits

- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Versions for oval holes feature anti-twist protection



StandOff Clips allow cable looms to be routed at a set distance from the punched holes.

TYPE	Drawing	Length (L)	Length (L2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CH20D7		50.0	20.0	6.4 - 7.0	0.8 - 1.6	PA66	Black (BK)	151-02600
CH20D6		50.0	20.0	6.4 - 7.0	0.8 - 1.6	PA66HS	Black (BK)	151-00077
STAND-OFF-CLIP-2		40.0	25.0	6.5 - 6.8	0.4 - 1.6	PA66HIRHS	Black (BK)	155-01600
STAND OFF CLIP		40.0	31.0	6.5 - 6.8	0.4 - 1.6	PA46	Grey (GY)	150-45398
		40.0	31.0	6.5 - 6.8	0.4 - 1.6	PA66HIRHS	Black (BK)	150-45397

All dimensions in mm. Subject to technical changes.

## Bundling clips moveable, with fixing

### Features and Benefits

- Easy to install without the need for a tool
- Horizontal length tolerance compensation
- Ideal if holes do not fit registration or bundles need to be routed around corners



The CHA2 with fir tree base and length tolerance compensation for precise cable routing even in difficult conditions.

#### • CHA1 with arrowhead

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CHA1		6.0	54.0	6.3 - 7.0	0.5 - 1.2	PA66HS	Black (BK)	150-08110

All dimensions in mm. Subject to technical changes.

#### • CHA2 with fir tree

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CHA2		6.0	54.0	6.5 - 7.0	0.8 - 2.0	PA66	Black (BK)	151-02901

All dimensions in mm. Subject to technical changes.





### Bundling Clips with Fir Tree

Widespread use in cable harness production; a quick and easy means of fixing cables and lines securely in various parts of cars.

#### Features and Benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Holding tabs prevent the tie slipping sideways
- Versions for oval holes feature anti-twist protection

**Material specification please see page 30.**



BundlingClips with fir tree bases for a variety of applications with a wide range of metal thicknesses and drill holes.

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TC5FT6S		37.0	6.4 - 7.1	0.8 - 1.5	PA66HIRHS	Black (BK)	150-95500
TC3FT6S		37.0	6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	151-00028
TC4FT6LG		37.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	151-00215
TC4FT6LGD		37.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	151-00487
TC4FT6LG-A		37.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Natural (NA)	151-00467
TC2FT6LG		55.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	155-30802
TC2FT6LG		55.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Natural (NA)	151-00020
TCDSFT6-HEX			40.0	6.35	0.8 - 4.5	PA66HIRHS	Black (BK)
CHDP66	40.0		6.6	0.8 - 4.5	PA66	Black (BK)	150-07010
BCFT6XL56		56.0	6.3 - 7.0	0.7 - 9.0	PA66HIRHS	Black (BK)	151-00662
ATSBCFT6LG		39.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	102-67065
BCOWFT6M		27.3	6.5 - 7.0	0.6 - 3.5	PA66HIRHS	Natural (NA)	151-00790
BCOWFT5		24.9	4.9 - 5.1	2.9 - 3.1	PA66HIRHS	Black (BK)	151-00904

All dimensions in mm. Subject to technical changes.

### Bundling Clips with Fir Tree, for Oval Holes

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TCOP62x122		55.0	6.2 x 12.2	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00605
TCOP70x120		55.0	7.0 x 12.0	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00029
WICKELCLIP-VDS		40.0	6.3 x 9.0	0.6 - 2.5	PA66HIRHS	Black (BK)	155-16301
BCFT63x100S		40.0	6.5 x 10.2	0.6 - 2.5	PA66HIRHS	Black (BK)	151-00759

All dimensions in mm. Subject to technical changes.





### Bundling Clips with Fir Tree, for Distance Routing

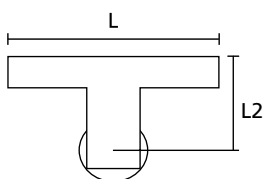
Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables or pipes and have many applications within a wide range of industries.

#### Features and Benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Disc covers the hole to prevent dirt and water gaining access
- Bundle runs in a set distance to the hole



COW Clip used as tape-on clip.



TYPE	Drawing	Length (L)	Length (L2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
COW20DP7		42.0	20.0	6.3 - 7.0	0.8 - 4.5	PA66HS	Brown (BN)	151-03100
COW30DP7		42.0	30.0	6.3 - 7.0	0.8 - 4.5	PA66	Black (BK)	151-03200
SOC4 M.FT6		55.0	20.0	6.5 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	155-30902
SOC5FT6LG		55.0	13.0	6.5 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	151-00074
SOC6		55.0	22.0	6.3 - 7.0	0.8 - 3.5	PA66HIRHS	Black (BK)	151-00023
SOC10405		55.0	20.0	6.3 - 6.7	0.7 - 3.5	PA66HIRHS	Black (BK)	151-00282
SOC3-FT6-LG.		12.0	30.0	6.4 - 7.1	0.8 - 6.0	PA66HIRHS	Black (BK)	155-19001
SOC7FT6		56.0	42.5	6.3 - 6.9	0.7 - 5.7	PA66HIRHSUV	Black (BK)	151-00629
SOC8FT6LG		40.0	30.0	6.5 - 7.0	0.7 - 5.8	PA66HIRHS	Black (BK)	151-00665

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Weld Studs, moveable

Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cable hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Easy assembly without the need for a tool
- Horizontal length tolerance compensation up to 4.0 mm
- BCUWS5-D5-25: for coarse thread studs
- If connector retainer is a request: TCSB5CYCC
- If post-installation of cables is needed: Bundling clip SB5
- For defined distance of bundles to surface: BCOS variants



TCSB5CYCC: Tapebar, Stud Retainer and ConnectorClip in just one article.

**Material specification  
please see page 30.**

#### • Bundling Clips for Weld Studs, moveable

TYPE	Drawing	Stud Ø	Length (L)	Material	Colour	Article-No.
WICKELCLIP-SB5		5.0	60.0	POM	Black (BK)	155-23701
TC-SB5C		5.0	55.0	PA66HS	Black (BK)	151-26101
TCSB5CYCC		5.0	55.0	PA66HIRHS	Black (BK)	151-00484
BCUWS5-D5-25		5.0	50.0	PA66HIRHS	Black (BK)	151-00851

All dimensions in mm. Subject to technical changes.

#### • Bundling Clips for Weld Studs

TYPE	Drawing	Stud Ø	Length (L)	Material	Colour	Article-No.
BCO55		5.0	59.0	PA66HIRHS	Black (BK)	151-00664
TCOS10305		6.0	59.0	PA66HIRHS	Black (BK)	151-00281

All dimensions in mm. Subject to technical changes.

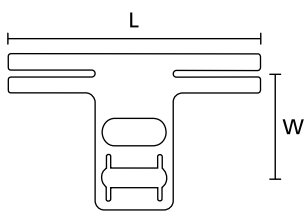


### Bundling Clips, Flat, for Weld Studs, moveable

The BC series is proving very popular in the automotive industry as a means of installing cable sets easily in various areas of the vehicle.

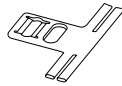
#### Features and Benefits

- Very flat bundling clip for 5.0 mm weld stud
- Horizontal length tolerance compensation
- Suitable for cables of reduced weight and diameter




The slim line BC series is particularly compact and flexible.

#### • BC2212 for distance routing 12.0 and 22.0 mm

TYPE	Drawing	Width (W)	Length (L)	Stud Ø	Material	Colour	Article-No.
BC2212		22.0	55.0	5.0	PA66HIRHS	Black (BK)	151-00017

All dimensions in mm. Subject to technical changes.

#### • BC30 for distance 30.0 mm

TYPE	Drawing	Width (W)	Length (L)	Stud Ø	Material	Colour	Article-No.
BC30		30.0	55.0	5.0	PA66HIRHS	Black (BK)	151-00016

All dimensions in mm. Subject to technical changes.



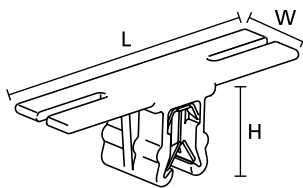
### Bundling Clips for Edges

- **EdgeClip-Family**

EdgeClips are used in the automotive and electrical industries and are ideal when it is impossible to drill holes or no other fixing points are available.

#### Features and Benefits

- Easy assembly without the need for a tool
- Designed for edges of 1 - 3 resp. 1.5 - 4.5 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- ATS fixing elements can be tied automatically with tools ATS3080 and AT2000



EC15



Cables and leads can be fastened with a cable tie or adhesive tape to the bars of the mounting element.

**Material specification  
please see page 30.**



One Step to the Web!

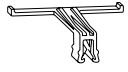
TYPE	Drawing	Width (W)	Length (L)	Height (H)	Panel Thickness	Material	Colour	Article-No.
EC14		10.0	40.0	12.4	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03404
EC15		10.0	40.0	12.4	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03401
EC16		10.0	40.0	13.0	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03402
EC17		10.0	46.5	13.0	1.0 - 3.0	PA46	Grey (GY)	151-00819
		10.0	46.5	13.0	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03403
ATSBCEC35		9.0	39.0	13.2	1.5 - 4.0	PA66HIRHS	Black (BK)	102-68355
ATSBCEC36		9.0	39.0	16.0	1.5 - 4.0	PA66HIRHS	Black (BK)	102-68365
ATSBCEC37		9.0	39.0	14.2	1.5 - 4.0	PA66HIRHS	Black (BK)	102-68375

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Edges

- Bundling Clips for Edges, 1.0 - 3.0 mm, for Distance Routing

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Panel Thickness	Material	Article-No.
EC30		9.0	50.0	13.5	1.0 - 3.0	PA66HIRHS	151-00022

All dimensions in mm. Subject to technical changes.

### Bundling Clips for Connectors

Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cable hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits


- Bundles are guided above connector plug
- Secure fixing of connector
- For horizontal length tolerance compensation up to 5.0 mm: CONNECTOR CLIP



ConnectorClips designed for cables and cable sets used in the automotive industry.

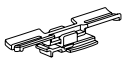
**Material specification please see page 30.**

- Bundling Clips for Connectors

TYPE	Drawing	Length (L)	Material	Colour	Article-No.
YAZ-CONN-TAPE-CLIP		55.0	PA66HS	Black (BK)	155-31102

All dimensions in mm. Subject to technical changes.

- Bundling Clips for Connectors, moveable

TYPE	Drawing	Length (L)	Material	Colour	Article-No.
CONNECTOR CLIP		55.0	PA66HIRHS	Black (BK)	150-41397

All dimensions in mm. Subject to technical changes.





### Connector Clips for round holes

The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry.

#### Features and Benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- One fir tree foot part can be used for a variety of panel thicknesses
- Arrowhead simply locks into place
- Disc covers the hole to prevent dirt and water gaining access
- For twist protection: Variants with additional stick or for oval holes



ConnectorClips are available for many different connector types and fixing varieties.

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
Big YCC TS		6.4 - 7.1	0.7 - 5.1	PA66HIRHS	Black (BK)	151-00235
FT6LG m. AMP-Aufnahme		6.7 - 7.0	0.7 - 6.0	PA66HIRHS	Black (BK)	155-03800
FT6LG.JAE.CONNECT.TS		6.5 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	151-00459
FT6LG.M.St.Aufn.II		6.5 - 7.0	0.8 - 5.0	PA66HIRHS	Black (BK)	155-32602
FT6LG.M.STECKERAUFN.		6.4 - 7.1	0.8 - 6.0	PA66HIRHS	Black (BK)	155-18901
FT6LG.YAZ.Connect.TS		6.3 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	155-30702
FT6S-Y-CONN-TS		6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	155-43702
STECKERHALTER SITZ		6.7 - 7.0	0.6 - 3.0	PA66HIRHS	Black (BK)	155-36002
YCC-FT6-S		6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	155-38102

All dimensions in mm. Subject to technical changes.



## Connector Clips for round holes

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
YCCFT6S-2		6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	151-00606
BIG CONNECTOR CLIP		6.3 - 6.7	0.7 - 2.7	PA66HIRHS	Black (BK)	150-54498
CCFT6LG		6.0 - 6.7	0.7 - 4.0	PA66HIRHS	Black (BK)	151-00785
CCSFT6.5		6.3 - 6.7	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00775
CP6FT6		6.2 - 6.5	0.7 - 5.0	PA6HIR	Black (BK)	151-00162
CP2FT6		6.2 - 6.5	0.7 - 5.0	PA66HIRHS	Black (BK)	151-00216
CP3FT6		6.2 - 6.5	0.7 - 5.0	PA66HIRHS	Black (BK)	151-00163
YCKSFT6.5		6.3 - 6.7	0.7 - 1.3	PA66HIRHS	Black (BK)	151-00675
CC-PAEKSFT6.5PT1.7-2.3		6.3 - 6.7	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00840
YCKSFT6.5-PT1.7-2.3		6.3 - 6.7	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00792

All dimensions in mm. Subject to technical changes.



### Connector Clips for oval holes

#### Features and Benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- Easy to assemble without the need for a tool
- Oval connectors offer twist protection



For a secure fixing simply push the connector by hand (ConnectorClip YCCFT62x122).

**Material specification  
please see page 30.**

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CCSFT7x12		7.0 x 12.0	0.8 - 2.0	PA66HIRHS	Black (BK)	151-00194
		7.0 x 12.0	0.8 - 2.0	PA66HIRHS	Blue (BU)	151-00595
		7.0 x 12.0	0.8 - 2.0	PA66HIRHS	Grey (GY)	151-00222
CCAMPSFT7.0x12.0		7.0 x 12.0	1.2 - 2.0	PA66HIRHS	Black (BK)	155-43802
YCCSFT62122		6.2 x 12.2	0.6 - 1.0	PA66HIRHS	Black (BK)	151-00513
YCCFT62x122		6.2 x 12.2	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00180
CP61DOP		6.2 x 12.2	0.6 - 5.0	PA6HIR	Black (BK)	151-00466
CP21DOP		6.2 x 12.2	0.6 - 5.0	PA66HIRHS	Black (BK)	151-00465
CP31DOP		6.2 x 12.2	0.6 - 5.0	PA66HIRHS	Black (BK)	151-00214
CCIISFT6.5x13		6.5 x 13.0	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00620
CCIVSFT6,5x130		6.5 x 13.0	0.7 - 1.5	PA66HIRHS	Black (BK)	133-00392
YCKSFT62x122PT0.7-1.3 90°		6.2 x 12.2	0.7 - 1.3	PA66HIRHS	Black (BK)	151-00833
YCKSFT62x122PT0.7-1.3		6.2 x 12.2	0.7 - 1.3	PA66HIRHS	Black (BK)	151-00835
YCKSFT62x122PT1.7-2.3 90°		6.2 x 12.2	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00834
YCKSFT62x122PT1.7-2.3		6.2 x 12.2	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00836

All dimensions in mm. Subject to technical changes.



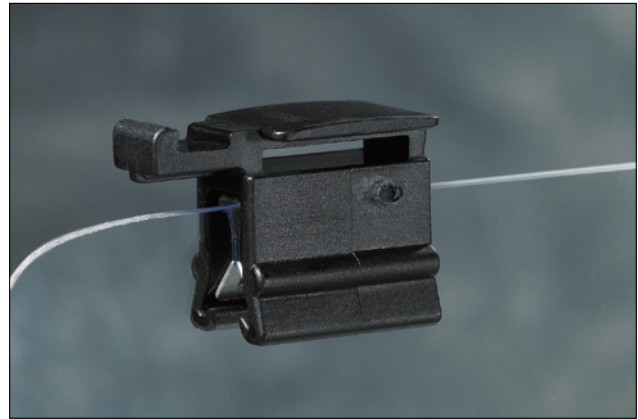
## Connector Clips for Edges

### • EdgeClip-Family

Edge Clips are used in the automotive and electrical industries for applications where it is impossible to drill holes or no other fixing points are available.

#### Features and Benefits

- Connectors are mounted simply by pushing them into retainer
- Connector can be removed without damage
- Fastened to an edge, the EdgeClip ensures a snug fit on almost all types of connector



EdgeClip EC6mod.

TYPE	Drawing	Panel Thickness	Material	Colour	Article-No.
Edge-Clip25		1.0 - 3.0	PA66HIRHS	Black (BK)	133-00075
EC28		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00151
EC32		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00173
EC33		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00192
EC42		1.5 - 4.0	PA66HIRHS	Black (BK)	151-00429
EC43		1.5 - 4.0	PA66HIRHS	Black (BK)	151-00430
EC45		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00460

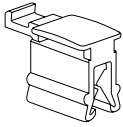
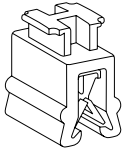

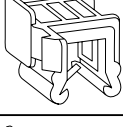
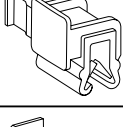
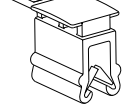
All dimensions in mm. Subject to technical changes.



### Connector Clips for Edges

- EdgeClip-Family

Material specification  
please see page 30.

TYPE	Drawing	Panel Thickness	Material	Colour	Article-No.
EC6mod		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00464
EC JAE CC		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00472
CCEC3.0TP		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00611
ECC1CPT		3.0 - 6.0	PA66HIRHS	Black (BK)	151-00499
EC11		1.0 - 3.0	PA66HIRHS	Black (BK)	155-40602
CONNECTOR-CLIP EC6		1.0 - 3.0	PA66HIRHS	Black (BK)	150-92600

All dimensions in mm. Subject to technical changes.





### Fixing Elements with Arrowhead

These fixing elements can be used in a wide range of applications where space saving work is necessary.

#### Features and Benefits

- Fixing part with rounded arrowhead to minimise assembly height
- Ideal for applications where space is limited
- Simply clip on a wire or hose
- Bundle diameter is defined
- Suitable for post-installation of bundles



The very low arrowhead is specially designed for narrow installation spaces.

TYPE	Drawing	Height (H)	Attach to Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
KSFT6.5OC1-3		14.4	1.0 - 3.0	6.3 - 6.7	2.3 - 2.7	PA66HIRHS	Black (BK)	151-00673
KSFT6,5 OC 7-9		21.6	7.0 - 9.0	6.3 - 6.7	2.3 - 2.7	PA66HIRHS	Black (BK)	151-00674

All dimensions in mm. Subject to technical changes.

### Fixing Elements with Fir Tree

#### Features and Benefits

- Easy to install without the need for a tool
- Disc covers the hole to prevent dirt and water gaining access
- Bundle diameter is defined
- Clips to be attached into bore hole
- Suitable for post-installation of bundles

TYPE	Drawing	Height (H)	Attach to Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
HC48FT6		20.8	4.3 - 5.2	6.5 - 7.0	0.7 - 2.8	PA66HIRHS	Black (BK)	151-00680

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature

- AHC-Serie

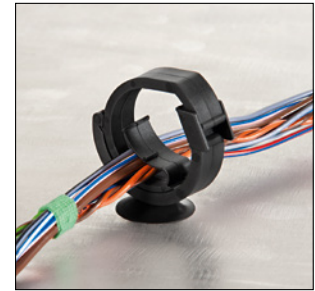
Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry they are finding a wide variety of applications in all industries using sheet metal panels.

#### Features and Benefits

- Push and click closure for fixation of wires
- Clip is clicked into a specific hole
- AHC\_SS und AHC\_SB can be pushed onto a 5.0 mm stud



Automatic Harness Clip open.



Automatic Harness Clip closed.

**Material specification  
please see page 30.**

TYPE	Drawing	Width (W)	Length (L2)	Length (L)	Disc Ø	Bundle Ø max.	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
AHC2SS		10.0	-	29.0	-	20.0	-	-	PA66HIRHS	Black (BK)	151-00368
AHC1AH		10.0	7.0	25.0	20,0	13.0	6,2 - 6,7	0.5 - 2.0	PA66HIRHS	Black (BK)	151-00366
AHC2AH		10.0	7.0	29.5	20,0	20.0	6,2 - 6,7	0.5 - 2.0	PA66HIRHS	Black (BK)	151-00367
AHC4AH		13.5	7.5	58.0	24,0	36.0	6,2 - 6,7	0.7 - 3.0	PA66HIR	Black (BK)	151-00374
AHC2BH		10.0	7.0	29.0	20,0	20.0	6,2 x 12,2	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00208
AHC3BHR		10.0	7.0	40.0	24,0	28.0	6,2 x 12,2	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00370
AHC3SB		10.0	-	41.0	27,0	28.0	-	-	PA66HIRHS	Black (BK)	151-00373
AHC3DH		10.0	-	66.0	-	28.0	6,2 x 12,2	0.5 - 2.0	PA66HIRHS	Black (BK)	151-00181
AHC3EH2		11.0	5.2	44.2	24,0	28.0	6,2 x 12,2	1.8 - 4.8	PA66HIRHS	Black (BK)	151-00928
AHC3CHR		10.0	7.0	40.0	24,0	28.0	6,2 x 12,2	0.7 - 3.0	PA6HIR	Black (BK)	151-00371

All dimensions in mm. Subject to technical changes.

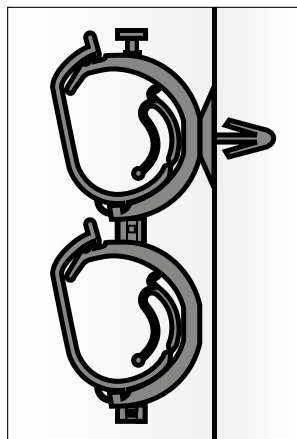


### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature, interconnectable

Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry they are finding a wide variety of applications in all industries using sheet metal panels.

#### Features and Benefits

- Push and click closure
- Coupling elements of the IAHC variants allow parts to interconnect
- Clip is clicked into a specific hole
- IAHC\_T can only be connected with another (I)AHC element



IAHC elements can be connected.

#### • IAHC-Series, Connectable

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Material	Colour	Article-No.
IAHC1T		10.0	23.0	13.0	PA66HIRHS	Black (BK)	151-00223
IAHC2T		10.0	30.0	20.0	PA66HIRHS	Black (BK)	151-00199
IAHC3T		10.0	40.0	28.0	PA66HIRHS	Black (BK)	151-00213
IAHC4T		13.5	47.0	36.0	PA66HIRHS	Black (BK)	151-00207
IAHC5T		13.5	57.0	45.0	PA66HIRHS	Black (BK)	151-00195

All dimensions in mm. Subject to technical changes.

#### • IAHC-Serie, Connectable, with Arrowhead

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Disc Ø	Material	Colour	Article-No.
IAHC4AH		13.0	46.0	6,2 - 6,7	24,0	PA6HIRHS	Black (BK)	151-00211
IAHC3AH		13.5	40.0	6,2 - 6,7	24,0	PA66HIRHS	Black (BK)	151-00378
IAHC4AH		13.5	48.0	6,2 - 6,7	24,0	PA66HIRHS	Black (BK)	151-00382
IAHC5BH		13.5	57.0	6,2 x 12,2	24,0	PA66HIRHS	Black (BK)	151-00384
IAHC3CH		13.5	40.0	6,2 x 12,2	24,0	PA66HIRHS	Black (BK)	151-00381
IAHC4CH		13.5	47.0	6,2 x 12,2	24,0	PA6HIRHS	Black (BK)	151-00383
IAHC3EH		13.5	44.5	6,2 x 12,2	24,0	PA66HIRHS	Black (BK)	151-00489
IAHC5FH		13.5	61.5	6,2 x 12,2	24,0	PA66HIRHS	Black (BK)	151-00787

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses, for Edges

#### • EdgeClip-Family

Edge Clips are used in the automotive and electrical industries for applications where it is impossible to drill holes or no other fixing points are available.

#### Features and Benefits

- Releasable fixing elements with EdgeClip
- Low-vibration routing of larger bundle diameters
- Can be easily pushed onto an edge by hand
- Can also be snapped together with one hand
- Bundles can be released at any time
- EC27: fixing element enables usage of smaller bundle diameter
- EC41: for parallel guidance of two bundles



EdgeClip cable and tube clips are suitable for the low-vibration routing of cables and tubes with larger bundle diameters.

**Material specification  
please see page 30.**

TYPE	Drawing	Panel Thickness	Attach to Ø	Material	Colour	Article-No.
EC27		1.0 - 3.0	15.0 - 22.0	PA66HIRHS	Black (BK)	151-00161
EC39		1.0 - 3.0	15.3 - 15.9	PA6HIR	Black (BK)	151-00174
EC41		3.0 - 6.0	2 x 8.0	PA66HIR	Black (BK)	151-00234
HCEC3.0SP-C		1.0 - 3.0	12.0 - 15.0	PA66HIRHS	Black (BK)	151-00610
HCEC3.0TPS		1.0 - 3.0	4.5 - 5.0	PA66HIRHS	Black (BK)	151-00645

All dimensions in mm. Subject to technical changes.



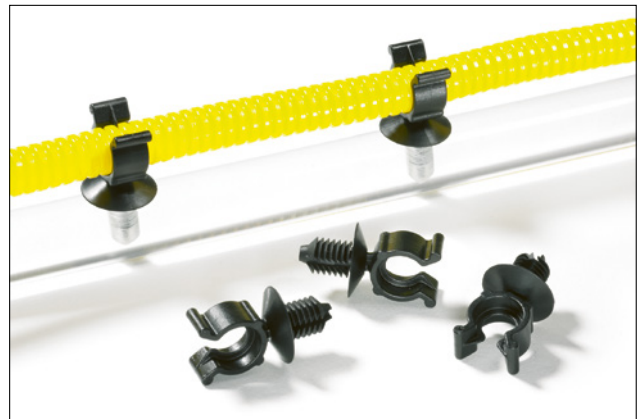
## Fixing Elements for Corrugated Tubing, with Fir Tree

### • CTC-Series

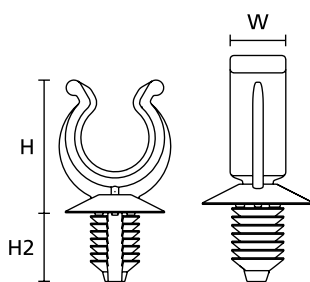
CTC clamps are used in the automotive, harness making and electrical industries and wherever corrugated tubing has to be quickly and firmly fixed.

### Features and Benefits

- Available for a variety of nominal diameters
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Tube is guided accurately, clipping into place
- Movement is prevented by the inside profile of the clamp



The tubing clips into the CTC clamp and is held firmly.



CTC10FT6LG

TYPE	Width (W)	Height (H)	Height (H2)	Nominal Ø	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CTC7.5FT6LG	8.0	18.6	11.1	7.5	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-14313
CTC7.5FT9	8.0	19.9	12.2	7.5	23.0	8.7 - 9.0	3.0 - 5.0	PA66HIRHS	Black (BK)	155-31602
CTC10FT6	8.0	21.4	7.5	10.0	16.0	6.5 - 7.0	0.8 - 3.0	PA66HIRHS	Black (BK)	151-14311
CTC10FT6LG	8.0	21.4	11.1	10.0	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-00018
CTC10FT9	8.0	22.7	12.2	10.0	23.0	8.7 - 9.0	3.0 - 5.0	PA66HIRHS	Black (BK)	155-17801
CTC13FT6	8.0	25.2	7.5	13.0	16.0	6.5 - 7.0	0.8 - 3.0	PA66HIRHS	Black (BK)	151-14312
CTC13FT6LG	8.0	25.2	11.1	13.0	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-00019
CTC22FT9	8.0	37.7	12.2	22.0	23.0	8.7 - 9.0	3.0 - 5.0	PA66HIRHS	Black (BK)	155-25201
CTC4.5FT6LG	10.0	16.1	11.1	4.5	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-14314
CTCFT6	11.0	18.5	9.3	15.0	-	6.3 - 6.7	0.7 - 4.5	PA66HIRHS	Black (BK)	151-00783

All dimensions in mm. Subject to technical changes.





### Fixing Elements for Corrugated Tubing, for Weld Studs

#### • CTC-Series for Weld Studs

#### Features and Benefits

- Fixing elements for corrugated tubing for nominal diameters from 4.5 - 17.0 mm
- For M6 weld studs
- Soft-Push mechanic for simple assembly without the need for a tool
- Tube is guided accurately, clipping into place
- Movement is prevented by the inside profile of the clamp
- Clamp can be unscrewed and removed from the weld stud



The tubing clips into the CTC clamp and is held firmly.

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Nominal Ø	Material	Colour	Article-No.
CTC17SBS6		11.0	44.6	33.2	17.0	PA66HIRHS	Black (BK)	151-00010
CTC4.5SBS6		11.0	28.6	18.7	4.5	PA66HIRHS	Black (BK)	151-00700
CTC7.5SBS6		11.0	31.8	19.4	7.5	PA66HIRHS	Black (BK)	151-00701
CTC10SBS6		11.0	35.3	22.2	10.0	PA66HIRHS	Black (BK)	151-00702
CTC13SBS6		11.0	37.0	26.5	13.0	PA66HIRHS	Black (BK)	151-00703

All dimensions in mm. Subject to technical changes.

### Fixing Elements for Corrugated Tubing, with Arrowhead

#### Features and Benefits

- Clamps for corrugated tubing for a variety of nominal diameters
- Arrowhead simply locks into place
- Tube is guided accurately, clipping into place
- Movement is prevented by the inside profile of the clamp
- CTCLPROFILE clamp can also fastened to a metal edge

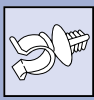
**Material specification please see page 30.**



Simple and secure installation of pipes or hoses to panels.

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
RCC D21		22.0	31.0	30.0	6.2 x 12.2	0.7 - 2.5	PA66HIRHS	Black (BK)	150-92300
RCC D24		22.0	33.0	33.0	6.2 x 12.2	0.7 - 2.5	PA66HIRHS	Black (BK)	155-04000
RCC D28		22.0	37.0	37.0	6.75 x 13.25	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00598
CTCLPROFILE		12.0	49.7	47.0	7.8 - 8.2	2.3 - 2.7	PA66HIRHS	Black (BK)	151-00026

All dimensions in mm. Subject to technical changes.



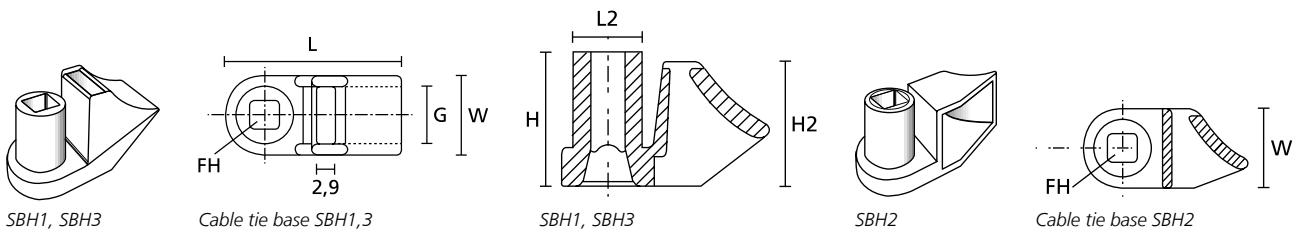
### Fixing Elements for Weld Studs

Many industries (but specifically the automotive market) use 'weld studs' as the standard method of attaching components. Simply hammered onto the stud, these parts provide ideal fixing bases for attaching cables, pipes or hoses. The use of weld studs avoids the problems associated with 'holes' (ingress of moisture, corrosion etc).

#### Features and Benefits

- Simple and quick method of fixing
- SBH types simply hammered onto the stud
- SBH1 and SBH3 allow cables to run across the panel
- SBH2 allow cables to run at 90° to the panel

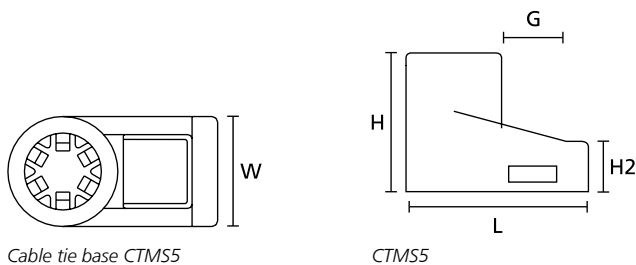
#### • SB-Series



TYPE	Width (W)	Length (L)	Length (L2)	Height (H)	Height (H2)	Stud Ø	Strap Width max. (G)	Material	Colour	Article-No.
SBH1	12.5	26.8	9.0	13.9	15.9	5.0	8.5	PA66	Black (BK)	151-26150
SBH2	12.5	26.8	9.0	14.0	12.5	5.0	8.5	PA66	Black (BK)	151-26250
SBH3	12.5	26.8	9.0	18.0	15.9	5.0	8.5	PA66	Black (BK)	150-18900

All dimensions in mm. Subject to technical changes.

#### • CT-Series



TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Stud Ø	Strap Width max. (G)	Material	Colour	Article-No.
CTM55	10.0	19.0	14.5	5.3	5.0	5.0	PA66	Black (BK)	151-03301

All dimensions in mm. Subject to technical changes.

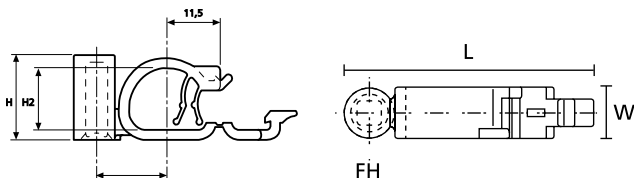


### Fixing Elements for Weld Studs

- SBF-Clips

#### Features and Benefits

- One-piece fixing and retainer
- For bundles of up to 13.5 mm



SBF2

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Stud Ø	Bundle Ø max.	Material	Colour	Article-No.
SBF2	10.0	47.7	18.2	13.5	5.0	13.5	PA66	Black (BK)	150-47700

All dimensions in mm. Subject to technical changes.

### Plastic Nuts

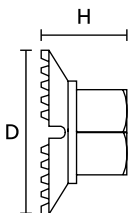
- KM

KM plastic nuts can be used in virtually all applications where metal nuts may have been used. Offering benefits in speed of application, weight saving and corrosion resistance they also offer a secure fixing when subject to vibration. Typical applications can be found in a wide variety of industries from automotive to white goods (domestic appliances).

#### Features and Benefits

- Faster assembly than traditional metal hexagonal nuts
- Simply pushed onto bolt by hand
- Easily opened at any time using a standard spanner
- Available for both 5 mm and 6 mm ISO threaded bolts

**Material specification please see page 30.**



Plastic Nuts KM5, 6

TYPE	Ø D	Height (H)	Nut Size (NS)	Material	Colour	Article-No.
KM5	17.5	9.5	10.0	PA66HIRHS	Black (BK)	150-51910
KM6	17.5	9.6	10.0	PA66	Black (BK)	150-61910

All dimensions in mm. Subject to technical changes.



### Rivet Mount

- **TY5-Series**

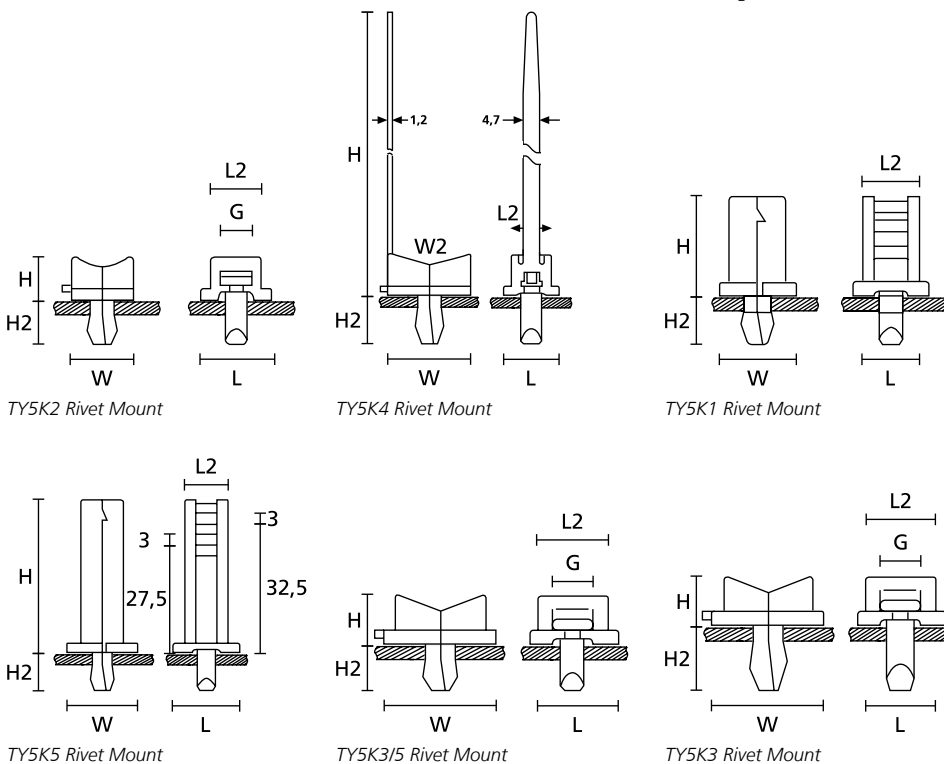
The TY Fixings are ideal for use where a high pull out force is required (eg. in the aircraft industry). The two piece 'wedge' ensures that once installed the mounts will not come away from the panel. Particularly designed for areas with restricted access.

#### Features and Benefits

- Quick installation
- Two-piece wedge
- Easy insertion
- Firmly fixes wide variety of cable ties



TY5 Wedge Base Socket.



TYPE	Width (W)	Length (L)	Length (L2)	Height (H)	Height (H2)	Strap Width max. (G)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TY5K2	12.0	14.0	10.0	7.8	9.5	5.5	4.9 - 5.3	1.0 - 5.0	PA66HS	Natural (NA)	152-11209
TY5K1	14.8	15.0	11.0	18.3	9.5	5.5	5.0 - 5.3	1.0 - 3.0	PA66HS	Natural (NA)	152-51059
TY5K5	17.8	18.0	11.0	38.3	9.5	6.0	5.0 - 5.3	1.0 - 3.0	PA66HS	Natural (NA)	152-55059
TY5K4	22.0	14.0	10.0	175.0	12.5	-	5.9 - 6.4	2.0 - 8.0	PA66HS	Natural (NA)	152-11409
TY5K3/5	22.0	18.0	14.0	10.0	9.5	9.3	4.9 - 5.3	1.0 - 5.0	PA66HS	Natural (NA)	152-11359
TY5K3	22.0	18.0	14.0	10.0	12.5	9.3	5.9 - 6.4	2.0 - 8.0	PA66HS	Natural (NA)	152-11309

All dimensions in mm. Subject to technical changes.



### Snapper Hose Clips for Tubes and Harnesses

- **SNP-Series**

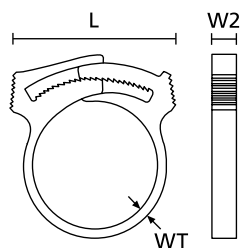
The SNP range provides an ideal replacement for metal hose clamps. Snapper can be used in markets as diverse as automotive, agriculture, white goods, venting systems, pumps and hydraulic systems to medical engineering.

#### Features and Benefits

- Releasable and reusable plastic hose clamps
- Self-locking
- Releasable by giving a lateral movement to the 'head'
- Installation by hand possible
- Installation with processing tool for a secure tensing
- For higher operating temperatures: Glass Filled PA66



SNP-Series.



SNP-Series

**Application tools**  
please see page 442.

**Material specification**  
please see page 30.

**SNP Snapper are also available on request in material PA66HS and PA46.**

TYPE	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)	Material	Colour	Article-No.
SNP1	6.0	6.5	8.33	11.73	3.8	1.00	POM	White (WH)	190-00022
	6.0	6.8	8.56	11.79	3.8	1.00	PA66GF13	Black (BK)	192-10010
SNP1.25	7.1	7.7	10.57	12.62	3.8	1.10	PA66GF13	Black (BK)	190-00029
SNP1.5	7.8	9.2	13.0	17.0	3.7	1.40	PA66GF15	Black (BK)	193-00150
SNP2(E)	8.7	10.0	17.0	21.0	6.0	1.50	POM	Natural (NA)	191-10029
SNP2	9.3	10.5	12.22	17.48	5.9	1.70	PA66GF13	Black (BK)	192-10020
SNP3(E)	10.0	11.4	19.0	25.0	6.0	1.80	POM	Natural (NA)	191-10039
SNP4	10.4	11.7	13.39	19.15	5.9	1.70	PA66GF13	Black (BK)	192-10040
SNP4(E)	10.8	12.3	19.0	23.0	6.0	1.80	POM	Natural (NA)	191-10049
SNP7	11.4	13.7	18.62	28.73	5.9	1.70	PA66GF13	Black (BK)	192-10070
SNP6	11.7	13.3	14.71	21.54	5.9	1.70	PA66GF13	Black (BK)	192-10060
SNP6(E)	12.0	13.7	19.0	24.0	6.0	1.80	POM	Natural (NA)	191-10069
SNP8	13.1	15.0	16.69	24.89	5.7	1.70	PA66GF13	Black (BK)	192-10080
SNP8(E)	13.7	15.3	19.0	24.0	6.0	1.80	POM	Natural (NA)	191-10089
SNP10	14.5	16.6	17.6	26.9	5.9	1.80	PA66GF13	Black (BK)	192-10100
SNP10(E)	15.0	16.8	19.0	24.0	6.0	1.80	POM	Natural (NA)	191-10109
SNP12A	15.9	18.2	20.96	29.9	5.9	1.80	PA66GF13	Black (BK)	190-00254
SNP12(E)	16.8	18.4	19.0	24.0	6.0	1.80	POM	Natural (NA)	191-10129
SNP14(E)	18.1	19.9	19.0	24.0	6.0	1.80	POM	Natural (NA)	191-10149
SNP14A	18.5	21.0	20.9	30.1	5.9	1.80	PA66GF13	Black (BK)	190-00300
SNP16	19.1	21.7	19.89	30.81	5.8	1.50	PA66GF13	Black (BK)	192-10160
SNP16(E)	19.9	21.7	19.0	24.0	6.0	1.90	POM	Natural (NA)	191-10169
SNP18A	20.0	23.1	24.03	35.51	5.9	1.80	PA66GF13	Black (BK)	190-00258
SNP18(E)	21.4	23.0	16.0	22.0	6.0	1.90	POM	Natural (NA)	191-10189

All dimensions in mm. Subject to technical changes.



## Snapper Hose Clips for Tubes and Harnesses

### • SNP-Series

TYPE	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)	Material	Colour	Article-No.
SNP19	22.3	25.3	22.3	36.09	5.9	1.80	PA66GF13	Black (BK)	190-00090
SNP20(E)	22.7	24.7	20.0	26.0	6.0	1.80	POM	Natural (NA)	191-10209
SNP22	23.7	27.4	23.9	37.69	6.0	1.80	PA66GF13	Black (BK)	192-10220
SNP22(E)	25.3	27.3	20.0	26.0	6.0	1.60	POM	Natural (NA)	191-10229
SNP24	25.8	29.2	26.49	39.4	7.4	1.70	PA66GF13	Black (BK)	192-10240
SNP24(E)	26.5	28.6	26.5	39.4	7.4	2.50	POM	Natural (NA)	191-10249
SNP28	29.1	33.6	25.91	41.81	7.3	1.70	PA66GF13	Black (BK)	190-00127
SNP32(E)	30.3	33.1	27.0	34.0	7.5	2.00	POM	Natural (NA)	191-10329
SNP32	31.2	35.8	27.33	44.4	7.3	1.80	PA66GF13	Black (BK)	192-10320
SNP34(E)	32.5	35.1	27.0	34.0	7.5	2.00	POM	Natural (NA)	191-10349
SNP36(E)	34.8	37.1	27.0	34.0	7.5	2.00	POM	Natural (NA)	191-10369
SNP38(E)	36.7	38.9	27.0	34.0	7.5	2.00	POM	Natural (NA)	191-10389
SNP36	37.8	44.0	32.41	43.99	7.3	1.70	PA66GF13	Black (BK)	192-10360
SNP42(E)	41.0	44.2	32.0	45.0	7.5	2.00	POM	Natural (NA)	191-10429
SNP38	41.0	48.1	35.61	57.51	7.3	1.80	PA66GF13	Black (BK)	192-10380
SNP42N	44.5	52.2	35.1	58.93	7.3	1.70	PA66GF13	Black (BK)	191-00005
SNP50(E)	48.8	52.0	32.0	45.0	7.5	2.00	POM	Natural (NA)	191-10509
SNP50	52.2	58.6	36.5	60.4	7.5	1.70	PA66GF13	Black (BK)	192-10500
SNP58(E)	56.7	59.2	31.0	39.0	7.5	2.00	POM	Natural (NA)	191-10589

All dimensions in mm. Subject to technical changes.

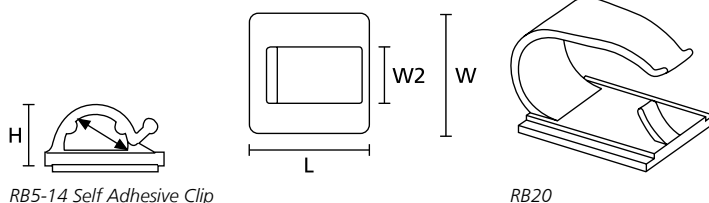
## Self Adhesive Clips

### • RB-Series with flat design

#### Features and Benefits

- One-piece self-adhesive fixing clips for quick and easy installation
- Designed to hold wires, cables or hoses without a cable tie
- Flat design for use in applications with limited space
- Different sizes for various bundle diameters
- Cost effective with easy application on smooth, clean surfaces

For more information on the types of adhesive please see page 118.



TYPE	Width (W)	Width (W2)	Length (L)	Height (H)	Bundle Ø max.	Material	Colour	Adhesive	Article-No.
RB20	27.0	18.0	33.0	25.0	20.0	PA66HIRHS	Black (BK)	Synthetic rubber	151-00831
RB14	27.4	23.0	33.2	16.0	14.0	PA66	Black (BK)	Synthetic rubber	151-00502
	27.4	23.0	33.2	16.0	14.0	PA66	Natural (NA)	Synthetic rubber	151-00505

All dimensions in mm. Subject to technical changes.





### Blind Plugs

These products were developed especially for the automotive industry for application in trunks, doors, wheel housing and dash panels. Parts are even used for optical applications.

#### Features and Benefits

- Easy assembly without the need of a tool
- Disc of the part covers the hole and minimises ingress of dust, dirt and water
- Standard geometry for example fir tree or arrowhead



Blind plugs are available in different shapes and material.

**Material specification please see page 30.**

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TRIM PLUG 5		5.0	4.0	PA66HIR	Natural (NA)	151-00333
PLUG11		11.0	4.0 - 6.0	PA66HIRHS	Natural (NA)	151-00485
		11.0	6.0 - 8.0	POM	Black (BK)	151-00360
PLUG5.5		5.0 - 5.5	2.5 - 26.0	PA6HIR	Black (BK)	151-00399
		5.0 - 5.5	2.5 - 26.0	PA6HIR	Grey (GY)	151-00401
PLUG SQ8x8		7.6 - 8.0	1.0 - 3.0	PA66HIR	Black (BK)	151-00415
PLUG5 WITH OPENING		5.05 - 5.25	4.8 - 5.2	PA66HIRHS	Black (BK)	151-00419
PLUG10		10.2	2.0 - 12.0	PE	Black (BK)	151-00426
		10.2	2.0 - 12.0	PE	Grey (GY)	151-00488
PLUGFT6XL		6.5 - 7.0	0.7 - 18.0	PA46	Brown (BN)	151-00428
		6.5 - 7.0	0.7 - 18.0	PA66HIR	Black (BK)	241-00002
		6.5 - 7.0	0.7 - 18.0	PA66HIR	Grey (GY)	241-00001
PLUGFT7		7.05 - 7.25	2.5 - 8.0	PA6HIR	Black (BK)	151-00414

All dimensions in mm. Subject to technical changes.



### Cover Plugs and Open Plugs

These products were developed especially for the automotive industry for application in trunks, doors, wheel housing and dash panels, particularly where holes have to be covered and tubes must be guided securely. Parts are even used for optical applications.

#### Features and Benefits

- Easy assembly without the need for a tool
- Protection of ingress of dust, dirt and water are offered by cover plugs
- Open plugs cover and secure the edges of drilled holes



Cover Plugs protect and secure boreholes.

#### • Cover Plugs

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
Cover Plug 20x50		20.0 x 50.0	2.5	PP, EPDM	Black (BK)	151-00342
Cover Plug 20		19.5	3.0	PP, EPDM	Black (BK)	151-00343
Cover Plug 32		32.0	2.5	EPDM	Black (BK)	151-00424

All dimensions in mm. Subject to technical changes.

#### • Open Plugs

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
Open Plug 55x70		55.0 x 70.0	5.0 - 8.0	PP	Black (BK)	151-00392
Open Plug 42x84		42.0 x 84.0	5.0 - 8.0	PA6HIR	Black (BK)	151-00391
OPEN PLUG 34.6x112		34.6 x 112.0	5.0 - 8.0	PA66HIR	Black (BK)	151-00394

All dimensions in mm. Subject to technical changes.



### Aluminium P-Clips

- ALU-P-Clip with / without chloroprene Insert

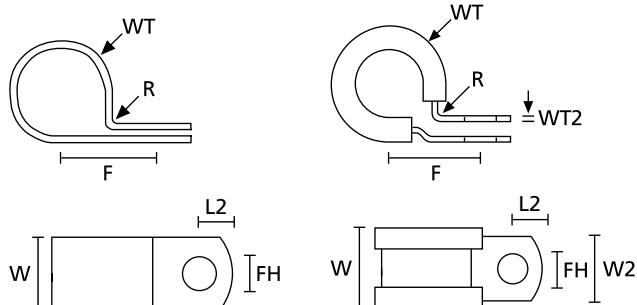
Manufactured from a high quality aluminium these P-Clips provide flexibility and yet give a permanent fixing in the most arduous of environments. The addition of a Chloroprene insert provides the cable or pipe bundle with a high degree of protection against vibration, reduces noise and also offers electrical isolation.

#### Features and Benefits

- Simple, secure pipe or cable fixing (e. g. caravan construction)
- Combine with chloroprene insert for vibration resistance (e. g. retain capacitors on PCB)
- Ideal for use in high temperatures
- Suitable for applications needing strength of metal components



P-Clips manufactured in polyamide, aluminium or aluminium with a chloroprene insert.



Aluminium P Clips

Aluminium P Clips with a Chloroprene insert

**Material specification please see page 30.**

TYPE	Width (W)	Width (W2)	Wall (WT)	Wall (WT2)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F2)	Radius (R)	Material	Colour	Article-No.
ALU4	12.7	-	0.80	-	5.2	6.4	11.6	1.6	AL	Natural (NA)	211-10040
ALU5	12.7	-	0.80	-	5.2	8.0	12.6	1.6	AL	Natural (NA)	211-10050
ALU6	12.7	-	0.80	-	5.2	9.5	13.4	1.6	AL	Natural (NA)	211-10060
ALU7	12.7	-	0.80	-	5.2	11.1	14.2	1.6	AL	Natural (NA)	211-10070
ALU8	12.7	-	0.80	-	5.2	12.7	15.0	1.6	AL	Natural (NA)	211-10080
ALU10	12.7	-	0.80	-	5.2	15.9	16.6	1.6	AL	Natural (NA)	211-10100
ALU11	12.7	-	1.30	-	5.2	17.5	19.1	2.8	AL	Natural (NA)	211-10110
ALU12	12.7	-	1.30	-	5.2	19.1	19.9	2.8	AL	Natural (NA)	211-10120
ALU13	12.7	-	1.30	-	5.2	20.6	20.7	2.8	AL	Natural (NA)	211-10130
ALU4C	16.3	12.7	3.70	0.8	5.2	3.2	11.6	1.6	AL, CR	Black (BK)	211-15040
ALU5C	16.3	12.7	3.70	0.8	5.2	4.8	12.6	1.6	AL, CR	Black (BK)	211-15050
ALU6C	16.3	12.7	3.70	0.8	5.2	6.4	13.4	1.6	AL, CR	Black (BK)	211-15060
ALU7C	16.3	12.7	3.70	0.8	5.2	8.0	14.2	1.6	AL, CR	Black (BK)	211-15070
ALU8C	16.3	12.7	3.70	0.8	5.2	9.5	15.0	1.6	AL, CR	Black (BK)	211-15080
ALU9C	16.3	12.7	3.70	0.8	5.2	11.1	15.8	1.6	AL, CR	Black (BK)	211-15090
ALU10C	16.3	12.7	3.70	0.8	5.2	12.7	16.6	1.6	AL, CR	Black (BK)	211-15100
ALU11C	16.3	12.7	4.50	1.3	5.2	14.3	19.1	2.8	AL, CR	Black (BK)	211-15110

All dimensions in mm. Subject to technical changes.



## Aluminium P-Clips

- ALU-P-Clip with / without chloroprene Insert

TYPE	Width (W)	Width (W2)	Wall (WT)	Wall (WT2)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F2)	Radius (R)	Material	Colour	Article-No.
ALU12C	16.3	12.7	4.50	1.3	5.2	15.9	19.9	2.8	AL, CR	Black (BK)	211-15120
ALU13C	16.3	12.7	4.50	1.3	5.2	17.5	20.7	2.8	AL, CR	Black (BK)	211-15130
ALU14C	16.3	12.7	4.50	1.3	5.2	19.1	21.5	2.8	AL, CR	Black (BK)	211-15140
ALU15C	16.3	12.7	4.50	1.3	5.2	20.6	22.3	2.8	AL, CR	Black (BK)	211-15150
ALU16C	16.3	12.7	4.50	1.3	5.2	22.2	23.1	2.8	AL, CR	Black (BK)	211-15160
ALU17C	16.3	12.7	4.50	1.3	5.2	23.8	23.9	2.8	AL, CR	Black (BK)	211-15170
ALU18C	16.3	12.7	4.50	1.3	5.2	25.4	24.6	2.8	AL, CR	Black (BK)	211-15180
ALU19C	16.3	12.7	4.50	1.3	5.2	27.0	25.5	2.8	AL, CR	Black (BK)	211-15190
ALU20C	16.3	12.7	4.50	1.6	5.2	28.6	27.0	3.2	AL, CR	Black (BK)	211-15200
ALU22C	16.3	12.7	4.50	1.6	5.2	31.8	28.6	3.2	AL, CR	Black (BK)	211-15220
ALU23C	16.3	12.7	4.50	1.6	5.2	33.3	29.4	3.2	AL, CR	Black (BK)	211-15230
ALU25C	16.3	12.7	4.50	1.6	5.2	36.5	30.8	3.2	AL, CR	Black (BK)	211-15250
ALU26C	16.3	12.7	4.50	1.6	5.2	38.1	31.7	3.2	AL, CR	Black (BK)	211-15260
ALU28C	16.3	12.7	4.50	1.6	5.2	41.3	33.3	3.2	AL, CR	Black (BK)	211-15280
ALU29C	16.3	12.7	4.50	1.6	5.2	42.9	34.1	3.2	AL, CR	Black (BK)	211-15290
ALU30C	16.3	12.7	4.50	1.6	5.2	44.5	34.9	3.2	AL, CR	Black (BK)	211-15300
ALU34C	16.3	12.7	4.50	1.6	5.2	50.8	38.1	3.2	AL, CR	Black (BK)	211-15340
ALU24C	16.3	12.7	4.50	1.6	5.2	34.9	30.2	3.2	AL, CR	Black (BK)	211-15240

All dimensions in mm. Subject to technical changes.



### Plastic P-Clips

- **HP-Series**

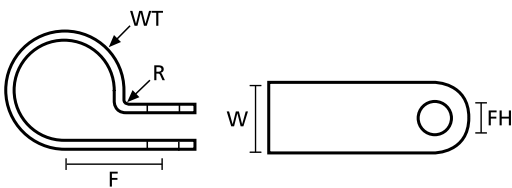
For permanent or semi-permanent cable fixings, this range of P-Clips can be used in a variety of industries. Their light weight makes them particularly suitable for use in the aerospace industry where minimising weight, but retaining a strong fixing is vitally important.

#### Features and Benefits

- Manufactured from Polyamide
- Good temperature resistance and high strength
- Wide range of sizes for every application



P-Clip HP.



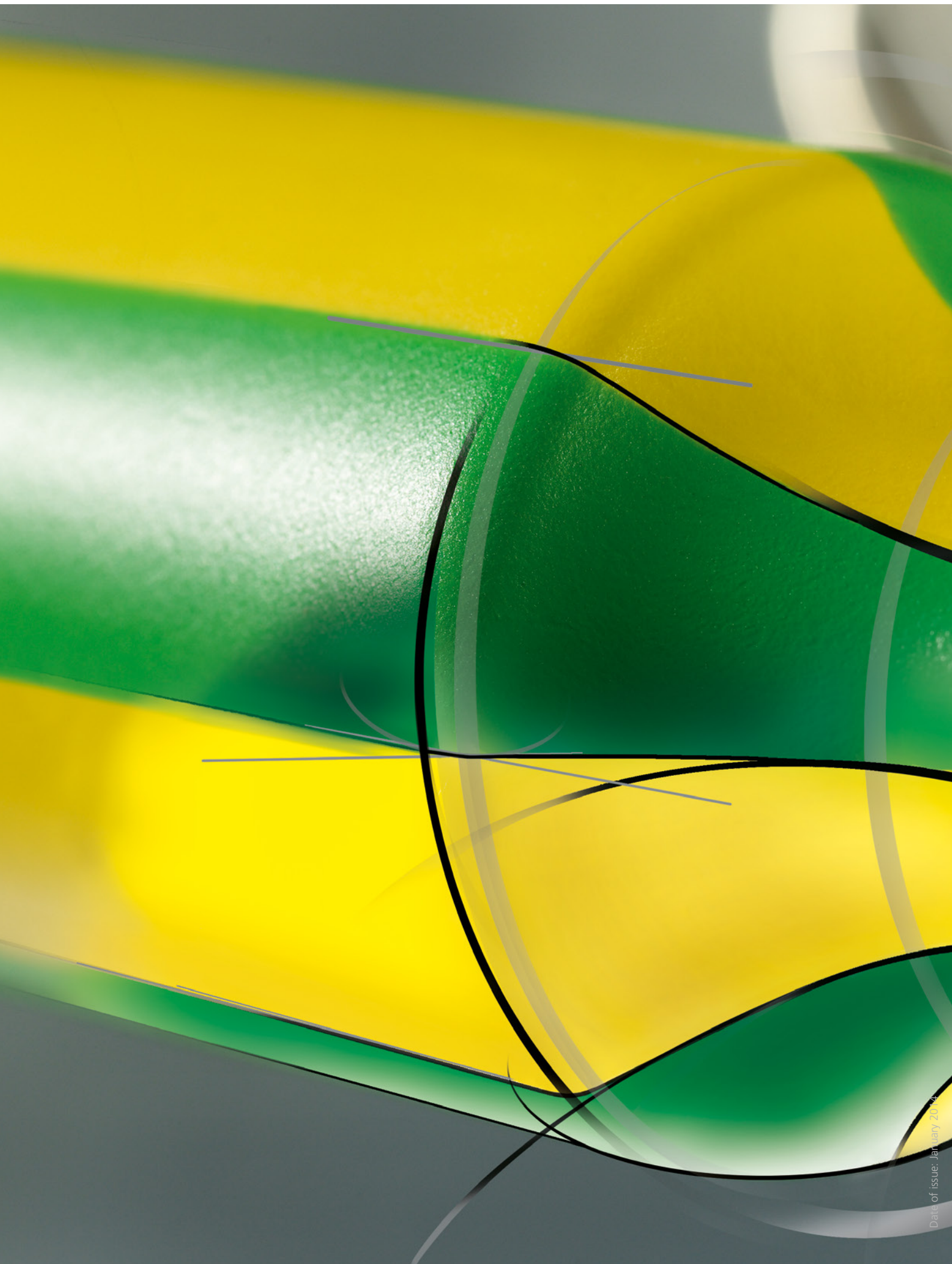
P-Clip H1P-H18P

**Material specification please see page 30.**

TYPE	Width (W)	Wall (WT)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F)	Radius (R)	Material	Colour	Article-No.
H1P	10.0	0.80	4.2	3.2	8.5	0.5	PA66	Natural (NA)	211-60019
	10.0	0.80	4.2	3.2	8.5	0.5	PA66HS	Black (BK)	211-60000
H2P	10.0	1.00	4.2	5.0	9.5	1.0	PA66	Natural (NA)	211-60029
	10.0	1.00	4.2	5.0	9.5	1.0	PA66HS	Black (BK)	211-60001
H3P	10.0	1.00	4.2	6.5	10.0	1.0	PA66	Natural (NA)	211-60039
	10.0	1.00	4.2	6.5	10.0	1.0	PA66HS	Black (BK)	211-60002
H4P	10.0	1.20	4.2	8.0	10.0	1.0	PA66	Natural (NA)	211-60049
	10.0	1.20	4.2	8.0	10.0	1.0	PA66HS	Black (BK)	211-60003
H5P	10.0	1.20	4.2	9.5	11.0	1.0	PA66	Natural (NA)	211-60059
	10.0	1.20	4.2	9.5	11.0	1.0	PA66HS	Black (BK)	211-60004
H6P	10.0	1.20	4.2	11.0	13.0	1.0	PA66	Natural (NA)	211-60069
	10.0	1.20	4.2	11.0	13.0	1.0	PA66HS	Black (BK)	211-60005
H7P	10.0	1.20	4.2	12.5	14.0	1.5	PA66	Natural (NA)	211-60079
	10.0	1.20	4.2	12.5	14.0	1.5	PA66HS	Black (BK)	211-60006
H8P	10.0	1.50	4.2	14.0	15.0	1.5	PA66	Natural (NA)	211-60089
	10.0	1.50	4.2	14.0	15.0	1.5	PA66HS	Black (BK)	211-60007
H9P	10.0	1.50	4.2	16.0	16.0	1.5	PA66	Natural (NA)	211-60099
	10.0	1.50	4.2	16.0	16.0	1.5	PA66HS	Black (BK)	211-60008
H10P	10.0	1.50	4.2	17.5	17.0	1.5	PA66	Natural (NA)	211-60109
	10.0	1.50	4.2	17.5	17.0	1.5	PA66HS	Black (BK)	211-60009
H11P	10.0	1.50	4.2	19.0	18.0	2.0	PA66	Natural (NA)	211-60119
	10.0	1.50	4.2	19.0	18.0	2.0	PA66HS	Black (BK)	211-60120
H12P	10.0	1.50	4.2	20.5	19.0	2.0	PA66	Natural (NA)	211-60129
H13P	12.0	1.50	5.2	22.0	20.5	2.0	PA66	Natural (NA)	211-60139
H14P	12.0	1.50	5.2	24.0	21.5	2.0	PA66	Natural (NA)	211-60149
H15P	12.0	1.50	5.2	25.5	23.0	2.5	PA66	Natural (NA)	211-60159
H16P	12.0	1.50	5.2	28.5	24.0	2.5	PA66	Natural (NA)	211-60169
H17P	12.0	1.50	5.2	31.5	26.0	2.5	PA66	Natural (NA)	211-60179
H18P	12.0	1.50	5.2	35.0	27.5	2.5	PA66	Natural (NA)	211-60189

All dimensions in mm. Subject to technical changes.











## 2.1 Heat Shrinkable Tubing

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### Thick walled with adhesive liner

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### Low Profile Boots and Transitions

Convolute Boots	Helashrink 313C Series, with adapter lip	203
Shim Boots	Helashrink 313E Series, without adapter lip	204
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	Helashrink 412H Series, side breakout	206			Helashrink 1100 Series, with rib, VG	220
Transition Boots	Helashrink 492H Series, 1 to 2 cables	207			Helashrink 1100 Series, with rib, MIL	221
	Helashrink 573H Series, 1 to 3 cables	208		Right-Angle Shapes	Helashrink 1100 Series, without rib	221
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<b>Bulbous Boots and Transitions</b>					Helashrink 1100 Series, with rib, low profile, high ratio, VG	223
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	Helashrink 100 Series, with rib, MIL	210			Helashrink 1200 Series, Offset, VG	225
Bottle Shapes	Helashrink 100 Series, without rib	210		Angled T-Shapes	Helashrink 1300 Series, 30° & 45° angle, VG	225
	Helashrink 170 Series, with rib, VG	212				
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Long Outlet Shape	Helashrink 130 Series, with rib, low profile, VG	211		<b>Adhesives for Heat Shrinkable Moulded Shapes</b>		
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### Overview of applications for Heat Shrink Tubing

When selecting the correct heat shrink tubing size, it is important to bear in mind the 80:20 rule. The heat shrink tubing must shrink by at least 20% and not more than 80% of its complete shrinkage

capacity to achieve the right result. In our overview of applications you will find the best heat shrink tube for every cable diameter. The 80:20 rule has of course been taken into account in the table.

#### Heat Shrinkable Tubing with a shrink ratio of 2:1

HFT-A, TL27, TF21, TF24, VITON®-E, TK20, TK29, TFE-2, TR27, TCN20, TE28, SE28

#### Heat Shrinkable Tubing with a shrinkage ratio of 3:1

With the optimal shrinkage ratio of 3:1, you can cover a wide range of applications with just a few sizes. This leads to reduced stock expenditure and requires less space. 3:1 heat shrink tubes: TF34, TF31, EPS-300, TCN20 overexpanded, TA32, TA37

Shrink ratio 2:1 Size mm		Cable/Wire Diameter
1.2/0.6		0.7 mm
		1.1 mm
3.2/1.6	2.4/1.2	1.4 mm
		1.9 mm
		2.2 mm
		2.9 mm
		3.8 mm
6.4/3.2	4.8/2.4	4.3 mm
		5.7 mm
		5.8 mm
12.7/6.4	9.5/4.7	7.7 mm
		8.6 mm
		11.4 mm
		15.2 mm
25.4/12.7	19.1/9.5	17.2 mm
		22.9 mm
50.8/25.4	38.1/19.1	30.5 mm
		34.3 mm
		45.7 mm
101.6/50.8	76.2/38.1	61.0 mm
		68.6 mm
		91.4 mm

Shrink ratio 3:1 Size mm		Cable/Wire Diameter
1.5/0.5		0.7 mm
		1.3 mm
	3/1	1.4 mm
		2.6 mm
		2.8 mm
6/2		5.2 mm
		5.6 mm
18/6	12/4	8.4 mm
		10.4 mm
		11.2 mm
40/13	24/8	15.6 mm
		18.4 mm
		20.8 mm
		34.6 mm

#### Conversion from imperial to metric

<b>Inch</b>	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"
<b>mm</b>	0.8	1.2	1.6	2.0	2.4	3.2	4.8	6.4	9.5
<b>Inch</b>	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"
<b>mm</b>	12.7	15.9	19.1	25.4	31.8	38.1	50.8	76.2	101.6

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## The right Heat Shrink Tube

The 80:20 rule means that a heat shrink tube should shrink by a maximum of 80% and a minimum of 20%.

### For example:

A cable with a diameter of 5mm is to be wrapped in heat shrink tubing. In theory both sizes 6/2 and 12/4 would be suitable, since the required diameter of 5mm lies within the shrink range of both tube sizes.

#### Size 6/2

##### Maximum shrink (100%)



Maximum shrinkage = 4 mm

##### Optimum shrinkage max. (80%)



Shrinkage of 3.2 mm

##### Optimum shrinkage min. (20%)



Shrinkage of 0.8 mm

Size 6/2 has a range of application of between 2.8mm and 5.2mm and is therefore suitable for the cable diameter of 5mm.

#### Size 12/4

##### Maximum shrink (100%)



Maximum shrinkage = 8 mm

##### Optimum shrinkage max. (80%)



Shrinkage of 6.4 mm

##### Optimum shrinkage min. (20%)



Shrinkage of 1.6 mm

The smallest application diameter of size 12/4 is 5.6mm. This size is therefore unsuitable for a cable diameter of 5mm.

#### Calculator tool for Heat Shrink Tubing

The calculator tool for heat shrink tubing is a selection guide for shrink tubing sizes based on the object to be covered. Fill in your specification and the calculator presents the right tubing size according to the 80:20 rule. Find more information under <http://www.hellermannityton.co.uk/heatshrink-calculator/>

The calculator tool also checks if the heat shrink tubing you have chosen is suitable for your application. For example you can find the heat shrink tubing with the Product Search on the HellermannTyton website.

## Heatshrinkable Tubing Overview














	Type	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogen-free	Colour	Specification	Page
Thin-Wall	TCN20	PO-X	2:1	-55 °C to +125 °C	1.2 - 50.8		Black	2, 11, 12	168
	TCN20 over-expanded	PO-X	3:1	-55 °C to +125 °C	2.4 - 38.0		Black	2, 11, 12	169
	TL27	PO-X	2:1	-55 °C to +135 °C	1.2 - 50.8	HF ✓	Black		170
	TR27	PO-X	2:1	-40 °C to +105 °C	3.2 - 50.8	HF ✓	Black	1, 3, 7	171
	TF21	PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Red, White, Yellow	2, 6, 9, 10, 11, 12	172
	TF24	PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6	HF ✓	Transparent	3, 10, 13	175
	HFT-A	PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Red, White, Yellow	2, 3, 4, 8, 9, 10, 11, 12, 13	176
	TF31	PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0		Black, Blue, Green, Green-Yellow, Red, White, Yellow	2, 11, 12	179
	TF34	PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0	HF ✓	Transparent		182
	SE28	POA	2:1	-75 °C to +150 °C	3.2 - 102.0		Black	9, 10, 13	183
	TE28	POA	2:1	-75 °C to +150 °C	2.4 - 51.0		Black	13	184
	TK20	PVDF	2:1	-55 °C to +175 °C	1.2 - 50.8		Transparent	10, 11, 12, 13	185
	TK29	PVDF	2:1	-55 °C to +175 °C	1.2 - 50.8		Transparent	8, 11, 12	186
	Viton®-E	FPMX	2:1	-55 °C to +220 °C	3.2 - 50.8		Black	13	187
	TFE2	PTFE	2:1	-70 °C to +260 °C	0.86 - 11.94		Transparent		188
	TFE4	PTFE	4:1	-70 °C to +260 °C	1.98 - 31.75		Transparent		188



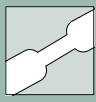
**Heatshrinkable Tubing Overview**

	Type	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogen-free	Colour	Specification	Page
<b>Thin-Wall Hot melt adhesive</b>	<b>EPS-300</b>	PO-X	3:1	-55 °C to +110 °C	3.0 - 40.0		Black	10	190
	<b>EPS-400</b>	PO-X	4:1	-55 °C to +110 °C	4.0 - 32.0		Black	10	190
	<b>TA32</b>	PO-X	3:1	-55 °C to +125 °C	3.2 - 40.0		Black	2, 10, 11, 12	192
	<b>TA37</b>	PO-X	3:1	-40 °C to +105 °C	3.0 - 120	<b>HF</b> ✓	Black	1	191
	<b>TA42</b>	PO-X	4:1	-55 °C to +125 °C	4.0 - 52.0		Black	10, 11, 12	192
<b>Medium-Wall</b>	<b>MU47</b>	PO-X	up to 4:1	-55 °C to +110 °C	12.0 - 140.0	<b>HF</b> ✓	Black		193
<b>Medium-Wall Hot melt adhesive</b>	<b>MA40</b>	PO-X	4:1	-55 °C to +110 °C	8.0 - 55.0		Black	5	195
	<b>MA47</b>	PO-X	up to 4:1	-55 °C to +110 °C	12.0 - 140.0	<b>HF</b> ✓	Black		193
<b>Thick-Wall</b>	<b>HU47</b>	PO-X	up to 3.5:1	-55 °C to +110 °C	9.0 - 180.0	<b>HF</b> ✓	Black		196
<b>Thick-Wall Hot melt adhesive</b>	<b>HA40</b>	PO-X	4:1	-55 °C to +110 °C	9.0 - 92.0		Black	5	198
	<b>HA47</b>	PO-X	up to 3.5:1	-55 °C to +110 °C	9.0 - 180.0	<b>HF</b> ✓	Black		196

**Specification**

1 	2 	3 	4 	5 	6 	7 
8 	9 	10 	11 	12 	13 	

Please refer to the Approvals Overview for further information, see page: 468, 469



### Low-Heat Shrinkable Tubing 2:1

- **TCN20 - self extinguishing**

TCN20 is suitable for a wide range of applications such as electrical insulation, mechanical protection and cable bundling.

#### Features and Benefits

- Thin walled general purpose polyolefin tubing
- Highly flame-retardant, UL224 VW-1 , CSA
- Fast shrinking
- Low shrink temperature



Heat Shrink Tubing TCN20.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/-5%
<b>Dielectric Strength</b>	20kV/mm according to ASTM D2671
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	CSA, UL224 125 °C 600V VW-1

RoHS



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TCN20-1.2/0.6	1.2	0.6	0.30	300 m	Black (BK)	300-73010
TCN20-1.6/0.8	1.6	0.8	0.35	300 m	Black (BK)	300-73020
TCN20-2.4/1.2	2.4	1.2	0.45	300 m	Black (BK)	300-73030
TCN20-3.2/1.6	3.2	1.6	0.45	300 m	Black (BK)	300-73040
TCN20-4.8/2.4	4.8	2.4	0.50	300 m	Black (BK)	300-73050
TCN20-6.4/3.2	6.4	3.2	0.55	300 m	Black (BK)	300-73060
TCN20-9.5/4.8	9.5	4.8	0.55	100 m	Black (BK)	300-73070
TCN20-12.7/6.4	12.7	6.4	0.65	100 m	Black (BK)	300-73080
TCN20-19.1/9.5	19.1	9.5	0.80	60 m	Black (BK)	300-73090
TCN20-25.4/12.7	25.4	12.7	0.90	60 m	Black (BK)	300-73100
TCN20-38.1/19.1	38.1	19.1	1.02	30 m	Black (BK)	300-73110
TCN20-50.8/25.4	50.8	25.4	1.15	30 m	Black (BK)	300-73120

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 - Self extinguishing

- TCN20 overexpanded

Mechanical, electrical and corrosion protection applications for parts with high diameter variances. This fast shrinking tubing makes it suitable for high volume production.

#### Features and Benefits

- Thin walled overexpanded polyolefin tubing
- Inch size tubing with 3:1 shrink ratio
- Very fast shrinking and low shrink temperature
- Highly flame-retardant, UL224 VW-1



Heat shrink tubing TCN20 overexpanded.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/-5%
<b>Dielectric Strength</b>	20kV/mm according to ASTM D2671
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	CSA, UL224 125 °C 600V VW-1



Due to its thin wall TCN20 overexpanded is suitable for insulation of antennas.

**RoHS** ✓



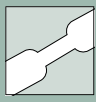
Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TCN20-2.4/0.8	2.4	0.8	0.40	300 m	Black (BK)	300-73130
TCN20-3.2/1.2	3.2	1.2	0.50	300 m	Black (BK)	300-73140
TCN20-4.8/1.6	4.8	1.6	0.50	300 m	Black (BK)	300-73150
TCN20-6.6/2.4	6.6	2.4	0.55	300 m	Black (BK)	300-73160
TCN20-9.5/3.2	9.5	3.2	0.65	100 m	Black (BK)	300-73170
TCN20-12.7/4.8	12.7	4.8	0.75	100 m	Black (BK)	300-73180
TCN20-19.0/6.4	19.0	6.4	0.75	60 m	Black (BK)	300-73190
TCN20-25.4/9.5	25.4	9.5	0.79	60 m	Black (BK)	300-73200
TCN20-38.0/12.7	38.0	12.7	0.95	30 m	Black (BK)	300-73210

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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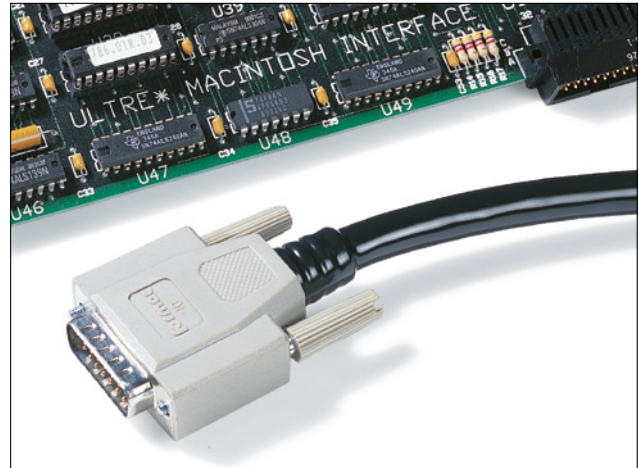
### Low-Heat Shrinkable Tubing 2:1

- TL27 - halogen free

The product has a low shrink temperature which offers very fast recovery. Application fields include covering of heat sensitive parts, mechanical protection and cosmetic covering.

#### Features and Benefits

- Very low shrink temperature
- Fast shrinking
- Halogen free



TL27 – a very flexible tubing for automotive or applications where halogens cannot be accepted.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+5%/-15%
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	FMVSS 302



Heat Shrinkable Tubing 2:1



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TL27-1.2/0.6	1.2	0.6	0.31	500 m	Black (BK)	302-20120
TL27-1.6/0.8	1.6	0.8	0.33	500 m	Black (BK)	302-20160
TL27-2.4/1.2	2.4	1.2	0.36	500 m	Black (BK)	302-30240
TL27-3.2/1.6	3.2	1.6	0.39	300 m	Black (BK)	302-30320
TL27-4.8/2.4	4.8	2.4	0.42	150 m	Black (BK)	302-30480
TL27-6.4/3.2	6.4	3.2	0.45	100 m	Black (BK)	302-30640
TL27-9.5/4.8	9.5	4.8	0.48	100 m	Black (BK)	302-30950
TL27-12.7/6.4	12.7	6.4	0.52	100 m	Black (BK)	302-21270
TL27-19.1/9.5	19.1	9.5	0.58	100 m	Black (BK)	302-31900
TL27-25.4/12.7	25.4	12.7	0.67	100 m	Black (BK)	302-32540
TL27-38.1/19.1	38.1	19.1	0.76	100 m	Black (BK)	302-23810
TL27-50.8/25.4	50.8	25.4	0.85	100 m	Black (BK)	302-25080

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



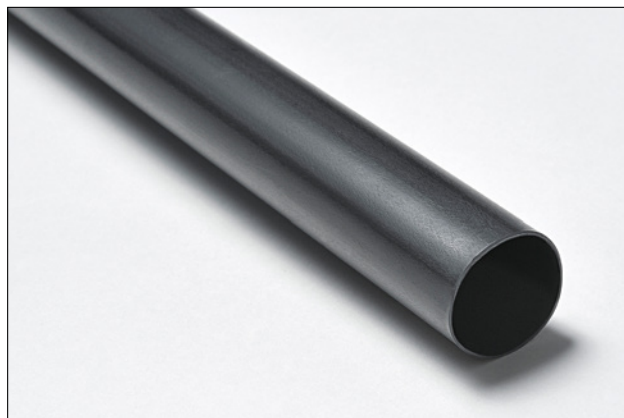
### Heat Shrinkable Tubing 2:1 - Flame retardant

- TR27

TR27 is used in applications where toxic emissions evolved in a fire must be minimised, e.g. heavily populated buildings or safety sensitive areas like tunnels, hospitals, schools, theatres, mass transit vehicles and computer centres.

#### Features and Benefits

- Thin walled, flexible polyolefin tubing
- Optional available with adhesive or as thick walled version (SR27)
- Halogen free and excellent flame-retardant properties
- Meets various industrial standards



TR27 is ideal for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+115 °C
<b>Longitudinal change after shrinkage</b>	+5%/-10% max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	Limited Fire Hazard, Halogen free, Low generation of toxic gases and corrosive acid, Low smoke generation
<b>Specifications</b>	CEN TS 45545-2: HL3, DEF STAN 59-97 Type 8, LUL Engineering Standard E1042:A6



TR27 is ideal for safety sensitive areas.



Heat Shrinkable Tubing 2:1

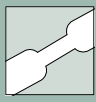
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TR27-3.2/1.6	3.2	1.6	0.51	150 m	Black (BK)	315-50320
TR27-4.8/2.4	4.8	2.4	0.51	60 m	Black (BK)	315-50480
TR27-6.4/3.2	6.4	3.2	0.64	60 m	Black (BK)	315-50640
TR27-9.5/4.8	9.5	4.8	0.64	60 m	Black (BK)	315-50950
TR27-12.7/6.4	12.7	6.4	0.64	60 m	Black (BK)	315-51270
TR27-19.1/9.5	19.1	9.5	0.76	60 m	Black (BK)	315-51900
TR27-25.4/12.7	25.4	12.7	0.89	60 m	Black (BK)	315-52540
TR27-38.1/19.1	38.1	19.1	1.02	60 m	Black (BK)	315-53810
TR27-50.8/25.4	50.8	25.4	1.14	60 m	Black (BK)	315-55100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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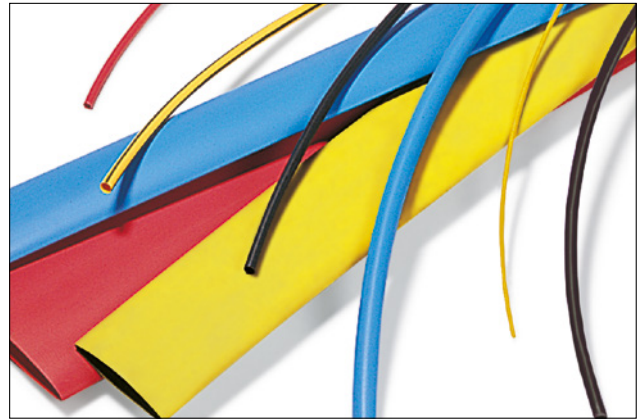
### Heat Shrinkable Tubing 2:1 flexible and coloured

#### • TF21

Due to its versatility TF21 is suitable for a wide range of applications like electrical insulations, mechanical protection and marking.

#### Features and Benefits

- Thin walled, flexible polyolefin tubing
- Fast shrinking and low shrink temperature
- Meets and exceeds lots of industrial standards
- Big variety of different colours and sizes
- Printable
- Flame retarded and UL224 VW1 listed



TF21 – available in a wide range of colours and sizes.

Cut lengths available on request. Please contact us!



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+/-5%
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876
<b>Specifications</b>	CSA, JAR/FAR 25.853, NF F 00-608, SAE - AMS - DTL-23053/5 Class 1, UL224 125 °C 600V VW-1



Heat Shrinkable Tubing 2:1

RoHS

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-1.2/0.6	1.2	0.6	0.41	100 m	Blue (BU)	309-20126
	1.2	0.6	0.41	100 m	Red (RD)	309-20122
	1.2	0.6	0.41	100 m	White (WH)	309-20129
	1.2	0.6	0.41	100 m	Yellow (YE)	309-20124
	1.2	0.6	0.41	300 m	Black (BK)	309-10120
TF21-1.6/0.8	1.6	0.8	0.43	100 m	Blue (BU)	309-20166
	1.6	0.8	0.43	100 m	Red (RD)	309-20162
	1.6	0.8	0.43	100 m	White (WH)	309-20169
	1.6	0.8	0.43	100 m	Yellow (YE)	309-20164
	1.6	0.8	0.43	300 m	Black (BK)	309-10160

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 2:1 flexible and coloured

- TF21



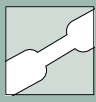
Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-2.4/1.2	2.4	1.2	0.51	100 m	Blue (BU)	309-20246
	2.4	1.2	0.51	100 m	Green-Yellow (GNYE)	309-40247
	2.4	1.2	0.51	100 m	Red (RD)	309-20242
	2.4	1.2	0.51	100 m	White (WH)	309-20249
	2.4	1.2	0.51	100 m	Yellow (YE)	309-20244
	2.4	1.2	0.51	300 m	Black (BK)	309-10240
TF21-3.2/1.6	3.2	1.6	0.51	100 m	Blue (BU)	309-20326
	3.2	1.6	0.51	100 m	Green-Yellow (GNYE)	309-40327
	3.2	1.6	0.51	100 m	Red (RD)	309-20322
	3.2	1.6	0.51	100 m	White (WH)	309-20329
	3.2	1.6	0.51	100 m	Yellow (YE)	309-20324
	3.2	1.6	0.51	300 m	Black (BK)	309-10320
TF21-4.8/2.4	4.8	2.4	0.51	60 m	Blue (BU)	309-50486
	4.8	2.4	0.51	60 m	Green-Yellow (GNYE)	309-50487
	4.8	2.4	0.51	60 m	Red (RD)	309-50482
	4.8	2.4	0.51	60 m	White (WH)	309-50489
	4.8	2.4	0.51	60 m	Yellow (YE)	309-50484
	4.8	2.4	0.51	300 m	Black (BK)	309-10480
TF21-6.4/3.2	6.4	3.2	0.64	60 m	Blue (BU)	309-50646
	6.4	3.2	0.64	60 m	Green-Yellow (GNYE)	309-50647
	6.4	3.2	0.64	60 m	Red (RD)	309-50642
	6.4	3.2	0.64	60 m	White (WH)	309-50649
	6.4	3.2	0.64	60 m	Yellow (YE)	309-50644
	6.4	3.2	0.64	300 m	Black (BK)	309-10640
TF21-9.5/4.8	9.5	4.8	0.64	50 m	Blue (BU)	309-20956
	9.5	4.8	0.64	50 m	Green-Yellow (GNYE)	309-50957
	9.5	4.8	0.64	50 m	Red (RD)	309-20952
	9.5	4.8	0.64	50 m	White (WH)	309-20959
	9.5	4.8	0.64	50 m	Yellow (YE)	309-20954
	9.5	4.8	0.64	150 m	Black (BK)	309-10950
TF21-12.7/6.4	12.7	6.4	0.64	50 m	Blue (BU)	309-21276
	12.7	6.4	0.64	50 m	Green-Yellow (GNYE)	309-41277
	12.7	6.4	0.64	50 m	Red (RD)	309-21272
	12.7	6.4	0.64	50 m	White (WH)	309-21279
	12.7	6.4	0.64	50 m	Yellow (YE)	309-21274
	12.7	6.4	0.64	100 m	Black (BK)	309-11270

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Heat Shrinkable Tubing 2:1 flexible and coloured

## • TF21



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-19.0/9.5	19.1	9.5	0.76	50 m	Black (BK)	309-11900
	19.1	9.5	0.76	50 m	Blue (BU)	309-11906
	19.1	9.5	0.76	50 m	Green-Yellow (GNYE)	309-11907
	19.1	9.5	0.76	50 m	Red (RD)	309-11902
	19.1	9.5	0.76	50 m	White (WH)	309-11909
	19.1	9.5	0.76	50 m	Yellow (YE)	309-11904
TF21-25.4/12.7	25.4	12.7	0.89	50 m	Black (BK)	309-12540
	25.4	12.7	0.89	50 m	Blue (BU)	309-12546
	25.4	12.7	0.89	50 m	Green-Yellow (GNYE)	309-12547
	25.4	12.7	0.89	50 m	Red (RD)	309-12542
	25.4	12.7	0.89	50 m	White (WH)	309-12549
	25.4	12.7	0.89	50 m	Yellow (YE)	309-12544
TF21-38.0/19.0	38.1	19.1	1.02	60 m	Black (BK)	309-13810
	38.1	19.1	1.02	60 m	Blue (BU)	309-13816
	38.1	19.1	1.02	60 m	Green-Yellow (GNYE)	309-13817
	38.1	19.1	1.02	60 m	Red (RD)	309-13812
	38.1	19.1	1.02	60 m	White (WH)	309-13819
	38.1	19.1	1.02	60 m	Yellow (YE)	309-13814
TF21-50.8/25.4	50.8	25.4	1.14	60 m	Black (BK)	309-15080
	50.8	25.4	1.14	60 m	Blue (BU)	309-15086
	50.8	25.4	1.14	60 m	Green-Yellow (GNYE)	309-15087
	50.8	25.4	1.14	60 m	Red (RD)	309-15082
	50.8	25.4	1.14	60 m	White (WH)	309-15089
	50.8	25.4	1.14	60 m	Yellow (YE)	309-15084
TF21-76.0/38.0	76.2	38.1	1.27	30 m	Black (BK)	309-17600
	76.2	38.1	1.27	30 m	Blue (BU)	309-17606
	76.2	38.1	1.27	30 m	Red (RD)	309-17602
	76.2	38.1	1.27	30 m	White (WH)	309-17609
	76.2	38.1	1.27	30 m	Yellow (YE)	309-17604
TF21-101.6/50.8	101.6	50.8	1.40	15 m	Black (BK)	309-11020
	101.6	50.8	1.40	15 m	Blue (BU)	309-11026
	101.6	50.8	1.40	15 m	Red (RD)	309-11022
	101.6	50.8	1.40	15 m	White (WH)	309-11029
	101.6	50.8	1.40	15 m	Yellow (YE)	309-11024

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



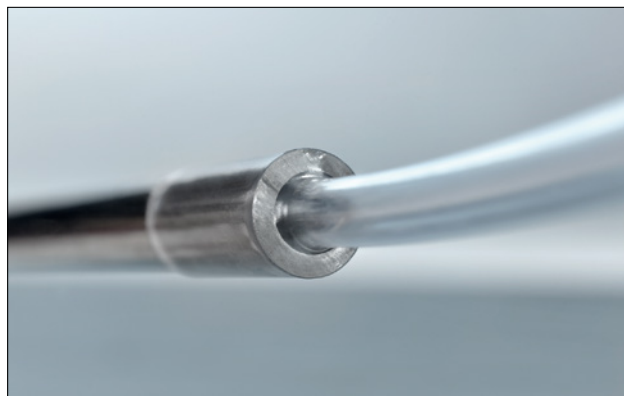
### Heat Shrinkable Tubing 2:1 flexible and transparent

- TF24

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and Benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Halogen free
- Good mechanical and chemical resistance
- VG-approval and additional industrial approvals



TF24 transparent tubing with 2:1 shrink ratio.

Cut lengths available on request. Please contact us!



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	+/-5% max.
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	not flame retarded
<b>Specifications</b>	DEF STAN 59-97 Type 2B, SAE - AMS - DTL-23053/5 Class 2, VG 95343



Heat Shrinkable Tubing 2:1

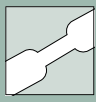


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
TF24-1.2/0.6	1.2	0.6	0.41	100 m	Transparent (CL)	VG95343T05B001M	309-40123
TF24-1.6/0.8	1.6	0.8	0.43	100 m	Transparent (CL)	VG95343T05B002M	309-40163
TF24-2.4/1.2	2.4	1.2	1.51	100 m	Transparent (CL)	VG95343T05B003M	309-40243
TF24-3.2/1.6	3.2	1.6	0.51	100 m	Transparent (CL)	VG95343T05B004M	309-40323
TF24-4.8/2.4	4.8	2.4	0.51	60 m	Transparent (CL)	VG95343T05B005M	309-50483
TF24-6.4/3.2	6.4	3.2	0.64	60 m	Transparent (CL)	VG95343T05B006M	309-50643
TF24-9.5/4.8	9.5	4.8	0.64	50 m	Transparent (CL)	VG95343T05B007M	309-40953
TF24-12.7/6.4	12.7	6.4	0.64	50 m	Transparent (CL)	VG95343T05B008M	309-41273
TF24-19.1/9.5	19.1	9.5	0.76	50 m	Transparent (CL)	VG95343T05B009M	309-31903
TF24-25.4/12.7	25.4	12.7	0.89	50 m	Transparent (CL)	VG95343T05B010M	309-32543
TF24-38.1/19.1	38.1	19.1	1.02	60 m	Transparent (CL)	VG95343T05B011M	309-33813
TF24-50.8/25.4	50.8	25.4	1.14	60 m	Transparent (CL)	VG95343T05B012M	309-35083
TF24-76.2/38.1	76.2	38.1	1.27	30 m	Transparent (CL)	VG95343T05B013M	309-37603
TF24-101.6/50.8	101.6	50.8	1.40	15 m	Transparent (CL)	VG95343T05B014M	309-31023

All dimensions in mm. Subject to technical changes.  
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For product specific approvals please refer to the Appendix.



## Heat Shrinkable Tubing 2:1 flexible and coloured

### • HFT-A - self extinguishing

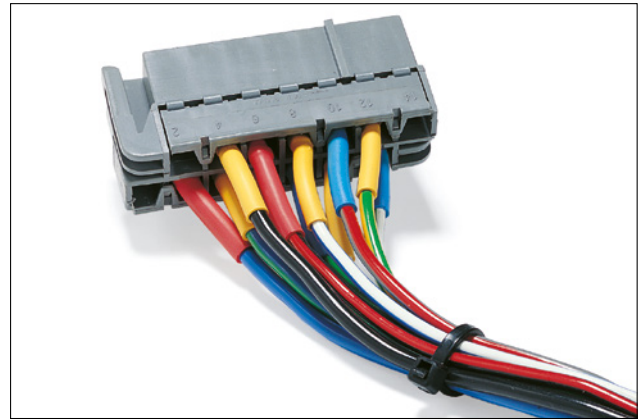
This high performance thin wall tubing is used extensively for electrical and mechanical protection. It is also well proven for sleeve marking to identify wiring circuits. It shrinks uniformly to form a permanent insulation covering.

The transparent version is used for bundling and cable protection where visual inspection is required. It is often used as a see through protective sleeve over cable markers.

### Features and Benefits

- Flexible heat shrink tubing
- Fast shrinking, easy handling, good mechanical strength
- Easy to print on
- Wide range of colours
- Internal diameters up to 4 inches (101.6 mm)
- UL-224 ,CSA listed and VG approved

**Standard available in colours black, red, blue, yellow, white and green-yellow.**



HFT-A conforms to major standards used in all Defence industries.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	-5% max.
<b>Dielectric Strength</b>	20 kV/mm according to IEC 60684 P2
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	CSA, DEF STAN 59-97/3, Det Norske Veritas, MIL-DTL-23053/5C, NF F 00-608, SAE - AMS - DTL-23053 / 5C, UL224 125 °C 600V, VG 95343



Heat Shrinkable Tubing 2:1

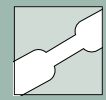
**RoHS** ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
HFT-A-1.2/0.6	1.2	0.6	0.40	400 m	Black (BK)	VG 95343 T05 A 001A	305-01200
	1.2	0.6	0.40	400 m	Blue (BU)	VG 95343 T05 A 001 G	305-01206
	1.2	0.6	0.40	400 m	Red (RD)	VG 95343 T05 A 001 C	305-01202
	1.2	0.6	0.40	400 m	White (WH)	VG 95343 T05 A 001 L	305-01209
	1.2	0.6	0.40	400 m	Yellow (YE)	VG 95343 T05 A 001 E	305-01204
HFT-A-1.6/0.8	1.6	0.8	0.40	400 m	Black (BK)	VG 95343 T05 A 002 A	305-01600
	1.6	0.8	0.40	400 m	Blue (BU)	VG 95343 T05 A 002 G	305-01606
	1.6	0.8	0.40	400 m	Red (RD)	VG 95343 T05 A 002 C	305-01602
	1.6	0.8	0.40	400 m	White (WH)	VG 95343 T05 A 002 L	305-01609
	1.6	0.8	0.40	400 m	Yellow (YE)	VG 95343 T05 A 002 E	305-01604
HFT-A-2.4/1.2	2.4	1.2	0.50	100 m	Blue (BU)	VG 95343 T05 A 003 G	305-02406
	2.4	1.2	0.50	100 m	Red (RD)	VG 95343 T05 A 003 C	305-02402
	2.4	1.2	0.50	100 m	White (WH)	VG 95343 T05 A 003 L	305-02409
	2.4	1.2	0.50	100 m	Yellow (YE)	VG 95343 T05 A 003 E	305-02404
	2.4	1.2	0.50	400 m	Black (BK)	VG 95343 T05 A 003 A	305-02400

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### Heat Shrinkable Tubing 2:1 flexible and coloured

- HFT-A - self extinguishing



Heat Shrinkable Tubing 2:1

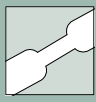
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
HFT-A-3.2/1.6	3.2	1.6	0.50	100 m	Blue (BU)	VG 95343 T05 A 004 G	305-03206
	3.2	1.6	0.50	100 m	Green-Yellow (GNYE)	VG 95343 T05 A 004 N	305-03245
	3.2	1.6	0.50	100 m	Red (RD)	VG 95343 T05 A 004 C	305-03202
	3.2	1.6	0.50	100 m	White (WH)	VG 95343 T05 A 004 L	305-03209
	3.2	1.6	0.50	100 m	Yellow (YE)	VG 95343 T05 A 004 E	305-03204
	3.2	1.6	0.50	400 m	Black (BK)	VG 95343 T05 A 004 A	305-03200
HFT-A-4.8/2.4	4.8	2.4	0.50	75 m	Blue (BU)	VG 95343 T05 A 005 G	305-04806
	4.8	2.4	0.50	75 m	Green-Yellow (GNYE)	VG 95343 T05 A 005 N	305-04845
	4.8	2.4	0.50	75 m	Red (RD)	VG 95343 T05 A 005 C	305-04802
	4.8	2.4	0.50	75 m	White (WH)	VG 95343 T05 A 005 L	305-04809
	4.8	2.4	0.50	75 m	Yellow (YE)	VG 95343 T05 A 005 E	305-04804
	4.8	2.4	0.50	300 m	Black (BK)	VG 95343 T05 A 005 A	305-04800
HFT-A-6.4/3.2	6.4	3.2	0.60	75 m	Blue (BU)	VG 95343 T05 A 006 G	305-06406
	6.4	3.2	0.60	75 m	Green-Yellow (GNYE)	VG 95343 T05 A 006 N	305-06445
	6.4	3.2	0.60	75 m	Red (RD)	VG 95343 T05 A 006 C	305-06402
	6.4	3.2	0.60	75 m	White (WH)	VG 95343 T05 A 006 L	305-06409
	6.4	3.2	0.60	75 m	Yellow (YE)	VG 95343 T05 A 006 E	305-06404
	6.4	3.2	0.60	300 m	Black (BK)	VG 95343 T05 A 006 A	305-06400
HFT-A-9.5/4.8	9.5	4.8	0.60	50 m	Blue (BU)	VG 95343 T05 A007 G	305-09506
	9.5	4.8	0.60	50 m	Green-Yellow (GNYE)	VG 95343 T05 A007 N	305-09545
	9.5	4.8	0.60	50 m	Red (RD)	VG 95343 T05 A007 C	305-09502
	9.5	4.8	0.60	50 m	White (WH)	VG 95343 T05 A007 L	305-09509
	9.5	4.8	0.60	50 m	Yellow (YE)	VG 95343 T05 A007 E	305-09504
	9.5	4.8	0.60	150 m	Black (BK)	VG 95343 T05 A007 A	305-09500
HFT-A-12.7/6.4	12.7	6.4	0.60	50 m	Blue (BU)	VG 95343 T05 A 008 G	305-12706
	12.7	6.4	0.60	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 008 N	305-12745
	12.7	6.4	0.60	50 m	Red (RD)	VG 95343 T05 A 008 C	305-12702
	12.7	6.4	0.60	50 m	White (WH)	VG 95343 T05 A 008 L	305-12709
	12.7	6.4	0.60	50 m	Yellow (YE)	VG 95343 T05 A 008 E	305-12704
	12.7	6.4	0.60	100 m	Black (BK)	VG 95343 T05 A 008 A	305-12700

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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## Heat Shrinkable Tubing 2:1 flexible and coloured

- HFT-A - self extinguishing



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
HFT-A-19.0/9.5	19.0	9.5	0.80	25 m	Blue (BU)	VG 95343 T05 A 009 G	305-19006
	19.0	9.5	0.80	25 m	Green-Yellow (GNYE)	VG 95343 T05 A 009 N	305-19045
	19.0	9.5	0.80	25 m	Red (RD)	VG 95343 T05 A 009 C	305-19002
	19.0	9.5	0.80	25 m	White (WH)	VG 95343 T05 A 009 L	305-19009
	19.0	9.5	0.80	25 m	Yellow (YE)	VG 95343 T05 A 009 E	305-19004
	19.0	9.5	0.80	50 m	Black (BK)	VG 95343 T05 A 009 A	305-19000
HFT-A-25.4/12.7	25.4	12.7	0.90	25 m	Blue (BU)	VG 95343 T05 A 010 G	305-25406
	25.4	12.7	0.90	25 m	Green-Yellow (GNYE)	VG 95343 T05 A 010 N	305-25445
	25.4	12.7	0.90	25 m	Red (RD)	VG 95343 T05 A 010 C	305-25402
	25.4	12.7	0.90	25 m	White (WH)	VG 95343 T05 A 010 L	305-25409
	25.4	12.7	0.90	25 m	Yellow (YE)	VG 95343 T05 A 010 E	305-25404
	25.4	12.7	0.90	50 m	Black (BK)	VG 95343 T05 A 010 A	305-25400
HFT-A-38.0/19.0	38.0	19.0	1.00	50 m	Black (BK)	VG 95343 T05 A 011 A	305-38100
	38.0	19.0	1.00	50 m	Blue (BU)	VG 95343 T05 A 011 G	305-38106
	38.0	19.0	1.00	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 011 N	305-38145
	38.0	19.0	1.00	50 m	Red (RD)	VG 95343 T05 A 011 C	305-38102
	38.0	19.0	1.00	50 m	White (WH)	VG 95343 T05 A 011 L	305-38109
	38.0	19.0	1.00	50 m	Yellow (YE)	VG 95343 T05 A 011 E	305-38104
HFT-A-50.8/25.4	51.0	25.4	1.10	35 m	Black (BK)	VG 95343 T05 A 012 A	305-50800
	51.0	25.4	1.10	35 m	Blue (BU)	VG 95343 T05 A 012 G	305-50806
	51.0	25.4	1.10	35 m	Red (RD)	VG 95343 T05 A 012 C	305-50802
	51.0	25.4	1.10	35 m	White (WH)	VG 95343 T05 A 012 L	305-50809
	51.0	25.4	1.10	35 m	Yellow (YE)	VG 95343 T05 A 012 E	305-50804
HFT-A-76.0/38.0	76.0	38.0	1.30	25 m	Black (BK)	VG 95343 T05 A 013 A	305-76200
	76.0	38.0	1.30	25 m	Blue (BU)	VG 95343 T05 A 013 G	305-76206
	76.0	38.0	1.30	25 m	Red (RD)	VG 95343 T05 A 013 C	305-76202
	76.0	38.0	1.30	25 m	White (WH)	VG 95343 T05 A 013 L	305-76209
	76.0	38.0	1.30	25 m	Yellow (YE)	VG 95343 T05 A 013 E	305-76204
HFT-A-101.6/50.8	101.6	50.8	1.40	25 m	Black (BK)	VG 95343 T05 A 014 A	305-91600
	101.6	50.8	1.40	25 m	Blue (BU)	VG 95343 T05 A 014 G	305-91606
	101.6	50.8	1.40	25 m	Red (RD)	VG 95343 T05 A 014 C	305-91602
	101.6	50.8	1.40	25 m	White (WH)	VG 95343 T05 A 014 L	305-91609
	101.6	50.8	1.40	25 m	Yellow (YE)	VG 95343 T05 A 014 E	305-91604

All dimensions in mm. Subject to technical changes.  
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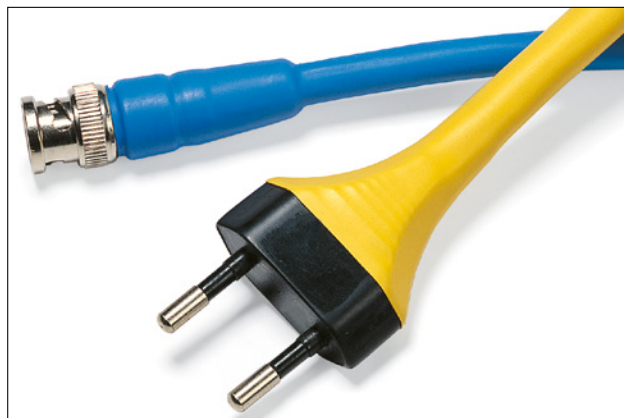
### Heat Shrinkable Tubing 3:1 flexible and coloured

- TF31

If higher fire protection is a requirement heat shrinkable tubing TF31 is a good choice. It is used for protection insulation and identification wires, cables and light duty harnesses.

#### Features and Benefits

- Thin walled, very flexible polyolefin tubing
- Few sizes cover a wide range of diameters allowing reduced inventory
- Fast shrinking and low shrink temperature
- Flame-retardant, UL224 VW1 listed



TF31 with 3:1 shrink ratio allowing for a wider range of application.

Cut lengths available on request. Please contact us!



One Step to the Web!



Heat Shrinkable Tubing 3:1

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+5%/-15%
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876
<b>Specifications</b>	CSA, UL224 125 °C 600V VW-1

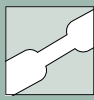


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF31-1.5/0.5	1.5	0.5	0.50	30 m	Black (BK)	333-30150
	1.5	0.5	0.50	30 m	Blue (BU)	333-30156
	1.5	0.5	0.50	30 m	Green (GN)	333-30155
	1.5	0.5	0.50	30 m	Green-Yellow (GNYE)	333-30157
	1.5	0.5	0.50	30 m	Red (RD)	333-30152
	1.5	0.5	0.50	30 m	White (WH)	333-30159
	1.5	0.5	0.50	30 m	Yellow (YE)	333-30154
	1.5	0.5	0.50	300 m	Black (BK)	333-20150
TF31-3/1	3.0	1.0	0.60	30 m	Black (BK)	333-30300
	3.0	1.0	0.60	30 m	Blue (BU)	333-30306
	3.0	1.0	0.60	30 m	Green (GN)	333-30305
	3.0	1.0	0.60	30 m	Green-Yellow (GNYE)	333-30307
	3.0	1.0	0.60	30 m	Red (RD)	333-30302
	3.0	1.0	0.60	30 m	White (WH)	333-30309
	3.0	1.0	0.60	30 m	Yellow (YE)	333-30304
	3.0	1.0	0.60	150 m	Black (BK)	333-40300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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### Heat Shrinkable Tubing 3:1 flexible and coloured

- TF31



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF31-6/2	6.0	2.0	0.70	30 m	Black (BK)	333-30600
	6.0	2.0	0.70	30 m	Blue (BU)	333-30606
	6.0	2.0	0.70	30 m	Green (GN)	333-30605
	6.0	2.0	0.70	30 m	Green-Yellow (GNYE)	333-30607
	6.0	2.0	0.70	30 m	Red (RD)	333-30602
	6.0	2.0	0.70	30 m	White (WH)	333-30609
	6.0	2.0	0.70	30 m	Yellow (YE)	333-30604
		6.0	2.0	0.70	150 m	Black (BK)
TF31-9/3	9.0	3.0	0.80	30 m	Black (BK)	333-30900
	9.0	3.0	0.80	30 m	Blue (BU)	333-30906
	9.0	3.0	0.80	30 m	Green (GN)	333-30905
	9.0	3.0	0.80	30 m	Green-Yellow (GNYE)	333-30907
	9.0	3.0	0.80	30 m	Red (RD)	333-30902
	9.0	3.0	0.80	30 m	White (WH)	333-30909
	9.0	3.0	0.80	30 m	Yellow (YE)	333-30904
		9.0	3.0	0.80	150 m	Black (BK)
TF31-12/4	12.0	4.0	0.85	30 m	Black (BK)	333-31200
	12.0	4.0	0.85	30 m	Blue (BU)	333-31206
	12.0	4.0	0.85	30 m	Green (GN)	333-31205
	12.0	4.0	0.85	30 m	Green-Yellow (GNYE)	333-31207
	12.0	4.0	0.85	30 m	Red (RD)	333-31202
	12.0	4.0	0.85	30 m	White (WH)	333-31209
	12.0	4.0	0.85	30 m	Yellow (YE)	333-31204
		12.0	4.0	0.85	100 m	Black (BK)
TF31-18/6	18.0	6.0	1.00	30 m	Black (BK)	333-31800
	18.0	6.0	1.00	30 m	Blue (BU)	333-31806
	18.0	6.0	1.00	30 m	Green (GN)	333-31805
	18.0	6.0	1.00	30 m	Green-Yellow (GNYE)	333-31807
	18.0	6.0	1.00	30 m	Red (RD)	333-31802
	18.0	6.0	1.00	30 m	White (WH)	333-31809
	18.0	6.0	1.00	30 m	Yellow (YE)	333-31804
		18.0	6.0	1.00	60 m	Black (BK)

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 flexible and coloured

- TF31



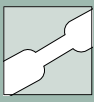
Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF31-24/8	24.0	8.0	1.20	30 m	Black (BK)	333-32400
	24.0	8.0	1.20	30 m	Blue (BU)	333-32406
	24.0	8.0	1.20	30 m	Green (GN)	333-32405
	24.0	8.0	1.20	30 m	Green-Yellow (GNYE)	333-32407
	24.0	8.0	1.20	30 m	Red (RD)	333-32402
	24.0	8.0	1.20	30 m	White (WH)	333-32409
	24.0	8.0	1.20	30 m	Yellow (YE)	333-32404
	24.0	8.0	1.20	60 m	Black (BK)	333-42400
TF31-40/13	40.0	13.0	1.25	30 m	Black (BK)	333-34000
	40.0	13.0	1.25	30 m	Blue (BU)	333-34006
	40.0	13.0	1.25	30 m	Green (GN)	333-34005
	40.0	13.0	1.25	30 m	Green-Yellow (GNYE)	333-34007
	40.0	13.0	1.25	30 m	Red (RD)	333-34002
	40.0	13.0	1.25	30 m	White (WH)	333-34009
	40.0	13.0	1.25	30 m	Yellow (YE)	333-34004
	40.0	13.0	1.25	60 m	Black (BK)	333-24000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 flexible and transparent

- TF34

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and Benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Few sizes cover a wide range of diameters allowing reduced inventory
- Halogen free



TF34 transparent tubing with 3:1 shrink ratio allowing for a wider range of application.

Cut lengths available on request. Please contact us!



One Step to the Web!

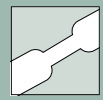
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-5% max.
<b>Dielectric Strength</b>	46 kV/mm
<b>Flammability</b>	not flame retarded



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF34-1.5/0.5	1.5	0.5	0.50	30 m	Transparent (CL)	333-30153
TF34-3/1	3.0	1.0	0.50	30 m	Transparent (CL)	333-30303
TF34-6/2	6.0	2.0	0.70	30 m	Transparent (CL)	333-30603
TF34-9/3	9.0	3.0	0.80	30 m	Transparent (CL)	333-30903
TF34-12/4	12.0	4.0	0.85	30 m	Transparent (CL)	333-31203
TF34-18/6	18.0	6.0	1.00	30 m	Transparent (CL)	333-31803
TF34-24/8	24.0	8.0	1.20	30 m	Transparent (CL)	333-32403
TF34-40/13	40.0	13.0	1.25	30 m	Transparent (CL)	333-34003

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing 2:1 - Elastomer

- SE28

SE28 is used for long-term protection of cables and wire harnesses in military equipment, motor sports, and aviation.

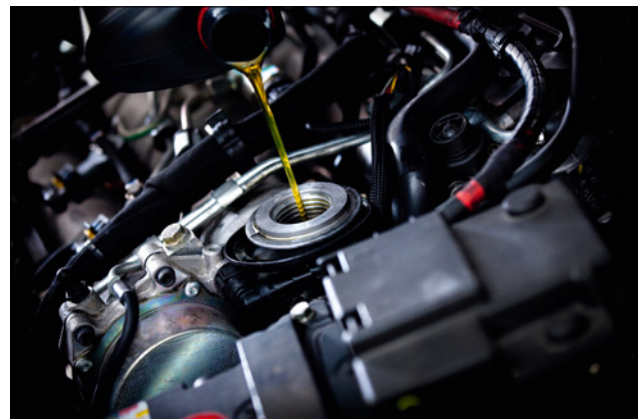
#### Features and Benefits

- Flexible, high performance elastomeric heat shrink tubing
- Used in aerospace, defence, railway and automotive applications
- Resistant to diesel fuel, aviation and hydraulic fluids
- Provides a reliable protection against abrasion and mechanical damage
- Very suitable for protecting cables and wire harnesses



SE28 tubing.

<b>MATERIAL</b>	Elastomer, cross-linked (POA)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Minimum Shrink Temperature</b>	+170 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	VG 95343
<b>Specifications</b>	NF F 00-608, SAE - AMS - DTL-23053, VG 95343



SE28 is mainly used in high performance applications.



Heat Shrinkable Tubing 2:1

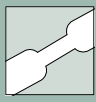
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
SE28 3,2/1,6	3.2	1.6	0.70	150 m	Black (BK)	VG 95343 T 05 D 001 A	342-20000
SE28 4,8/2,4	4.8	2.4	0.80	60 m	Black (BK)	VG 95343 T 05 D 002 A	342-20010
SE28 6,4/3,2	6.4	3.2	0.90	60 m	Black (BK)	VG 95343 T 05 D 003 A	342-20020
SE28 9,5/4,8	9.5	4.8	1.00	60 m	Black (BK)	VG 95343 T 05 D 004 A	342-20030
SE28 12,7/6,4	12.7	6.4	1.20	60 m	Black (BK)	VG 95343 T 05 D 005 A	342-20040
SE28 19,0/9,5	19.0	9.5	1.40	30 m	Black (BK)	VG 95343 T 05 D 006 A	342-20050
SE28 25,4/12,7	25.4	12.7	1.80	30 m	Black (BK)	VG 95343 T 05 D 007 A	342-20060
SE28 38,0/19,0	38.0	19.0	2.40	30 m	Black (BK)	VG 95343 T 05 D 008 A	342-20070
SE28 51,0/25,4	51.0	25.4	2.80	30 m	Black (BK)	VG 95343 T 05 D 009 A	342-20080
SE28 76,0/38,0	76.0	38.0	3.20	15 m	Black (BK)	VG 95343 T 05 D 010 A	342-20090
SE28 101,2/51,0	102.0	51.0	3.50	10 m	Black (BK)	VG 95343 T 05 D 011 A	342-20100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





## Heat Shrinkable Tubing 2:1 - Elastomer

- **TE28 - light weight**

TE28 is used for long-term protection of cables and wire harnesses in military, motor sports and aviation equipment.

### Features and Benefits

- Thin wall, very flexible, high performance elastomeric heat shrink tubing
- Used in aerospace, defence, railway and automotive harness applications
- Resistant to diesel, aviation and hydraulic fluids
- Provides a reliable protection against abrasion and mechanical damage
- Very suitable for protecting cables and wire harnesses

<b>MATERIAL</b>	Elastomer, cross-linked (POA)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Minimum Shrink Temperature</b>	+170 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	VG 95343
<b>Specifications</b>	VG 95343

RoHS



Heat Shrinkable Tubing 2:1



Thin wall TE28 tubing.



TE28 is mainly used in high performance applications.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
TE28 2,4/1,2	2.4	1.2	0.50	150 m	Black (BK)	VG 95343 T 05 D 012 A	342-30000
TE28 3,2/1,6	3.2	1.6	0.50	150 m	Black (BK)	VG 95343 T 05 D 013 A	342-30010
TE28 4,8/2,4	4.8	2.4	0.50	60 m	Black (BK)	VG 95343 T 05 D 014 A	342-30020
TE28 6,4/3,2	6.4	3.2	0.60	60 m	Black (BK)	VG 95343 T 05 D 015 A	342-30030
TE28 9,5/4,8	9.5	4.8	0.60	60 m	Black (BK)	VG 95343 T 05 D 016 A	342-30040
TE28 12,7/6,4	12.7	6.4	0.60	60 m	Black (BK)	VG 95343 T 05 D 017 A	342-30050
TE28 19,0/9,5	19.0	9.5	0.80	30 m	Black (BK)	VG 95343 T 05 D 018 A	342-30060
TE28 25,4/12,7	25.4	12.7	0.90	30 m	Black (BK)	VG 95343 T 05 D 019 A	342-30070
TE28 38,0/19,0	38.0	19.0	1.00	30 m	Black (BK)	VG 95343 T 05 D 020 A	342-30080
TE28 51,0/25,4	51.0	25.4	1.10	30 m	Black (BK)	VG 95343 T 05 D 022 A	342-30090

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 2:1 - PVDF

- TK20

Typical applications of this translucent tubing are where high-temperature performance is required. Also very suitable for applications that ask for visual inspection of covered components, or if a low friction surface is needed. TK20 is also used as oil stop for energy cables.

This thin walled, translucent heat shrink tubing is often used for chemical applications.

#### Features and Benefits

- Semi-rigid heat shrinkable tubing made of PVDF
- Thin walled and tough
- For higher temperature applications
- Very good mechanical strength, abrasion resistance and chemical resistance
- Meets various industrial standards
- Self extinguishing, UL 224 VW1 listed



*This thin walled, translucent heat shrink tubing is often used for chemical applications.*

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +175 °C
<b>Minimum Shrink Temperature</b>	+175 °C
<b>Longitudinal change after shrinkage</b>	+/-10% max
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	UL224 VW-1
<b>Specifications</b>	SAE - AMS - DTL-23053 / 8, UL224 150 °C 600V VW-1, VG 95343



Heat Shrinkable Tubing 2:1

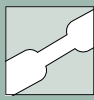


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Designation as per VG-Norm	Article-No.
TK20-1.2/0.6	1.2	0.6	0.25	1.2 m	Transparent (CL)	VG95343T05F001M	331-00129
TK20-1.6/0.8	1.6	0.8	0.25	1.2 m	Transparent (CL)	VG95343T05F002M	311-00169
TK20-2.4/1.2	2.4	1.2	0.25	1.2 m	Transparent (CL)	VG95343T05F003M	311-00249
TK20-3.2/1.6	3.2	1.6	0.25	1.2 m	Transparent (CL)	VG95343T05F004M	311-00329
TK20-4.8/2.4	4.8	2.4	0.25	1.2 m	Transparent (CL)	VG95343T05F005M	311-00489
TK20-6.4/3.2	6.4	3.2	0.30	1.2 m	Transparent (CL)	VG95343T05F006M	311-00649
TK20-9.5/4.8	9.5	4.8	0.30	1.2 m	Transparent (CL)	VG95343T05F007M	311-00959
TK20-12.7/6.4	12.7	6.4	0.30	1.2 m	Transparent (CL)	VG95343T05F008M	311-01279
TK20-19.1/9.5	19.1	9.5	0.43	1.2 m	Transparent (CL)	VG95343T05F009M	311-01909
TK20-25.4/12.7	25.4	12.7	0.48	1.2 m	Transparent (CL)	VG95343T05F010M	311-02549
TK20-38.1/19.1	38.1	19.1	0.51	1.2 m	Transparent (CL)	-	311-03819
TK20-50.8/25.4	50.8	25.4	0.51	1.2 m	Transparent (CL)	-	311-05089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



## Heat Shrinkable Tubing 2:1 - PVDF

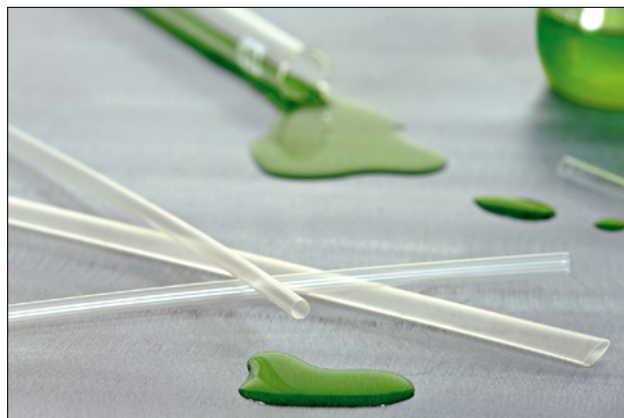
- TK29

Typical applications of this translucent tubing are where high-temperature performance is required. Also very suitable for applications that ask for visual inspection of covered components, or if low friction surface is needed. TK29 is also used as oil stop for energy cables.

This thin walled, translucent heat shrink tubing is often used for chemical applications.

### Features and Benefits

- Transparent, semi-flexible heat shrinkable tubing
- Very thin walled and tough
- Self extinguishing
- For higher temperature applications
- Very good mechanical strength and chemical resistance
- Meets lots of industrial standards
- Supplied on reel



TK29 thin walled, translucent heat shrink tubing on reel.

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +175 °C
<b>Minimum Shrink Temperature</b>	+150 °C
<b>Longitudinal change after shrinkage</b>	+/-10% max
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	UL224 VW-1
<b>Specifications</b>	MIL-DTL-23053, UL224 VW-1



Heat Shrinkable Tubing 2:1



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TK29-1.2/0.6	1.2	0.6	0.25	300 m	Transparent (CL)	311-90129
TK29-1.6/0.8	1.6	0.8	0.25	300 m	Transparent (CL)	311-90169
TK29-2.4/1.2	2.4	1.2	0.25	150 m	Transparent (CL)	311-90249
TK29-3.2/1.6	3.2	1.6	0.25	150 m	Transparent (CL)	311-90329
TK29-4.8/2.4	4.8	2.4	0.25	60 m	Transparent (CL)	311-90489
TK29-6.4/3.2	6.4	3.2	0.30	60 m	Transparent (CL)	311-90649
TK29-9.5/4.8	9.5	4.8	0.30	60 m	Transparent (CL)	311-90959
TK29-12.7/6.4	12.7	6.4	0.30	60 m	Transparent (CL)	311-91279
TK29-19.1/9.5	19.1	9.5	0.43	60 m	Transparent (CL)	311-91909
TK29-25.4/12.7	25.4	12.7	0.48	60 m	Transparent (CL)	311-92549
TK29-38.1/19.1	38.1	19.1	0.51	60 m	Transparent (CL)	311-93819
TK29-50.8/25.4	50.8	25.4	0.51	60 m	Transparent (CL)	311-95089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 2:1 - Fluoroelastomer

- Viton®-E

Viton®-E is used for reliable protection against aggressive chemicals in high temperature environments like engine compartments and turbines. It is also used when protective tubings are required to remain flexible at low temperatures.

#### Features and Benefits

- High temperature resistant fluoroelastomeric heat shrink tubing
- Very good electrical, chemical and mechanical features
- Resistant to many fuels, oils and lubricants
- Flexible even at very low temperatures



Viton®-E for flexibility and protection against aggressive chemicals.

<b>MATERIAL</b>	Fluoropolymer cross-linked (FPMX)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +220 °C
<b>Minimum Shrink Temperature</b>	+175 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	15 kV/mm
<b>Flammability</b>	VG 95343
<b>Insulation Class</b>	C (VDE 0530)
<b>Specifications</b>	VG 95343



Heat Shrinkable Tubing 2:1

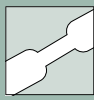


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
VITON®-E-3.2/1.6	3.2	1.6	0.70	50 m	Black (BK)	VG 95343 T 05 E 001 A	330-00320
VITON®-E-4.8/2.4	4.8	2.4	0.80	50 m	Black (BK)	VG 95343 T 05 E 002 A	330-00480
VITON®-E-6.4/3.2	6.4	3.2	0.90	50 m	Black (BK)	VG 95343 T 05 E 003 A	330-00640
VITON®-E-9.5/4.8	9.5	4.8	1.00	25 m	Black (BK)	VG 95343 T 05 E 004 A	330-00950
VITON®-E-12.7/6.4	12.7	6.4	1.20	25 m	Black (BK)	VG 95343 T 05 E 005 A	330-01270
VITON®-E-19.0/9.5	19.0	9.5	1.40	25 m	Black (BK)	VG 95343 T 05 E 006 A	330-01900
VITON®-E-25.4/12.7	25.4	12.7	1.80	25 m	Black (BK)	VG 95343 T 05 E 007 A	330-02540
VITON®-E-38.0/19.0	38.0	19.0	2.40	15 m	Black (BK)	VG 95343 T 05 E 008 A	330-03810
VITON®-E-50.8/25.4	50.8	25.4	2.80	15 m	Black (BK)	VG 95343 T 05 E 009 A	330-05080

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing - PTFE

- TFE2 2:1

- TFE4 4:1

TFE is ideal for high temperature applications, when resistance to aggressive fluids is required or a very thin walled tubing is needed, for example in pH-measuring instruments. TFE tubing is also used to reduce movement due to friction, covering cylinders for example.

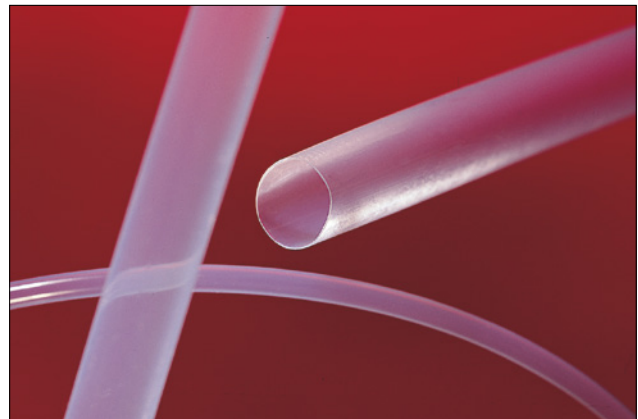
#### Features and Benefits

- PTFE heat shrink tubing
- Very high temperature resistance
- Extra thin wall translucent tubing
- High abrasion resistance and good resistance against aggressive chemicals
- Available in either 2:1 (TFE2) or 4:1 (TFE4) shrink ratios

Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 2:1



TFE is available in either 2:1 or 4:1 shrink ratios.

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-70 °C to +260 °C
<b>Minimum Shrink Temperature</b>	+350 °C
<b>Longitudinal change after shrinkage</b>	-20% max.
<b>Dielectric Strength</b>	40 kV/mm according to DIN 53481
<b>Flammability</b>	Non burning

RoHS

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wire Size (AWG)	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TFE2-30	0.86	0.38	30	0.23	1.2 m	Transparent (CL)	2:1	336-00079
TFE2-28	0.96	0.46	28	0.23	1.2 m	Transparent (CL)	2:1	336-00099
TFE2-26	1.17	0.56	26	0.23	1.2 m	Transparent (CL)	2:1	336-00109
TFE2-24	1.27	0.69	24	0.25	1.2 m	Transparent (CL)	2:1	336-00139
TFE2-22	1.39	0.82	22	0.25	1.2 m	Transparent (CL)	2:1	336-00149
TFE2-20	1.52	0.99	20	0.30	1.2 m	Transparent (CL)	2:1	336-00159
TFE2-18	1.93	1.25	18	0.30	1.2 m	Transparent (CL)	2:1	336-00199
TFE2-16	2.36	1.55	16	0.30	1.2 m	Transparent (CL)	2:1	336-00249
TFE2-14	3.05	1.83	14	0.30	1.2 m	Transparent (CL)	2:1	336-00319
TFE2-12	3.81	2.26	12	0.30	1.2 m	Transparent (CL)	2:1	336-00399
TFE2-10	4.85	2.85	10	0.30	1.2 m	Transparent (CL)	2:1	336-00489
TFE2-8	6.10	3.58	8	0.38	1.2 m	Transparent (CL)	2:1	336-00619
TFE2-6	7.67	4.52	6	0.38	1.2 m	Transparent (CL)	2:1	336-00779
TFE2-4	9.40	5.69	4	0.38	1.2 m	Transparent (CL)	2:1	336-00949
TFE2-2	10.92	7.06	2	0.38	1.2 m	Transparent (CL)	2:1	336-01109
TFE2-0	11.94	8.81	0	0.38	1.2 m	Transparent (CL)	2:1	336-01209

All dimensions in mm. Subject to technical changes.

AWG: American Wire Gauge Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing - PTFE

- TFE4 4:1

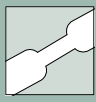


Heat Shrinkable Tubing 4:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Size (imperial)	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TFE4-5/64	1.98	0.64	5/64 "	0.22	1.2 m	Transparent (CL)	4:1	339-00209
TFE4-1/8	3.17	0.94	1/8 "	0.25	1.2 m	Transparent (CL)	4:1	339-00329
TFE4-3/16	4.75	1.27	3/16 "	0.30	1.2 m	Transparent (CL)	4:1	339-00340
TFE4-1/4	6.35	1.60	1/4 "	0.30	1.2 m	Transparent (CL)	4:1	339-00649
TFE4-3/8	9.52	2.44	3/8 "	0.30	1.2 m	Transparent (CL)	4:1	339-00959
TFE4-1/2	12.70	3.66	1/2 "	0.38	1.2 m	Transparent (CL)	4:1	339-01279
TFE4-5/8	15.87	4.52	5/8 "	0.38	1.2 m	Transparent (CL)	4:1	339-01599
TFE4-3/4	19.05	5.69	3/4 "	0.38	1.2 m	Transparent (CL)	4:1	339-01909
TFE4-1	25.40	7.06	1 "	0.38	1.2 m	Transparent (CL)	4:1	339-02549
TFE4-1 1/4	31.75	8.82	1 1/4 "	0.38	1.2 m	Transparent (CL)	4:1	339-03189

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Heat Shrinkable Tubing adhesive lined

- EPS-300 - 3:1 shrink ratio

- EPS-400 - 4:1 shrink ratio

Heat shrinkable tubing EPS seals and protects a wide variety of electrical applications like back end connector sealing, connector-to-cable transitions and splices.

#### Features and Benefits

- Flexible, thin walled polyolefin heat shrink tubing
- With coextruded hot melt adhesive inner wall
- Protects against moisture
- Provides an environmental sealing of complex parts

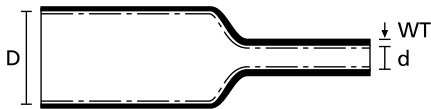


PTA300 and PTA400 offer high shrink ratios and protection against humidity.

Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 3:1 with adhesive



Heat Shrinkable Tubing 4:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Softening Point Adhesive</b>	+90 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	ASTM D2671 (outer layer only)
<b>Specifications</b>	SAE - AMS - DTL-23053 / 4

RoHS ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Shrink Ratio	Article-No.
EPS-300-3/1	3.0	1.0	1.00	400 m	Black (BK)	3:1	340-03010
EPS-300-6/2	6.0	2.0	1.00	300 m	Black (BK)	3:1	340-06020
EPS-300-9/3	9.0	3.0	1.40	150 m	Black (BK)	3:1	340-09030
EPS-300-12/4	12.0	4.0	1.80	100 m	Black (BK)	3:1	340-12040
EPS-300-19/6	19.0	6.0	2.20	50 m	Black (BK)	3:1	340-19060
EPS-300-24/8	24.0	8.0	2.50	25 m	Black (BK)	3:1	340-24080
EPS-300-40/13	40.0	13.0	2.50	25 m	Black (BK)	3:1	340-40130

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Shrink Ratio	Article-No.
EPS-400-4/1	4.0	1.0	1.00	300 m	Black (BK)	4:1	341-04010
EPS-400-8/2	8.0	2.0	1.00	150 m	Black (BK)	4:1	341-08020
EPS-400-12/3	12.0	3.0	1.40	100 m	Black (BK)	4:1	341-12030
EPS-400-16/4	16.0	4.0	1.80	100 m	Black (BK)	4:1	341-16040
EPS-400-24/6	24.0	6.0	2.20	50 m	Black (BK)	4:1	341-24060
EPS-400-32/8	32.0	8.0	2.50	25 m	Black (BK)	4:1	341-32080

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 - Flame retardant

- TA37 - thin wall adhesive lined

TA37 shrink tubing has a low smoke index and excellent flame retardant properties to meet strict fire security standards in electrical insulation.

#### Features and Benefits

- Thin wall adhesive lined heat shrink tubing
- Halogen Free
- Flame Retarded
- Combination of these three (halogen free, adhesive lined and flame retarded) product properties is unique
- Tubing conforms to London Underground specification LUL E1042-A6, BS6853



TA37 - adhesive lined tubing for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+150 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-15% max.
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	CEN TS 45545-2: HL3, conforms to BS6853, conforms to LUL E1042:A6



Mainly used in railway applications.



Heat Shrinkable Tubing 3:1 with adhesive



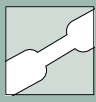
One Step to the Web!

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
TA37 3-1	3.0	1.0	0.95	1.2 m	Black (BK)	315-13000
TA37 4,5-1,5	4.5	1.5	1.10	1.2 m	Black (BK)	315-13001
TA37 6-2	6.0	2.0	1.20	1.2 m	Black (BK)	315-13002
TA37 9-3	9.0	3.0	1.30	1.2 m	Black (BK)	315-13003
TA37 12-4	12.0	4.0	1.40	1.2 m	Black (BK)	315-13004
TA37 19-6	19.0	6.0	1.80	1.2 m	Black (BK)	315-13005
TA37 24-8	24.0	8.0	2.50	1.2 m	Black (BK)	315-13006
TA37 40-13	40.0	13.0	2.50	1.2 m	Black (BK)	315-13007
TA37 50-19	50.0	19.0	4.00	1.2 m	Black (BK)	315-13008
TA37 75-25	75.0	25.0	3.00	1.2 m	Black (BK)	315-13009
TA37 120-45	120.0	45.0	4.00	1.2 m	Black (BK)	315-13011

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



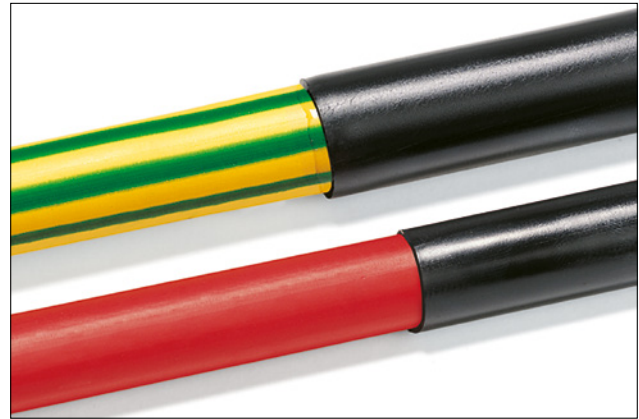
### Heat Shrinkable Tubing adhesive lined - 1.2 m lengths

- TA32 - thin wall, 3:1 shrink ratio
- TA42 - thin wall, 4:1 shrink ratio

TA32/TA42 is designed for environmental sealing and electrical insulation of wire splices, terminations and components.

#### Features and Benefits

- Thin walled adhesive-lined heat shrink tubing
- Highly flame retardant
- Outer wall conforms to UL224



TA32 and TA42 are UL224 listed adhesive lined tubing. Available in 3:1 and 4:1 shrink ratio.

Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 3:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Softening Point Adhesive</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-15% max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	UL224
<b>Specifications</b>	CSA, SAE - AMS - DTL-23053/4 Class 3, UL224 125 °C 600V

RoHS

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TA32-3/1	3.2	0.6	0.95	1.2 m	Black (BK)	3:1	318-30300
TA32 4.5/1.5	4.5	1.5	1.10	1.2 m	Black (BK)	3:1	318-30450
TA32-6/2	6.0	2.0	1.20	1.2 m	Black (BK)	3:1	318-30600
TA32-9/3	9.0	3.0	1.30	1.2 m	Black (BK)	3:1	318-30900
TA32-12/4	12.0	4.0	1.40	1.2 m	Black (BK)	3:1	318-31200
TA32-19/6	19.0	6.0	1.80	1.2 m	Black (BK)	3:1	318-31900
TA32-24/8	24.0	8.0	2.50	1.2 m	Black (BK)	3:1	318-32400
TA32-40/13	40.0	13.0	2.50	1.2 m	Black (BK)	3:1	318-34000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Heat Shrinkable Tubing adhesive lined - 1.2 m lengths

- TA42 - thin wall, 4:1 shrink ratio



Heat Shrinkable Tubing 4:1 with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TA42-4/1	4.0	1.0	1.00	1.2 m	Black (BK)	4:1	318-40400
TA42-8/2	8.0	2.0	1.20	1.2 m	Black (BK)	4:1	318-40800
TA42-12/3	12.0	3.0	1.40	1.2 m	Black (BK)	4:1	318-41200
TA42-16/4	16.0	4.0	1.80	1.2 m	Black (BK)	4:1	318-41600
TA42-24/6	24.0	6.0	2.25	1.2 m	Black (BK)	4:1	318-42400
TA42-32/8	32.0	8.0	2.55	1.2 m	Black (BK)	4:1	318-43200
TA42-52/13	52.0	13.0	2.55	1.2 m	Black (BK)	4:1	318-45200

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.

### Heat Shrinkable Tubing up to 4:1 - 1 m lengths

- MA47 - medium wall adhesive lined
- MU47 - medium wall unlined

Insulation and Protection of low voltage cable joints and terminations above and below ground.

#### Features and Benefits

- Medium walled tubing with robust insulation characteristics
- Shrink tubing for above and underground cable applications
- Protects cable joints and terminations in low voltage applications
- Coated inside with thermoplastic adhesive
- Protects against humidity and other environmental impacts after shrinking

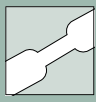


MA47 and MU47 medium wall tubing - lined and unlined.

**Cut lengths available on request. Please contact us!**

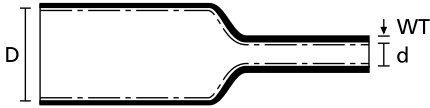
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)





### Heat Shrinkable Tubing up to 4:1 - 1 m lengths

- MA47 - medium wall adhesive lined



Heat Shrinkable Tubing 4:1 with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
MA47-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	323-20120
MA47-19/6	19.0	6.0	2.50	1.0 m	Black (BK)	323-20190
MA47-30/8	30.0	8.0	2.50	1.0 m	Black (BK)	323-20300
MA47-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	323-20400
MA47-50/16	50.0	16.0	2.70	1.0 m	Black (BK)	323-20500
MA47-63/19	63.0	19.0	2.80	1.0 m	Black (BK)	323-20630
MA47-75/22	75.0	22.0	3.00	1.0 m	Black (BK)	323-20750
MA47-95/30	95.0	30.0	3.00	1.0 m	Black (BK)	323-20950
MA47-115/34	115.0	34.0	3.00	1.0 m	Black (BK)	323-21150
MA47-140/42	140.0	42.0	3.00	1.0 m	Black (BK)	323-21400

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

- MU47 - medium wall unlined



Heat Shrinkable Tubing 4:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
MU47-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	323-10120
MU47-19/6	19.0	6.0	2.20	1.0 m	Black (BK)	323-10190
MU47-30/8	30.0	8.0	2.50	1.0 m	Black (BK)	323-10300
MU47-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	323-10400
MU47-50/16	50.0	16.0	2.70	1.0 m	Black (BK)	323-10500
MU47-63/19	63.0	19.0	2.80	1.0 m	Black (BK)	323-10630
MU47-75/22	75.0	22.0	3.00	1.0 m	Black (BK)	323-10750
MU47-95/30	95.0	30.0	3.00	1.0 m	Black (BK)	323-10950
MU47 115/34	115.0	34.0	3.00	1.0 m	Black (BK)	323-11150
MU47-140/42	140.0	42.0	3.00	1.0 m	Black (BK)	323-11400

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing 4:1 - Flame retardant

- **MA40 - medium wall adhesive lined**

Designed for low voltage cable joints and terminations in shipbuilding. Insulates and protects against moisture.

#### Features and Benefits

- Medium wall adhesive lined shrink tubing for low voltage power cables
- Designed for shipbuilding, Germanische Lloyd approved
- Flame retarded
- UV and weather resistant
- Excellent mechanical performance



MA40 medium wall, adhesive lined and flame retarded tubing for shipbuilding applications.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	>18 kV/mm
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	Germanischer Lloyd



Heat Shrinkable Tubing 4:1 with adhesive



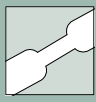
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
MA40 8/2	8.0	2.0	1.70	1.0 m	Black (BK)	323-00100
MA40 12/3	12.0	3.0	2.00	1.0 m	Black (BK)	323-00101
MA40 16/5	16.0	5.0	2.00	1.0 m	Black (BK)	323-00103
MA40 22/6	22.0	6.0	2.40	1.0 m	Black (BK)	323-00104
MA40 33/8	33.0	8.0	2.50	1.0 m	Black (BK)	323-00105
MA40 40/12	40.0	12.0	2.50	1.0 m	Black (BK)	323-00106
MA40 55/16	55.0	16.0	2.70	1.0 m	Black (BK)	323-00107

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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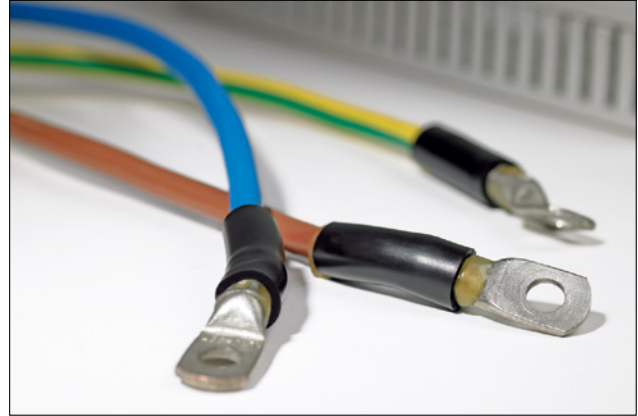
### Heat Shrinkable Tubing up to 3,5:1 - 1 m lengths

- HA47 - thick wall adhesive lined
- HU47 - thick wall unlined

The toughness and weatherability makes it well suited for exposed applications and underground cable joints and cable terminations.

#### Features and Benefits

- Thick walled polyolefin adhesive-lined sleeving
- Thermoplastic adhesive protects against moisture and weathering
- Used for low voltage power applications



HA47 – Heavy wall adhesive lined tubing.

Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 3.5:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 3.5:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)

HF ✓

RoHS ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
HA47-9/3	9.0	3.0	1.80	1.0 m	Black (BK)	321-20090
HA47-13/4	13.0	4.0	2.40	1.0 m	Black (BK)	321-20130
HA47-19/6	19.0	6.0	2.70	1.0 m	Black (BK)	321-20180
HA47-33/8	33.0	8.0	3.20	1.0 m	Black (BK)	321-20280
HA47-45/12	45.0	12.0	4.10	1.0 m	Black (BK)	321-20450
HA47-51/16	51.0	16.0	4.10	1.0 m	Black (BK)	321-20510
HA47-68/22	68.0	22.0	4.10	1.0 m	Black (BK)	321-20680
HA47-85/25	85.0	25.0	4.30	1.0 m	Black (BK)	321-20850
HA47-105/30	105.0	30.0	4.30	1.0 m	Black (BK)	321-20900
HA47-130/36	130.0	36.0	4.30	1.0 m	Black (BK)	321-21300
HA47-160/50	160.0	50.0	4.30	1.0 m	Black (BK)	321-21600
HA47-180/50	180.0	50.0	4.30	1.0 m	Black (BK)	321-21850

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing up to 3,5:1 - 1 m lengths

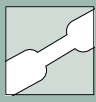
- HU47 - thick wall unlined



Heat Shrinkable Tubing 3.5:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
HU47-9/3	9.0	3.0	1.80	1.0 m	Black (BK)	321-10090
HU47-13/4	13.0	4.0	2.40	1.0 m	Black (BK)	321-10130
HU47-19/6	19.0	6.0	2.70	1.0 m	Black (BK)	321-10180
HU47-33/8	33.0	8.0	3.20	1.0 m	Black (BK)	321-10280
HU47-45/12	45.0	12.0	4.10	1.0 m	Black (BK)	321-10450
HU47-51/16	51.0	16.0	4.10	1.0 m	Black (BK)	321-10510
HU47-68/22	68.0	22.0	4.10	1.0 m	Black (BK)	321-10680
HU47-85/25	85.0	25.0	4.30	1.0 m	Black (BK)	321-10850
HU47-105/30	105.0	30.0	4.30	1.0 m	Black (BK)	321-10900
HU47-130/36	130.0	36.0	4.30	1.0 m	Black (BK)	321-11300
HU47-160/50	160.0	50.0	4.30	1.0 m	Black (BK)	321-11600
HU47-180/50	180.0	50.0	4.30	1.0 m	Black (BK)	321-11850

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing 4:1 - Flame retardant

- **HA40 - thick wall adhesive lined**

Designed for low voltage cable joints and terminations in shipbuilding. Insulates and protects against moisture.

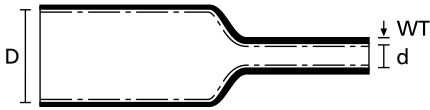
#### Features and Benefits

- Heavy wall adhesive lined shrink tubing for low voltage power cables
- Designed for shipbuilding, Germanische Lloyd approved
- Flame retarded
- UV and weather resistant
- Excellent mechanical performance



HA40 thick wall, adhesive lined and flame retarded tubing for shipbuilding applications.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10% max.
<b>Dielectric Strength</b>	>18 kV/mm
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	Germanischer Lloyd



Heat Shrinkable Tubing 4:1 with adhesive



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
HA40 9/3	9.0	3.0	1.80	1.0 m	Black (BK)	321-00100
HA40 13/4	13.0	4.0	2.20	1.0 m	Black (BK)	321-00101
HA40 22/6	22.0	6.0	2.70	1.0 m	Black (BK)	321-00102
HA40 33/8	33.0	8.0	2.70	1.0 m	Black (BK)	321-00103
HA40 40/12	40.0	12.0	4.00	1.0 m	Black (BK)	321-00104
HA40 55/16	55.0	16.0	4.00	1.0 m	Black (BK)	321-00105
HA40 75/22	75.0	22.0	4.10	1.0 m	Black (BK)	321-00106
HA40 92/25	92.0	25.0	4.20	1.0 m	Black (BK)	321-00107

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

# Heat Shrinkable Moulded Shapes



The moulded shapes catalogue offers a wide range of moulded parts. The extensive product line includes low profile, bulbous and lipped types for use on circular and D-type connectors as well as complex multiway transitions.

They can be sealed with our special adhesives and encapsulants to ensure the proper degree of mechanical support, strain relief and environmental protection.

A range of specially formulated materials is available to meet a variety of performance requirements.



**A wider range of material / adhesive combinations are available in the moulded shapes catalogue.**

## Adhesive for Heat Shrinkable Moulded Shapes

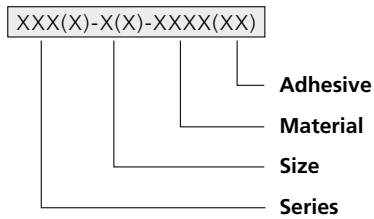
Adhesive Specifications				
	W / W2	WM250	V9500	HMT200A
<b>Adhesive</b>	Hot melt adhesive	Hot melt adhesive	Two part, black, epoxy adhesive	Hot melt adhesive tape
<b>Operating Temperature</b>	-55 °C to +80 °C	-55 °C to +80 °C	-75 °C to +150 °C	-55 °C to +105 °C
<b>Softening Point Adhesive</b>	+95 °C	+95 °C		+110 °C
<b>Supplied Form</b>	pre-applied	pre-applied	cartridge	tape
<b>Shelf life</b>	5 years	5 years	18 months	5 years
<b>Solvent Resistance</b>	Fair under splash conditions	Fair under splash conditions	De-icing fluid: Excellent, Petrol: Excellent, Lubricating Oil: Excellent, Hydraulic Oil: Excellent	Fair under splash conditions

## Materials for Heat Shrinkable Moulded Shapes

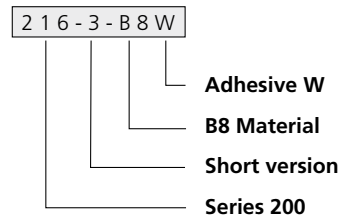
Material Specifications				
	G	B7	B8	-9
<b>Material</b>	Fluid resistant elastomer	Semi-rigid flame retarded polyolefin	Semi-rigid flame retarded polyolefin	Modified elastomer blend
<b>Operating Temperature</b>	-75 °C to +150 °C	-55 °C to +135 °C	-55 °C to +100 °C	-55 °C to 120 °C
<b>Minimum Shrink Temperature</b>	+135 °C	+135 °C	+135 °C	+135 °C
<b>Specification</b>	DEF STAN 59-97, BSG198 Part 5	MIL-I-81765/1 Type 1, DEF STAN 59-97, BSG198 Part 5	EA-TS 09-11	SCX15112
<b>Tensile Strength</b>	15 MPa	13 MPa	15 MPa	12 MPa
<b>Elongation at break</b>	580 %	500 %	500 %	500 %
<b>Dielectric Strength</b>	14 kV/mm	14 kV/mm	15 kV/mm	20 kV/mm
<b>Flammability for Material</b>	excellent	excellent	good	excellent
<b>Features and Benefits</b>	Excellent resistance to fuels	Good physical and chemical resistance	Good physical and reasonable chemical resistance	Good physical and reasonable chemical resistance
<b>Typical Application</b>	Military and general high performance harnessing	Military and general high performance harnessing	Power/utility shapes	Military and general high performance harnessing

**Order Example**

Type:



**Example:**



Other product styles are available.  
Please refer to Moulded Shapes catalogue.

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<b>Shim Boots</b> Helashrink 313E Series, without adapter lip		204	<b>Transition Boots</b> Helashrink 492H Series, 1 to 2 cables		207
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<b>Right Angle Boots</b> Helashrink 333F Series, with adapter lip, 90° angle		205			




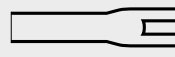
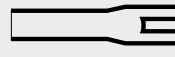
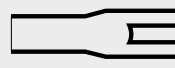




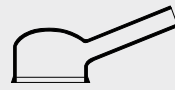

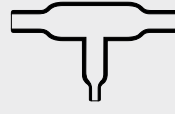

One Step to the Web!

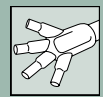




Other product styles are available.  
Please refer to Moulded Shapes catalogue.

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### Low Profile Convolute Boots

- Helashrink 313C Series, with adapter lip

#### Features and Benefits

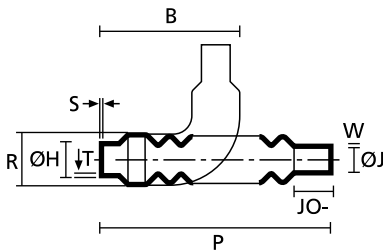
- For circular grooved adapters to provide strain relief
- Excellent environmental sealing with adhesive
- Convoluted design grants flexibility for different cable outlet angles



313C722-774 Series supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

**For Material / Adhesive information please refer to page 200.**

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R max.	JO ± 10%	W min	B nom	T ± 0.5	S ± 0.5	Article-No.
313C722-9	14.2	6.9	11.1	4.8	120.6	21.1	17.3	1.5	62.4	1.3	1.5	422-00001
313C732-9	22.4	11.7	17.7	8.1	133.3	26.5	19.8	1.5	67.8	1.3	1.5	422-00101
313C743-9	34.0	17.5	26.9	12.7	146.0	32.7	22.3	1.5	73.4	1.3	1.8	422-00201
313C753-9	44.2	22.3	36.5	17.5	158.7	37.8	25.4	1.5	78.2	1.3	1.8	422-00302
313C764-9	53.8	27.9	45.7	22.3	171.4	42.9	28.4	1.5	82.8	2.0	1.8	422-00400
313C774-9	77.2	40.6	54.6	22.8	236.2	62.2	25.4	1.5	138.4	2.0	2.0	422-00501

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

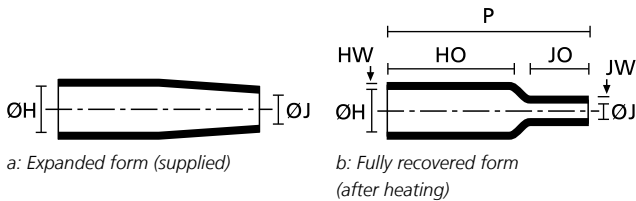


### Low Profile Shim Boots

- Helashrink 313E Series, without adapter lip

#### Features and Benefits

- Used to build up or shim a cable diameter
- Facilitates better fit for components in cable harness



313E445-457 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	HO ± 10%	HW ± 25%	JW ± 25%	JO ± 10%	Article-No.
313E445-9	12.7	12.7	11.1	3.3	63.5	41.1	1.5	1.5	15.7	422-10000
313E447-9	20.8	14.7	20.6	9.9	63.5	41.1	1.5	1.5	16.5	422-10100
313E455-9	22.1	22.1	11.2	3.3	53.3	27.9	2.3	1.5	15.7	422-10200
313E457-9	22.1	22.1	20.6	9.9	53.3	27.9	2.3	1.5	14.0	422-10300

All dimensions in mm. Subject to technical changes.

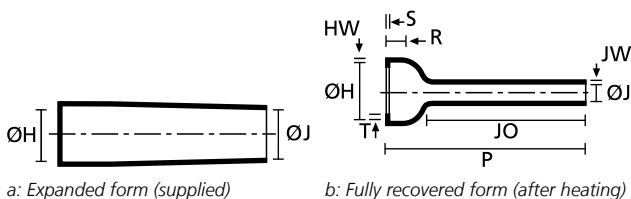
For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### Low Profile Straight Boots

- Helashrink 313F Series, with adapter lip

#### Features and Benefits

- Connector strain relief for small cable diameters requiring high shrink ratio

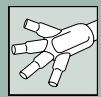


313F322-396 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 15%	T ± 0.8	JO ± 10%	HW ± 1.5	JW ± 0.8	S ± 1.5	Article-No.
313F322-9	23.8	9.9	17.2	6.6	105.9	11.6	1.3	86.3	1.5	1.5	1.5	422-20000
313F332-9	27.1	13.2	20.8	7.6	121.1	12.1	1.3	98.5	1.5	1.5	1.5	422-20100
313F343-9	30.9	18.5	24.3	8.9	138.6	12.1	1.3	112.7	1.7	1.5	1.7	422-20200
313F353-9	35.6	22.1	28.7	10.1	159.5	12.1	1.3	130.8	1.7	1.5	1.7	422-20300
313F364-9	38.8	28.2	31.4	10.9	177.8	13.9	1.8	142.2	1.7	1.5	1.7	422-20400
313F374-9	42.2	32.2	38.3	12.7	203.2	15.2	1.8	163.0	1.7	1.5	1.7	422-20500
313F385-9	51.5	45.4	45.4	14.9	203.2	15.2	1.8	157.7	1.7	1.7	1.7	422-20600
313F396-9	62.7	45.4	53.3	16.7	228.6	16.0	1.8	153.1	1.7	1.7	1.7	422-20700

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



### Low Profile Right Angle Boots

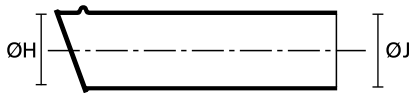
- Helashrink 333F-Series, with adapter lip, 90° angle

#### Features and Benefits

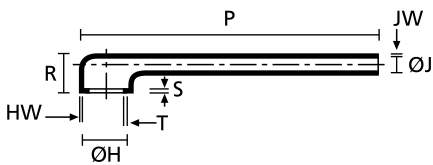
- Connector strain relief for small cable diameters requiring high shrink ratio



333F322-385 series as supplied / recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

**For Material / Adhesive information please refer to page 200.**

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 15%	T ± 0.8	HW ± 1.5	JW ± 0.8	S ± 1.5	Article-No.
333F322-9	23.8	9.9	17.2	6.6	105.1	18.5	1.3	1.5	1.5	1.5	422-30000
333F332-9	27.1	13.2	20.8	7.6	115.8	19.8	1.3	1.5	1.5	1.5	422-30004
333F343-9	30.9	18.5	24.3	8.9	146.3	20.8	1.3	1.7	1.5	1.7	422-30100
333F353-9	35.3	21.6	28.7	10.1	172.2	21.8	1.3	1.7	1.5	1.7	422-30200
333F364-9	38.8	27.9	31.4	10.9	185.1	24.1	1.8	1.7	1.5	1.7	422-30301
333F374-9	45.2	34.0	38.3	12.1	213.6	27.4	1.8	1.7	1.5	1.7	422-30400
333F385-9	51.5	41.1	44.4	15.0	224.5	29.4	1.7	1.7	1.7	1.7	422-30500

All dimensions in mm. Subject to technical changes. For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

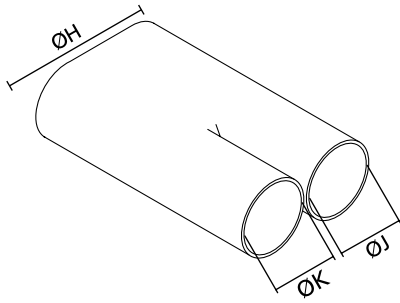


### Low Profile Transition Boots

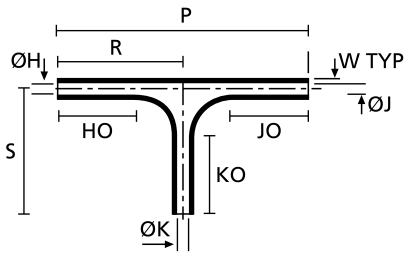
- Helashrink 412H Series, side breakout

#### Features and Benefits

- Connector cable strain relief
- Used with circular adapter



a: Expanded form (supplied)



b: Fully recovered form (after heating)



412H622-625 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ/K min. a	ØJ/K max. b	HO/JO/KO ± 10%	P nom	W nom	R/S nom	Article-No.
412H622-9	19.8	6.6	13.2	6.6	25.4	80.7	1.0	40.3	422-40000
412H623-9	34.2	11.4	22.8	6.6	41.1	120.3	1.3	60.1	422-40100
412H624-9	60.1	20.0	40.1	20.0	63.5	175.7	1.5	87.8	422-40200
412H625-9	83.3	33.2	54.8	33.2	88.9	242.3	1.7	121.1	422-40300

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

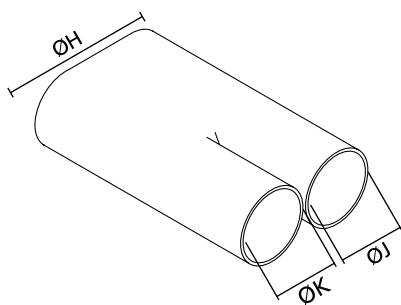


### Low Profile Transition Boots

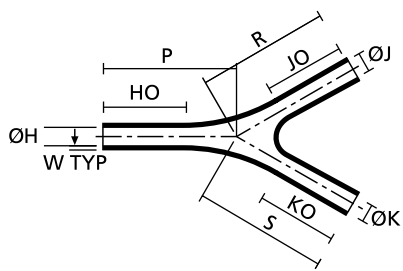
- Helashrink 492H Series, 1 to 2 cables

#### Features and Benefits

- For cable harness breakouts or transitions
- Strain relief, sealing and mechanical protection



a: Expanded form (supplied)



b: Fully recovered form (after heating)



492H412-415 Series supplied / fully recovered.

**For Material / Adhesive information please refer to page 200.**

TYPE	ØH min. a	ØH max. b	ØJ/K min. a	ØJ/K max. b	HO/JO/KO ± 15%	W nom	P/R/S nom	Article-No.
492H412-9	19.8	6.6	13.2	6.6	25.4	1.0	40.6	422-50000
492H413-9	34.2	11.4	22.8	11.4	41.1	1.3	62.9	422-50101
492H414-9-01	60.1	20.0	40.1	20.0	31.7	1.5	62.9	422-50200
492H414-9	60.1	20.0	40.1	20.0	63.5	1.5	94.7	422-50202
492H415-9-01	83.3	33.2	54.8	33.2	49.7	1.7	94.7	422-50300
492H415-9	83.3	33.2	54.8	33.2	49.7	1.7	133.8	422-50302

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



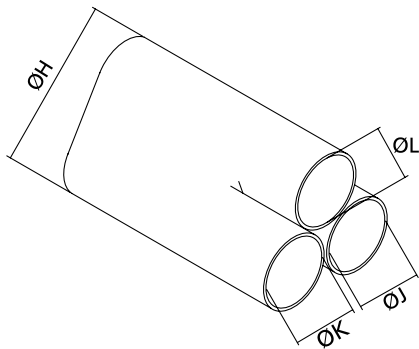


### Low Profile Transition Boots

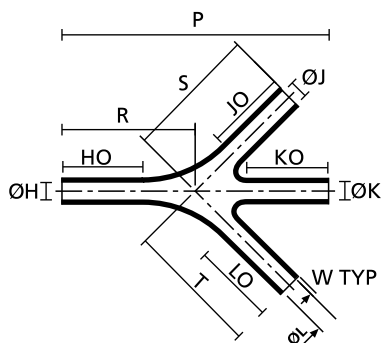
- Helashrink 573H Series, 1 to 3 cables

#### Features and Benefits

- For cable harness breakouts or transitions
- Strain relief, sealing and mechanical protection



a: Expanded form (supplied)



b: Fully recovered form (after heating)



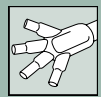
573H532-535 Series supplied / fully recovered.

**For Material / Adhesive information  
please refer to page 200.**

TYPE	ØH min. a	ØH max. b	ØJ/K/L min. a	ØJ/K/L max. b	P nom	R/S/T nom	W nom	HO/JO /KO/LO ± 15%	Article-No.
573H532-9	19.8	6.6	13.2	6.6	85.8	42.9	1.0	25.4	422-60000
573H533-9	34.2	11.4	20.5	11.4	135.6	67.8	1.3	41.1	422-60100
573H534-9-01	60.1	20.0	36.0	20.0	135.6	67.8	1.5	27.6	422-60200
573H534-9	60.1	20.0	36.0	20.0	207.2	103.6	1.5	63.5	422-60202
573H535-9-01	99.8	33.2	54.8	33.2	207.2	103.6	1.7	45.4	422-60300
573H535-9	99.8	33.2	54.8	33.2	294.6	147.3	1.7	88.9	422-60302

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



### Bottle Shapes, VG style

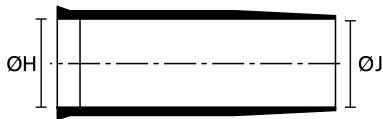
- Helashrink 150 Series, with rib

#### Features and Benefits

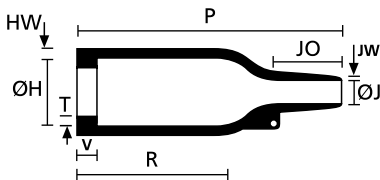
- Use in conjunction with circular grooved adaptor
- For strain relief and environmental sealing



150 Series boot recovered onto a connector.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



150 Series supplied.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	JO ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	Designation as per VG-Norm	Article-No.
152-41-G	24.0	10.5	24.0	6.0	26.0	9.0	10.0	1.6	0.5	3.0	1.0	VG 95343 T06 A 001 A	401-52780
152-42-G	24.0	10.5	24.0	6.0	38.0	21.0	10.0	1.6	0.5	3.0	1.0	VG 95343 T06 B 001 A	401-52880
153-41-G	25.0	14.0	9.0	3.5	40.0	13.0	16.0	1.8	0.5	3.0	1.0	VG 95343 T06 A 002 A	401-53780
153-42-G	25.0	14.0	9.0	3.5	55.0	28.0	16.0	1.8	0.5	3.0	1.0	VG 95343 T06 B 002 A	401-53880
154-41-G	30.0	14.0	30.0	6.0	43.0	20.0	13.0	1.8	1.0	3.0	1.0	VG 95343 T06 A 003 A	401-54780
154-42-G	30.0	14.0	30.0	6.0	55.0	32.0	13.0	1.8	1.0	3.0	1.0	VG 95343 T06 B 003 A	401-54880
155-41-G	31.0	18.0	31.0	7.0	47.0	15.0	18.0	1.8	1.0	3.0	1.0	VG 95343 T06 A 004 A	401-55780
155-42-G	31.0	18.0	31.0	7.0	67.0	35.0	18.0	1.8	1.0	3.0	1.0	VG 95343 T06 B 004 A	401-55880
156-41-G	36.0	22.5	36.0	8.5	60.0	22.0	20.0	2.0	1.0	3.0	1.0	VG 95343 T06 A 005 A	401-56780
156-42-G	36.0	22.5	36.0	8.5	80.0	42.0	20.0	2.0	1.0	3.0	1.0	VG 95343 T06 B 005 A	401-56880
157-41-G	43.0	28.0	43.0	10.0	60.0	21.0	20.0	2.2	1.0	3.0	1.7	VG 95343 T06 A 006 A	401-57780
157-42-G	43.0	28.0	43.0	10.0	79.0	41.0	20.0	2.2	1.0	3.0	1.7	VG 95343 T06 B 006 A	401-57880
157-43-G	43.0	28.0	43.0	10.0	99.0	61.0	20.0	2.2	1.0	3.0	1.7	VG 95343 T06 C 001 A	401-57980
158-41-G	60.0	35.0	60.0	16.0	90.0	32.0	38.0	3.2	1.5	3.0	1.7	VG 95343 T06 A 007 A	401-58780
158-42-G	60.0	35.0	60.0	16.0	110.0	52.0	38.0	3.2	1.5	3.0	1.7	VG 95343 T06 B 007 A	401-58880
158-43-G	60.0	35.0	60.0	16.0	130.0	72.0	38.0	3.2	1.5	3.0	1.7	VG 95343 T06 C 002 A	401-58980
159-41-G	66.0	45.0	66.0	17.0	130.0	50.0	50.0	3.8	2.0	3.0	2.0	VG 95343 T06 A 008 A	401-59780
159-42-G	66.0	45.0	66.0	17.0	150.0	70.0	50.0	3.8	2.0	3.0	2.0	VG 95343 T06 B 008 A	401-59880
159-43-G	66.0	45.0	66.0	17.0	171.0	90.0	50.0	3.8	2.0	3.0	2.0	VG 95343 T06 C 003 A	401-59980
160-41-G	82.0	58.0	82.0	27.0	137.0	37.0	62.0	3.8	3.8	3.0	2.0	VG 95343 T06 A 009 A	401-60780
160-42-G	82.0	58.0	82.0	27.0	158.0	58.0	62.0	3.8	3.8	3.0	2.0	VG 95343 T06 B 009 A	401-60880
160-43-G	82.0	58.0	82.0	27.0	213.0	113.0	62.0	3.8	3.8	3.0	2.0	VG 95343 T06 C 004 A	401-60980

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

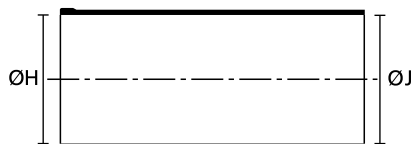


### Bottle Shapes, MIL-Style

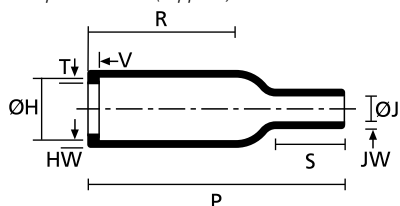
#### • Helashrink 100 Series, with rib

#### Features and Benefits

- With circular grooved adaptor for strain relief
- Combine with complementary adhesives for environmental sealing



a: Expanded form (supplied)



b: Fully recovered form (after heating)



100 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	S nom	Article-No.
113-4-G	10.7	7.9	4.6	2.0	25.4	14.5	1.3	1.0	3.0	1.0	4.6	401-13480

All dimensions in mm. Subject to technical changes.

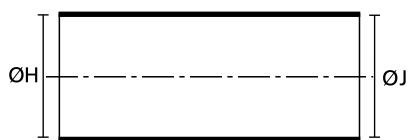
For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### Bottle Shapes

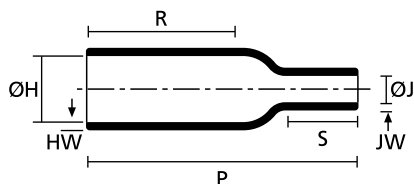
#### • Helashrink 100 Series, without rib

#### Features and Benefits

- Strain relief for connector cable
- Easy re-entry for repair when combined with hot melt adhesive



a: Expanded form (supplied)



b: Fully recovered form (after heating)

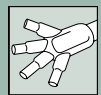


100 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R max.	HW ± 20%	JW ± 30%	S nom	Article-No.
113-1-G	10.7	7.9	4.6	2.0	25.4	14.5	1.3	1.0	4.6	401-13180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



### Long Outlet Shape, VG style

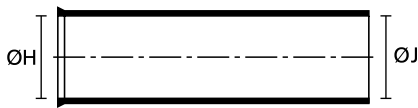
- Helashrink 130 Series, with rib, low profile

#### Features and Benefits

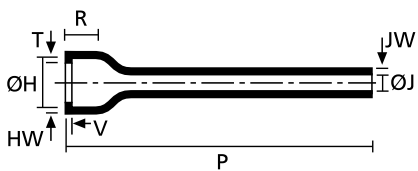
- Low profile and lightweight
- Typically used on airborne harnesses
- Rib locates on circular backshell



135-1-G as supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive information please refer to page 200.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%	Designation as per VG-Norm	Article-No.
129-1-G	22.0	12.0	22.0	6.5	76.0	12.0	1.5	1.1	3.0	1.0	VG95343T06D001A	401-29180
130-1-G	25.5	15.0	25.5	7.5	83.0	12.0	1.5	1.1	3.0	1.0	VG95343T06D002A	401-30180
131-1-G	29.0	19.0	29.0	8.5	89.0	12.0	1.8	1.1	3.0	1.0	VG95343T06D003A	401-31180
132-1-G	34.0	23.0	34.0	10.0	102.0	12.0	1.8	1.1	3.0	1.0	VG95343T06D004A	401-32180
133-1-G	37.0	30.0	37.0	11.0	108.0	14.0	2.0	1.1	3.0	1.7	VG95343T06D005A	401-33180
134-1-G	43.5	34.0	43.5	12.0	114.0	15.0	2.0	1.1	3.0	1.7	VG95343T06D006A	401-34180
135-1-G	50.0	41.0	50.0	14.5	118.0	15.0	2.3	1.4	3.0	1.7	VG95343T06D007A	401-35180
136-1-G	62.5	47.0	62.5	18.0	121.0	16.0	2.5	1.4	3.0	2.0	VG95343T06D008A	401-36180
138-1-G	69.0	60.0	69.0	20.0	127.0	16.0	2.5	1.4	3.0	2.0	VG95343T06D009A	401-38180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Bottle Shapes, VG style

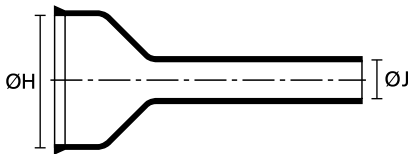
- Helashrink 170 Series, with rib

#### Features and Benefits

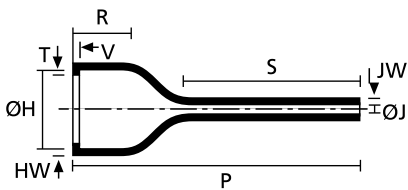
- Cable strain relief for partially loaded connectors
- Small cable diameters
- Use with our W24 adhesive for excellent chemical resistance



177-1-G as supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive information please refer to page 200.

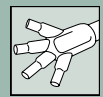
TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	T ± 20%	HW ± 20%	JW nom.	V max	S nom	Designation as per VG-Norm	Article-No.
176-1-G	19.3	13.0	6.3	2.1	60.0	11.7	1.0	1.5	1.1	3.3	38.0	VG95343T06D011A	401-76180
177-1-G	26.1	19.1	7.6	2.6	74.0	12.2	1.0	1.8	1.1	3.3	45.0	VG95343T06D012A	401-77180
178-1-G	34.2	26.0	9.6	3.1	84.0	12.2	1.0	1.8	1.1	3.3	51.0	VG95343T06D013A	401-78180
179-1-G	43.6	34.1	11.4	3.6	100.0	12.2	1.7	1.8	1.1	3.3	58.0	VG95343T06D014A	401-79180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

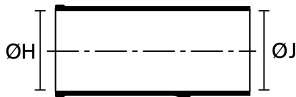


### Bottle Shapes, VG style

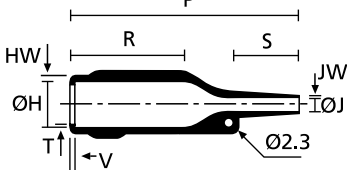
- Helashrink 190 Series, with external ribs

#### Features and Benefits

- Specifically for small audio connectors
- Multiple external ribs to improve grip in harsh conditions



a: Expanded form (supplied)



b: Fully recovered form (after heating)



199-4-G supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	S nom	Designation as per VG-Norm	Article-No.
199-4-G	17.5	14.0	7.0	4.3	70.0	35.0	1.8	0.5	1.5	1.0	20.0	VG95343T06A010A	401-99480

All dimensions in mm. Subject to technical changes.

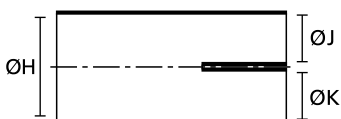
For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### 2-Way Outlet Shapes

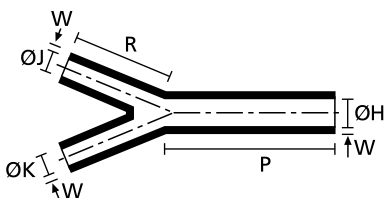
- Helashrink 200 Series, low profile

#### Features and Benefits

- For harnesses which route multi-core cables in different directions
- High ratio expansion for quick and easy installation
- Mechanical tension relief



a: Expanded form (supplied)



b: Fully recovered form (after heating)



200 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	W ± 20%	Article-No.
201-1-G	19.0	9.4	6.4	14.0	6.4	14.0	50.8	30.5	1.5	402-01180
201-2-G	31.8	9.4	15.7	6.4	15.7	6.4	50.8	30.5	1.5	402-01220

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### 2-Way Outlet Shapes, VG style

- Helashrink 200 Series

#### Features and Benefits

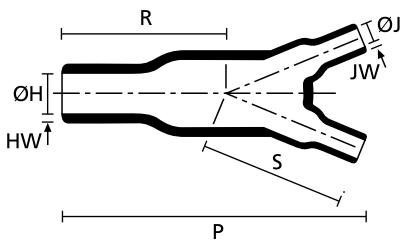
- Mechanical tension relief in cable harnesses



Two-way outlet shape 223-2 supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

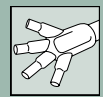
TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW nom.	S nom	Designation as per VG-Norm	Article-No.
206-1-G	13.0	6.0	7.0	3.0	22.0	19.0	1.5	1.0	19.0	VG95343T08C001A	402-06180
212-1-G	14.5	8.0	8.5	5.5	82.6	83.0	2.3	2.0	63.0	VG95343T08C005A	402-12180
213-1-G	17.3	7.9	11.1	7.9	140.0	83.1	2.3	1.0	64.0	-	402-13180
203-1-G	27.0	12.0	13.0	6.0	39.0	43.0	2.5	1.5	43.0	VG95343T08C002A	402-03180
204-1-G	39.0	18.0	27.0	12.0	66.0	81.0	3.1	2.0	81.0	VG95343T08C003A	402-04180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### 2-Way Outlet Shapes, Breakout Boots

- Helashrink 200 Series, in line, low voltage

#### Features and Benefits

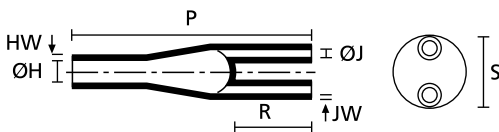
- Easy, time-saving insulation of cable branch point where it splits into single wires
- Adhesive to relieve mechanical tension in cable harnesses



223-2 supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive information please refer to page 200.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
216-3-B8W	21.0	9.4	9.0	2.8	76.5	20.0	1.6	1.6	14.0	402-16039
223-2-B8W	33.0	9.4	17.5	4.1	94.0	30.0	1.5	1.2	20.0	402-23058
218-2-B8W	49.0	22.9	20.0	7.6	119.0	34.0	3.2	3.2	30.0	402-18051

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



### 3-Way Outlet Shapes, VG style

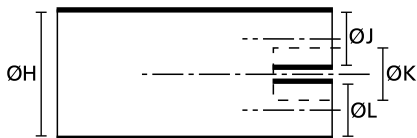
- Helashrink 300 Series

#### Features and Benefits

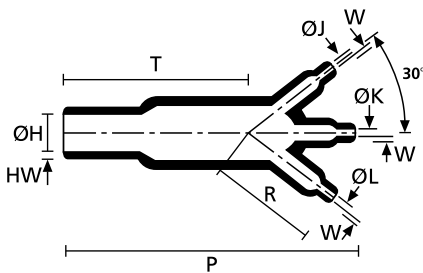
- Cable strain relief and mechanical protection at harness transition points
- All outlets clearly marked to aid orientation during installation



304-1-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

**For Material / Adhesive information please refer to page 200.**

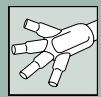
TYPE	ØH min. a	ØH max. b	ØJ/K/L min. a	ØJ/K/L max. b	P ± 10%	R ± 10%	HW ± 20%	W ± 20%	T ± 10%	Designation as per VG-Norm	Article-No.
306-1-G	13.0	6.5	6.5	3.5	46.0	25.4	1.3	1.0	20.3	VG95343T08D001A	403-06180
304-1-G	27.0	13.5	13.0	7.0	93.0	50.3	2.5	1.5	42.9	VG95343T08D002A	403-04180
310-1-G	38.5	19.0	19.0	10.0	135.0	73.7	3.1	1.8	61.0	VG95343T08D003A	403-10180
311-1-G	55.5	25.5	27.0	12.5	192.0	103.1	4.6	3.1	88.9	VG95343T08D004A	403-11180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

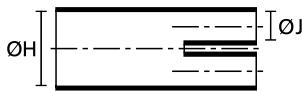


### 3-Way Outlet Shapes, Breakout Boots

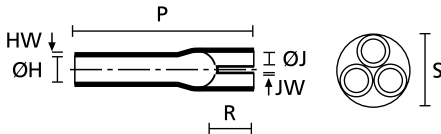
- Helashrink 300 Series, in line, low voltage

#### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Adhesive to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



300 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
354-1-B8W	45.0	10.0	16.0	4.0	100.0	25.0	3.0	2.0	-	403-54004
320-1-B8W2	55.8	22.5	30.4	9.0	180.0	44.0	3.0	2.0	37.0	403-20014
355-1-B8W2	100.0	28.0	40.0	13.0	210.0	50.0	3.5	2.5	-	403-55008
342-1-B8W2	110.0	35.0	40.0	17.5	230.0	45.0	4.0	3.5	65.0	403-42006

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### 4-Way Outlet Shapes, VG style

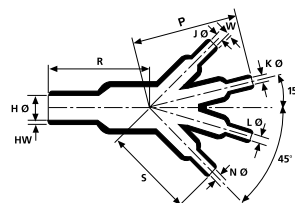
- Helashrink 400 Series

#### Features and Benefits

- All outlets clearly marked to aid orientation during installation
- Cable strain relief and mechanical protection at harness transition points



a: Expanded form (supplied)



b: Fully recovered form (after heating)



442-1 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ/K/L/N min. a	ØJ/K/L/N max. b	P ± 10%	R ± 10%	S ± 10%	HW ± 20%	W ± 10%	Designation as per VG-Norm	Article-No.
411-1-G	19.0	10.0	9.5	5.5	36.1	35.6	32.0	1.8	1.0	VG95343T08E002A	404-11180
403-1-G	27.0	13.0	13.0	7.0	51.8	49.0	45.0	2.5	1.0	VG95343T08E004A	404-03180
413-1-G	38.6	19.0	19.0	10.0	74.9	75.0	65.3	1.8	1.0	VG95343T08E005A	404-13180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### 4-Way Outlet Shapes, Breakout Boots

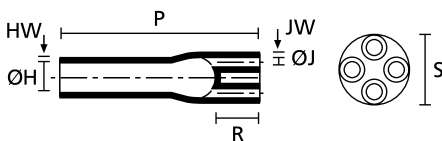
- Helashrink 400 Series, in line, low voltage

#### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Made of tough, cross-linked, Polyolefin
- Adhesive to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



400 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
442-1-B8WM250	28.0	9.0	9.0	1.8	78.0	17.0	2.7	2.0	20.0	404-42009
408-2-B8W2	35.0	12.0	15.0	3.0	95.0	24.0	2.5	2.0	22.0	404-08022
409-2-B8W2	47.4	22.9	21.5	6.4	165.0	38.1	4.1	3.3	38.1	404-09021
418-4-B8W2	60.0	22.9	30.0	6.4	202.0	38.1	4.1	3.3	38.1	404-18020
444-2-B8W2	95.0	35.6	35.6	12.5	240.0	55.0	4.0	3.5	50.8	404-44022

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### 5-Way Outlet Shapes, Breakout Boots

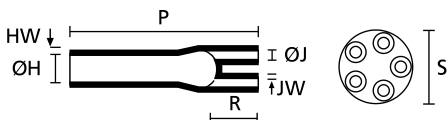
- Helashrink 500 Series, in line, low voltage

#### Features and Benefits

- Cable breakout boots for insulating and sealing cable crotch or conduit system
- Excellent resistance to abrasion and weathering



a: Expanded form (supplied)



b: Fully recovered form (after heating)

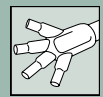


500 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
508-3-B7	89.0	24.5	33.0	7.5	180.0	30.0	3.5	3.0	48.0	405-08036
508-3-B7W	89.0	24.5	33.0	7.5	180.0	30.0	3.5	3.0	48.0	405-08035

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



### 6-Way Outlet Shapes, Breakout Boots

- Helashrink 600 Series, in line, low voltage

#### Features and Benefits

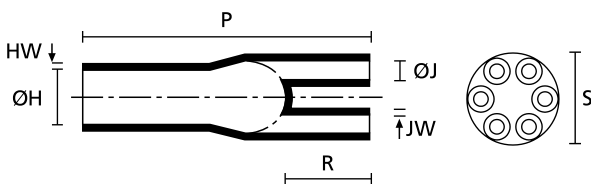
- Cable breakout boots for insulating and sealing cable crotch or conduit system
- Excellent resistance to abrasion and weathering



600 Series supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive information please refer to page 200.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
609-2-B7W	40.0	16.0	12.0	4.0	75.0	20.0	2.5	1.5	25.0	406-09027
609-2-B7	40.0	16.0	12.0	4.0	75.0	20.0	2.5	1.5	25.0	406-09023
608-2-B7	61.0	37.0	21.0	9.0	152.0	56.0	3.2	3.2	46.0	406-08023
608-2-B7W	61.0	37.0	21.0	9.0	152.0	56.0	3.2	3.2	46.0	406-08024
610-1-B8HW	114.3	35.0	45.7	14.0	241.3	50.8	4.0	2.3	101.6	406-10000

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.





### Right-Angle Shapes, VG-Style

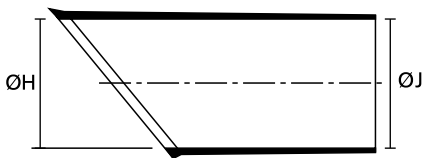
- Helashrink 1100 Series, with rib

#### Features and Benefits

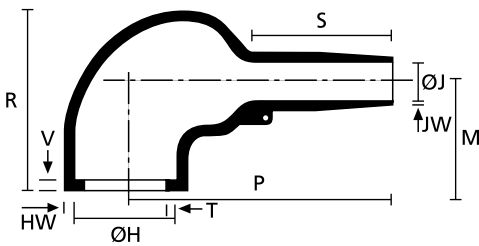
- With circular grooved adaptor for strain relief



1152-4-G recovered on to a connector.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



1155-4 supplied.

**For Material / Adhesive information please refer to page 200.**

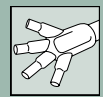
TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	M nom	S nom	Designation as per VG-Norm	Article-No.
1152-4-G	24.0	10.5	24.0	6.0	26.0	25.0	1.3	0.5	3.0	1.0	19.0	10.0	VG95343T06E001A	411-52480
1154-4-G	30.0	15.5	30.0	6.0	32.0	27.0	1.5	0.8	3.0	1.0	19.0	12.0	VG95343T06E002A	411-54480
1155-4-G	31.0	18.0	31.0	7.0	40.0	31.0	1.8	1.0	3.0	1.0	21.0	15.0	VG95343T06E003A	411-55480
1156-4-G	36.0	22.5	36.0	8.5	46.0	38.0	1.8	1.0	3.0	1.0	26.0	15.0	VG95343T06E004A	411-56480
1157-4-G	43.0	28.5	43.0	10.0	55.0	45.0	2.0	1.0	3.0	1.7	30.0	16.0	VG95343T06E005A	411-57480
1158-4-G	60.0	35.0	60.0	16.0	80.0	54.0	3.3	1.5	3.0	1.7	35.0	30.0	VG95343T06E006A	411-58480
1159-4-G	66.0	45.0	66.0	17.0	108.0	68.0	3.8	2.0	3.0	2.0	42.0	51.0	VG95343T06E007A	411-59480
1160-4-G	82.0	61.0	82.0	25.0	118.0	84.0	4.0	4.0	3.0	2.0	52.0	39.0	VG95343T06E008A	411-60480

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Right-Angle Shapes, MIL style

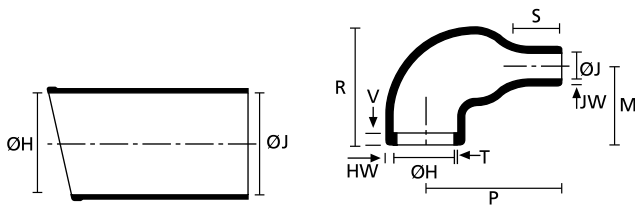
- Helashrink 1100 Series, with rib

#### Features and Benefits

- With circular grooved adaptor for strain relief



1108-4 supplied / fully recovered.



a: Expanded form (supplied)

b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	V max	T ± 20%	M nom	S nom	Article-No.
1108-4-G	16.5	7.9	16.5	3.8	17.3	20.1	1.0	1.6	3.3	1.0	15.2	5.1	411-08480

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### Right-Angle Shapes

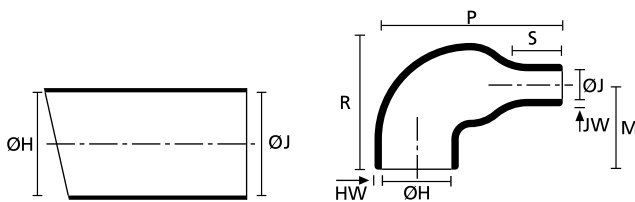
- Helashrink 1100 Series, without rib

#### Features and Benefits

- Strain relief for connector cable
- Easy re-entry for repair when combined with hot melt adhesive



1108-1 supplied / fully recovered.



a: Expanded form (supplied)

b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	M nom	S nom	Article-No.
1108-1-G	16.5	7.9	16.5	3.8	17.3	20.1	1.0	1.6	15.2	5.1	411-08180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



### Right-Angle Shapes, VG style/MIL style

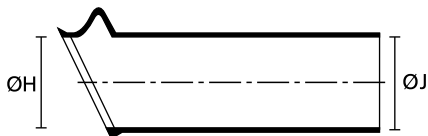
- Helashrink 1100 Series, with rib, low profile

#### Features and Benefits

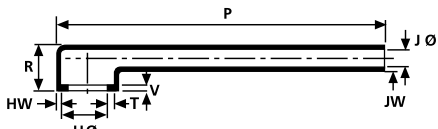
- Lightweight, low profile, compact strain relief and mechanical protection
- Typically used on airborne harnesses



1123-1-G Supplied and recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

**For Material / Adhesive information please refer to page 200.**

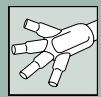
TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	T ± 10%	V ± 10%	Designation as per VG-Norm	Article-No.
1121-1-G	22.0	12.0	22.0	6.5	70.0	19.0	1.5	1.1	1.0	3.0	VG95343T06F001A	411-21180
1122-1-G	25.5	15.0	25.0	7.5	79.0	20.0	1.5	1.1	1.0	3.0	VG95343T06F002A	411-22180
1123-1-G	29.0	19.0	29.0	8.5	89.0	21.0	1.8	1.1	1.0	3.0	VG95343T06F003A	411-23180
1124-1-G	34.0	23.0	34.0	10.0	102.0	22.0	1.8	1.1	1.0	3.0	VG95343T06F004A	411-24180
1125-1-G	37.0	30.0	37.0	11.0	108.0	24.0	2.0	1.1	1.7	3.0	VG95343T06F005A	411-25180
1126-1-G	43.5	34.0	43.5	12.0	121.0	27.0	2.0	1.1	1.7	3.0	VG95343T06F006A	411-26180
1127-1-G	50.0	41.5	50.0	14.5	132.0	30.0	2.3	1.4	1.7	3.0	VG95343T06F007A	411-27180
1128-1-G	62.5	47.0	62.5	18.0	133.0	33.0	2.5	1.4	2.0	3.0	VG95343T06F008A	411-28180
1129-1-G	69.0	60.0	69.0	20.0	137.0	35.0	2.5	1.4	2.0	3.0	VG95343T06F009A	411-29180
1141-1-G	82.0	67.0	82.0	23.0	140.0	45.0	2.5	1.4	2.0	3.0	VG95343T06F010A	411-41180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Right-Angle Shapes, VG style

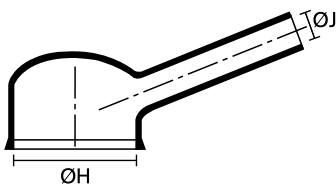
- Helashrink 1100 Series, with rib, low profile, high ratio

#### Features and Benefits

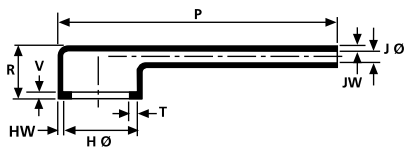
- Use in applications of partially loaded connectors with small cable diameters
- Tail design for easy orientation prior to cooling Strain relief for connector cable



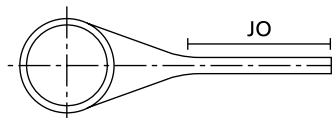
1135-1-G Supplied and recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	JO ± 10%	V ± 10%	T ± 20%	Designation as per VG-Norm	Article-No.
1133-1-G	19.0	13.0	6.0	2.0	44.0	16.3	1.5	1.1	21.8	3.0	1.0	VG95343T06F011A	411-33180
1134-1-G	26.0	19.0	7.5	2.5	67.0	18.0	1.8	1.1	29.2	3.0	1.0	VG95343T18H001A	411-34180
1135-1-G	34.0	26.0	9.5	3.0	81.0	18.8	1.8	1.1	35.3	3.0	1.0	VG95343T06F013A	411-35180
1136-1-G	43.5	34.0	11.5	3.5	116.0	21.3	1.8	1.1	47.0	3.0	1.7	VG95343T06F014A	411-36180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### T-Shapes, VG style

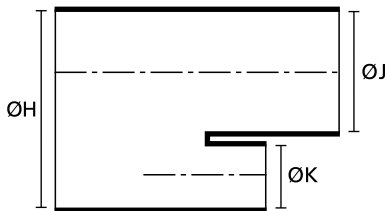
- Helashrink 1200 Series

#### Features and Benefits

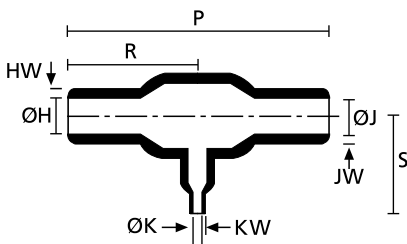
- Strain relief, sealing and mechanical protection on cable harnesses



1202-1-G recovered onto a cable harness.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

For Material / Adhesive information please refer to page 200.

TYPE	ØH/J min. a	ØH/J max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S ± 10%	KW ± 20%	Designation as per VG-Norm	Article-No.
1206-1-G	6.6	3.0	6.6	3.0	29.7	14.7	1.0	1.0	14.7	1.0	VG95343T08A009A	412-06180
1203-1-G	13.2	6.0	6.5	3.0	52.0	26.0	1.5	1.5	19.3	1.0	VG95343T08A001A	412-03180
1202-1-G	13.2	6.1	13.2	6.1	58.7	29.2	1.5	1.5	29.2	1.5	VG95343T08A010A	412-02180
1205-1-G	17.7	8.9	7.6	3.8	50.8	25.4	1.5	1.5	25.4	1.0	-	412-05180
1201-1-G	17.7	8.9	10.1	5.1	47.5	23.6	1.5	1.5	23.6	1.0	VG95343T08A007A	412-01180
1207-1-G	26.9	12.4	26.9	12.4	120.1	55.9	2.5	2.5	59.9	2.5	VG95343T08A011A	412-07180
1209-1-G	27.0	12.4	13.2	6.0	108.0	54.0	2.5	2.5	38.6	1.5	VG95343T08A002A	412-09180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

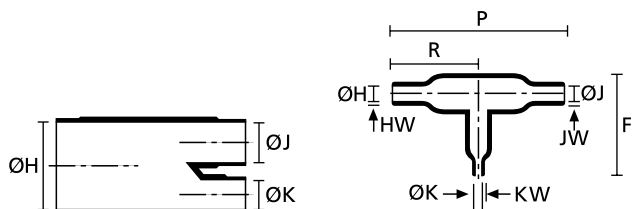


### T-Shapes, VG-Style

- Helashrink 1200 Series, off-set

#### Features and Benefits

- For strain relief, sealing and mechanical protection
- Use adhesive for cable transition on harness, if environmental sealing is required



a: Expanded form (supplied)

b: Fully recovered form (after heating)



1204-1 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	KW ± 20%	F ± 15%	Designation as per VG-Norm	Article-No.
1204-1-G	13.0	7.5	6.5	4.0	6.5	4.0	56.0	33.0	1.5	1.0	1.0	27.0	VG95343T08A016A	412-04180
1216-1-G	33.0	13.0	16.5	6.5	16.5	6.5	97.0	54.0	2.5	1.5	1.5	-	VG95343T08A017A	412-16180

All dimensions in mm. Subject to technical changes.

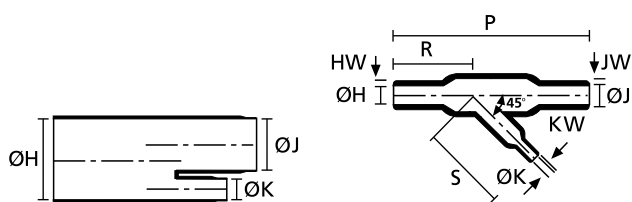
For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.

### Angled T-Shapes, VG style

- Helashrink 1300 Series, 30° & 45° angle

#### Features and Benefits

- Strain relief, sealing and mechanical protection on cable harnesses



a: Expanded form (supplied)

b: Fully recovered form (after heating)



1303-1-G supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	HW ± 30%	JW ± 30%	KW ± 20%	S ± 10%	Angle	Designation as per VG-Norm	Article-No.
1306-1-G	13.0	6.0	6.5	3.0	6.5	3.0	45.0	23.0	1.5	1.0	1.5	21.5	45 °	VG95343T06B010A	413-06180
1301-1-G	13.0	7.0	13.0	7.0	7.0	3.5	50.0	23.0	1.5	1.5	1.0	23.0	45 °	VG95343T08B001A	413-01180
1302-1-G	27.0	13.0	27.0	13.0	7.0	3.5	93.0	41.0	2.5	2.5	1.0	36.0	45 °	VG95343T08B004A	413-02180
1303-1-G	27.0	14.0	27.0	14.0	13.0	7.5	145.0	70.0	1.5	1.5	1.5	54.0	45 °	VG95343T08B002A	413-03180
1311-1-G	30.4	15.0	30.4	15.0	20.3	10.0	83.0	32.0	2.5	2.5	1.8	51.0	30 °	VG95343T08B003A	413-11180

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the moulded shapes catalogue.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





## Hot Melt Tape for Heat Shrinkable Tubing and Shapes

- HMT200A

Designed for use with heat shrink sleeving and mouldings.

### Application Method

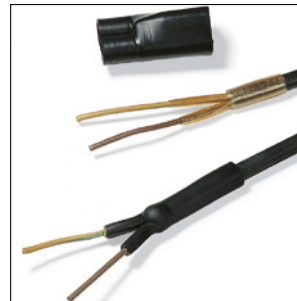
1. Clean and preheat the part to be protected.
2. Wrap the tape around the part and overlap.
3. Put the tubing or heat shrinkable shape over the tape and shrink down.

### Features and Benefits

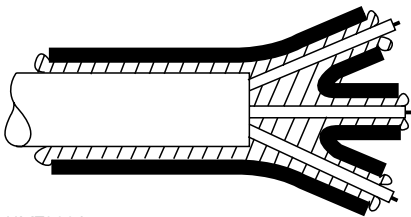
- Hot melt tape flows when heated to seal against moisture
- For heat shrink tubing and mouldings



HMT200A-tape.



Adhesive tape HMT200A for sealing against humidity.



HMT200A

<b>MATERIAL</b>	Ethylenevinylacetate (EVA)
<b>Operating Temperature</b>	-55 °C to +105 °C
<b>Melting Point</b>	Starting from +95 °C
<b>Specifications</b>	DEF Stan 59-97 Type W (w)

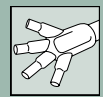


TYPE	Thickness (T)	Width (W)	Colour	Reel Length	Article-No.
HMT200A	0.25	25.0	Translucent (TT)	10 m	354-02260
	0.25	25.0	Translucent (TT)	50 m	354-02259

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Two-Component Adhesive for Heat Shrinkable Tubing and Shapes

- V9500

#### Features and Benefits

- High performance, two-part epoxy adhesive
- Very resistant to most solvents and fuels, even at elevated temperatures
- Two different packages available
- V9500 available in 10g bags for manual mixing
- Processing set: emery paper, small mixing bowl and wooden spatula
- High performance bonding
- Meets military requirements for heat shrinkable components for harnesses
- VG-approved



Two-component epoxy adhesive V9500.



The V9500 applicator gun guarantees the clean and precise coating of special fittings.

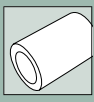
<b>MATERIAL</b>	Epoxy resins (EP)	
<b>Colour</b>	Black (BK)	
<b>Curing Temperature</b>	+135 °C	
<b>Curing Time</b>	24 hours at +25 °C, 2 hours at +85 °C	
<b>Operating Temperature</b>	-75 °C to +150 °C	
<b>Specifications</b>	VG 95343 T15 A	VG 95343 T15 A 001 A

TYPE	Description	Designation as per VG-Norm	Article-No.
<b>V9500 Epoxy Kit</b>	1 x dual cartridge (50g), 5 x mixing pots, 5 x mixing sticks, 5 x emery papers	VG 95343 T15 A 001 A	627-95001
<b>V9500 Epoxy Cartridge</b>	Two-component adhesive cartridge	VG 95343 T15 A	627-95002
<b>V9500 Applicator Gun</b>	Applicator gun	VG 95343 T15 DA	627-95003
<b>V9500 Applicator Nozzle</b>	Mixing nozzle	VG 95343 T15 MA	627-95004

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Rubber Tubing, PTFE

- FE

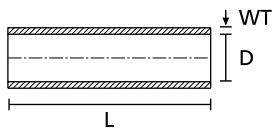
FE is ideal for high temperature applications, when resistance to aggressive fluids is required for example in high performance hose applications. FE tubing is also used to reduce movement due to friction, covering cable or wire.

#### Features and Benefits

- Thin walled rubber tubing made of PTFE
- Transparent or coloured
- Very high temperature resistance
- High abrasion resistance
- Good resistance to aggressive chemicals
- Available on reels



PTFE tubing FE.



PTFE tubing

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-65 °C to +250 °C, intermittent +350 °C
<b>Dielectric Strength</b>	55 kV/mm according to IEC 60684 P2
<b>Flammability</b>	UL94 V0
<b>Specifications</b>	BS-2848 Type 6 250T, DEF STAN 59-15 Type D6

**RoHS** ✓

TYPE	Supplied Ø D min.	Wall (WT)	Reel Length	Colour	Article-No.
FE3	0.33	0.20	500 m	Natural (NA)	178-00005
FE4	0.38	0.25	500 m	Natural (NA)	178-00012
FE5	0.51	0.25	500 m	Natural (NA)	178-00020
FE9	0.89	0.25	500 m	Natural (NA)	178-00056
FE10	1.02	0.30	500 m	Natural (NA)	178-00068
FE11	1.14	0.30	500 m	Natural (NA)	178-00083
FE15	1.58	0.30	500 m	Natural (NA)	178-00119
FE19	1.91	0.30	250 m	Natural (NA)	178-00143

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



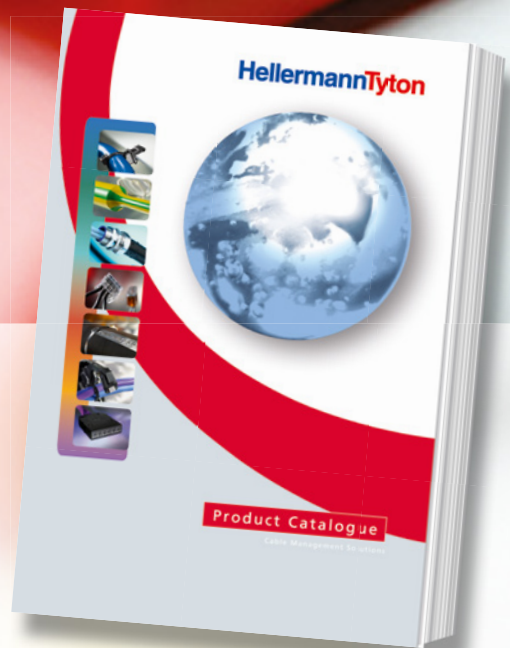
Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

# Non-shrinkable tubing



Hellerine lubricant in 284ml plastic bottle.

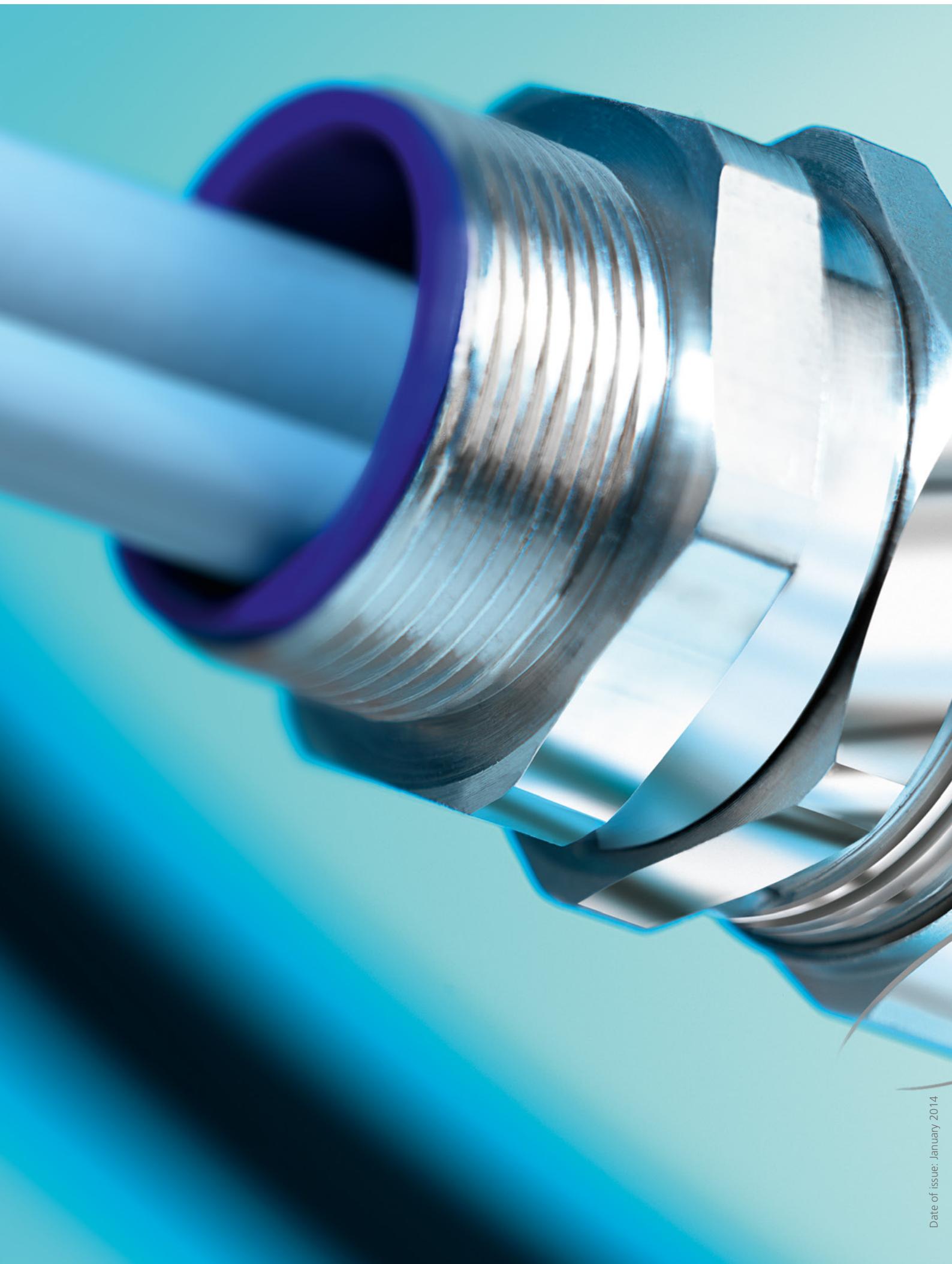
Find more information in  
our Product Catalogue in  
chapter 2.3!

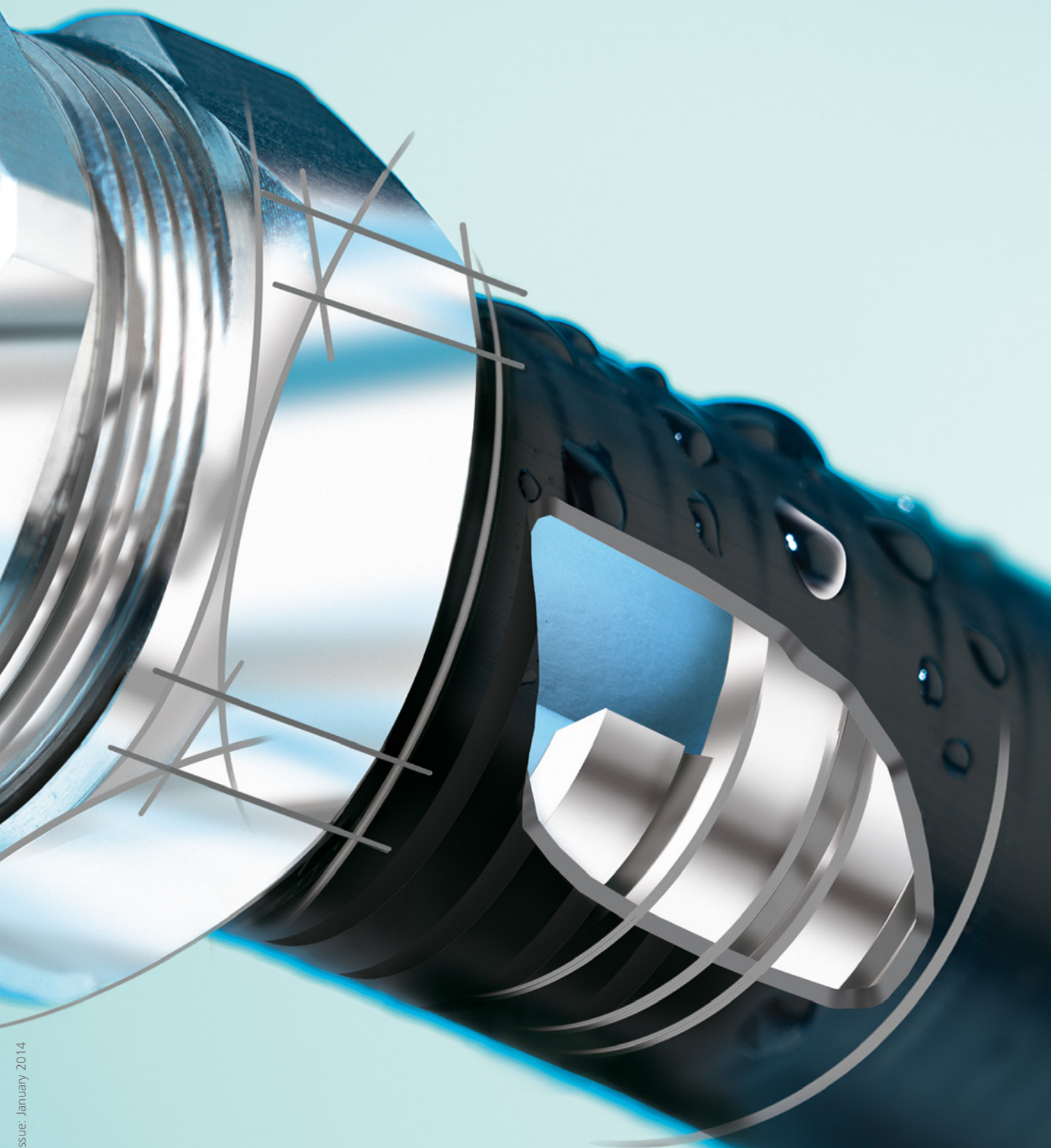


[www.HellermannTyton.co.uk](http://www.HellermannTyton.co.uk)

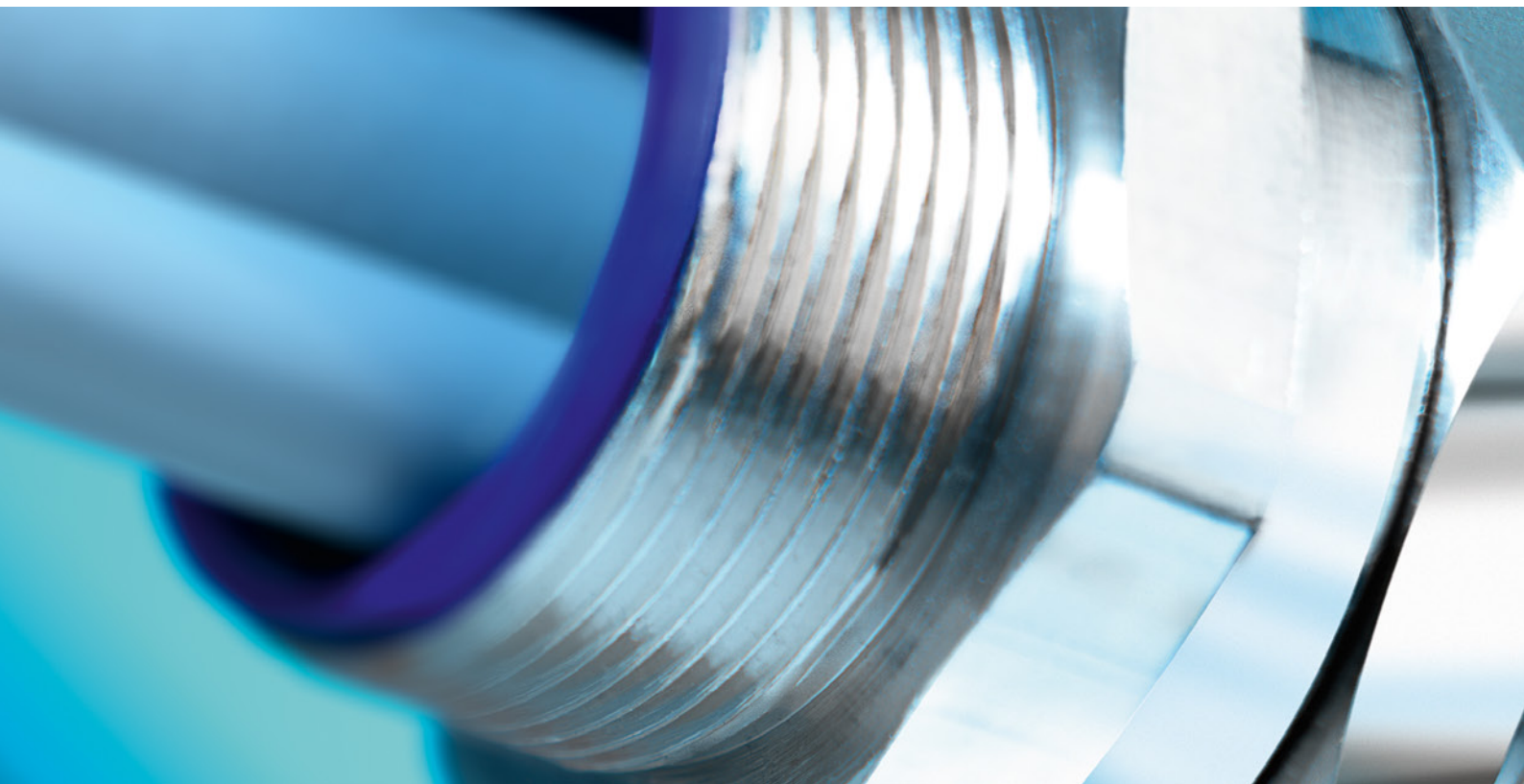
**HellermannTyton**











#### Product Selection

HelaGuard Application Overview	236
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#### Technical Information

Mounting and Removing HelaGuard Non-Metallic Fittings	250
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HelaGuard Thread Standards	360

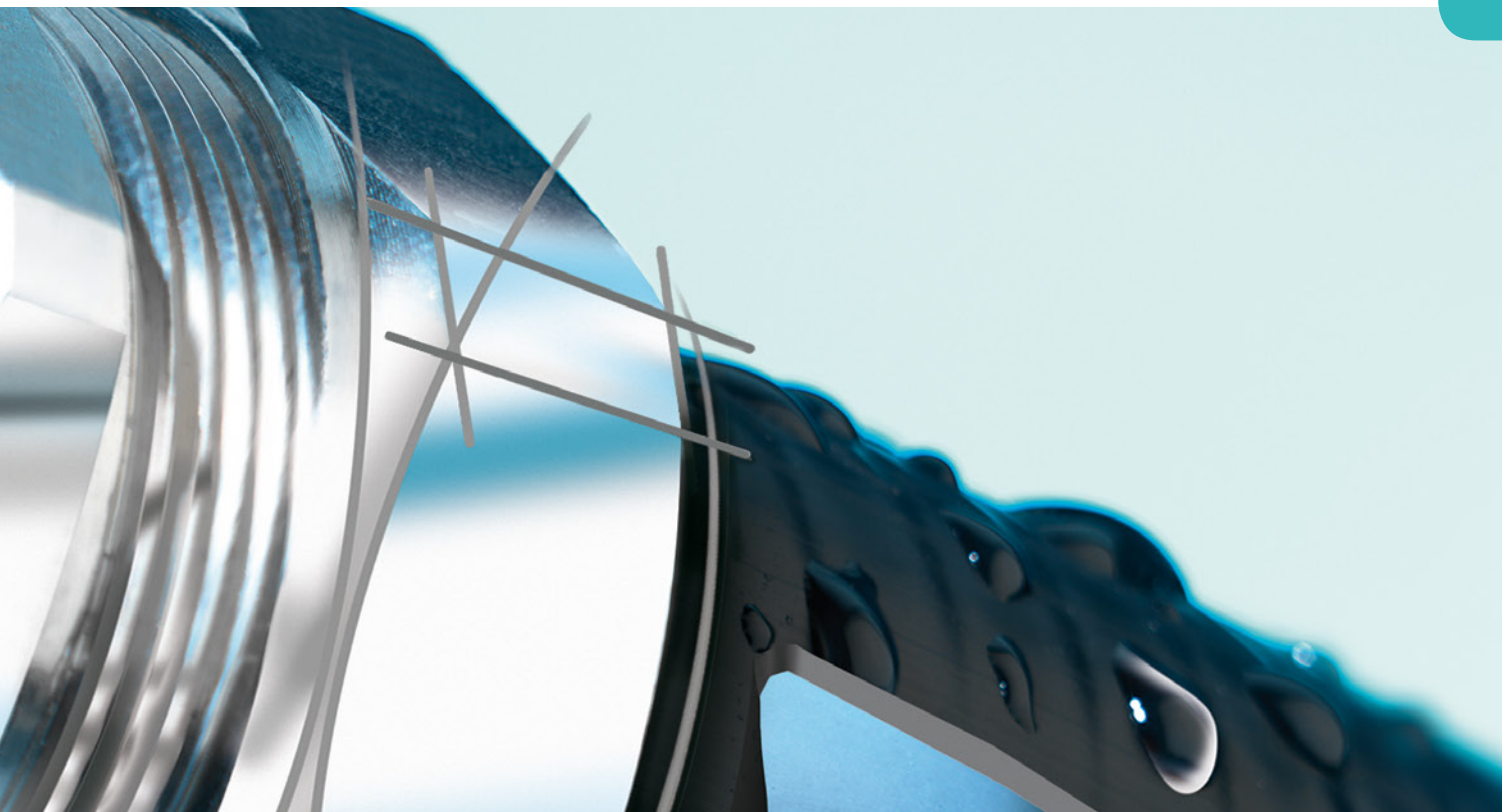
### 3.1 Non-Metallic Conduit Systems

#### Non-Metallic Conduits

HG-SW PA6 Standard	241
HG-LW PA6 Light	242
HG-HW PA6 Heavy	243
HG-FR PA6 Flame Retardant	244
HG-HI PA12 Standard	245
HG-DC PA6 Double Slit	246
HG-PP Standard	247

#### Fittings for Non-Metallic Conduits

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	HGL-45F, 45° Elbow, IP68	271
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	HGL-SFL, Straight, IP68	273
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With strain relief and cable seal	HG-SCG, Straight, IP66	278
	HGL-SCG, Straight, IP68	279
	HG-90CG, 90° Elbow, IP66	280
	HGL-90CG, 90° Elbow, IP68	281
	HG-45CG, 45° Elbow, IP66	282
Connectors, reducers and couplers	HGL-45CG, 45° Elbow, IP68	283
	HG-T, T-Connector, IP66	284
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## 3.2 Metallic Conduit Systems

<b>Metallic Conduits</b>	
SC galvanised steel conduit	293
SSC stainless steel conduit	294
<b>Fittings for Metallic Conduits</b>	
SC-FM fixed external thread	295
SSC-FM stainless steel, fixed external thread	296
SC-SM swivel external thread	297
SSC-SM stainless steel, swivel external thread	298
SC-PC plain hole connectors	299
SC-FF fixed internal thread	300
<b>Metallic Conduits with Plastic Coating</b>	
PCS, galvanised steel, PVC coating	301
NCS, galvanised steel, PA6 coating	302
LFHCS, galvanised steel, LFH coating	303

## Fittings for Metallic Conduits with Plastic Coating

PCS-FM IP54 fixed external thread	304
PCS-SM IP54 swivel external thread	305
PCS-PC IP54 plain hole connector	306
PCS-FF IP54 fixed internal thread	307
PCS-FMC IP65 compression fitting, fixed thread	308
PCS-SMC IP65 compression fitting, swivel thread	309
PCS-90FMC IP65 compression fitting, 90° elbow	309
PCS-PCS IP65 compression coupler	310
PCS-SCG IP65 cable gland fitting	310
PCS-EI end insert	311

## Metallic Conduits with Liquid-Tight Cover

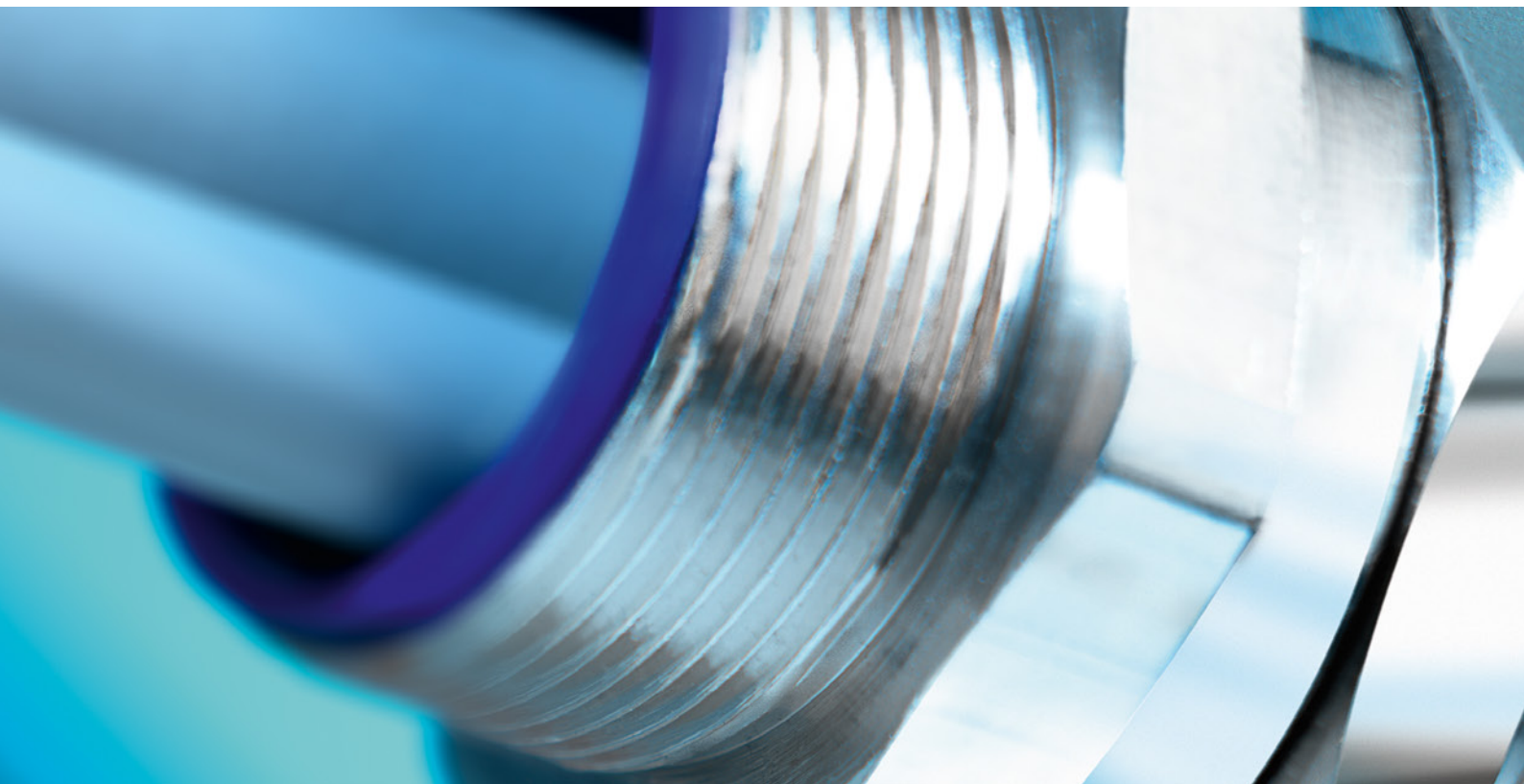
LTS, galvanised steel, PVC cover	312
LTS-H, galvanised steel, thermoplastic cover	313
LTSUL, galvanised steel, PVC cover, UL-listed	314

## Fittings for Metallic Conduits with Liquid-Tight Cover, IP68 and IP69

LTS-FMC IP68 compression fitting, fixed thread	315
LTS-SMC IP68 compression fitting, swivel thread	316
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LTS-45FMC IP68 compression fitting, 45° elbow	318
LTS-LTS IP68 compression coupler	318
LTS-SCG IP68 cable gland fitting	319
LTS-EI end insert	320

## Metallic Conduits with Plastic Coating and Metallic Overbraid

PCSB, galvanised steel, PVC coating, galvanised steel overbraid	321
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#### Fittings for Metallic Conduits with Plastic Coating and Metallic Overbraid

PCSB-FM IP54 fixed external thread	322
PCSB-SM IP swivel external thread	323
PCSB-PC IP54 plain hole connector	324
PCSB-FMC IP65 compression fitting, fixed thread	325
PCSB-SMC IP65 compression fitting, swivel thread	326
PCSB-90FMC IP65 compression fitting, 90° elbow	327

#### Metallic Conduits with Metallic Overbraid

SCSB galvanised steel, galvanised steel overbraid	328
---	-----

#### Fittings for Metallic Conduits with Metallic Overbraid

SCSB-FM fixed external thread	329
SCSB-SM swivel external thread	330
SCSB-PC plain hole connector	331

### 3.3 Spiral-Reinforced Conduit Systems

#### Spiral-Reinforced PVC Conduits

PSR smooth bore	333
PSRSC smooth bore, smooth cover	334

#### Fittings for Spiral-Reinforced PVC Conduits

PSR-S fixed external thread	336
PSR-90 fixed external thread, 90° elbow	337
PSRSC-FMC IP68 compression fitting, fixed thread	338
PSRSC-SMC IP68 compression fitting, swivel thread	339
PSRSC-90FMC IP68 compression fitting, 90° elbow	340
PSRSC-FMCSS IP68 stainless steel compression fitting, fixed thread	341
PSRSC-90FMCSS IP68 stainless steel compression fitting, fixed thread	342

#### FlexiGuard Conduits & Fittings

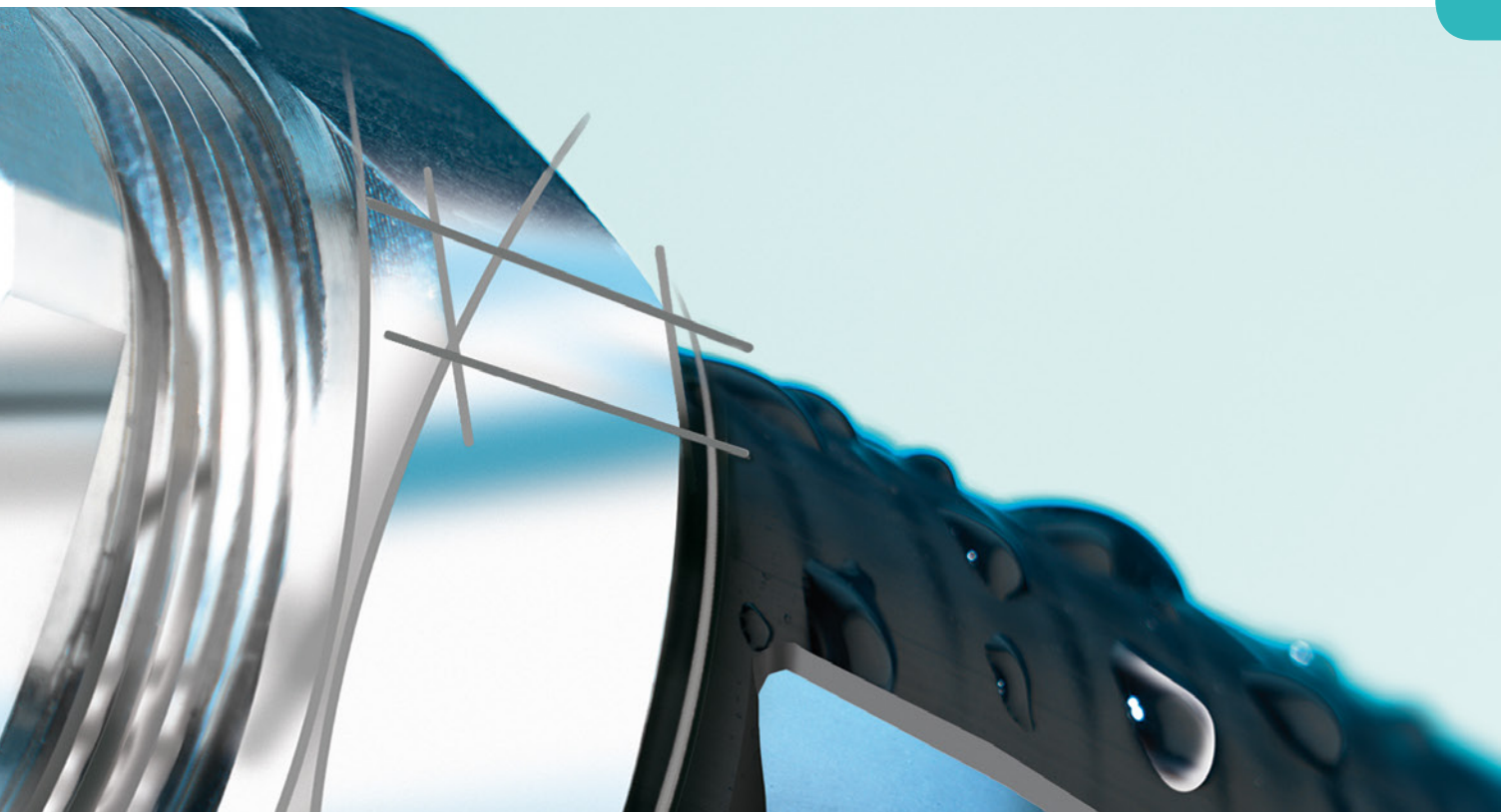
FG PVC conduit, steel wire spiral-reinforced	343
FG IP54 fitting, swivel thread	344
FG IP54 fitting with mounting bracket	345

### 3.4 Conduit System Accessories

#### HelaGuard Accessories

Conduit Clips	PACC for corrugated conduits	346
	AFCP for rigid conduits	346
	AFCS plated steel and PVC liner	347
	AFCSS stainless metallic	347
A90FM 90° elbow		348
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Washers	AWS chloroprene	352
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CNV converters		354
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ConClamp conduit clamp		357
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### 3.5 Protective Tubing and Spiral Binding

#### Helawrap Cable Cover and Accessories

Helawrap in polyamide 6, UL94 V0	361
HWClips	362
HWBase	362
HAT application tool	363

#### Spiral Binding

SBPEFR polyethylene, flame-retardant	364
SBPAV0 polyamide 6, flame-retardant	365
SBPTFE, PTFE	366
SPS narrow pitch	367
SPF wide pitch	368

### 3.6 Braided Sleeving

#### Helagaine Braided Sleeving

HEGP standard polyester	369
HEGPX high-expansion polyester	370
HEGPV0 polyester, flame-retardant	371
HEGPV0X high-expansion polyester flame-retardant	372
HEGPA66 polyamide 6.6, abrasion-resistant	373
HEGSAS polyester, noise-protection	374
HEGPL polyester, light weight	375
HEGMAN non-flammable meta-aramid	376
HEGMANWO non-flammable meta-aramid, water and oil-resistant	376
Twist-In self-closing polyester sleeving	377
Twist-In-FR self-closing polyester sleeving, flame-retardant	378
HELAHOOK re-closable polyester sleeving with hook-and-loop seal	379
HEGEMIP electromagnetic protection	380
HEGEMIPV0 electromagnetic protection, flame-retardant	381
HEGEMIP-HY electromagnetic protection for hybrid automobiles	382
HSGO hot cutting tool	382

### 3.7 Edge Protection

#### Grommet Strip

G51T in PTFE	383
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### HelaGuard Application Overview

Conduit System	IP rating available	Compression strength kg/100 mm, 20 mm Ø	Pull-off strength kg, 20 mm Ø	Minimum bend radius 20 mm Ø
<b>HG-SW</b> PA6 corrugated, standard weight	IP66, IP67, IP68, IP69k	75	40	45
<b>HG-LW</b> PA6 corrugated, light weight	IP66, IP67, IP68, IP69k	60	30	40
<b>HG-HW</b> PA6 corrugated, heavy weight	IP66, IP67, IP68, IP69k	120	70	55
<b>HG-FR</b> Flame retardant PA6 corrugated, standard weight	IP66, IP67, IP68, IP69k	75	40	45
<b>HG-HI</b> PA12 corrugated, standard weight	IP66, IP67, IP68, IP69k	45	30	35
<b>HG-DC</b> PA6 double slit corrugated	IP40	60	15	90
<b>HG-PP</b> PP corrugated	IP40, IP66 IP67, IP68	35	25	40
<b>SC</b> galvanised steel	IP40	350	120	45
<b>SSC</b> stainless steel	IP40	400	170	45
<b>PCS</b> galvanised steel, PVC coated	IP54, IP65	350	120	45
<b>NCS</b> galvanised steel, PA6 coated	IP54, IP65	350	120	45
<b>LFHCS</b> galvanised steel, LFH coated	IP54, IP65	350	120	45
<b>LTS</b> galvanised steel, PVC coated, liquid-tight	IP66, IP67, IP68, IP69k	400	130	65
<b>LTSH</b> galvanised steel, thermoplastic rubber, liquid-tight	IP66, IP67, IP68, IP69k	400	130	65
<b>LTSUL</b> galvanised steel, PVC coated, liquid-tight, UL-listed	IP66, IP67, IP68, IP69k	500	160	90
<b>PCSB</b> galvanised steel, PVC coated, galvanised steel overbraid	IP54, IP65	350	120,130	45
<b>SCSB</b> galvanised steel, galvanised steel overbraid	IP40	350	120	45
<b>PSR</b> Spiral-reinforced PVC, smooth bore	IP66, IP67	60	25	35
<b>PSRSC</b> Spiral-reinforced PVC, smooth bore, smooth cover	IP66, IP67, IP68, IP69k	120	70	35

- yes
- no

	<i>High fatigue life</i>	<i>Temperature range</i>	<i>Flexible</i>	<i>Halogen free</i>	<i>Self-extinguishing</i>	<i>High abrasion resistance</i>	<i>High UV resistance (black)</i>	<i>Page Number</i>
	■	-40 °C to +120 °C	■	■	■	■	■	241
	■	-40 °C to +120 °C	■	■	■	-	-	242
	-	-40 °C to +120 °C	■	■	■	■	■	243
	-	-40 °C to +120 °C	■	■	■	■	■	244
	■	-50 °C to +110 °C	■	■	■	-	■	245
	-	-40 °C to +120 °C	-	■	■	■	-	246
	-	+20 °C to +90 °C	■	-	■	-	-	247
	-	-100 °C to +300 °C	■	■	■	■	-	293
	-	-100 °C to +400 °C	■	■	■	■	■	294
	■	-15 °C to +70 °C	■	-	■	-	-	301
	-	-40 °C to +120 °C	■	■	■	■	-	302
	-	-25 °C to +90 °C	■	■	■	-	-	303
	-	-20 °C to +105 °C	■	-	■	-	■	312
	-	-45 °C to +135 °C	■	■	■	-	■	313
	-	-15 °C to +75 °C	■	-	■	-	■	314
	-	-15 °C to +70 °C	■	-	■	■	-	321
	-	-100 °C to +300 °C	■	■	■	-	-	328
	-	+20 °C to +70 °C	■	-	■	-	-	333
	-	+20 °C to +70 °C	■	-	■	-	-	334



## IEC 61386 Classification for HelaGuard Flexible Conduits

	Compression Resistance (N)	Impact Resistance (J)	Minimum Temperature (°C)	Maximum Temperature (°C)
<b>Non-Metallic Conduits</b> based on nominal conduit size 21 mm				
<b>HG-SW</b> PA6 corrugated, standard weight (with HG fittings)	2	4	2	4
<b>HG-LW</b> PA6 corrugated, light weight (with HG fittings)	2	4	2	4
<b>HG-HW</b> PA6 corrugated, heavy weight (with HGL fittings)	2	4	2	4
<b>HG-FR</b> Flame retardant corrugated, standard weight (with HGL fittings)	2	4	2	4
<b>HG-HI</b> PA12 corrugated, standard weight (with HG fittings)	1	3	5	4
<b>HG-DC</b> PA6 double slit corrugated	2	4	2	4
<b>HG-PP</b> PP corrugated, standard weight	1	2	3	2
<b>Metallic Conduits</b> based on nominal conduit size 20 mm				
<b>SC</b> galvanised steel	4	4	5	6
<b>SSC</b> stainless steel	4	4	5	6
<b>PCS</b> galvanised steel, PVC coated (with compression fittings)	4	4	3	1
<b>NCS</b> galvanised steel, PA6 coated	4	4	4	4
<b>LFHCS</b> galvanised steel, LFH coated	4	4	3	1
<b>LTS</b> galvanised steel, PVC coated, liquid-tight (with compression fittings)	4	4	3	3
<b>LTSH</b> galvanised steel, PVC coated, liquid-tight (with compression fittings)	4	4	5	4
<b>LTSUL</b> galvanised steel, PVC coated, liquid-tight, UL-listed	4	4	3	3
<b>PCSB</b> galvanised steel, PVC coated, galvanised steel overbraid	4	4	3	1
<b>SCSB</b> galvanised steel, galvanised steel overbraid	4	4	5	6
<b>PVC Conduits</b> based on nominal conduit size 20 mm				
<b>PSR</b> Spiral-reinforced PVC, smooth bore	2	3	2	1
<b>PSRSC</b> Spiral-reinforced PVC, smooth bore, smooth cover with PSR fitting	2	3	2	1
<b>PSRSC</b> Spiral-reinforced PVC, smooth bore, smooth cover with PSR fitting	2	3	2	1
<b>FlexiGuard and FlexiGuard Plus Conduits</b>				
<b>FG</b> PVC-Conduit with spring steel wire	2	2	2	1

IEC 61386 Classification Key	Compression Resistance (N)	Impact Resistance (J)	Minimum Temperature (°C)	Maximum Temperature (°C)	Bend Resistance	Electrical Properties	IP Rating against solid objects
0	–	–	–	–	–	non-declared	–
1	125	0.5	5	60	rigid	conducting	–
2	320	1	-5	90	pliable	insulating	–
3	750	2	-15	105	pliable, self-recovering	conducting/insulating	3
4	1250	6	-25	120	flexible	–	4
5	4000	20	-45	150	–	–	5
6	–	–	–	250	–	–	6
7	–	–	–	400	–	–	7

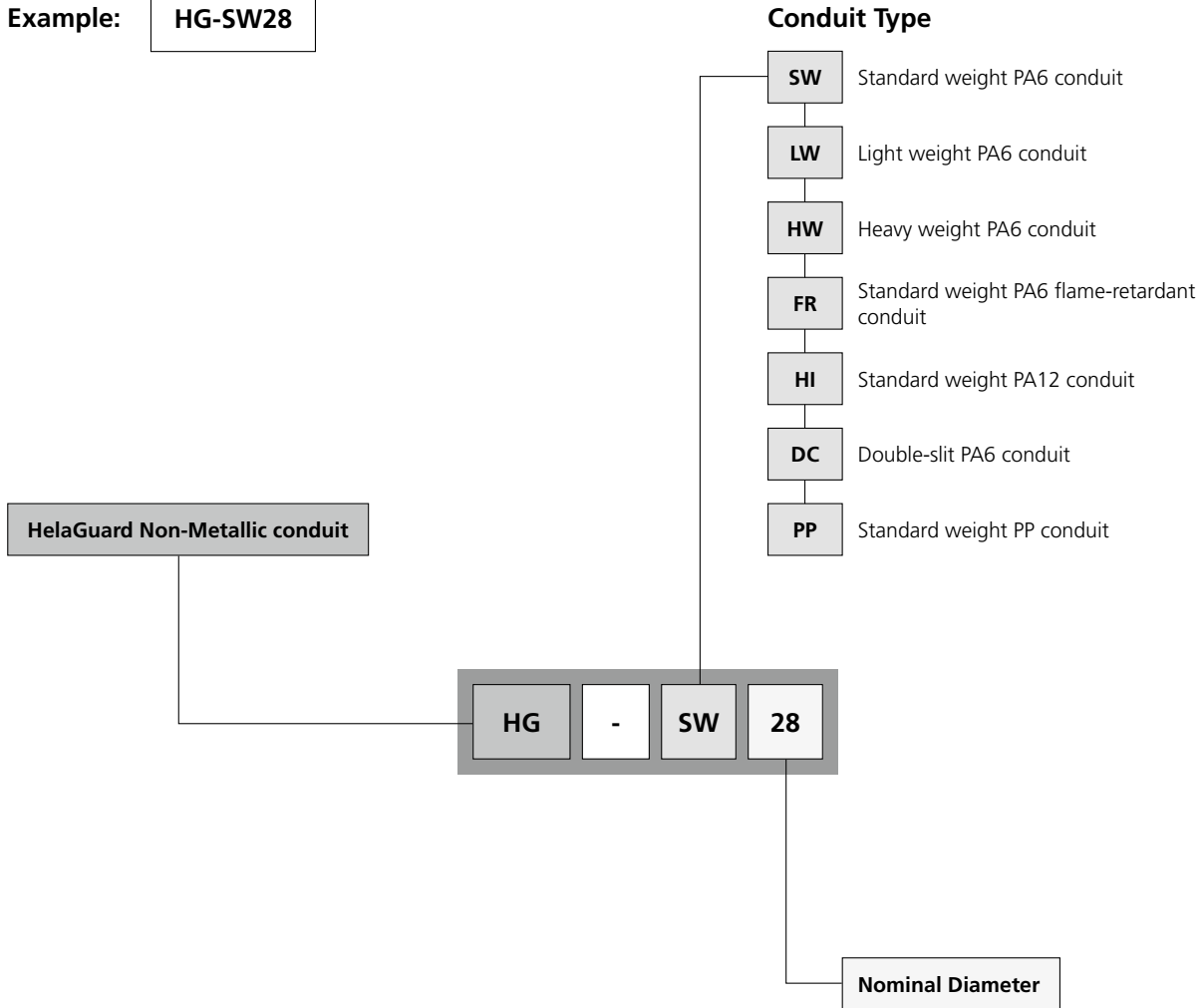
Bend Resistance	Electrical Properties	IP Rating against solid objects	IP Rating against water	Corrosion Resistance	Tensile strength	Resistance to Flame Propagation	Suspended Load Capacity (N)	Page Nr.
4	0	6	6	-	2	1	0	241
4	0	6	6	-	1	1	0	242
4	0	6	8	-	3	1	0	243
4	0	6	8	-	2	1	0	244
4	0	6	6	-	1	1	0	245
4	0	4	0	-	2	1	0	246
4	2	6	6	4	2	2	0	247
4	0	4	0	1	4	1	0	293
4	0	4	0	4	4	1	0	294
4	0	6	5	2	4	1	0	301
4	0	6	4	2	4	1	0	302
4	0	6	5	2	4	1	0	303
4	0	6	8	4	4	1	0	312
4	0	6	8	4	4	1	0	313
4	0	6	8	4	4	1	0	314
4	0	5	4	2	4	1	0	321
4	0	4	0	1	4	1	0	328
4	2	6	5	-	2	1	0	333
4	2	6	7	-	3	1	0	334
4	2	6	8	-	3	1	0	334
4	2	3	0	4	1	1	1	343

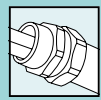
IP Rating against water	Corrosion Resistance	Tensile Strength	Resistance to Flame Propagation	Suspended Load Capacity (N)
0	-	-	-	non-declared
1	low inside and outside	100	not flame-propagating	20
2	medium inside and outside	250	flame-propagating	30
3	medium inside, high outside	500	-	150
4	high inside and outside	1000	-	450
5	-	2500	-	850
6	-	-	-	-
7	-	-	-	-

**For more information about Degrees of Protection please refer to page 467.**

## HelaGuard Nomenclature for Non-Metallic Conduits

Example: **HG-SW28**





### Non-Metallic Conduits

- **HG-SW PA6 Standard Weight**

Machine building, plant construction, control panels, public buildings.

#### Features and Benefits

- Very flexible and high fatigue life
- Very abrasion resistant
- High impact strength, recovers if crushed
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Low smoke and low toxicity
- Self-extinguishing according to UL94 V2
- Colour: black (UV resistant); grey on request



HelaGuard PA6 Standard for industrial applications.



One Step to the Web!

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Operating Temperature Moving</b>	-20 °C to +100 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	IEC 61386, Lloyd's Register, UL-Recognised

HF ✓

RoHS ✓

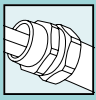
TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-SW10	10	7.5	10.0	6.3	15	19	50 m	Black (BK)	166-11100
HG-SW11	11	8.5	11.5	8.2	20	22	50 m	Black (BK)	166-11101
HG-SW13	13	10	13.0	9.8	25	28	50 m	Black (BK)	166-11102
HG-SW16	16	12	15.8	11.8	35	38	25 m	Black (BK)	166-11110
	16	12	15.8	11.8	35	38	50 m	Black (BK)	166-11103
HG-SW21	21	17	21.2	16.7	45	60	25 m	Black (BK)	166-11111
	21	17	21.2	16.7	45	60	50 m	Black (BK)	166-11104
HG-SW28	28	23	28.5	22.8	50	100	25 m	Black (BK)	166-11105
	28	23	28.5	22.8	50	100	50 m	Black (BK)	166-11112
HG-SW34	34	29	34.5	28.1	60	135	25 m	Black (BK)	166-11106
	34	29	34.5	28.1	60	135	50 m	Black (BK)	166-11118
HG-SW42	42	36	42.5	35.5	70	165	25 m	Black (BK)	166-11113
HG-SW54	54	48	54.5	47.2	80	235	25 m	Black (BK)	166-11114
HG-SW67	67	56	67.2	56.3	130	365	10 m	Black (BK)	166-11109

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Non-Metallic Conduits

### • HG-LW PA6 Light Weight

Machine building, plant construction, control panels and public buildings, wherever lower mechanical protection is required.

#### Features and Benefits

- Light weight
- Very flexible and high fatigue life
- Small bending radius
- High impact strength and recovers if crushed
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Colour: black; grey (RAL 7031) on request



*HelaGuard PA6 Light is very flexible and can be used in moving applications.*

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Operating Temperature Moving</b>	-20 °C to +100 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386
<b>Specifications</b>	IEC 61386, UL-Recognised

HF ✓

RoHS ✓

TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-LW10	10	7.5	10.0	6.5	15	18	50 m	Black (BK)	166-11200
HG-LW11	11	8.5	11.5	8.4	20	22	50 m	Black (BK)	166-11201
HG-LW13	13	10	13.0	9.8	25	24	50 m	Black (BK)	166-11202
HG-LW16	16	12	15.8	11.8	35	36	50 m	Black (BK)	166-11203
HG-LW21	21	17	21.2	16.7	40	56	50 m	Black (BK)	166-11204
HG-LW28	28	23	28.5	23	45	90	50 m	Black (BK)	166-11205
HG-LW34	34	29	34.5	28.1	55	110	50 m	Black (BK)	166-11206
HG-LW42	42	36	42.5	35.5	65	150	25 m	Black (BK)	166-11207
HG-LW54	54	48	54.5	47.2	80	200	25 m	Black (BK)	166-11208
HG-LW67	67	56	67.2	56.5	110	310	10 m	Black (BK)	166-11209

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Non-Metallic Conduits

- **HG-HW PA6 Heavy Weight**

Heavy-duty machine building, plant construction, and public buildings, wherever high mechanical strength is required.

#### Features and Benefits

- Heavy weight
- High mechanical strength
- Very abrasion resistant
- High impact strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Low smoke and low toxicity
- Self-extinguishing according to UL94 V2
- Colour: black (UV resistant)



When high mechanical protection is needed: HelaGuard PA6 Heavy.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	IEC 61386, UL-Recognised



TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-HW13	13	10	13.0	9.0	35	37	50 m	Black (BK)	166-11302
HG-HW16	16	12	15.8	11.5	45	48	50 m	Black (BK)	166-11303
HG-HW21	21	17	21.2	15.5	55	80	50 m	Black (BK)	166-11304
HG-HW28	28	23	28.5	21.3	60	130	50 m	Black (BK)	166-11305
HG-HW34	34	29	34.5	26.9	70	170	25 m	Black (BK)	166-11306
HG-HW42	42	36	42.5	34.6	80	200	25 m	Black (BK)	166-11307
HG-HW54	54	48	54.5	46.0	90	270	25 m	Black (BK)	166-11308

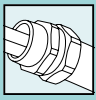
All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Non-Metallic Conduits

- **HG-FR PA6 Flame Retardant**

Railway vehicles, railway tunnels, underground stations and public buildings, where high fire protection is required.

#### Features and Benefits

- Highly flame retardant (UL94 V0)
- Low smoke, low toxicity
- Very flexible and high fatigue life
- High impact strength, recovers if crushed
- Abrasion resistant
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Colour: black (UV resistant)



Public buildings often require HelaGuard PA6 Flame Retardant due to its high fire protection properties.

<b>MATERIAL</b>	Polyamide 6, Flame retardant (PA6-FR)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Operating Temperature Moving</b>	-20 °C to +100 °C
<b>Flammability</b>	UL94 V0
<b>Specifications</b>	CEN TS 45545-2: 2009, DIN 5510-2, IEC 61386, NF F 16-101/16-102, UL-Recognised



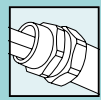
TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-FR10	10	7.5	10.0	6.3	15	19	50 m	Black (BK)	166-11400
HG-FR13	13	10	13.0	9.8	25	28	50 m	Black (BK)	166-11401
HG-FR16	16	12	15.8	11.8	35	38	50 m	Black (BK)	166-11402
HG-FR21	21	17	21.2	16.7	45	60	50 m	Black (BK)	166-11403
HG-FR28	28	23	28.5	21.7	50	100	50 m	Black (BK)	166-11404
HG-FR34	34	29	34.5	28.1	60	135	50 m	Black (BK)	166-11405
HG-FR42	42	36	42.5	35.5	70	165	25 m	Black (BK)	166-11406
HG-FR54	54	48	54.5	47.2	80	235	25 m	Black (BK)	166-11407

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Non-Metallic Conduits

- **HG-HI PA12**

Robots, rail, machine building, plant construction and wherever continual movement and bending are requirements.

#### Features and Benefits

- Excellent fatigue life
- Very flexible
- Recovers form if crushed
- Good mechanical properties at low temperatures
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Self-extinguishing to IEC 61386
- Colour: black (UV resistant)



*HelaGuard PA12 is ideal for robotics.*

<b>MATERIAL</b>	Polyamide 12 (PA12)
<b>Operating Temperature</b>	-50 °C to +110 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386
<b>Specifications</b>	IEC 61386, UL-Recognised

HF ✓

RoHS ✓

TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-HI13	13	10	13.0	9.8	25	26	50 m	Black (BK)	166-11501
HG-HI16	16	12	15.8	11.8	30	35	50 m	Black (BK)	166-11502
HG-HI21	21	17	21.2	16.7	35	55	50 m	Black (BK)	166-11503
HG-HI28	28	23	28.5	21.7	45	92	50 m	Black (BK)	166-11504
HG-HI34	34	29	34.5	28.1	55	120	25 m	Black (BK)	166-11505
HG-HI42	42	36	42.5	35.5	60	160	25 m	Black (BK)	166-11506
HG-HI54	54	48	54.5	47.2	70	220	25 m	Black (BK)	166-11507

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Non-Metallic Conduits

### • HG-DC Double Slit

Control panels, machine building, plant construction and wherever retrofitting is a requirement.

### Features and Benefits

- Can be opened and closed repeatedly
- Cables can be inserted laterally
- Abrasion resistant
- Free of halogen, sulphur and phosphorus
- Self-extinguishing to IEC 61386
- Colour: black



HelaGuard HG-DC double slit conduit is ideal for retrofitting.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +110 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	IEC 61386

HF ✓

RoHS ✓

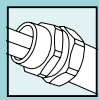
TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-DC11	11	8.5	11.5	6.7	45	23	50 m	Black (BK)	166-11800
HG-DC13	13	10	13.0	7.9	55	37	50 m	Black (BK)	166-11801
HG-DC16	16	12	15.8	10.5	60	41	50 m	Black (BK)	166-11802
HG-DC21	21	17	21.2	13.9	90	63	50 m	Black (BK)	166-11803
HG-DC28	28	23	28.5	20.5	105	94	50 m	Black (BK)	166-11804
HG-DC34	34	29	34.5	27.0	150	118	25 m	Black (BK)	166-11805
HG-DC42	42	36	42.5	34.8	170	193	25 m	Black (BK)	166-11806
HG-DC54	54	48	54.5	45.3	170	263	25 m	Black (BK)	166-11807

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Non-Metallic Conduits

- HG-PP PP Standard Weight

Machine building, electrical installations, buildings, particularly when buried in concrete or plaster.

#### Features and Benefits

- Very flexible
- Abrasion resistant
- Resistant to acids and alkalis
- Self-extinguishing to IEC 61386



*HelaGuard PP Standard is typically used in electrical installations and buildings, particularly when buried in concrete or plaster.*

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-20 °C to +90 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386
<b>Specifications</b>	IEC 61386



TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
HG-PP10	10	7.5	10.0	6.3	15	16	50 m	Black (BK)	166-11900
HG-PP13	13	10	13.0	9.8	25	20	50 m	Black (BK)	166-11901
HG-PP16	16	12	15.8	11.8	35	30	50 m	Black (BK)	166-11902
HG-PP20	20	16	20.0	14.8	40	45	50 m	Black (BK)	166-11903
HG-PP21	21	17	21.2	16.7	40	50	50 m	Black (BK)	166-11904
HG-PP25	25	22	25.0	19.1	50	52	50 m	Black (BK)	166-11905
HG-PP26	26	22	25.4	21.4	50	52	50 m	Black (BK)	166-11906
HG-PP28	28	23	28.5	22.8	55	65	50 m	Black (BK)	166-11907
HG-PP34	34	29	34.5	28.1	65	90	25 m	Black (BK)	166-11908
HG-PP42	42	36	42.5	35.5	80	120	25 m	Black (BK)	166-11909
HG-PP54	54	48	54.5	47.2	100	150	25 m	Black (BK)	166-11910
HG-PP67	67	56	67.2	56.3	150	250	10 m	Black (BK)	166-11911

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.






## HelaGuard Fitting Finder




### Fixed external thread

HG-S Straight IP66		Page 252
HGL-S Straight IP68		Page 254
HG-90 90° Elbow IP66		Page 255
HGL-90 90° Elbow IP68		Page 257
HG-45 45° Elbow IP66		Page 258
HGL-45 45° Elbow IP68		Page 259

### Swivel external thread

HG-SM Straight IP66		Page 260
HGL-SM Straight IP68		Page 261
HG-90M 90° Elbow IP66		Page 262

### Swivel external thread

HGL-90M 90° Elbow IP68		Page 263
HG-45M 45° Elbow IP66		Page 264
HGL-45M 45° Elbow IP68		Page 265

### Swivel internal thread

HG-SF Straight IP66		Page 266
HGL-SF Straight IP68		Page 267
HG-90F 90° Elbow IP66		Page 268
HGL-90F 90° Elbow IP68		Page 269
HG-45F 45° Elbow IP66		Page 270
HGL-45F 45° Elbow IP68		Page 271

## Swivel flange

HG-SFL Straight IP66		Page 272
HGL-SFL Straight IP68		Page 273
HG-90FL 90° Elbow IP66		Page 274
HGL-90FL 90° Elbow IP68		Page 275
HG-45FL 45° Elbow IP66		Page 276
HGL-45FL 45° Elbow IP68		Page 277

## With strain relief and cable seal

HG-45CG 45° Elbow IP66		Page 282
HGL-45CG 45° Elbow IP68		Page 283

## Connectors, reducers and couplers

HG-T T-Connector IP66		Page 284
HGL-T T-Connector IP68		Page 285
HG-Y Y-Connector IP66		Page 286
HGL-Y Y-Connector IP68		Page 287
HG-R Reducer IP66		Page 288
HGL-R Reducer IP68		Page 289
HG-HG Coupler IP66		Page 290

## With strain relief and cable seal

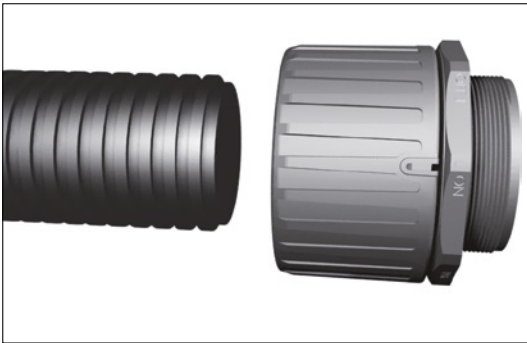
HG-SCG Straight IP66		Page 278
HGL-SCG Straight IP68		Page 279
HG-90CG 90° Elbow IP66		Page 280
HGL-90CG 90° Elbow IP68		Page 281



### Mounting and Removing HelaGuard Non-Metallic Fittings

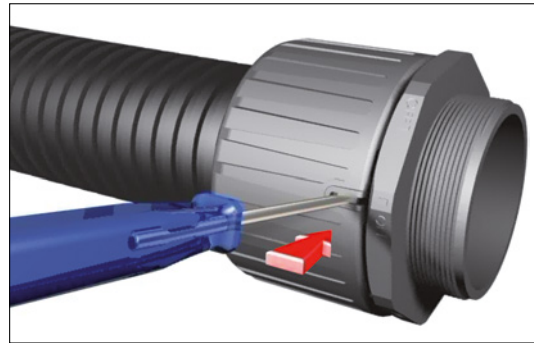
HelaGuard plastic fittings are mounted simply, quickly and very securely. They offer exceptionally high pull-off strength and are vibration as well as tamper resistant. They can be removed with a screw driver. HelaGuard plastic fittings can be used again and again.

**To mount and remove HelaGuard plastic fittings, follow these simple instructions.**



1. If the fitting has been used before, be sure that the slit points to the 'on' position.

To assemble the fitting, push it on to the end of the conduit as far as possible without forcing it and twist it slightly. The fitting is now securely locked.



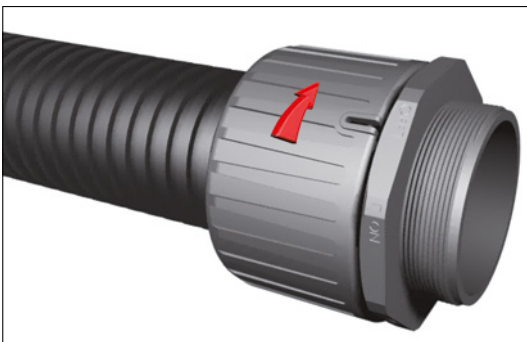
2. To remove the fitting, insert a small screw driver into the slit.



3. Move the handle of the screwdriver towards the 'off' position. The capnut will rotate slightly. The locking mechanism is now released.



4. Remove the screwdriver.



5. Manually rotate the capnut further towards the 'off position' as far as possible.



6. Simply remove the fitting from the end of the conduit.

**To re-use HelaGuard plastic fittings, simply turn the capnut back to the 'on' position and mount it on to the end of the conduit.**

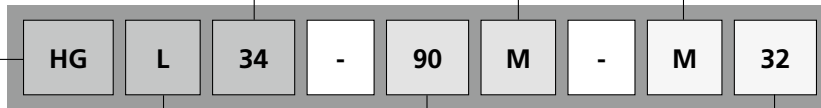
## HelaGuard Nomenclature for Non-Metallic Fittings

Example: **HGL34-90M-M32**

### Suitable Conduit Type

**HG** HelaGuard Non-Metallic conduit

Nominal Diameter



### Thread Type

- M** Swivel external thread
- F** Swivel internal thread
- Fixed external thread
- FL** Flange
- CG** Cable gland

### Thread Code

- M** Metric
- PG** Panzer-Gewinde

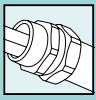
Thread Size

### IP Protection

- L** IP67, IP68, IP69k fitting
- IP66 fitting

### Fitting Shape

- 90** 90° elbow fitting
- 45** 45° elbow fitting
- S** Straight fitting
- T** T-connector
- Y** Y-connector
- R** Reducer
- HG** Conduit connector



### Fittings with fixed external thread

- HG-S Straight, IP66

Straight external thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts



HelaGuard HG-S Straight, IP66.

**Fittings with UNEF and NPT threads available on request. Please contact us!**

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



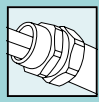
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HG10-S-PG7	10	-	PG7	7.5	19	33	19	9	10 pcs.	Black (BK)	166-21010
HG10-S-PG9	10	-	PG9	9.5	19	35	19	11	10 pcs.	Black (BK)	166-21031
HG10-S-M12	10	M12	-	7.5	19	33	19	9	10 pcs.	Black (BK)	166-21000
HG10-S-M16	10	M16	-	9.5	19	35	19	11	10 pcs.	Black (BK)	166-21020
HG11-S-PG7	11	-	PG7	7.5	19	33	19	9	10 pcs.	Black (BK)	166-21032
HG11-S-M12	11	M12	-	7.5	19	33	19	9	10 pcs.	Black (BK)	166-21021
HG13-S-PG7	13	-	PG7	7.5	24	35	23	9	10 pcs.	Black (BK)	166-21033
HG13-S-PG9	13	-	PG9	11.0	24	37	23	11	10 pcs.	Black (BK)	166-21011
HG13-S-PG11	13	-	PG11	12.5	24	36	23	10	10 pcs.	Black (BK)	166-21034
HG13-S-M12	13	M12	-	7.5	24	35	23	9	10 pcs.	Black (BK)	166-21022
HG13-S-M16	13	M16	-	11.0	24	37	23	11	10 pcs.	Black (BK)	166-21001
HG13-S-M20	13	M20	-	12.5	24	40	23	14	10 pcs.	Black (BK)	166-21023

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Fittings with fixed external thread

- HG-S Straight, IP66

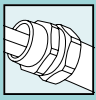
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HG16-S-PG9	16	-	PG9	11.0	29	41	28	11	10 pcs.	Black (BK)	166-21035
HG16-S-PG11	16	-	PG11	14.5	29	40	28	10	10 pcs.	Black (BK)	166-21012
HG16-S-PG13	16	-	PG13.5	14.5	29	40	28	10	10 pcs.	Black (BK)	166-21013
HG16-S-PG16	16	-	PG16	14.5	29	41	28	11	10 pcs.	Black (BK)	166-21036
HG16-S-M16	16	M16	-	11.0	29	41	28	11	10 pcs.	Black (BK)	166-21002
HG16-S-M20	16	M20	-	14.5	29	34	28	14	10 pcs.	Black (BK)	166-21003
HG18-S-PG13	18	-	PG13.5	16.5	32	40	30	10	10 pcs.	Black (BK)	166-21037
HG18-S-PG16	18	-	PG16	18.0	32	41	30	11	10 pcs.	Black (BK)	166-21038
HG18-S-M20	18	M20	-	14.5	32	44	30	14	10 pcs.	Black (BK)	166-21024
HG20-S-M20	20	M20	-	14.5	32	44	30	14	10 pcs.	Black (BK)	166-21025
HG21-S-PG13	21	-	PG13.5	16.5	32	40	30	10	10 pcs.	Black (BK)	166-21039
HG21-S-PG16	21	-	PG16	18.0	32	41	30	11	10 pcs.	Black (BK)	166-21014
HG21-S-PG21	21	-	PG21	20.5	32	42	30	12	10 pcs.	Black (BK)	166-21040
HG21-S-M20	21	M20	-	14.5	32	44	30	14	10 pcs.	Black (BK)	166-21004
HG25-S-M25	25	M25	-	19.5	39	49	37	15	10 pcs.	Black (BK)	166-21026
HG28-S-PG21	28	-	PG21	22.5	44	46	42	12	10 pcs.	Black (BK)	166-21015
HG28-S-PG29	28	-	PG29	27.5	44	46	42	12	10 pcs.	Black (BK)	166-21041
HG28-S-M25	28	M25	-	19.5	44	49	42	15	10 pcs.	Black (BK)	166-21005
HG28-S-M32	28	M32	-	26.5	44	50	42	16	10 pcs.	Black (BK)	166-21027
HG34-S-PG29	34	-	PG29	30.5	51	49	49	12	10 pcs.	Black (BK)	166-21016
HG34-S-M32	34	M32	-	26.5	51	53	49	16	10 pcs.	Black (BK)	166-21006
HG34-S-M40	34	M40	-	32.5	51	53	49	16	10 pcs.	Black (BK)	166-21028
HG42-S-PG36	42	-	PG36	40.0	63	56	60	12	2 pcs.	Black (BK)	166-21017
HG42-S-M40	42	M40	-	32.5	63	60	60	16	2 pcs.	Black (BK)	166-21007
HG42-S-M50	42	M50	-	40.5	63	60	60	16	2 pcs.	Black (BK)	166-21029
HG54-S-PG42	54	-	PG42	47.0	76	61	73	12	2 pcs.	Black (BK)	166-21042
HG54-S-PG48	54	-	PG48	52.0	76	61	73	12	2 pcs.	Black (BK)	166-21018
HG54-S-M50	54	M50	-	42.0	76	65	73	16	2 pcs.	Black (BK)	166-21008
HG54-S-M63	54	M63	-	53.0	76	65	73	16	2 pcs.	Black (BK)	166-21030
HG67-S-PG48	67	-	PG48	52.0	90	66	87	12	1 EA	Black (BK)	166-21019
HG67-S-M63	67	M63	-	56.0	90	70	87	16	1 EA	Black (BK)	166-21009

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with fixed external thread

- HGL-S Straight, IP68

Straight external thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts



HelaGuard HGL-S Straight with conduit seal, IP68.

**Fittings with UNEF and NPT threads available on request. Please contact us!**

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



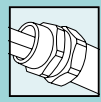
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-S-PG9	13	-	PG9	11.5	24	37	23	11	10 pcs.	Black (BK)	166-21608
HGL13-S-M16	13	M16	-	11.0	24	37	22	11	10 pcs.	Black (BK)	166-21600
HGL16-S-PG9	16	-	PG9	11.5	29	41	28	11	10 pcs.	Black (BK)	166-21623
HGL16-S-PG11	16	-	PG11	14.5	29	40	28	10	10 pcs.	Black (BK)	166-21609
HGL16-S-PG13	16	-	PG13.5	15.0	29	40	28	10	10 pcs.	Black (BK)	166-21610
HGL16-S-PG16	16	-	PG16	15.0	29	41	28	11	10 pcs.	Black (BK)	166-21624
HGL16-S-M16	16	M16	-	11.0	29	41	28	11	10 pcs.	Black (BK)	166-21601
HGL16-S-M20	16	M20	-	14.5	29	44	28	14	10 pcs.	Black (BK)	166-21602
HGL21-S-PG13	21	-	PG13.5	16.5	32	40	30	10	10 pcs.	Black (BK)	166-21625
HGL21-S-PG16	21	-	PG16	18.0	32	41	30	11	10 pcs.	Black (BK)	166-21611
HGL21-S-PG21	21	-	PG21	20.5	32	42	30	12	10 pcs.	Black (BK)	166-21626
HGL21-S-M20	21	M20	-	14.5	32	44	30	14	10 pcs.	Black (BK)	166-21603
HGL28-S-PG21	28	-	PG21	22.5	44	46	42	12	10 pcs.	Black (BK)	166-21612
HGL28-S-PG29	28	-	PG29	30.0	44	47	42	12	10 pcs.	Black (BK)	166-21627
HGL28-S-M25	28	M25	-	19.5	44	50	42	15	10 pcs.	Black (BK)	166-21604
HGL28-S-M32	28	M32	-	26.5	44	51	42	16	10 pcs.	Black (BK)	166-21619
HGL34-S-PG29	34	-	PG29	30.0	51	49	49	12	10 pcs.	Black (BK)	166-21613
HGL34-S-M32	34	M32	-	26.5	51	53	49	16	10 pcs.	Black (BK)	166-21605
HGL34-S-M40	34	M40	-	32.5	51	55	49	16	10 pcs.	Black (BK)	166-21620

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with fixed external thread

- HGL-S Straight, IP68

TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL42-S-PG36	42	-	PG36	40.0	63	56	60	12	2 pcs.	Black (BK)	166-21614
HGL42-S-M40	42	M40	-	32.5	63	61	60	16	2 pcs.	Black (BK)	166-21606
HGL42-S-M50	42	M50	-	40.5	63	61	73	16	2 pcs.	Black (BK)	166-21621
HGL54-S-PG42	54	-	PG42	47.0	76	61	73	12	2 pcs.	Black (BK)	166-21628
HGL54-S-PG48	54	-	PG48	52.0	76	61	73	12	2 pcs.	Black (BK)	166-21616
HGL54-S-M50	54	M50	-	42.0	76	65	73	16	2 pcs.	Black (BK)	166-21607
HGL54-S-M63	54	M63	-	53.0	76	65	73	16	2 pcs.	Black (BK)	166-21622

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.

### Fittings with fixed external thread

- HG-90 90° Elbow, IP66

90° elbow external thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts



HelaGuard HG-90 90° Elbow, IP66.

**Fittings with UNEF and NPT threads available on request. Please contact us!**

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised

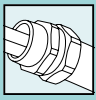


TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HG10-90-PG7	10	-	PG7	6.5	19	32	16	8	10 pcs.	Black (BK)	166-22210
HG10-90-M12	10	M12	-	6.5	19	32	17	8	10 pcs.	Black (BK)	166-22200
HG11-90-M12	11	M12	-	6.5	19	32	17	8	10 pcs.	Black (BK)	166-22220
HG13-90-PG9	13	-	PG9	10.5	24	46	22	10	10 pcs.	Black (BK)	166-22211
HG13-90-M16	13	M16	-	10.5	24	46	22	11	10 pcs.	Black (BK)	166-22201

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.





### Fittings with fixed external thread

- HG-90 90° Elbow, IP66

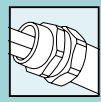
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HG16-90-PG9	16	-	PG9	10.5	29	49	22	10	10 pcs.	Black (BK)	166-22225
HG16-90-PG11	16	-	PG11	10.5	29	49	24	10	10 pcs.	Black (BK)	166-22212
HG16-90-PG13	16	-	PG13.5	14.0	29	51	26	11	10 pcs.	Black (BK)	166-22213
HG16-90-M16	16	M16	-	10.5	29	49	22	11	10 pcs.	Black (BK)	166-22202
HG16-90-M20	16	M20	-	14.0	29	51	27	13	10 pcs.	Black (BK)	166-22203
HG21-90-PG13	21	-	PG13.5	14.0	32	53	26	11	10 pcs.	Black (BK)	166-22227
HG21-90-PG16	21	-	PG16	14.0	32	53	27	11	10 pcs.	Black (BK)	166-22214
HG21-90-M20	21	M20	-	14.0	32	53	27	13	10 pcs.	Black (BK)	166-22204
HG25-90-M25	25	M25	-	19.0	39	63	32	15	10 pcs.	Black (BK)	166-22222
HG28-90-PG21	28	-	PG21	19.0	44	66	35	12	10 pcs.	Black (BK)	166-22215
HG28-90-M25	28	M25	-	19.0	44	66	32	15	10 pcs.	Black (BK)	166-22205
HG34-90-PG29	34	-	PG29	24.5	51	75	44	12	10 pcs.	Black (BK)	166-22216
HG34-90-M32	34	M32	-	24.5	51	75	40	16	10 pcs.	Black (BK)	166-22206
HG42-90-PG36	42	-	PG36	39.0	63	99	57	12	2 pcs.	Black (BK)	166-22217
HG42-90-M40	42	M40	-	32.5	63	98	50	16	2 pcs.	Black (BK)	166-22207
HG42-90-M50	42	M50	-	39.0	63	99	60	16	2 pcs.	Black (BK)	166-22223
HG54-90-PG48	54	-	PG48	49.5	76	104	70	15	2 pcs.	Black (BK)	166-22218
HG54-90-M50	54	M50	-	39.0	76	104	60	16	2 pcs.	Black (BK)	166-22208
HG54-90-M63	54	M63	-	49.5	76	104	72	16	2 pcs.	Black (BK)	166-22224
HG67-90-PG48	67	-	PG48	49.5	90	120	70	15	1 EA	Black (BK)	166-22219
HG67-90-M63	67	M63	-	49.5	90	120	72	16	1 EA	Black (BK)	166-22209

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with fixed external thread

- HGL-90 90° Elbow, IP68

90° elbow, external thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts



HelaGuard HGL-90 90° Elbow with conduit seal, IP68.

**Fittings with UNEF and NPT threads available on request. Please contact us!**

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-90-PG9	13	-	PG9	10.5	24	46	22	10	10 pcs.	Black (BK)	166-22808
HGL13-90-M16	13	M16	-	10.5	24	46	22	11	10 pcs.	Black (BK)	166-22800
HGL16-90-PG9	16	-	PG9	10.5	29	49	22	10	10 pcs.	Black (BK)	166-22820
HGL16-90-PG11	16	-	PG11	10.5	29	49	24	10	10 pcs.	Black (BK)	166-22809
HGL16-90-PG13	16	-	PG13.5	14.0	29	51	26	11	10 pcs.	Black (BK)	166-22810
HGL16-90-M16	16	M16	-	10.5	29	49	22	11	10 pcs.	Black (BK)	166-22801
HGL16-90-M20	16	M20	-	14.0	29	51	27	13	10 pcs.	Black (BK)	166-22802
HGL21-90-PG13	21	-	PG13.5	14.0	32	53	26	11	10 pcs.	Black (BK)	166-22821
HGL21-90-PG16	21	-	PG16	14.0	32	53	26	11	10 pcs.	Black (BK)	166-22811
HGL21-90-M20	21	M20	-	14.0	32	53	27	13	10 pcs.	Black (BK)	166-22803
HGL28-90-PG21	28	-	PG21	19.0	44	66	35	12	10 pcs.	Black (BK)	166-22812
HGL28-90-M25	28	M25	-	19.0	44	66	32	15	10 pcs.	Black (BK)	166-22804
HGL34-90-PG29	34	-	PG29	24.5	51	75	44	12	10 pcs.	Black (BK)	166-22813
HGL34-90-M32	34	M32	-	24.5	51	75	40	16	10 pcs.	Black (BK)	166-22805
HGL42-90-PG36	42	-	PG36	39.0	63	99	57	12	2 pcs.	Black (BK)	166-22814
HGL42-90-M40	42	M40	-	32.0	63	98	50	16	2 pcs.	Black (BK)	166-22806
HGL42-90-M50	42	M50	-	39.0	63	99	60	16	2 pcs.	Black (BK)	166-22818
HGL54-90-PG48	54	-	PG48	49.5	76	104	70	15	2 pcs.	Black (BK)	166-22815
HGL54-90-M50	54	M50	-	39.0	76	104	60	16	2 pcs.	Black (BK)	166-22807
HGL54-90-M63	54	M63	-	49.5	76	104	72	16	2 pcs.	Black (BK)	166-22819

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with fixed external thread

- HG-45 45° Elbow, IP66

45° elbow external thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts



HelaGuard HG-45 45° Elbow, IP66.

**Fittings with UNEF and NPT threads available on request. Please contact us!**

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HG16-45-PG13	16	-	PG13.5	14.0	29	58	26	11	10 pcs.	Black (BK)	166-23406
HG16-45-M20	16	M20	-	14.0	29	58	27	13	10 pcs.	Black (BK)	166-23400
HG21-45-PG13	21	-	PG13.5	14.0	32	61	26	11	10 pcs.	Black (BK)	166-23407
HG21-45-PG16	21	-	PG16	14.0	32	61	27	11	10 pcs.	Black (BK)	166-23408
HG21-45-M20	21	M20	-	14.0	32	61	27	13	10 pcs.	Black (BK)	166-23401
HG28-45-PG21	28	-	PG21	19.0	44	73	35	12	10 pcs.	Black (BK)	166-23409
HG28-45-M25	28	M25	-	19.0	44	73	32	15	10 pcs.	Black (BK)	166-23402
HG34-45-PG29	34	-	PG29	24.5	51	81	44	12	10 pcs.	Black (BK)	166-23410
HG34-45-M32	34	M32	-	24.5	51	81	40	16	10 pcs.	Black (BK)	166-23403
HG42-45-PG36	42	-	PG36	39.0	63	98	57	12	2 pcs.	Black (BK)	166-23411
HG42-45-M50	42	M50	-	39.0	63	98	60	16	2 pcs.	Black (BK)	166-23404
HG54-45-M50	54	M50	-	39.0	76	106	60	16	2 pcs.	Black (BK)	166-23405

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with fixed external thread

- HGL-45 45° Elbow, IP68

45° elbow external thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts



HelaGuard HGL-45 45° Elbow with conduit seal, IP68.

**Fittings with UNEF and NPT threads available on request. Please contact us!**

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



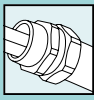
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL16-45-PG13	16	-	PG13.5	14.0	29	58	26	11	10 pcs.	Black (BK)	166-24006
HGL16-45-M20	16	M20	-	14.0	29	58	27	13	10 pcs.	Black (BK)	166-24000
HGL21-45-PG13	21	-	PG13.5	14.0	32	61	26	11	10 pcs.	Black (BK)	166-24007
HGL21-45-PG16	21	-	PG16	14.0	32	61	27	11	10 pcs.	Black (BK)	166-24008
HGL21-45-M20	21	M20	-	14.0	32	61	27	13	10 pcs.	Black (BK)	166-24001
HGL28-45-PG21	28	-	PG21	19.0	44	73	35	12	10 pcs.	Black (BK)	166-24009
HGL28-45-M25	28	M25	-	19.0	44	73	32	15	10 pcs.	Black (BK)	166-24002
HGL34-45-PG29	34	-	PG29	24.5	51	81	44	12	10 pcs.	Black (BK)	166-24010
HGL34-45-M32	34	M32	-	24.5	51	81	40	16	10 pcs.	Black (BK)	166-24003
HGL42-45-PG36	42	-	PG36	39.0	63	98	57	12	2 pcs.	Black (BK)	166-24011
HGL42-45-M50	42	M50	-	39.0	63	98	60	16	2 pcs.	Black (BK)	166-24004
HGL54-45-M50	54	M50	-	39.0	76	107	60	16	2 pcs.	Black (BK)	166-24005

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel external thread

- **HG-SM Straight Swivel External Thread, IP66**

Straight swivel brass external thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-SM Straight Swivel External Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



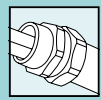
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HG13-SM-PG9	13	-	PG9	11.0	24	49	22	10	10 pcs.	Black (BK)	166-21309
HG13-SM-M16	13	M16	-	11.0	24	51	20	12	10 pcs.	Black (BK)	166-21300
HG16-SM-PG9	16	-	PG9	11.0	29	50	22	10	10 pcs.	Black (BK)	166-21310
HG16-SM-PG11	16	-	PG11	11.0	29	52	24	12	10 pcs.	Black (BK)	166-21311
HG16-SM-M16	16	M16	-	11.0	29	57	20	12	10 pcs.	Black (BK)	166-21301
HG16-SM-M20	16	M20	-	14.5	29	57	24	12	10 pcs.	Black (BK)	166-21302
HG21-SM-PG13	21	-	PG13.5	14.5	32	55	24	10	10 pcs.	Black (BK)	166-21312
HG21-SM-PG16	21	-	PG16	14.5	32	58	29	13	10 pcs.	Black (BK)	166-21313
HG21-SM-M20	21	M20	-	14.5	32	57	24	12	10 pcs.	Black (BK)	166-21303
HG28-SM-PG21	28	-	PG21	19.5	44	64	35	14	10 pcs.	Black (BK)	166-21314
HG28-SM-M25	28	M25	-	19.5	44	62	29	12	10 pcs.	Black (BK)	166-21304
HG34-SM-PG29	34	-	PG29	26.5	51	68	42	14	10 pcs.	Black (BK)	166-21315
HG34-SM-M32	34	M32	-	26.5	51	67	38	13	10 pcs.	Black (BK)	166-21305
HG42-SM-M40	42	M40	-	32.5	63	79	50	15	2 pcs.	Black (BK)	166-21306
HG54-SM-M50	54	M50	-	42.0	76	85	58	17	2 pcs.	Black (BK)	166-21307

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel external thread

- HGL-SM Straight Swivel External Thread, IP68

Straight swivel brass external thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-SM Straight Swivel External Thread with conduit seal, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-SM-PG9	13	-	PG9	11.0	24	49	22	10	10 pcs.	Black (BK)	166-21909
HGL13-SM-M16	13	M16	-	11.0	24	51	20	12	10 pcs.	Black (BK)	166-21900
HGL16-SM-PG9	16	-	PG9	11.0	29	50	22	10	10 pcs.	Black (BK)	166-21910
HGL16-SM-PG11	16	-	PG11	11.0	29	52	24	12	10 pcs.	Black (BK)	166-21911
HGL16-SM-M16	16	M16	-	11.0	29	57	20	12	10 pcs.	Black (BK)	166-21901
HGL16-SM-M20	16	M20	-	14.5	29	57	24	12	10 pcs.	Black (BK)	166-21902
HGL21-SM-PG13	21	-	PG13.5	14.5	32	55	24	10	10 pcs.	Black (BK)	166-21912
HGL21-SM-PG16	21	-	PG16	14.5	32	58	29	13	10 pcs.	Black (BK)	166-21913
HGL21-SM-M20	21	M20	-	14.5	32	57	24	12	10 pcs.	Black (BK)	166-21903
HGL28-SM-PG21	28	-	PG21	19.5	44	64	35	14	10 pcs.	Black (BK)	166-21914
HGL28-SM-M25	28	M25	-	19.5	44	62	29	12	10 pcs.	Black (BK)	166-21904
HGL34-SM-PG29	34	-	PG29	26.5	51	68	42	14	10 pcs.	Black (BK)	166-21915
HGL34-SM-M32	34	M32	-	26.5	51	67	38	13	10 pcs.	Black (BK)	166-21905
HGL42-SM-M40	42	M40	-	32.5	63	79	50	15	2 pcs.	Black (BK)	166-21906
HGL54-SM-M50	54	M50	-	42.0	76	85	58	17	2 pcs.	Black (BK)	166-21907

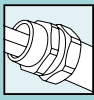
All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Fittings with swivel external thread

- HG-90M 90° Elbow Swivel External Thread, IP66

90° elbow swivel brass external thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-90M 90° Elbow Swivel External Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



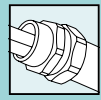
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HG13-90M-PG9	13	-	PG9	10.5	24	58	22	10	10 pcs.	Black (BK)	166-22509
HG13-90M-M16	13	M16	-	10.5	24	60	20	12	10 pcs.	Black (BK)	166-22500
HG16-90M-PG9	16	-	PG9	10.5	29	60	22	10	10 pcs.	Black (BK)	166-22510
HG16-90M-PG11	16	-	PG11	10.5	29	62	24	12	10 pcs.	Black (BK)	166-22511
HG16-90M-M16	16	M16	-	10.5	29	62	20	12	10 pcs.	Black (BK)	166-22501
HG16-90M-M20	16	M20	-	14.0	29	64	24	12	10 pcs.	Black (BK)	166-22502
HG21-90M-PG13	21	-	PG13.5	14.0	32	64	24	10	10 pcs.	Black (BK)	166-22512
HG21-90M-PG16	21	-	PG16	14.0	32	67	29	13	10 pcs.	Black (BK)	166-22513
HG21-90M-M20	21	M20	-	14.0	32	66	24	12	10 pcs.	Black (BK)	166-22503
HG28-90M-PG21	28	-	PG21	19.0	44	81	35	14	10 pcs.	Black (BK)	166-22514
HG28-90M-M25	28	M25	-	19.0	44	79	29	12	10 pcs.	Black (BK)	166-22504
HG34-90M-PG29	34	-	PG29	24.5	51	89	42	14	10 pcs.	Black (BK)	166-22515
HG34-90M-M32	34	M32	-	24.5	51	88	38	13	10 pcs.	Black (BK)	166-22505
HG42-90M-M40	42	M40	-	32.5	63	117	50	15	2 pcs.	Black (BK)	166-22506
HG54-90M-M50	54	M50	-	39.0	76	124	58	17	2 pcs.	Black (BK)	166-22507

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel external thread

- HGL-90M 90° Elbow Swivel External Thread, IP68

90° elbow swivel brass external thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-90M 90° Elbow Swivel External Thread with conduit seal, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



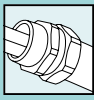
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-90M-PG9	13	-	PG9	10.5	24	58	22	10	10 pcs.	Black (BK)	166-23108
HGL13-90M-M16	13	M16	-	10.5	24	60	20	12	10 pcs.	Black (BK)	166-23100
HGL16-90M-PG9	16	-	PG9	10.5	29	60	22	10	10 pcs.	Black (BK)	166-23109
HGL16-90M-PG11	16	-	PG11	10.5	29	62	24	12	10 pcs.	Black (BK)	166-23110
HGL16-90M-M16	16	M16	-	10.5	29	62	20	12	10 pcs.	Black (BK)	166-23101
HGL16-90M-M20	16	M20	-	14.0	29	64	24	12	10 pcs.	Black (BK)	166-23102
HGL21-90M-PG13	21	-	PG13.5	14.0	32	64	24	10	10 pcs.	Black (BK)	166-23111
HGL21-90M-PG16	21	-	PG16	14.0	32	67	29	13	10 pcs.	Black (BK)	166-23112
HGL21-90M-M20	21	M20	-	14.0	32	66	24	12	10 pcs.	Black (BK)	166-23103
HGL28-90M-PG21	28	-	PG21	19.0	44	81	35	14	10 pcs.	Black (BK)	166-23113
HGL28-90M-M25	28	M25	-	19.0	44	79	29	12	10 pcs.	Black (BK)	166-23104
HGL34-90M-PG29	34	-	PG29	24.5	51	89	42	14	10 pcs.	Black (BK)	166-23114
HGL34-90M-M32	34	M32	-	24.5	51	88	38	13	10 pcs.	Black (BK)	166-23105
HGL42-90M-M40	42	M40	-	32.5	63	117	50	15	2 pcs.	Black (BK)	166-23106
HGL54-90M-M50	54	M50	-	39.0	76	124	58	17	2 pcs.	Black (BK)	166-23107

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel external thread

- HG-45M 45° Elbow Swivel External Thread, IP66

45° elbow swivel brass external thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-45M 45° Elbow Swivel External Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



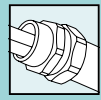
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HG16-45M-PG13	16	-	PG13.5	14.0	29	67	24	10	10 pcs.	Black (BK)	166-23706
HG16-45M-PG16	16	-	PG16	14.0	29	70	29	13	10 pcs.	Black (BK)	166-23707
HG16-45M-M20	16	M20	-	14.0	29	69	24	12	10 pcs.	Black (BK)	166-23700
HG21-45M-PG13	21	-	PG13.5	14.0	32	74	24	10	10 pcs.	Black (BK)	166-23708
HG21-45M-PG16	21	-	PG16	14.0	32	77	29	13	10 pcs.	Black (BK)	166-23709
HG21-45M-M20	21	M20	-	14.0	32	76	24	12	10 pcs.	Black (BK)	166-23701
HG28-45M-PG21	28	-	PG21	19.0	44	92	35	14	10 pcs.	Black (BK)	166-23710
HG28-45M-M25	28	M25	-	19.0	44	90	29	12	10 pcs.	Black (BK)	166-23702
HG34-45M-PG29	34	-	PG29	24.5	51	99	42	14	10 pcs.	Black (BK)	166-23711
HG34-45M-M32	34	M32	-	24.5	51	98	38	13	10 pcs.	Black (BK)	166-23703
HG42-45M-M50	42	M50	-	39.0	63	117	58	17	2 pcs.	Black (BK)	166-23704
HG54-45M-M50	54	M50	-	39.0	76	137	58	17	2 pcs.	Black (BK)	166-23705

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel external thread

- HGL-45M 45° Elbow Swivel External Thread, IP68

45° elbow swivel brass external thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-45M 45° Elbow Swivel External Thread, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



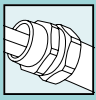
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HGL16-45M-PG13	16	-	PG13.5	14.0	29	67	24	10	10 pcs.	Black (BK)	166-24306
HGL16-45M-PG16	16	-	PG16	14.0	29	70	29	13	10 pcs.	Black (BK)	166-24307
HGL16-45M-M20	16	M20	-	14.0	29	69	24	12	10 pcs.	Black (BK)	166-24300
HGL21-45M-PG13	21	-	PG13.5	14.0	32	74	24	10	10 pcs.	Black (BK)	166-24308
HGL21-45M-PG16	21	-	PG16	14.0	32	77	29	13	10 pcs.	Black (BK)	166-24309
HGL21-45M-M20	21	M20	-	14.0	32	76	24	12	10 pcs.	Black (BK)	166-24301
HGL28-45M-PG21	28	-	PG21	19.0	44	92	35	14	10 pcs.	Black (BK)	166-24310
HGL28-45M-M25	28	M25	-	19.0	44	90	29	12	10 pcs.	Black (BK)	166-24302
HGL34-45M-PG29	34	-	PG29	24.5	51	99	42	14	10 pcs.	Black (BK)	166-24311
HGL34-45M-M32	34	M32	-	24.5	51	98	38	13	10 pcs.	Black (BK)	166-24303
HGL42-45M-M50	42	M50	-	39.0	63	117	58	17	2 pcs.	Black (BK)	166-24304
HGL54-45M-M50	54	M50	-	39.0	76	137	58	17	2 pcs.	Black (BK)	166-24305

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel internal thread

- HG-SF Straight Swivel Internal Thread, IP66

Straight swivel brass internal thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HeliaGuard HG-SF Straight Swivel Internal Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HG13-SF-PG9	13	-	PG9	11.0	24	66	22	14	10 pcs.	Black (BK)	166-21408
HG13-SF-M16	13	M16	-	11.0	24	66	22	14	10 pcs.	Black (BK)	166-21400
HG16-SF-PG11	16	-	PG11	11.0	29	70	22	14	10 pcs.	Black (BK)	166-21409
HG16-SF-PG16	16	-	PG16	14.5	29	71	24	14	10 pcs.	Black (BK)	166-21410
HG16-SF-M16	16	M16	-	11.0	29	69	22	14	10 pcs.	Black (BK)	166-21401
HG16-SF-M20	16	M20	-	14.5	29	69	24	14	10 pcs.	Black (BK)	166-21402
HG21-SF-PG16	21	-	PG16	14.5	32	71	24	14	10 pcs.	Black (BK)	166-21411
HG21-SF-M20	21	M20	-	14.5	32	71	24	14	10 pcs.	Black (BK)	166-21403
HG28-SF-PG21	28	-	PG21	19.5	44	78	29	14	10 pcs.	Black (BK)	166-21412
HG28-SF-M25	28	M25	-	19.5	44	78	30	14	10 pcs.	Black (BK)	166-21404
HG34-SF-PG29	34	-	PG29	26.5	51	82	38	14	10 pcs.	Black (BK)	166-21413
HG34-SF-M32	34	M32	-	26.5	51	82	38	14	10 pcs.	Black (BK)	166-21405
HG42-SF-M40	42	M40	-	32.5	63	106	52	14	2 pcs.	Black (BK)	166-21406
HG54-SF-M50	54	M50	-	42.0	76	110	52	14	2 pcs.	Black (BK)	166-21407

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel internal thread

- HGL-SF Straight Swivel Internal Thread, IP68

Straight swivel brass internal thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-SF Straight Swivel Internal Thread, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-SF-PG9	13	-	PG9	11.0	24	52	22	14	10 pcs.	Black (BK)	166-22009
HGL13-SF-M16	13	M16	-	11.0	24	52	22	14	10 pcs.	Black (BK)	166-22000
HGL16-SF-PG11	16	-	PG11	11.0	29	56	22	14	10 pcs.	Black (BK)	166-22011
HGL16-SF-PG16	16	-	PG16	14.5	29	57	24	14	10 pcs.	Black (BK)	166-22012
HGL16-SF-M16	16	M16	-	11.0	29	55	22	14	10 pcs.	Black (BK)	166-22001
HGL16-SF-M20	16	M20	-	14.5	29	55	24	14	10 pcs.	Black (BK)	166-22002
HGL21-SF-PG16	21	-	PG16	14.5	32	57	24	14	10 pcs.	Black (BK)	166-22013
HGL21-SF-M20	21	M20	-	14.5	32	57	24	14	10 pcs.	Black (BK)	166-22003
HGL28-SF-PG21	28	-	PG21	19.5	44	64	29	14	10 pcs.	Black (BK)	166-22014
HGL28-SF-M25	28	M25	-	19.5	44	64	30	14	10 pcs.	Black (BK)	166-22004
HGL34-SF-PG29	34	-	PG29	26.5	51	68	38	14	10 pcs.	Black (BK)	166-22015
HGL34-SF-M32	34	M32	-	26.5	51	68	38	14	10 pcs.	Black (BK)	166-22005
HGL42-SF-M40	42	M40	-	32.5	63	92	52	14	2 pcs.	Black (BK)	166-22006
HGL54-SF-M50	54	M50	-	42.0	76	96	52	14	2 pcs.	Black (BK)	166-22007

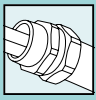
All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Fittings with swivel internal thread

- HG-90F 90° Elbow Swivel Internal Thread, IP66

90° elbow swivel brass internal thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-90F 90° Elbow Swivel Internal Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



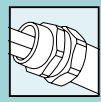
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HG13-90F-PG9	13	-	PG9	10.5	24	61	20	14	10 pcs.	Black (BK)	166-22608
HG13-90F-M16	13	M16	-	10.5	24	61	20	14	10 pcs.	Black (BK)	166-22600
HG16-90F-PG11	16	-	PG11	10.5	29	63	20	14	10 pcs.	Black (BK)	166-22610
HG16-90F-M16	16	M16	-	10.5	29	63	20	14	10 pcs.	Black (BK)	166-22601
HG16-90F-M20	16	M20	-	14.0	29	64	24	14	10 pcs.	Black (BK)	166-22602
HG21-90F-PG16	21	-	PG16	14.0	32	68	24	14	10 pcs.	Black (BK)	166-22611
HG21-90F-M20	21	M20	-	14.0	32	68	24	14	10 pcs.	Black (BK)	166-22603
HG28-90F-PG21	28	-	PG21	19.0	44	81	29	15	10 pcs.	Black (BK)	166-22612
HG28-90F-M25	28	M25	-	19.0	44	81	29	15	10 pcs.	Black (BK)	166-22604
HG34-90F-PG29	34	-	PG29	24.5	51	91	38	16	10 pcs.	Black (BK)	166-22613
HG34-90F-M32	34	M32	-	24.5	51	91	38	16	10 pcs.	Black (BK)	166-22605
HG42-90F-M40	42	M40	-	32.5	63	115	52	14	2 pcs.	Black (BK)	166-22606
HG54-90F-M50	54	M50	-	39.0	76	117	52	14	2 pcs.	Black (BK)	166-22607

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel internal thread

- HGL-90F 90° Elbow Swivel Internal Thread, IP68

90° elbow swivel brass internal thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-90F 90° Elbow Swivel Internal Thread with conduit seal, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



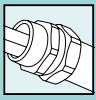
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-90F-PG9	13	-	PG9	10.5	24	61	20	14	10 pcs.	Black (BK)	166-23208
HGL13-90F-M16	13	M16	-	10.5	24	61	20	14	10 pcs.	Black (BK)	166-23200
HGL16-90F-PG11	16	-	PG11	10.5	29	63	20	14	10 pcs.	Black (BK)	166-23210
HGL16-90F-M16	16	M16	-	10.5	29	63	20	14	10 pcs.	Black (BK)	166-23201
HGL16-90F-M20	16	M20	-	14.0	29	64	24	14	10 pcs.	Black (BK)	166-23202
HGL21-90F-PG16	21	-	PG16	14.0	32	68	24	14	10 pcs.	Black (BK)	166-23212
HGL21-90F-M20	21	M20	-	14.0	32	68	24	14	10 pcs.	Black (BK)	166-23203
HGL28-90F-PG21	28	-	PG21	19.0	44	81	29	15	10 pcs.	Black (BK)	166-23213
HGL28-90F-M25	28	M25	-	19.0	44	81	29	15	10 pcs.	Black (BK)	166-23204
HGL34-90F-PG29	34	-	PG29	24.5	51	91	38	16	10 pcs.	Black (BK)	166-23214
HGL34-90F-M32	34	M32	-	24.5	51	91	38	16	10 pcs.	Black (BK)	166-23205
HGL42-90F-M40	42	M40	-	32.5	63	115	52	14	2 pcs.	Black (BK)	166-23206
HGL54-90F-M50	54	M50	-	39.0	76	117	52	14	2 pcs.	Black (BK)	166-23207

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel internal thread

- HG-45F 45° Elbow Swivel Internal Thread, IP66

45° elbow swivel brass internal thread.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelGuard HG-45F 45° Elbow Swivel Internal Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



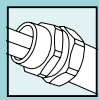
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HG16-45F-PG16	16	-	PG16	14.0	29	68	24	14	10 pcs.	Black (BK)	166-23807
HG16-45F-M20	16	M20	-	14.0	29	68	24	14	10 pcs.	Black (BK)	166-23800
HG21-45F-PG16	21	-	PG16	14.0	32	75	24	14	10 pcs.	Black (BK)	166-23808
HG21-45F-M20	21	M20	-	14.0	32	75	24	14	10 pcs.	Black (BK)	166-23801
HG28-45F-PG21	28	-	PG21	19.0	44	88	29	15	10 pcs.	Black (BK)	166-23809
HG28-45F-M25	28	M25	-	19.0	44	88	29	15	10 pcs.	Black (BK)	166-23802
HG34-45F-PG29	34	-	PG29	24.5	51	99	38	16	10 pcs.	Black (BK)	166-23810
HG34-45F-M32	34	M32	-	24.5	51	99	38	16	10 pcs.	Black (BK)	166-23803
HG42-45F-M50	42	M50	-	39.0	63	115	52	14	2 pcs.	Black (BK)	166-23804
HG54-45F-M50	54	M50	-	39.0	76	135	52	14	2 pcs.	Black (BK)	166-23805

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel internal thread

- HGL-45F 45° Elbow Swivel Internal Thread, IP68

45° elbow swivel brass internal thread with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-45F 45° Elbow Swivel Internal Thread, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



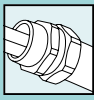
TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
HGL16-45F-PG16	16	-	PG16	14.0	29	68	24	14	10 pcs.	Black (BK)	166-24407
HGL16-45F-M20	16	M20	-	14.0	29	68	24	14	10 pcs.	Black (BK)	166-24400
HGL21-45F-PG16	21	-	PG16	14.0	32	75	24	14	10 pcs.	Black (BK)	166-24408
HGL21-45F-M20	21	M20	-	14.0	32	75	24	14	10 pcs.	Black (BK)	166-24401
HGL28-45F-PG21	28	-	PG21	19.0	44	88	29	15	10 pcs.	Black (BK)	166-24409
HGL28-45F-M25	28	M25	-	19.0	44	88	29	15	10 pcs.	Black (BK)	166-24402
HGL34-45F-PG29	34	-	PG29	24.5	51	99	38	16	10 pcs.	Black (BK)	166-24410
HGL34-45F-M32	34	M32	-	24.5	51	99	38	16	10 pcs.	Black (BK)	166-24403
HGL42-45F-M50	42	M50	-	39.0	63	115	52	14	2 pcs.	Black (BK)	166-24404
HGL54-45F-M50	54	M50	-	39.0	76	135	52	14	2 pcs.	Black (BK)	166-24405

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel flange

- HG-SFL Straight Swivel Flange, IP66

Straight swivel flange.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-SFL Straight Swivel Flange, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Min. Bore Size	Outside Ø max.	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HG16-SFL	16	14.5	29	41	5.2	10 pcs.	Black (BK)	166-21200
HG21-SFL	21	14.5	34	44	5.2	10 pcs.	Black (BK)	166-21201
HG28-SFL	28	19.5	44	49	6.2	10 pcs.	Black (BK)	166-21202
HG34-SFL	34	26.5	51	55	6.2	10 pcs.	Black (BK)	166-21203
HG42-SFL	42	42.0	63	63	6.2	2 pcs.	Black (BK)	166-21204

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel flange

- HGL-SFL Straight Swivel Flange, IP68

Straight swivel flange with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-SFL Straight Swivel Flange with conduit seal, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Min. Bore Size	Outside Ø max.	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HGL16-SFL	16	14.5	29	41	5.2	10 pcs.	Black (BK)	166-21800
HGL21-SFL	21	14.5	34	44	5.2	10 pcs.	Black (BK)	166-21801
HGL28-SFL	28	19.5	44	49	6.2	10 pcs.	Black (BK)	166-21802
HGL34-SFL	34	26.5	51	55	6.2	10 pcs.	Black (BK)	166-21803
HGL42-SFL	42	42.0	63	63	6.2	2 pcs.	Black (BK)	166-21804

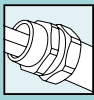
All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Fittings with swivel flange

- HG-90FL 90° Elbow Swivel Flange, IP66

90° elbow swivel flange.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-90FL 90° Elbow Swivel Flange, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Min. Bore Size	Outside Ø max.	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HG16-90FL	16	14.0	29	51	5.2	10 pcs.	Black (BK)	166-22400
HG21-90FL	21	14.0	34	53	5.2	10 pcs.	Black (BK)	166-22401
HG28-90FL	28	19.0	44	66	6.2	10 pcs.	Black (BK)	166-22402
HG34-90FL	34	24.5	51	79	6.2	10 pcs.	Black (BK)	166-22403
HG42-90FL	42	39.0	63	100	6.2	2 pcs.	Black (BK)	166-22404

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel flange

- HGL-90FL 90° Elbow Swivel Flange, IP68

90° elbow swivel flange with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-90FL 90° Elbow Swivel Flange, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



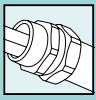
TYPE	Nominal Ø	Min. Bore Size	Outside Ø max.	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HGL16-90FL	16	14.0	29	51	5.2	10 pcs.	Black (BK)	166-23000
HGL21-90FL	21	14.0	34	53	5.2	10 pcs.	Black (BK)	166-23001
HGL28-90FL	28	19.0	44	66	6.2	10 pcs.	Black (BK)	166-23002
HGL34-90FL	34	24.5	51	79	6.2	10 pcs.	Black (BK)	166-23003
HGL42-90FL	42	39.0	63	100	6.2	2 pcs.	Black (BK)	166-23004

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel flange

- **HG-45FL 45° Elbow Swivel Flange, IP66**

45° elbow swivel flange.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-45FL 45° Elbow Swivel Flange, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Min. Bore Size	Outside Ø max.	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HG16-45FL	16	14.0	29	56	5.2	10 pcs.	Black (BK)	166-23600
HG21-45FL	21	14.0	34	63	5.2	10 pcs.	Black (BK)	166-23601
HG28-45FL	28	19.0	44	77	6.2	10 pcs.	Black (BK)	166-23602
HG34-45FL	34	24.5	51	84	6.2	10 pcs.	Black (BK)	166-23603
HG42-45FL	42	39.0	63	98	6.2	2 pcs.	Black (BK)	166-23604

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with swivel flange

- **HGL-45FL 45° Elbow Swivel Flange, IP68**

45° elbow swivel flange with conduit seal and washer.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-45FL 45° Elbow Swivel Flange, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



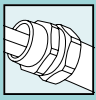
TYPE	Nominal Ø	Min. Bore Size	Outside Ø max.	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HGL16-45FL	16	14.0	29	56	5.2	10 pcs.	Black (BK)	166-24200
HGL21-45FL	21	14.0	34	63	5.2	10 pcs.	Black (BK)	166-24201
HGL28-45FL	28	19.0	44	77	6.2	10 pcs.	Black (BK)	166-24202
HGL34-45FL	34	24.5	51	84	6.2	10 pcs.	Black (BK)	166-24203
HGL42-45FL	42	39.0	63	98	6.2	2 pcs.	Black (BK)	166-24204

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with strain relief and cable seal

- HG-SCG Straight Cable Gland Fitting, IP66

Straight fitting with cable seal and strain relief.

#### Features and Benefits

- Provides strain relief
- Seals cable at IP68 and IP69k
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelGuard HG-SCG Straight Cable Gland Fitting, External Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Outside Ø max.	Length (L)	A/F Thread	A/F Gland Body	Thread Length	Pack Cont.	Colour	Article-No.
HG13-SCG-M16	13	M16	4.5 - 10	24	72	20	20	12	10 pcs.	Black (BK)	166-21500
HG16-SCG-M16	16	M16	4.5 - 10	29	76	20	20	12	10 pcs.	Black (BK)	166-21501
HG16-SCG-M20	16	M20	7 - 13	29	82	24	24	12	10 pcs.	Black (BK)	166-21502
HG21-SCG-M20	21	M20	7 - 13	32	82	24	24	12	10 pcs.	Black (BK)	166-21503
HG28-SCG-M25	28	M25	9 - 17	44	90	29	29	12	10 pcs.	Black (BK)	166-21504
HG34-SCG-M32	34	M32	11 - 21	51	102	36	38	15	10 pcs.	Black (BK)	166-21505
HG42-SCG-M40	42	M40	19 - 28	63	117	45	50	15	2 pcs.	Black (BK)	166-21506
HG54-SCG-M50	54	M50	27 - 35	76	125	54	56	15	2 pcs.	Black (BK)	166-21507

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.

To ensure the protective seal, it is recommended to use a thread sealant on the thread between the cable gland insert and the conduit fitting.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with strain relief and cable seal

- HGL-SCG Straight Cable Gland Fitting, IP68

Straight fitting with cable seal and strain relief.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Provides strain relief
- Seals cable at IP68 and IP69k
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-SCG Straight Cable Gland Fitting, External Thread, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Outside Ø max.	Length (L)	A/F Thread	A/F Gland Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-SCG-M16	13	M16	4.5 - 10	24	72	20	20	12	10 pcs.	Black (BK)	166-22100
HGL16-SCG-M16	16	M16	4.5 - 10	29	76	20	20	12	10 pcs.	Black (BK)	166-22101
HGL16-SCG-M20	16	M20	7 - 13	29	82	24	24	12	10 pcs.	Black (BK)	166-22102
HGL21-SCG-M20	21	M20	7 - 13	32	82	24	24	12	10 pcs.	Black (BK)	166-22103
HGL28-SCG-M25	28	M25	9 - 17	44	90	29	29	12	10 pcs.	Black (BK)	166-22104
HGL34-SCG-M32	34	M32	11 - 21	51	102	36	38	15	10 pcs.	Black (BK)	166-22105
HGL42-SCG-M40	42	M40	19 - 28	63	117	45	50	15	2 pcs.	Black (BK)	166-22106
HGL54-SCG-M50	54	M50	27 - 35	76	125	54	56	15	2 pcs.	Black (BK)	166-22107

All dimensions in mm. Subject to technical changes.

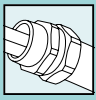
Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.

To ensure the protective seal, it is recommended to use a thread sealant on the thread between the cable gland insert and the conduit fitting.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Fittings with strain relief and cable seal

- HG-90CG 90° Elbow fitting, IP66

90° elbow fitting with cable seal and strain relief.

#### Features and Benefits

- Provides strain relief
- Seals cable at IP68 and IP69k
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-90CG 90° Cable Gland Fitting, External Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Outside Ø max.	Length (L)	A/F Thread	A/F Gland Body	Thread Length	Pack Cont.	Colour	Article-No.
HG13-90CG-M16	13	M16	4.5 - 10	24	81	20	20	12	10 pcs.	Black (BK)	166-23301
HG16-90CG-M16	16	M16	4.5 - 10	29	86	20	20	12	10 pcs.	Black (BK)	166-23302
HG16-90CG-M20	16	M20	7 - 13	29	91	24	24	12	10 pcs.	Black (BK)	166-23303
HG21-90CG-M20	21	M20	7 - 13	32	93	24	24	12	10 pcs.	Black (BK)	166-23304
HG28-90CG-M25	28	M25	9 - 17	44	107	29	29	12	10 pcs.	Black (BK)	166-23305
HG34-90CG-M32	34	M32	11 - 21	51	125	36	38	15	10 pcs.	Black (BK)	166-23306
HG42-90CG-M40	42	M40	19 - 28	63	140	45	50	15	2 pcs.	Black (BK)	166-23307
HG54-90CG-M50	54	M50	27 - 35	76	146	54	56	15	2 pcs.	Black (BK)	166-23308

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.

To ensure the protective seal, it is recommended to use a thread sealant on the thread between the cable gland insert and the conduit fitting.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with strain relief and cable seal

- HGL-90CG 90° Elbow fitting, IP68

90° elbow fitting with cable seal and strain relief.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Provides strain relief
- Seals cable at IP68 and IP69k
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-90CG 90° Cable Gland Fitting, External Thread, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Outside Ø max.	Length (L)	A/F Thread	A/F Gland Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL13-90CG-M16	13	M16	4.5 - 10	24	81	20	20	12	10 pcs.	Black (BK)	166-22701
HGL16-90CG-M16	16	M16	4.5 - 10	29	86	20	20	12	10 pcs.	Black (BK)	166-22702
HGL16-90CG-M20	16	M20	7 - 13	29	91	24	24	12	10 pcs.	Black (BK)	166-22703
HGL21-90CG-M20	21	M20	7 - 13	32	93	24	24	12	10 pcs.	Black (BK)	166-22704
HGL28-90CG-M25	28	M25	9 - 17	44	107	29	29	12	10 pcs.	Black (BK)	166-22705
HGL34-90CG-M32	34	M32	11 - 21	51	125	36	38	15	10 pcs.	Black (BK)	166-22706
HGL42-90CG-M40	42	M40	19 - 28	63	140	45	50	15	2 pcs.	Black (BK)	166-22707
HGL54-90CG-M50	54	M50	27 - 35	76	146	54	56	15	2 pcs.	Black (BK)	166-22708

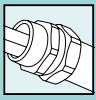
All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.

To ensure the protective seal, it is recommended to use a thread sealant on the thread between the cable gland insert and the conduit fitting.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with strain relief and cable seal

- HG-45CG 45° Elbow fitting, IP66

45° elbow fitting with cable seal and strain relief.

#### Features and Benefits

- Provides strain relief
- Seals cable at IP68 and IP69k
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-45CG 45° Cable Gland Fitting, External Thread, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



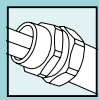
TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Outside Ø max.	Length (L)	A/F Thread	A/F Gland Body	Thread Length	Pack Cont.	Colour	Article-No.
HG16-45CG-M20	16	M20	7 - 13	29	95	24	24	12	10 pcs.	Black (BK)	166-23903
HG21-45CG-M20	21	M20	7 - 13	32	100	24	24	12	10 pcs.	Black (BK)	166-23904
HG28-45CG-M25	28	M25	9 - 17	44	114	29	29	12	10 pcs.	Black (BK)	166-23905
HG34-45CG-M32	34	M32	11 - 21	51	133	36	38	15	10 pcs.	Black (BK)	166-23906
HG42-45CG-M40	42	M40	19 - 28	63	140	45	50	15	2 pcs.	Black (BK)	166-23907
HG54-45CG-M50	54	M50	27 - 35	76	164	54	56	15	2 pcs.	Black (BK)	166-23908

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings with strain relief and cable seal

- HGL-45CG 45° Elbow fitting, IP68

45° elbow fitting with cable seal and strain relief.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Provides strain relief
- Seals cable at IP68 and IP69k
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-45CG 45° Cable Gland Fitting, External Thread, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



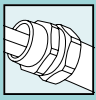
TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Outside Ø max.	Length (L)	A/F Thread	A/F Gland Body	Thread Length	Pack Cont.	Colour	Article-No.
HGL16-45CG-M20	16	M20	7 - 13	29	95	24	24	12	10 pcs.	Black (BK)	166-24503
HGL21-45CG-M20	21	M20	7 - 13	32	100	24	24	12	10 pcs.	Black (BK)	166-24504
HGL28-45CG-M25	28	M25	9 - 17	44	114	29	29	12	10 pcs.	Black (BK)	166-24505
HGL34-45CG-M32	34	M32	11 - 21	51	133	36	38	15	10 pcs.	Black (BK)	166-24506
HGL42-45CG-M40	42	M40	19 - 28	63	140	45	50	15	2 pcs.	Black (BK)	166-24507
HGL54-45CG-M50	54	M50	27 - 35	76	164	54	56	15	2 pcs.	Black (BK)	166-24508

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Connectors, reducers and couplers

- HG-T T-Connector, IP66

#### Features and Benefits

- Fast fit T-shaped connector
- Includes removable inspection lid
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-T, T-Connector, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	From nominal diameter	To nominal diameter	Min. Bore Size	Outside Ø max.	Width (W)	Height (H)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HG16-T	16	16	14.0	33	96	62	6,2	5 pcs.	Black (BK)	166-24800
HG20-T	20	20	19.0	34	99	63	6,2	3 pcs.	Black (BK)	166-24801
HG21-T	21	21	19.0	34	99	63	6,2	3 pcs.	Black (BK)	166-24802
HG28-T	28	28	25.0	45	125	87	6,0	3 pcs.	Black (BK)	166-24803
HG34-T	34	34	33.0	48	130	91	7,2	2 pcs.	Black (BK)	166-24804
HG42-T	42	42	41.0	55	150	110	7,2	1 EA	Black (BK)	166-24805

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Connectors, reducers and couplers

- **HGL-T T-Connector, IP68**

T-connector with conduit seals.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Fast fit T-shaped connector
- Includes removable inspection lid
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-T, T-Connector with conduit seals.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	From nominal diameter	To nominal diameter	Min. Bore Size	Outside Ø max.	Width (W)	Height (H)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HGL16-T	16	16	14	33	96	62	6.2	5 pcs.	Black (BK)	166-24900
HGL21-T	21	21	19	34	99	63	6.2	3 pcs.	Black (BK)	166-24901
HGL28-T	28	28	25.0	45	125	87	6.0	3 pcs.	Black (BK)	166-24902
HGL34-T	34	34	33.0	48	130	91	7.2	2 pcs.	Black (BK)	166-24903
HGL42-T	42	42	41.0	55	150	110	7.2	2 pcs.	Black (BK)	166-24904

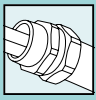
All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Connectors, reducers and couplers

- **HG-Y Y-Connector, IP66**

#### Features and Benefits

- Fast fit Y-shaped connector
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HG-Y, Y-Connector, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	From nominal diameter	To nominal diameter	Width (W)	Height (H)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HG16-Y13	16	13	49	77	4.0	5 pcs.	Black (BK)	166-25801
HG21-Y16	21	16	59	89	5.0	3 pcs.	Black (BK)	166-25802
HG28-Y21	28	21	67	93	6.0	3 pcs.	Black (BK)	166-25803
HG34-Y28	34	28	90	116	6.5	2 pcs.	Black (BK)	166-25804

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Connectors, reducers and couplers

- HGL-Y Y-Connector, IP68

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Fast fit Y-shaped connector
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HelaGuard HGL-Y, Y-Connector with conduit seals.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised

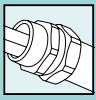


TYPE	From nominal diameter	To nominal diameter	Width (W)	Height (H)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
HGL16-Y13	16	13	49	77	4.0	5 pcs.	Black (BK)	166-25901
HGL21-Y16	21	16	59	89	5.0	3 pcs.	Black (BK)	166-25902
HGL28-Y21	28	21	67	93	6.0	3 pcs.	Black (BK)	166-25903
HGL34-Y28	34	28	90	116	6.5	2 pcs.	Black (BK)	166-25904

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Connectors, reducers and couplers

- **HG-R Reducer, IP66**

#### Features and Benefits

- Reduce size of connector to attach smaller size conduits
- Used with T-Connector and Y-Connectors
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HG-R Reducer.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Specifications</b>	UL-Recognised



TYPE	From nominal diameter	To nominal diameter	Min. Bore Size	Outside Ø max.	Pack Cont.	Colour	Article-No.
HG13-R16	16	13	11.7	24	5 pcs.	Black (BK)	166-25000
HG13-R21	21	13	11.7	24	5 pcs.	Black (BK)	166-25001
HG16-R21	21	16	14.5	29	5 pcs.	Black (BK)	166-25002
HG16-R34	34	16	14.5	29	5 pcs.	Black (BK)	166-25005
HG21-R28	28	21	17.5	32	5 pcs.	Black (BK)	166-25004
HG21-R34	34	21	17.5	32	5 pcs.	Black (BK)	166-25007
HG21-R42	42	21	17.5	32	5 pcs.	Black (BK)	166-25010
HG25-R28	28	25	22.5	39	5 pcs.	Black (BK)	166-25003
HG28-R34	34	28	25.7	44	5 pcs.	Black (BK)	166-25006
HG28-R42	42	28	25.7	44	5 pcs.	Black (BK)	166-25009
HG34-R42	42	34	31.5	51	5 pcs.	Black (BK)	166-25008

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Connectors, reducers and couplers

- HGL-R Reducer, IP68

#### Features and Benefits

- Reduce size of connector to attach smaller size conduits
- Used with T-Connector and Y-Connectors
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus



HGL-R Reducer with conduit seal, IP68.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Specifications</b>	UL-Recognised

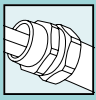


TYPE	From nominal diameter	To nominal diameter	Min. Bore Size	Outside Ø max.	Pack Cont.	Colour	Article-No.
HGL13-R16	16	13	11.7	24	5 pcs.	Black (BK)	166-25100
HGL16-R21	21	16	14.5	29	5 pcs.	Black (BK)	166-25101
HGL16-R28	28	16	14.5	29	5 pcs.	Black (BK)	166-25103
HGL16-R34	34	16	14.5	29	5 pcs.	Black (BK)	166-25106
HGL21-R28	28	21	17.5	32	5 pcs.	Black (BK)	166-25102
HGL21-R34	34	21	17.5	32	5 pcs.	Black (BK)	166-25105
HGL21-R42	42	21	17.5	32	5 pcs.	Black (BK)	166-25109
HGL28-R34	34	28	25.7	44	5 pcs.	Black (BK)	166-25104
HGL28-R42	42	28	25.7	44	5 pcs.	Black (BK)	166-25108
HGL34-R42	42	34	31.5	51	5 pcs.	Black (BK)	166-25107

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Connectors, reducers and couplers

- HG-HG Conduit Connector, IP66

#### Features and Benefits

- One piece, fast fit
- Joins corrugated conduits



HelaGuard HG-HG Coupler.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Specifications</b>	UL-Recognised



TYPE	From nominal diameter	To nominal diameter	Min. Bore Size	Outside Ø max.	Length (L)	Pack Cont.	Colour	Article-No.
HG16-HG16	16	16	11.0	29	59	10 pcs.	Black (BK)	166-24600
HG21-HG21	21	21	14.5	32	71	10 pcs.	Black (BK)	166-24601
HG28-HG28	28	28	19.5	44	81	10 pcs.	Black (BK)	166-24602
HG34-HG34	34	34	26.5	51	87	10 pcs.	Black (BK)	166-24603

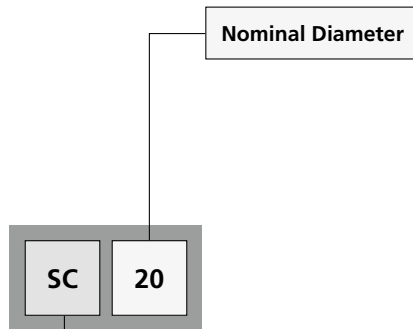
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

## HelaGuard Nomenclature for Metallic Conduits

Example: **SC20**



### Conduit Type

- SC** Galvanised steel conduit
- SSC** Stainless steel conduit
- PCS** Galvanised steel conduit, PVC cover
- NCS** Galvanised steel conduit, PA6 cover
- LFHCS** Galvanised steel conduit, PO cover
- LTS** Liquid-tight galvanised steel conduit, smooth PVC cover
- LTSH** Liquid-tight galvanised steel conduit, smooth TPR cover
- LTSUL** Liquid-tight galvanised steel conduit, smooth PVC cover, UL listed
- PCSB** Galvanised steel conduit, PVC cover, galvanised steel braid
- SCSB** Galvanised steel conduit, galvanised steel braid



## HelaGuard Nomenclature for Metallic Fittings

Example:

**PCS32-90FMC-M32**

### Thread Type

- FM** Fixed external thread
- SM** Swivel external thread
- FF** Fixed internal thread
- FMC** Compression fitting, fixed external thread
- SMC** Compression fitting, swivel external thread
- PC** Plain hole connector
- EI** End insert
- SCG** Straight cable gland
- PCS-PCS** Compression conduit coupler

Nominal Diameter



### Suitable Conduit Type

- SC** Galvanised steel conduits
- SSC** Stainless steel conduits
- PCS** Galvanised steel conduit, PVC cover
- NCS** Galvanised steel conduit, PA6 cover
- LFHCS** Galvanised steel conduit, PO cover
- LTS** Liquid-tight galvanised steel conduit, smooth PVC cover
- LTSH** Liquid-tight galvanised steel conduit, smooth TPR cover
- LTSUL** Liquid-tight galvanised steel conduit, smooth PVC cover, UL listed
- PCSB** Galvanised steel conduit, PVC cover, galvanised steel braid
- SCSB** Galvanised steel conduit, galvanised steel braid

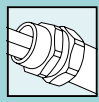
Thread Size

### Thread Code

- M** Metric
- PG** Panzer-Gewinde

### Fitting Shape

- 90** 90° elbow fitting
- 45** 45° elbow fitting



### Metallic conduits

- **SC Galvanised Steel Conduit**

Underfloor wiring in offices, data cabling, protection of hydraulic or pneumatic conduits. For high mechanical protection.

#### Features and Benefits

- High compression, tensile and impact strength
- Very flexible



HeliaGuard SC Galvanised Steel Conduit.



One Step to the Web!

<b>MATERIAL</b>	Galvanised Steel (GS)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
SC10	10	9.1	6.8	25	110	50 m	Metal (ML)	166-30100
SC12	12	13.2	10.2	30	113	50 m	Metal (ML)	166-30101
SC16	16	16.4	13.0	40	152	25 m	Metal (ML)	166-30102
SC20	20	20.6	16.9	45	295	25 m	Metal (ML)	166-30103
SC25	25	24.6	21.1	55	321	25 m	Metal (ML)	166-30104
SC32	32	32.0	28.1	70	450	25 m	Metal (ML)	166-30105
SC40	40	42.5	37.6	80	519	25 m	Metal (ML)	166-30106
SC50	50	53.2	48.4	90	802	25 m	Metal (ML)	166-30107

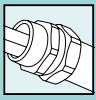
All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
SC10	10	9.1	6.8	25	110	10 m	Metal (ML)	166-30110
SC12	12	13.2	10.2	30	113	10 m	Metal (ML)	166-30111
SC16	16	16.4	13.0	40	152	10 m	Metal (ML)	166-30112
SC20	20	20.6	16.9	45	295	10 m	Metal (ML)	166-30113
SC25	25	24.6	21.1	55	321	10 m	Metal (ML)	166-30114
SC32	32	32.0	28.1	70	450	10 m	Metal (ML)	166-30115
SC40	40	42.5	37.6	80	519	10 m	Metal (ML)	166-30116
SC50	50	53.2	48.4	90	802	10 m	Metal (ML)	166-30117
SC63	63	62.5	57.5	115	836	10 m	Metal (ML)	166-30108
SC75	75	77.0	70.0	150	1,137	10 m	Metal (ML)	166-30109

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Metallic conduits

- **SSC Stainless Steel Conduit**

Protection of sensor cables, instrumentation tubing, hydraulic and pneumatic conduits, particularly in corrosive environments. Commonly used in hospitals and clinics.

#### Features and Benefits

- Highly resistant to rust and corrosion
- High compression, tensile and impact strength
- Very flexible



The HelaGuard SSC stainless steel conduit offers superior mechanical protection in corrosive environments.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-100 °C to +400 °C

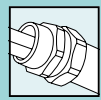
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RoHS ✓

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
SSC10	10	9.1	6.8	25	110	25 m	Metal (ML)	166-30200
SSC12	12	12.3	10.2	30	126	25 m	Metal (ML)	166-30201
SSC16	16	16.4	13.0	40	162	25 m	Metal (ML)	166-30202
SSC20	20	20.4	16.9	45	202	25 m	Metal (ML)	166-30203
SSC25	25	24.3	21.1	55	300	25 m	Metal (ML)	166-30204
SSC32	32	31.7	28.1	70	340	25 m	Metal (ML)	166-30205
SSC40	40	42.1	37.6	80	410	10 m	Metal (ML)	166-30206
SSC50	50	52.8	48.4	90	516	10 m	Metal (ML)	166-30207

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits

- **SC-FM Fixed External Thread**

Fixed external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be secured with locknut



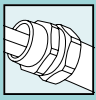
HeliaGuard SC-FM Fixed External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
SC10-FM-PG7	10	-	PG7	5.6	21.0	13	8.0	10 pcs.	Metal (ML)	166-30311
SC10-FM-M12	10	M12	-	5.6	21.0	13	7.0	10 pcs.	Metal (ML)	166-30300
SC12-FM-M16	12	M16	-	8.5	23.0	17	10.0	10 pcs.	Metal (ML)	166-30301
SC16-FM-PG11	16	-	PG11	11.5	25.0	22	10.0	10 pcs.	Metal (ML)	166-30314
SC16-FM-M16	16	M16	-	11.5	25.0	20	10.0	10 pcs.	Metal (ML)	166-30302
SC16-FM-M20	16	M20	-	11.5	25.0	22	10.0	10 pcs.	Metal (ML)	166-30303
SC20-FM-PG16	20	-	PG16	15.3	26.3	24	10.0	10 pcs.	Metal (ML)	166-30315
SC20-FM-M20	20	M20	-	15.3	26.3	24	10.0	10 pcs.	Metal (ML)	166-30304
SC25-FM-PG21	25	-	PG21	19.1	32.5	29	12.0	10 pcs.	Metal (ML)	166-30316
SC25-FM-M25	25	M25	-	19.1	29.5	29	10.0	10 pcs.	Metal (ML)	166-30305
SC32-FM-PG29	32	-	PG29	26.2	36.8	38	13.0	2 pcs.	Metal (ML)	166-30317
SC32-FM-M32	32	M32	-	26.2	36.8	36	13.0	2 pcs.	Metal (ML)	166-30306
SC40-FM-PG36	40	-	PG36	34.2	39.0	48	14.0	2 pcs.	Metal (ML)	166-30318
SC40-FM-M40	40	M40	-	34.6	39.0	48	14.0	2 pcs.	Metal (ML)	166-30307
SC50-FM-PG42	50	-	PG42	44.8	42.0	58	15.0	1 EA	Metal (ML)	166-30319
SC50-FM-M50	50	M50	-	44.7	42.0	58	15.0	1 EA	Metal (ML)	166-30308
SC63-FM-PG48	63	-	PG48	54.5	48.0	70	16.0	1 EA	Metal (ML)	166-30320
SC63-FM-M63	63	M63	-	54.1	50.0	70	18.0	1 EA	Metal (ML)	166-30309
SC75-FM-M75	75	M75	-	66.4	60.0	84	20.0	1 EA	Metal (ML)	166-30310

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits

- **SSC-FM Fixed External Thread**

Fixed external thread, stainless steel (SS316).

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Highly resistant to rust and corrosion
- Provides tight, reliable hold of conduit
- Can be secured with locknut



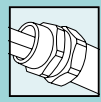
HeloGuard SSC-FM Fixed External Thread.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-100 °C to +400 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
SSC10-FM-M12	10	M12	5.6	21.0	14	8.0	1 EA	Metal (ML)	166-30321
SSC12-FM-M16	12	M16	8.5	23.0	19	8.0	1 EA	Metal (ML)	166-30322
SSC16-FM-M16	16	M16	11.5	25.0	19	10.0	1 EA	Metal (ML)	166-30323
SSC20-FM-M20	20	M20	15.3	26.3	24	10.0	1 EA	Metal (ML)	166-30324
SSC25-FM-M25	25	M25	19.1	32.5	29	10.0	1 EA	Metal (ML)	166-30325
SSC32-FM-M32	32	M32	26.2	36.8	38	13.0	1 EA	Metal (ML)	166-30326
SSC40-FM-M40	40	M40	34.6	39.0	48	14.0	1 EA	Metal (ML)	166-30327
SSC50-FM-M50	50	M50	44.7	44.5	58	15.0	1 EA	Metal (ML)	166-30328

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits

- **SC-SM Swivel External Thread**

Swivel external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- External thread swives about main body
- Provides tight, reliable hold of conduit
- Can be secured with locknut



HeloGuard SC-SM Swivel External Thread.

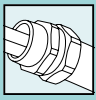
<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
SC10-SM-PG7	10	-	PG7	5.6	30.2	13	13	8.0	10 pcs.	Metal (ML)	166-30410
SC10-SM-M12	10	M12	-	5.6	30.2	13	13	8.0	10 pcs.	Metal (ML)	166-30400
SC12-SM-PG9	12	-	PG9	8.5	32.2	17	17	8.0	10 pcs.	Metal (ML)	166-30411
SC12-SM-M16	12	M16	-	8.5	32.2	17	17	8.0	10 pcs.	Metal (ML)	166-30401
SC16-SM-PG11	16	-	PG11	11.5	34.2	20	22	10.0	10 pcs.	Metal (ML)	166-30412
SC16-SM-M16	16	M16	-	11.5	34.2	20	20	10.0	10 pcs.	Metal (ML)	166-30402
SC16-SM-M20	16	M20	-	11.5	34.2	20	22	10.0	10 pcs.	Metal (ML)	166-30403
SC20-SM-PG13	20	-	PG13.5	15.3	35.5	24	24	10.0	10 pcs.	Metal (ML)	166-30413
SC20-SM-PG16	20	-	PG16	15.3	35.5	24	24	10.0	10 pcs.	Metal (ML)	166-30414
SC20-SM-M20	20	M20	-	15.3	35.5	24	24	10.0	10 pcs.	Metal (ML)	166-30404
SC25-SM-PG21	25	-	PG21	19.1	43.7	29	29	12.0	10 pcs.	Metal (ML)	166-30415
SC25-SM-M25	25	M25	-	19.1	43.7	29	29	12.0	10 pcs.	Metal (ML)	166-30405
SC32-SM-PG29	32	-	PG29	26.2	48.0	38	38	13.0	2 pcs.	Metal (ML)	166-30416
SC32-SM-M32	32	M32	-	26.2	48.0	38	38	13.0	2 pcs.	Metal (ML)	166-30406
SC40-SM-PG36	40	-	PG36	34.2	51.2	48	48	14.0	2 pcs.	Metal (ML)	166-30417
SC40-SM-M40	40	M40	-	34.2	51.2	48	48	14.0	2 pcs.	Metal (ML)	166-30407
SC50-SM-PG42	50	-	PG42	44.8	54.2	58	58	15.0	1 EA	Metal (ML)	166-30418
SC50-SM-M50	50	M50	-	44.8	54.2	58	58	15.0	1 EA	Metal (ML)	166-30408
SC63-SM-M63	63	M63	-	54.5	63.2	70	70	18.0	1 EA	Metal (ML)	166-30409

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Fittings for metallic conduits

- **SSC-SM Swivel External Thread**

Swivel external thread, stainless steel (SS316).

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Highly resistant to rust and corrosion
- External thread swives about main body
- Provides tight, reliable hold of conduit
- Can be secured with locknut



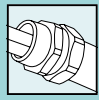
HeloGuard SSC-SM Swivel External Thread.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-100 °C to +400 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
SSC10-SM-M12	10	M12	5.6	30.2	14	14	8.0	1 EA	Metal (ML)	166-30419
SSC12-SM-M16	12	M16	8.5	32.2	19	19	8.0	1 EA	Metal (ML)	166-30420
SSC16-SM-M16	16	M16	11.5	34.2	19	19	10.0	1 EA	Metal (ML)	166-30421
SSC20-SM-M20	20	M20	15.3	35.5	24	24	10.0	1 EA	Metal (ML)	166-30422
SSC25-SM-M25	25	M25	19.1	43.7	29	29	10.0	1 EA	Metal (ML)	166-30423
SSC32-SM-M32	32	M32	26.2	48.0	38	38	13.0	1 EA	Metal (ML)	166-30424

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits

- **SC-PC Plain Hole Connector**

Plain hole connector, nickel plated brass.

#### Features and Benefits

- Two part fitting of shell and body without thread
- Acts as a locking device
- The body is fitted to the conduit through the opposite side of the entry
- Provides a smooth entry bush



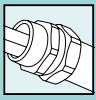
*HelaGuard PCS-PC Plain Hole Connector.*

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	A/F Body	Pack Cont.	Colour	Article-No.
SC10-PC	10	5.6	15.0	13	10 pcs.	Metal (ML)	166-30500
SC12-PC	12	8.5	15.5	17	10 pcs.	Metal (ML)	166-30501
SC16-PC	16	11.5	20.0	20	10 pcs.	Metal (ML)	166-30502
SC20-PC	20	15.3	16.5	24	10 pcs.	Metal (ML)	166-30503
SC25-PC	25	19.1	20.5	29	10 pcs.	Metal (ML)	166-30504
SC32-PC	32	26.2	23.5	38	2 pcs.	Metal (ML)	166-30505
SC40-PC	40	34.2	24.8	48	2 pcs.	Metal (ML)	166-30506
SC50-PC	50	44.8	30.0	58	1 EA	Metal (ML)	166-30507
SC63-PC	63	54.5	33.5	70	1 EA	Metal (ML)	166-30508
SC75-PC	75	66.5	42.0	84	1 EA	Metal (ML)	166-30509

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits

- **SC-FF Fixed Internal Thread**

Fixed internal thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be used to couple two conduits together when used with swivel fitting



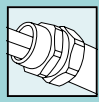
HelGuard PCS-FF Fixed Internal Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
SC16-FF-M20	16	M20	11.5	24.5	22	10.0	10 pcs.	Metal (ML)	166-30600
SC20-FF-M20	20	M20	15.3	26.0	24	10.0	10 pcs.	Metal (ML)	166-30601
SC25-FF-M25	25	M25	19.1	30.0	29	12.0	10 pcs.	Metal (ML)	166-30602
SC32-FF-M32	32	M32	26.2	33.3	36	13.0	2 pcs.	Metal (ML)	166-30603

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Metallic conduits with plastic coating

- PCS Galvanised Steel Conduit, PVC Coating

Machines and plants.

#### Features and Benefits

- High compression, tensile and impact strength
- Very flexible
- Good resistance to alkalis and acids
- Good resistance to chemicals
- Colour: black, grey



HelaGuard PCS Galvanised Steel Conduit with PVC Coating.

Flexible metallic conduits with polyurethane (PU) cover also available.



HelaGuard PCS Galvanised Steel Conduit with PVC Coating, 10 m in grey.

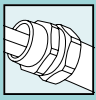
<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-15 °C to +70 °C

**RoHS** ✓

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
PCS10	10	10.1	6.8	25	140	50 m	Black (BK)	166-30700
PCS12	12	14.2	10.2	30	143	50 m	Black (BK)	166-30701
PCS16	16	17.1	13.0	40	196	25 m	Black (BK)	166-30702
PCS20	20	21.6	16.9	45	345	25 m	Black (BK)	166-30703
PCS25	25	26.0	21.1	55	411	25 m	Black (BK)	166-30704
PCS32	32	34.0	28.1	60	560	25 m	Black (BK)	166-30705
PCS40	40	44.2	37.6	80	719	25 m	Black (BK)	166-30706
PCS50	50	55.0	48.4	90	1.052	25 m	Black (BK)	166-30707
PCS63	63	64.5	57.5	115	1.091	10 m	Black (BK)	166-30708
PCS75	75	79.2	70.0	150	1.459	10 m	Black (BK)	166-30709

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Metallic conduits with plastic coating

#### • PCS Galvanised Steel Conduit, PVC Coating

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
PCS10	10	10.1	6.8	25	140	10 m	Grey (GY)	166-30722
PCS12	12	14.2	10.2	30	143	10 m	Grey (GY)	166-30723
PCS16	16	17.0	13.0	40	196	10 m	Grey (GY)	166-30724
PCS20	20	21.6	16.9	45	345	10 m	Grey (GY)	166-30725
PCS25	25	26.0	21.1	55	411	10 m	Grey (GY)	166-30726
PCS32	32	34.0	28.1	60	560	10 m	Grey (GY)	166-30727
PCS40	40	44.2	37.6	80	719	10 m	Grey (GY)	166-30728
PCS50	50	55.0	48.4	90	1,052	10 m	Grey (GY)	166-30729
PCS63	63	64.5	57.5	115	1,091	10 m	Grey (GY)	166-30730
PCS75	75	79.2	70.0	150	1,459	10 m	Grey (GY)	166-30731

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request.; Minimum Order Quantity (MOQ) may differ from package content.

### Metallic conduits with plastic coating

#### • NCS Galvanised Steel Conduit, PA6 Coating

Demanding applications requiring higher temperatures and high resistance to acids and solvents.

#### Features and Benefits

- Good resistance to high temperatures
- Good abrasion resistance
- High compression, tensile and impact strength
- Very flexible
- Good resistance to alkalis and acids
- Good resistance to chemicals



The HelaGuard NCS galvanised steel conduit with a PA6 coating for higher temperatures and high resistance to acids and solvents.

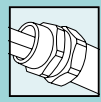
<b>MATERIAL</b>	Galvanised Steel (GS), Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +120 °C



TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
NCS16	16	17.1	13.0	40	174	25 m	Black (BK)	166-30801
NCS20	20	21.6	16.9	45	345	25 m	Black (BK)	166-30802
NCS25	25	26.0	21.1	55	411	25 m	Black (BK)	166-30803
NCS32	32	34.0	28.1	60	510	10 m	Black (BK)	166-30800

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Metallic conduits with plastic coating

- LFHCS Galvanised Steel Conduit, LFH Coating

Rail industry, underground stations, tunnels, public buildings, wherever high fire protection is required.

#### Features and Benefits

- Self-extinguishing to UL94 V0
- Low smoke, low toxicity
- High compression, tensile and impact strength
- Very flexible
- Halogen, sulphur and phosphorus free



HeliaGuard LFHCS galvanised steel conduit is low smoke, low toxicity, highly flame retardant and halogen free.

<b>MATERIAL</b>	Galvanised Steel (GS), Polyolefin (PO)
<b>Operating Temperature</b>	-25 °C to +90 °C
<b>Flammability</b>	UL94 V0
<b>Specifications</b>	Lloyd's Register



TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
LFHCS12	12	14.2	10.2	30	199	25 m	Black (BK)	166-30900
LFHCS16	16	17.1	13.0	40	216	25 m	Black (BK)	166-30901
LFHCS20	20	21.6	16.9	45	350	25 m	Black (BK)	166-30902
LFHCS25	25	26.0	21.1	55	420	25 m	Black (BK)	166-30903
LFHCS32	32	34.0	28.1	60	571	25 m	Black (BK)	166-30904
LFHCS40	40	44.2	37.6	80	739	10 m	Black (BK)	166-30905
LFHCS50	50	55.0	48.4	90	1,077	10 m	Black (BK)	166-30906
LFHCS63	63	64.5	57.5	115	1,126	10 m	Black (BK)	166-30907
LFHCS75	75	79.2	70.0	150	1,509	10 m	Black (BK)	166-30908

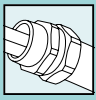
All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





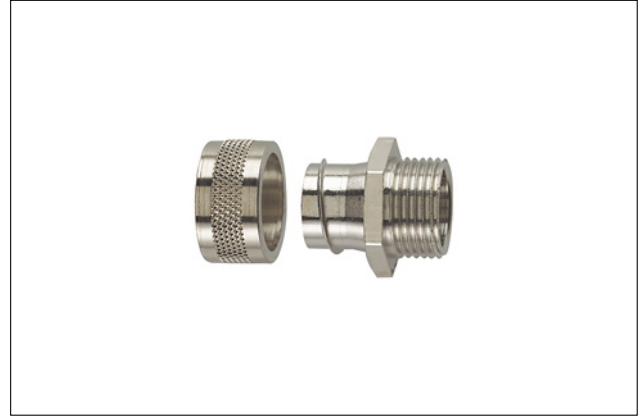
### Fittings for metallic conduits with plastic coating

- PCS-FM Fixed External Thread, IP54

Fixed external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be secured with locknut



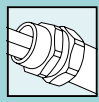
Helaguard PCS-FM Fixed External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
PCS10-FM-PG7	10	-	PG7	5.6	21.0	13	8.0	10 pcs.	Metal (ML)	166-31010
PCS10-FM-M12	10	M12	-	5.6	21.0	13	8.0	10 pcs.	Metal (ML)	166-31000
PCS12-FM-PG9	12	-	PG9	8.5	23.0	17	8.0	10 pcs.	Metal (ML)	166-31011
PCS12-FM-M16	12	M16	-	8.5	23.0	17	8.0	10 pcs.	Metal (ML)	166-31001
PCS16-FM-PG11	16	-	PG11	11.5	25.0	22	10.0	10 pcs.	Metal (ML)	166-31012
PCS16-FM-M16	16	M16	-	11.5	25.0	20	10.0	10 pcs.	Metal (ML)	166-31002
PCS16-FM-M20	16	M20	-	11.5	25.0	22	10.0	10 pcs.	Metal (ML)	166-31003
PCS20-FM-PG16	20	-	PG16	15.3	26.3	24	10.0	10 pcs.	Metal (ML)	166-31014
PCS20-FM-M20	20	M20	-	15.3	26.3	24	10.0	10 pcs.	Metal (ML)	166-31004
PCS25-FM-PG21	25	-	PG21	19.1	32.5	29	12.0	10 pcs.	Metal (ML)	166-31015
PCS25-FM-M25	25	M25	-	19.1	32.5	29	10.0	10 pcs.	Metal (ML)	166-31005
PCS32-FM-PG29	32	-	PG29	26.2	36.8	38	13.0	2 pcs.	Metal (ML)	166-31016
PCS32-FM-M32	32	M32	-	26.2	36.8	36	13.0	2 pcs.	Metal (ML)	166-31006
PCS40-FM-PG36	40	-	PG36	34.2	39.0	48	14.0	2 pcs.	Metal (ML)	166-31017
PCS40-FM-M40	40	M40	-	34.6	39.0	48	14.0	2 pcs.	Metal (ML)	166-31007
PCS50-FM-PG42	50	-	PG42	44.8	42.0	58	15.0	1 EA	Metal (ML)	166-31018
PCS50-FM-M50	50	M50	-	44.7	42.0	58	15.0	1 EA	Metal (ML)	166-31008
PCS63-FM-M63	63	M63	-	54.5	50.0	70	18.0	1 EA	Metal (ML)	166-31009
PCS75-FM-M75	75	M75	-	66.5	60.0	84	20.0	1 EA	Metal (ML)	166-31019

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating

- PCS-SM Swivel External Thread, IP54

Swivel external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- External thread swives about main body
- Provides tight, reliable hold of conduit
- Can be secured with locknut



Helaguard PCS-SM Swivel External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	Thread Length	Pack Cont.	Colour	Article-No.
PCS10-SM-PG7	10	-	PG7	5.6	30.2	13	13	8.0	10 pcs.	Metal (ML)	166-31110
PCS10-SM-M12	10	M12	-	5.6	30.2	13	13	8.0	10 pcs.	Metal (ML)	166-31100
PCS12-SM-PG9	12	-	PG9	8.5	32.2	17	17	8.0	10 pcs.	Metal (ML)	166-31111
PCS12-SM-M16	12	M16	-	8.5	32.2	17	17	8.0	10 pcs.	Metal (ML)	166-31101
PCS16-SM-PG11	16	-	PG11	11.5	34.2	20	22	10.0	10 pcs.	Metal (ML)	166-31112
PCS16-SM-M16	16	M16	-	11.5	34.2	20	20	10.0	10 pcs.	Metal (ML)	166-31102
PCS16-SM-M20	16	M20	-	11.5	34.2	20	22	10.0	10 pcs.	Metal (ML)	166-31103
PCS20-SM-PG13	20	-	PG13.5	15.3	35.5	24	24	10.0	10 pcs.	Metal (ML)	166-31113
PCS20-SM-PG16	20	-	PG16	15.3	35.5	24	24	10.0	10 pcs.	Metal (ML)	166-31114
PCS20-SM-M20	20	M20	-	15.3	35.5	24	24	10.0	10 pcs.	Metal (ML)	166-31104
PCS25-SM-PG21	25	-	PG21	19.1	43.7	29	29	12.0	10 pcs.	Metal (ML)	166-31115
PCS25-SM-M25	25	M25	-	19.1	43.7	29	29	12.0	10 pcs.	Metal (ML)	166-31105
PCS32-SM-PG29	32	-	PG29	26.2	48.0	38	38	13.0	2 pcs.	Metal (ML)	166-31116
PCS32-SM-M32	32	M32	-	26.2	48.0	38	38	13.0	2 pcs.	Metal (ML)	166-31106
PCS40-SM-PG36	40	-	PG36	34.2	51.2	48	48	14.0	2 pcs.	Metal (ML)	166-31117
PCS40-SM-M40	40	M40	-	34.2	51.2	48	48	14.0	2 pcs.	Metal (ML)	166-31107
PCS50-SM-PG42	50	-	PG42	44.8	54.2	58	58	15.0	1 EA	Metal (ML)	166-31118
PCS50-SM-M50	50	M50	-	44.8	54.2	58	58	15.0	1 EA	Metal (ML)	166-31108
PCS63-SM-M63	63	M63	-	54.5	63.2	70	70	18.0	1 EA	Metal (ML)	166-31109

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating

- PCS-PC Plain Hole Connector, IP54

Plain hole connector, nickel plated brass.

#### Features and Benefits

- Two part fitting of shell and body without thread
- Acts as a locking device
- The body is fitted to the conduit through the opposite side of the entry
- Provides a smooth entry bush



HelGuard PCS-PC Plain Hole Connector.

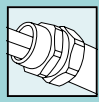
<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	A/F Body	Pack Cont.	Colour	Article-No.
PCS10-PC	10	5.6	15.0	13	10 pcs.	Metal (ML)	166-31200
PCS12-PC	12	8.5	15.5	17	10 pcs.	Metal (ML)	166-31201
PCS16-PC	16	11.5	20.0	20	10 pcs.	Metal (ML)	166-31202
PCS20-PC	20	15.3	16.5	24	10 pcs.	Metal (ML)	166-31203
PCS25-PC	25	19.1	20.5	29	10 pcs.	Metal (ML)	166-31204
PCS32-PC	32	26.2	23.5	38	2 pcs.	Metal (ML)	166-31205
PCS40-PC	40	34.2	24.8	48	2 pcs.	Metal (ML)	166-31206
PCS50-PC	50	44.8	30.0	58	1 EA	Metal (ML)	166-31207
PCS63-PC	63	54.5	33.5	70	1 EA	Metal (ML)	166-31208
PCS75-PC	75	66.5	42.0	84	1 EA	Metal (ML)	166-31209

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating

- PCS-FF Fixed Internal Thread, IP54

Fixed internal thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be used to couple two conduits together when used with swivel fitting



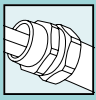
HeloGuard SC-FF Fixed Internal Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
PCS16-FF-M20	16	M20	11.5	24.5	22	10.0	10 pcs.	Metal (ML)	166-31300
PCS20-FF-M20	20	M20	15.3	26.0	24	10.0	10 pcs.	Metal (ML)	166-31301
PCS25-FF-M25	25	M25	19.1	30.0	29	12.0	10 pcs.	Metal (ML)	166-31302
PCS32-FF-M32	32	M32	26.2	33.3	36	13.0	10 pcs.	Metal (ML)	166-31303

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating

- PCS-FMC Fixed Thread Compression Fitting, IP65

External thread, nickel plated brass.

Fulfils IP65.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Provides excellent tensile strength
- Can be used for knockouts or threaded entries as fitting rotates until tightened



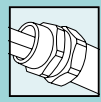
Helaguard PCS-FMC Compression Fitting.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C	



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCS10-FMC-M12	10	M12	-	5.6	29.8	20	20	10.0	10 pcs.	Metal (ML)	166-31400
PCS12-FMC-M16	12	M16	-	8.6	29.8	20	22	10.0	10 pcs.	Metal (ML)	166-31401
PCS16-FMC-PG11	16	-	PG11	11.5	31.0	24	26	10.0	10 pcs.	Metal (ML)	166-31409
PCS16-FMC-M16	16	M16	-	11.5	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-31402
PCS16-FMC-M20	16	M20	-	11.5	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-31403
PCS20-FMC-PG16	20	-	PG16	15.3	32.5	26	29	11.0	10 pcs.	Metal (ML)	166-31410
PCS20-FMC-M20	20	M20	-	15.3	33.5	26	29	12.0	10 pcs.	Metal (ML)	166-31404
PCS25-FMC-PG21	25	-	PG21	19.1	38.5	33	35	12.0	10 pcs.	Metal (ML)	166-31411
PCS25-FMC-M25	25	M25	-	19.1	40.5	33	35	14.0	10 pcs.	Metal (ML)	166-31405
PCS32-FMC-PG29	32	-	PG29	26.0	42.8	40	42	12.0	2 pcs.	Metal (ML)	166-31412
PCS32-FMC-M32	32	M32	-	26.0	45.8	40	42	15.0	2 pcs.	Metal (ML)	166-31406
PCS40-FMC-PG36	40	-	PG36	34.6	43.5	58	58	12.0	2 pcs.	Metal (ML)	166-31415
PCS40-FMC-M40	40	M40	-	34.6	47.5	56	58	16.0	2 pcs.	Metal (ML)	166-31407
PCS50-FMC-M50	50	M50	-	44.7	51.0	70	70	16.0	1 EA	Metal (ML)	166-31408

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating

- PCS-SMC Swivel Thread Compression Fitting, IP65

External thread, nickel plated brass. Fulfils IP65.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Provides excellent tensile strength
- External thread swivels about main body even after tightening

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



Helaguard PCS-SMC Swivel Compression Fitting.



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCS12-SMC-M16	12	M16	8.6	39.0	20	20	22	10.0	10 pcs.	Metal (ML)	166-31500
PCS16-SMC-M16	16	M16	11.5	40.9	24	24	26	10.0	10 pcs.	Metal (ML)	166-31501
PCS16-SMC-M20	16	M20	11.5	41.0	24	24	26	10.0	10 pcs.	Metal (ML)	166-31502
PCS20-SMC-M20	20	M20	15.3	41.8	26	26	29	10.0	10 pcs.	Metal (ML)	166-31503
PCS25-SMC-M25	25	M25	19.1	50.7	33	29	35	12.0	10 pcs.	Metal (ML)	166-31504
PCS32-SMC-M32	32	M32	26.0	56.9	40	38	42	13.0	2 pcs.	Metal (ML)	166-31505

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Fittings for metallic conduits with plastic coating

- PCS-90FMC 90° Elbow Compression Fitting, IP65

External thread elbow, nickel plated brass. Fulfils IP65.

#### Features and Benefits

- Multipart 90° compression fitting including elastomeric seal
- Provides excellent tensile strength

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



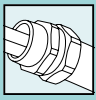
Helaguard PCS-90FMC 90 Elbow Compression Fitting.



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCS12-90FMC-M16	12	M16	8.6	20	22	10.0	10 pcs.	Metal (ML)	166-31601
PCS16-90FMC-M16	16	M16	11.5	20	26	10.0	10 pcs.	Metal (ML)	166-31602
PCS16-90FMC-M20	16	M20	11.5	24	26	13.0	10 pcs.	Metal (ML)	166-31603
PCS20-90FMC-M20	20	M20	15.3	24	29	13.0	10 pcs.	Metal (ML)	166-31604
PCS25-90FMC-M25	25	M25	19.1	30	35	14.0	10 pcs.	Metal (ML)	166-31605
PCS32-90FMC-M32	32	M32	26.0	36	42	15.0	2 pcs.	Metal (ML)	166-31606

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Fittings for metallic conduits with plastic coating

#### • PCS-PCS Compression Coupler, IP65

Nickel plated brass.  
Fulfils IP65.

#### Features and Benefits

- Multipart compression coupler including polyamide seal
- Joins two conduits
- Provides excellent tensile strength

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



Helaguard PCS-PCS Compression Coupler.



TYPE	Nominal Ø	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Pack Cont.	Colour	Article-No.
PCS20-PCS20	20	15.3	39.5	26	29	10 pcs.	Metal (ML)	166-31700
PCS25-PCS25	25	19.1	46.9	33	35	10 pcs.	Metal (ML)	166-31701

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Fittings for metallic conduits with plastic coating

#### • PCS-SCG Straight Cable Gland fitting, IP65

External thread, nickel plated brass. Fulfils IP65.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Powerful strain relief function
- Seals cable at IP68 and IP69k
- Provides excellent tensile strength

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-40 °C to +135 °C



PCS-SCG Compression Fitting with Strain Relief and Cable Seal.



TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Length (L)	A/F Body	A/F Gland Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCS16-SCG-M16	16	M16	4.5 - 10	55	20	22	26	12.0	10 pcs.	Metal (ML)	166-36101
PCS20-SCG-M20	20	M20	7 - 13	58	24	26	29	12.0	10 pcs.	Metal (ML)	166-36102
PCS25-SCG-M25	25	M25	9 - 17	65	29	33	35	12.0	10 pcs.	Metal (ML)	166-36103
PCS32-SCG-M32	32	M32	11 - 21	78	36	40	42	15.0	2 pcs.	Metal (ML)	166-36104

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.  
To ensure the protective seal, it is recommended to use a thread sealant on the thread between the cable gland insert and the conduit fitting.



### Fittings for metallic conduits with plastic coating

- **PCS-EI End Insert**

Nickel plated brass.

#### Features and Benefits

- Single part
- Caps end of conduit



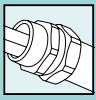
Helaguard PCS-EI End Insert.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	Outside Ø max.	Pack Cont.	Colour	Article-No.
PCS10-EI	10	5.6	16.3	13.8	10 pcs.	Metal (ML)	166-31800
PCS12-EI	12	8.6	16.3	16.1	10 pcs.	Metal (ML)	166-31801
PCS16-EI	16	11.5	21.3	20.0	10 pcs.	Metal (ML)	166-31802
PCS20-EI	20	15.3	23.0	22.9	10 pcs.	Metal (ML)	166-31803
PCS25-EI	25	19.1	27.5	28.7	10 pcs.	Metal (ML)	166-31804
PCS32-EI	32	26.0	30.0	35.0	2 pcs.	Metal (ML)	166-31805
PCS40-EI	40	34.6	28.0	47.5	2 pcs.	Metal (ML)	166-31806
PCS50-EI	50	44.7	30.0	57.9	2 pcs.	Metal (ML)	166-31807

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Metallic conduits with liquid-tight cover

- **LTS Galvanised Steel Conduit, PVC Cover**

Flexible galvanised steel conduit with smooth, liquid-tight pvc cover. Fulfills IP66, IP67 and IP68 with LTS-fittings.

Machine tools or outdoor installations, wherever liquid-tight (IP68) is a requirement.

#### Features and Benefits

- Liquid-tight (IP68 and IP69k with LTS fittings)
- High compression, tensile and impact strength
- Good flexibility
- Smooth outer cover does not wrinkle when bent
- Good resistance to acids, petrol, oils and greases
- UV-resistant, suitable for outdoor use
- Colour: black



HelaGuard LTS.

### Liquid-tight conduits with polyurethane (PU) cover also available.

<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-20 °C to +105 °C
<b>Specifications</b>	Lloyd's Register



HelaGuard LTS galvanised steel conduit with a smooth, liquid-tight PVC cover is ideal for outdoor installations.

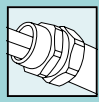
TYPE	Nominal Ø	US Trade Size "	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
LTS10	10	1/4	11.8	7.0	35	185	50 m	Black (BK)	166-31900
LTS12	12	5/16	14.2	10.0	40	203	25 m	Black (BK)	166-31901
LTS16	16	3/8	17.8	12.6	45	311	25 m	Black (BK)	166-31902
	16	3/8	17.8	12.6	45	311	25 m	Grey (GY)	166-31917
LTS20	20	1/2	21.1	16.0	65	407	25 m	Black (BK)	166-31903
	20	1/2	21.1	16.0	65	407	25 m	Grey (GY)	166-31918
LTS25	25	3/4	26.4	21.1	100	503	25 m	Black (BK)	166-31904
	25	3/4	26.4	21.1	100	503	25 m	Grey (GY)	166-31919
LTS32	32	1	33.1	26.5	135	732	25 m	Black (BK)	166-31905
	32	1	33.1	26.5	135	732	25 m	Grey (GY)	166-31921
LTS40	40	1 1/4	41.8	35.4	175	885	25 m	Black (BK)	166-31906
	40	1 1/4	41.8	35.4	175	885	25 m	Grey (GY)	166-31927
LTS50	50	1 1/2	47.9	40.4	230	1,240	25 m	Black (BK)	166-31907
LTS63	63	2	59.7	51.6	280	1,470	10 m	Black (BK)	166-31908

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Metallic conduits with liquid-tight cover

- **LTSH Galvanised Steel Conduit, Thermoplastic Cover**

Flexible galvanised steel conduit with smooth, flame retardant thermoplastic cover.

Fulfills IP66, IP67 and IP68 with LTS-fittings.

Machine tools or outdoor installations wherever flame retardance or low or high temperature resistance is required.

#### Features and Benefits

- Liquid-tight (IP68 and IP69k with LTS fittings)
- Flame-retardant
- High compression, tensile and impact strength
- Good flexibility
- Smooth outer cover does not wrinkle when bent
- Good resistance to acids, petrol, oils and greases
- UV-resistant, suitable for outdoor use
- Colour: black



*HelaGuard LTSH.*



*HelaGuard LTSH galvanised steel conduit with a smooth, liquid-tight thermoplastic rubber cover offers very good resistance to oils, greases, petrol, acids and UV.*

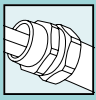
<b>MATERIAL</b>	Galvanised Steel (GS), Thermoplastic Rubber (TPR)
<b>Operating Temperature</b>	-60 °C to +150 °C



TYPE	Nominal Ø	US Trade Size "	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
LTSH12	12	5/16	14.2	10.0	40	203	25 m	Black (BK)	166-32001
LTSH16	16	3/8	17.8	12.6	45	311	25 m	Black (BK)	166-32002
LTSH20	20	1/2	21.1	16.0	65	407	25 m	Black (BK)	166-32003
LTSH25	25	3/4	26.4	21.1	100	445	25 m	Black (BK)	166-32004
LTSH32	32	1	33.1	26.5	135	666	25 m	Black (BK)	166-32005
LTSH40	40	1 1/4	41.8	35.4	175	793	10 m	Black (BK)	166-32006
LTSH50	50	1 1/2	47.9	40.4	230	1,071	10 m	Black (BK)	166-32007

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Metallic conduits with liquid-tight cover

- LTSUL, Galvanised Steel Conduit, PVC Cover, UL Listed

Flexible galvanised steel conduit including copper bonding strip (up to 32mm) with smooth, oil resistant PVC cover.

Fulfils IP66, IP67 and IP68 with LTS-fittings.

Machine tools or outdoor installations, liquid-tight applications where UL listing is required.

#### Features and Benefits

- Liquid-tight (IP68 and IP69k with LTS fittings)
- UL-listed and CSA approved
- High compression, tensile and impact strength
- Good flexibility
- Smooth outer cover does not wrinkle when bent
- Good resistance to acids, petrol, oils and greases
- UV-resistant, suitable for outdoor use
- Colour: black

<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC), Copper (CU)
<b>Operating Temperature</b>	-15 °C to +75 °C
<b>Specifications</b>	CSA, UL Listed

RoHS 



HeloGuard LTSUL.



The HeloGuard LTSUL galvanised steel conduit with a PVC Cover is UL listed and typically used on drilling platforms.

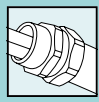
TYPE	Nominal Ø	US Trade Size "	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
LTSUL16	16	3/8	17.8	12.6	50	432	25 m	Black (BK)	166-32100
LTSUL20	20	1/2	21.1	16.0	90	477	25 m	Black (BK)	166-32101
LTSUL25	25	3/4	26.4	21.1	110	789	25 m	Black (BK)	166-32102
LTSUL32	32	1	33.1	26.5	140	1,221	15 m	Black (BK)	166-32103
LTSUL40	40	1 1/4	41.8	35.4	180	1,519	15 m	Black (BK)	166-32104
LTSUL50	50	1 1/2	47.9	40.4	230	1,846	15 m	Black (BK)	166-32105
LTSUL63	63	2	59.7	51.6	280	2,159	15 m	Black (BK)	166-32106

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings for metallic conduits with liquid-tight cover

- LTS-FMC Fixed Thread Compression Fitting, IP68

External thread, nickel plated brass.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Provides excellent tensile strength
- Can be used for knockouts or threaded entries as fitting rotates until tightened



HeliaGuard LTS-FMC Compression Fitting.

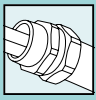
<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
LTS10-FMC-M12	10	M12	-	5.6	29.8	20	20	10.0	10 pcs.	Metal (ML)	166-32200
LTS10-FMC-M16	10	M16	-	5.6	29.8	20	20	10.0	10 pcs.	Metal (ML)	166-32201
LTS12-FMC-M16	12	M16	-	8.6	29.8	20	22	10.0	10 pcs.	Metal (ML)	166-32203
LTS16-FMC-PG11	16	-	PG11	10.7	31.0	24	26	10.0	10 pcs.	Metal (ML)	166-32212
LTS16-FMC-PG13	16	-	PG13.5	10.7	31.0	24	26	10.0	10 pcs.	Metal (ML)	166-32216
LTS16-FMC-M16	16	M16	-	10.7	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-32204
LTS16-FMC-M20	16	M20	-	10.7	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-32205
LTS20-FMC-PG16	20	-	PG16	14.5	32.5	26	29	11.0	10 pcs.	Metal (ML)	166-32213
LTS20-FMC-M20	20	M20	-	14.5	33.5	26	29	12.0	10 pcs.	Metal (ML)	166-32206
LTS25-FMC-PG21	25	-	PG21	18.0	38.5	33	35	12.0	10 pcs.	Metal (ML)	166-32214
LTS25-FMC-M25	25	M25	-	18.0	40.5	33	35	14.0	10 pcs.	Metal (ML)	166-32207
LTS32-FMC-PG29	32	-	PG29	24.6	42.8	40	42	12.0	2 pcs.	Metal (ML)	166-32215
LTS32-FMC-M32	32	M32	-	24.6	45.8	40	42	15.0	2 pcs.	Metal (ML)	166-32208
LTS40-FMC-M40	40	M40	-	32.7	47.5	50	52	16.0	1 EA	Metal (ML)	166-32209
LTS50-FMC-M50	50	M50	-	37.7	53.0	58	58	18.0	1 EA	Metal (ML)	166-32210
LTS63-FMC-M63	63	M63	-	49.0	58.8	70	70	20.0	1 EA	Metal (ML)	166-32211

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Fittings for metallic conduits with liquid-tight cover

- LTS-SMC Swivel Thread Compression Fitting, IP68

External thread, nickel plated brass.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Multipart compression fitting including polyamide seal
- Provides excellent tensile strength
- External thread swivels about main body even after tightening



HeliaGuard LTS-SMC Swivel Compression Fitting.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
LTS12-SMC-M16	12	M16	8.6	39.0	20	20	22	10.0	10 pcs.	Metal (ML)	166-32300
LTS16-SMC-M16	16	M16	10.7	40.9	24	24	26	10.0	10 pcs.	Metal (ML)	166-32301
LTS16-SMC-M20	16	M20	10.7	41.0	24	24	26	10.0	10 pcs.	Metal (ML)	166-32302
LTS20-SMC-M20	20	M20	14.5	41.8	26	26	29	10.0	10 pcs.	Metal (ML)	166-32303
LTS25-SMC-M25	25	M25	18.0	50.7	33	29	35	12.0	10 pcs.	Metal (ML)	166-32304
LTS32-SMC-M32	32	M32	24.6	56.9	40	38	42	13.0	2 pcs.	Metal (ML)	166-32305

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with liquid-tight cover

- **LTS-90FMC 90° Elbow compression fitting, IP68**

External thread, nickel plated brass.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Multipart 90° compression fitting including polyamide seal
- Provides excellent tensile strength



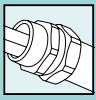
HelaGuard LTS-90FMC 90° Elbow Compression Fitting.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
LTS12-90FMC-M16	12	M16	8.6	20	22	10.0	10 pcs.	Metal (ML)	166-32400
LTS16-90FMC-M16	16	M16	10.7	20	26	10.0	10 pcs.	Metal (ML)	166-32401
LTS16-90FMC-M20	16	M20	10.7	24	26	13.0	10 pcs.	Metal (ML)	166-32402
LTS20-90FMC-M20	20	M20	14.5	24	29	13.0	10 pcs.	Metal (ML)	166-32403
LTS25-90FMC-M25	25	M25	18.0	30	35	14.0	10 pcs.	Metal (ML)	166-32404
LTS32-90FMC-M32	32	M32	24.6	36	42	15.0	2 pcs.	Metal (ML)	166-32405
LTS40-90FMC-M40	40	M40	32.7	46	52	18.0	1 EA	Metal (ML)	166-32406
LTS50-90FMC-M50	50	M50	37.7	57	58	18.0	1 EA	Metal (ML)	166-32407
LTS63-90FMC-M63	63	M63	49.0	72	70	20.0	1 EA	Metal (ML)	166-32408

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with liquid-tight cover

#### • LTS-45FMC 45° Elbow Compression Fitting, IP68

External thread, nickel plated brass.  
Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Multipart 45° compression fitting including polyamide seal
- Provides excellent tensile strength

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



HelaGuard LTS-45FMC 45° Elbow Compression Fitting.



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
LTS16-45FMC-M20	16	M20	10.7	44.8	24	26	13.0	10 pcs.	Metal (ML)	166-32500
LTS20-45FMC-M20	20	M20	14.5	49.5	24	29	13.0	10 pcs.	Metal (ML)	166-32501
LTS25-45FMC-M25	25	M25	18.0	63.0	30	35	14.0	10 pcs.	Metal (ML)	166-32502
LTS32-45FMC-M32	32	M32	24.6	76.6	36	42	15.0	2 pcs.	Metal (ML)	166-32503
LTS40-45FMC-M40	40	M40	32.7	86.9	47	57	18.0	1 EA	Metal (ML)	166-32504
LTS50-45FMC-M50	50	M50	37.7	93.4	61	62	18.0	1 EA	Metal (ML)	166-32505
LTS63-45FMC-M63	63	M63	49.0	111.0	67	76	20.0	1 EA	Metal (ML)	166-32506

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Fittings for metallic conduits with liquid-tight cover

#### • LTS-LTS Compression Coupler, IP68

Nickel plated brass.  
Fulfils IP66, IP67 and IP68.

#### Features and Benefits

- Multipart compression coupler including polyamide seal
- Joins two conduits
- Provides excellent tensile strength

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C

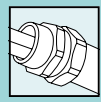


HelaGuard LTS-LTS Compression Coupler.



TYPE	Nominal Ø	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Pack Cont.	Colour	Article-No.
LTS20-LTS20	20	14.5	39.5	26	29	10 pcs.	Metal (ML)	166-32600
LTS25-LTS25	25	18.0	46.9	33	35	10 pcs.	Metal (ML)	166-32601

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with liquid-tight cover

- **LTS-SCG Straight cable gland fitting, IP68**

External thread, nickel plated brass.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Powerful strain relief function
- Seals cable at IP68 and IP69k
- Provides excellent tensile strength



PCS-SCG Compression Fitting with Strain Relief and Cable Seal.

<b>MATERIAL</b>	Polyamide 6.6 (PA66), Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)
<b>Operating Temperature</b>	-40 °C to +135 °C

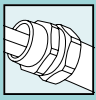


TYPE	Nominal Ø	Thread Size (metric)	Suitable for Cable Ø from/to	Length (L)	A/F Body	A/F Thread	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
LTS16-SCG-M16	16	M16	4.5 - 10	55	22	20	26	12.0	10 pcs.	Metal (ML)	166-36201
LTS20-SCG-M20	20	M20	7 - 13	58	26	24	29	12.0	10 pcs.	Metal (ML)	166-36202
LTS25-SCG-M25	25	M25	9 - 17	65	33	29	35	12.0	10 pcs.	Metal (ML)	166-36203
LTS32-SCG-M32	32	M32	11 - 21	78	40	36	42	15.0	2 pcs.	Metal (ML)	166-36204

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.

To ensure the protective seal, it is recommended to use a thread sealant on the thread between the cable gland insert and the conduit fitting.



### Fittings for metallic conduits with liquid-tight cover

- LTS-EI End Insert

Nickel plated brass.

#### Features and Benefits

- Single part
- Caps end of conduit



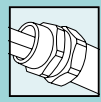
HeloGuard LTS-EI End Insert.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	Outside Ø max.	Pack Cont.	Colour	Article-No.
LTS10-EI	10	5.6	16.3	13.8	10 pcs.	Metal (ML)	166-32700
LTS12-EI	12	8.6	16.3	16.1	10 pcs.	Metal (ML)	166-32701
LTS16-EI	16	10.7	16.5	20.0	10 pcs.	Metal (ML)	166-32702
LTS20-EI	20	14.5	17.0	22.9	10 pcs.	Metal (ML)	166-32703
LTS25-EI	25	18.0	21.5	28.7	10 pcs.	Metal (ML)	166-32704
LTS32-EI	32	24.6	24.0	35.0	2 pcs.	Metal (ML)	166-32705
LTS40-EI	40	32.7	28.0	45.0	1 EA	Metal (ML)	166-32706
LTS50-EI	50	37.7	30.0	51.0	1 EA	Metal (ML)	166-32707
LTS63-EI	63	49.0	35.0	63.0	1 EA	Metal (ML)	166-32708

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



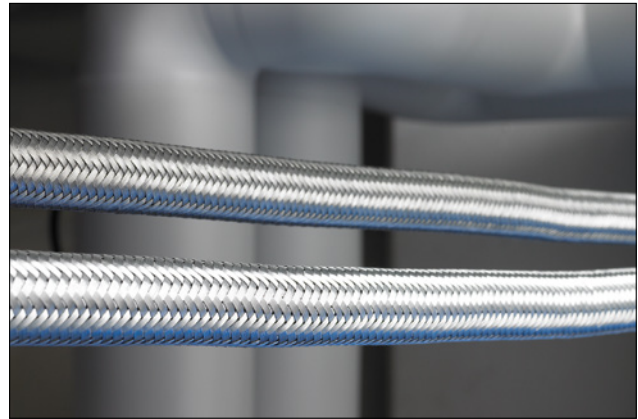
### Metallic conduits with plastic coating and metallic overbraid

- PCSB Galvanised Steel Conduit, PVC Coating, Galvanised Steel Overbraid

Industrial environments where higher abrasion resistance or EMC screening are required.

#### Features and Benefits

- High compression, tensile and impact strength
- Very high abrasion resistance
- Very flexible
- Provides EMC screening

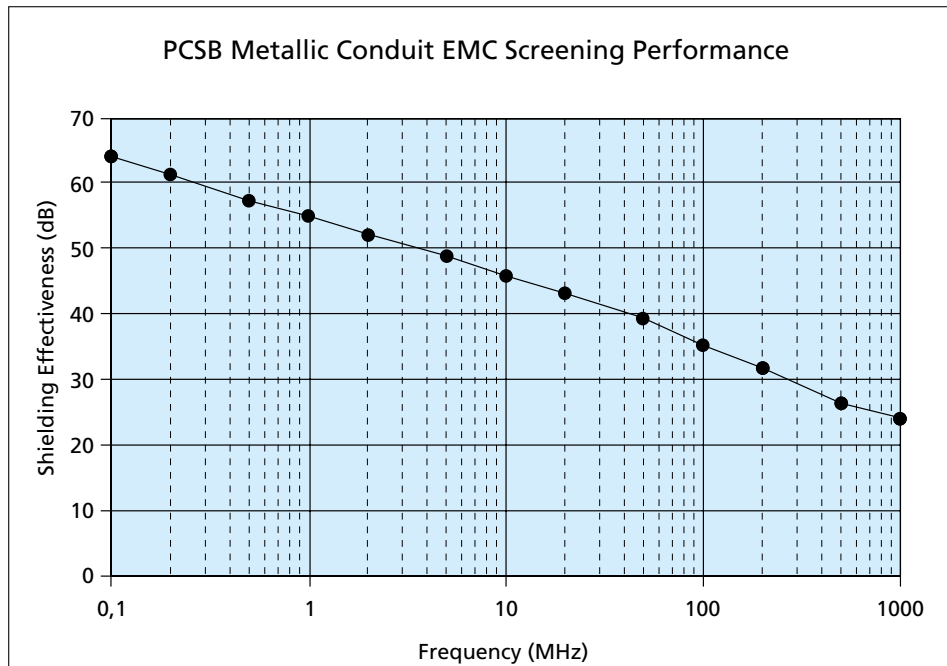


The HelaGuard PCSB galvanised steel conduit with a PVC coating galvanised steel overbraid offers high abrasion resistance and EMC screening.

<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-15 °C to +70 °C



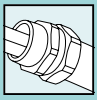
Stainless steel and tinned copper braiding is also available.



TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
PCSB12	12	15.2	10.2	30	252	25 m	Metal (ML)	166-33600
PCSB16	16	18.2	13.0	40	348	25 m	Metal (ML)	166-33601
PCSB20	20	22.7	16.9	45	530	25 m	Metal (ML)	166-33602
PCSB25	25	27.2	21.1	55	614	25 m	Metal (ML)	166-33603
PCSB32	32	35.2	28.1	70	832	25 m	Metal (ML)	166-33604
PCSB40	40	45.7	37.6	80	1,286	10 m	Metal (ML)	166-33605
PCSB50	50	57.7	48.4	90	1,736	10 m	Metal (ML)	166-33606

All dimensions in mm. Subject to technical changes.  
Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.





### Fittings for metallic conduits with plastic coating and metallic overbraid

- PCSB-FM Fixed External Thread, IP54

Fixed external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be secured with locknut



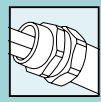
HeloGuard PCSB-FM Fixed External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCSB12-FM-M16	12	M16	-	8.5	26.0	17	17	8.0	10 pcs.	Metal (ML)	166-33800
PCSB12-FM-PG9	12	-	PG9	8.5	26.0	17	17	8.0	10 pcs.	Metal (ML)	166-33808
PCSB16-FM-M16	16	M16	-	11.5	28.0	20	20	10.0	10 pcs.	Metal (ML)	166-33801
PCSB16-FM-M20	16	M20	-	11.5	28.0	22	20	10.0	10 pcs.	Metal (ML)	166-33802
PCSB16-FM-PG11	16	-	PG11	11.5	28.0	20	20	10.0	10 pcs.	Metal (ML)	166-33809
PCSB20-FM-M20	20	M20	-	15.3	30.8	24	26	10.0	10 pcs.	Metal (ML)	166-33803
PCSB20-FM-PG16	20	-	PG16	15.3	30.8	24	26	10.0	10 pcs.	Metal (ML)	166-33810
PCSB25-FM-M25	25	M25	-	19.1	34.5	29	30	12.0	10 pcs.	Metal (ML)	166-33804
PCSB32-FM-M32	32	M32	-	26.2	39.3	38	38	13.0	2 pcs.	Metal (ML)	166-33805
PCSB25-FM-PG21	25	-	PG21	19.1	34.5	29	30	12.0	10 pcs.	Metal (ML)	166-33811
PCSB32-FM-PG29	32	-	PG29	26.2	39.3	38	38	13.0	2 pcs.	Metal (ML)	166-33812
PCSB40-FM-M40	40	M40	-	34.2	42.8	48	50	14.0	1 EA	Metal (ML)	166-33806
PCSB40-FM-PG36	40	-	PG36	34.2	42.8	48	50	14.0	1 EA	Metal (ML)	166-33813
PCSB50-FM-M50	50	M50	-	44.8	48.0	58	61	15.0	1 EA	Metal (ML)	166-33807

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating and metallic overbraid

- PCSB-SM Swivel External Thread, IP54

Swivel external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- External thread swives about main body
- Provides tight, reliable hold of conduit
- Can be secured with locknut



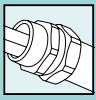
HeloGuard PCSB-SM Swivel External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCSB12-SM-PG9	12	-	PG9	8.5	36.2	17	17	17	9.0	10 pcs.	Metal (ML)	166-33908
PCSB12-SM-M16	12	M16	-	8.5	36.2	17	17	17	9.0	10 pcs.	Metal (ML)	166-33900
PCSB16-SM-PG11	16	-	PG11	11.5	38.1	20	20	20	10.0	10 pcs.	Metal (ML)	166-33909
PCSB16-SM-M16	16	M16	-	11.5	38.1	20	20	20	10.0	10 pcs.	Metal (ML)	166-33901
PCSB16-SM-M20	16	M20	-	11.5	38.1	20	22	20	10.0	10 pcs.	Metal (ML)	166-33902
PCSB20-SM-PG16	20	-	PG16	15.3	40.0	26	24	24	10.0	10 pcs.	Metal (ML)	166-33910
PCSB20-SM-M20	20	M20	-	15.3	40.0	26	24	24	10.0	10 pcs.	Metal (ML)	166-33903
PCSB25-SM-PG21	25	-	PG21	19.1	47.2	30	29	29	12.0	10 pcs.	Metal (ML)	166-33911
PCSB25-SM-M25	25	M25	-	19.1	47.2	30	29	29	12.0	10 pcs.	Metal (ML)	166-33904
PCSB32-SM-PG29	32	-	PG29	26.0	52.6	38	38	38	13.0	2 pcs.	Metal (ML)	166-33912
PCSB32-SM-M32	32	M32	-	26.0	52.6	38	38	38	13.0	2 pcs.	Metal (ML)	166-33905
PCSB40-SM-PG36	40	-	PG36	34.6	57.8	50	48	48	14.0	1 EA	Metal (ML)	166-33913
PCSB40-SM-M40	40	M40	-	34.6	57.8	50	48	48	14.0	1 EA	Metal (ML)	166-33906
PCSB50-SM-PG42	50	-	PG42	44.7	60.2	60	58	58	15.0	1 EA	Metal (ML)	166-33914
PCSB50-SM-M50	50	M50	-	44.7	60.2	60	58	58	15.0	1 EA	Metal (ML)	166-33907

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating and metallic overbraid

- PCSB-PC Plain Hole Connector, IP54

Plain hole connector, nickel plated brass.

#### Features and Benefits

- Two part fitting of shell and body without thread
- Acts as a locking device
- The body is fitted to the conduit through the opposite side of the entry
- Provides a smooth entry bush



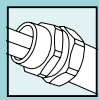
HelaGuard PCSB-PC Plain Hole Connector.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Pack Cont.	Colour	Article-No.
PCSB12-PC	12	8.5	18.0	17	17	10 pcs.	Metal (ML)	166-34000
PCSB16-PC	16	11.5	18.0	20	20	10 pcs.	Metal (ML)	166-34001
PCSB20-PC	20	15.3	21.0	24	26	10 pcs.	Metal (ML)	166-34002
PCSB25-PC	25	19.1	23.5	29	30	10 pcs.	Metal (ML)	166-34003
PCSB32-PC	32	26.0	26.3	38	38	2 pcs.	Metal (ML)	166-34004
PCSB40-PC	40	34.6	28.8	48	50	1 EA	Metal (ML)	166-34005
PCSB50-PC	50	44.7	33.0	58	60	1 EA	Metal (ML)	166-34006

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating and metallic overbraid

- **PCSB-FMC Fixed Thread Compression Fitting, IP65**

Fixed external thread, nickel plated brass.

Fulfils IP65.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Braid is locked between inner and outer compression nuts
- Provides very good electrical continuity
- Provides excellent tensile strength
- Can be used for knockouts or threaded entries as fitting rotates until tightened



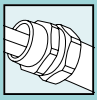
HeloGuard PCSB-FMC Fixed Compression Fitting.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	Outside Ø max.	A/F Body	A/F Nut	A/F Inner Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCSB16-FMC-PG11	16	-	PG11	11.5	47.0	32.6	24	24	26	12.0	10 pcs.	Metal (ML)	166-34105
PCSB16-FMC-M16	16	M16	-	11.5	47.0	32.6	24	24	26	12.0	10 pcs.	Metal (ML)	166-34100
PCSB16-FMC-M20	16	M20	-	11.5	49.0	32.6	24	24	26	14.0	10 pcs.	Metal (ML)	166-34101
PCSB20-FMC-PG16	20	-	PG16	15.3	51.0	35.6	26	28	29	14.0	10 pcs.	Metal (ML)	166-34106
PCSB20-FMC-M20	20	M20	-	15.3	51.0	35.6	26	28	29	14.0	10 pcs.	Metal (ML)	166-34102
PCSB25-FMC-PG21	25	-	PG21	19.1	58.0	41.8	33	34	36	15.0	10 pcs.	Metal (ML)	166-34107
PCSB25-FMC-M25	25	M25	-	19.1	58.0	41.8	33	34	36	15.0	10 pcs.	Metal (ML)	166-34103
PCSB32-FMC-PG29	32	-	PG29	26.0	63.0	48.6	40	41	42	16.0	2 pcs.	Metal (ML)	166-34108
PCSB32-FMC-M32	32	M32	-	26.0	63.0	48.6	40	41	42	16.0	2 pcs.	Metal (ML)	166-34104

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating and metallic overbraid

- **PCSB-SMC Swivel Thread Compression Fitting, IP65**

Swivel external thread, nickel plated brass.

Fulfils IP65.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Braid is locked between inner and outer compression nuts
- Provides very good electrical conductivity
- Provides excellent tensile strength
- Can be used for knockouts or threaded entries as fitting rotates until tightened
- External thread swivels about main body even after tightening



*HeloGuard PCSB-SMC Swivel Compression Fitting.*

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	Outside Ø max.	A/F Body	A/F Thread	A/F Nut	A/F Inner Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCSB16-SMC-M16	16	M16	11.5	55.0	32.6	24	20	24	26	10.0	10 pcs.	Metal (ML)	166-34200
PCSB16-SMC-M20	16	M20	11.5	55.0	32.6	24	24	24	26	10.0	10 pcs.	Metal (ML)	166-34201
PCSB20-SMC-M20	20	M20	15.3	57.0	35.6	26	26	28	29	10.0	10 pcs.	Metal (ML)	166-34202
PCSB25-SMC-M25	25	M25	19.1	65.0	41.8	33	33	34	36	12.0	10 pcs.	Metal (ML)	166-34203
PCSB32-SMC-M32	32	M32	26.0	71.0	48.6	40	40	41	42	13.0	2 pcs.	Metal (ML)	166-34204

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating and metallic overbraid

- PCSB-90FMC 90° Elbow Compression Fitting, IP65

External thread elbow, nickel plated brass.

Fulfils IP65.

#### Features and Benefits

- Multipart 90°compression fitting including elastomeric seal
- Braid is locked between inner and outer compression nuts
- Provides very good electrical continuity
- Provides excellent tensile strength



HelaGuard PCSB-90FMC Swivel Compression Fitting.

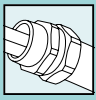
<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Outside Ø max.	A/F Body	A/F Nut	A/F Inner Nut	Thread Length	Pack Cont.	Colour	Article-No.
PCSB16-90FMC-M16	16	M16	11.5	32.6	20	24	26	10.0	10 pcs.	Metal (ML)	166-34300
PCSB16-90FMC-M20	16	M20	11.5	32.6	24	24	26	13.0	10 pcs.	Metal (ML)	166-34301
PCSB20-90FMC-M20	20	M20	15.3	35.6	24	28	29	13.0	10 pcs.	Metal (ML)	166-34302
PCSB25-90FMC-M25	25	M25	19.1	41.8	30	34	36	14.0	10 pcs.	Metal (ML)	166-34303
PCSB32-90FMC-M32	32	M32	26.0	48.6	36	41	42	15.0	2 pcs.	Metal (ML)	166-34304

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Metallic conduits with metallic overbraid

- SCSB Galvanised Steel Conduit, Galvanised Steel Overbraid

Industrial environments and high temperatures.

#### Features and Benefits

- High compression, tensile and impact strength
- Highly resistant to abrasion
- Very flexible
- Provides EMC screening
- Highly resistant to hot metal swarf and splashes

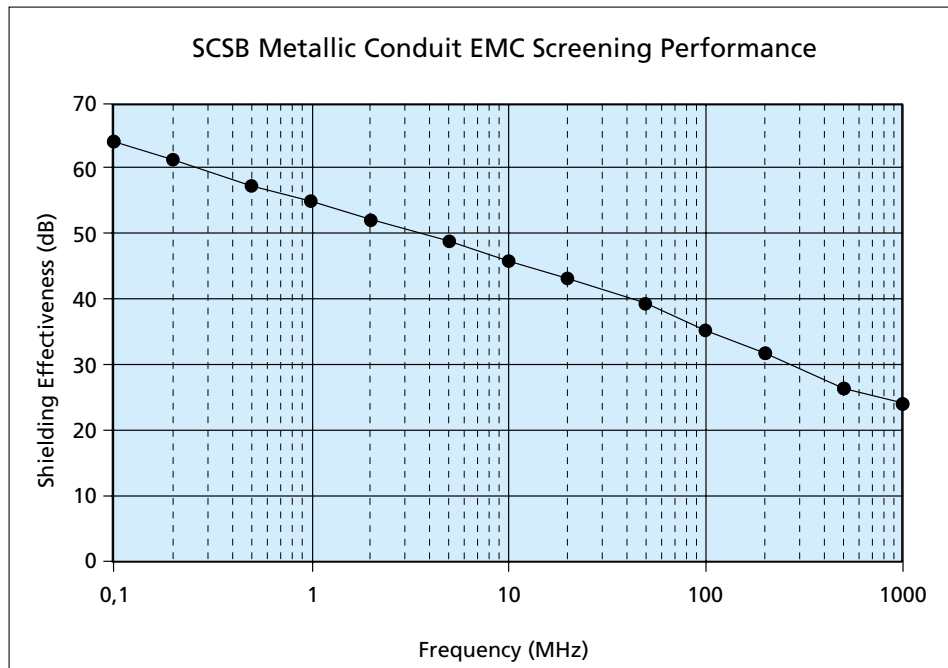


*HelaGuard SCSB galvanised steel conduit with galvanised steel overbraid is highly resistant to hot metal swarf and splashes.*

<b>MATERIAL</b>	Galvanised Steel (GS)
<b>Operating Temperature</b>	-100 °C to +300 °C



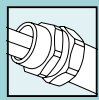
Stainless steel and tinned copper braiding is also available.



TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
SCSB12	12	14.0	10.2	30	232	25 m	Metal (ML)	166-34400
SCSB16	16	17.5	13.0	40	298	25 m	Metal (ML)	166-34401
SCSB20	20	21.5	16.9	45	446	25 m	Metal (ML)	166-34402
SCSB25	25	26.0	21.1	55	503	25 m	Metal (ML)	166-34403
SCSB32	32	34.0	28.1	70	702	25 m	Metal (ML)	166-34404
SCSB40	40	43.5	37.6	80	1,086	10 m	Metal (ML)	166-34405
SCSB50	50	55.0	48.4	90	1,270	10 m	Metal (ML)	166-34406

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits and metallic overbraid

- SCSB-FM Fixed External Thread

Fixed external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be secured with locknut



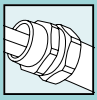
Helaguard SCSB-FM Fixed External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
SCSB12-FM-PG9	12	-	PG9	8.5	28.0	17	17	10.0	10 pcs.	Metal (ML)	166-34607
SCSB12-FM-M16	12	M16	-	8.5	28.0	17	17	10.0	10 pcs.	Metal (ML)	166-34600
SCSB16-FM-PG11	16	-	PG11	11.5	28.0	20	20	10.0	10 pcs.	Metal (ML)	166-34608
SCSB16-FM-M16	16	M16	-	11.5	28.0	20	20	10.0	10 pcs.	Metal (ML)	166-34601
SCSB16-FM-M20	16	M20	-	11.5	28.0	22	20	10.0	10 pcs.	Metal (ML)	166-34602
SCSB20-FM-PG16	20	-	PG16	15.3	30.8	24	26	10.0	10 pcs.	Metal (ML)	166-34609
SCSB20-FM-M20	20	M20	-	15.3	30.8	24	26	10.0	10 pcs.	Metal (ML)	166-34603
SCSB25-FM-PG21	25	-	PG21	19.1	32.5	29	29	10.0	10 pcs.	Metal (ML)	166-34610
SCSB25-FM-M25	25	M25	-	19.1	32.5	29	29	10.0	10 pcs.	Metal (ML)	166-34604
SCSB32-FM-PG29	32	-	PG29	26.0	39.3	36	38	13.0	2 pcs.	Metal (ML)	166-34611
SCSB32-FM-M32	32	M32	-	26.0	39.3	36	38	13.0	2 pcs.	Metal (ML)	166-34605
SCSB40-FM-PG36	40	-	PG36	34.6	42.8	48	48	14.0	1 EA	Metal (ML)	166-34612
SCSB40-FM-M40	40	M40	-	34.6	42.8	48	48	14.0	1 EA	Metal (ML)	166-34606

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits and metallic overbraid

- SCSB-SM Swivel External Thread

Swivel external thread, nickel plated brass.

#### Features and Benefits

- Two-part fitting of shell and body with external thread
- External thread swives about main body
- Provides tight, reliable hold of conduit
- Can be secured with locknut



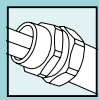
Helaguard SCSB-SM Swivel External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
SCSB12-SM-PG9	12	-	PG9	8.5	36.2	17	17	17	8.0	10 pcs.	Metal (ML)	166-34707
SCSB12-SM-M16	12	M16	-	8.5	36.2	17	17	17	9.0	10 pcs.	Metal (ML)	166-34700
SCSB16-SM-PG11	16	-	PG11	11.5	38.1	20	20	20	10.0	10 pcs.	Metal (ML)	166-34708
SCSB16-SM-M16	16	M16	-	11.5	38.1	20	20	20	10.0	10 pcs.	Metal (ML)	166-34701
SCSB16-SM-M20	16	M20	-	11.5	38.1	20	22	20	10.0	10 pcs.	Metal (ML)	166-34702
SCSB20-SM-PG16	20	-	PG16	15.3	40.0	26	24	24	10.0	10 pcs.	Metal (ML)	166-34709
SCSB20-SM-M20	20	M20	-	15.3	40.0	26	24	24	10.0	10 pcs.	Metal (ML)	166-34703
SCSB25-SM-PG21	25	-	PG21	19.1	47.2	29	29	29	12.0	10 pcs.	Metal (ML)	166-34710
SCSB25-SM-M25	25	M25	-	19.1	47.2	29	29	29	12.0	10 pcs.	Metal (ML)	166-34704
SCSB32-SM-PG29	32	-	PG29	26.0	52.6	38	38	38	13.0	2 pcs.	Metal (ML)	166-34711
SCSB32-SM-M32	32	M32	-	26.0	52.6	38	38	38	13.0	2 pcs.	Metal (ML)	166-34705
SCSB40-SM-PG36	40	-	PG36	34.6	57.8	48	48	48	14.0	1 EA	Metal (ML)	166-34712
SCSB40-SM-M40	40	M40	-	34.6	57.8	48	48	48	14.0	1 EA	Metal (ML)	166-34706

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits and metallic overbraid

- SCSB-PC Plain Hole Connector

Plain hole connector, nickel plated brass.

#### Features and Benefits

- Two part fitting of shell and body without thread
- Acts as a locking device
- The body is fitted to the conduit through the opposite side of the entry
- Provides a smooth entry bush



Helaguard SCSB-PC Plain Hole Connector.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Pack Cont.	Colour	Article-No.
SCSB12-PC	12	8.5	18.0	17	17	10 pcs.	Metal (ML)	166-34800
SCSB16-PC	16	11.5	18.9	20	20	10 pcs.	Metal (ML)	166-34801
SCSB20-PC	20	15.3	21.0	24	26	10 pcs.	Metal (ML)	166-34802
SCSB25-PC	25	19.1	23.5	29	29	10 pcs.	Metal (ML)	166-34803
SCSB32-PC	32	26.0	26.3	38	38	2 pcs.	Metal (ML)	166-34804
SCSB40-PC	40	34.6	28.8	48	48	1 EA	Metal (ML)	166-34805

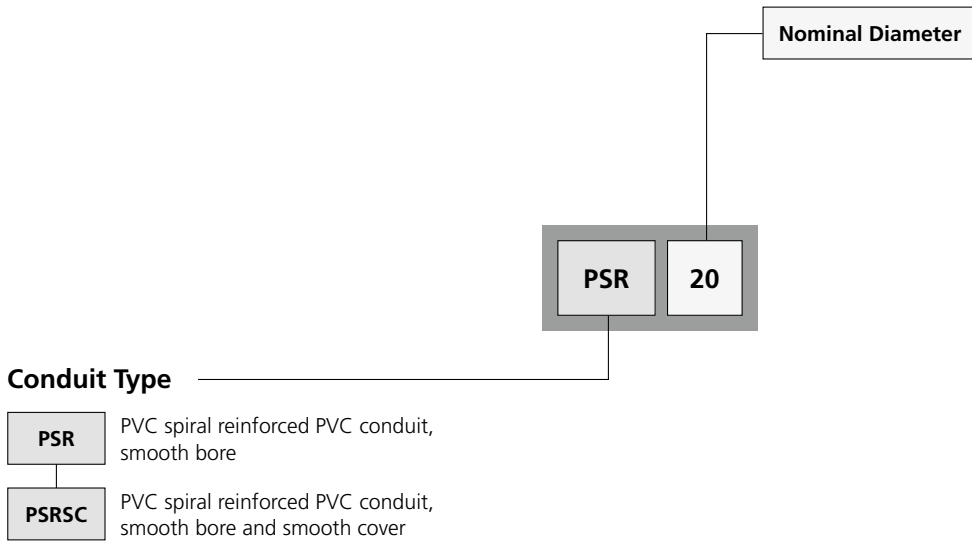
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

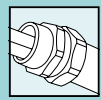


## HelaGuard Nomenclature for Spiral-Reinforced PVC Conduits

Example:

**PSR20**





### Spiral-reinforced PVC Conduits

- **PSR Conduit**

Machine building, plant construction, shipbuilding, automation, electrical installations

#### Features and Benefits

- Extremely flexible
- Withstands torsional movement
- Self-extinguishing
- Easy to feed cables into conduit
- Can be used with PSR PA66 fittings
- Colour: black; light grey, green (oil resistant), blue (high temperature resistant) upon request



PSR is extremely flexible and allows for easy insertion of cables.

**PSR Conduit with higher resistance to oil (colour: green) and temperature (colour: blue) available on request.**



One Step to the Web!

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-20 °C to +70 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386
<b>Specifications</b>	UL-Recognised

**RoHS** ✓

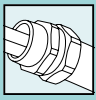
TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
PSR12	12	14.5	10	25	71	30 m	Grey (GY)	166-40001
PSR16	16	16.5	12	25	76	30 m	Grey (GY)	166-40002
PSR20	20	21.0	16	35	112	30 m	Grey (GY)	166-40003
PSR25	25	27.5	22	45	153	30 m	Grey (GY)	166-40004
PSR32	32	33.5	28	60	327	30 m	Grey (GY)	166-40005
PSR40	40	41.0	35	80	448	30 m	Grey (GY)	166-40006
PSR50	50	46.4	40	105	725	30 m	Grey (GY)	166-40007
PSR63	63	57.0	50	120	948	30 m	Grey (GY)	166-40008

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Spiral-reinforced PVC Conduits

- **PSRSC Conduit**

Machine building, plant construction, shipbuilding, automation, electrical installations.

#### Features and Benefits

- Flexible
- Easy to clean outside surface
- Withstands some torsional movement
- Self-extinguishing
- Easy to feed cables
- Can be used with PSR PA66 fittings and PSRSC metal fittings
- Colour: black; light grey, orange (highly flexible), green (oil resistant), blue (high temperature resistant) upon request



PSRSC allows for easy insertion of cables and cleaning of outside surface.

**PSR Conduit with higher resistance to oil (colour: green) and temperature (colour: blue) available on request.**

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-5 °C to +70 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386

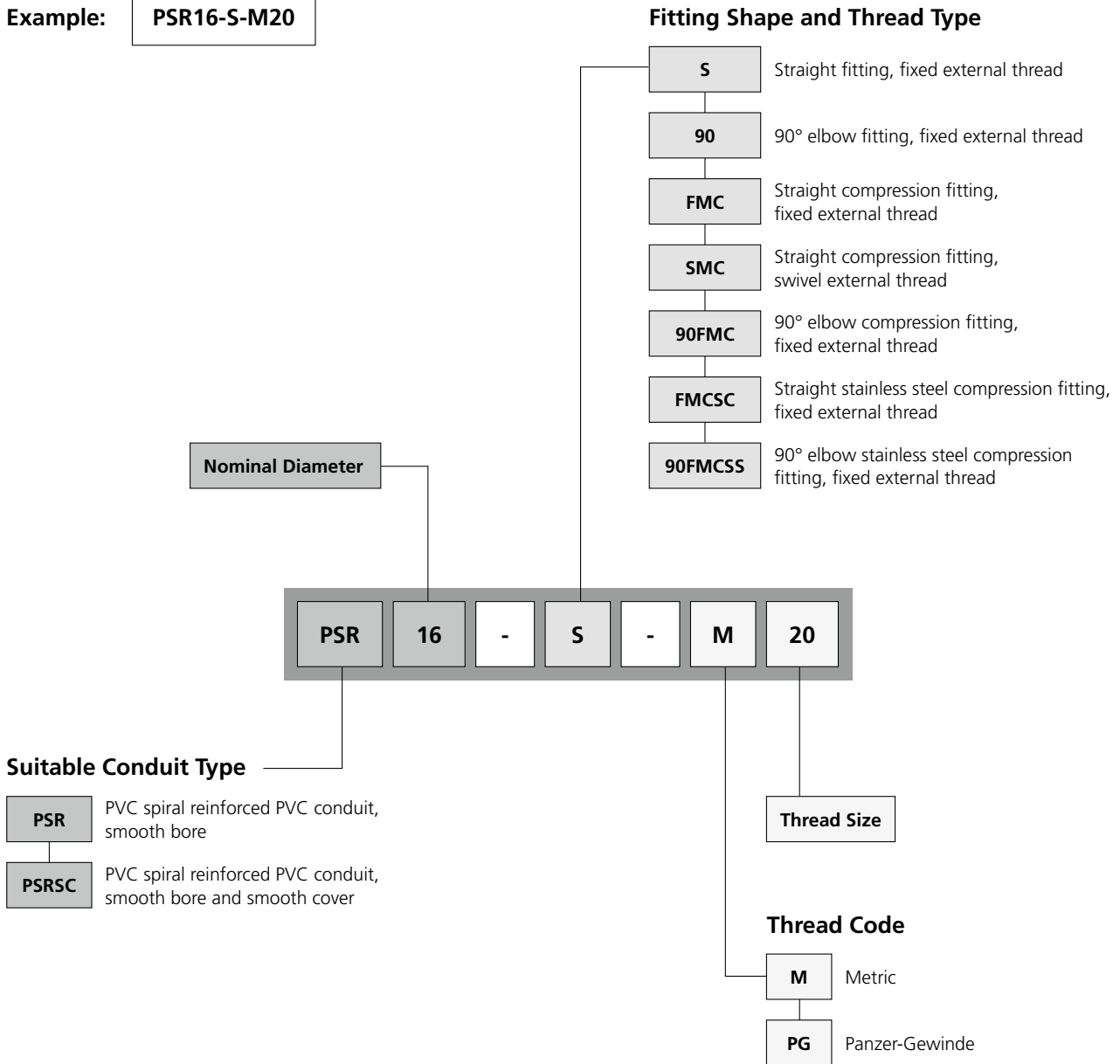
**RoHS** ✓

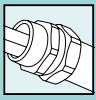
TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø	Bending Radius	Weight (g/m)	Reel Length	Colour	Article-No.
PSRSC12	12	14.2	10.0	50	76	30 m	Grey (GY)	166-40301
PSRSC16	16	17.8	12.0	50	139	30 m	Grey (GY)	166-40302
PSRSC20	20	21.1	16.0	70	174	30 m	Grey (GY)	166-40303
PSRSC25	25	26.4	21.0	90	235	30 m	Grey (GY)	166-40304
PSRSC32	32	33.1	26.5	140	327	30 m	Grey (GY)	166-40305
PSRSC40	40	41.8	35.4	190	448	30 m	Grey (GY)	166-40306
PSRSC50	50	47.9	40.0	240	725	30 m	Grey (GY)	166-40307
PSRSC63	63	59.7	51.3	270	948	30 m	Grey (GY)	166-40308

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## HelaGuard Nomenclature for Spiral-Reinforced PVC Fittings

Example: **PSR16-S-M20**





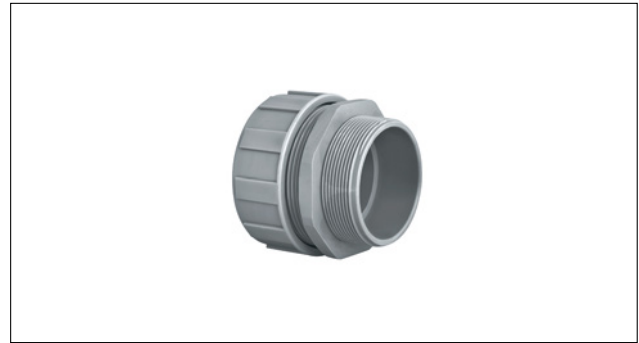
### Fittings for spiral-reinforced PVC Conduits

#### • PSR-S Straight fitting

Straight PA66 fitting, external thread  
IP65 with PSR Conduits  
IP67 with PSRSC Conduits

#### Features and Benefits

- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts
- Fits both PSR and PSRSC conduits



PSR-S Straight.

Fittings with PG-Thread and in 45° available on request.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised

HF ✓

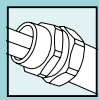
RoHS ✓

TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Colour	Article-No.
PSR12-S-M16	12	M16	9.0	24	38	23	11	10 pcs.	Grey (GY)	166-40701
PSR16-S-M16	16	M16	10.5	28	40	25	11	10 pcs.	Grey (GY)	166-40702
PSR16-S-M20	16	M20	10.5	28	41	25	14	10 pcs.	Grey (GY)	166-40703
PSR20-S-M20	20	M20	14.5	33	43	30	14	10 pcs.	Grey (GY)	166-40704
PSR25-S-M25	25	M25	19.0	42	45	37	15	10 pcs.	Grey (GY)	166-40705
PSR32-S-M32	32	M32	24.5	48	48	45	16	10 pcs.	Grey (GY)	166-40706
PSR40-S-M40	40	M40	33.0	60	59	60	16	2 pcs.	Grey (GY)	166-40707
PSR50-S-M50	50	M50	39.0	64	55	60	16	2 pcs.	Grey (GY)	166-40708
PSR63-S-M63	63	M63	48.0	76	56	73	16	1 EA	Grey (GY)	166-40709

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Fittings for spiral-reinforced PVC Conduits

- PSR-90 90° elbow fitting

90° PA66 fitting, external thread  
IP65 with PSR Conduits  
IP67 with PSRSC Conduits

#### Features and Benefits

- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts
- Fits both PSR and PSRSC conduits



PSR-90 90° Elbow.

**Fittings with PG-Thread and in 45° available on request.**

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised

HF ✓

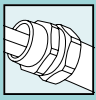
RoHS ✓

TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Outside Ø max.	Length (L)	A/F Body	Thread Length	Pack Cont.	Article-No.
PSR16-90-M16	16	M16	10.5	28	49	22	11	10 pcs.	166-40801
PSR16-90-M20	16	M20	10.5	28	51	27	13	10 pcs.	166-40802
PSR20-90-M20	20	M20	14.5	33	52	27	13	10 pcs.	166-40803
PSR25-90-M25	25	M25	19.0	42	63	33	15	10 pcs.	166-40804
PSR32-90-M32	32	M32	24.5	48	74	40	16	2 pcs.	166-40805
PSR40-90-M40	40	M40	33.0	60	113	50	16	2 pcs.	166-40806

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



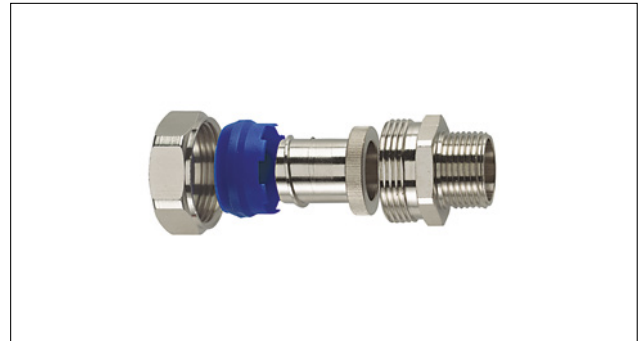
### Fittings for spiral-reinforced PVC Conduits

- **PSRSC-FMC compression fitting**

Straight fitting, fixed external thread, nickel plated brass.  
Fulfils IP66, IP67 and IP68 with PRSCS conduits.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Can be used for knockouts or threaded entries as fitting rotates until tightened
- Fits PSRSC conduits



Helaguard PSRSC-FMC Compression Fitting.

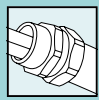
### PSRSC-FMC-Fittings with PG-Thread available on request.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PSRSC12-FMC-M16	12	M16	8.6	29.8	20	22	10.0	10 pcs.	Metal (ML)	166-41001
PSRSC16-FMC-M16	16	M16	10.7	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-41002
PSRSC16-FMC-M20	16	M20	10.7	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-41003
PSRSC20-FMC-M20	20	M20	14.5	33.5	26	29	12.0	10 pcs.	Metal (ML)	166-41004
PSRSC25-FMC-M25	25	M25	18.0	40.5	33	35	14.0	10 pcs.	Metal (ML)	166-41005
PSRSC32-FMC-M32	32	M32	24.6	45.8	40	42	15.0	2 pcs.	Metal (ML)	166-41006
PSRSC40-FMC-M40	40	M40	32.7	47.5	50	52	16.0	1 EA	Metal (ML)	166-41007
PSRSC50-FMC-M50	50	M50	37.7	51.0	58	58	16.0	1 EA	Metal (ML)	166-41008
PSRSC63-FMC-M63	63	M63	49.0	58.8	70	70	20.0	1 EA	Metal (ML)	166-41009

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for spiral-reinforced PVC Conduits

- **PSRSC-FMC swivel fitting**

Straight fitting, swivel, external thread, nickel plated brass.  
Fulfils IP66, IP67 and IP68 with PRSCS conduits.

#### Features and Benefits

- Multipart compression fitting including elastomeric seal
- Can be used for knockouts or threaded entries as fitting rotates until tightened
- Fits PSRSC conduits



Helaguard PSRSC-SMC Swivel Compression Fitting.

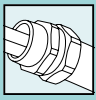
<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Thread	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PSRSC16-SMC-M16	16	M16	10.7	40.9	24	24	26	10.0	10 pcs.	Metal (ML)	166-41101
PSRSC16-SMC-M20	16	M20	10.7	41.0	24	24	26	10.0	10 pcs.	Metal (ML)	166-41102
PSRSC20-SMC-M20	20	M20	14.5	41.8	26	26	29	10.0	10 pcs.	Metal (ML)	166-41103
PSRSC25-SMC-M25	25	M25	18.0	50.7	33	29	35	12.0	10 pcs.	Metal (ML)	166-41104
PSRSC32-SMC-M32	32	M32	24.6	56.9	40	38	42	13.0	2 pcs.	Metal (ML)	166-41105

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Fittings for spiral-reinforced PVC Conduits

- **PSRSC-90FMC 90° compression fitting**

90° fitting, fixed external thread, nickel plated brass.  
Fulfils IP66, IP67 and IP68 with PRSCS conduits.

#### Features and Benefits

- Multipart 90° compression fitting including elastomeric
- Can be used for knockouts or threaded entries as fitting rotates until tightened
- Fits PSRSC conduits



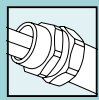
Helaguard PSRSC-90FMC 90° Elbow Compression Fitting.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PSRSC12-90FMC-M16	12	M16	8.6	20	22	10	10 pcs.	Metal (ML)	166-41201
PSRSC16-90FMC-M16	16	M16	10.7	20	26	10	10 pcs.	Metal (ML)	166-41202
PSRSC16-90FMC-M20	16	M20	10.7	24	26	13	10 pcs.	Metal (ML)	166-41203
PSRSC20-90FMC-M20	20	M20	14.5	24	29	13	10 pcs.	Metal (ML)	166-41204
PSRSC25-90FMC-M25	25	M25	18.0	30	35	14	10 pcs.	Metal (ML)	166-41205
PSRSC32-90FMC-M32	32	M32	24.6	36	42	15	2 pcs.	Metal (ML)	166-41206
PSRSC40-90FMC-M40	40	M40	32.7	46	52	18	1 EA	Metal (ML)	166-41207
PSRSC50-90FMC-M50	50	M50	37.7	57	58	18	1 EA	Metal (ML)	166-41208
PSRSC63-90FMC-M63	63	M63	49.0	72	70	20	1 EA	Metal (ML)	166-41209

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for spiral-reinforced PVC Conduits

- **PSRSC-FMCSS compression fitting**

Straight fitting, external thread, stainless steel (SS314).  
Fulfils IP66, IP67 and IP68 with PRSCS conduits.

#### Features and Benefits

- Multipart stainless steel (SS316) compression fitting including elastomeric seal
- Can be used for knockouts or threaded entries as fitting rotates until tightened
- Fits PSRSC conduits



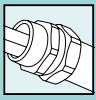
PSRSC-FMCSS Straight Compression Fitting.

<b>MATERIAL</b>	Stainless Steel (SS316), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	Length (L)	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PSRSC16-FMCSS-M16	16	M16	10.7	33.0	24	26	12.0	1 EA	Metal (ML)	166-41301
PSRSC16-FMCSS-M20	16	M20	10.7	33.0	24	26	12.0	1 EA	Metal (ML)	166-41302
PSRSC20-FMCSS-M20	20	M20	14.5	33.5	26	29	12.0	1 EA	Metal (ML)	166-41303
PSRSC25-FMCSS-M25	25	M25	18.0	40.5	33	35	14.0	1 EA	Metal (ML)	166-41304
PSRSC32-FMCSS-M32	32	M32	24.6	45.8	40	42	15.0	1 EA	Metal (ML)	166-41305

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for spiral-reinforced PVC Conduits

- **PSRSC-90FMCSS 90° compression fitting**

90° fitting, fixed external thread, stainless steel (SS314).  
Fulfils IP66, IP67 and IP68 with PRSCS conduits.

#### Features and Benefits

- Multipart 90° stainless steel (SS316) compression fitting including elastomeric seal
- Can be used for knockouts or threaded entries as fitting rotates until tightened
- Fits PSRSC conduits



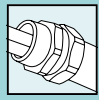
Helaguard PSRSC-90FMCSS 90° Elbow Compression Fitting.

<b>MATERIAL</b>	Stainless Steel (SS316), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Nominal Ø	Thread Size (metric)	Min. Bore Size	A/F Body	A/F Nut	Thread Length	Pack Cont.	Colour	Article-No.
PSRSC16-90FMCSS-M20	16	M20	10.7	24	26	13.0	1 EA	Metal (ML)	166-41401
PSRSC20-90FMCSS-M20	20	M20	14.5	24	29	13.0	1 EA	Metal (ML)	166-41402
PSRSC25-90FMCSS-M25	25	M25	18.0	30	35	14.0	1 EA	Metal (ML)	166-41403
PSRSC32-90FMCSS-M32	32	M32	24.6	36	42	15.0	1 EA	Metal (ML)	166-41404

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### FlexiGuard Conduits & Fittings

- FlexiGuard PVC Protective Conduits

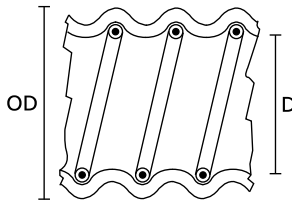
FlexiGuard protective hoses are used to protect cables in machines and plant construction, and robotics as well as leads to switch cabinets.

#### Features and Benefits

- Extremely flexible
- Excellent mechanical protection
- Good resistance to oils, acids and alkalis
- Good resistance to chemicals
- Good resistance to UV and ozone



FlexiGuard FG with FG-UH fitting.



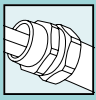
FlexiGuard

<b>MATERIAL</b>	Flexible Polyvinyl Chloride, cadmium free (PVC), Steel (ST)
<b>Operating Temperature</b>	-20 °C to +70 °C, (+80 °C, 200 h)
<b>Flammability</b>	UL94 HB



TYPE	Ø D	Outside Ø (OD)	Bending Radius	Reel Length	Colour	Article-No.
FG14	10	14	14	10 m	Grey (GY)	167-00209
FG17	13	17	17	10 m	Grey (GY)	167-00211
FG19	15	19	19	10 m	Grey (GY)	167-00213
FG21	16	21	21	10 m	Grey (GY)	167-00216
FG27	21	27	27	10 m	Grey (GY)	167-00221
FG36	30	36	36	10 m	Grey (GY)	167-00229
FG45	38	45	45	10 m	Grey (GY)	167-00236
FG56	48	56	56	10 m	Grey (GY)	167-00248

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### FlexiGuard Conduits & Fittings

- **FG-M Fittings**

The TV fittings and TH fasteners are used to protect against dust and moisture, for instance outdoors or wherever dust and moisture are a particular hazard.

#### Features and Benefits

- One piece, easy fit
- Swivel thread
- Vibration and tension resistant
- Large bore size
- Inner ferrule protects cables
- Good resistance chemicals
- Good resistance to UV and ozone



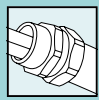
FG-M Metric Conduit Fitting.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-35 °C to +80 °C
<b>Flammability</b>	UL94 V2



TYPE	For Hose Outer Ø D	Thread Size (metric)	Thread Size (PG)	Min. Bore Size	Length (L)	A/F Thread	Colour	Article-No.
FG14-PG9	14	-	PG9	8.8	42.0	20	Grey (GY)	167-00510
FG14-M16	14	M16	-	8.8	42.0	20	Grey (GY)	167-00530
FG17-PG11	17	-	PG11	11.1	45.5	24	Grey (GY)	167-00511
FG17-M20	17	M20	-	11.1	45.5	24	Grey (GY)	167-00531
FG19-PG13	19	-	PG13	13.0	47.5	27	Grey (GY)	167-00512
FG21-PG16	21	-	PG16	14.8	49.8	30	Grey (GY)	167-00513
FG21-M25	21	M25	-	14.8	49.8	30	Grey (GY)	167-00533
FG27-PG21	27	-	PG21	19.4	52.0	36	Grey (GY)	167-00514
FG27-M32	27	M32	-	19.4	52.0	36	Grey (GY)	167-00534
FG36-PG29	36	-	PG29	27.9	55.0	46	Grey (GY)	167-00515
FG36-M40	36	M40	-	27.9	55.0	46	Grey (GY)	167-00535
FG45-PG36	45	-	PG36	35.6	58.0	55	Grey (GY)	167-00516
FG45-M50	45	M50	-	35.6	58.0	55	Grey (GY)	167-00536
FG56-PG48	56	-	PG48	45.9	60.5	65	Grey (GY)	167-00517
FG56-M63	56	M63	-	45.9	60.5	65	Grey (GY)	167-00537

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



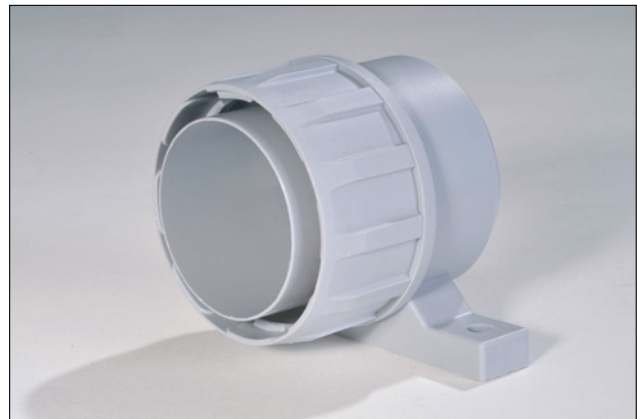
### FlexiGuard Conduits & Fittings

- **FG-UH Fittings with Bracket**

The fittings are used to fix FlexiGuard hoses securely and to protect against dust or liquids.

#### Features and Benefits

- One piece, easy fit
- Swivel bracket
- Vibration and tension resistant
- Large bore size
- Inner ferrule protects cables
- Good resistance chemicals
- Good resistance to UV and ozone



FG-UH fitting with bracket.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-35 °C to +80 °C
<b>Flammability</b>	UL94 V2

HF ✓

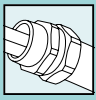
RoHS ✓

TYPE	For Hose Outer Ø D	Min. Bore Size	Length (L)	Hole Ø (FH)	Fixing Hole Centres (F)	Colour	Article-No.
FG14-UH	14	8.8	42.0	5.7	29.0	Grey (GY)	167-00520
FG17-UH	17	11.1	45.5	5.7	37.0	Grey (GY)	167-00521
FG19-UH	19	13.0	47.5	5.7	37.0	Grey (GY)	167-00522
FG21-UH	21	14.8	49.8	5.7	37.0	Grey (GY)	167-00523
FG27-UH	27	19.4	52.0	5.7	43.0	Grey (GY)	167-00524
FG36-UH	36	27.9	55.0	6.7	53.0	Grey (GY)	167-00525
FG45-UH	45	35.6	58.0	6.7	65.0	Grey (GY)	167-00526
FG56-UH	56	45.9	60.5	6.7	76.0	Grey (GY)	167-00527

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.





### HelaGuard Accessories

#### • PACC Clip for Corrugated Conduits

#### Features and Benefits

- Easy and quick assembly with non-metallic conduits
- Lid is integrated
- Hole for fastening with screw
- Inner rib prevents conduit from slipping
- Can be used in C-shaped DIN rails

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



HelaGuard PACC Conduit Clip.



One Step to the Web!

TYPE	Nominal Ø	Hole Ø (FH)	Height (H)	Width (W)	Length (L)	Pack Cont.	Colour	Article-No.
PACC10	10	M5	26	12	23	10 pcs.	Black (BK)	166-25707
PACC13	13	M5	26	12	23	10 pcs.	Black (BK)	166-25700
PACC16	16	M5	30	12	26	10 pcs.	Black (BK)	166-25701
PACC21	21	M6	36	15	32	10 pcs.	Black (BK)	166-25702
PACC28	28	M6	45	15	41	10 pcs.	Black (BK)	166-25703
PACC34	34	M6	51	15	48	10 pcs.	Black (BK)	166-25704
PACC42	42	M6	60	15	57	5 pcs.	Black (BK)	166-25705
PACC54	54	M6	72	15	70	5 pcs.	Black (BK)	166-25706

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### HelaGuard Accessories

#### • AFCP Clip for Rigid Conduits

#### Features and Benefits

- Easy and quick assembly with metallic conduits
- Lid is integrated
- Hole for fastening with screw
- Can be used in C-shaped DIN rails

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



HelaGuard AFCP Conduit Clip.

TYPE	Nominal Ø	Hole Ø (FH)	Height (H)	Width (W)	Length (L)	Pack Cont.	Colour	Article-No.
AFCP16	16	M5	30	12	26	10 pcs.	Black (BK)	166-50700
AFCP20	20	M6	36	15	32	10 pcs.	Black (BK)	166-50701
AFCP25	25	M6	45	15	41	10 pcs.	Black (BK)	166-50702
AFCP33	32	M6	51	15	48	10 pcs.	Black (BK)	166-50703

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard Accessories

- AFCS Fixing Clip, Plated Steel and PVC Liner

<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-20 °C to +105 °C



HelaGuard AFCS Fixing Clip, Stainless Steel and PVC Liner.

TYPE	Nominal Ø	Width (W)	Width (W2)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
AFCS10	10	12.7	17.4	5,1	10 pcs.	Metal (ML), Black (BK)	166-50600
AFCS12	12	12.7	17.4	5,1	10 pcs.	Metal (ML), Black (BK)	166-50601
AFCS16	16	12.7	17.4	5,1	10 pcs.	Metal (ML), Black (BK)	166-50602
AFCS20	20	12.7	17.4	5,1	10 pcs.	Metal (ML), Black (BK)	166-50603
AFCS25	25	12.7	17.4	5,1	10 pcs.	Metal (ML), Black (BK)	166-50604
AFCS32	32	12.7	17.4	5,1	10 pcs.	Metal (ML), Black (BK)	166-50605
AFCS40	40	25.4	30.5	14,2 x 17,5	5 pcs.	Metal (ML), Black (BK)	166-50606
AFCS50	50	25.4	30.5	14,2 x 17,5	5 pcs.	Metal (ML), Black (BK)	166-50607
AFCS63	63	25.4	30.5	14,2 x 17,5	1 EA	Metal (ML), Black (BK)	166-50608
AFCS75	75	25.4	30.5	14,2 x 17,5	1 EA	Metal (ML), Black (BK)	166-50609

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### HelaGuard Accessories

- AFCSS Fixing Clip, Stainless Steel

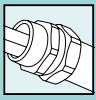
<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-100 °C to +400 °C



HelaGuard AFCSS Fixing Clip, Stainless Steel.

TYPE	Nominal Ø	Width (W)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
AFCSS10	10	11.1	5.1	10 pcs.	Metal (ML)	166-50610
AFCSS12	12	11.1	5.1	10 pcs.	Metal (ML)	166-50611
AFCSS16	16	11.1	5.1	10 pcs.	Metal (ML)	166-50612
AFCSS20	20	11.1	5.1	10 pcs.	Metal (ML)	166-50613
AFCSS25	25	11.1	5.1	10 pcs.	Metal (ML)	166-50614
AFCSS32	32	11.1	5.1	10 pcs.	Metal (ML)	166-50615
AFCSS40	40	12.7	7.1	5 pcs.	Metal (ML)	166-50616
AFCSS50	50	12.7	7.1	5 pcs.	Metal (ML)	166-50617

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard Accessories

#### • A90FM 90° Elbow

Internal and external thread, nickel plated brass.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



HelaGuard A90FM 90° Elbow.

TYPE	External Thread Size (metric)	Internal Thread Size (metric)	Min. Bore Size	Height (H)	Width (W)	External Thread Length	Internal Thread Length	Pack Cont.	Colour	Article-No.
A90FM-M16	M16	M16	12.0	38.0	31.0	10	11	10 pcs.	Metal (ML)	166-50001
A90FM-M20	M20	M20	15.8	46.0	35.0	13	13	10 pcs.	Metal (ML)	166-50002
A90FM-M25	M25	M25	20.4	55.8	43.8	14	16	10 pcs.	Metal (ML)	166-50003
A90FM-M32	M32	M32	27.0	66.6	53.6	15	16	2 pcs.	Metal (ML)	166-50004
A90FM-M40	M40	M40	34.6	80.4	67.0	18	17	1 EA	Metal (ML)	166-50005
A90FM-M50	M50	M50	44.6	99.0	80.5	18	18	1 EA	Metal (ML)	166-50006

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### • ACP Couplers

Internally threaded, nickel plated brass.

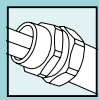
<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



HelaGuard ACP Couplers.

TYPE	Thread Size (metric)	Length (L)	A/F Body	Pack Cont.	Colour	Article-No.
ACP-M16	M16	22.5	20	10 pcs.	Metal (ML)	166-50400
ACP-M20	M20	25.0	24	10 pcs.	Metal (ML)	166-50401
ACP-M25	M25	30.0	29	10 pcs.	Metal (ML)	166-50402
ACP-M32	M32	32.5	35	10 pcs.	Metal (ML)	166-50403
ACP-M40	M40	34.0	48	2 pcs.	Metal (ML)	166-50404
ACP-M50	M50	38.0	58	1 EA	Metal (ML)	166-50405
ACP-M63	M63	45.0	70	1 EA	Metal (ML)	166-50406
ACP-M75	M75	45.0	84	1 EA	Metal (ML)	166-50407

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## HelaGuard Accessories

- ALNPB Nickel Plated Brass Locknuts



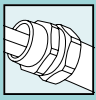
HelaGuard ALNPB Nickel Plated Brass Locknuts.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Thread Size (metric)	Thread Size (PG)	A/F Nut	Outside Ø max.	Thickness (T)	Pack Cont.	Colour	Article-No.
ALNPB-PG7	-	PG7	15	17	2.8	10 pcs.	Metal (ML)	166-50109
ALNPB-PG9	-	PG9	20	23	3.5	10 pcs.	Metal (ML)	166-50110
ALNPB-PG11	-	PG11	22	25	3.5	10 pcs.	Metal (ML)	166-50111
ALNPB-PG13	-	PG13.5	24	28	3.5	10 pcs.	Metal (ML)	166-50112
ALNPB-PG16	-	PG16	26	30	3.6	10 pcs.	Metal (ML)	166-50113
ALNPB-PG21	-	PG21	33	37	3.7	10 pcs.	Metal (ML)	166-50114
ALNPB-PG29	-	PG29	42	46	4.0	1 EA	Metal (ML)	166-50115
ALNPB-PG36	-	PG36	52	57	5.0	1 EA	Metal (ML)	166-50116
ALNPB-PG42	-	PG42	60	65	5.0	1 EA	Metal (ML)	166-50117
ALNPB-PG48	-	PG48	64	70	5.0	1 EA	Metal (ML)	166-50118
ALNPB-M12	M12	-	15	17	3.5	10 pcs.	Metal (ML)	166-50100
ALNPB-M16	M16	-	20	23	3.5	10 pcs.	Metal (ML)	166-50101
ALNPB-M20	M20	-	24	28	3.5	10 pcs.	Metal (ML)	166-50102
ALNPB-M25	M25	-	29	33	3.5	10 pcs.	Metal (ML)	166-50103
ALNPB-M32	M32	-	38	43	4.5	2 pcs.	Metal (ML)	166-50104
ALNPB-M40	M40	-	48	54	5.0	1 EA	Metal (ML)	166-50105
ALNPB-M50	M50	-	58	66	6.0	1 EA	Metal (ML)	166-50106
ALNPB-M63	M63	-	70	79	6.5	1 EA	Metal (ML)	166-50107
ALNPB-M75	M75	-	84	94	7.0	1 EA	Metal (ML)	166-50108

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard Accessories

#### • ALS Plated Steel Locknuts

<b>MATERIAL</b>	Galvanised Steel (GS)
<b>Operating Temperature</b>	-100 °C to +300 °C



HelaGuard ALS Plated Steel Locknuts.

TYPE	Thread Size (metric)	A/F Nut	Outside Ø max.	Thickness (T)	Pack Cont.	Colour	Article-No.
ALS-M16	M16	24	27	3	10 pcs.	Metal (ML)	166-50119
ALS-M20	M20	25	28	3	10 pcs.	Metal (ML)	166-50120
ALS-M25	M25	33	38	3	10 pcs.	Metal (ML)	166-50121
ALS-M32	M32	41	47	3	2 pcs.	Metal (ML)	166-50122
ALS-M40	M40	50	58	4	1 EA	Metal (ML)	166-50123
ALS-M50	M50	63	72	4	1 EA	Metal (ML)	166-50124
ALS-M63	M63	80	92	5	1 EA	Metal (ML)	166-50125

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### • ALSS Stainless Steel Locknuts

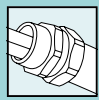
<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-100 °C to +400 °C



HelaGuard ALSS Stainless Steel Locknuts.

TYPE	Thread Size (metric)	A/F Nut	Outside Ø max.	Thickness (T)	Pack Cont.	Colour	Article-No.
ALSS-M16	M16	20	23	3.5	10 pcs.	Metal (ML)	166-50126
ALSS-M20	M20	24	28	3.5	10 pcs.	Metal (ML)	166-50127
ALSS-M25	M25	30	34	3.5	10 pcs.	Metal (ML)	166-50128
ALSS-M32	M32	38	43	4.5	2 pcs.	Metal (ML)	166-50129
ALSS-M40	M40	48	53	5.0	1 EA	Metal (ML)	166-50130
ALSS-M50	M50	60	65	6.0	1 EA	Metal (ML)	166-50131
ALSS-M63	M63	70	76	6.5	1 EA	Metal (ML)	166-50132

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard Accessories

- ALPA PA66 Locknuts



HelaGuard ALPA PA66 Locknuts.

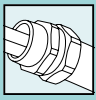
<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C



TYPE	Thread Size (metric)	Thread Size (PG)	A/F Nut	Outside Ø max.	Thickness (T)	Pack Cont.	Colour	Article-No.
ALPA-PG7	-	PG7	19	21	5	10 pcs.	Black (BK)	166-50141
ALPA-PG9	-	PG9	22	24	5	10 pcs.	Black (BK)	166-50142
ALPA-PG11	-	PG11	24	26	5	10 pcs.	Black (BK)	166-50143
ALPA-PG13	-	PG13.5	27	29	6	10 pcs.	Black (BK)	166-50144
ALPA-PG16	-	PG16	30	33	6	10 pcs.	Black (BK)	166-50145
ALPA-PG21	-	PG21	36	39	7	10 pcs.	Black (BK)	166-50146
ALPA-PG29	-	PG29	46	50	7	1 EA	Black (BK)	166-50147
ALPA-PG36	-	PG36	60	66	8	1 EA	Black (BK)	166-50148
ALPA-PG42	-	PG42	65	73	8	1 EA	Black (BK)	166-50149
ALPA-PG48	-	PG48	70	78	8	1 EA	Black (BK)	166-50150
ALPA-M12	M12	-	18	20	5	10 pcs.	Black (BK)	166-50133
ALPA-M16	M16	-	22	24	5	10 pcs.	Black (BK)	166-50134
ALPA-M20	M20	-	26	29	6	10 pcs.	Black (BK)	166-50135
ALPA-M25	M25	-	32	35	6	10 pcs.	Black (BK)	166-50136
ALPA-M32	M32	-	41	46	7	2 pcs.	Black (BK)	166-50137
ALPA-M40	M40	-	50	55	7	1 EA	Black (BK)	166-50138
ALPA-M50	M50	-	60	66	8	1 EA	Black (BK)	166-50139
ALPA-M63	M63	-	75	83	8	1 EA	Black (BK)	166-50140

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



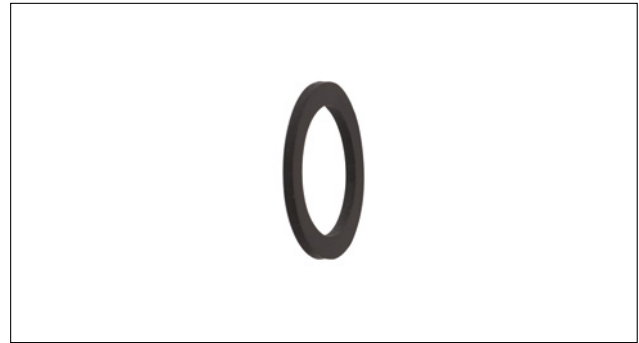


## HelaGuard Accessories

### • AWS Chloroprene Sealing Washers

#### Features and Benefits

- Protects against water and dust
- For PG and metric threads
- Resistant to oil
- 80 Shore A compression strength



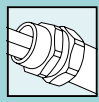
HelaGuard AWS Chloroprene Sealing Washers.

<b>MATERIAL</b>	Chloroprene (CR)
<b>Operating Temperature</b>	-40 °C to +135 °C



TYPE	Thread Size (metric)	Thread Size (PG)	Outside Ø (OD)	Inside Ø	Thickness (T)	Pack Cont.	Colour	Article-No.
AWS-PG7	-	PG7	20	11.5	1.5	100 pcs.	Black (BK)	166-50508
AWS-PG9	-	PG9	24	14.7	1.5	100 pcs.	Black (BK)	166-50509
AWS-PG11	-	PG11	25	18.1	1.5	100 pcs.	Black (BK)	166-50510
AWS-PG13	-	PG13.5	28	19.5	1.5	100 pcs.	Black (BK)	166-50511
AWS-PG16	-	PG16	29	22.0	1.5	50 pcs.	Black (BK)	166-50512
AWS-PG21	-	PG21	35	27.8	1.5	10 pcs.	Black (BK)	166-50513
AWS-PG29	-	PG29	44	36.5	1.5	10 pcs.	Black (BK)	166-50514
AWS-PG36	-	PG36	54	46.5	1.5	10 pcs.	Black (BK)	166-50515
AWS-PG42	-	PG42	61	53.5	1.5	10 pcs.	Black (BK)	166-50516
AWS-PG48	-	PG48	70	58.8	1.5	10 pcs.	Black (BK)	166-50517
AWS-M12	M12	-	20	11.5	1.5	100 pcs.	Black (BK)	166-50500
AWS-M16	M16	-	24	15.5	1.5	100 pcs.	Black (BK)	166-50501
AWS-M20	M20	-	28	19.5	1.5	50 pcs.	Black (BK)	166-50502
AWS-M25	M25	-	34	24.5	1.5	10 pcs.	Black (BK)	166-50503
AWS-M32	M32	-	42	31.5	1.5	10 pcs.	Black (BK)	166-50504
AWS-M40	M40	-	50	39.5	1.5	10 pcs.	Black (BK)	166-50505
AWS-M50	M50	-	60	49.5	1.5	10 pcs.	Black (BK)	166-50506
AWS-M63	M63	-	73	62.5	1.5	10 pcs.	Black (BK)	166-50507

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

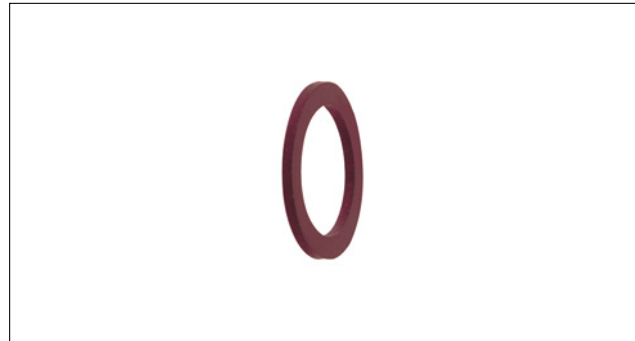


## HelaGuard Accessories

### • AFWS Vulcanised Fibre Sealing Washers

#### Features and Benefits

- Rugged, tough material (78 Shore D Hardness) for tighter seal
- Protects against water and dust
- For PG and metric threads
- Resistant to oil
- 78 Shore D hardness



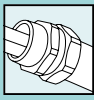
HelaGuard AFWS Vulcanised Fibre Sealing Washers.

<b>MATERIAL</b>	Vulcanised Fibre (VF)
<b>Operating Temperature</b>	-50 °C to +135 °C



TYPE	Thread Size (PG)	Thread Size (metric)	Outside Ø (OD)	Inside Ø	Thickness (T)	Pack Cont.	Colour	Article-No.
AFWS-M12	-	M12	20.0	12.0	1.6	100 pcs.	Red (RD)	166-50518
AFWS-M16	-	M16	22.0	16.0	1.6	100 pcs.	Red (RD)	166-50519
AFWS-M20	-	M20	26.0	20.0	1.6	50 pcs.	Red (RD)	166-50520
AFWS-M25	-	M25	32.0	25.0	1.6	10 pcs.	Red (RD)	166-50521
AFWS-M32	-	M32	41.2	32.0	1.6	10 pcs.	Red (RD)	166-50522
AFWS-M40	-	M40	50.0	40.0	1.6	10 pcs.	Red (RD)	166-50523
AFWS-M50	-	M50	60.0	50.0	1.6	10 pcs.	Red (RD)	166-50524
AFWS-M63	-	M63	73.0	63.0	1.6	10 pcs.	Red (RD)	166-50525
AFWS-PG7	PG7	-	16.5	12.5	1.6	100 pcs.	Red (RD)	166-50526
AFWS-PG9	PG9	-	21.2	15.2	1.6	100 pcs.	Red (RD)	166-50527
AFWS-PG11	PG11	-	24.6	18.2	1.6	100 pcs.	Red (RD)	166-50528
AFWS-PG13	PG13.5	-	26.4	20.4	1.6	100 pcs.	Red (RD)	166-50529
AFWS-PG16	PG16	-	28.5	22.5	1.6	50 pcs.	Red (RD)	166-50530
AFWS-PG21	PG21	-	34.3	28.3	1.6	10 pcs.	Red (RD)	166-50531
AFWS-PG29	PG29	-	43.0	37.0	1.6	10 pcs.	Red (RD)	166-50532
AFWS-PG36	PG36	-	53.0	47.0	1.6	10 pcs.	Red (RD)	166-50533
AFWS-PG42	PG42	-	60.8	54.0	1.6	10 pcs.	Red (RD)	166-50534
AFWS-PG48	PG48	-	67.3	59.3	1.6	10 pcs.	Red (RD)	166-50535

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## HelaGuard Accessories

### • CNV Converters

Nickel plated brass.



HelaGuard CNV Convertors.

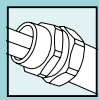
<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C

HF ✓

RoHS ✓

TYPE	Thread Size internal	Thread Size external	Pack Cont.	Colour	Article-No.
CNV-M20-M16	M16	M20	10 pcs.	Metal (ML)	166-50900
CNV-PG7-M16	M16	PG7	10 pcs.	Metal (ML)	166-50901
CNV-PG9-M16	M16	PG9	10 pcs.	Metal (ML)	166-50902
CNV-PG11-M16	M16	PG11	10 pcs.	Metal (ML)	166-50903
CNV-PG13-M16	M16	PG13.5	10 pcs.	Metal (ML)	166-50904
CNV-PG16-M16	M16	PG16	10 pcs.	Metal (ML)	166-50905
CNV-M16-M20	M20	M16	10 pcs.	Metal (ML)	166-50906
CNV-M25-M20	M20	M25	10 pcs.	Metal (ML)	166-50907
CNV-PG9-M20	M20	PG9	10 pcs.	Metal (ML)	166-50908
CNV-PG11-M20	M20	PG11	10 pcs.	Metal (ML)	166-50909
CNV-PG13-M20	M20	PG13.5	10 pcs.	Metal (ML)	166-50910
CNV-PG16-M20	M20	PG16	10 pcs.	Metal (ML)	166-50911
CNV-PG21-M20	M20	PG21	10 pcs.	Metal (ML)	166-50912
CNV-PG29-M20	M20	PG29	2 pcs.	Metal (ML)	166-50913
CNV-M20-M25	M25	M20	10 pcs.	Metal (ML)	166-50914
CNV-M32-M25	M25	M32	10 pcs.	Metal (ML)	166-50915
CNV-M50-M25	M25	M50	1 EA	Metal (ML)	166-50917
CNV-PG16-M25	M25	PG16	10 pcs.	Metal (ML)	166-50918
CNV-PG21-M25	M25	PG21	10 pcs.	Metal (ML)	166-50919
CNV-PG29-M25	M25	PG29	2 pcs.	Metal (ML)	166-50920
CNV-M25-M32	M32	M25	10 pcs.	Metal (ML)	166-50921
CNV-M40-M32	M32	M40	2 pcs.	Metal (ML)	166-50922
CNV-M50-M32	M32	M50	1 EA	Metal (ML)	166-50923
CNV-PG21-M32	M32	PG21	2 pcs.	Metal (ML)	166-50924
CNV-PG29-M32	M32	PG29	2 pcs.	Metal (ML)	166-50925
CNV-PG36-M32	M32	PG36	2 pcs.	Metal (ML)	166-50926
CNV-M50-M40	M40	M50	1 EA	Metal (ML)	166-50927

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

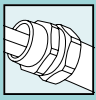


## HelaGuard Accessories

- CNV Converters

TYPE	Thread Size internal	Thread Size external	Pack Cont.	Colour	Article-No.
CNV-M63-M40	M40	M63	1 EA	Metal (ML)	166-50928
CNV-PG29-M40	M40	PG29	1 EA	Metal (ML)	166-50929
CNV-PG36-M40	M40	PG36	1 EA	Metal (ML)	166-50930
CNV-M63-M50	M50	M63	1 EA	Metal (ML)	166-50931
CNV-M16-PG7	PG7	M16	10 pcs.	Metal (ML)	166-51000
CNV-M20-PG7	PG7	M20	10 pcs.	Metal (ML)	166-51001
CNV-PG9-PG7	PG7	PG9	10 pcs.	Metal (ML)	166-51002
CNV-PG11-PG7	PG7	PG11	10 pcs.	Metal (ML)	166-51003
CNV-PG13-PG7	PG7	PG13.5	10 pcs.	Metal (ML)	166-51004
CNV-PG16-PG7	PG7	PG16	10 pcs.	Metal (ML)	166-51005
CNV-M16-PG9	PG9	M16	10 pcs.	Metal (ML)	166-51006
CNV-M20-PG9	PG9	M20	10 pcs.	Metal (ML)	166-51007
CNV-PG7-PG9	PG9	PG7	10 pcs.	Metal (ML)	166-51008
CNV-PG11-PG9	PG9	PG11	10 pcs.	Metal (ML)	166-51009
CNV-PG13-PG9	PG9	PG13.5	10 pcs.	Metal (ML)	166-51010
CNV-PG16-PG9	PG9	PG16	10 pcs.	Metal (ML)	166-51011
CNV-M16-PG11	PG11	M16	10 pcs.	Metal (ML)	166-51012
CNV-M20-PG11	PG11	M20	10 pcs.	Metal (ML)	166-51013
CNV-PG9-PG11	PG11	PG9	10 pcs.	Metal (ML)	166-51014
CNV-PG13-PG11	PG11	PG13.5	10 pcs.	Metal (ML)	166-51015
CNV-PG16-PG11	PG11	PG16	10 pcs.	Metal (ML)	166-51016
CNV-PG21-PG11	PG11	PG21	10 pcs.	Metal (ML)	166-51017
CNV-M20-PG13	PG13.5	M20	10 pcs.	Metal (ML)	166-51018
CNV-PG11-PG13	PG13.5	PG11	10 pcs.	Metal (ML)	166-51019
CNV-PG16-PG13	PG13.5	PG16	10 pcs.	Metal (ML)	166-51020
CNV-PG21-PG13	PG13.5	PG21	10 pcs.	Metal (ML)	166-51021
CNV-M20-PG16	PG16	M20	10 pcs.	Metal (ML)	166-51022
CNV-PG13-PG16	PG16	PG13.5	10 pcs.	Metal (ML)	166-51023
CNV-PG21-PG16	PG16	PG21	10 pcs.	Metal (ML)	166-51024
CNV-PG29-PG16	PG16	PG29	2 pcs.	Metal (ML)	166-51025
CNV-M20-PG21	PG21	M20	10 pcs.	Metal (ML)	166-51026
CNV-M25-PG21	PG21	M25	10 pcs.	Metal (ML)	166-51027
CNV-PG16-PG21	PG21	PG16	10 pcs.	Metal (ML)	166-51028
CNV-PG29-PG21	PG21	PG29	2 pcs.	Metal (ML)	166-51029
CNV-M40-PG29	PG29	M40	1 EA	Metal (ML)	166-51030
CNV-PG21-PG29	PG29	PG21	2 pcs.	Metal (ML)	166-51031
CNV-PG36-PG29	PG29	PG36	2 pcs.	Metal (ML)	166-51032
CNV-M50-PG36	PG36	M50	1 EA	Metal (ML)	166-51033
CNV-PG29-PG36	PG36	PG29	2 pcs.	Metal (ML)	166-51034
CNV-PG42-PG36	PG36	PG42	2 pcs.	Metal (ML)	166-51035

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard Accessories

- PAEC End Caps for Corrugated Conduits

#### Features and Benefits

- Fast fit
- Snaps over end of conduit when not terminated with fitting
- Provides smooth entry to prevent damage to cables
- UV resistant (black)



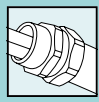
HelaGuard PAEC End Cap.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C



TYPE	Nominal Ø	Min. Bore Size	Length (L)	Outside Ø max.	Pack Cont.	Colour	Article-No.
PAEC16	16	10.5	19	18.2	10 pcs.	Black (BK)	166-50800
PAEC21	21	15.0	19	23.7	10 pcs.	Black (BK)	166-50801
PAEC28	28	20.0	22	31.2	10 pcs.	Black (BK)	166-50802
PAEC34	34	25.5	23	37.1	10 pcs.	Black (BK)	166-50803
PAEC42	42	32.0	24	45.2	10 pcs.	Black (BK)	166-50804
PAEC54	54	43.5	25	54.7	10 pcs.	Black (BK)	166-50805

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard Accessories

- ConClamp Conduit Clamp**

#### Features and Benefits

- Holds metallic conduits and guides hacksaw for a clean cut



*HelaGuard ConClamp.*

TYPE	Pack Cont.	Colour	Article-No.
CONCLAMP	1 EA	Metal (ML)	166-51100

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

- ConCutterr Conduit Cutters**

#### Features and Benefits

- Cutting tool for non-metallic conduits

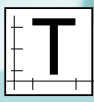


*HelaGuard ConCutter.*

TYPE	Conduit Ø	Pack Cont.	Colour	Article-No.
CONCUTTER1	for non-metallic conduits up to 34	1 EA	Black (BK)	166-51101
CONCUTTER2	for non-metallic conduits up to 67	1 EA	Black (BK)	166-51102

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





## HelaGuard Resistance to Chemicals

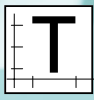
	ASTM NO. 1	ASTM NO. 2	ASTM NO. 3	Acetic acid (10%)	Acetone	Aluminium Chloride	Benzene	Carbon Tetrachloride	Chloroform	Citric acid	Copper Sulphate	Cresol	Diesel oil	Diethylamine	Ethanol	Ether	Ethylamine	Ethylene Glycol	Freon 32	Hydrochloric acid (10%)	Hydrochloric acid (30%)	Hydrogen Peroxide (30%)	Hydrogen Peroxide (60%)	Lactic acid	Lubricating oil	Methanol	
<b>HelaGuard Non Metallic tubing</b>																											
HG-SW	▲	▲	▲	△	▲	○	▲	▲	○	▲	△	○	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	△	▲	△	
HG-LW	▲	▲	▲	△	▲	○	▲	▲	○	▲	△	○	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	△	▲	△	
HG-HW	▲	▲	▲	△	▲	○	▲	▲	○	▲	△	○	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	△	▲	△	
HG-FR	▲	▲	▲	△	▲	○	▲	▲	○	▲	△	○	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	△	▲	△	
HG-HI	▲	▲	▲	△	▲	△	▲	▲	○	▲	△	○	▲	△	△	▲	△	▲	▲	○	○	○	○	△	▲	△	
HG-DC	▲	▲	▲	△	▲	○	▲	▲	○	▲	△	○	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	△	▲	△	
HG-PP	▲	▲	△	△	▲	△	△	△	△	▲	△	○	▲	▲	▲	▲	▲	▲	▲	△	△	○	○	△	▲	△	
<b>HelaGuard Metallic tubing</b>																											
SC	▲	▲	▲	○	▲	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	○	○	▲	▲		
SSC	▲	▲	▲	▲	▲	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	○	▲	▲	▲	▲		
PCS	○	○	○	△	○	○	○	○	○	▲	▲	△	△	○	○	○	○	△	△	▲	○	▲	▲	△	△		
NCS	▲	▲	▲	△	▲	○	△	▲	○	▲	△	○	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	△	▲	△	
LFHCS	△	△	△	▲	○	○	○	○	○	▲	▲	○	○	▲	○	○	○	▲	○	○	○	○	○	▲	△	○	
LTS	△	▲	▲	▲	○	○	○	△	○	▲	▲	△	▲	△	○	△	△	△	△	△	○	△	○	△	▲	○	
LTSH	▲	△	△	▲	▲	○	○	△	△	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	▲	▲	△	○	△	▲	▲	
LTSUL	▲	▲	▲	▲	○	○	○	△	○	▲	▲	△	▲	△	○	△	△	△	△	△	○	△	○	△	▲	○	
PCSB	○	○	○	△	○	○	○	○	○	▲	▲	△	△	○	○	○	○	△	△	▲	○	○	○	○	△	○	
SCSB	▲	▲	▲	○	▲	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	○	○	○	○	○	○	▲	▲		
<b>Spiral-reinforced PVC Conduits</b>																											
PSR	○	○	○	△	○	△	○	△	○	▲	△	○	△	△	○	△	△	△	△	○	○	△	○	△	△	○	
PSRSC	▲	▲	▲	▲	○	○	○	△	○	▲	▲	△	▲	△	○	△	△	△	△	△	○	△	○	△	▲	○	

- ▲ Good Resistance
- △ Limited Resistance
- Poor Resistance
- ◇ Suitable with stainless steel fittings

These details are only rough guide values. They should be regarded as a material specifications and are no substitute for a suitability test. Please see our datasheets for further details.

These information are valid at 23 °C.

	Methyl Bromide	Methyl Ethyl Ketone	Nitric acid (10%)	Nitric acid (60%)	Oxalic acid	Ozone (Gas)	Paraffin oil	Petrol	Phenol	Sea water	Silver Nitrate	Skydrol®	Sodium Chloride	Sodium Hydroxide (10%)	Sodium Hydroxide (60%)	Sulphur Dioxide (Gas)	Sulphuric acid (10%)	Toluene	Transformer oil	1.1.1-Trichloroethane	Trichloroethylene	Turpentine	Vegetable oil	Vinyl Acetate	Water	White Spirit	Zinc Chloride	Page Number
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	○	▲	○	○	△	○	▲	▲	○	▲	▲	▲	▲	▲	▲	○	○	▲	▲	▲	△	▲	▲	△	▲	▲	○	243
	○	▲	○	○	△	○	▲	▲	○	▲	▲	▲	▲	▲	▲	○	○	▲	▲	▲	△	▲	▲	△	▲	▲	○	244
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## HelaGuard Thread Standards

### Metric Thread

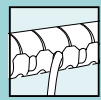
Standard thread conforming to EN60423

Thread size	External thread outside Ø (mm)	Internal thread inside Ø (mm)	Pitch (mm)
M12	12.0	10.4	1.5
M16	16.0	11.4	1.5
M20	20.0	18.4	1.5
M25	25.0	23.4	1.5
M32	32.0	30.4	1.5
M40	40.0	38.4	1.5
M50	50.0	48.5	1.5
M63	63.0	61.4	1.5
M75	75.0	73.4	1.5

### PG Thread

German standard thread conforming to DIN40430

Thread size	External thread outside Ø (mm)	Internal thread inside Ø (mm)	Pitch (mm)
PG7	12.0	11.3	1.27
PG9	15.2	13.9	1.41
PG11	18.6	17.3	1.41
PG13.5	20.4	19.1	1.41
PG16	22.5	21.2	1.41
PG21	28.3	26.8	1.59
PG29	37.0	35.5	1.59
PG36	47.0	45.5	1.59
PG42	54.0	52.5	1.59
PG48	59.3	57.8	1.59



### Cable Cover, Material: PA6, UL94V0

- Helawrap HHPA-V0

Helawrap is used to bundle and protect cables in the electrical industry, panel building, machine, automotive and truck manufacturing. Helawrap in 25m lengths is the time-saving solution for industrial applications. Due to its excellent flame-retardant properties, Helawrap Polyamide 6 V0 is the product of choice wherever fire protection is essential, for example in mass transit.

Helawrap in practical 2m lengths is designed for domestic and office use. It puts an end to the cable chaos associated with PCs, TVs and Hi-Fi systems.

#### Features and Benefits

- Ideal solution for bundling, protecting and fixing cables
- Quick and effortless to apply
- Self-extinguishing according to UL94 V0
- Very good abrasion protection
- Special profile enables branching off cable at any point
- Can be removed and reapplied often
- Available in several colours and sizes
- Handy applicator tool included

**Helawrap made of polypropylene (PP) can be found in the Product Catalogue.**



One Step to the Web!



HHPA-V0 is suitable for applications requiring high abrasion and fire protection.

<b>MATERIAL</b>	Polyamide 6 V0 (PA6V0)
<b>Operating Temperature</b>	-40 °C to +90 °C, intermittent +120 °C
<b>Flammability</b>	UL94 V0
<b>Specifications</b>	CEN TS 45545-2: 2009, DIN 5510-2



TYPE	Bundle Ø max.	Colour	Reel Length	Application Tool	Article-No.
HHPAV08	9	Black (BK)	25 m	HAT8	161-63101
HHPAV016	16	Black (BK)	25 m	HAT16	161-63201
HHPAV020	21	Black (BK)	25 m	HAT20	161-63301
HHPAV025	27	Black (BK)	25 m	HAT25	161-63401
HHPAV030	32	Black (BK)	25 m	HAT30	161-63501

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Accessories for retaining Helawrap Open Cable Cover

- **HWClips**

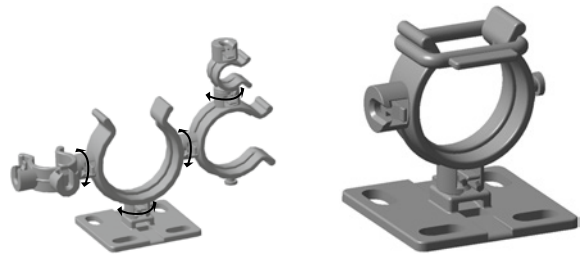
Helawrap clips and mounting plates can be linked into chains to bundle, protect and fix any number of cables on industrial machines. They can also be used in wiring cabinets, particularly in the door area where movement is a requirement. Helawrap accessories are also used to manage cables in the office or home.

#### Features and Benefits

- Mounts and routes Helawrap cable cover flexibly and efficiently
- Fit snugly around the cable cover and holds it tight
- Each clip can be joined to mounting plate or other clips of any size
- Each clip rotates freely
- Easily released and re-used
- Mounting plates fixed with screws, cable ties or adhesive



The Helawrap accessory set for bundling, fixing and protecting multiple cable runs.



Multiple clips can be joined. Clips swivel freely.

For secure hold, R1 loop can be used (for HWClip25 and HWClip30 only).

<b>MATERIAL</b>	Polyamide 6.6 High Imp. Mod., Heat Stab. (PA66HIRHS)	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Operating Temperature</b>	-40 °C to +105 °C	-35 °C to +85 °C
<b>Flammability</b>	UL94 HB	UL94 V2



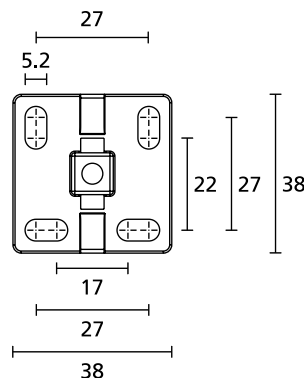
TYPE	for Helawrap size	Material	Colour	Article-No.
HWCLIP08	8	PA66HIRHS	Black (BK)	161-64002
HWCLIP16	16	PA66HIRHS	Black (BK)	161-64004
HWCLIP20	20	PA66HIRHS	Black (BK)	161-64006
HWCLIP25	25	PA66HIRHS	Black (BK)	161-64008
R1	25, 30	PVC	Black (BK)	201-20010
HWCLIP30	30	PA66HIRHS	Black (BK)	161-64010

Subject to technical changes.

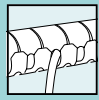
- **HWBase**

TYPE	Adhesive	Colour	Article-No.
HWBASE	-	Black (BK)	161-64014
HWBASEA	Acrylate with base of polyurethane foam	Black (BK)	161-64012

Subject to technical changes.



Helawrap HWBase/HWBaseA



### Application Tools for Helawrap Cable Cover

- **HAT Tools**

#### Features and Benefits

- Bundle cable rapidly and effortlessly
- Glides smoothly and securely through cover
- Easy insertion of cable



Applicator tools HAT are available for every Helawrap cover size.

TYPE	Colour	Pack Cont.	Article-No.
HAT8	Blue (BU)	10 pcs.	161-60001
HAT16	Blue (BU)	10 pcs.	161-60002
HAT20	Blue (BU)	10 pcs.	161-60003
HAT25	Blue (BU)	10 pcs.	161-60004
HAT30	Blue (BU)	10 pcs.	161-60005

Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.





### Polyethylene Spiral Binding for enhanced flame protection

- SBPEFR

SBPEFR spiral binding is used in areas, where fire protection is important in the automotive and electrical industry.

#### Features and Benefits

- Organises and protects cables and hoses
- Self-extinguishing according to UL94 V2
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours

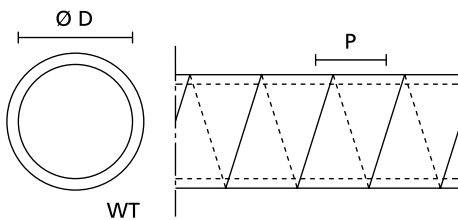


Spiral binding SBPEFR is available in a wide range of diameters and in colours black and white.

Spiral binding made of standard polyethylene can be found in the Product Catalogue.

<b>MATERIAL</b>	Polyethylene (PEFR), Flame retardant
<b>Operating Temperature</b>	-60 °C to +80 °C, intermittent +120 °C
<b>Flammability</b>	UL94 V2, FMVSS 302, Type B

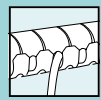
RoHS



One Step to the Web!

TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPEFR1.5	1.5	0.8	6.0	1.6	8	Black (BK)	30 m	161-43001
	1.5	0.8	6.0	1.6	8	White (WH)	30 m	161-43000
SBPEFR4	4	1.0	7.8	5	20	Black (BK)	30 m	161-43101
	4	1.0	7.8	5	20	White (WH)	30 m	161-43100
SBPEFR9	9	1.4	12.5	10	100	Black (BK)	30 m	161-43201
	9	1.4	12.5	10	100	White (WH)	30 m	161-43200
SBPEFR16	16	1.6	16.0	20	150	Black (BK)	30 m	161-43301
	16	1.6	16.0	20	150	White (WH)	30 m	161-43300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Polyethylene Spiral Binding with UL94V0 classification

- SBPAV0

Due to its excellent flame protection properties, SBPAV0 spiral binding is particularly suitable for the rail and aviation industries as well as public buildings.

#### Features and Benefits

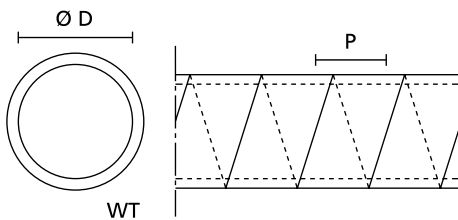
- Organises and protects cables and hoses
- Self-extinguishing according to UL94 V0
- Very good protection against abrasion
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours



Spiral binding SBPAV0.

Spiral binding made of standard polyamide 6 can be found in the Product Catalogue.

<b>MATERIAL</b>	Polyamide 6 V0 (PA6V0)
<b>Operating Temperature</b>	-40 °C to +90 °C, intermittent +120 °C
<b>Flammability</b>	UL94 V0
<b>Specifications</b>	CEN TS 45545-2: 2009, NF F 16-101, UL-Recognised



TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPAV01.5	1.5	0.4	6.0	1.6	8	Black (BK)	30 m	161-44000
SBPAV04	4	0.6	7.8	5	20	Black (BK)	30 m	161-44100
SBPAV09	9	1.0	12.5	10	100	Black (BK)	30 m	161-44200
SBPAV016	16	1.2	16.0	20	150	Black (BK)	30 m	161-44300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### PTFE Spiral Binding for superior protection

- SBPTFE

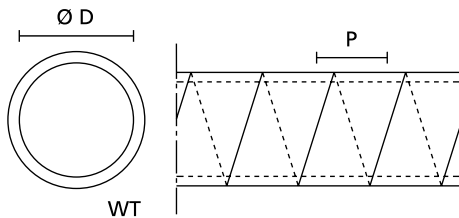
Wherever superior protection against chemical and extreme temperatures are important, the use of SBPTFE is recommended.

#### Features and Benefits

- Organises and protects cables and hoses
- Excellent fire protection
- Self-extinguishing according to UL94 V0
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours



Spiral binding SBTFE - ideal for extreme conditions.

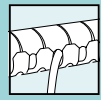


<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-60 °C to +260 °C, intermittent +350 °C
<b>Flammability</b>	UL94 V0

**RoHS** ✓

TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPTFE1.5	1.5	0.5	6.0	1.6	8	Natural (NA)	5 m	161-45000
SBPTFE4	4	0.7	7.8	5	20	Natural (NA)	5 m	161-45100
SBPTFE9	9	1.0	12.5	10	100	Natural (NA)	5 m	161-45200

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



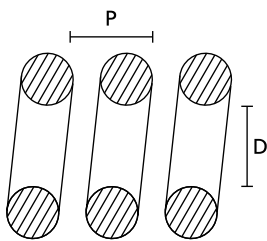
### Polypropylene spiral binding for high resistance against oil, narrow pitch

- SPS

SPS spiral binding is especially suitable for the use in areas where high abrasion resistance and much larger cable diameters are needed, for example the automobile and petrochemical industry as well as in heavy plant construction.

#### Features and Benefits

- Heavy-walled and very robust
- Excellent protection from mechanical stress
- Very high abrasion resistance
- Very good resistance to oils
- Available in diameters up to 50 mm
- Ideal for larger cable bundles



SPS spiral binding (narrow pitch)



Spiral binding SPS is very robust and provides good protection against oil.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-30 °C to +100 °C
<b>Flammability</b>	UL94 HB

HF ✓

RoHS ✓

TYPE	Ø D	Pitch (P)	Bundle Ø max.	Length (L)	Colour	Article-No.
SPS10	10	5.0	14	1 m	Black (BK)	162-10100
SPS15	15	5.0	20	1 m	Black (BK)	162-10150
SPS20	20	5.5	25	1 m	Black (BK)	162-10200
SPS25	25	6.0	30	1 m	Black (BK)	162-10250
SPS30	30	6.5	37	1 m	Black (BK)	162-10300
SPS35	35	6.5	42	1 m	Black (BK)	162-10350
SPS40	40	7.0	48	1 m	Black (BK)	162-10400
SPS50	50	8.0	59	1 m	Black (BK)	162-10500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



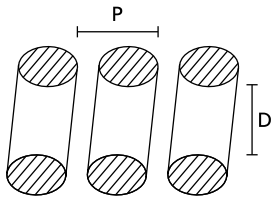
### Polypropylene spiral binding for high resistance against oil, wide pitch

- SPF

Wherever high abrasion resistance and stable cable inserting are important, the use of SPF spiral binding is recommended. SPF is suitable for wind industry, plant construction and the petrochemical industry.

#### Features and Benefits

- Heavy-walled and very robust
- Excellent protection from mechanical stress
- Very high abrasion resistance
- Very good resistance to oils
- Available in diameters up to 50 mm
- Ideal for larger cable bundles



SPF spiral binding (wide pitch)



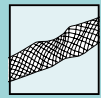
Spiral binding - extremely robust and abrasion resistant.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-30 °C to +100 °C
<b>Flammability</b>	UL94 HB



TYPE	Ø D	Pitch (P)	Bundle Ø max.	Length (L)	Colour	Article-No.
SPF10	10	10	13	1.0 m	Black (BK)	162-20100
SPF15	15	13	18	1.0 m	Black (BK)	162-20150
SPF20	20	18	23	1.0 m	Black (BK)	162-20200
SPF25	25	19	29	1.0 m	Black (BK)	162-20250
SPF30	30	20	34	1.0 m	Black (BK)	162-20300
SPF35	35	20	39	1.0 m	Black (BK)	162-20350
SPF40	40	20	45	1.0 m	Black (BK)	162-20400
SPF50	50	22	56	1.0 m	Black (BK)	162-20500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



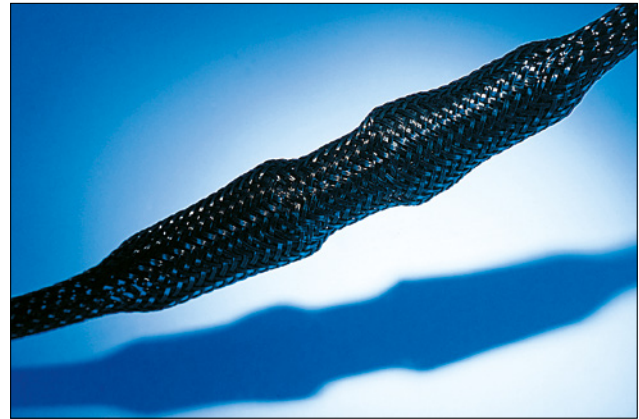
### Standard polyester braided sleeving

- **Helagaine HEGP**

Helagaine HEGP braided sleeving is used in the automotive industry and in machine construction. It is also used for smaller electrical appliances to avoid pockets of high temperature. HEGP fulfils the strict requirement of DIN5510-2 and is therefore also optimal for railway applications.

#### Features and Benefits

- Made of sturdy polyester
- Highly flexible
- High abrasion resistance
- Very high surface coverage
- 13 sizes for diameters from 1 - 66 mm for an optimal fit



Helagaine HEGP braided sleeving.

**To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.**

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2, FMVSS 302
<b>Specifications</b>	DIN 5510-2

HF ✓

RoHS ✓

TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGP03	1	5	Black (BK)	200 m	170-10300
HEGP04	2	7	Black (BK)	200 m	170-10400
HEGP05	3	9	Black (BK)	200 m	170-10500
HEGP06	4	11	Black (BK)	100 m	170-10600
HEGP08	5	12	Black (BK)	100 m	170-10800
HEGP10	7	15	Black (BK)	100 m	170-11000
HEGP12	8	17	Black (BK)	100 m	170-11200
HEGP15	10	20	Black (BK)	100 m	170-11500
HEGP20	14	26	Black (BK)	50 m	170-12000
HEGP25	18	34	Black (BK)	50 m	170-12500
HEGP30	20	40	Black (BK)	50 m	170-13000
HEGP40	30	50	Black (BK)	50 m	170-14000
HEGP50	40	66	Black (BK)	50 m	170-15000

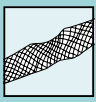
All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Standard polyester braided sleeving, expansion rate: 3:1

- Helagain HEGPX

Helagain HEGP and HEGPX braided sleeving is used in the automobile sector and in machine construction. It is also used for smaller electrical appliances to avoid pockets of high temperature. HEGP and HEGPX can be supplied in pre-cut lengths on request.

#### Features and Benefits

- Made of sturdy polyester
- Highly flexible
- Expansion rate of 3:1
- Easy to apply over irregular shapes
- Good abrasion resistance
- 7 sizes for diameters from 3 - 70 mm for an optimal fit



Helagain HEGPL Braided Sleeving.

To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2, FMVSS 302
<b>Specifications</b>	DIN 5510-2, UL-Recognised

HF ✓

RoHS ✓

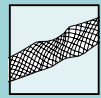
TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGPX06	3	10	Black (BK)	200 m	170-00060
HEGPX09	5	16	Black (BK)	100 m	170-00090
HEGPX12	6	19	Black (BK)	100 m	170-00120
HEGPX20	13	32	Black (BK)	100 m	170-00200
HEGPX30	19	45	Black (BK)	50 m	170-00300
HEGPX40	32	70	Black (BK)	50 m	170-00400

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Polyester braided sleeving, UL94V0 classification

- Helagaine HEGPV0

HEGPV0 braided sleeveings are used wherever fire protection is important such as control cabinets, robotics and automatic equipment. Also HEGPV0 is suitable for railway vehicle manufacturing as it conforms to the strict requirements of DIN5510-2 and NFF-16 101.

#### Features and Benefits

- Made of sturdy polyester
- Self-extinguishing according to UL94 V0 for enhanced fire protection
- Highly flexible
- High abrasion resistance
- High surface coverage



Helagaine HEGPV0 braided sleeving.

**To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.**

<b>MATERIAL</b>	Polyester (PBT)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+225 °C
<b>Flammability</b>	UL94 V0, FMVSS 302
<b>Specifications</b>	CEN TS 45545-2: 2009, DIN 5510-2, NF F 16-101

**RoHS** ✓

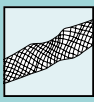
TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGPV004	3	7	Black with White Identification Yarn (BKIDWH)	100 m	170-30400
HEGPV006	5	11	Black with White Identification Yarn (BKIDWH)	100 m	170-30600
HEGPV008	7	13	Black with White Identification Yarn (BKIDWH)	100 m	170-30800
HEGPV012	11	17	Black with White Identification Yarn (BKIDWH)	50 m	170-31200
HEGPV015	13	20	Black with White Identification Yarn (BKIDWH)	50 m	170-31500
HEGPV020	18	25	Black with White Identification Yarn (BKIDWH)	50 m	170-32000
HEGPV030	35	40	Black with White Identification Yarn (BKIDWH)	50 m	170-33000
HEGPV050	40	60	Black with White Identification Yarn (BKIDWH)	50 m	170-35000
HEGPV040	45	50	Black with White Identification Yarn (BKIDWH)	50 m	170-34000

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Polyester braided sleeving, expansion rate: 3:1, UL94V0 classification

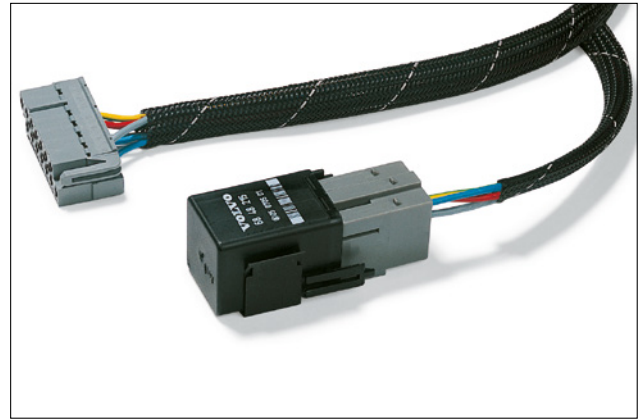
- Helagaine HEGPV0X

Helagaine HEGPV0X is especially suitable for areas wherever fire protection is important as well as a higher expansion ratio of the braided sleeve. Helagaine HEGPV0X offers superior cable protection for machine tools, robotics and automatic equipment. Helagaine HEGPV0X had been successfully tested to DIN5510-2 and NF F 16-101 and can thus be used in many railway applications.

#### Features and Benefits

- Made of sturdy polyester
- Self-extinguishing according to UL94 V0 for enhanced fire protection
- Highly flexible
- Expansion ratio of 3:1
- Easy to apply over irregular shapes
- Good abrasion resistance

To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.



Helagaine HEGPV0X braided sleeving.

<b>MATERIAL</b>	Polyester (PBT)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+225 °C
<b>Flammability</b>	UL94 V0, FMVSS 302
<b>Specifications</b>	DIN 5510-2, NF F 16-101, UL-Recognised

RoHS

TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGPV0X03	2	6	Black with White Identification Yarn (BKIDWH)	200 m	170-50030
HEGPV0X06	3	10	Black with White Identification Yarn (BKIDWH)	200 m	170-50060
HEGPV0X09	5	16	Black with White Identification Yarn (BKIDWH)	100 m	170-50090
HEGPV0X12	6	19	Black with White Identification Yarn (BKIDWH)	100 m	170-50120
HEGPV0X20	12	32	Black with White Identification Yarn (BKIDWH)	100 m	170-50200
HEGPV0X30	19	45	Black with White Identification Yarn (BKIDWH)	50 m	170-50300
HEGPV0X40	32	70	Black with White Identification Yarn (BKIDWH)	50 m	170-50400
HEGPV0X50	38	76	Black with White Identification Yarn (BKIDWH)	50 m	170-50500

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Polyamide braided sleeving for excellent abrasion resistance

- Helagaine HEGPA66

Helagaine HEGPA66 is particularly suitable for vehicle manufacturing as well as plant construction.

#### Features and Benefits

- Made from heavy-duty polyamide yarn
- Excellent abrasion resistance
- Highly flexible
- Easy to apply over irregular shapes
- Eases application by expanding when compressed
- Very high surface covering



Various types of Helagaine braided sleeving.

To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-60 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+255 °C
<b>Flammability</b>	UL94 V2, FMVSS 302
<b>Specifications</b>	DIN 5510-2, NF F 16-101



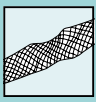
TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGPA6604	3	6	Black (BK)	200 m	170-40400
HEGPA6606	4	8	Black (BK)	100 m	170-40600
HEGPA6608	5	10	Black (BK)	100 m	170-40800
HEGPA6610	7	12	Black (BK)	100 m	170-41000
HEGPA6612	8	14	Black (BK)	100 m	170-41200
HEGPA6616	12	18	Black (BK)	50 m	170-41600
HEGPA6620	15	23	Black (BK)	50 m	170-42000
HEGPA6625	18	28	Black (BK)	50 m	170-42500
HEGPA6630	25	32	Black (BK)	50 m	170-43000
HEGPA6640	30	44	Black (BK)	50 m	170-44000
HEGPA6650	40	55	Black (BK)	50 m	170-45000
HEGPA6660	50	65	Black (BK)	50 m	170-46000

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Polyester braided sleeving for reduction of vibration noise

- Helagain HEGSAS

Helagain HEGSAS is used primarily in the automotive sector and wherever vibration noise must be reduced. Helagain HEGSAS can be supplied in pre-cut lengths on request.

#### Features and Benefits

- Superior noise reduction
- Made of sturdy polyester
- Highly flexible
- Expansion rate of 3:1
- Easy to apply over irregular shapes due
- High surface coverage
- Excellent abrasion resistance

To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.



Helagain HEGSAS braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGSAS04	2	8	Black (BK)	200 m	170-60401
HEGSAS06	4	11	Black (BK)	200 m	170-60600
HEGSAS09	6	16	Black (BK)	100 m	170-60900
HEGSAS12	8	20	Black (BK)	100 m	170-61200
HEGSAS15	10	24	Black (BK)	50 m	170-61500
HEGSAS20	13	30	Black (BK)	50 m	170-62000
HEGSAS30	20	40	Black (BK)	25 m	170-63000
HEGSAS40	30	50	Black (BK)	25 m	170-64000

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



### Light weight standard polyester braided sleeving

- **Helagaine HEGPL**

Helagaine HEGPL is used primarily in automobile interiors, motor compartments, car bodies and underfloors.

#### Features and Benefits

- Made of sturdy polyester
- Expansion rate of 3:1
- Easier application over irregular shapes
- Highly flexible
- Good abrasion resistance



Helagaine HEGPL braided sleeving.

**To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.**

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2, FMVSS 302, Type B

**RoHS** ✓

TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGPL03	3	8	Black (BK)	1,000 m	170-80503
HEGPL06	5	12	Black (BK)	400 m	170-80506
HEGPL12	8	21	Black (BK)	300 m	170-80512
HEGPL20	12	30	Black (BK)	300 m	170-80520
HEGPL30	18	55	Black (BK)	200 m	170-80530
HEGPL40	24	66	Black (BK)	150 m	170-80540
HEGPL50	30	82	Black (BK)	150 m	170-80550

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.





### NOMEX® braided sleeving

- Helagaine HEGMAN and HEGMANWO

Helagaine HEGMAN and HEGMANWO has been designed for applications that require mechanical protection at high temperatures such as aeronautic, aerospace, military, railway and shipbuilding industries.

#### Features and Benefits

- Made of non-flammable meta-aramid
- Extremely flexible
- High expansion for easy installation over long lengths
- Optimal mechanical protection for harnesses
- Able to withstand the most severe environments
- Superior protection against abrasion, flames and high temperatures
- Highly resistant to radiation and fluids



One Step to the Web!



Helagaine HEGMAN and HEGMANWO are available in various sizes.

<b>MATERIAL</b>	Polyaramid Polymetaphenylene Isophthalamide (NOMEX)
<b>Operating Temperature</b>	+240 °C
<b>Melting Point</b>	Does not melt / Carbonisation above +370 °C
<b>Flammability</b>	UL94 V0 (Raw material), UL224 VW-1

RoHS

TYPE	Description According to EN6049	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGMAN-02	EN6049-003-02-5	1	2	Green (GN)	100 m	170-02100
HEGMAN-04	EN6049-003-04-5	2	4	Green (GN)	100 m	170-02101
HEGMAN-06	EN6049-003-06-5	4	8	Green (GN)	100 m	170-02102
HEGMAN-08	EN6049-003-08-5	6	12	Green (GN)	50 m	170-02103
HEGMAN-10	EN6049-003-10-5	8	16	Green (GN)	50 m	170-02104
HEGMAN-15	EN6049-003-15-5	10	20	Green (GN)	50 m	170-02105
HEGMAN-20	EN6049-003-20-5	12	24	Green (GN)	50 m	170-02106
HEGMAN-25	EN6049-003-25-5	15	30	Green (GN)	50 m	170-02107
HEGMAN-30	EN6049-003-30-5	20	40	Green (GN)	50 m	170-02108

All dimensions in mm. Subject to technical changes.

Cuts in any lengths. NOMEX® is a registered trademark of DuPont. Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Description According to EN6049	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGMANWO-02	EN6049-004-02-5	1	2	Green (GN)	100 m	170-02000
HEGMANWO-04	EN6049-004-04-5	2	4	Green (GN)	100 m	170-02001
HEGMANWO-06	EN6049-004-06-5	4	8	Green (GN)	100 m	170-02002
HEGMANWO-08	EN6049-004-08-5	6	12	Green (GN)	50 m	170-02003
HEGMANWO-10	EN6049-004-10-5	8	16	Green (GN)	50 m	170-02004
HEGMANWO-15	EN6049-004-15-5	10	20	Green (GN)	50 m	170-02005
HEGMANWO-20	EN6049-004-20-5	12	24	Green (GN)	50 m	170-02006
HEGMANWO-25	EN6049-004-25-5	15	30	Green (GN)	50 m	170-02007
HEGMANWO-30	EN6049-004-30-5	20	40	Green (GN)	50 m	170-02008

All dimensions in mm. Subject to technical changes.

Cuts in any lengths. NOMEX® is a registered trademark of DuPont. Minimum Order Quantity (MOQ) may differ from package content.



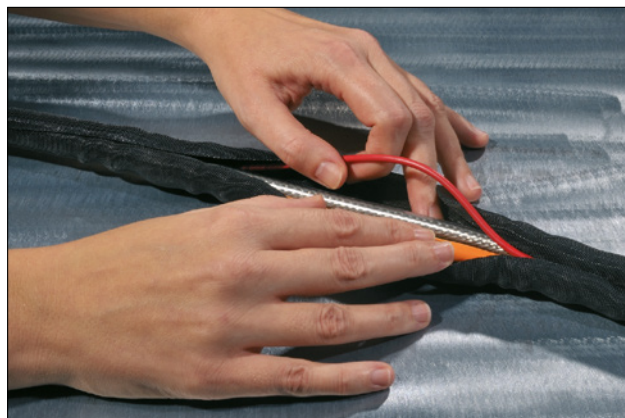
### Polyester self-closing sleeving

- **Helagaine Twist-In**

Helagaine Twist-In has many applications in engineering, electronics and electrical installations. Twist-In in the practical 2m and 5m lengths, used at home and office, provide perfect cable protection for PC, TV- and HiFi-equipment.

#### Features and Benefits

- Self-closing sleeve made of polyester
- Very good protection against abrasion
- Ideal for retro-fitting
- Quick and easy installation and removal
- Allows to bundle for inspection, maintenance and assembly
- Small range of sizes covers a wide range of applications



*Helagaine Twist-In gives easy access to cables and wires for inspection, maintenance and assembly.*

**To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.**



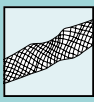
*One Step to the Web!*

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-70 °C to +125 °C
<b>Melting Point</b>	+255 °C
<b>Flammability</b>	FMVSS 302, Self extinguishing



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
Twist-In 05	4	5	Black (BK)	150 m	170-01000
Twist-In 08	5	8	Black (BK)	100 m	170-01001
Twist-In 13	10	13	Black (BK)	50 m	170-01002
Twist-In 19	16	19	Black (BK)	25 m	170-01004
Twist-In 25	19	25	Black (BK)	25 m	170-01005
Twist-In 29	25	29	Black (BK)	15 m	170-01006
Twist-In 32	29	32	Black (BK)	15 m	170-01007
Twist-In 38	32	38	Black (BK)	15 m	170-01008
Twist-In 50	38	50	Black (BK)	15 m	170-01010

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



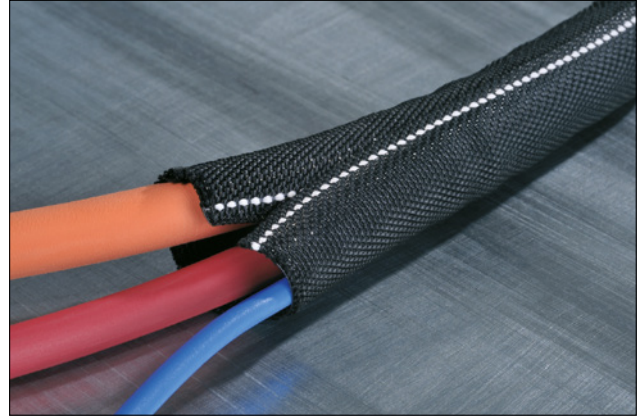
### Polyester self-closing sleeving, flame-retardant

- **Helagaine Twist-In-FR**

Helagaine Twist-In-FR can be used in areas where fire protection is important, such as railway, aerospace and shipbuilding.

#### Features and Benefits

- Self-closing sleeve made from polyester
- Optimal fire protection
- Ideal for retro-fitting
- Very easy, quick installation and removal
- Quick and easy access to bundle for inspection, maintenance and assembly
- Small range of sizes covers a wide range of applications



Helagaine Twist-In-FR with the white identification yarn.

To prevent fraying, the sleeve can be cut with the hot cutting tool HSG0, see page 382.



One Step to the Web!

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +125 °C
<b>Melting Point</b>	+240 °C
<b>Flammability</b>	FMVSS 302, Self extinguishing
<b>Specifications</b>	CEN TS 45545-2: 2009, NF F 16-101



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
Twist-In-FR 05	4	5	Black with White Identification Yarn (BKIDWH)	150 m	170-01100
Twist-In-FR 08	5	8	Black with White Identification Yarn (BKIDWH)	100 m	170-01101
Twist-In-FR 13	10	13	Black with White Identification Yarn (BKIDWH)	50 m	170-01102
Twist-In-FR 19	16	19	Black with White Identification Yarn (BKIDWH)	25 m	170-01104
Twist-In-FR 25	19	25	Black with White Identification Yarn (BKIDWH)	25 m	170-01105
Twist-In-FR 29	25	29	Black with White Identification Yarn (BKIDWH)	15 m	170-01106
Twist-In-FR 32	29	32	Black with White Identification Yarn (BKIDWH)	15 m	170-01107
Twist-In-FR 38	32	38	Black with White Identification Yarn (BKIDWH)	15 m	170-01108
Twist-In-FR 50	38	50	Black with White Identification Yarn (BKIDWH)	15 m	170-01109

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.  
For product specific approvals please refer to the Appendix.



### Re-sealable protective sleeving for post-termination cable organisation

- HELAHOOK

HELAHOOK is used in industrial machines, electrical appliances, shipbuilding, railway vehicles and in the aerospace industry. HELAHOOK is also employed in automobiles or commercial vehicles. It is the ideal solution for post-termination cable organisation and wherever repeated use is a necessity.

#### Features and Benefits

- Re-sealable cable protection made of polyester
- Very elastic, fits snugly around the cables
- Hook and loop sealing system can be used for retro-fitting
- High abrasion-resistance



HELAHOOK protective sleeving allows for retrospective fitting and repeated use.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Flammability</b>	UL94 V2, FMVSS 302
<b>Specifications</b>	NF F 16-101



One Step to the Web!

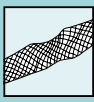


TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HELAHOOK10	3	15	Black (BK)	25 m	170-05100
HELAHOOK15	10	20	Black (BK)	25 m	170-05150
HELAHOOK20	15	30	Black (BK)	25 m	170-05200
HELAHOOK25	20	40	Black (BK)	25 m	170-05250
HELAHOOK30	25	50	Black (BK)	25 m	170-05300

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



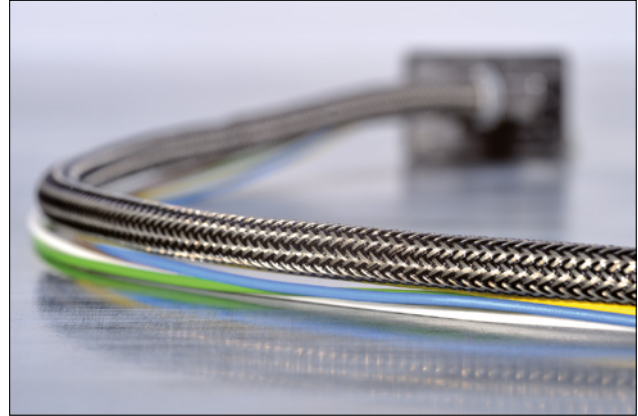
### Electromagnetic protection braided sleeving

- Helagaine HEGEMIP

Helagaine HEGEMIP braided sleeving is used for highly sensitive electronics, such as electrical appliances and machines, radio equipment, military and automotive engineering.

#### Features and Benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- Superior abrasion protection
- No kinks or tears, even when bending the sleeve 90°
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



HEGEMIP braided sleeving: reliable protection from electromagnetic radiation.

<b>MATERIAL</b>	Polyester (Halogen free), Tin Plated copper
<b>Operating Temperature</b>	-40 °C to +175 °C, i ntermittent +200 °C
<b>EMI requirements</b>	10 KHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL94 V2, FMVSS 302
<b>Specifications</b>	NF F 16-101



TYPE	Ø D	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIP04	4	4	6	Tin coloured and Black	21.5 g/m	100 m	173-00400
HEGEMIP06	6	5	10	Tin coloured and Black	28.5 g/m	100 m	173-00600
HEGEMIP08	8	8	11	Tin coloured and Black	26.5 g/m	100 m	173-00800
HEGEMIP10	10	8	13	Tin coloured and Black	43.5 g/m	50 m	173-01000
HEGEMIP12	12	10	15	Tin coloured and Black	48.0 g/m	50 m	173-01200
HEGEMIP14	14	12	18	Tin coloured and Black	58.0 g/m	100 m	173-01400
HEGEMIP16	16	14	20	Tin coloured and Black	72.5 g/m	100 m	173-01600
HEGEMIP18	18	16	22	Tin coloured and Black	78.6 g/m	50 m	173-01800
HEGEMIP20	20	18	25	Tin coloured and Black	100.0 g/m	50 m	173-02000

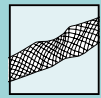
All dimensions in mm. Subject to technical changes.

Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





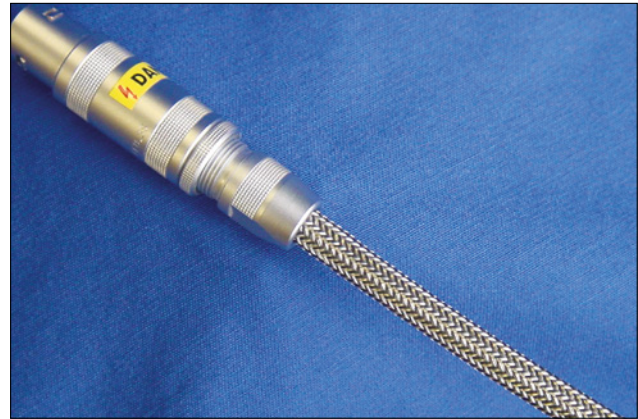
### Electromagnetic protection, flame-retardant protection braided sleeving

- Helagaine HEGEMIPV0

Helagaine HEGEMIPV0 braided sleeving is used for protection of highly sensitive electronics in industries, wherever fire protection is important, such as mass transit, aerospace and military industries.

#### Features and Benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- Self-extinguishing according to UL94 V0
- Superior abrasion protection
- No kinks or tears, even when bending the sleeve 90°
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



HEGEMIPV0 braided sleeving: EMI protection for enhanced flame protection.

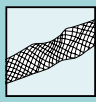
<b>MATERIAL</b>	Polyester (PBT), Tin Plated copper
<b>Operating Temperature</b>	-40 °C to +175 °C, intermittent +200 °C
<b>EMI requirements</b>	10 KHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL94 V0, FMVSS 302



TYPE	Ø D	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIPV004	4	4	6	Tin coloured and Black	21.5 g/m	100 m	173-60400
HEGEMIPV006	6	5	10	Tin coloured and Black	28.5 g/m	100 m	173-60600
HEGEMIPV008	8	8	11	Tin coloured and Black	26.5 g/m	100 m	173-60800
HEGEMIPV010	10	8	13	Tin coloured and Black	43.5 g/m	50 m	173-61000
HEGEMIPV012	12	10	15	Tin coloured and Black	48.0 g/m	50 m	173-61200
HEGEMIPV014	14	12	18	Tin coloured and Black	58.0 g/m	100 m	173-61400
HEGEMIPV016	16	14	20	Tin coloured and Black	72.5 g/m	100 m	173-61600
HEGEMIPV018	18	16	22	Tin coloured and Black	78.6 g/m	50 m	173-61800
HEGEMIPV020	20	18	25	Tin coloured and Black	100.0 g/m	50 m	173-62000

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.





## Electromagnetic protection braided sleeving for hybrid automobiles

### • Helagaine HEGEMIP-HY

Helagaine HEGEMIP-HY provides electromagnetic protection in hybrid automobiles.

#### Features and Benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- No kinks or ruptures even when bent at sharp angles
- Superior abrasion protection
- Special copper alloy for enhanced protection against salt spray
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfills the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



HEGEMIP-HY braided sleeving: EMI protection for hybrid automobiles.

<b>MATERIAL</b>	Polyester (PET), Tin Plated copper
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>EMI requirements</b>	10 KHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL94 V2, FMVSS 302

RoHS

TYPE	Ø D	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIP-HY20	20	19	27	Silver (SR), Orange (OG)	72 g/m	50 m	173-02001
HEGEMIP-HY30	30	25	35	Silver (SR), Orange (OG)	101 g/m	50 m	173-03000
HEGEMIP-HY35	35	30	40	Silver (SR), Orange (OG)	120 g/m	50 m	173-03501
HEGEMIP-HY40	40	30	50	Silver (SR), Orange (OG)	180 g/m	50 m	173-04000
HEGEMIP-HY50	50	40	60	Silver (SR), Orange (OG)	193 g/m	50 m	173-05000

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

## Hot cutting tool

### • HSG0

The HSG0 hand tool is used to cut braided sleeving cleanly and without fraying.

#### Features and Benefits

- Light and sturdy
- Heats up quickly with the press of button and cuts in seconds
- The yarn melts and fuses together
- No fraying of the sleeving



The HSG0 hot cutting tool prevents the braided sleeving from fraying.

TYPE	Weight	Colour	Article-No.
HSG0	1.15 kg	Blue (BU)	170-99001

Subject to technical changes.



### Cable Protection for sharp-edged cut-out-sections

- **Flexiform Edge Protection grommet strip**

Flexiform grommet strip is used to protect cables routed through sharp-edged cut-out sections.

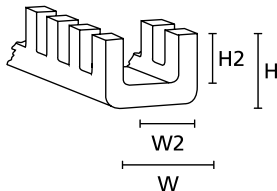
#### Features and Benefits

- Very flexible
- Easily and securely applied without adhesives
- Close-fitting rail for effective, orderly-looking protection



Optimal protection of cables and wires at panel edges.

Flexiform made of polyethylene and polyamide 6 can be found in the Product Catalogue.



<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-60 °C to +260 °C, (+350 °C, 200 h)
<b>Flammability</b>	UL94 V0
<b>Specifications</b>	PAN 6480-A

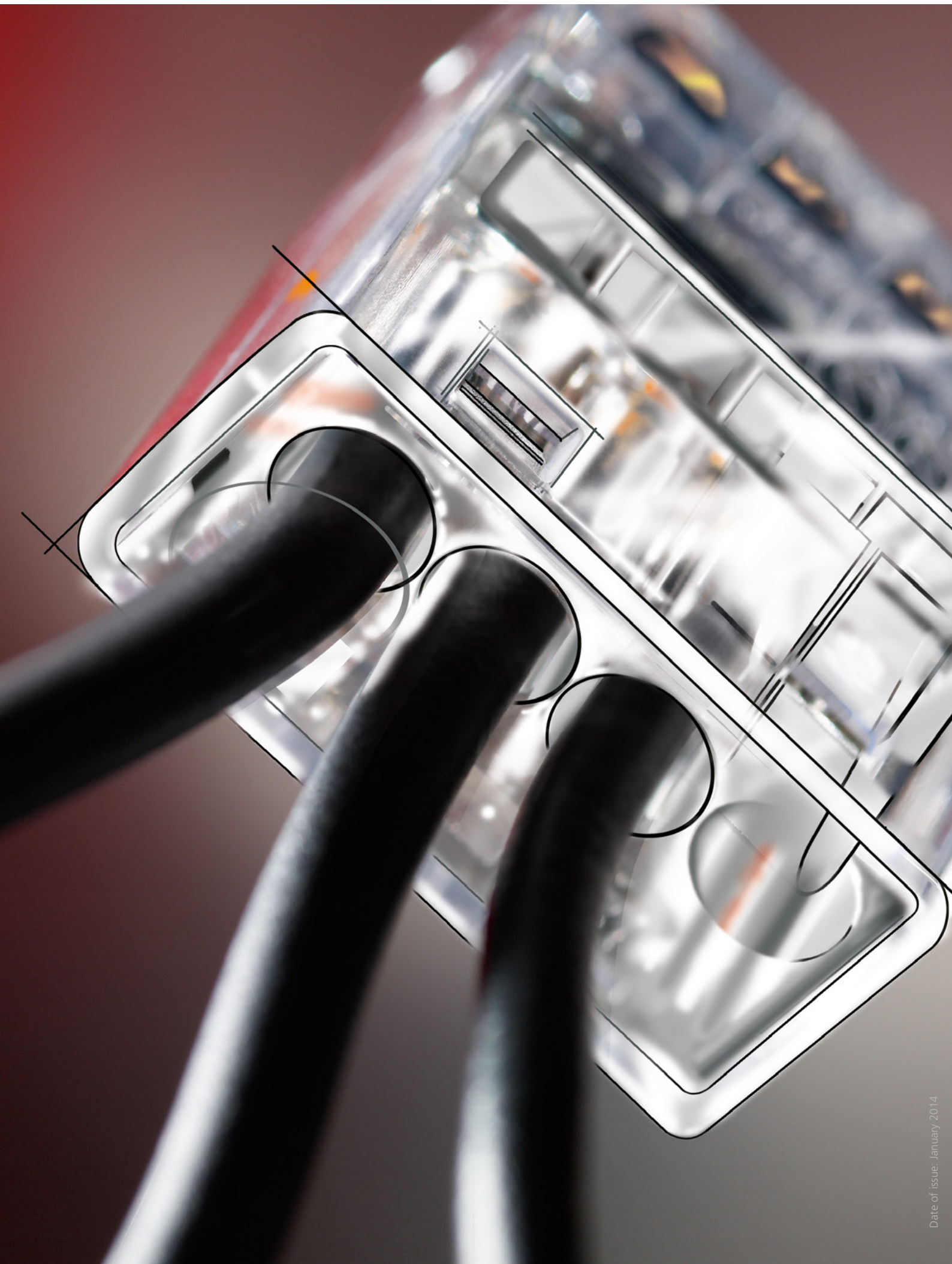


TYPE	Panel Thickness	Width (W)	Width (W2)	Height (H)	Height (H2)	Colour	Pack Cont.	Article-No.
G51TA	0.40 - 1.30	3.9	1.5	4.3	2.7	Natural (NA)	3 m	251-30109
G51TB	1.30 - 2.10	4.6	2.4	4.3	2.7	Natural (NA)	3 m	251-30209
G51TC	2.10 - 3.30	5.7	3.5	4.3	2.7	Natural (NA)	3 m	251-30309
G51TD	3.30 - 4.80	8.4	5.1	6.2	4.3	Natural (NA)	3 m	251-30409
G51TE	4.80 - 6.50	9.9	6.7	6.4	4.5	Natural (NA)	3 m	251-30509
G51TF	6.50 - 8.10	11.4	8.3	6.8	4.8	Natural (NA)	3 m	251-30609
G51TG	8.10 - 9.70	13.2	10.1	6.8	4.8	Natural (NA)	3 m	251-30709
G51TH	9.70 - 12.90	16.4	13.2	6.8	4.8	Natural (NA)	3 m	251-30809

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Flexiform grommet strips are not self-adhesive and therefore not suitable for outer edges.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





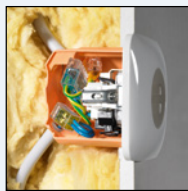


# Installation Devices

## HelaCon Family



A sophisticated push-in wire connector for professional cable connections in electrical housing applications.



## SpotClip



SpotClip is a unique product that has been developed for mounting down lights in dry mortarless construction and acoustic construction applications.

## Cable Scout+

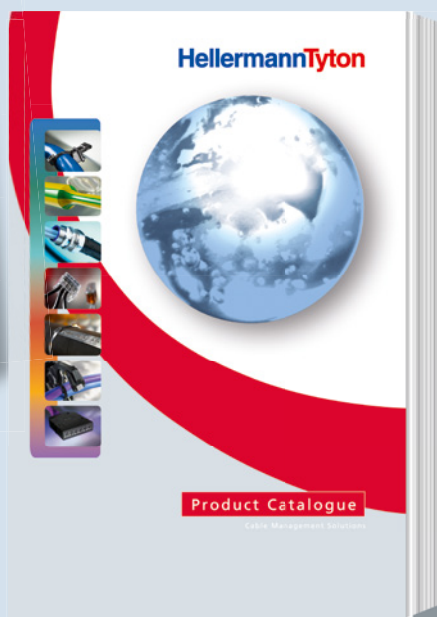


Professional cable installation tool. Sets of rods, grips and a wide range of useful accessories.

## HelaTape



HellermannTyton offers a wide range of tapes for sealing, insulation and bundling of cables and conduits.



Find more information in our Product Catalogue in chapter 4.

[www.HellermannTyton.co.uk](http://www.HellermannTyton.co.uk)  
**HellermannTyton**











## 5.1 Label Selection

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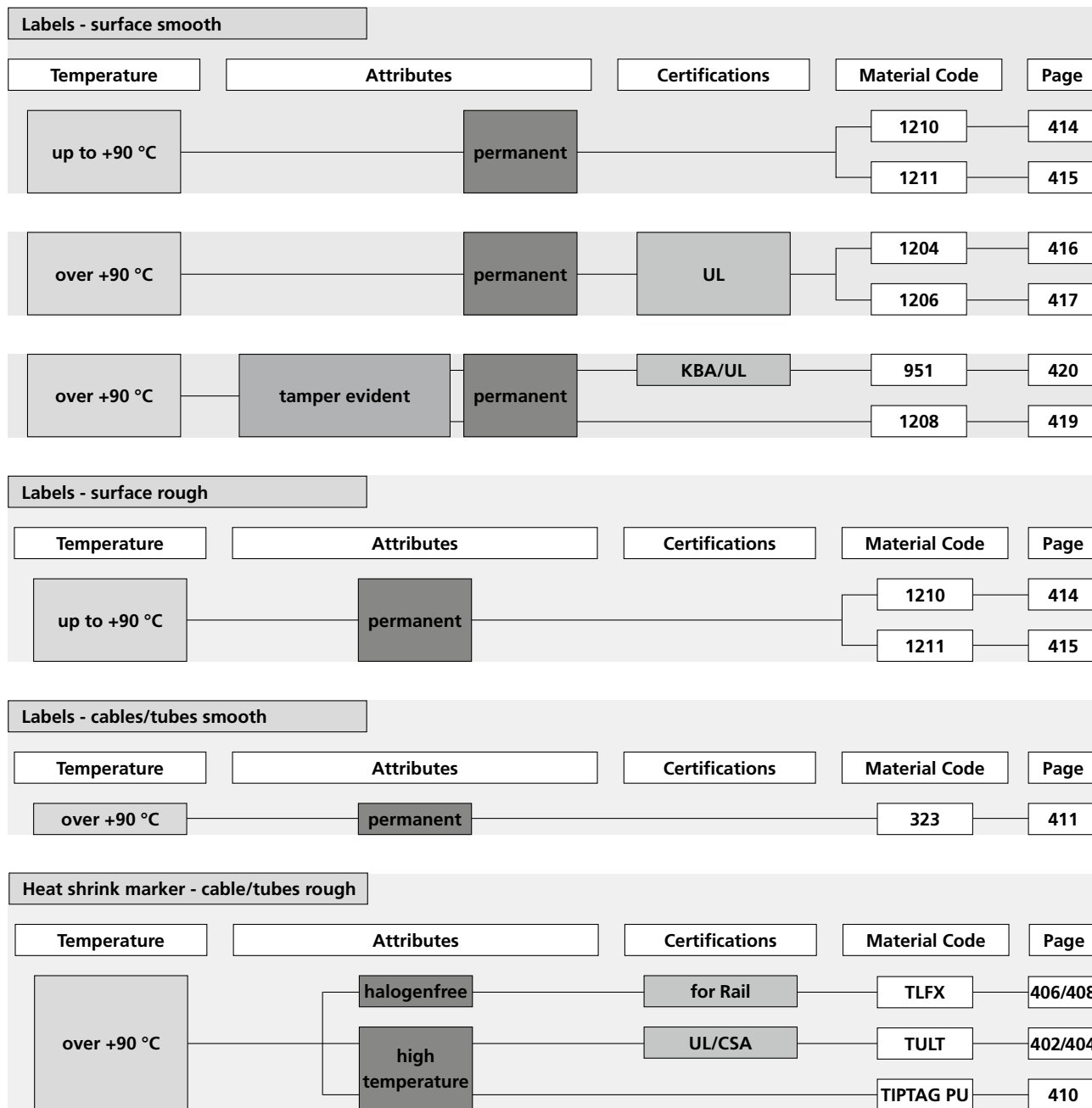
<b>Labelling Software</b>	
TagPrint Pro	429

**Label Selection**

Use our flowchart to find the right label or identification material.

Select the object to be identified (flat or curved surface) and its surface quality (smooth or rough). Depending on what you require from our identification systems, you will be guided through the flowchart to the end. Please note that we have highlighted the respective printer technology (thermal transfer, matrix or laser printer, etc.) in colour.

When selecting the material, the general rule is that a higher quality material can of course be used for lower requirements (e.g. a material for operating temperatures of over +90 °C can also be used for temperatures below +90 °C). And you can, of course, always ring us on our usual telephone numbers.



Labelling material for: TT printer

**Approvals:**

1. UL: Underwriter Laboratories
2. KBA: German Motor Transport Authority
3. CSA: Canadian Standards Authority

## Bonding properties of labels

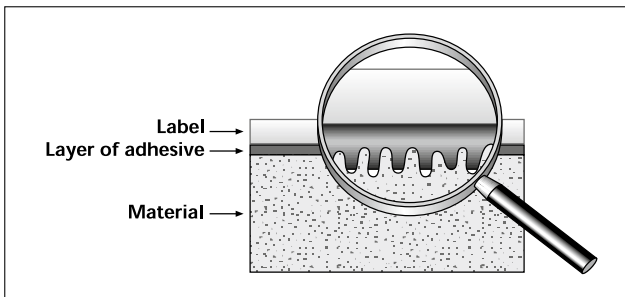
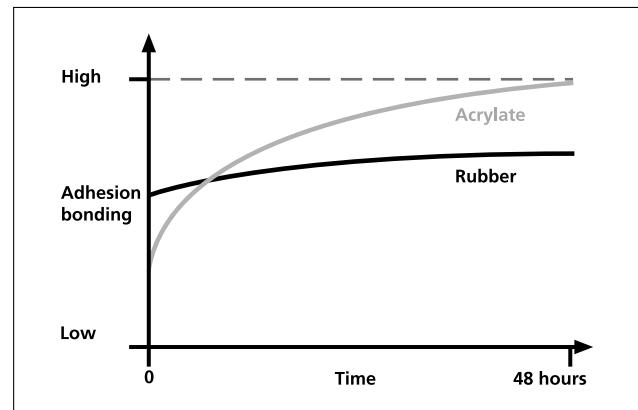
The great variety places where adhesive labels can be used require a broad range of different materials and adhesives. The information given below will explain all the important aspects of this adhesion.

To enable you to make the right choice for your particular application quickly and efficiently, we have set out the most important selection criteria diagrammatically in our flowchart.

### Initial and final bonding

In principle there are two different bonding conditions for labels: The initial bonding which occurs immediately after the label and surface are brought together and the final bonding which represents the permanent bonding status between label and surface following the application, pressing on and curing of the adhesive. The bonding of labels is measured in a defined test process (FINATFTM) and stated in N/mm.

The initial bonding (or tack) describes the bonding ability of the label after it has been applied to the surface, without being pressed down. The final bonding of labels is ultimately affected by the combined factors of material quality, adhesive basis, curing time, pressure applied and surface tension.



### Adhesive basis

HellermannTyton currently uses acrylate and synthetic rubber as adhesive bases. Acrylate adhesives belong to the family of thermoplastic resins and at normal temperatures they provide high and lasting adhesion. When considering the final bonding of acrylate adhesives, however, it must be noted that the relatively high final bonding is only attained after a certain curing period. This is especially true of labelling materials which may be used for rating plates. Normally you must wait for at least 48 hours in a dry office environment.

### Adhesion: powers of attraction between two materials

Adhesion can be described, in principle, as the ability of the adhesive to form a bond with the substrate; the substrate is the surface of the material you need the label applied to. The influencing factors for optimum bonding are the quality of the material's surface and the creep ability of the adhesive. The crucial factor is the proportion of the surface which is actually to be 'wetted' by the adhesive. Most surfaces appear – from a microscopic point of view – like a mountain range with peaks and valleys; i.e. the effective surface is much bigger than that seen by the naked eye. No matter how smooth and flat a substrate may appear to be, there is always some roughness. The better the adhesive flows into the valleys, the more bonding points it can form and the better the adhesive will bond to the surface. A thicker layer of adhesive does allow these uneven areas to be filled in better, but a thicker coat of adhesive has negative effects when labels are processed by machine (e.g. leakage of the adhesive or limited storage life).

Synthetic rubber-based adhesives, unlike acrylate-based adhesives, are distinguished by their high initial bonding. But this adhesive technology does not achieve a final bonding comparable to acrylate adhesives (see graph). Special mixtures of synthetic rubber are used in labelling technology, for example for removable labels, e.g. HellermannTyton material type 265 and 270.

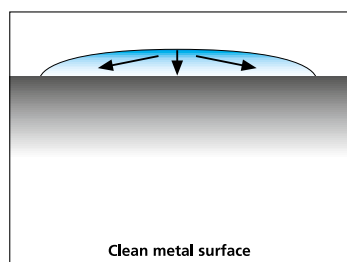


## Effect of surface energy on bonding properties

The surface energy (also known as surface tension) is an important factor in the selection of the right adhesive. Because of their chemical formulation, all surfaces have their own polarity and surface tension. The cause of surface tensions is the tendency of liquids to reduce their surface as far as possible, thus to form drops. When a surface which is to be marked (substrate) is wetted with an adhesive, in addition to the adhesive formulation and the surface quality (material, roughness,

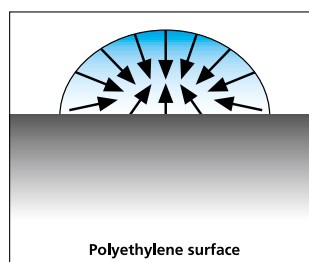
dampness etc.) the surface energy is also a decisive factor in the maximum attainable bonding force of the adhesive.

As a basic rule, it can be noted that the surface energy of the adhesive must be less than the surface energy of the material to be bonded (substrate). The adhesive should completely wet the substrate and not form any drops.



### Flat drops

- High surface energy
- Good wetting
- Good bonding properties



### Rounded drops

- Low surface energy
- Poor wetting
- Weak bonding properties

## The material combination is the decisive factor

An acrylate-based adhesive is polar and therefore has a relatively high surface energy. Acrylate-based adhesives achieve optimum final bonding on polar substrates (e.g. glass or metals) with a high surface energy.

More critical is the application of labels using acrylate-based adhesives on materials with low surface energy (apolar substrates) such as, for example, silicone, polyethylene and polypropylene. The surface tensions of an acrylate-based adhesive can be reduced for particular applications by the addition of specific additives. However, this step brings with it some drawbacks, for example, a free-flowing adhesive and thus a limited life and storage ability of the labels.

The lower bonding force of low-energy surfaces must therefore be taken into account of when considering the end use.

For optimum marking using acrylate-based adhesive labels, HellermannTyton uses an improved adhesive formulation, which is co-ordinated to the most common materials in industry. In most cases it is possible to guarantee very good application of these labels. In borderline cases, a modified adhesive formulation may be necessary.

Talk to us, we'll be delighted to advise you.

Surface energies of different materials	
Material	Surface energy [mN/m]*
Polytetrafluorethylene (PTFE)	18
Silicon (Si)	24
Polyvinyl fluoride (PVF)	25
Natural rubber (CR)	25
Polypropylene (PP)	29
Polyethylene (PE)	35
Polymethyl methacrylate, Acryl (PMMA)	36
Epoxy (EP)	36
Polyoxymethylene, Acetal (POM)	36
Polystyrene (PS)	38
Polyvinyl chloride (PVC)	39
Vinylidene chloride (VC)	40
Polyester (PET)	41
Polyimide (PI)	41
Polyarylsulfone (PAS)	41
Phenolic resin	42
Polyurethane (PUR)	43
Polyamide 6 (PA 6)	43
Polycarbonate (PC)	46
Lead (Pb)	450
Aluminium (Al)	840
Copper (Cu)	1100
Chromium (Cr)	2400
Iron (Fe)	2550

\* The values stated are non-binding reference values and for guidance purposes only.

## Instructions for using cable markers with protective laminate

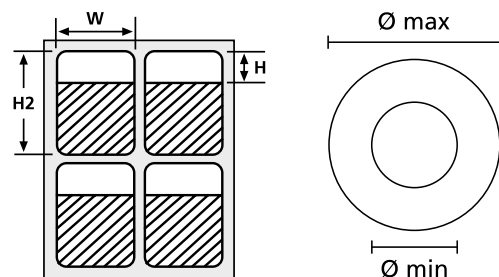
Cable markers with protective laminate (also known as cable laminators) have a white or coloured label field which can be written on either manually using a marker pen (see RiteOn) or using a matrix, laser or thermal transfer printer (see Helatag). Depending on the design for the respective type of printing, the title block has a special surface finish to achieve the optimum print anchorage to the label

substrate. This results in long-lasting, clear, sharp writing with text, graphics or barcode. A special feature is that the HellermannTyton protective laminate comes with rounded corners. This achieves greater final adhesion of the protective laminate and counteracts any undesirable removal of the label, especially with cables of small diameter and in heavy-duty applications.

When calculating the minimum and maximum diameters, the following formula has been used:

$$\text{Diameter} = \frac{\text{Length of laminate}}{\pi}$$

Pi ( $\pi$ ) is the constant 3.14.



Helatag self-laminating labels.

### Minimum diameter:

To save time, when wrapping the cable with the cable laminator, a limit of max. 2 windings has been set. The protective laminate length is calculated from: Height H2 – height H

By applying the 'diameter' formula this produces the approx. minimum diameter:

$$\text{Diameter}_{\min} = \frac{H2-H}{2*\pi}$$

Example: TAG136LA4 (H = 19.05 mm; H2 = 67.70 mm):

$$\text{Diameter}_{\min} = \frac{67.7-19.05}{2*3.14}$$

### Maximum diameter:

In this case the minimum requirement is complete coverage of the label field with the protective laminate with a single winding. The length of the protective laminate is again obtained from the formula: H2 – H.

By applying the 'diameter' formula this produces the approx. maximum diameter, which also corresponds to double the minimum diameter:

$$\text{Diameter}_{\max} = \frac{H2 - H}{\pi} = 2*\text{Diameter}_{\min}$$

Example: TAG136LA4 (H = 19.05 mm; H2 = 67.70 mm)

$$\text{Diameter}_{\max} = \frac{67.7 - 19.05}{3.14} = 2*\text{Diameter}_{\min}$$

### Interesting facts about thermal transfer films (colour ribbons)

The thermal transfer ribbon is perhaps the most important consumable that is used in this printing system - using the right ribbon for a particular application is extremely important.

Not every transfer ribbon is equally suited to any purpose. Depending on the printing requirements (e.g. smudge or scratchproof) to be met, what type of labels will be used, an appropriate thermal transfer ribbon must be used.

Another important consideration for the thermal transfer ribbon is the electrostatic charging which can arise during the printing process. Some transfer ribbons become statically charged during the printing process, which can damage an ESD-sensitive printer head in the long run.

To clarify: The thermal transfer printer head is in physical contact with the back of the thermal transfer ribbon and consists solely of electronic, voltage-sensitive elements, which are known as dots.

These can become damaged when the thermal transfer ribbon causes discharges, which usually results in dot drop-outs. At points where the print head is damaged, no more colour is transferred. This leaves gaps on the label.

Thermal transfer films usually consist of three layers:

- A polyester strip as supporting material
- A protective, gliding backing layer on one side
- A colour layer on the other side.

The colour remains solid at room temperature, but liquefies under the effect of heat. To manufacture the colour ribbons, the polyester ribbon is coated with a special backing and then the respective coloured ink is applied. Print characteristics and bonding ability on various materials depend mainly on the chemical composition of this colour ink.

The main distinguishing feature of thermal transfer ribbons is the so-called quality of the coating. There are two basic types of thermal transfer ribbons:

#### Wax-resin based films – good synthesis

With this quality of a wax-resin mixture, the good print characteristics of the wax are essentially retained, but the resin content increases mechanical strength. The print image produced has high resistance to heat, solvents, abrasion and scratching and high print quality, e.g. for barcodes. These colour ribbons are suitable for use on synthetic materials. They can be used for most applications at standard print temperatures.

→ TT932DOUT

→ TT822OUT8

#### Resin-based films – for very heavy-duty purposes

The colour layer at this quality level is based entirely on synthetic resins, developed for industrial applications and extreme conditions. Resin-based colour ribbons guarantee maximum readability, even on the most difficult materials (e.g. barcodes). Depending on the backing material, medium to high print temperatures and slow print speeds are necessary when using these thermal transfer films. In return, a print image is obtained which stands out for its high resistance to abrasion and scratching and great solvent and heat resistance.

→ TT822OUT

→ TTRW

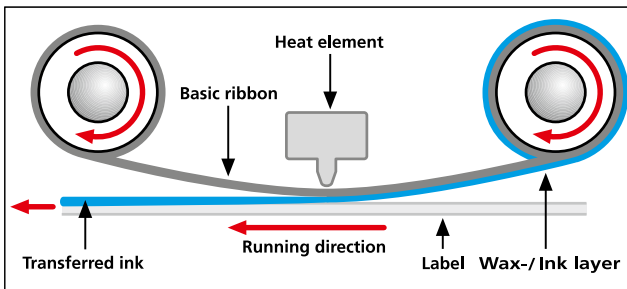
→ TTDTHOUT

## Interesting facts about thermal transfer printing

Thermal transfer printing plays a central role, especially in the field of printing variable data, single-proofs and even for small series. This is largely due to the fact that thermal transfer printing is a non-impact printing (NIP) process. Unlike traditional printing processes, such as offset-printing, a NIP printing process does not require a fixed printing block and can therefore print out different data with consistent quality from print to print.

Due to the increasing spread and importance of one and two-dimensional barcodes in goods inventory systems, logistics and in the field of component identification, the market potential of thermal transfer printing is growing all the time. The same is also true of incremental serial numbers, inventory designations, entrance tickets, rating plates, wine labels and many more.

Good print quality, high print speeds and the option of printing almost all backing materials permanently – these are the critical advantages of thermal transfer printing. It's good readability, resistance and abrasion resistance allow thermal transfer printing to be put to use in applications where the print results from laser, inkjet or dot matrix printers are not satisfactory.



Heated dots strike a special colour ribbon, the thermal transfer film, which transfers liquefied colour ink at exactly that point onto the backing material (labels, tubes, rating plates). Our modern printers use what is known as 'thin film technology', in which the very brief liquid phase of the ink produces faster print speeds and better and more precise images than with the 'thick film technology' formerly used.

Moreover, the linear orientation of the labels or of the heatshrink tubing makes it possible to print on demand. The printing is then carried out as required. This is especially useful in the production of rating plates in series production.

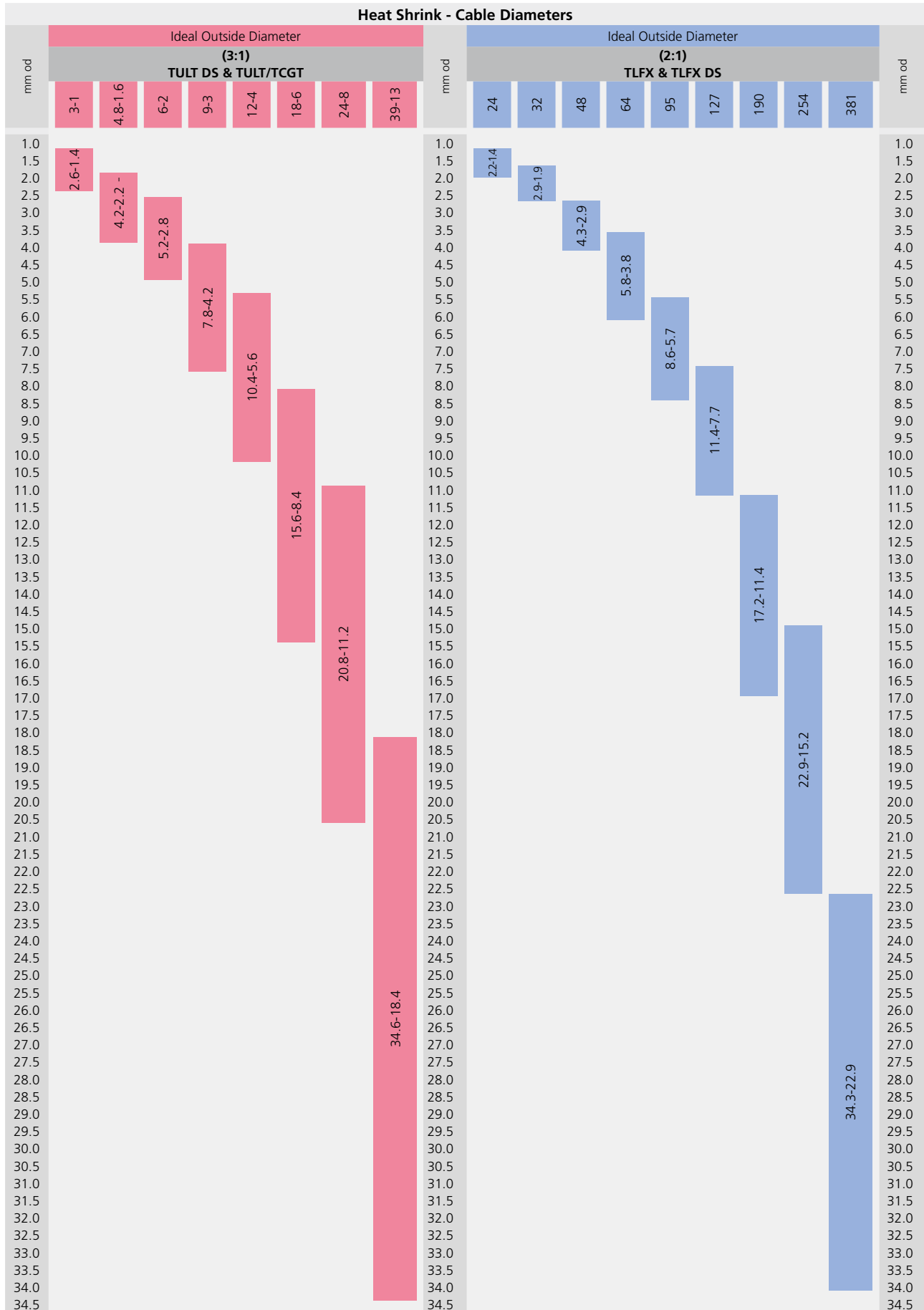
In thermal transfer printing, the print image is defined by the three components: printer, label material and thermal transfer film (colour ribbon).

### The advantages at a glance:

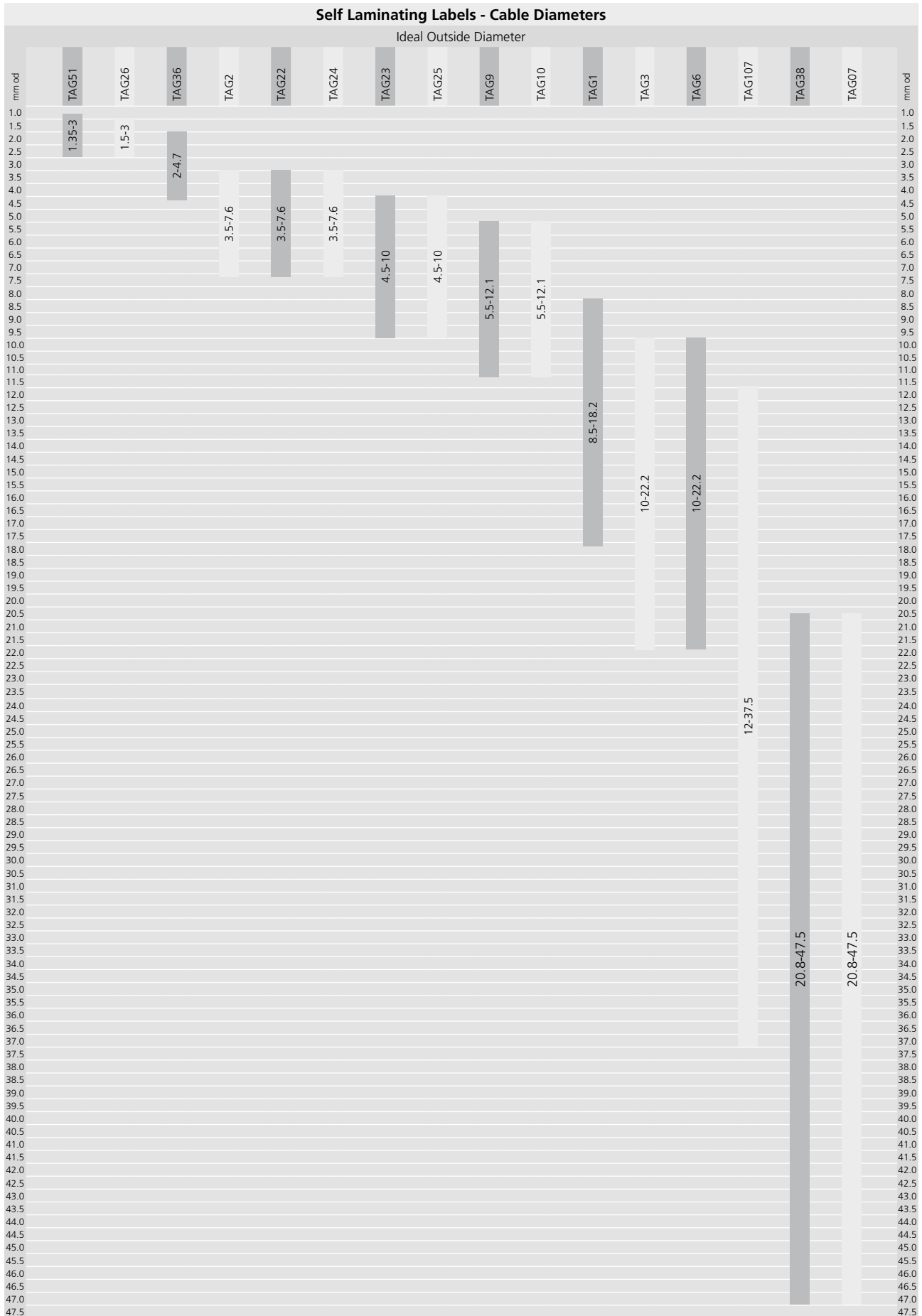
- High print quality with a resolution of 8-12 dots/mm (12 dots/mm corresponds to approx. 300 dpi)
- Barcode printing in excellent quality, hence good optical readability
- High print speeds of between 30 mm/sec and 150 mm/sec
- Individual graphics capability
- Problem free and rapid realisation of self designed drafts
- Quiet and service friendly printers
- Prints are UV fast and permanent with high definition and contrast and good resistance to mechanical and chemical influences.



### Size Selection Guide







## Size Selection Guide





## Material Specifications

Material	Thermal Transfer			
	323	951	1204	1206
<b>Material Description</b>	Polyvinylfluoride foil, transparent with white write on area (WHCL). The foil has got an excellent resistance against a wide variety of chemicals and solvents. The material is flame retardant.	Polyester, silver (SR), tamper proof (951A) and Polyester transparent (CL) as overlaminate (951B). Set out of 2 materials.	A silver-matt, highly heat resistant, reverse side aluminised Polyester. Adhesive suitable for critical surfaces.	Type 1206 is a white glossy material suitable for printing with thermal transfer printers. Adhesive suitable for critical surfaces.
<b>Material Application</b>	Self-laminating wire and cable identification for extremely dirty environments.	For automotive and electric industries for tamper proof applications. Particularly suitable as type label according to norms of German Kraftfahrtbundesamt (KBA).	Electro and electrical identification. Permanent identification of components and housings with type labels.	Electro and electrical identification. Permanent identification of components with type labels.
<b>Mech. Material Properties</b>	permanent adhesive, extremely scratch resistant	tamper proof identification, leaves small checkboard traces	permanent adhesive, suitable for critical surfaces	
<b>Thickness of Foil (µm)</b>	25 µm	36 µm, 25 µm	55 µm	50 µm
<b>Operating Temperature</b>	-40 °C to +140 °C		-40 °C to +150 °C	
<b>Curing Temperature</b>	from +10 °C	from 0 °C (label), from +4 °C (laminate)	from 0 °C	
<b>Adhesive</b>	Acrylic			
<b>Material Durability</b>	5 years external weathering (central European climate). Excellent indoor use.	2 years external weathering (central European climate)		
<b>Label Type</b>				
<b>Certification / Specification</b>				
<b>Page</b>	411	420	416	417

Material	Thermal Transfer		
	1208	1210	1211
<b>Material Description</b>	Acetate foil, white (WH), tamper proof	A smooth, gloss white vinyl foil. Adhesive suitable for critical surfaces.	A smooth, gloss yellow Vinyl label. Adhesive suitable for critical surfaces.
<b>Material Application</b>	General identification with need of manipulation detection	Use with IT identification ties, Q-tags and AT/IMP plates.	Use with IT identification ties and AT/IMP plates.
<b>Mech. Material Properties</b>	tamper proof, material will easily fragment if removed	permanent adhesive, suitable for critical surfaces	
<b>Thickness of Foil (µm)</b>	56 µm	83 µm	
<b>Operating Temperature</b>	-40 °C to +150 °C	-20 °C to +80 °C	
<b>Curing Temperature</b>	from +4 °C	from +5 °C	
<b>Adhesive</b>	Acrylic		
<b>Material Durability</b>	2 years external weathering (central European climate)		
<b>Label Type</b>			
<b>Page</b>	419	414	415



Plain labels



Self-laminating labels

Discover M-BOSS Lite, a user friendly on-site printer for embossing stainless steel plates.

M-BOSS LITE  
MBHL20X90



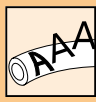
Metal Systems Brochure  
Durable Products for  
Hazardous Environments.

**Order NOW!**

[www.HellermannTyton.co.uk](http://www.HellermannTyton.co.uk)

**HellermannTyton**





### Heat-shrinkable wire identification, thermal transfer

#### • TULT - 3:1 UL-Recognized Tubing

TULT is a UL recognized 3:1 heatshrink material supplied as a continuous tube and printable on both sides. The supplied accessories allow users to either perforate the tubing at pre-determined lengths (P4000), or fully sever the markers (S4000) whilst printing with the TrakMark DS or TT4000+ printer.

Print with HellermannTyton's premium range of thermal printers and ribbons.

Printers: TrakMark DS, TT4000+, and TT430

Ribbons: TTRC+, TTDTHOUT, TTRW, TT822OUT8

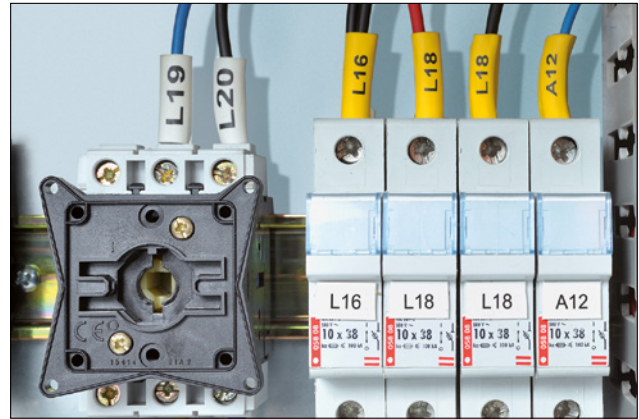
Accessories for TrakMark DS and TT4000+:  
Perforator (P4000), Cutter (S4000)

Accessories for TT430: Cutter (S430)

Software: TagPrint Pro

#### Features and Benefits

- Shrink ratio 3:1
- Available in Black, Blue, Red, White, and Yellow
- Cable range from 39mm to 1mm
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Fulfils UL224 VW-1 and CSA requirements
- Delivery in convenient storage boxes
- Easy label design with TagPrint Pro



TULT – 5 colours of UL recognised printable tube to cover a wide range of diameters.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTRC+, TTDTHOUT, TTRW, TT822OUT8
<b>Specifications</b>	CSA, UL-Recognised



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT3-1BK	3.0	1.0	0.60	176 m	Black (BK)	553-40300
TULT3-1BU	3.0	1.0	0.60	176 m	Blue (BU)	553-40306
TULT3-1RD	3.0	1.0	0.60	176 m	Red (RD)	553-40302
TULT3-1WH	3.0	1.0	0.60	176 m	White (WH)	553-40309
TULT3-1YE	3.0	1.0	0.60	176 m	Yellow (YE)	553-40304
TULT4.8-1.6BK	4.8	1.6	0.65	110 m	Black (BK)	553-40480
TULT4.8-1.6BU	4.8	1.6	0.65	110 m	Blue (BU)	553-40486
TULT4.8-1.6RD	4.8	1.6	0.65	110 m	Red (RD)	553-40482
TULT4.8-1.6WH	4.8	1.6	0.65	110 m	White (WH)	553-40489
TULT4.8-1.6YE	4.8	1.6	0.65	110 m	Yellow (YE)	553-40484

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Heat-shrinkable wire identification, thermal transfer

- TULT - 3:1 UL-Recognized Tubing

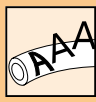


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT6-2BK	6.0	2.0	0.70	110 m	Black (BK)	553-40600
TULT6-2BU	6.0	2.0	0.70	110 m	Blue (BU)	553-40606
TULT6-2RD	6.0	2.0	0.70	110 m	Red (RD)	553-40602
TULT6-2WH	6.0	2.0	0.70	110 m	White (WH)	553-40609
TULT6-2YE	6.0	2.0	0.70	110 m	Yellow (YE)	553-40604
TULT9-3BK	9.0	3.0	0.80	72 m	Black (BK)	553-40900
TULT9-3BU	9.0	3.0	0.80	72 m	Blue (BU)	553-40906
TULT9-3RD	9.0	3.0	0.80	72 m	Red (RD)	553-40902
TULT9-3WH	9.0	3.0	0.80	72 m	White (WH)	553-40909
TULT9-3YE	9.0	3.0	0.80	72 m	Yellow (YE)	553-40904
TULT12-4BK	12.0	4.0	0.85	54 m	Black (BK)	553-41200
TULT12-4BU	12.0	4.0	0.85	54 m	Blue (BU)	553-41206
TULT12-4RD	12.0	4.0	0.85	54 m	Red (RD)	553-41202
TULT12-4WH	12.0	4.0	0.85	54 m	White (WH)	553-41209
TULT12-4YE	12.0	4.0	0.85	54 m	Yellow (YE)	553-41204
TULT18-6BK	18.0	6.0	1.00	26 m	Black (BK)	553-41800
TULT18-6BU	18.0	6.0	1.00	26 m	Blue (BU)	553-41806
TULT18-6RD	18.0	6.0	1.00	26 m	Red (RD)	553-41802
TULT18-6WH	18.0	6.0	1.00	26 m	White (WH)	553-41809
TULT18-6YE	18.0	6.0	1.00	26 m	Yellow (YE)	553-41804
TULT24-8BK	24.0	8.0	1.20	26 m	Black (BK)	553-42400
TULT24-8BU	24.0	8.0	1.20	26 m	Blue (BU)	553-42406
TULT24-8RD	24.0	8.0	1.20	26 m	Red (RD)	553-42402
TULT24-8WH	24.0	8.0	1.20	26 m	White (WH)	553-42409
TULT24-8YE	24.0	8.0	1.20	26 m	Yellow (YE)	553-42404
TULT39-13BK	39.0	13.0	1.25	10 m	Black (BK)	553-43900
TULT39-13BU	39.0	13.0	1.25	10 m	Blue (BU)	553-43906
TULT39-13RD	39.0	13.0	1.25	10 m	Red (RD)	553-43902
TULT39-13WH	39.0	13.0	1.25	10 m	White (WH)	553-43909
TULT39-13YE	39.0	13.0	1.25	10 m	Yellow (YE)	553-43904

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Heat-shrinkable wire identification, thermal transfer

### • TULT DS - 3:1 'Ladder Style' Sleeves

TULT DS is a 3:1 heatshrink material pre-cut and formatted onto a convenient 'ladder' system that allows printing on both sides of the marker. The user can easily choose and pick the required marker.

Print with HellermannTyton's premium range of thermal printers and ribbons.

Printers: TrakMark DS, TT4000+, and TT430

Ribbons: TTDTHOUT

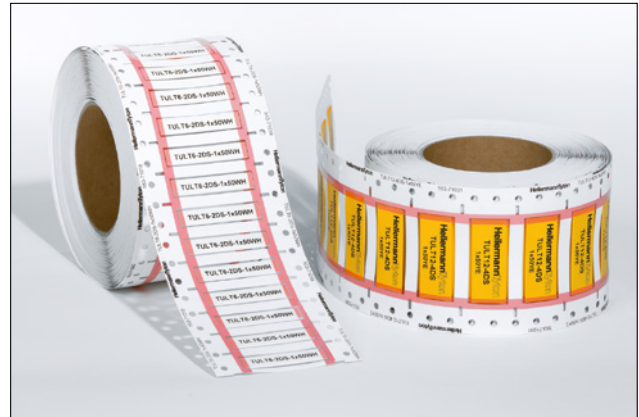
Accessories for TrakMark DS and TT4000+:  
Perforator (P4000), Cutter (S4000)

Accessories for TT430: Cutter (S430)

Software: TagPrint Pro

### Features and Benefits

- Shrink ratio 3:1
- 50mm, 25mm, and 16mm pre-cut marker options as standard, other lengths available on request
- Available in White and Yellow
- Meets MIL-STD 202G Method 215 print requirements using TTDTHOUT ribbon
- Fulfils UL224 VW-1 and CSA requirements
- Fulfils LUL C3349 requirements
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Delivery in convenient storage boxes
- Easy label design with TagPrint Pro



TULT DS ladder style shrinkable tubing in yellow and white.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTDTHOUT



One Step to the Web!

TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT2.4-0.8DS-3x16WH	2.4	0.8	16.0	0.58	3,000 pcs.	White (WH)	553-71004
TULT2.4-0.8DS-3x16YE	2.4	0.8	16.0	0.58	3,000 pcs.	Yellow (YE)	553-71005
TULT2.4-0.8DS-2x25WH	2.4	0.8	25.0	0.58	2,000 pcs.	White (WH)	553-71002
TULT2.4-0.8DS-2x25YE	2.4	0.8	25.0	0.58	2,000 pcs.	Yellow (YE)	553-71003
TULT2.4-0.8DS-1x50WH	2.4	0.8	50.0	0.58	1,000 pcs.	White (WH)	553-71000
TULT2.4-0.8DS-1x50YE	2.4	0.8	50.0	0.58	1,000 pcs.	Yellow (YE)	553-71001
TULT3-1DS-3x16WH	3.0	1.0	16.0	0.60	3,000 pcs.	White (WH)	553-71010
TULT3-1DS-3x16YE	3.0	1.0	16.0	0.60	3,000 pcs.	Yellow (YE)	553-71011
TULT3-1DS-2x25WH	3.0	1.0	25.0	0.60	2,000 pcs.	White (WH)	553-71008
TULT3-1DS-2x25YE	3.0	1.0	25.0	0.60	2,000 pcs.	Yellow (YE)	553-71009
TULT3-1DS-1x50WH	3.0	1.0	50.0	0.60	1,000 pcs.	White (WH)	553-71006
TULT3-1DS-1x50YE	3.0	1.0	50.0	0.60	1,000 pcs.	Yellow (YE)	553-71007
TULT4.8-1.6DS-3x16WH	4.8	1.6	16.0	0.65	3,000 pcs.	White (WH)	553-71016
TULT4.8-1.6DS-3x16YE	4.8	1.6	16.0	0.65	3,000 pcs.	Yellow (YE)	553-71017
TULT4.8-1.6DS-2x25WH	4.8	1.6	25.0	0.65	2,000 pcs.	White (WH)	553-71014

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Heat-shrinkable wire identification, thermal transfer

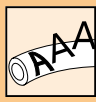
- TULT DS - 3:1 'Ladder Style' Sleeves



TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT4.8-1.6DS-2x25YE	4.8	1.6	25.0	0.65	2,000 pcs.	Yellow (YE)	553-71015
TULT4.8-1.6DS-1x50WH	4.8	1.6	50.0	0.65	1,000 pcs.	White (WH)	553-71012
TULT4.8-1.6DS-1x50YE	4.8	1.6	50.0	0.65	1,000 pcs.	Yellow (YE)	553-71013
TULT6-2DS-3x16WH	6.0	2.0	16.0	0.70	3,000 pcs.	White (WH)	553-71022
TULT6-2DS-3x16YE	6.0	2.0	16.0	0.70	3,000 pcs.	Yellow (YE)	553-71023
TULT6-2DS-2x25WH	6.0	2.0	25.0	0.70	2,000 pcs.	White (WH)	553-71020
TULT6-2DS-2x25YE	6.0	2.0	25.0	0.70	2,000 pcs.	Yellow (YE)	553-71021
TULT6-2DS-1x50WH	6.0	2.0	50.0	0.70	1,000 pcs.	White (WH)	553-71018
TULT6-2DS-1x50YE	6.0	2.0	50.0	0.70	1,000 pcs.	Yellow (YE)	553-71019
TULT9-3DS-3x16WH	9.0	3.0	16.0	0.80	1,500 pcs.	White (WH)	553-71028
TULT9-3DS-3x16YE	9.0	3.0	16.0	0.80	1,500 pcs.	Yellow (YE)	553-71029
TULT9-3DS-2x25WH	9.0	3.0	25.0	0.80	1,000 pcs.	White (WH)	553-71026
TULT9-3DS-2x25YE	9.0	3.0	25.0	0.80	1,000 pcs.	Yellow (YE)	553-71027
TULT9-3DS-1x50WH	9.0	3.0	50.0	0.80	500 pcs.	White (WH)	553-71024
TULT9-3DS-1x50YE	9.0	3.0	50.0	0.80	500 pcs.	Yellow (YE)	553-71025
TULT12-4DS-3x16WH	12.0	4.0	16.0	0.85	1,500 pcs.	White (WH)	553-71034
TULT12-4DS-3x16YE	12.0	4.0	16.0	0.85	1,500 pcs.	Yellow (YE)	553-71035
TULT12-4DS-2x25WH	12.0	4.0	25.0	0.85	1,000 pcs.	White (WH)	553-71032
TULT12-4DS-2x25YE	12.0	4.0	25.0	0.85	1,000 pcs.	Yellow (YE)	553-71033
TULT12-4DS-1x50WH	12.0	4.0	50.0	0.85	500 pcs.	White (WH)	553-71030
TULT12-4DS-1x50YE	12.0	4.0	50.0	0.85	500 pcs.	Yellow (YE)	553-71031
TULT18-6DS-3x16WH	18.0	6.0	16.0	1.00	1,500 pcs.	White (WH)	553-71040
TULT18-6DS-3x16YE	18.0	6.0	16.0	1.00	1,500 pcs.	Yellow (YE)	553-71041
TULT18-6DS-2x25WH	18.0	6.0	25.0	1.00	1,000 pcs.	White (WH)	553-71038
TULT18-6DS-2x25YE	18.0	6.0	25.0	1.00	1,000 pcs.	Yellow (YE)	553-71039
TULT18-6DS-1x50WH	18.0	6.0	50.0	1.00	500 pcs.	White (WH)	553-71036
TULT18-6DS-1x50YE	18.0	6.0	50.0	1.00	500 pcs.	Yellow (YE)	553-71037
TULT24-8DS-3x16WH	24.0	8.0	16.0	1.20	750 pcs.	White (WH)	553-71046
TULT24-8DS-3x16YE	24.0	8.0	16.0	1.20	750 pcs.	Yellow (YE)	553-71047
TULT24-8DS-2x25WH	24.0	8.0	25.0	1.20	500 pcs.	White (WH)	553-71044
TULT24-8DS-2x25YE	24.0	8.0	25.0	1.20	500 pcs.	Yellow (YE)	553-71045
TULT24-8DS-1x50WH	24.0	8.0	50.0	1.20	250 pcs.	White (WH)	553-71042
TULT24-8DS-1x50YE	24.0	8.0	50.0	1.20	250 pcs.	Yellow (YE)	553-71043
TULT39-13DS-3x16WH	39.0	13.0	16.0	1.25	750 pcs.	White (WH)	553-71052
TULT39-13DS-3x16YE	39.0	13.0	16.0	1.25	750 pcs.	Yellow (YE)	553-71053
TULT39-13DS-2x25WH	39.0	13.0	25.0	1.25	500 pcs.	White (WH)	553-71050
TULT39-13DS-2x25YE	39.0	13.0	25.0	1.25	500 pcs.	Yellow (YE)	553-71051
TULT39-13DS-1x50WH	39.0	13.0	50.0	1.25	250 pcs.	White (WH)	553-71048
TULT39-13DS-1x50YE	39.0	13.0	50.0	1.25	250 pcs.	Yellow (YE)	553-71049

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Low fire hazard heat-shrinkable wire identification, thermal transfer

- **TLFX - 2:1 LFH Tubing**

TLFX is a rail approved 2:1 heatshrink material supplied as a continuous tube and printable on both sides. The supplied accessories allow users to either perforate the tubing at pre-determined lengths (P4000), or fully sever the markers (S4000) whilst printing with the TrakMark DS or TT4000+ printer.

Print with HellermannTyton's premium range of thermal printers and ribbons.

Printers: TrakMark DS, TT4000+, and TT430

Ribbons: TTDTHOUT, TTRC+

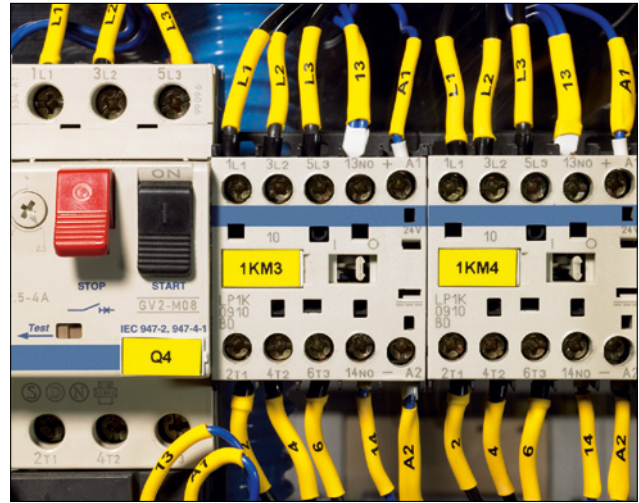
Accessories for TrakMark DS and TT4000+:  
Perforator (P4000), Cutter (S4000)

Accessories for TT430: Cutter (S430)

Software: TagPrint Pro

#### Features and Benefits

- Shrink ratio 2:1
- Available in White and Yellow
- Cable range 50.8mm to 1.2mm
- Halogen Free
- Low smoke propagation, density and toxicity
- High Oxygen Index value (38%)
- Fulfils highest standard rail flammability norms
- Delivery in convenient storage boxes
- Easy label design with TagPrint Pro



TLFX - high performance halogen free heatshrink tubing.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-30 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT, TTRC+
<b>Specifications</b>	BS-6853:1999, CEN TS 45545-2: 2009, DIN 53438-3: 1984, DIN 5510-2, EN ISO 11925-2: 2002, NF F 16-101, NF X 70-100-1: 2006, NF X 70-100-2: 2006, UNI CEI 11170-3

HF ✓

LFH ✓

RoHS ✓



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX24WH	2.4	1.2	0.57	144 m	White (WH)	554-51000
TLFX24YE	2.4	1.2	0.57	144 m	Yellow (YE)	554-51001
TLFX32WH	3.2	1.6	0.58	126 m	White (WH)	554-51100
TLFX32YE	3.2	1.6	0.58	126 m	Yellow (YE)	554-51101

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**BS CEN DIN EN NF F UNI CEI**

Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Low fire hazard heat-shrinkable wire identification, thermal transfer

- TLFX - 2:1 LFH Tubing



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX48WH	4.8	2.4	0.61	108 m	White (WH)	554-51200
TLFX48YE	4.8	2.4	0.61	108 m	Yellow (YE)	554-51201
TLFX64WH	6.4	3.2	0.61	90 m	White (WH)	554-51300
TLFX64YE	6.4	3.2	0.61	90 m	Yellow (YE)	554-51301
TLFX95WH	9.5	4.8	0.66	72 m	White (WH)	554-51400
TLFX95YE	9.5	4.8	0.66	72 m	Yellow (YE)	554-51401
TLFX127WH	12.7	6.4	0.68	54 m	White (WH)	554-51500
TLFX127YE	12.7	6.4	0.68	54 m	Yellow (YE)	554-51501
TLFX190WH	19.0	9.5	0.69	30 m	White (WH)	554-51600
TLFX190YE	19.0	9.5	0.69	30 m	Yellow (YE)	554-51601
TLFX254WH	25.4	12.7	0.69	30 m	White (WH)	554-51700
TLFX254YE	25.4	12.7	0.69	30 m	Yellow (YE)	554-51701
TLFX381WH	38.1	19.0	0.70	13 m	White (WH)	554-51800
TLFX381YE	38.1	19.0	0.70	13 m	Yellow (YE)	554-51801
TLFX508WH	50.8	25.4	0.73	10 m	White (WH)	554-50900
TLFX508YE	50.8	25.4	0.73	10 m	Yellow (YE)	554-50901

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Low fire hazard heat-shrinkable wire identification, thermal transfer

- TLFX DS - 2:1 LFH 'Ladder Style' Sleeves

TLFX DS is a rail approved 2:1 heatshrink material pre-cut and formatted onto a convenient 'ladder' system that allows printing on both sides of the marker. The user can easily choose and pick the required marker.

Print with HellermannTyton's premium range of thermal printers and ribbons.

Printers: TrakMark DS, TT4000+ and TT430

Ribbons: TTDTHOUT

Accessories for TrakMark DS and TT4000+:  
Perforator (P4000), Cutter (S4000)

Accessories for TT430: Cutter (S430)

Software: TagPrint Pro

#### Features and Benefits

- Shrink ratio 2:1
- 50mm, 25mm, and 16mm pre-cut marker options as standard, other lengths available on request
- Available in White and Yellow
- Cable range 38.1mm to 1.2mm
- Halogen Free
- Low smoke propagation, density and toxicity
- High Oxygen Index value (38%)
- Fulfils highest standard rail flammability norms
- Delivery in convenient storage boxes
- Easy label design with TagPrint Pro



One Step to the Web!



TLFX DS ladder style shrinkable tubing in yellow and white.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-30 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Specifications</b>	ASTM E 662, BS-6853:1999, CEN TS 45545-2: 2009, DIN 53438-3: 1984, DIN 5510-2, EN ISO 11925-2: 2010, NF F 16-101, NF X 70-100-1: 2006, NF X 70-100-2: 2006, UNI CEI 11170-3

HF ✓

LFH ✓

RoHS ✓

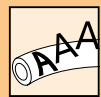
TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX24DS-3x16WH	2.4	1.2	16.0	0.57	15,000	White (WH)	553-60038
TLFX24DS-3x16YE	2.4	1.2	16.0	0.57	15,000	Yellow (YE)	553-60039
TLFX24DS-2x25WH	2.4	1.2	25.0	0.57	10,000	White (WH)	553-60020
TLFX24DS-2x25YE	2.4	1.2	25.0	0.57	10,000	Yellow (YE)	553-60029
TLFX24DS-1x50WH	2.4	1.2	50.0	0.57	5,000	White (WH)	553-60000
TLFX24DS-1x50YE	2.4	1.2	50.0	0.57	5,000	Yellow (YE)	553-60010
TLFX32DS-3x16WH	3.2	1.6	16.0	0.58	15,000	White (WH)	553-60040
TLFX32DS-3x16YE	3.2	1.6	16.0	0.58	15,000	Yellow (YE)	553-60041
TLFX32DS-2x25WH	3.2	1.6	25.0	0.58	10,000	White (WH)	553-60021
TLFX32DS-2x25YE	3.2	1.6	25.0	0.58	10,000	Yellow (YE)	553-60030
TLFX32DS-1x50WH	3.2	1.6	50.0	0.58	5,000	White (WH)	553-60001
TLFX32DS-1x50YE	3.2	1.6	50.0	0.58	5,000	Yellow (YE)	553-60011
TLFX48DS-3x16WH	4.8	2.4	16.0	0.61	15,000	White (WH)	553-60042
TLFX48DS-3x16YE	4.8	2.4	16.0	0.61	15,000	Yellow (YE)	553-60043

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.

**BS CEN DIN EN NF F UNI CEI**

Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Low fire hazard heat-shrinkable wire identification, thermal transfer

- TLFX DS - 2:1 LFH 'Ladder Style' Sleeves

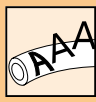


TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX48DS-2x25WH	4.8	2.4	25.0	0.61	10,000	White (WH)	553-60022
TLFX48DS-2x25YE	4.8	2.4	25.0	0.61	10,000	Yellow (YE)	553-60031
TLFX48DS-1x50WH	4.8	2.4	50.0	0.61	5,000	White (WH)	553-60002
TLFX48DS-1x50YE	4.8	2.4	50.0	0.61	5,000	Yellow (YE)	553-60012
TLFX64DS-3x16WH	6.4	3.2	16.0	0.61	9,000	White (WH)	553-60044
TLFX64DS-3x16YE	6.4	3.2	16.0	0.61	9,000	Yellow (YE)	553-60045
TLFX64DS-2x25WH	6.4	3.2	25.0	0.61	6,000	White (WH)	553-60023
TLFX64DS-2x25YE	6.4	3.2	25.0	0.61	6,000	Yellow (YE)	553-60032
TLFX64DS-1x50WH	6.4	3.2	50.0	0.61	3,000	White (WH)	553-60003
TLFX64DS-1x50YE	6.4	3.2	50.0	0.61	3,000	Yellow (YE)	553-60013
TLFX95DS-3x16WH	9.5	4.8	16.0	0.66	7,500	White (WH)	553-60046
TLFX95DS-3x16YE	9.5	4.8	16.0	0.66	7,500	Yellow (YE)	553-60047
TLFX95DS-2x25WH	9.5	4.8	25.0	0.66	5,000	White (WH)	553-60024
TLFX95DS-2x25YE	9.5	4.8	25.0	0.66	5,000	Yellow (YE)	553-60033
TLFX95DS-1x50WH	9.5	4.8	50.0	0.66	2,500	White (WH)	553-60004
TLFX95DS-1x50YE	9.5	4.8	50.0	0.66	2,500	Yellow (YE)	553-60014
TLFX127DS-3x16WH	12.7	6.4	16.0	0.68	4,500	White (WH)	553-60048
TLFX127DS-3x16YE	12.7	6.4	16.0	0.68	4,500	Yellow (YE)	553-60049
TLFX127DS-2x25WH	12.7	6.4	25.0	0.68	3,000	White (WH)	553-60025
TLFX127DS-2x25YE	12.7	6.4	25.0	0.68	3,000	Yellow (YE)	553-60034
TLFX127DS-1x50WH	12.7	6.4	50.0	0.68	1,500	White (WH)	553-60005
TLFX127DS-1x50YE	12.7	6.4	50.0	0.68	1,500	Yellow (YE)	553-60015
TLFX190DS-3x16WH	19.0	9.5	16.0	0.69	4,500	White (WH)	553-60050
TLFX190DS-3x16YE	19.0	9.5	16.0	0.69	4,500	Yellow (YE)	553-60051
TLFX190DS-2x25WH	19.0	9.5	25.0	0.69	3,000	White (WH)	553-60026
TLFX190DS-2x25YE	19.0	9.5	25.0	0.69	3,000	Yellow (YE)	553-60035
TLFX190DS-1x50WH	19.0	9.5	50.0	0.69	1,500	White (WH)	553-60006
TLFX190DS-1x50YE	19.0	9.5	50.0	0.69	1,500	Yellow (YE)	553-60016
TLFX254DS-3x16WH	25.4	12.7	16.0	0.69	3,000	White (WH)	553-60052
TLFX254DS-3x16YE	25.4	12.7	16.0	0.69	3,000	Yellow (YE)	553-60053
TLFX254DS-2x25WH	25.4	12.7	25.0	0.69	2,000	White (WH)	553-60027
TLFX254DS-2x25YE	25.4	12.7	25.0	0.69	2,000	Yellow (YE)	553-60036
TLFX254DS-1x50WH	25.4	12.7	50.0	0.69	1,000	White (WH)	553-60007
TLFX254DS-1x50YE	25.4	12.7	50.0	0.69	1,000	Yellow (YE)	553-60017
TLFX381DS-3x16WH	38.1	19.0	16.0	0.70	1,500	White (WH)	553-60054
TLFX381DS-3x16YE	38.1	19.0	16.0	0.70	1,500	Yellow (YE)	553-60055
TLFX381DS-2x25WH	38.1	19.0	25.0	0.70	1,000	White (WH)	553-60028
TLFX381DS-2x25YE	38.1	19.0	25.0	0.70	1,000	Yellow (YE)	553-60037
TLFX381DS-1x50WH	38.1	19.0	50.0	0.70	500	White (WH)	553-60008
TLFX381DS-1x50YE	38.1	19.0	50.0	0.70	500	Yellow (YE)	553-60018

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



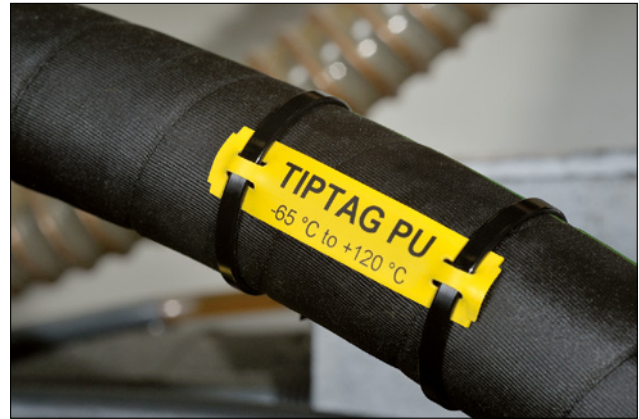
### Identification tags for cable bundle, thermal transfer

- **TIPTAG PU for high temperature**

Secured to bundles using Cable Ties up to T50R width maximum.

#### Features and Benefits

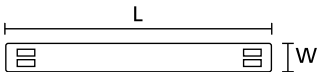
- Identification tags TIPTAG, Polyurethane
- Very tough and flexible material
- For bigger cable bundles and wires
- For cable ties up to 4.7 mm width
- Print with TT4000+ and TT430 for best results
- Delivery on reel, perforated
- Flame retardant
- Weather resistant
- Abrasion resistant
- Good resistance to chemicals



The printed mark has a tattoo-like permanency.

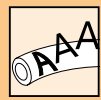
<b>MATERIAL</b>	Polyurethane (PUR)
<b>Operating Temperature</b>	-65 °C to +120 °C, intermittent 150 °C
<b>Flammability</b>	Self extinguishing
<b>Recommended Ribbon Type</b>	TTRC+

**RoHS** ✓



TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TTAGPU11X65WH	65.0	11.0	190	White (WH)	556-25012
TTAGPU11X65YE	65.0	11.0	190	Yellow (YE)	556-25019
TTAGPU15X65WH	65.0	15.0	190	White (WH)	556-25007
TTAGPU15X65YE	65.0	15.0	190	Yellow (YE)	556-25011
TTAGPU11X100WH	100.0	11.0	125	White (WH)	556-25021
TTAGPU11X100YE	100.0	11.0	125	Yellow (YE)	556-25020
TTAGPU15X100WH	100.0	15.0	125	White (WH)	556-25006
TTAGPU15X100YE	100.0	15.0	125	Yellow (YE)	556-25010

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Self-laminating labels, thermal transfer

- **Material 323 (White-Clear) high temperature**

The specially formulated adhesive labels give the highest quality print clarity when printed on thermal transfer printers. The range of materials and ribbons have been developed to suit the needs of most users. Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

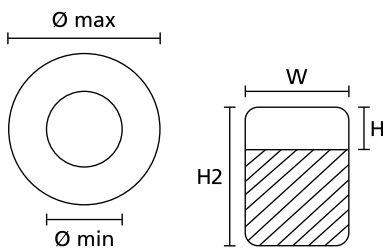
#### Features and Benefits

- High temperature self-laminating labels with a white inscription field
- Survives 5 years external weathering in central European climate
- Material is UL94 V0
- Excellent print performance using TT932DOUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro
- Yellow and other colours available on request



Easy marking of flexible, semi-rigid and rigid cables and wires.

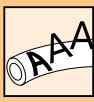
<b>MATERIAL</b>	Type 323, Polyvinylidene Fluoride, white/transp. (WH/CL), yellow/transp. (YE/CL)
<b>Operating Temperature</b>	-40 °C to +140 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	25 µm
<b>Chem. Material Properties</b>	Excellent resistance against alcohol, solvents on petroleum bases, ester and ketone. Special resistance against UV radiation.
<b>Recommended Ribbon Type</b>	TT932DOUT



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG51TD3-323-WHCL	1.4	3.0	25.4	8.8	19.1	85.0	3	5,000	White (WH), Transparent (CL)	596-51320
TAG26TD6-323-WHCL	1.5	3.0	12.7	9.5	19.1	85.0	6	10,000	White (WH), Transparent (CL)	596-26320
TAG36TD7-323-WHCL	2.0	4.7	12.7	9.0	23.8	95.0	7	10,000	White (WH), Transparent (CL)	596-36320
TAG2TD6-323-WHCL	3.5	7.6	12.7	12.7	36.5	82.0	6	5,000	White (WH), Transparent (CL)	596-02320
TAG22TD3-323-WHCL	3.5	7.6	25.4	12.7	36.5	82.0	3	2,500	White (WH), Transparent (CL)	596-22320
TAG24TD1-323-WHCL	3.5	7.6	50.8	12.7	36.5	55.0	1	1,000	White (WH), Transparent (CL)	596-24320
TAG23TD5-323-WHCL	4.5	10.0	19.1	12.7	44.5	101.6	5	5,000	White (WH), Transparent (CL)	596-23320
TAG25TD3-323-WHCL	4.5	10.0	25.4	12.7	44.5	82.0	3	2,500	White (WH), Transparent (CL)	596-25320
TAG9TD3-323-WHCL	5.5	12.1	25.4	19.1	57.1	82.0	3	2,500	White (WH), Transparent (CL)	596-09320
TAG10TD2-323-WHCL	5.5	12.1	49.5	19.1	57.1	101.6	2	1,000	White (WH), Transparent (CL)	596-10320
TAG1TD2-323-WHCL	8.5	18.2	48.2	19.1	79.2	101.6	2	1,000	White (WH), Transparent (CL)	596-01320
TAG3TD3-323-WHCL	10.0	22.2	25.4	25.4	95.3	82.0	3	1,000	White (WH), Transparent (CL)	596-03320
TAG6TD1-323-WHCL	10.0	22.2	50.8	25.4	95.3	55.0	1	500	White (WH), Transparent (CL)	596-06320
TAG107TD3-323-WHCL	12.0	37.5	25.4	31.8	149.9	82.0	3	1,000	White (WH), Transparent (CL)	596-10732
TAG38TD3-323-WHCL	20.8	47.5	25.4	38.1	187.2	82.0	3	1,000	White (WH), Transparent (CL)	596-38320
TAG07TD1-323-WHCL	20.8	47.5	50.8	25.4	187.2	55.0	1	250	White (WH), Transparent (CL)	596-07320

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Identification tags for marking cable bundles

- Q-tags

#### Features and Benefits

- Identify cable or cable bundle
- Quickly read or scan printed information
- Mark by hand with T82 series marker pen or use printed adhesive label
- HellermannTyton offers complete printing solution (printers, labels, ribbons)
- Perfect combination with Q-ties to safely secure and mark cables with highly visible text



The flagged orientation of Q-tags ensures that printed texts are easily visible.

Please find more Q-Series products for your system solution on page 52 and 121.

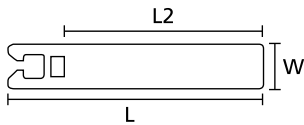
Please find the corresponding labels on page 414.



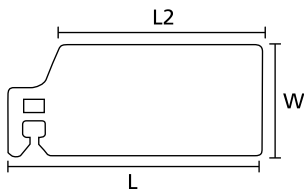
Q-tags are available in different sizes and types.



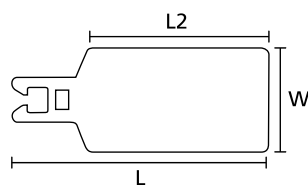
Q-tags can be labelled with pre-printed labels or by hand.



Q-tag QT7016R



Q-tag QT7040S



Q-tag QT7040R, QT10065R

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL94 V2



TYPE	Length (L)	Length (L2)	Width (W)	Strap Width max. (G)	Pack Cont.	Colour	Article-No.
QT7040S	88.0	70.0	42.0	3.6	50	White (WH)	151-10952
QT7016R	100.0	70.0	18.0	4.7	50	White (WH)	151-10950
QT7040R	100.0	70.0	42.0	4.7	50	White (WH)	151-10951
QT10065R	135.0	100.0	67.0	4.7	25	White (WH)	151-10953

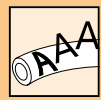
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Pack Cont.	Colour	Article-No.
T82S-BK	2	Black (BK)	500-50820
T82R-RD	2	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



One Step to the Web!



### Identification ties and plates for marking cable bundles

#### • IT Ties

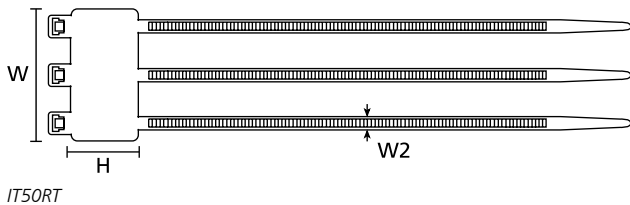
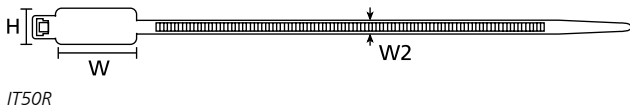
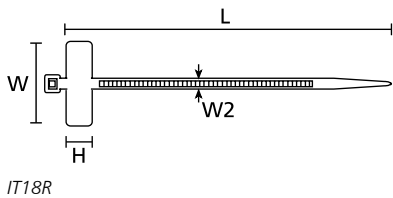
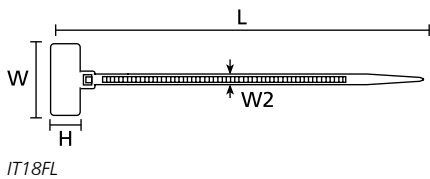
One of the major benefits is the ability to both secure and identify cable bundles at different times.

#### Features and Benefits

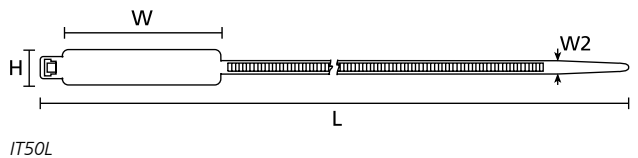
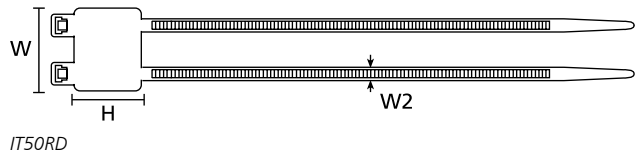
- Identification ties made of Polyamide 6.6
- For simple identification and securing of cable bundles in one step
- Can be marked either on-site or after bundling (Pen T82)
- In addition a large selection of labels are available



One operation with two benefits.



<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL94 V2
<b>Specifications</b>	UL-Recognised



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Length (L)	Width (W2)		Recommended Labels	Pack Cont.	Colour	Article-No.
IT18FL	1.5	19.0	20.5	9.0	110.0	2.5	80	TAG18-07TD1	100	Natural (NA)	111-81919
IT18R	6.0	22.0	25.0	8.0	100.0	2.3	80	TAG23-06TD1	100	Natural (NA)	111-81821
IT50R	9.5	44.5	28.0	12.9	203.0	4.6	225	TAG23-10TD1	100	Natural (NA)	111-85019
IT50RD	10.0	44.0	29.0	26.3	205.0	4.7	225	TAG26-21TD1	50	Natural (NA)	111-85219
IT50RT	10.0	44.0	46.0	26.3	205.0	4.7	225	TAG43-21TD1	50	Natural (NA)	111-85119
IT50L	19.0	100.0	56.0	12.8	390.0	4.7	225	TAG52-10TD1	100	Natural (NA)	111-85319

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

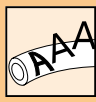
= Minimum Tensile Strength

TYPE	Pack Cont.	Colour	Article-No.
T82S-BK	2	Black (BK)	500-50820
T82R-RD	2	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



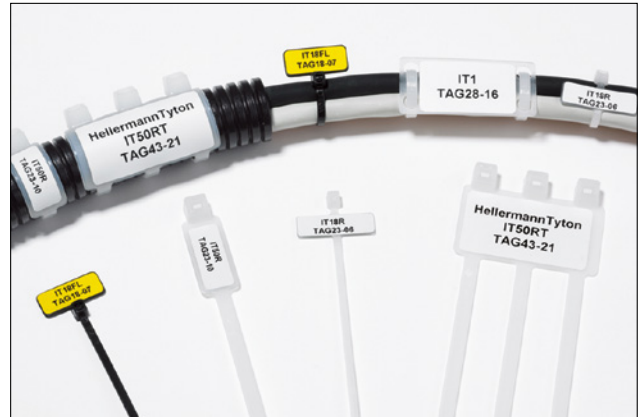
### Labels for IT ties, IMP plates and Q-tags, thermal transfer

- Helatag 1210 (White)

In nearly all areas, but especially suitable for cable and wire identification in computer and electronic businesses. For problem-free printing, we recommend our software TagPrint Pro.

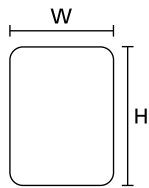
#### Features and Benefits

- Suited to the slightly rough surfaces of IT and IMP plates
- Adheres to rounded surfaces
- Excellent print performance using TT822OUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro



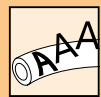
Identification ties and tags.

<b>MATERIAL</b>	Type 1210, Vinyl (PVC), white gloss (WH)
<b>Operating Temperature</b>	-20 °C to +80 °C
<b>Curing Temperature</b>	from +5 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	83 µm
<b>Chem. Material Properties</b>	Resistant to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	For Size	Pack Cont.	Colour	Article-No.
TAG18-07TD1-1210-WH	18.0	7.0	24.0	1	IT18FL	5,000	White (WH)	596-12126
TAG18-16TD1-1210-WH	18.0	16.0	24.0	1	IMP1.5	2,500	White (WH)	596-12127
TAG23-06TD1-1210-WH	23.0	6.0	30.0	1	IT18R	5,000	White (WH)	596-12128
TAG23-10TD1-1210-WH	23.0	10.0	30.0	1	IT50R	5,000	White (WH)	596-12129
TAG26-21TD2-1210-WH	26.0	21.0	57.0	2	IT50RD	2,500	White (WH)	596-12130
TAG28-16TD1-1210-WH	28.0	16.0	34.0	1	IT1, IMP2	2,500	White (WH)	596-12131
TAG43-16TD1-1210-WH	43.0	16.0	50.0	1	IMP2.5	2,500	White (WH)	596-12132
TAG43-21TD1-1210-WH	43.0	21.0	50.0	1	IT50RT	2,500	White (WH)	596-12133
TAG43-41TD1-1210-WH	43.0	41.0	50.0	1	IMP2.5W1.75	1,000	White (WH)	596-12134
TAG52-10TD1-1210-WH	52.0	10.0	58.0	1	IT50L	5,000	White (WH)	596-12135
TAG63TD1-1210-WH	63.5	38.1	70.0	1	QT7040R, QT7040S	1,000	White (WH)	596-12154
TAG68-16TD1-1210-WH	68.0	16.0	74.0	1	IMP3.5, QT7016R	2,500	White (WH)	596-12136
TAG102-64TD1-1210-WH	102.0	64.0	106.0	1	QT10065R	250	White (WH)	596-00607

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



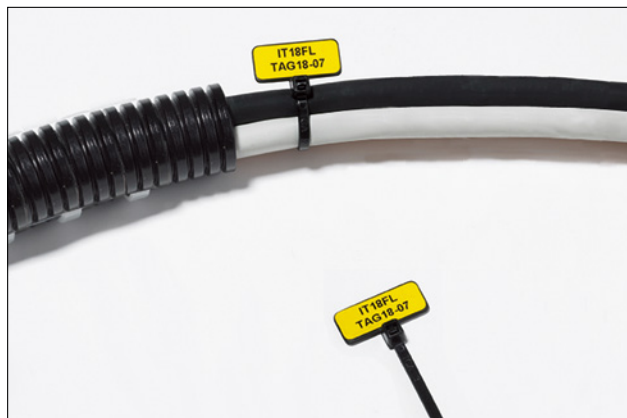
### IT and IMP labels, thermal transfer

- Helatag 1211 (Yellow)

In nearly all areas, but especially suitable for cable and wire identification in computer and electronic businesses. For problem-free printing, we recommend our software TagPrint Pro.

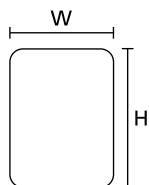
#### Features and Benefits

- Suited to the slightly rough surfaces of IT and IMP plates
- Adheres to rounded surfaces
- Excellent print performance using TT822OUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro



Identification ties and tags.

<b>MATERIAL</b>	Type 1211, Vinyl (PVC), yellow gloss (GSYE)
<b>Operating Temperature</b>	-20 °C to +80 °C
<b>Curing Temperature</b>	from +5 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	83 µm
<b>Chem. Material Properties</b>	Resistant to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	For Size	Pack Cont.	Colour	Article-No.
TAG18-07TD1-1211-YE	18.0	7.0	24.0	1	IT18FL	5,000	Yellow gloss (GSYE)	596-12110
TAG18-16TD1-1211-YE	18.0	16.0	24.0	1	IMP1.5	2,500	Yellow gloss (GSYE)	596-12111
TAG23-06TD1-1211-YE	23.0	6.0	30.0	1	IT18R	5,000	Yellow gloss (GSYE)	596-12112
TAG23-10TD1-1211-YE	23.0	10.0	30.0	1	IT50R	5,000	Yellow gloss (GSYE)	596-12113
TAG26-21TD2-1211-YE	26.0	21.0	57.0	2	IT50RD	2,500	Yellow gloss (GSYE)	596-12114
TAG28-16TD1-1211-YE	28.0	16.0	34.0	1	IT1, IMP2	2,500	Yellow gloss (GSYE)	596-12115
TAG43-16TD1-1211-YE	43.0	16.0	50.0	1	IMP2.5	2,500	Yellow gloss (GSYE)	596-12116
TAG43-21TD1-1211-YE	43.0	21.0	50.0	1	IT50RT	2,500	Yellow gloss (GSYE)	596-12117
TAG43-41TD1-1211-YE	43.0	41.0	50.0	1	IMP2.5W1.75	1,000	Yellow gloss (GSYE)	596-12118
TAG52-10TD1-1211-YE	52.0	10.0	58.0	1	IT50L	5,000	Yellow gloss (GSYE)	596-12119
TAG68-16TD1-1211-YE	68.0	16.0	74.0	1	IMP3.5, QT7016R	2,500	Yellow gloss (GSYE)	596-61211

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Type label identification, thermal transfer

### • Material 1204 (Silver)

Scratch-resistant type plates for the industry. The high temperature range suits a wide range of applications on flat surfaces. The adhesive is also suitable for critical surfaces like plastic and paint.

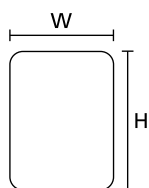
#### Features and Benefits

- Marking labels made of matt silver Polyester
- Replacement option for aluminium plates
- Print labels with customer unique references
- Use text, graphics and barcodes as required
- Excellent print performance using TT822OUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro



Professional type plate on a heating unit.

<b>MATERIAL</b>	Type 1204, Polyester (PET), silver matt (SR)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	55 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Specifications</b>	UL-Recognised



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1204-SR	12.7	11.1	101.6	6	15,000	Silver (SR)	596-12071
TAG13TD4-1204-SR	19.1	6.4	101.6	4	10,000	Silver (SR)	596-12043
TAG16TD3-1204-SR	22.9	6.4	80.0	3	10,000	Silver (SR)	596-12046
TAG34TD3-1204-SR	25.4	9.5	85.1	3	7,500	Silver (SR)	596-34120
TAG15TD3-1204-SR	25.4	12.7	85.1	3	7,500	Silver (SR)	596-12045
TAG31TD3-1204-SR	25.4	19.1	85.1	3	5,000	Silver (SR)	596-31120
TAGR2TD1-1204-SR	30.0	-	30.0	1	37.5 m	Silver (SR)	596-12042
TAG35TD3-1204-SR	31.8	9.5	101.6	3	7,500	Silver (SR)	596-12035
TAG17TD2-1204-SR	38.1	6.4	85.1	2	5,000	Silver (SR)	596-12047
TAG27TD2-1204-SR	38.1	19.1	85.1	2	5,000	Silver (SR)	596-27120
TAG67TD2-1204-SR	38.1	31.8	85.1	2	1,000	Silver (SR)	596-12067
TAG69TD2-1204-SR	40.6	22.9	89.0	2	2,500	Silver (SR)	596-12069
TAG77TD1-1204-SR	50.8	22.9	55.0	1	2,000	Silver (SR)	596-12077
TAG73TD1-1204-SR	50.8	25.4	55.0	1	2,000	Silver (SR)	596-73124
TAG66TD1-1204-SR	50.8	36.5	56.8	1	1,000	Silver (SR)	596-12066
TAG68TD1-1204-SR	63.5	25.4	69.0	1	2,000	Silver (SR)	596-12068
TAG63TD1-1204-SR	63.5	38.1	70.0	1	1,000	Silver (SR)	596-12063

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

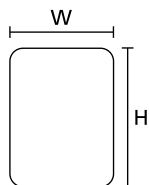


Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Type label identification, thermal transfer

- Material 1204 (Silver)



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG76TD1-1204-SR	63.5	50.8	70.0	1	500	Silver (SR)	596-12076
TAG72TD1-1204-SR	69.9	31.8	76.0	1	1,000	Silver (SR)	596-12072
TAG65TD1-1204-SR	76.2	36.5	82.0	1	1,000	Silver (SR)	596-12065
TAG62TD1-1204-SR	76.2	50.8	82.0	1	500	Silver (SR)	596-12062
TAG64TD1-1204-SR	88.9	36.5	95.0	1	1,000	Silver (SR)	596-12064
TAG97TD1-1204-SR	101.6	74.0	106.0	1	500	Silver (SR)	596-71204
TAGR3TD1-1204-SR	104.0	-	108.0	1	75.0 m	Silver (SR)	596-31204
TAG02TD1-1204-SR	104.0	12.0	104.0	1	5,000	Silver (SR)	596-21204
TAG78TD1-1204-SR	104.0	140.0	105.0	1	500	Silver (SR)	596-12078

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

### Asset identification label, thermal transfer

- Material 1206 (White)

Scratch-resistant general identification for industrial applications. The high temperature range suits a wide range of applications on flat surfaces. The adhesive is also suitable for critical surfaces such as plastic and paint coated.

#### Features and Benefits

- Ideal for machinery operating in high temperature areas (up to +150 °C)
- Barcodes and alphanumeric text remain pin sharp on this high quality material
- Excellent print performance using TT822OUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro



Helatag label for a permanent asset identification.

<b>MATERIAL</b>	Type 1206, Polyester (PET), white gloss (GSWH)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	50 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Specifications</b>	UL-Recognised

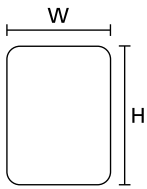






### Asset identification label, thermal transfer

- Material 1206 (White)



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1206-WH	12.7	11.1	101.6	6	15,000	White gloss (GSWH)	596-12671
TAG13TD4-1206-WH	19.1	6.4	101.6	4	10,000	White gloss (GSWH)	596-12061
TAG16TD3-1206-WH	22.9	6.4	80.0	3	10,000	White gloss (GSWH)	596-12616
TAG61TD3-1206-WH	25.4	4.8	89.0	3	10,000	White gloss (GSWH)	596-12661
TAG01TD3-1206-WH	25.4	6.4	89.0	3	7,500	White gloss (GSWH)	596-01120
TAG34TD3-1206-WH	25.4	9.5	85.1	3	7,500	White gloss (GSWH)	596-12634
TAG15TD3-1206-WH	25.4	12.7	85.1	3	7,500	White gloss (GSWH)	596-12615
TAG31TD3-1206-WH	25.4	19.1	85.1	3	5,000	White gloss (GSWH)	596-12631
TAG35TD3-1206-WH	31.8	9.5	101.6	3	7,500	White gloss (GSWH)	596-12635
TAG17TD2-1206-WH	38.1	6.4	85.1	2	5,000	White gloss (GSWH)	596-12617
TAG27TD2-1206-WH	38.1	19.1	85.1	2	2,500	White gloss (GSWH)	596-12627
TAG67TD2-1206-WH	38.1	31.8	85.1	2	2,500	White gloss (GSWH)	596-12667
TAG69TD2-1206-WH	40.6	22.9	89.0	2	2,500	White gloss (GSWH)	596-12669
TAG77TD1-1206-WH	50.8	22.9	55.0	1	2,000	White gloss (GSWH)	596-71206
TAG73TD1-1206-WH	50.8	25.4	55.0	1	2,000	White gloss (GSWH)	596-12673
TAG66TD1-1206-WH	50.8	36.5	56.8	1	1,000	White gloss (GSWH)	596-12666
TAG68TD1-1206-WH	63.5	25.4	69.0	1	2,000	White gloss (GSWH)	596-12668
TAG63TD1-1206-WH	63.5	38.1	70.0	1	1,000	White gloss (GSWH)	596-12663
TAG76TD1-1206-WH	63.5	50.8	70.0	1	500	White gloss (GSWH)	596-61206
TAG4TD1-1206-WH	65.0	20.0	70.0	1	2,500	White gloss (GSWH)	596-41206
TAG72TD1-1206-WH	69.9	31.8	76.0	1	1,000	White gloss (GSWH)	596-12672
TAG65TD1-1206-WH	76.2	36.5	82.0	1	1,000	White gloss (GSWH)	596-12665
TAG62TD1-1206-WH	76.2	50.8	82.0	1	500	White gloss (GSWH)	596-12662
TAG64TD1-1206-WH	88.9	36.5	95.0	1	1,000	White gloss (GSWH)	596-12664

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Tamper evident security labelling, thermal transfer

- Helatag 1208 (White), fragmenting

The specially formulated adhesive labels give the highest quality print clarity when printed on thermal transfer printers. The range of materials and ribbons have been developed to suit the needs of most users. Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

#### Features and Benefits

- A security label that fragments on removal
- Designed weak spots makes label removal time consuming
- Excellent print performance using TT822OUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro

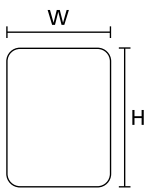


A secure way of identifying ...



... if an asset label has been tampered with.

<b>MATERIAL</b>	Type 1208, Acrylate foil (AC), white (WH), tamper proof
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from +4 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	56 µm
<b>Chem. Material Properties</b>	Resistant to oils, water and solvents
<b>Recommended Ribbon Type</b>	TT822OUT



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1208-WH	12.7	11.1	101.6	6	15,000	White (WH)	596-20871
TAG34TD3-1208-WH	25.4	9.5	85.1	3	7,500	White (WH)	596-12083
TAG15TD3-1208-WH	25.4	12.7	85.1	3	7,500	White (WH)	596-12080
TAG31TD3-1208-WH	25.4	19.1	85.1	3	5,000	White (WH)	596-12084
TAG35TD3-1208-WH	31.8	9.5	101.6	3	7,500	White (WH)	596-12085
TAG17TD2-1208-WH	38.1	6.4	85.1	2	5,000	White (WH)	596-12081
TAG27TD2-1208-WH	38.1	19.1	85.1	2	2,500	White (WH)	596-12082
TAG67TD2-1208-WH	38.1	31.8	85.1	2	2,500	White (WH)	596-12087
TAG69TD2-1208-WH	40.6	22.9	89.0	2	2,500	White (WH)	596-12089
TAG77TD1-1208-WH	50.8	22.9	55.0	1	2,000	White (WH)	596-71208
TAG73TD1-1208-WH	50.8	25.4	55.0	1	2,000	White (WH)	596-31208
TAG66TD1-1208-WH	50.8	36.5	56.8	1	1,000	White (WH)	596-12086
TAG68TD1-1208-WH	63.5	25.4	69.0	1	2,000	White (WH)	596-12088
TAG72TD1-1208-WH	69.9	31.8	76.0	1	1,000	White (WH)	596-20872

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



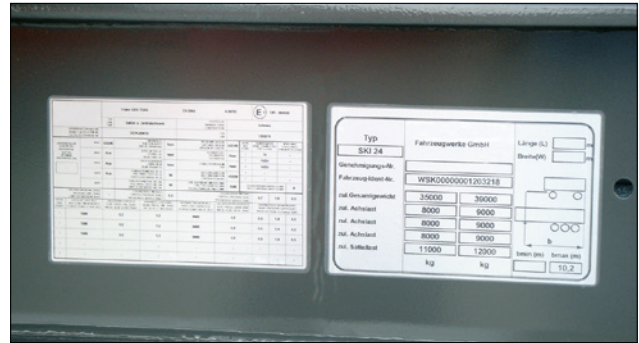
### Tamper evident security labelling, thermal transfer

- **Material 951 (Silver), 2 parts**

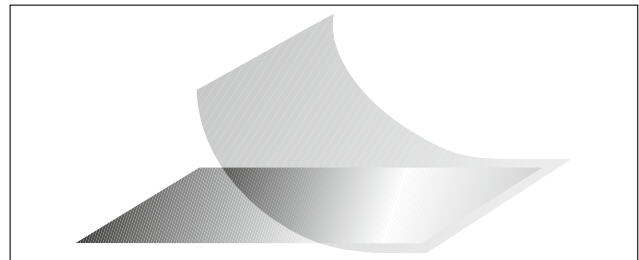
Specially for applications in the automotive market for lasting, non-transferable and tamperproof application of type plates. Recommended for use on flat surfaces on the vehicle chassis. The transparent overlamine, which overlaps by a few millimetres, guarantees high resistance and is simple and safe to apply by hand. For problem-free printing, we recommend TagPrint Pro software.

#### Features and Benefits

- 2-part label, delivered on reel together with the protective label
- Designed for highly visible and rugged identification on trucks and trailers
- Tamper evident, when pulled off a checkered pattern will be visible as evident
- High durability in outside use
- Meets requirements of the KBA (Kraftfahrtbundesamt [German Federal Motor Transport Authority])
- Thickness of 951A label 36 µm, and 951B laminate 25 µm
- Particularly suitable as type label for vehicles
- Excellent print performance using TT822OUT ribbon
- Print with TT4000+, TT430 for best results
- Easy label design with TagPrint Pro

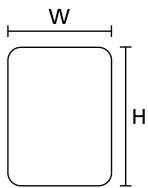


Type plate of an HGV trailer with protective laminate.



The printed silver type plate (Mat. 951A) is protected by the transparent laminate (Mat. 951B).

<b>MATERIAL</b>	Type 951, Polyester, silver (SR) and Polyester, transparent (CL)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C (label), from +4 °C (laminate)
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	36 µm, 25 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Specifications</b>	KBA (Kraftfahrzeugbundesamt) Germany, UL-Recognised

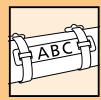


TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
<b>TAG25.4-12.7TD1-951 SET</b>	25.4	12.7	31.5	1	1,000	Silver (SR)	596-44951
<b>TAG50.8-25.4TD1-951 SET</b>	50.8	25.4	56.8	1	1,000	Silver (SR)	596-43951
<b>TAG63.5-50.8TD1-951 SET</b>	63.5	50.8	69.5	1	500	Silver (SR)	596-42951
<b>TAG101-74TD1-951 SET</b>	101.6	74.0	107.0	1	250	Silver (SR)	596-41951
<b>TAG101-160TD1-951 SET</b>	101.6	160.0	105.8	1	250	Silver (SR)	596-40951

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Stainless Steel Printing System

- M-BOSS Lite Printer

- M-BOSS Lite Markers

M-BOSS Lite is the ideal stainless steel marker plate embossing printer for low to medium volumes.

Installation is quick and it is very easy to operate. Due to it being small in size, quiet in operation, and able to run off a normal electrical supply, it is very easy to locate within your business.

All sizes will be printed in under a minute.

#### Features and Benefits

- Marine grade stainless steel marker plate embossing printer for low to medium volumes
- Used to identify pipes and cables
- Used in offshore platforms, floating production storage offloading (FPSO), refineries, rail infrastructure, utilities, food, and solar farms
- Small enough to install in most premises
- Uses a standard electrical supply and only weighs 35kg
- MBML10X45 printed with 8 characters in under 10 seconds
- MBML20X90 printed with 69 characters in less than a minute
- Use 4.6mm wide cable ties and hand tool to securely fix marker plate to cable
- Rivets can be applied to MBML20X90 and MBML20X45 if required
- Comes with 42-piece 4mm character set
- Letters: A B C D E F G H I J K L M  
N O P Q R S T U V W X Y Z
- Numbers: 0 1 2 3 4 5 6 7 8 9
- Symbols: & - / . , ' ,



One Step to the Web!



Space-saving and easy to use: M-BOSS Lite stainless steel embossing system.

#### Patent Pending

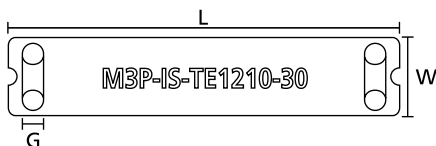
<b>Print Method</b>	Embossed
<b>Power Supply</b>	230 Volt 50/60 Hz
<b>Cycle Time</b>	Just under 1 second per character
<b>Printer Interfaces</b>	USB 2.0
<b>System Requirements</b>	Microsoft Windows operating system
<b>L x H x W</b>	650 mm x 260 mm x 500 mm
<b>Weight</b>	35 kg
<b>Specifications</b>	CE



TYPE	Width (W)	Length (L)	Pack Cont.	Article-No.
M-BOSS Lite	500.0	650.0	1	544-00000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-80 °C to +538 °C



Identification for hazardous environments: M-BOSS Lite stainless steel markers.

TYPE	Strap Width max. (G)	Number of lines	Characters per line	Number of characters	Width (W)	Length (L)	Pack Cont.	Article-No.
MBML10X45	4.6	1	8	8	10.0	45.0	1,000	544-80101
MBML10X90	4.6	1	23	23	10.0	90.0	500	544-80102
MBML20X45	4.6	3	8	24	20.0	45.0	1,000	544-80201
MBML20X90	4.6	3	23	69	20.0	90.0	500	544-80202

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Thermal Transfer Printer

- **TrakMark DS, Double Sided**

### Features and Benefits

- High volume two sided printing
- Print on TLFX DS and TULT DS (Ladder Products)
- Print on TLFX, TULT, and TCGT (Continuous tubing)
- Print on Tiptags
- Print on Adhesive Labels
- Uses standard 300 m ribbons
- Barcodes: standard and 2D
- Print speed up to 125 mm/s  
(30 mm/s recommended for Ladder Products and Tubing)
- Multiple language selection
- Windows drivers: 32 / 64 bit for Windows XP, Windows Vista, Windows 7, and Windows 8
- Options: External Reel Holder (556-00451), Cutter (556-04025), Perforator (556-04024)



TrakMark DS printer.

More information on printer accessories can be found on page 428.

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	30, 40, 50, 75, 100, 125 mm/s
<b>Max. Print Width</b>	105.6 mm
<b>Max. Label Length</b>	2,000 mm
<b>Printer Interfaces</b>	RS232 C, USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard, 2D
<b>Printer Memory</b>	64 MB RAM
<b>L x H x W</b>	554 x 395 x 248
<b>Weight</b>	21 kg
<b>Specifications</b>	CE, FCC, UL

RoHS

TYPE	Article-No.
TRAKMARK DS 300DPI	556-05000

Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





## Thermal Transfer Printer

- **TT4000+**

### Features and Benefits

- High volume single sided printing
- Print on TLFX DS and TULT DS (Ladder Products)
- Print on TLFX, TULT, and TCGT (Continuous tubing)
- Print on Tiptags
- Print on Adhesive Labels
- Uses standard 300 m ribbons
- Barcodes: standard and 2D
- Print speed up to 125 mm/s (30 mm/s recommended for Ladder Products and Tubing)
- Multiple language selection
- Windows drivers: 32 / 64 bit for Windows XP, Windows Vista, Windows 7, and Windows 8
- Options: External Reel Holder (556-00451), Cutter (556-04025), Perforator (556-04024)



TT4000+ series printer.

**For problem-free printing we recommend TagPrint Pro, page 429.**

**More information on printer accessories can be found on page 428.**

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	30, 40, 50, 75, 100, 125 mm/s
<b>Max. Print Width</b>	105.6 mm
<b>Max. Label Length</b>	1,000 mm
<b>Printer Interfaces</b>	RS232 C, USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard, 2D
<b>Printer Memory</b>	64 MB RAM
<b>L x H x W</b>	446 x 274 x 242 mm
<b>Weight</b>	10 kg
<b>Specifications</b>	CE, FCC, UL

**RoHS** ✓

TYPE	Article-No.
TT4000+ 300dpi	556-04000

Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





## Thermal Transfer Printer

- **TT430**

### Features and Benefits

- Medium volume single sided printing
- Print on TLFX DS and TULT DS (Ladder Products)
- Print on TLFX, TULT and TCGT (Continuous tubing)
- Print on Tiptags
- Print on Adhesive Labels
- Uses standard ribbons
- Barcodes: standard and 2D
- Print speed up to 125 mm/s  
(30mm/s recommended for Ladder Products and Tubing)
- Adjustable label sensor
- Multiple language selection
- Windows drivers: 32/64 bit for Windows XP, Windows Vista, Windows 7, and Windows 8
- Options: Cutter (556-00452) and External Reel Holder (556-00451)



TT430 thermal transfer printer.

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	up to 125 mm/s
<b>Max. Print Width</b>	106 mm
<b>Max. Label Length</b>	1,000 mm
<b>Printer Interfaces</b>	USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard and 2D
<b>Printer Memory</b>	64 MB RAM
<b>L x H x W</b>	322 mm x 187,5 mm x 253 mm
<b>Weight</b>	4 kg
<b>Specifications</b>	CE, FCC, UL

RoHS 

TYPE	Article-No.
TT430	556-00450

Subject to technical changes.

TYPE	Article-No.
P430 Perforator	556-00456
S430 Cutter	556-00452
TT430 External Reel Holder	556-00451

Subject to technical changes.



One Step to the Web!



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

Use this selection matrix to find the right combination of material and ribbon to suit your application.

Material (Page)	Resistance to							TT ribbon	Market (suggested)						
	Smudgeproof	Scratchproof	Partly smudgeproof	Oils / benzenes	Alcoholic solvents	Etching	Approved		Aerospace	Automotive	Electronics	Machine Building	Military	Process Control	Rail
323 (411)	■	■	-	■	-	-	-	TT822OUT	-	-	■	-	-	-	-
	■	-	-	-	-	-	-	TT932DOUT	-	-	-	-	-	-	■
951 (420)	■	■	-	■	-	-	■	TT822OUT	-	■	■	-	-	-	-
	■	■	-	■	■	-	-	TTDTHOUT	-	■	■	-	-	-	-
1204 (416)	■	■	-	■	-	-	■	TT822OUT	-	■	■	-	■	■	-
	■	-	-	-	-	-	-	TT932DOUT	-	-	-	■	-	-	-
	■	■	-	■	■	-	-	TTDTHOUT	-	■	■	-	-	-	-
1206 (417)	■	■	-	■	-	-	■	TT822OUT	-	-	■	■	-	■	-
	■	-	-	-	-	-	-	TT932DOUT	-	-	■	■	-	■	-
	■	■	-	■	■	-	-	TTDTHOUT	-	-	■	■	-	■	-
1208 (419)	■	■	-	-	-	-	-	TT822OUT	-	-	■	-	-	-	-
	■	-	-	-	-	-	-	TT932DOUT	-	-	-	-	-	-	■
1210 (414)	■	■	-	■	-	-	-	TT822OUT	-	-	-	■	-	■	■
1211 (415)	■	-	-	-	-	-	-	TT932DOUT	-	-	-	■	-	-	-
TIPTAG PU (410)	■	■	-	■	■	■	-	TTRC+	-	-	-	■	-	-	■
TLFX (406)	■	■	-	■	■	-	-	TTDTHOUT	■	-	-	-	■	-	■
	■	■	-	■	■	■	-	TTRC+	■	-	-	-	■	-	■
TLFX DS (408)	■	■	-	■	■	-	-	TTDTHOUT	■	-	-	-	■	-	■
	■	■	-	■	■	■	-	TTRC+	■	-	-	-	■	-	■
TULT (402)	-	-	■	-	-	-	-	TT822OUT8	■	-	-	■	■	■	-
	■	■	-	■	■	-	-	TTDTHOUT	■	■	-	■	■	■	-
	■	■	-	■	■	■	-	TTRC+	■	-	-	■	■	■	-
	-	-	■	-	-	-	-	TTRW	■	-	-	■	■	■	-
TULT DS (404)	-	-	■	-	-	-	-	TT822OUT8	■	-	-	■	■	■	-
	■	■	-	■	■	-	-	TTDTHOUT	■	■	-	■	■	■	-
	■	■	-	■	■	■	-	TTRC+	■	-	-	■	■	■	-
	-	-	■	-	-	-	-	TTRW	■	-	-	■	■	■	-

■ yes  
- no



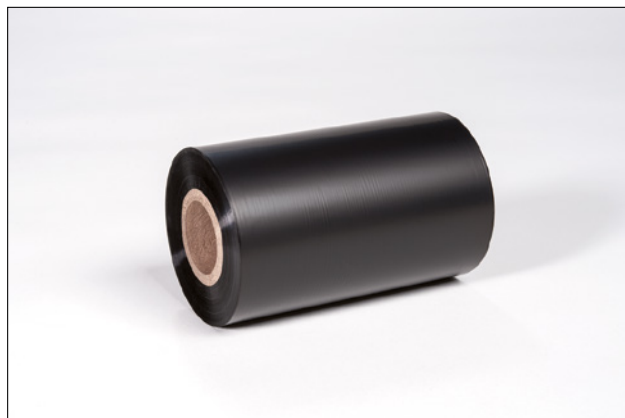
### Thermal Transfer Ribbons for

- Adhesive Labels

The thermal transfer print technology is based on heating up certain dots in the print head. This transfers the ink very precisely from the ribbon onto the surface of the printed material.

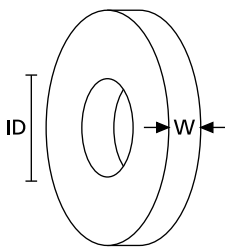
#### Features and Benefits

- Thermal transfer ribbons for highest quality and performance of printed labels
- Ribbons are specifically designed to maximise print performance for the recommended material



Ribbons for printing on Adhesive Labels.

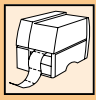
**ID: The standard inside core diameter is 25.4 mm.**



TYPE	Recommended Material	Colour	Width (W)	Length (L)	Article-No.
TT822OUT 60MM	323/823/880/951/1203/1204/1205/1206/1207/1208/1210/1211/1213/1216/1220/1221	Black (BK)	60.0	300.0 m	556-00111
TT822OUT 110MM	323/823/880/951/1203/1204/1205/1206/1207/1208/1210/1211/1213/1216/1220/1221	Black (BK)	110.0	300.0 m	556-00101
TT932DOUT 30MM	323/1209	Black (BK)	30.0	300.0 m	556-00124
TT932DOUT 85MM	323/1209	Black (BK)	85.0	300.0 m	556-00117
TT932DOUT 110MM	323/1209	Black (BK)	110.0	300.0 m	556-00118
TT122OUT 60mm	1220/1221	Black (BK)	60.0	300.0 m	556-00060
TT122OUT 110mm	1220/1221	Black (BK)	110.0	300.0 m	556-00061

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

RoHS



## Thermal Transfer Ribbons for

- **Heatshrink and TIPTAGs**

The thermal transfer print technology is based on heating up certain dots in the print head. This transfers the ink very precisely from the ribbon onto the surface of the printed material.

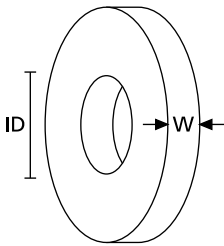
### Features and Benefits

- Thermal transfer ribbons for highest quality and performance of printed markers
- Ribbons are specifically designed to maximise print performance for the recommended material



Ribbons for printing on Tubing and TIPTAGs.

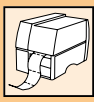
**ID: The standard inside core diameter is 25.4 mm.**



TYPE	Recommended Material	Colour	Width (W)	Length (L)	Article-No.
<b>TTRC+ 30MM</b>	TIPTAG/TIPTAG PU/TULT/TCGT/TLFX	Black (BK)	30.0	300.0 m	556-00114
<b>TTRC+ 60MM</b>	TIPTAG/TIPTAG PU/TULT/TCGT/TLFX	Black (BK)	60.0	300.0 m	556-00115
<b>TTRC+ 100MM</b>	TIPTAG/TIPTAG PU/TULT/TCGT/TLFX	Black (BK)	100.0	300.0 m	556-00103
<b>TTDTHOUT 40MM</b>	TIPTAG/TULT/TCGT/TLFX/TULT DS/ TLFX DS	Black (BK)	40.0	300.0 m	556-00139
<b>TTDTHOUT 60MM</b>	TIPTAG/TULT/TCGT/TLFX/TULT DS/ TLFX DS	Black (BK)	60.0	300.0 m	556-00140
<b>TTDTHOUT 100MM</b>	TIPTAG/TULT/TCGT/TLFX/TULT DS/ TLFX DS	Black (BK)	100.0	300.0 m	556-00141
<b>TT822OUT8 110MM</b>	TULT/TCGT	Silver Grey (SRGY)	110.0	300.0 m	556-00161
<b>TTRW 30MM</b>	TULT/TCGT	White (WH)	30.0	300.0 m	556-00125
<b>TTRW 60MM</b>	TULT/TCGT	White (WH)	60.0	300.0 m	556-00137
<b>TTRW 100MM</b>	TULT/TCGT	White (WH)	100.0	300.0 m	556-00133

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Thermal Transfer Printer Accessories

- **S4000 Cutter**

#### Features and Benefits

- To cut printed tubing and continuous label material at a desired length
- The cutter automatically initialises each time the printer is powered on
- The cutter tray ensures the cut pieces are collected in one place
- The plug and play cutter is simply attached with one Allen screw



Cutter S4000 for both TT4000+ and TrakMark DS.

TYPE	Article-No.
Cutter Tray for S4000	556-03011
S4000 Cutter	556-04025

Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

- **P4000 Perforator**

#### Features and Benefits

- To perforate printed tubing and continuous label material at a desired length
- Perforation depth can be adjusted to different thicknesses of the material
- Very useful accessory if tubings are printed with serial numbers
- Plug and play perforator is simply attached with one Allen screw



Perforator P4000 for both TT4000+ and TrakMark DS.

TYPE	Article-No.
P4000 Perforator	556-04024

Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



## Labelling Software

- **TagPrint Pro**

Easily import a variety of image types into the label design

Use any Windows based font in the label design for complete customization

Layer objects like professional page layout programs

Rulers on top and side allow for exact placement of object

Easily change text color, fill color and border color to make text stand out and accomplish "full reverse" printing

Allow text characters to be stretched or compressed to almost any height or width

Draw lines, circles and boxes on the label as a simple way of making the label look more professional

### Features and Benefits

- Alphanumeric sequences
- Print to multiple printers at one time
- Save jobs in a queue and print all at one time with 'Print later' function
- Print faster
- Connect or import directly from other databases including Excel, Access, text files
- More bar code types
- Inverse, flip, and mirror image options for graphic images
- Multi-lingual
- Print log available
- Manually adjust font size to 1/10 of a point
- Customize height and width of characters
- Customize line spacing
- And much more!



*The easy to use software speeds up production of markers, labels, and identification tags.*

<b>System Requirements</b>	PC running Microsoft Windows XP SP3, Vista SP1 or later, Windows 7 .NET Framework 4, Windows 8 512 MB RAM (XP SP3) 1.0 GB RAM (Vista/Windows 7/Windows 8) 500 MB available hard disk space
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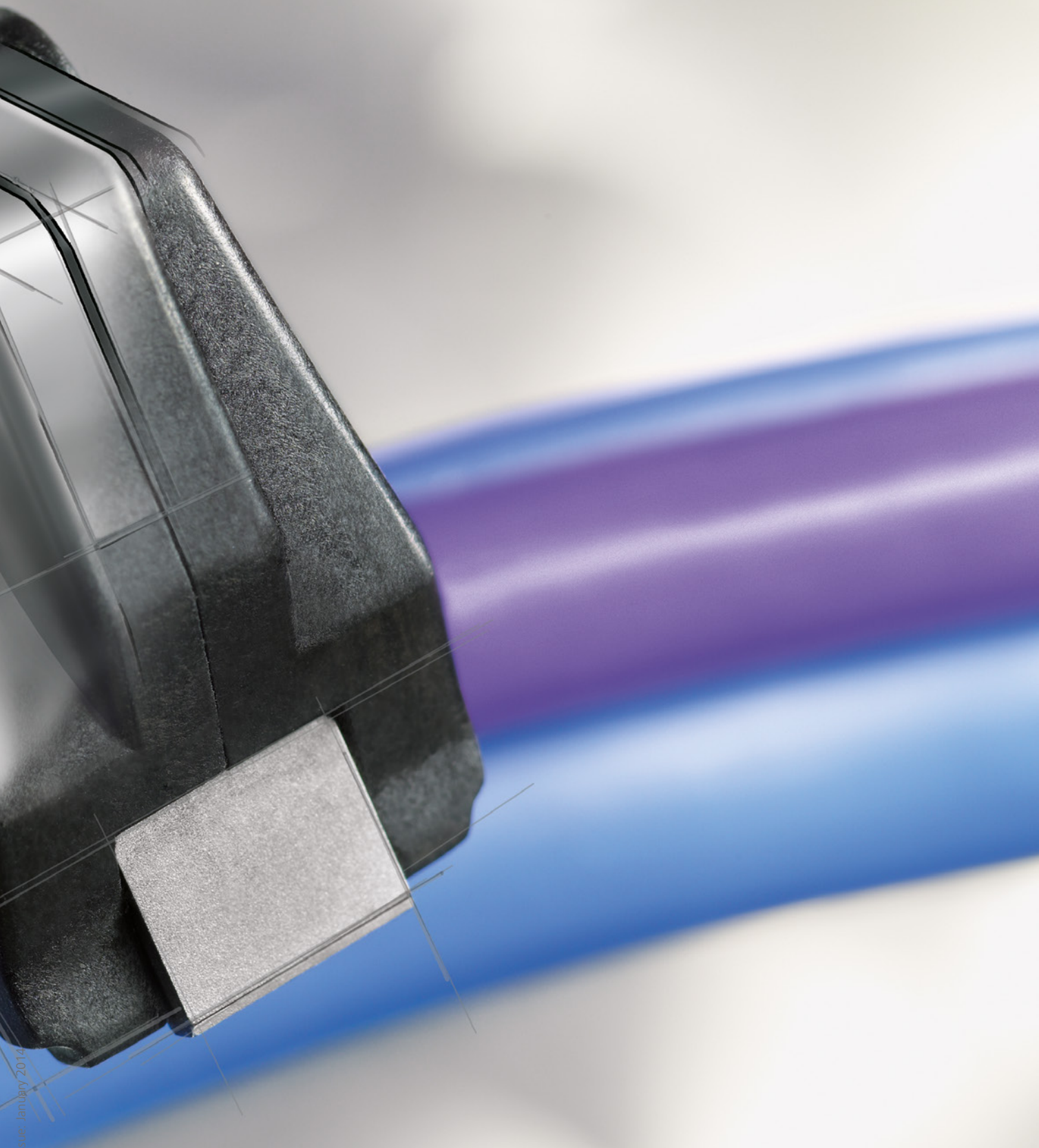
TYPE	Pack Cont.	Article-No.
TagPrint Pro 3.0	1	556-00051

Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.







Date of issue: January 2014





## 6.1 Automatic Cable Tying System

### Automatic bundling for diameters up to 20 mm

Autotool 2000	434
Autotool 2000 Accessories	435
Autotool 2000 Cable Ties	436
Autotool 2000 Bundling Clips	437

### Waste-free bindings for diameters up to 80 mm

Autotool System 3080	438
Autotool System 3080 Accessories	439
Autotool System 3080 Cable Ties	440

## 6.2 Application Tooling for Cable Ties

### Product Selection

Tool Overview for Cable Ties	442
Flowchart for Optimum Tool Selection	443

### Technical Information

How to use a cable tie tool	444
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### Manual Processing Tool for cable ties with low profile head

MK10-SB	446
---------	-----

### Manual Processing Tool, simple version

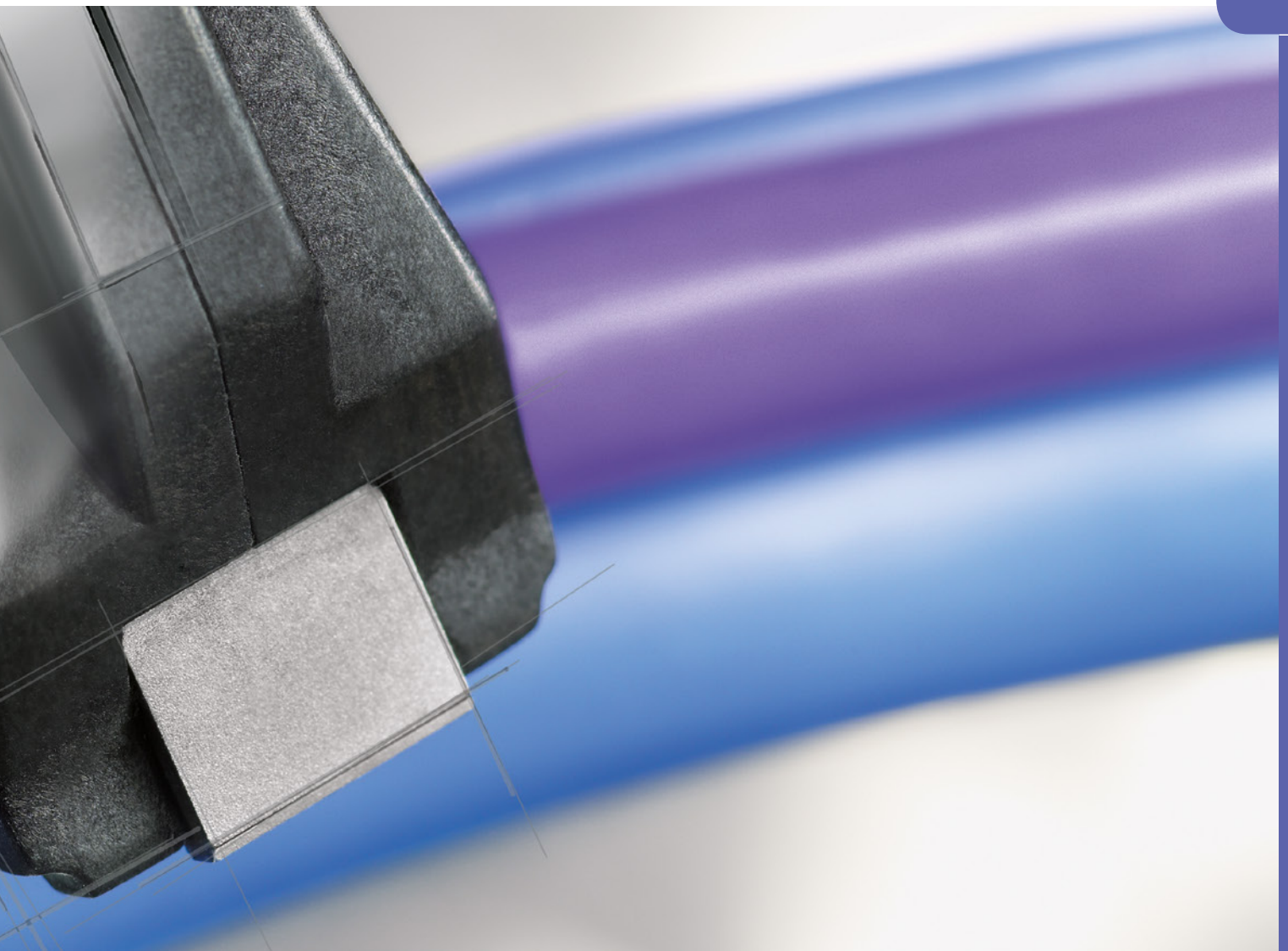
MK20, MK 21	446
-------------	-----

### Manual Processing Tool with Metal Housing

MK3SP	447
MK6	451

### Manual Processing Tool with Plastic Housing

EVO7, EVO7SP	448
MK7	449
MK9	451
MK7HT	449
MK9HT	452



<b>Pneumatic Tensioning Tool with Metal Housing</b>	
MK3PNSP2	447
<b>Pneumatic Tensioning Tool with Plastic Housing</b>	
MK7P	450
MK9P	453
MK9PSST	455
<b>Manual Tensioning Tool for KR-Series</b>	
KR6/8	454
<b>Pneumatic Tensioning Tool for KR-Series</b>	
KR8PNSE	454
<b>Manual Processing Tool for Metal Ties MBT- and MAT-Series</b>	
MK9SST	455
<b>Manual Processing Tool for Metal Ties MBT- and AMT-Series</b>	
HDT16	456
<b>Manual Processing Tool for Metal Ties MBT- and MAT-Series</b>	
KST-STG200	456
<b>Manual Processing Tool for Metal Ties MLT-Series</b>	
MIT4	457
<b>Manual Processing Tool for Metal Ties</b>	
THT	457
<b>Manual Cutting Tool for Plastic Ties</b>	
CUTties	458

### **6.3 Application Tooling for Heat Shrinkable Tubing**

#### **Electrical Hot Air Tool**

H5002- handy tool	459
H5004 - for professional use	459

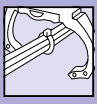
#### **Processing Heat Shrink tool**

ShrinkPad 110	460
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### **6.3 Application Tooling for Snappers**

#### **Manual Tool**

ASNP, MSNP snapper tools	461
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### Automatic bundling up to 20 mm diameter

- **Autotool 2000**

The reliability, ergonomics, simple handling and flexibility makes the HellermannTyton Autotool 2000 ideal for the diverse applications where high quantities are required, e.g. in cable assemblies for automotive, brown and white goods industry, electronics, TV and domestic appliances, packaging of bags and the bundling of parts together. The system suits both the high volume use of ties or where flexible production practices are necessary. Overall the Autotool 2000 gives full, flexible and cost effective utilization of labour and maximises efficiency.

With the bench mount kit or the overhead suspender the Autotool 2000 can be used stationary or mobile, depending on the customer's application.

Another opportunity is the integration of AT2000 into a fully automated production line. To do this you would need the control box, which is the interface between AT2000 and your production line.

#### Features and Benefits

- Electronically operated automatic cable tying system
- Speeds up binding process
- Consistent, high-quality bundling, threading and cutting
- Very easy to use
- Binding speed of 0.8 seconds per cycle
- Handles bandolier of 50 or reels of 3500 cable ties
- Automatic bundling up to 20mm diameter
- Flush cut off
- Adjustable binding force and electronic fault diagnosis

**For your assembly line requirements we offer individual solutions.**

TYPE	Article-No.
Autotool 2000	120-00000

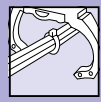
Subject to technical changes.



Autotool 2000.

<b>Power Supply</b>	Electrical, with Switching Power Pack
<b>Cycle Time</b>	0.8 sec
<b>Weight (Kg)</b>	1.2 kg
<b>Tension Force</b>	Continuously adjustable





### Automatic bundling up to 20 mm diameter

- **Accessories for Autotool 2000**

#### Features and Benefits

- Stationary or mobile with bench mount kit or overhead suspender
- Integration into fully automated production line
- Switching Power Pack - Input: 100-230 VAC, 50/60 Hz; Output: 24,5 VDC, max. 150 W
- Switching Power Pack with Control Box - needed for fully automated applications
- Bench Mount Kit - Tool and tie reel stand including foot pedal
- Overhead Suspender and tie reel stand including balancer
- Stand-off HH20 - are used as spacer for an optimal bundling, bundle diameter max. 20 mm, bundle height 25-45 mm



Assembly equipment, band reel, Autotool 2000 in receptacle and switching power pack.

TYPE	Article-No.
Bench Mount Kit	120-00040
Overhead Suspender	120-00050
HH20	120-00080
Switching Power Pack	120-00100
Switching Power Pack with Control Box	120-00110

Subject to technical changes.



Packaging application with the bench mount kit.





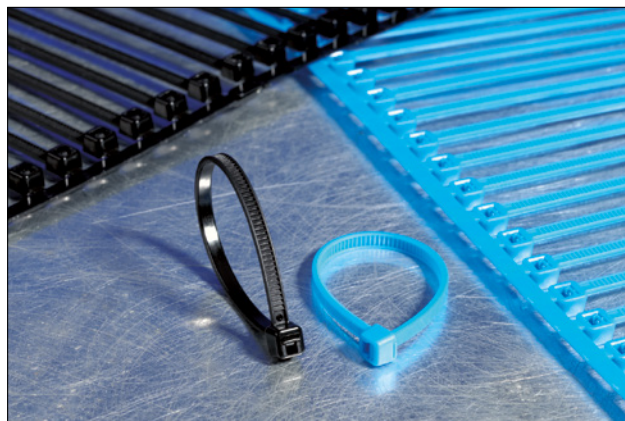
### Automatic bundling up to 20 mm diameter

- Cable ties for Autotool 2000

The reliability, ergonomics, simple handling and flexibility makes the HellermannTyton Autotool 2000 ideal for diverse applications where high quantities are required, e.g. in cable assemblies for automotive, electronics, TV and domestic appliances, packaging of bags and the bundling of parts together. The system suits both the high volume use of ties or where flexible production practices are necessary. Overall the Autotool 2000 gives full, flexible and cost effective utilization of labour and maximises efficiency.

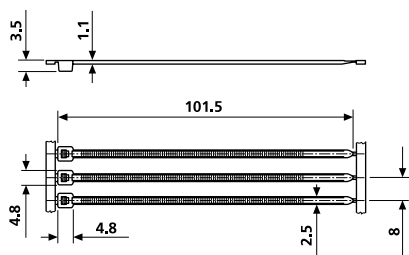
#### Features and Benefits

- Entirely plastic and easily recyclable
- Secure hold on bundles
- Bundles up to diameter of 20 mm
- Flush cut-off
- Available in natural and black
- Other colours available on request
- Handles bandoleer of 50 or reels of 3500 cable ties




Cable ties for Autotool 2000.

<b>MATERIAL</b>	Polyamide 6.6 Heat Stabilised (PA66HS)	Polyamide 6.6 heat and UV stabilised (PA66HSUV)	Polyamide 4.6 (PA46)
<b>Operating Temperature</b>	-40 °C to +105 °C, (+145 °C, 500 h)		-40 °C to +150 °C, (+195 °C, 500 h)
<b>Flammability</b>	UL94 V2		UL94 V2, Limited Fire Hazard, Low generation of toxic gases and corrosive acid, Low smoke generation



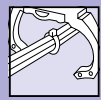
Bandoleer T18RA

TYPE	Bundle Ø max.		Colour	Material	Pack Cont.	Article-No.
T18RA50	20.0	80	Black (BK)	PA66HSUV	2,000 pcs.	120-40020
T18RA3500	20.0	80	Black (BK)	PA66HSUV	3,500 pcs.	120-50010
	20.0	80	Natural (NA)	PA46	3,500 pcs.	120-46009
T18RA50	20.0	80	Natural (NA)	PA66HS	2,000 pcs.	120-40019
T18RA3500 HS	20.0	80	Natural (NA)	PA66HS	3,500 pcs.	120-50009

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.  
More colours on request. Please contact us!



**= Minimum Tensile Strength**



### Automatic bundling up to 20 mm diameter

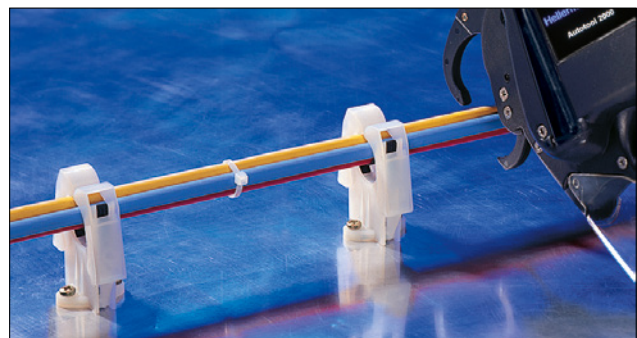
- Bundling Clips for Autotool 2000

#### Features and Benefits

- Fast solution for installing bundling clips
- Easy to fix with Autotool 2000



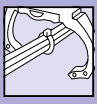
Bundling Clip ATS BC FT6LG.



Harness board accessory HH20.

TYPE	Drawing	Panel Thickness	Hole Ø (FH)	Colour	Material	Article-No.
ATSBCEC35		1.5 - 4.0	-	Black (BK)	PA66HIRHS	102-68355
ATSBCSFT6.5		2.3 - 3.3	6.3 - 6.7	Black (BK)	PA66HIRHS	102-69066
ATSBCSFT6.5-MD		2.0 - 3.0	6.3 - 6.7	Black (BK)	PA66HIRHS	102-69065
ATSBCEC36		1.5 - 4.0	-	Black (BK)	PA66HIRHS	102-68365
ATSBCEC37		1.5 - 4.0	-	Black (BK)	PA66HIRHS	102-68375
ATSBCT6LG		0.6 - 5.1	6.3 - 7.0	Black (BK)	PA66HIRHS	102-67065

All dimensions in mm. Subject to technical changes.



### Waste-free bindings for diameters up to 80 mm

- **Autotool System 3080**

By assembling the ATS3080 into different devices the tool can be customised for various customer applications. For example, with the horizontal bench mount kit plastic bags can be closed in seconds. Also, because of the unique closing mechanism the plastic tie closing the bag can serve as a tamper evident seal and is compatible material for recycling.

For products with special requirements of cable tying e.g. a binding at an exact position, the HellermannTyton development department can design and supply special jigs for the ATS3080.

HellermannTyton developed an innovative solution for harnesses in the Automotive industry. With the ATS3080 it is now possible to fasten fixings, also known as foot parts, at the same time as the automatic binding. This simplifies the final assembly of harnesses, because the pre-assembled harness can be fixed directly to the metal edge or into a hole! This means that you can now produce a complex harness completely automatically.

#### Features and Benefits

- Electrical bundling system from HellermannTyton
- Every shot absolutely waste free bindings with a flush cut
- No lost time for cleaning or opening waste boxes
- Bundling diameter up to 80mm
- Processes outside serrated Nylon 6.6 strap strap and closures on 'endless reels'
- Outstanding innovation: double play between tool and material
- Usable with overhead dispenser or bench mount system
- Can be integrated into fully automated production line
- Flexible tool especially for Automotive, packaging, white and brown goods industry
- High-capacity tool
- Short cycle time (0.8 - 1.3 sec. - depends on bundling diameter)
- Jaws available in 3 different diameters: 30, 50, 80mm
- Material available in reels of 500m straps and 5000 pcs closures



Autotool System 3080.

<b>Power Supply</b>	Electrical, with Switching Power Pack
<b>Cycle Time</b>	approx. 1.3 sec. (50mm jaw)
<b>Weight (Kg)</b>	1.7 kg
<b>Tension Force</b>	Continuously adjustable

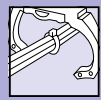
**For your assembly line requirements we offer individual solutions.**

TYPE	Article-No.
<b>Autotool System 3080</b>	102-00000

Subject to technical changes.



One Step to the Web!



### Waste-free bindings for diameters up to 80 mm

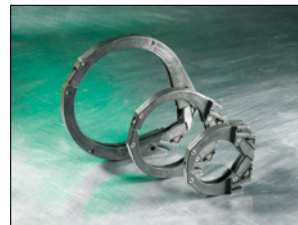
- **Accessories for Autotool System 3080**

#### Features and Benefits

- For stationary or mobile use of the ATS3080 in bench mount kit or overhead dispenser
- Integrates ATS3080 into a fully automated production line
- Switching Power Pack - Input: 230/150 VAC, 50/60 Hz; Output: 48 VDC, max. 50 W
- Bench Mount Kit - Tool and tie reel stand including foot pedal
- Overhead dispenser and tie reel stand including balancer



For the stationary installation – the bench mount kit.



Three jaws optimise the cycle time for the different bundling diameters.



Close plastic bags.

TYPE	Article-No.
Bench Mount Kit Fixed	102-00043
Bench Mount Kit Flexible	102-00040
Bench Mount Kit for Automation	102-00042
Horizontal Bench Mount Kit	102-00041
Overhead Dispenser	102-00050
Switching Power Pack	102-00100

Subject to technical changes.



### Waste-free bindings for diameters up to 80 mm

- Cable ties for Autotool System 3080

For bundling and securing of cables, hoses and pipes or closing of plastic bags. Especially in applications with a large volume, e.g. in cable assembly, automotive, industrial equipment and packaging sector.

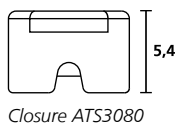
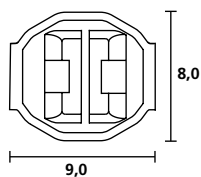
#### Features and Benefits

- Innovative strap and closures
- Two-piece consumable
- Waste-free and guaranteed optimised material utilisation
- No time lost for cleaning or opening waste boxes
- Mechanically detected bundle diameter
- Flush cut off of bindings
- Outside serrated strap prevents damage to wire insulation
- Available in reels of 500m strap and 5000 pcs closures

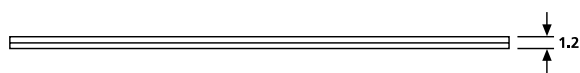


Closures and strap for ATS3080.


<b>MATERIAL</b>	Polyamide 6.6 high impact modified, heat and UV stabilised (PA66HIRHSUV)	Polyamide 6.6 heat and UV stabilised (PA66HSUV)
<b>Operating Temperature</b>	-40 °C to +95 °C, (+105 °C, 5000 h)	-40 °C to +105 °C, (+145 °C, 500 h)
<b>Flammability</b>	UL94 HB	UL94 V2



Closure ATS3080



Strap ATS3080

TYPE	Bundle Ø max.		Colour	Material	Pack Cont.	Article-No.
Strap Black ATS3080	80.0	220	Black (BK)	PA66HIRHSUV	500 m	102-66110
Closures Black ATS3080	80.0	220	Black (BK)	PA66HSUV	5,000 pcs.	102-66210
Strap Natural ATS3080	80.0	220	Natural (NA)	PA66HIRHSUV	500 m	102-66109
Closures Natural ATS3080	80.0	220	Natural (NA)	PA66HSUV	5,000 pcs.	102-66209

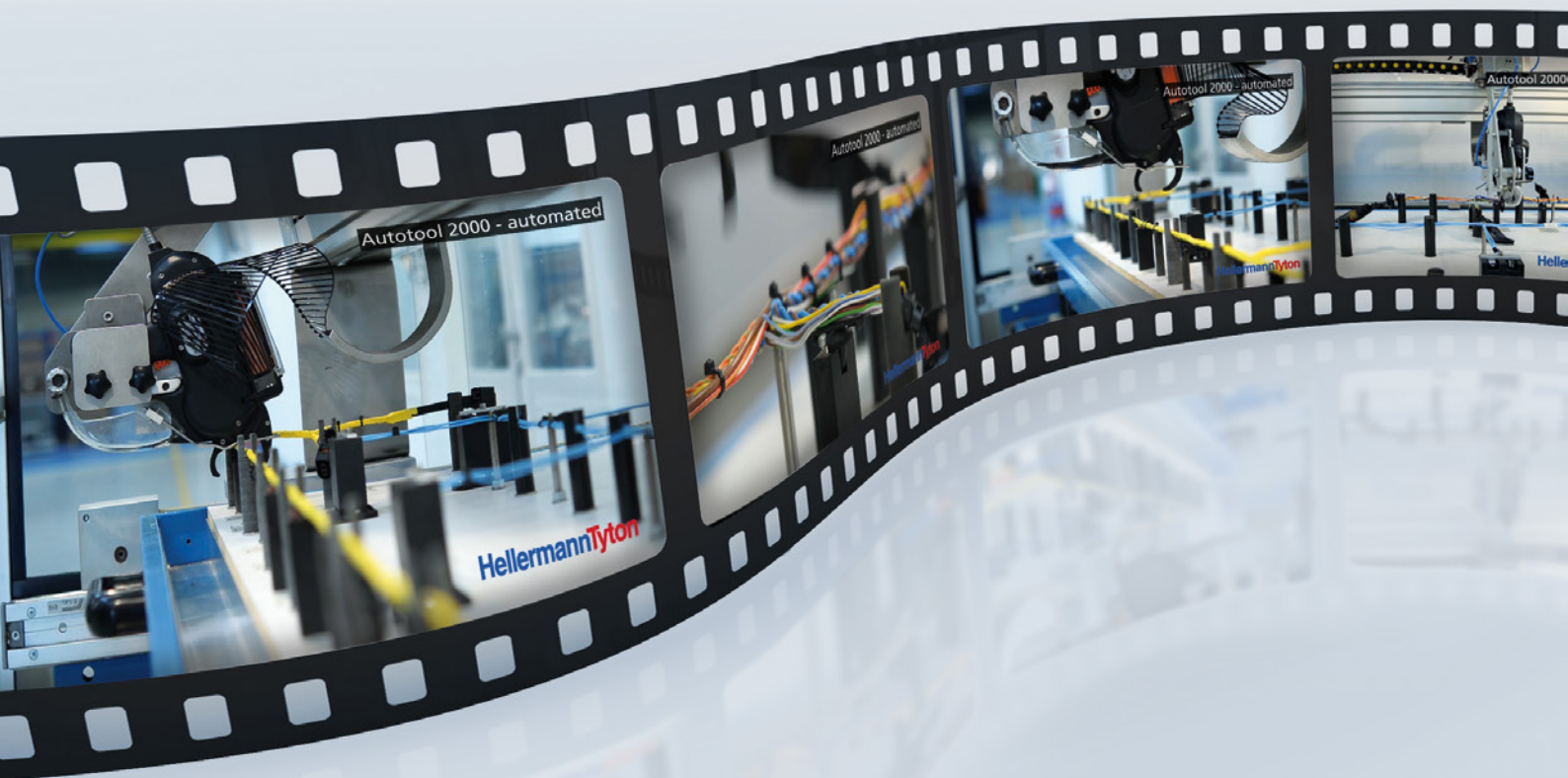
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

 = Minimum Tensile Strength



# Autotool 2000 – automated solutions

For more information  
please contact us!

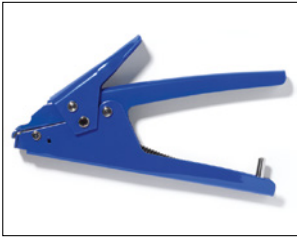


[www.HellermannTyton.co.uk](http://www.HellermannTyton.co.uk)

**HellermannTyton**



## Processing Tools for Cable Ties



MK10-SB  
see page 446.



MK20, MK21  
see page 446.



MK3SP  
see page 447.



MK3PNSP2  
see page 447.



EVO7 / EVO7SP  
see page 448.



MK7  
see page 449.



MK7HT  
see page 449.



MK7P  
see page 450.



MK6  
see page 451.



MK9  
see page 451.



MK9HT  
see page 452.



MK9P  
see page 453.

## Processing Tools for Cable Ties KR-Series



KR6/8  
see page 454.



KR8PNSE  
see page 454.



MK9SST  
see page 455.



MK9PSST  
see page 455.

## Processing Tools for Metal Ties

## Processing Tools for Metal Ties



HDT16  
see page 456.



KST-STG200.  
see page 456.

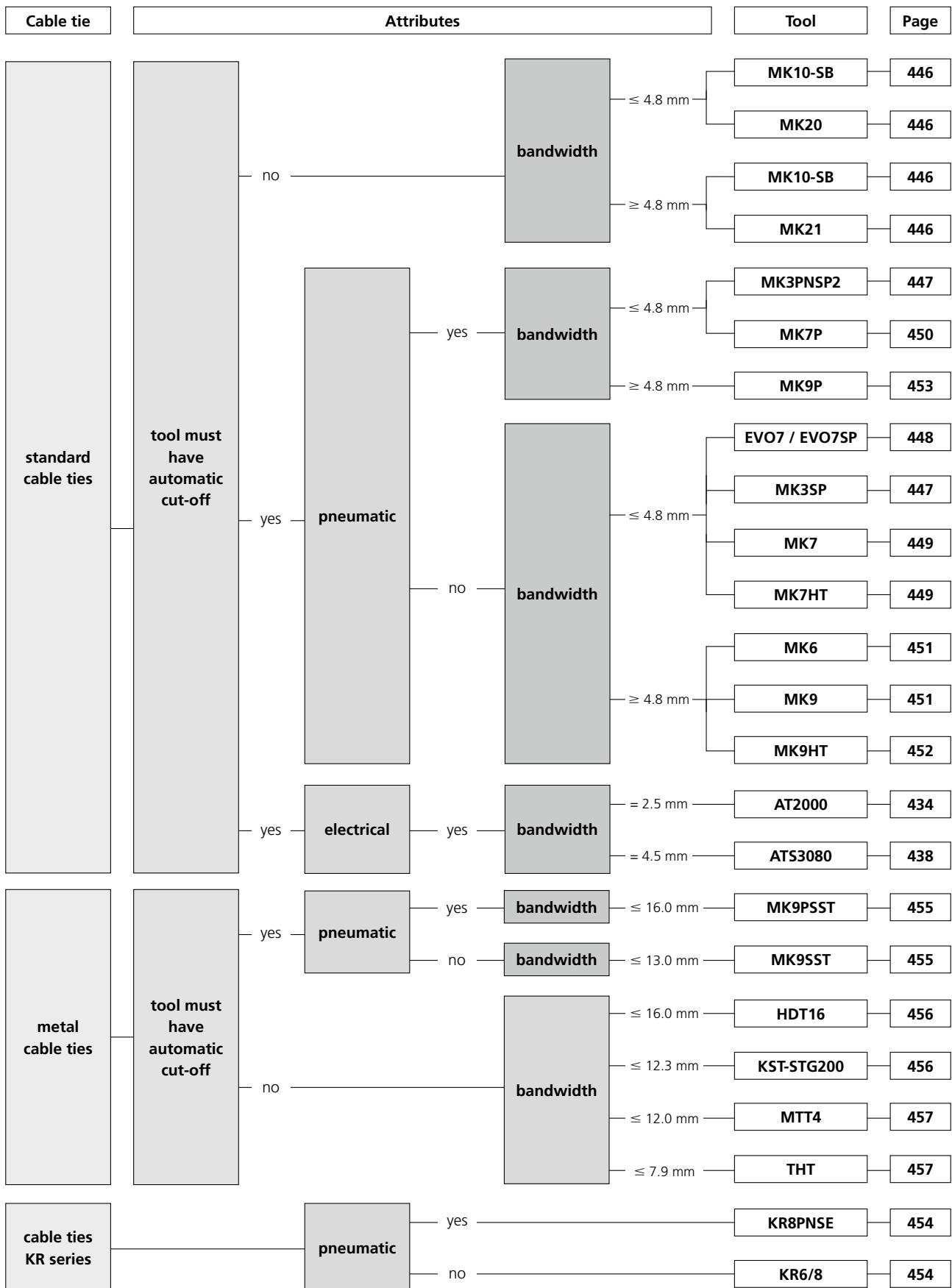


MTT4  
see page 457.

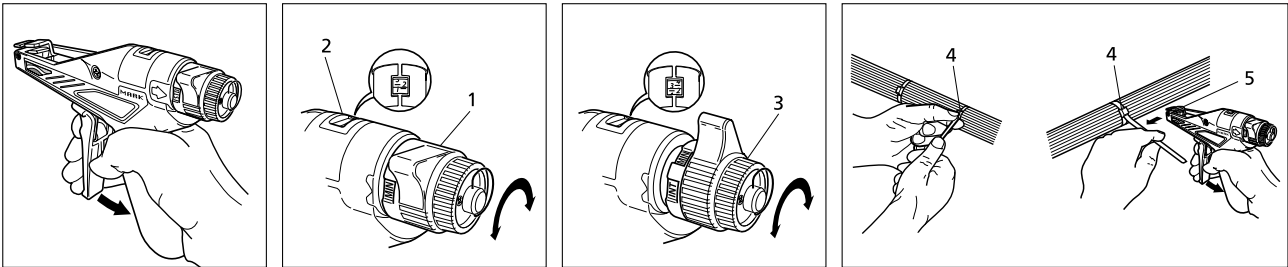


THT  
see page 457.

## Product Selection



### How to use a cable tie tool (using an MK7 as an example)



1. Rough adjustment (1) depending on cable tie, and set according to details in the user instructions. Value is displayed in the viewing window (2).
2. Use fine adjustment (3), if necessary, to set the desired value.
3. Lay cable tie around the bundle and guide strip end through the cable tie head (4). Tighten tie firmly enough that one stroke of the tool is enough to tension and cut off.
4. Push the tool with the open side of the tool head (5) over the free strip end and guide in the direction of the bundle until the tool head butts on the tie head (4).
5. Pull manual lever one or more times to the stop. Once the pre-selected tension is reached, the free tie end is automatically cut off flush with the tie head.

### Tool testing - Determination of tensions

To date, no generally applicable test method has been established on the market. The companies within the HellermannTyton group work with a usual force meter with minimum 10 kHz frequency of data sampling to determine the tensile forces of the tools and to guarantee the quality of the tools.

It is more difficult to test cable tie tools than would appear at first glance. It is of supreme importance to comply with a standardised test procedure and consistent test conditions. This means e.g. the size and thus the cross-section of the cable ties, but also the water content of the tie. A test using different ties and / or different conditioning can easily lead to different values.

In general, the speed of cut-off, the position of the tool with respect to the cable tie, the condition of the wearing parts in the tool and the state of the cable tie play a fundamental role in the determination of tensile forces.

Therefore we must point out that any values we provide must only ever be regarded as guide values for your information. The values cannot be transferred into practice 'one for one'.

In our user instructions, we specify an adjustment range for each type of cable tie. If tension values must be documented or comply with a specification, we recommend that you adjust them with the aid of the force meter. Also, as a guideline, half the minimum holding strength of the cable tie should be used as tensile force.

The minimum tensile strength (also referred to as minimum unlocking strength) is the least force which the cable tie can withstand before it tears or stretches. This strength is determined using a threaded tie, hence the following formula should be used for guidance as to the correct tensile force of the tool:

$$\frac{\text{Min. tensile strength}}{2} = \text{rec. tensile force}$$

#### Example:

$$T50R = \frac{225 \text{ N min. tensile strength}}{2}$$

$$\frac{225 \text{ N}}{2} = 112.5 \text{ N rec. tensile force according to formula}$$

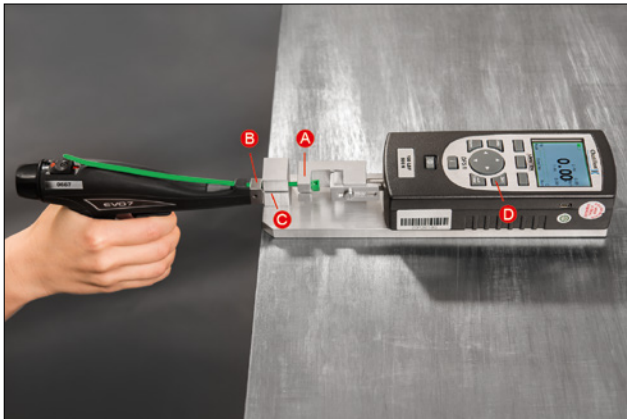
The tensile force can of course be adjusted up or down, in line with the corresponding applicatoin.

Please bear in mind that this statement applies only to HellermannTyton products. Cable ties from other manufacturers may require a higher or lower force setting.

In order to secure the device after it has been adjusted using the force meter against manipulation or unintentional maladjustment, HellermannTyton offers an adjustment safety cap (Art. No.: 110-07200 for MK7, MK7HT, MK7P, MK9, MK9HT, MK9SST, MK9P) which you can push onto the device after removing the adjustment unit (loosening a screw is all it takes to remove).

After a period of time, to be defined, you test the device again and if necessary re-adjust it. The problem of determination of forces depends on the individual case and has no direct connection with the quality of our product. An exact value for each setting (e. g. in Newtons), without stating a tolerance, cannot be confirmed.

### Test set-up with a usual force meter (Chatillon DFS-II) and EVO7 cable tie tool.



The following describes how to check the tension force of a manual tensioning tool.

1. Lay the cable tie (green) into the fixture (A).
2. Bring the nose piece of the tensioning tool (B) flush to the test block (C).
3. Insert the strap of the cable tie into the tensioning tool and pull the strap flush against the fixture (A).
4. Re-set the force meter (D) to zero.
5. Pull the trigger of the tensioning tool continuously until the cable tie is cut.
6. The tension force achieved at the cut off point is determined.

Your contact and our partner for the testing of cable tie tools:

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 Rudolf-Diesel-Straße 16  
 40670 Meerbusch  
 Germany

Telephone: +49 2159 913684  
 Fax: +49 2159 9136684  
 E-Mail: Sancar.Eser@ametek.de  
 Website: www.ametek.de



### Manual Tensioning Tool for Cable ties with low profile head

- MK10-SB up to 9.5 mm strap width

#### Features and Benefits

- Ideal for easy handling of entire HellermannTyton RPE and PE-Series
- Tensions and cuts off pre-looped cable ties flush at the head



MK10-SB.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK10-SB	9.5	2.5	0.33 kg	110-10001

All dimensions in mm. Subject to technical changes.

### Manual Tensioning Tool for Cable Ties, simple version

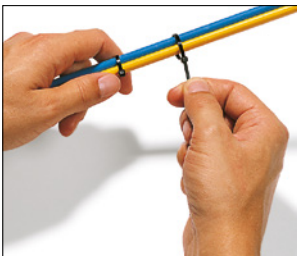
- MK20 up to 4.8 mm strap width
- MK21 up to 7.6 mm strap width

#### Features and Benefits

- Lightweight, ergonomic tools
- For tensioning and cutting HellermannTyton standard cable ties 4.8 - 7.6 mm wide
- MK20 and MK21 ideal for on-site assembly
- Mounted and pre-tensioned ties are cut off by twisting tool



MK20, MK21.



Apply.



Tension.



Twist to cut.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK20	4.8	1.5	0.05 kg	110-20006
MK21	7.6	2.5	0.05 kg	110-21016

All dimensions in mm. Subject to technical changes.



### Manual Tensioning Tool with Metal Housing

- MK3SP up to 4.8 mm strap width

This tough metal tool MK3SP is used by harness makers for the automotive industry and white goods as well as in the aerospace, railway and medical industry.

#### Features and Benefits

- Tough metal tool for HellermannTyton plastic cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tensioning force
- Reliable and low maintenance



MK3SP.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK3SP	4.8	1.5	0.33 kg	110-03500
Replacement Blade	-	-	0.01 kg	110-03524

All dimensions in mm. Subject to technical changes.

### Pneumatic Tensioning Tool with Metal Housing

- MK3PNSP2 up to 4.8 mm strap width

#### Features and Benefits

- Pneumatic tensioning tool
- Tough metal housing
- For cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed
- Reliable and low maintenance



MK3PNSP2.

<b>Air Supply</b>	Non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 225 x 140 x 40mm
<b>Specifications</b>	CE, GS

**RoHS** ✓

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK3PNSP2	4.8	1.5	0.56 kg	110-03400
Compressed-air hose	-	-	0.35 kg	110-30002
Replacement Blade	-	-	0.01 kg	110-30101

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Manual Tensioning Tool with Plastic Housing

- EVO7 up to 4.8 mm strap width

#### Features and Benefits

- Ergonomic, slip-proof handle for a comfortable and secure grip
- Extremely low maintenance
- Fast and precise application with minimum effort (TLC mechanism)
- Convenient and simple tension adjustment
- Extended, slim nose for use in narrow spaces
- Housing made of resilient and lightweight glass fibre-reinforced polyester
- Standard grip span (90 mm) and short grip span (80 mm) available



EVO7.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
EVO7	4.8	1.5	0.275 kg	110-70129
EVO7SP	4.8	1.5	0.275 kg	110-70130
BLADEKIT	-	-	-	110-70106

All dimensions in mm. Subject to technical changes.

### TLC-Technology: Tension - Lock - Cut

The new EVO7 protects muscles and joints and increases effectiveness

- Less recoil shock reduces impact to the operator's hand
- Application of force is significantly reduced



One Step to the Web!



1: Tension: Tie is tensioned as usual.

2: Lock: When the desired tension is met the locking mechanism locks the tie in place.



3. Cut: Innovative, effortless and less recoil shock cut-off function.



### Manual Tensioning Tool with Plastic Housing

- MK7 up to 4.8 mm strap width

The MK7 tensioning tool is used by harness makers. Based on the US Military Specification (MIL) and the German Military Specification (VG), the MK7 is also used to apply cable ties in all military vehicles and aircrafts. Other applications can be seen within electrical installation eg. in buildings or production plants.

#### Features and Benefits

- Light glass-fibre-reinforced housing
- Ergonomic design
- For ties up to 4.8 mm width
- Consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force combined with three-step quick adjustment
- MIL and VG approved



MK7.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK7	4.8	1.5	0.29 kg	110-07500
Replacement Blade	-	-	0.01 kg	110-07511
Lock cap tensioning knob	-	-	0.011 kg	110-07200

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.

### Manual Processing Tool with Plastic Housing

- MK7HT up to 4.8 mm strap width

MK7HT application tool is mainly used to apply cable ties in harness making industries.

#### Features and Benefits

- Light glass-fibre-reinforced housing
- Ergonomic design
- For cable ties up to 4.8 mm width
- MK7 HighTension version with higher tension force than MK7
- Consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force combined with three-step quick adjustment



MK7HT.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK7HT	4.8	1.5	0.29 kg	110-07000
Replacement Blade	-	-	0.01 kg	110-07511
Lock cap tensioning knob	-	-	0.011 kg	110-07200

All dimensions in mm. Subject to technical changes.



### Pneumatic Tensioning Tool with Plastic Housing

- MK7P up to 4.8 mm strap width

The MK7P pneumatic bundling tool sets a new benchmark for the rational application of ties in the industrial production process. Improved compressed air supply moves the tensioning piston faster than in comparable tools.

#### Features and Benefits

- Pneumatic tensioning tool
- Light glass-fibre-reinforced housing
- For cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed



MK7P.



The easy to use quick-set-knob.

<b>Air Supply</b>	Non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 220 x 170 x 40 mm
<b>Specifications</b>	CE, GS

RoHS ✓

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK7P	4.8	1.5	0.43 kg	110-07100
Compressed-air hose	-	-	0.35 kg	110-30002
Replacement Blade	-	-	0.01 kg	110-07111
Lock cap tensioning knob	-	-	0.011 kg	110-07200

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Manual Tensioning Tool with Metal Housing

- MK6 up to 9.0 mm strap width

#### Features and Benefits

- Tough metal tool
- For cable ties up to 9.0 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- Reliable and low maintenance



MK6.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK6	9.0	2.0	0.52 kg	110-06000
Replacement Blade	-	-	0.01 kg	110-06026

All dimensions in mm. Subject to technical changes.

### Manual Tensioning Tool with Plastic Housing

- MK9 up to 13.5 mm strap width

MK9 tool is used to apply bigger cable ties as they are used in trucks and busses. MIL and VG certification allows the use of MK9 for military vehicle and aviation construction.

#### Features and Benefits

- Glass-fibre-reinforced housing
- Ergonomic design
- For HellermannTyton plastic cable ties up to 13.5 mm width
- Consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force combined with two-step quick adjustment
- MIL and VG approved



MK9

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK9	13.5	2.0	0.385 kg	110-09500
Replacement Blade	-	-	0.01 kg	110-09511
Lock cap tensioning knob	-	-	0.011 kg	110-07200

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Manual Tensioning Tool with Plastic Housing

- MK9HT up to 13.5 mm strap width

The MK9HT boasts especially high tensioning forces. Ideal for applications where larger cable ties need to be securely fastened, such as in truck and bus construction.

#### Features and Benefits

- Glass-fibre-reinforced housing
- Ergonomic design
- For cable ties up to 13.5 mm width
- MK9 HighTension version with higher tension force than MK9
- Consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force combined with two-step quick adjustment



MK9HT

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK9HT	13.5	2.0	0.385 kg	110-09000
Replacement Blade	-	-	0.01 kg	110-09511
Lock cap tensioning knob	-	-	0.011 kg	110-07200

All dimensions in mm. Subject to technical changes.



### Pneumatic Tensioning Tool with Plastic Housing

- **MK9P up to 13.5 mm strap width**

The MK9P is constructed with heavy duty parts to ensure optimum performance. It is ideally designed to apply heavy-duty ties that are used in vehicle construction like trucks, busses and railways.

#### Features and Benefits

- Pneumatic tensioning tool
- Glass-fibre-reinforced housing
- For cable ties up to 13.5 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed
- Holding ring for a balancer
- Option of lower or upper air attachment



MK9P



MK9P is also available with upper air attachment.

<b>Air Supply</b>	Non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 280 x 200 x 55mm
<b>Specifications</b>	CE, GS



TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Air att. Position	Article-No.
MK9P	13.5	2.5	0.91 kg	Lower air connection	110-09100
	13.5	2.5	0.91 kg	Top air connection	110-09110
Compressed-air hose	-	-	0.35 kg	-	110-30002
Lock cap tensioning knob	-	-	0.011 kg	-	110-07200
Replacement Blade	-	-	0.01 kg	-	110-09111

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.





### Manual Tensioning Tool for KR-Series

- KR6/8

Application tool KR6/8 crimps the glass-fibre-reinforced locking pin of the KR seal and leads to plastic deformation of the tie ends. This produces a very permanent connection.

#### Features and Benefits

- Tough metal tool
- For applying KR-cable ties only
- For tensioning, fixing and cutting KR-cable ties
- Simply change the front plate to apply two different strap widths: 6 mm and 8mm



KR6/8.

TYPE	For Ties	Strap Width max. (G)	Weight	Article-No.
KR6/8	KR6, KR8	8.0	0.52 kg	121-00680
Replacement Blade	KR6, KR8	-	0.01 kg	122-68019

All dimensions in mm. Subject to technical changes.

### Pneumatic Tensioning Tool for KR-Series

- KR8PNSE

Application tool KR8PNSE crimps the glass-fibre-reinforced locking pin of the KR seal and leads to plastic deformation of the tie ends. This produces a very permanent connection.

#### Features and Benefits

- Tough metal tool
- Pneumatic
- For applying KR-cable ties only
- For tensioning, fixing and automatically cutting KR-cable ties
- Tensioning force can be adapted with the air pressure
- Holding ring for a balancer



KR8PNSE.

<b>Air Supply</b>	Non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	4 Bar
<b>Hose Internal Diameter</b>	6.0 mm
<b>L x H x W</b>	approx. 320 x 210 x 50mm
<b>Specifications</b>	CE, GS



TYPE	For Ties	Strap Width max. (G)	Weight	Article-No.
KR8PNSE	KR8	8.0	1.56 kg	121-00889
Replacement Blade	-	-	0.3 kg	122-80032

All dimensions in mm. Subject to technical changes.



Please note! Not all products listed on this page may have this approval. For product specific approvals please refer to the Appendix.



### Manual Tensioning Tool for Metal Ties MBT- and MAT-Series

- MK9SST up to 13.0 mm strap width

#### Features and Benefits

- Glass-fibre-reinforced housing
- Ergonomic design
- Consistent tensioning and automatically cutting of metal ties MBT / MAT-series
- Infinitely adjustable tension force combined with two-step quick adjustment



MK9SST.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK9SST	13.0	0.3	0.6 kg	110-95000
Replacement Blade	-	-	0.01 kg	110-95011

All dimensions in mm. Subject to technical changes.

### Pneumatic Tensioning Tool with Plastic Housing

- MK9PSST up to 16.0 mm strap width

#### Features and Benefits

- Unique levels of repeatability and accuracy
- High application speed and low maintenance
- Improved compressed air supply for faster tensioning piston movement
- Shorter processing time and greater volume of connecting tie application
- Ergonomic design
- Automatic ejection of cut-off cable tie end
- Ideally designed to apply stainless steel MBT-Series up to 16.0 mm width
- Air pressure between 3 and 6 bar



MK9PSST.

<b>Air Supply</b>	Non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 280 x 200 x 55 mm

RoHS

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MK9PSST	16.0	0.7	0.91 kg	110-95350
Replacement Blade	-	-	-	110-95307
Lock cap tensioning knob	-	-	0.011 kg	110-07200

All dimensions in mm. Subject to technical changes.



### Manual Tensioning Tool for Metal Ties MBT- and AMT-Series

- HDT16 up to 16.0 mm strap width

#### Features and Benefits

- Two way nose piece for use with both MBT-Series and AMT-Series stainless steel cable ties
- Easy adjustment of the handles to ensure the most ergonomic position for the operator
- Integrated cutting mechanism delivering a flush cut and professional finish every time
- The ideal tool for achieving a perfect installation of MBT and AMT cable ties



HDT16.

TYPE	Strap Width max. (G)	Article-No.
HDT16	16.0	110-40000

All dimensions in mm. Subject to technical changes.

### Manual Tensioning Tool for Metal Ties MBT- and MAT-Series

- KST-STG200 up to 12.3 mm strap width

#### Features and Benefits

- Tough metal tool
- Operator controlled tensioning
- Cut off by pulling the hand lever



KST-STG200.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
KST-STG200	12.3	0.3	0.561 kg	110-09950

All dimensions in mm. Subject to technical changes.



## Manual Tensioning Tool for Metal Ties MLT-Series

- MTT4 up to 12.0 mm strap width

### Features and Benefits

- Tough metal tool
- Simple ratchet operation, easy to use
- Operator controlled tensioning and cutting facility



MTT4.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
MTT4	12.0	0.7	0.78 kg	110-04000

All dimensions in mm. Subject to technical changes.

## Manual Tensioning Tool for Metal Ties

- THT up to 7.9 mm strap width

### Features and Benefits

- Ergonomic T-Handle design with rubber grip
- Suitable for MBT cable ties (4.6 mm and 7.9 mm)
- Simple tensioning mechanism coils the strap tail quickly without cut off



T-Handle Tensioning tool.

TYPE	Strap Width max. (G)	Strap Thickness max.	Weight	Article-No.
THT Tool	7.9	1.0	0.145 kg	110-09970

All dimensions in mm. Subject to technical changes.



### Manual Cutting tool for plastic ties

- **CUTties**

The CUTties is a cutting tool for plastic ties, which ensures the cut of the strap while preserving wires and harnesses from being damaged in the process. Its use is recommended in many applications for which wires and harnesses have a high added value, in particular for railway and aviation industries.

#### Features and Benefits

- Cutting tool for plastic ties
- Tie can be cut off at any part of the strap
- Ensures the cable isolation from being damaged
- Light-weight aluminium housing, ergonomically designed
- Single-handed operation
- Three tools for cable tie width from 2.3 to 4.8 mm
- Coloured push rods allows their identification



The CUTties is a precise cutting tool for plastic ties.



Bring the tool perpendicular to the tie...



... apply light pressure...



... press on the button whilst maintaining pressure on the tool...



... release the button and remove the tool, the tie is cut.

TYPE	For Cable Tie Width	Colour	Article-No.
CUTties-1	2.3 - 2.8	Blue (BU), Yellow (YE)	110-05000
CUTties-3	3.3 - 3.8	Blue (BU), Green (GN)	110-05001
CUTties-5	4.0 - 4.8	Blue (BU), Red (RD)	110-05002

All dimensions in mm. Subject to technical changes.



### Electrical Hot Air Tool

- **H5002 - handy tool**

For applying heat shrinkable products like thin walled shrink tubing and Moulded Shapes.

#### Features and Benefits

- Lightweight and compact hot air tool
- Enables comfortable, fatigue-free work
- Temperature electronically controlled from 100- 600 °C, cold air step of 50 °C
- Air-flow regulation adjusted in two stages (300 l/min and 500 l/min)



H5002 - The light, convenient hot-air tool.

TYPE	Air Flow l/min	Operating Temperature	Standby Temp. °C	Wattage	Operational Voltage	Weight	Article-No.
H5002	300 - 500	+100 °C to +600 °C	50 °C	2,000 W	230 V AC ~ / 230-240 V	0.9 kg	391-50200
Z3 Reflector	-	-	-	-	-	50 g	391-50500
Z4 Wide Slot Nozzle	-	-	-	-	-	50 g	391-50600

Subject to technical changes.

### Electrical Hot Air Tool

- **H5004 - for professional use**

H5004 electrical Hot Air Tool is designed for shrinking down many heat shrinkable products like thin wall tubing, with and without adhesive, End Caps, and Moulded Shapes.

#### Features and Benefits

- Professional hot air gun
- Temperature electronically controlled
- Air flow regulation
- Equipped with LED temperature indication enabling precise temperature adjustment



H5004 - for professional use.



Accessories suitable for both H5002 and H5004.

TYPE	Air Flow l/min	Operating Temperature	Standby Temp. °C	Wattage	Operational Voltage	Weight	Article-No.
H5004	150 - 500	+50 °C to +650 °C	50 °C	2,300 W	230-240V, 50Hz	1.13 kg	391-50400
Z3 Reflector	-	-	-	-	-	50 g	391-50500
Z4 Wide Slot Nozzle	-	-	-	-	-	50 g	391-50600

Subject to technical changes.





## Processing tool for heat shrinkable products

### • ShrinkPad 110

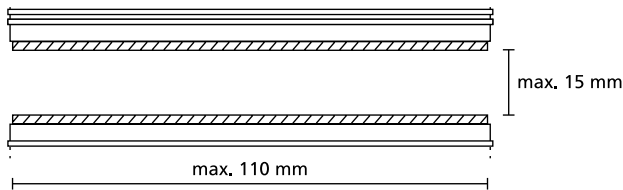
The ShrinkPad110 provides a fast and reliable process for the recovery of thinwalled heat shrinkable products with or without an adhesive liner. The heat process takes place through a direct contact method. The key components are the two specially heated elastic pads, which encapsulate the shrinkable product whilst transferring heat effectively with minimal heat loss. The electrically heated and pneumatically controlled pads can process material to a maximum diameter of 15mm and a maximum length of 110mm.

### Features and Benefits

- Processing by direct-contact method with specially heated, elastic pads
- Minimal lost of heat due to direct contact with the shrinking object
- Reduces the shrinking time
- Increased process security in the shrinking process due to a temperature-controlled heat source
- Good integration into automated workflows possible
- Very high level of job security
- Long life span of the pads



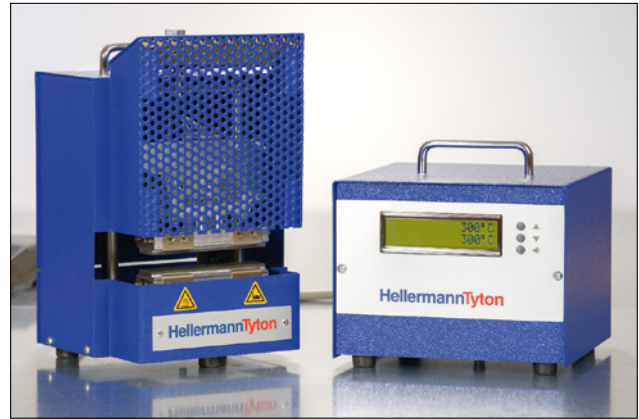
One Step to the Web!



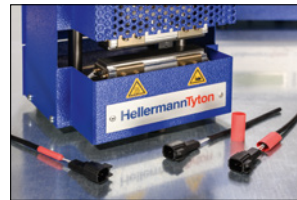
Shrink pads: Max. processing dimensions

TYPE	Carton Quantity	Article-No.
ShrinkPad 110	1 EA	391-30000
Pad for ShrinkPad 110	2 pcs.	391-30001

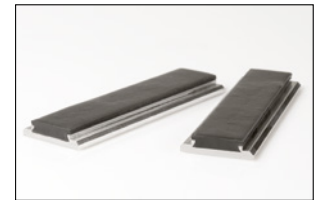
All dimensions in mm. Subject to technical changes.



Heat shrink processing tool ShrinkPad 110 - control unit, shrink press unit, power cable and foot switch.



ShrinkPad 110 - for fast and reliable heat shrink processing.



Shrink pad set.

<b>Power Supply</b>	230V AC / 50 Hz
<b>Air Supply</b>	Non oiled / oiled
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	6.0 mm
<b>Weight</b>	12.5 kg
<b>Operating Temperature</b>	+100 °C to +300 °C
<b>Cycle Time</b>	0.5 to 10 sec.
<b>Operation Type</b>	foot switch



### Snapper Tools

- **ASNP2-22 for Snapper Size 2 to 22**
- **ASNP24-70 for Snapper Size 24 to 70**
- **MSNP1-70 for Snapper Size 1 to 70**

### Features and Benefits

- For efficient fixing of the snapper hose clips
- MSNP tool: handy for installation on site
- ASNP tool: suitable for series production. The retaining screw limits the draw-in area and prevents overstretching of the snapper



Snapper Application Tools MSNP1-70 and ASNP24-70.

**Pneumatic Tools for snapper hose clips are available on request. Contact us!**



Snapper Application Tool ASNP2-22.

TYPE	Application	Weight	Material	Colour	Article-No.
<b>MSNP1-70</b>	SNP-Series 1 up to 70	0.18 kg	Metal, Plastic	Yellow (YE)	191-01700
<b>ASNP2-22</b>	SNP-Series 2 up to 22	0.20 kg	Metal, Plastic	Blue (BU)	191-02220
<b>ASNP24-70</b>	SNP-Series 24 up to 70	0.25 kg	Metal, Plastic	Red (RD)	191-24700

All dimensions in mm. Subject to technical changes.









### 7.1 Abbreviations Table for Product Materials and Colours

466

### 7.2 Degrees of Protection (IP) according to DIN EN IEC 60529

467

### 7.3 Product Approvals and Specifications

#### Specifications

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**7.4 Numerical Index**

482

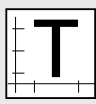
**7.5 Alphanumerical Index**

496

**7.6 General Terms and Conditions of Sale**

510





### Abbreviations Table for Product Materials and Colours

Abbreviation*	Material
ABS	Acrylonitrile Butadiene Styrene
ALU	Aluminium
AR	Acryl
CN	Cotton
CR	Chloroprene
CU	Copper
E/TFE	Ethylene-Tetrafluorineethylene
EPDM	Ethylen-Propylen-Dien-Terpolymer-Rubber
FPM	Fluoroelastomer (Viton)
HIR	Polyamide 6.6 high impact modified
HIRHS	Polyamide 6.6 high impact modified, heat stabilised
HL	Halar
HS	Polyamide 6.6 heat stabilised
HSW	Polyamide 6.6 , heat stabilised and UV resistant on request
HV	Helvin
IIR	Butyl rubber
ML	Metal
NPB	Galvanised Metal
PA	Polyamide
PA11	Polyamide 11
PA12	Polyamide 12
PA46	Polyamide 4.6
PA6/PA66	Polyamide 6.6
PA66MP	Polyamide 6.6 with metal particles
PAP	Paper
PBT	Polyester
PC	Polycarbonate
PE	Polyethylene
PEEK	PolyEtherEtherKetone
PEN	Polyethylenaphtalat
PET	Polyester
PI	Polyimide
PK	Polyketone
PO	Polyolefin
POA	Elastomer modified
POM	Polyacetal
PO-X	Polyolefin, cross-linked
PP	Polypropylene
PPESB	Polyphenylenether, Polysterene
PPMOD	Polypropylene, modified
PPO	Noryl
PS	Polystyrene
PTFE	Polytetrafluoroethylene (Teflon)
PUR	Polyurethane
PVC	Polyvinylchloride
PVDF	Polyvinylidene fluoride
SI	Silicone
SP	Polyester
SS	Stainless Steel
ST	Steel
TPE	Thermoplastisc Elastomer
TPU	Thermoplastic Polyurethane
VO	Polyamide 6.6 Flamability according to UL94V0
W	Polyamide 6.6 UV resistant

\*according to EN ISO 1043 Part 1 and ISO 1629

Abbreviation*	Colour
BK	Black
BN	Brown
BU	Blue
GD	Gold
GN	Green
GNYE	Green-Yellow
GY	Grey
OG	Orange
PK	Pink
RD	Red
SR	Silver
VT	Violet
WH	White

\*according to DIN IEC 757

Abbreviation*	Colour
CL	Transparent
NA	Natural
YE	Yellow
BE	Beige
XX	Special colour
BV	Zinc-plated Metal
GC	Brass chromated
WC	White Chromated

\*according to HellermannTyton

## Definition of the degrees of protection according to DIN EN IEC 60529

The levels of protection are indicated by a code made up of two constant letters IP and two characteristic numbers for the degree of protection, e.g. IP54.

### Example:

Code IP65  
 First index: \_\_\_\_\_ Protection against contact and ingress of foreign objects.  
 Second index: \_\_\_\_\_ Protection against liquids.

### Degree of protection against access and foreign bodies

Second Index	Designation	Scope of protection
0	<b>Non-protected</b>	No special protection for persons against direct contact with live or moving parts. No protection of the equipment against ingress of solid foreign objects.
1	<b>Protection against large foreign bodies</b>	Protection against accidental contact of large areas with live and internal moving parts, e.g. back of hand, but not protection against deliberate access to the parts. Protection against ingress of solid foreign objects with a diameter greater than 50 mm.
2	<b>Protection against medium-sized foreign bodies</b>	Protection against contact between the finger and live or internal moving parts. Protection against ingress of solid foreign objects with a diameter greater than 12.5 mm.
3	<b>Protection against small foreign bodies</b>	Protection against contact between live or internal moving parts and tools, wires and the like with a thickness greater than 2.5 mm. Protection against ingress of solid foreign objects with a diameter greater than 2.5 mm.
4	<b>Protection against granular foreign objects</b>	Protection against contact between live or internal moving parts and tools, wires and the like with a thickness greater than 1 mm. Protection against ingress of solid foreign objects with a diameter greater than 1 mm.
5	<b>Protection against dust deposits</b>	Complete protection against contact with live or internal moving parts, protection against hazardous dust deposits. The ingress of dust is not completely prevented, but dust may not penetrate in such quantities as to impair the function.
6	<b>Protection against dust entry</b>	Complete protection against contact with live or internal moving parts. Protection against the ingress of dust.

### Degrees of protection for water

Second Index	Designation	Scope of protection
0	<b>Non-protected</b>	No special protection.
1	<b>Protection against vertically dripping water</b>	Water dripping vertically must cause no damage.
2	<b>Protection against dripping water (tilted)</b>	Water dripping at an angle of 15° to the vertical from any direction must cause no damage.
3	<b>Protection against spraying water</b>	Water dripping at an angle of 60° to the vertical from any direction must cause no damage.
4	<b>Protection against splashing water</b>	Water that splashes against the equipment from any direction must cause no damage.
5	<b>Protection against water jets</b>	A water jet from a nozzle that is directed against the equipment from any direction must cause no damage..
6	<b>Protection against flooding</b>	Water must not penetrate the equipment in hazardous quantities in cases of temporary flooding, e.g. due to heavy seas.
7	<b>Protection during temporary immersion</b>	Water must not penetrate the equipment in hazardous quantities if the equipment is immersed in water under the specified conditions of pressure and time (1m for 30 min.).
8	<b>Protection during continuous immersion</b>	Water must not penetrate the equipment in hazardous quantities if the equipment is immersed in water (at least 2 bar for 2 h for HelaGuard IP68 non-metallic fittings and 5 bar for 5 h for HelaGuard IP68 metallic fittings.)
9k	<b>Protection against high pressure/steam jet cleaning</b>	Highly pressurised water directed at the enclosure from any direction must cause no damage.



### Standards Overview

BS	British Standard	Great Britain	
BV	Bureau Veritas	France	
CE	Conformité Européenne	Europe	
CEBEC	Comité for electrotechnical Belgium European Community	Belgium	
CEN	Comité Européen de Normalisation	Europe	
CSA	Canadian Standards Association	Canada	
cUL	Canadian Underwriters Laboratories	Canada	
DEF STAN	Defence Standard	Great Britain	
DEMKO	Danske Elektriske Materialekontrol	Denmark	
DIN	Deutsches Institut für Normung	Germany	
DNV	Det Norske Veritas	Norway	
EN	European Normative	Europe	
ENEC	European Norms Electrical Certification	Europe	
E.R.D.F.	Electricité Réseau Distribution France	France	
FCC	Federal Communications Systems	USA	
FIMKO	Suomalainen testaus ja sertifiointiyritys	Finland	
GL	Germanischer Lloyd	Germany	



## Standards Overview

GS	Geprüfte Sicherheit	Europe	
IEC	International Electrotechnical Commission	International	
JAR/FAR	Joint Aviation Regulations / Federal Aviation Regulations	Europe, USA	
KEMA KEUR	KEMA Quality B.V.	The Netherlands	
LR	Lloyd's Register	Great Britain	
LUL	London Underground Tested	Great Britain	
MIL	Military Specification	USA	
NEMKO	Norges Elektriske Materiekkontroll	Norway	
NF F	Norme Française Ferroviaire	France	
PAN	Panavia Aircraft GmbH	Germany	
UL Recognized	Underwriters Laboratories Recognized	USA	
SAE	Society of Automotive Engineers	USA	
SEMKO	Sveriges Elektriska Materiekkontroll	Sweden	
UL	Underwriters Laboratories	USA	
UNI CEI	Ente Nazionale Italiano di Unificazione Comitato Elettrotecnico Italiano	Italy	
VDE	Verband der Elektrotechnik, Elektronik, Informationstechnik	Germany	
VG	Verteidigungsgerätenorm der Bundeswehr	Germany	



## Standards for HellermannTyton Cable Ties

Type	Length	Width	UL/UR	GL	BV	DNV	VG 95387 T04 PA66HS-Natural	VG 95387 T04 PA66W-Black	VG 95387 T04 PA66-Natural	SAE AS23190 (MIL MS 3367)
T18S	83	2,3	● <sup>1</sup>	● <sup>2</sup>					A106A	MS 3367-42
T18R	100	2,5	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>	A201L	A106B	A106A	MS 3367-42
T18RA	100	2,5	● <sup>1</sup>							MS 3367-42
T18ROS	100	2,5								
T18I	140	2,5	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>				
T18L	200	2,5	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>				
T25L	240	2,8	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T25LL	330	2,8	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T30R	150	3,5	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>	A208L	A107B	A107A	MS 3367-52
T30ROS	145	3,4								
T30L	190	3,5	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>		A107B	A107A	
T30LOS	200	3,4								
T30LL	285	3,5	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T30LR	260	3,3			● <sup>2</sup>					
T40S	145	3,5								
T40R	175	4,0	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>					
T40I	290	4,0	● <sup>1</sup>			● <sup>3</sup>				
T40L	365	4,0	● <sup>1</sup>	● <sup>2</sup>						
T50S	150	4,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>				
T50SOS	150	4,6								
T50R	200	4,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>	A202L	A108B	A108A	MS 3367-12
T50ROS	200	4,6								
T50RDH	200	4,6	● <sup>1</sup>		● <sup>2</sup>	● <sup>2</sup>				
T50MOS	245	4,6								
T50I	300	4,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>	A203L	A109B	A109A	MS 3367-72
T50IDH	300	4,6	● <sup>1</sup>							
T50L	390	4,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>	A205L	A110B	A110A	MS 3367-22
T50LOS	384	4,6								
T50LDH	390	4,6	● <sup>1</sup>			● <sup>2</sup>				
T50LL	445	4,6			● <sup>2</sup>	● <sup>3</sup>				
T80R	210	4,7	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>		A202L 4			
T80I	300	4,7	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>					
T80L	390	4,7	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>		A205L			
T120S	225	7,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T120I	300	7,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T120R	380	7,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>		A111B	A111A	MS 3367-32
T120M	460	7,6		● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T120XM	600	7,6			● <sup>2</sup>					
T120L	760	7,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>		A112B	A112A	MS 3367-62
T150R	365	7,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>	A204L			
T150M	530	8,9	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T150L	820	8,9	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>2</sup>				
T150LL	925	8,9	● <sup>1</sup>	● <sup>2</sup>	● <sup>4</sup>					
T150XL	1095	8,9	● <sup>1</sup>	● <sup>2</sup>	● <sup>4</sup>	● <sup>2</sup>				
T150XLL	1325	8,9	● <sup>1</sup>		● <sup>2</sup>	● <sup>2</sup>				
T250S	225	12,5	● <sup>1</sup>		● <sup>2</sup>					
T250R	520	12,5	● <sup>1</sup>		● <sup>2</sup>					
T250M	565	12,5	● <sup>1</sup>		● <sup>2</sup>					
T250I	725	12,5	● <sup>1</sup>		● <sup>2</sup>					
T250L	880	12,5	● <sup>1</sup>		● <sup>2</sup>					
T250XL	1030	12,5	● <sup>1</sup>							
T255S	225	12,5	● <sup>1</sup>							
T255R	520	12,5	● <sup>1</sup>							
T255M	565	12,5	● <sup>1</sup>							
LK2	120	4,8		● <sup>2</sup>	● <sup>2</sup>					
LK2A	270	4,6	● <sup>1</sup>	● <sup>2</sup>	● <sup>2</sup>	● <sup>3</sup>				
LK5	535	13,2	● <sup>1</sup>	● <sup>2</sup>		● <sup>2</sup>				



## Standards for HellermannTyton Cable Ties

Type	Length	Width	UL/UR	GL	BV	DNV	VG 95387 T04 PA66W-Black	VG 95387 T04 PA66-Natural	E.R.D.F.
PT2A	145	3,4		● <sup>4</sup>					
PT220	220	4,7		● <sup>4</sup>					
PE180	180	9,0			● <sup>2</sup>				HN-33-S-62/97
RPE275	275	9,0							HN-33-S-62/97
RPE350	350	9,0							HN-33-S-62/97
PE530	535	9,0			● <sup>2</sup>				HN-33-S-62/97
LPH175	175	9,0			● <sup>2</sup>	● <sup>2</sup>			
LPH275	100	2,5			● <sup>2</sup>	● <sup>2</sup>			
LPH350	100	2,5			● <sup>2</sup>	● <sup>2</sup>			
CTT20R	100	2,5		● <sup>1</sup>					
CTT60R	205	4,7		● <sup>1</sup>					
LRT230	230	7,6			● <sup>3</sup>				
RLT120	340	7,6		● <sup>2</sup>	● <sup>2</sup>				
RLT150	770	8,9		● <sup>2</sup>	● <sup>2</sup>				
REL100	100	6,5	● <sup>1</sup>						
REL140	140	7,5	● <sup>1</sup>						
REL250	250	7,5	● <sup>1</sup>						
RT40R	217	3,9	● <sup>1</sup>						
RELK2R	200	4,6			● <sup>2</sup>	● <sup>2</sup>			
RELK2M	250	4,6			● <sup>2</sup>	● <sup>2</sup>			
RELK2I	300	4,6			● <sup>2</sup>				
RELK2L	350	4,6			● <sup>2</sup>	● <sup>2</sup>			
RT50R	140	8,6	● <sup>1</sup>						
RT50S	165	4,6	● <sup>1</sup>						
RT250S	230	12,5	● <sup>1</sup>		● <sup>2</sup>	● <sup>2</sup>			
RT250R	516	12,5	● <sup>1</sup>		● <sup>2</sup>	● <sup>2</sup>			
RT250M	570	12,5	● <sup>1</sup>		● <sup>2</sup>	● <sup>2</sup>			
RT250I	729	12,5	● <sup>1</sup>			● <sup>2</sup>			
RT250L	878	12,5	● <sup>1</sup>			● <sup>2</sup>			
RT250XL	1025	12,5	● <sup>1</sup>			● <sup>2</sup>			
T18MR	110	2,3	● <sup>1</sup>				B001B	B001A	
IT18R	100	2,3	● <sup>1</sup>			● <sup>3</sup>			
IT18FL	110	2,5	● <sup>1</sup>			● <sup>3</sup>			
T30MR	160	3,5	● <sup>1</sup>				B002B	B002A	
T30RSF	165	3,5	● <sup>1</sup>						
IT50RT	205	4,7	● <sup>1</sup>						
IT50L	390	4,7	● <sup>1</sup>			● <sup>2</sup>			
T50ML	400	4,6	● <sup>1</sup>						
T50MR	215	4,6	● <sup>1</sup>				B004B	B004A	
T50MS	160	4,6	● <sup>1</sup>						
IT50R	203	4,6	● <sup>1</sup>			● <sup>2</sup>			
T50RSF	216	4,6	● <sup>1</sup>						
T120MR	400	7,6	● <sup>1</sup>				B005B	B005A	
KR6/35	350	6,0		● <sup>2</sup>					
KR8/21	210	8,0		● <sup>2</sup>					
KR8/33	330	8,0		● <sup>2</sup>					

<sup>1</sup> Polyamide 6.6 (PA66), Polyamid 6.6 UV Resistant (W) black

<sup>2</sup> Polyamide 6.6 (PA66) natural, Polyamid 6.6 UV Resistant (W) black

<sup>3</sup> Polyamide 6.6 (PA66) natural, Polyamide 6.6 Heat stabilised (HS) natural, Polyamide 6.6 UV Resistant (W) black

<sup>4</sup> Polyetheretherketone (PEEK)

Subject to changes.

Please refer to the Approvals Overview for further information, see page 468.

HellermannTyton UL-File Nr.:

E 64 13 9

E 64 96 2

E 64 96 3

E 65 34 4

E 85 31 9

E 19 38 18





### Standards for HellermannTyton Cable Ties

Type	Length	Width	GL	BV	DNV	DEF STAN
MAT8SS7	230	7,0		● <sup>5</sup>		
MAT12SS7	330	7,0		● <sup>5</sup>		
MAT16SS7	430	7,0		● <sup>5</sup>		
MAT24SS7	630	7,0		● <sup>5</sup>		
MAT8SS12	230	12,0		● <sup>5</sup>		
MAT12SS12	330	12,0		● <sup>5</sup>		
MAT16SS12	430	12,0		● <sup>5</sup>		
MAT24SS12	630	12,0		● <sup>5</sup>		
MAT8SSC7	230	7,0				
MAT12SSC7	330	7,0				
MAT16SSC7	430	7,0				
MAT24SSC7	630	7,0				
MAT8SSC12	230	12,0				
MAT12SSC12	330	12,0				
MAT16SSC12	430	12,0				
MAT24SSC12	630	12,0				
MBT5S	127	4,6	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT8S	201	4,6	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT14S	362	4,6	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT20S	521	4,6	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT27S	681	4,6	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT33S	838	4,6	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT8H	201	7,9	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT14H	362	7,9	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT20H	521	7,9	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT27H	681	7,9	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT33H	838	7,9	● <sup>5</sup>	● <sup>5</sup>	● <sup>5</sup>	
MBT14XH	362	12,3	● <sup>5</sup>	● <sup>5</sup>		
MBT20XH	521	12,3	● <sup>5</sup>	● <sup>5</sup>		
MBT27XH	681	12,3	● <sup>5</sup>	● <sup>5</sup>		
MBT33XH	838	12,3	● <sup>5</sup>	● <sup>5</sup>		
MLT8SS5	230	5,0		● <sup>5</sup>		
MLT12SS5	330	5,0		● <sup>5</sup>		
MLT16SS5	430	5,0		● <sup>5</sup>		
MLT24SS5	630	5,0		● <sup>5</sup>		
MLT8SS10	230	10,0		● <sup>5</sup>		
MLT12SS10	330	10,0		● <sup>5</sup>		
MLT16SS10	430	10,0		● <sup>5</sup>		
MLT24SS10	630	10,0		● <sup>5</sup>		
Protective Channel LFPC70	–	7,0				61-12/31
Protective Channel LFPC103	–	10,3				61-12/31
Protective Channel LFPC150	–	10,3				61-12/31

<sup>5</sup> Stainless Steel Type 316 uncoated  
Subject to changes.

### Standards for HellermannTyton Fixing Bases

Type	Length	Width	UL/UR	Type	Length	Width	UL/UR
Mounting Bases MB1	12,5	8,0	●	Mounting Bases CTAM1	20,5	10,2	●
Mounting Bases MB3	19,0	19,0	●	Mounting Bases CTAM2	20,5	10,2	●
Mounting Bases MB4	28,0	28,0	●	Mounting Bases CTAP2	34,0	12,7	●
Mounting Bases MB5	38,0	38,0	●	Mounting Bases CTAP2	54,1	12,7	●
Mounting Bases MB3A adhesive	19,0	19,0	●	Mounting Bases MSMP5	204,0	15,7	●
Mounting Bases MB4A adhesive	28,0	28,0	●	Mounting Bases MSMP6	242,0	15,7	●
Mounting Bases MB5A adhesive	38,0	38,0	●	Mounting Bases TM1SF	10,2	7,6	●



## Standards for HellermannTyton Heat Shrinkable Tubing

Type	UL224	UL224 VW1	CSA	VG 95343 T05	DEF STAN	Ex. MIL / SAE - AMS	CEN / TS	NF F 00-608	LUL	BS	DNV	Germanischer Lloyd	NSA	JAR / FAR
LVR	●													
TCN20		●	●											
TCN20 overexpanded		●	●											
TR27					59-97/8			45545-2: HL3	E1042: A6					
ShrinKit 321 Basic								DTL-23053/5						
ShrinKit 321 Universal Basic								DTL-23053/5						
ShrinKit 321 Universal								DTL-23053/5						
TREDUX - thin wall		●	●					DTL-23053/5						
HIS-Pack		●						DTL-23053/5						
HIS-3		●	●					DTL-23053/5						
HIS-3 BAG		●						DTL-23053/5						
TF21		●	●					DTL-23053/5						25.583
TF24				●	59-97/2B									
HFT-A	●		●	●	59-97/3			DTL-23053/5			●		●	
TF31		●	●											
SE28				●				DTL-23053						
TE28				●										
TK20		●		●				DTL-23053/8						
TK29		●						DTL-23053						
Viton®-E				●										
ShrinKit 321-A								DTL-23053/4						
ShrinKit 321-A Basic								DTL-23053/4						
HIS-A		●	●					DTL-23053/4						
EPS-300								DTL-23053/4						
EPS-400								DTL-23053/4						
TA32	●		●					DTL-23053/4						
TA37									45545-2: HL3	conforms E1042:A6	conforms BS6853			
TA42	●							DTL-23053						
MA40												●		
HA40												●		

Please refer to the Approvals Overview for further information, see page 468.



### Standards for HellermannTyton Non Shrinkable Tubing

Type	DEF STAN	BS
Helsyn rubber tubing H	59-15/3 D2c	G 198-1-1
PTFE tubing FE	59-15/3 D6	G 198-2-7

### Standards for HellermannTyton Heat Shrinkable Moulded Shapes

Type	MIL	VG 95343	DEF STAN
Shapes XXXX-G		●	59-97/3
ShapesXXXX-B7	MIL-I-81765		59-97/3
ShapesXXXX-HW21		●	59-97/3
ShapesXXXX-GW24		●	59-97/3
Two-Part Epoxy Adhesive		●	

#### HellermannTyton UL-File Nr.:

E 14 35 29

E 19 80 23

E 19 80 24

Please refer to the Approvals Overview for further information, see page 468.

## Standards for HellermannTyton Heat Shrinkable Tubing and Heat Shrinkable Moulded Shapes according to VG Norm

Description VG-Norm	Description HellermannTyton	Description VG-Norm	Description HellermannTyton	Description VG-Norm	Description HellermannTyton
VG 95343 T05 A 001A	HFT-A-3/64-BK	VG 95343 T05 A 006N	HFT-A-1/4-GNYE	VG 95343 T05 A 012G	HFT-A-2-BU
VG 95343 T05 A 001B	HFT-A-3/64-BN	VG 95343 T05 A 007A	HFT-A-3/8-BK	VG 95343 T05 A 012H	HFT-A-2-VT
VG 95343 T05 A 001C	HFT-A-3/64-RD	VG 95343 T05 A 007B	HFT-A-3/8-BN	VG 95343 T05 A 012K	HFT-A-2-GY
VG 95343 T05 A 001E	HFT-A-3/64-YE	VG 95343 T05 A 007C	HFT-A-3/8-RD	VG 95343 T05 A 012L	HFT-A-2-WH
VG 95343 T05 A 001F	HFT-A-3/64-GN	VG 95343 T05 A 007E	HFT-A-3/8-YE	VG 95343 T05 A 013A	HFT-A-3-BK
VG 95343 T05 A 001G	HFT-A-3/64-BU	VG 95343 T05 A 007F	HFT-A-3/8-GN	VG 95343 T05 A 013B	HFT-A-3-BN
VG 95343 T05 A 001H	HFT-A-3/64-VT	VG 95343 T05 A 007G	HFT-A-3/8-BU	VG 95343 T05 A 013C	HFT-A-3-RD
VG 95343 T05 A 001K	HFT-A-3/64-GY	VG 95343 T05 A 007H	HFT-A-3/8-VT	VG 95343 T05 A 013E	HFT-A-3-YE
VG 95343 T05 A 001L	HFT-A-3/64-WH	VG 95343 T05 A 007K	HFT-A-3/8-GY	VG 95343 T05 A 013F	HFT-A-3-GN
VG 95343 T05 A 002A	HFT-A-1/16-BK	VG 95343 T05 A 007L	HFT-A-3/8-WH	VG 95343 T05 A 013G	HFT-A-3-BU
VG 95343 T05 A 002B	HFT-A-1/16-BN	VG 95343 T05 A 007N	HFT-A-3/8-GNYE	VG 95343 T05 A 013H	HFT-A-3-VT
VG 95343 T05 A 002C	HFT-A-1/16-RD	VG 95343 T05 A 007N	HFT-A-3/8-GNYE	VG 95343 T05 A 013K	HFT-A-3-GY
VG 95343 T05 A 002E	HFT-A-1/16-YE	VG 95343 T05 A 008A	HFT-A-1/2-BK	VG 95343 T05 A 013L	HFT-A-3-WH
VG 95343 T05 A 002F	HFT-A-1/16-GN	VG 95343 T05 A 008B	HFT-A-1/2-BN	VG 95343 T05 A 014A	HFT-A-4-BK
VG 95343 T05 A 002G	HFT-A-1/16-BU	VG 95343 T05 A 008C	HFT-A-1/2-RD	VG 95343 T05 A 014B	HFT-A-4-BN
VG 95343 T05 A 002H	HFT-A-1/16-VT	VG 95343 T05 A 008E	HFT-A-1/2-YE	VG 95343 T05 A 014C	HFT-A-4-RD
VG 95343 T05 A 002K	HFT-A-1/16-GY	VG 95343 T05 A 008F	HFT-A-1/2-GN	VG 95343 T05 A 014E	HFT-A-4-YE
VG 95343 T05 A 002L	HFT-A-1/16-WH	VG 95343 T05 A 008G	HFT-A-1/2-BU	VG 95343 T05 A 014F	HFT-A-4-GN
VG 95343 T05 A 003A	HFT-A-3/32-BK	VG 95343 T05 A 008H	HFT-A-1/2-VT	VG 95343 T05 A 014G	HFT-A-4-BU
VG 95343 T05 A 003B	HFT-A-3/32-BN	VG 95343 T05 A 008K	HFT-A-1/2-GY	VG 95343 T05 A 014H	HFT-A-4-VT
VG 95343 T05 A 003C	HFT-A-3/32-RD	VG 95343 T05 A 008L	HFT-A-1/2-WH	VG 95343 T05 A 014K	HFT-A-4-GY
VG 95343 T05 A 003E	HFT-A-3/32-YE	VG 95343 T05 A 008N	HFT-A-1/2-GNYE	VG 95343 T05 A 014L	HFT-A-4-WH
VG 95343 T05 A 003F	HFT-A-3/32-GN	VG 95343 T05 A 009A	HFT-A-3/4-BK	VG 95343 T05 A 019A	HFT-333-1.5/0.5-BK
VG 95343 T05 A 003G	HFT-A-3/32-BU	VG 95343 T05 A 009B	HFT-A-3/4-BN	VG 95343 T05 A 019C	HFT-333-1.5/0.5-RD
VG 95343 T05 A 003H	HFT-A-3/32-VT	VG 95343 T05 A 009C	HFT-A-3/4-RD	VG 95343 T05 A 019E	HFT-333-1.5/0.5-YE
VG 95343 T05 A 003K	HFT-A-3/32-GY	VG 95343 T05 A 009E	HFT-A-3/4-YE	VG 95343 T05 A 019G	HFT-333-1.5/0.5-BU
VG 95343 T05 A 003L	HFT-A-3/32-WH	VG 95343 T05 A 009F	HFT-A-3/4-GN	VG 95343 T05 A 019L	HFT-333-1.5/0.5-WH
VG 95343 T05 A 004A	HFT-A-1/8-BK	VG 95343 T05 A 009G	HFT-A-3/4-BU	VG 95343 T05 A 020A	HFT-333-3/1-BK
VG 95343 T05 A 004B	HFT-A-1/8-BN	VG 95343 T05 A 009H	HFT-A-3/4-VT	VG 95343 T05 A 020C	HFT-333-3/1-RD
VG 95343 T05 A 004C	HFT-A-1/8-RD	VG 95343 T05 A 009K	HFT-A-3/4-GY	VG 95343 T05 A 020E	HFT-333-3/1-YE
VG 95343 T05 A 004E	HFT-A-1/8-YE	VG 95343 T05 A 009L	HFT-A-3/4-WH	VG 95343 T05 A 020G	HFT-333-3/1-BU
VG 95343 T05 A 004F	HFT-A-1/8-GN	VG 95343 T05 A 009N	HFT-A-3/4-GNYE	VG 95343 T05 A 020L	HFT-333-3/1-WH
VG 95343 T05 A 004G	HFT-A-1/8-BU	VG 95343 T05 A 010A	HFT-A-1-BK	VG 95343 T05 A 021A	HFT-333-6/2-BK
VG 95343 T05 A 004H	HFT-A-1/8-VT	VG 95343 T05 A 010B	HFT-A-1-BN	VG 95343 T05 A 021C	HFT-333-6/2-RD
VG 95343 T05 A 004K	HFT-A-1/8-GY	VG 95343 T05 A 010C	HFT-A-1-RD	VG 95343 T05 A 021E	HFT-333-6/2-YE
VG 95343 T05 A 004L	HFT-A-1/8-WH	VG 95343 T05 A 010E	HFT-A-1-YE	VG 95343 T05 A 021G	HFT-333-6/2-BU
VG 95343 T05 A 004N	HFT-A-1/8-GNYE	VG 95343 T05 A 010F	HFT-A-1-GN	VG 95343 T05 A 021L	HFT-333-6/2-WH
VG 95343 T05 A 005A	HFT-A-3/16-BK	VG 95343 T05 A 010G	HFT-A-1-BU	VG 95343 T05 A 022A	HFT-333-9/3-BK
VG 95343 T05 A 005B	HFT-A-3/16-BN	VG 95343 T05 A 010H	HFT-A-1-VT	VG 95343 T05 A 022C	HFT-333-9/3-RD
VG 95343 T05 A 005C	HFT-A-3/16-RD	VG 95343 T05 A 010K	HFT-A-1-GY	VG 95343 T05 A 022E	HFT-333-9/3-YE
VG 95343 T05 A 005E	HFT-A-3/16-YE	VG 95343 T05 A 010L	HFT-A-1-WH	VG 95343 T05 A 022G	HFT-333-9/3-BU
VG 95343 T05 A 005F	HFT-A-3/16-GN	VG 95343 T05 A 010N	HFT-A-1-GNYE	VG 95343 T05 A 022L	HFT-333-9/3-WH
VG 95343 T05 A 005G	HFT-A-3/16-BU	VG 95343 T05 A 011A	HFT-A-1.1/2-BK	VG 95343 T05 A 023A	HFT-333-12/4-BK
VG 95343 T05 A 005H	HFT-A-3/16-VT	VG 95343 T05 A 011B	HFT-A-1.1/2-BN	VG 95343 T05 A 023C	HFT-333-12/4-RD
VG 95343 T05 A 005K	HFT-A-3/16-GY	VG 95343 T05 A 011C	HFT-A-1.1/2-RD	VG 95343 T05 A 023E	HFT-333-12/4-YE
VG 95343 T05 A 005L	HFT-A-3/16-WH	VG 95343 T05 A 011E	HFT-A-1.1/2-YE	VG 95343 T05 A 023G	HFT-333-12/4-BU
VG 95343 T05 A 005N	HFT-A-3/16-GNYE	VG 95343 T05 A 011F	HFT-A-1.1/2-GN	VG 95343 T05 A 023L	HFT-333-12/4-WH
VG 95343 T05 A 006A	HFT-A-1/4-BK	VG 95343 T05 A 011G	HFT-A-1.1/2-BU	VG 95343 T05 A 024A	HFT-333-18/6-BK
VG 95343 T05 A 006B	HFT-A-1/4-BN	VG 95343 T05 A 011H	HFT-A-1.1/2-VT	VG 95343 T05 A 024C	HFT-333-18/6-RD
VG 95343 T05 A 006C	HFT-A-1/4-RD	VG 95343 T05 A 011I	HFT-A-1.1/2-GY	VG 95343 T05 A 024L	HFT-333-18/6-YE
VG 95343 T05 A 006E	HFT-A-1/4-YE	VG 95343 T05 A 011L	HFT-A-1.1/2-WH	VG 95343 T05 A 024G	HFT-333-18/6-BU
VG 95343 T05 A 006F	HFT-A-1/4-GN	VG 95343 T05 A 011N	HFT-A-1.1/2-GNYE	VG 95343 T05 A 024L	HFT-333-18/6-WH
VG 95343 T05 A 006G	HFT-A-1/4-BU	VG 95343 T05 A 012A	HFT-A-2-BK	VG 95343 T05 A 025A	HFT-333-24/8-BK
VG 95343 T05 A 006H	HFT-A-1/4-VT	VG 95343 T05 A 012B	HFT-A-2-BN	VG 95343 T05 A 025C	HFT-333-24/8-RD
VG 95343 T05 A 006K	HFT-A-1/4-GY	VG 95343 T05 A 012C	HFT-A-2-RD	VG 95343 T05 A 025E	HFT-333-24/8-YE
VG 95343 T05 A 006L	HFT-A-1/4-WH	VG 95343 T05 A 012E	HFT-A-2-YE	VG 95343 T05 A 025G	HFT-333-24/8-BU
		VG 95343 T05 A 012F	HFT-A-2-GN		



## Standards for HellermannTyton Heat Shrinkable Tubing and Heat Shrinkable Moulded Shapes according to VG Norm

Description VG-Norm	Description HellermannTyton	Description VG-Norm	Description HellermannTyton	Description VG-Norm	Description HellermannTyton
VG 95343 T05 A 025L	HFT-333-24/8-WH	VG 95343 T05 F 008M	TK20-12.7/6.4	VG 95343 T06 F 010A	1141-1-G
VG 95343 T05 A 026A	HFT-333-39/13-BK	VG 95343 T05 F 009M	TK20-19.1/9.5	VG 95343 T06 F 011A	1133-1-G
VG 95343 T05 A 026C	HFT-333-39/13-RD	VG 95343 T05 F 010M	TK20-25.4/12.7	VG 95343 T06 F 012A	1134-1-G
VG 95343 T05 A 026E	HFT-333-39/13-YE	VG 95343 T06 A 001A	152-41-G	VG 95343 T06 F 013A	1135-1-G
VG 95343 T05 A 026G	HFT-333-39/13-BU	VG 95343 T06 A 002A	153-41-G	VG 95343 T06 F 014A	1136-1-G
VG 95343 T05 A 026L	HFT-333-39/13-WH	VG 95343 T06 A 003A	154-41-G	VG 95343 T06 J 001A	1111-1-G
VG 95343 T05 B 001M	TF24-1.2/0.6	VG 95343 T06 A 004A	155-41-G	VG 95343 T06 J 002A	1112-1-G
VG 95343 T05 B 002M	TF24-1.6/0.8	VG 95343 T06 A 005A	156-41-G	VG 95343 T06 J 003A	1113-1-G
VG 95343 T05 B 003M	TF24-2.4/1.2	VG 95343 T06 A 006A	157-41-G	VG 95343 T06 J 004A	1114-1-G
VG 95343 T05 B 004M	TF24-3.2/1.6	VG 95343 T06 A 007A	158-41-G	VG 95343 T06 J 006A	1116-1-G
VG 95343 T05 B 005M	TF24-4.8/2.4	VG 95343 T06 A 008A	159-41-G	VG 95343 T06 J 007A	1117-1-G
VG 95343 T05 B 006M	TF24-6.4/3.2	VG 95343 T06 A 009A	160-41-G	VG 95343 T06 J 008A	1118-1-G
VG 95343 T05 B 007M	TF24-9.5/4.8	VG 95343 T06 A 010A	199-4-G	VG 95343 T06 J 009A	1119-1-G
VG 95343 T05 B 008M	TF24-12.7/6.4	VG 95343 T06 B 001A	152-42-G	VG 95343 T06 K 001A	1505-1-G
VG 95343 T05 B 009M	TF24-19.1/9.5	VG 95343 T06 B 002A	153-42-G	VG 95343 T06 K 002A	1506-1-G
VG 95343 T05 B 010M	TF24-25.4/12.7	VG 95343 T06 B 003A	154-42-G	VG 95343 T06 K 003A	1507-1-G
VG 95343 T05 B 011M	TF24-38.1/19.1	VG 95343 T06 B 004A	155-42-G	VG 95343 T06 K 004A	1501-1-G
VG 95343 T05 B 012M	TF24-50.8/25.4	VG 95343 T06 B 005A	156-42-G	VG 95343 T06 K 005A	1502-2-G
VG 95343 T05 B 013M	TF24-76.2/38.1	VG 95343 T06 B 006A	157-42-G		
VG 95343 T05 B 014M	TF24-101.6/50.8	VG 95343 T06 B 007A	158-42-G		
VG 95343 T 05 D 001A	SE28 3,2/1,6	VG 95343 T06 B 008A	159-42-G		
VG 95343 T 05 D 002A	SE28 4,8/2,4	VG 95343 T06 B 009A	160-42-G		
VG 95343 T 05 D 003A	SE28 6,4/3,2	VG 95343 T06 C 001A	157-43-G		
VG 95343 T 05 D 004A	SE28 9,5/4,8	VG 95343 T06 C 002A	158-43-G		
VG 95343 T 05 D 005A	SE28 12,7/6,4	VG 95343 T06 C 003A	159-43-G		
VG 95343 T 05 D 006A	SE28 19,0/9,5	VG 95343 T06 C 004A	160-43-G		
VG 95343 T 05 D 007A	SE28 25,4/12,7	VG 95343 T06 D 001A	129-1-G		
VG 95343 T 05 D 008A	SE28 38,0/19,0	VG 95343 T06 D 002A	130-1-G		
VG 95343 T 05 D 009A	SE28 51,0/25,4	VG 95343 T06 D 003A	131-1-G		
VG 95343 T 05 D 010A	SE28 76,0/38,0	VG 95343 T06 D 004A	132-1-G		
VG 95343 T 05 D 011A	SE28 101,2/51,0	VG 95343 T06 D 005A	133-1-G		
VG 95343 T 05 D 012A	TE28 2,4/1,2	VG 95343 T06 D 006A	134-1-G		
VG 95343 T 05 D 013A	TE28 3,2/1,6	VG 95343 T06 D 007A	135-1-G		
VG 95343 T 05 D 014 A	TE28 4,8/2,4	VG 95343 T06 D 008A	136-1-G		
VG 95343 T 05 D 015 A	TE28 6,4/3,2	VG 95343 T06 D 009A	138-1-G		
VG 95343 T 05 D 016A	TE28 9,5/4,8	VG 95343 T06 D 011A	176-1-G		
VG 95343 T 05 D 017A	TE28 12,7/6,4	VG 95343 T06 D 012A	177-1-G		
VG 95343 T 05 D 018A	TE28 19,0/9,5	VG 95343 T06 D 013A	178-1-G		
VG 95343 T 05 D 019A	TE28 25,4/12,7	VG 95343 T06 D 014A	179-1-G		
VG 95343 T 05 D 020A	TE28 38,0/19,0	VG 95343 T06 E 001A	1152-4-G		
VG 95343 T 05 D 022A	TE28 51,0/25,4	VG 95343 T06 E 002A	1154-4-G		
VG 95343 T05 E 001A	VITON-E-1/8-BK	VG 95343 T06 E 003A	1155-4-G		
VG 95343 T05 E 002A	VITON-E-3/16-BK	VG 95343 T06 E 004A	1156-4-G		
VG 95343 T05 E 003A	VITON-E-1/4-BK	VG 95343 T06 E 005A	1157-4-G		
VG 95343 T05 E 004A	VITON-E-3/8-BK	VG 95343 T06 E 006A	1158-4-G		
VG 95343 T05 E 005A	VITON-E-1/2-BK	VG 95343 T06 E 007A	1159-4-G		
VG 95343 T05 E 006A	VITON-E-3/4-BK	VG 95343 T06 E 008A	1160-4-G		
VG 95343 T05 E 007A	VITON-E-1-BK	VG 95343 T06 F 001A	1121-1-G		
VG 95343 T05 E 008A	VITON-E-1.1/2-BK	VG 95343 T06 F 002A	1122-1-G		
VG 95343 T05 E 009A	VITON-E-2-BK	VG 95343 T06 F 003A	1123-1-G		
VG 95343 T05 F 002M	TK20-1.6/0.8	VG 95343 T06 F 004A	1124-1-G		
VG 95343 T05 F 003M	TK20-2.4/1.2	VG 95343 T06 F 005A	1125-1-G		
VG 95343 T05 F 004M	TK20-3.2/1.6	VG 95343 T06 F 006A	1126-1-G		
VG 95343 T05 F 005M	TK20-4.8/2.4	VG 95343 T06 F 007A	1127-1-G		
VG 95343 T05 F 006M	TK20-6.4/3.2	VG 95343 T06 F 008A	1128-1-G		
VG 95343 T05 F 007M	TK20-9.5/4.8	VG 95343 T06 F 009A	1129-1-G		

Please refer to the Approvals Overview for further information, see page 468.

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VG 95343 T06 K 006A	1502-2-G
VG 95343 T06 K 007A	1506-2-G
VG 95343 T06 K 008A	1507-2-G
VG 95343 T06 K 009A	1501-2-G
VG 95343 T06 K 010A	1502-1-G
VG 95343 T06 L 001A	2101-1-G
VG 95343 T06 L 002A	2102-1-G
VG 95343 T06 L 003A	2103-1-G
VG 95343 T06 L 004A	2104-1-G
VG 95343 T06 L 005A	2105-1-G
VG 95343 T06 L 006A	2101-2-G
VG 95343 T06 L 007A	2102-2-G
VG 95343 T06 L 008A	2103-2-G
VG 95343 T06 L 009A	2105-2-G
VG 95343 T08 A 001A	1203-1-G
VG 95343 T08 A 002A	1209-1-G
VG 95343 T08 A 007A	1201-1-G
VG 95343 T08 A 009A	1206-1-G
VG 95343 T08 A 010A	1202-1-G
VG 95343 T08 A 011A	1207-1-G
VG 95343 T08 A 016A	1204-1-G
VG 95343 T08 A 017A	1216-1-G
VG 95343 T08 B 001A	1301-1-G
VG 95343 T08 B 002A	1303-1-G
VG 95343 T08 B 003A	1311-1-G
VG 95343 T08 B 004A	1302-1-G

## Standards for HellermannTyton Heat Shrinkable Tubing and Heat Shrinkable Moulded Shapes according to VG Norm

Description VG-Norm	Description HellermannTyton	Description VG-Norm	Description HellermannTyton	Description VG-Norm	Description HellermannTyton
VG 95343 T08 B 005A	1304-1-G	VG 95343 T18 C 003A	159-43-GW24	VG 95343 T19 D 001A	306-1-GW24
VG 95343 T08 B 006A	1305-1-G	VG 95343 T18 C 004A	160-43-GW24	VG 95343 T19 D 002A	304-1-GW24
VG 95343 T08 B 007A	1312-1-G	VG 95343 T18 D 001A	1152-4-GW24	VG 95343 T19 D 003A	310-1-GW24
VG 95343 T08 B 008A	1316-1-G	VG 95343 T18 D 002A	1154-4-GW24	VG 95343 T19 D 004A	311-1-GW24
VG 95343 T08 B 009A	1313-1-G	VG 95343 T18 D 003A	1155-4-GW24	VG 95343 T19 D 005A	312-1-GW24
VG 95343 T08 B 010A	1306-1-G	VG 95343 T18 D 004A	1156-4-GW24	VG 95343 T29 A 001A	152-61-HW21
VG 95343 T08 B 011A	1307-1-G	VG 95343 T18 D 005A	1157-4-GW24	VG 95343 T29 A 002A	153-61-HW21
VG 95343 T08 B 012A	1308-1-G	VG 95343 T18 D 006A	1158-4-GW24	VG 95343 T29 A 003A	154-61-HW21
VG 95343 T08 C 001A	206-1-G	VG 95343 T18 D 007A	1159-4-GW24	VG 95343 T29 A 004A	155-61-HW21
VG 95343 T08 C 002A	203-1-G	VG 95343 T18 D 008A	1160-4-GW24	VG 95343 T29 A 005A	156-61-HW21
VG 95343 T08 C 003A	204-1-G	VG 95343 T18 G 001A	2101-1-GW24	VG 95343 T29 A 006 A	157-61-HW21
VG 95343 T08 C 004A	211-1-G	VG 95343 T18 G 003A	2102-1-GW24	VG 95343 T29 B 001A	152-62-HW21
VG 95343 T08 C 005A	212-1-G	VG 95343 T18 G 005A	2103-1-GW24	VG 95343 T29 B 002A	153-62-HW21
VG 95343 T08 D 001A	306-1-G	VG 95343 T18 G 006A	2104-1-GW24	VG 95343 T29 B 003A	154-62-HW21
VG 95343 T08 D 002A	304-1-G	VG 95343 T18 G 007A	2105-1-GW24	VG 95343 T29 B 004A	155-62-HW21
VG 95343 T08 D 003A	310-1-G	VG 95343 T18 G 008A	2101-2-GW24	VG 95343 T29 B 005A	156-62-HW21
VG 95343 T08 D 004A	311-1-G	VG 95343 T18 G 010A	2102-2-GW24	VG 95343 T29 B 006 A	157-62-HW21
VG 95343 T08 E 002A	411-1-G	VG 95343 T18 G 012A	2103-2-GW24	VG 95343 T29 B 007A	158-62-HW21
VG 95343 T08 E 004A	403-1-G	VG 95343 T18 G 014A	2105-2-GW24	VG 95343 T29 D 001A	1152-6-HW21
VG 95343 T08 E 005A	413-1-G	VG 95343 T18 H 001A	1133-2-GW24	VG 95343 T29 D 002A	1154-6-HW21
VG 95343 T15 A 001A	V 9500	VG 95343 T18 H 002A	1133-1-GW24	VG 95343 T29 D 003A	1155-6-HW21
VG 95343 T15 A 002B	V9500 B	VG 95343 T19 A 001A	1203-1-GW24	VG 95343 T29 D 004A	1156-6-HW21
VG 95343 T15A	V9500 P	VG 95343 T19 A 002A	1209-1-GW24	VG 95343 T29 D 005A	1157-6-HW21
VG 95343 T15DA	P9500	VG 95343 T19 A 003A	1214-1-GW24	VG 95343 T29 D 006 A	1158-6-HW21
VG 95343 T15MA	M9500	VG 95343 T19 A 004A	1210-1-GW24	VG 95343 T30 A 001A	1203-1-HW21
VG 95343 T18 A 001A	152-41-GW24	VG 95343 T19 A 006A	1212-1-GW24	VG 95343 T30 A 002A	1209-1-HW21
VG 95343 T18 A 002A	153-41-GW24	VG 95343 T19 A 007A	1201-1-GW24	VG 95343 T30 A 007A	1201-1-HW21
VG 95343 T18 A 003A	154-41-GW24	VG 95343 T19 A 008A	1213-1-GW24	VG 95343 T30 A 009 A	1206-1-HW21
VG 95343 T18 A 004A	155-41-GW24	VG 95343 T19 A 009A	1206-1-GW24	VG 95343 T30 A 010 A	1202-1-HW21
VG 95343 T18 A 005A	156-41-GW24	VG 95343 T19 A 010A	1202-1-GW24	VG 95343 T30 A 011 A	1207-1-HW21
VG 95343 T18 A 006A	157-41-GW24	VG 95343 T19 A 011A	1207-1-GW24	VG 95343 T30 A 016 A	1204-1-HW21
VG 95343 T18 A 007A	158-41-GW24	VG 95343 T19 A 012A	1208-1-GW24	VG 95343 T30 A 017 A	1216-1-HW21
VG 95343 T18 A 008A	159-41-GW24	VG 95343 T19 A 016A	1204-1-GW24	VG 95343 T30 B 001A	1301-1-HW21
VG 95343 T18 A 009A	160-41-GW24	VG 95343 T19 A 017A	1216-1-GW24	VG 95343 T30 B 002A	1303-1-HW21
VG 95343 T18 A 010A	199-41-GW24	VG 95343 T19 A 018A	1220-1-GW24	VG 95343 T30 B 003A	1311-1-HW21
VG 95343 T18 E 001A	1505-1-GW24	VG 95343 T19 E 002A	411-1-GW24	VG 95343 T30 B 004A	1302-1-HW21
VG 95343 T18 E 002A	1506-1-GW24	VG 95343 T19 E 003A	412-1-GW24	VG 95343 T30 C 001A	206-1-HW21
VG 95343 T18 E 003A	1507-1-GW24	VG 95343 T19 E 004A	403-1-GW24	VG 95343 T30 C 002A	203-1-HW21
VG 95343 T18 E 004A	1501-1-GW24	VG 95343 T19 E 005A	413-1-GW24	VG 95343 T30 C 003A	204-1-HW21
VG 95343 T18 E 005A	1502-2-GW24	VG 95343 T19 E 009A	414-1-GW24	VG 95343 T30 C 004A	211-1-HW21
VG 95343 T18 E 006A	1505-2-GW24	VG 95343 T19 B 001A	1301-1-GW24	VG 95343 T30 C 005A	212-1-HW21
VG 95343 T18 E 007A	1506-2-GW24	VG 95343 T19 B 002A	1303-1-GW24	VG 95343 T30 D 001A	306-1-HW21
VG 95343 T18 E 008A	1507-2-GW24	VG 95343 T19 B 003A	1311-1-GW24	VG 95343 T30 D 002A	304-1-HW21
VG 95343 T18 E 009A	1501-2-GW24	VG 95343 T19 B 004A	1302-1-GW24	VG 95343 T30 D 003A	310-1-HW21
VG 95343 T18 E 010A	1502-1-GW24	VG 95343 T19 B 006A	1305-1-GW24	VG 95343 T30 D 004A	311-1-HW21
VG 95343 T18 B 001A	152-42-GW24	VG 95343 T19 B 007A	1312-1-GW24		
VG 95343 T18 B 002A	153-42-GW24	VG 95343 T19 B 008A	1316-1-GW24		
VG 95343 T18 B 003A	154-42-GW24	VG 95343 T19 B 009A	1313-1-GW24		
VG 95343 T18 B 004A	155-42-GW24	VG 95343 T19 B 010A	1306-1-GW24		
VG 95343 T18 B 005A	156-42-GW24	VG 95343 T19 B 011A	1307-1-GW24		
VG 95343 T18 B 006A	157-42-GW24	VG 95343 T19 B 012A	1308-1-GW24		
VG 95343 T18 B 007A	158-42-GW24	VG 95343 T19 C 001A	206-1-GW24		
VG 95343 T18 B 008A	159-42-GW24	VG 95343 T19 C 002A	203-1-GW24		
VG 95343 T18 B 009A	160-42-GW24	VG 95343 T19 C 003A	204-1-GW24		
VG 95343 T18 C 001A	157-43-GW24	VG 95343 T19 C 004A	211-1-GW24		
VG 95343 T18 C 002A	158-43-GW24	VG 95343 T19 C 005A	212-1-GW24		





## Standards for HellermannTyton Cable Protection

Type	Standards		Mat. tests				
	UR	PAN 6480-A	UL94	CEN TS 45545-2	NF F 16-101/16-102	DIN 5510-2	DIN VDE 0879-2
Helawrap HWPP			HB				
Helawrap HWPA-V0			V0		●		
HWClips, HWBase			HB				
SBPE			HB				
SBPEFR			V2				
SBPA			HB				
SBPAV0			V0				
SBPTFE			V0				
SPS			HB				
SPF			HB				
Heladuct Flex			V0				
Helagaine HEGP			V2			●	
Helagaine HEGPX	●		V2			●	
Helagaine HEGPVO			V0	●	●	●	
Helagaine HEGPV0X	●		V0		●	●	
Helagaine HEGPA66			V2		●	●	
Helagaine HEGEMIP			V2				●
Helagaine HEGEMIPV0			V0				●
Helagaine HEGEMIP-HY			V2				
Helagaine HEGPL			V2				
Helagaine HEGMAN			V0				
Helagaine HEGMAN/WO			V0				
HELAHOOK			V2		●		
Helagaine Twist-In			V2				
Helagaine Twist-In-FR			V0				
EdgeGuard			HB				
Flexiform (PE)			HB				
Flexiform (PA6)		●	HB				
Flexiform (PTFE)		●	V0		●		
Grommets (PE)			HB				
Grommets (PVC)			HB				
Grommets (PVC-FR)			V0				



### Standards for HellermannTyton Conduits and Fittings

Type	Tests		Specifications					
	EN IEC 61386	UR	UL	Lloyd's Register	NF F 16-101/16-102	DIN 5510-2	UIC 564-2	EN 61373
HG-SW	●	●		●				●
HG-LW	●	●						
HG-HW	●	●						
HG-FR	●	●			●	●	●	●
HG-HI	●	●		●				●
HG-DC	●	●						
HG-PP	●	●						
HG, HGL Conduits	●	●		●	●	●		
SC	●							
SSC	●							
PCS	●							
NCS	●							
LFHCS	●			●				●
LTS	●			●				●
LTSH	●							
LTSUL	●		●					
PCSB	●							
SCSB	●							
PSR	●							
PSRSC	●							
FG	●							
FGP	●							

### Standards for HellermannTyton Wire Connectors

Type	ENEC	VDE	GL	FIMKO	DEMKO	NEMKO	SEMKO	KEMA/ KEUR	cULus	CEBEC
HelaCon Plus	●	●	●	●	●	●	●	●	●	
HelaCon Easy	●	●		●				●	●	●
HelaCon Easy 1.5	●	●		●						
HelaCon Lux	●	●		●				●		●

Please refer to the Approvals Overview for further information, see page 468.



## Standards for HellermannTyton Identification Systems

Type	Specifications													Mat. test.
	BS	CE	CEN/TS	CSA	DIN	EN ISO	FCC	IEC	LUL	MIL	NF F	UL/UR	UNI CEI	
Arrowtag AT														V2
Helafix HC/HCR														HB
Helagrip	2782-540B, 6746C						757					UL 224		V0 (3mm)
Helatag 323, Thermal Transfer														V0
Helatag 951, Thermal Transfer												UR		
Helatag 1101, Laser												UR		
Helatag 1103, Laser												UR		
Helatag 1204, Thermal Transfer												UR		
Helatag 1205, Thermal Transfer												UR		
Helatag 1206, Thermal Transfer												UR		
Helatag 1207, Thermal Transfer												UR		
IMP and IT Plates														V2
IT Ties												UR		
M-Boss Lite Printer		●												
Ovalgrip	2782-540B, 6746C						304, 757					UL 224		V0 (3mm)
P4000 Perforator		●												
Q-tags														V2
S4000 Cutter		●												
TCGT				●										
TIPTAG HF	6425							RSE STD 013						
TLFX	6853		45545-2		5510-2	11925-2					NF F 16-101, NF X 10-702-2, NF X 70-100-1, NF EN 60695-2-11, NF EN 60695-2-10, NF EN ISO 4589-2/A1		11170-3	
TLFX DS	6853		45545-2		5510-2	11925-2					NF F 16-101, NF X 10-702-2, NF X 70-100-1, NF EN 60695-2-11, NF EN 60695-2-10, NF EN ISO 4589-2/A1		11170-3	
TrakMark DS		●						●					UL	
TT430		●						●					UL	
TT4000+		●						●					UL	
TULT				●						conforms to MIL-STD-202G Methode 215K		UR		
TULT DS								conforms to LUL C3349		conforms to MIL-STD-202G Methode 215K				
WIC						60062	304							V0



**Standards for HellermannTyton Application Tooling**

Type	MIL	VG
<b>MK7 Application Tool for Cable Ties</b>	MS 90387-1	VG 95387-105
<b>MK9 Application Tool for Cable Ties</b>	MS 90387-2	VG 95387-105

**Please refer to the Approvals Overview for further information, see page 468.**

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109-00041	Q30L	42	52
109-00043	Q30LR	42	52
109-00047	Q50R	42	52
109-00049	Q50I	42	52
109-00051	Q50L	42	52
109-00053	Q120I	42	52
109-00055	Q120R	42	52
109-00057	Q120M	42	52
109-00059	Q18R	43	53
109-00062	Q18I	43	53
109-00065	Q18L	43	53
109-00068	Q30R	43	53
109-00070	Q30L	43	53
109-00072	Q30LR	43	53
109-00076	Q50R	43	53
109-00078	Q50I	43	53
109-00080	Q50L	43	53
109-00082	Q120I	43	53
109-00084	Q120R	43	53
109-00086	Q120M	43	53
109-00088	Q18R	44	54
109-00091	Q18I	44	54
109-00094	Q18L	44	54
109-00097	Q30R	44	54
109-00099	Q30L	44	54
109-00101	Q30LR	44	54
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109-00167	Q30L	45	55
109-00168	Q30L	45	55
109-00169	Q30L	45	55
109-00170	Q30L	45	55
109-00171	Q30LR	46	56
109-00172	Q30LR	46	56
109-00173	Q30LR	46	56
109-00174	Q30LR	46	56
109-00175	Q30LR	46	56
109-00181	Q50R	46	56
109-00182	Q50R	46	56
109-00183	Q50R	46	56
109-00184	Q50R	46	56
109-00185	Q50R	46	56
109-00186	Q50I	46	56
109-00187	Q50I	46	56
109-00188	Q50I	46	56
109-00189	Q50I	46	56
109-00190	Q50I	46	56
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109-00192	Q50L	46	56
109-00193	Q50L	46	56
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710-00106	HTAPE-FLEX15-15x10	208	-
710-00107	HTAPE-FLEX15-15x10	208	-
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HEGEMIP14	173-01400	-	380	HEGPL50	170-80550	-	375	HFT-A-12.7/6.4	305-12704	-	177
HEGEMIP16	173-01600	-	380	HEGPV004	170-30400	-	371	HFT-A-12.7/6.4	305-12706	-	177
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HEGEMIPV008	173-60800	-	381	HEGPV0X06	170-50060	-	372	HFT-A-2.4/1.2	305-02402	-	176
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HG54-SM-M50	166-21307	-	260	HGDC2-5	515-02074	248	-	HGDC4-9	515-03194	249	-
HG54-S-PG42	166-21042	-	253	HGDC2-5	515-02084	248	-	HGDC4-9	515-03204	249	-
HG54-S-PG48	166-21018	-	253	HGDC2-5	515-02094	248	-	HGDC4-9	515-03214	249	-
HG67-90-M63	166-22209	-	256	HGDC2-5	515-02104	248	-	HGDC4-9	515-03224	249	-
HG67-90-PG48	166-22219	-	256	HGDC2-5	515-02114	248	-	HGDC4-9	515-03234	249	-
HG67-S-M63	166-21009	-	253	HGDC2-5	515-02124	248	-	HGDC4-9	515-03244	249	-
HG67-S-PG48	166-21019	-	253	HGDC2-5	515-02134	248	-	HGDC4-9	515-03254	249	-
HG-DC11	166-11800	-	246	HGDC2-5	515-02144	248	-	HGDC4-9	515-03264	249	-
HGDC1-3	515-01014	248	-	HGDC2-5	515-02154	248	-	HGDC4-9	515-03600	249	-
HGDC1-3	515-01024	248	-	HGDC2-5	515-02164	248	-	HGDC4-9	515-03604	249	-
HGDC1-3	515-01034	248	-	HGDC2-5	515-02174	248	-	HGDC4-9	515-03611	249	-
HGDC1-3	515-01044	248	-	HGDC2-5	515-02184	248	-	HGDC4-9	515-03614	249	-
HGDC1-3	515-01054	248	-	HGDC2-5	515-02194	248	-	HGDC4-9	515-03622	249	-
HGDC1-3	515-01064	248	-	HGDC2-5	515-02204	248	-	HGDC4-9	515-03624	249	-
HGDC1-3	515-01074	248	-	HGDC2-5	515-02214	248	-	HGDC4-9	515-03633	249	-
HGDC1-3	515-01084	248	-	HGDC2-5	515-02224	248	-	HGDC4-9	515-03634	249	-
HGDC1-3	515-01094	248	-	HGDC2-5	515-02234	248	-	HGDC4-9	515-03644	249	-
HGDC1-3	515-01104	248	-	HGDC2-5	515-02244	248	-	HGDC4-9	515-03654	249	-
HGDC1-3	515-01114	248	-	HGDC2-5	515-02254	248	-	HGDC4-9	515-03655	249	-
HGDC1-3	515-01124	248	-	HGDC2-5	515-02264	248	-	HGDC4-9	515-03664	249	-
HGDC1-3	515-01134	248	-	HGDC2-5	515-02260	248	-	HGDC4-9	515-03666	249	-
HGDC1-3	515-01144	248	-	HGDC2-5	515-02604	248	-	HGDC4-9	515-03674	249	-
HGDC1-3	515-01154	248	-	HGDC2-5	515-02611	248	-	HGDC4-9	515-03677	249	-
HGDC1-3	515-01164	248	-	HGDC2-5	515-02614	248	-	HGDC4-9	515-03684	249	-
HGDC1-3	515-01174	248	-	HGDC2-5	515-02622	248	-	HGDC4-9	515-03688	249	-
HGDC1-3	515-01184	248	-	HGDC2-5	515-02624	248	-	HGDC4-9	515-03694	249	-
HGDC1-3	515-01194	248	-	HGDC2-5	515-02633	248	-	HGDC4-9	515-03699	249	-
HGDC1-3	515-01204	248	-	HGDC2-5	515-02634	248	-	HGDC4-9	515-03704	249	-
HGDC1-3	515-01214	248	-	HGDC2-5	515-02644	248	-	HGDC4-9	515-03714	249	-
HGDC1-3	515-01224	248	-	HGDC2-5	515-02654	248	-	HGDC4-9	515-03724	249	-
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LFHCS50	166-30906	-	303	LTS16-FMC-PG13	166-32216	-	315	LVR-3.2/1.6	344-00320	112	-
LFHCS63	166-30907	-	303	LTS16-SCG-M16	166-36201	-	319	LVR-4.8/2.4	344-00480	112	-
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LPH962	112-00012	50	65	LTS50	166-31907	-	312	MB4A	151-28412	75	120
LPH992	112-00013	50	65	LTS50-45FMC-M50	166-32505	-	318	MB4A	151-28469	75	120
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TL27-4.8/2.4	302-30480	-	170	TLFX64DS-3x16YE	553-60045	-	409	TTAGPU11X65WH	556-25012	-	410
TL27-50.8/25.4	302-25080	-	170	TLFX64WH	554-51300	-	407	TTAGPU11X65YE	556-25019	-	410
TL27-6.4/3.2	302-30640	-	170	TLFX64YE	554-51301	-	407	TTAGPU15X100WH	556-25006	-	410
TL27-9.5/4.8	302-30950	-	170	TLFX95DS-1x50WH	553-60004	-	409	TTAGPU15X100YE	556-25010	-	410
TLFX127DS-1x50WH	553-60005	-	409	TLFX95DS-1x50YE	553-60014	-	409	TTAGPU15X65WH	556-25007	-	410
TLFX127DS-1x50YE	553-60015	-	409	TLFX95DS-2x25WH	553-60024	-	409	TTAGPU15X65YE	556-25011	-	410
TLFX127DS-2x25WH	553-60025	-	409	TLFX95DS-2x25YE	553-60033	-	409	TTDTHOUT 100MM	556-00141	292	427
TLFX127DS-2x25YE	553-60034	-	409	TLFX95DS-3x16WH	553-60046	-	409	TTDTHOUT 40MM	556-00139	292	427
TLFX127DS-3x16WH	553-60048	-	409	TLFX95DS-3x16YE	553-60047	-	409	TTDTHOUT 60MM	556-00140	292	427
TLFX127DS-3x16YE	553-60049	-	409	TLFX95WH	554-51400	-	407	TTRC+ 100MM	556-00103	292	427
TLFX127WH	554-51500	-	407	TLFX95YE	554-51401	-	407	TTRC+ 30MM	556-00114	292	427
TLFX127YE	554-51501	-	407	TM1SF	151-40119	87	-	TTRC+ 60MM	556-00115	292	427
TLFX190DS-1x50WH	553-60006	-	409	TR27-12.7/6.4	315-51270	-	171	TTRW 100MM	556-00133	292	427
TLFX190DS-1x50YE	553-60016	-	409	TR27-19.1/9.5	315-51900	-	171	TTRW 30MM	556-00125	292	427
TLFX190DS-2x25WH	553-60026	-	409	TR27-25.4/12.7	315-52540	-	171	TTRW 60MM	556-00137	292	427
TLFX190DS-2x25YE	553-60035	-	409	TR27-3.2/1.6	315-50320	-	171	TULT12-4BK	553-41200	235	403
TLFX190DS-3x16WH	553-60050	-	409	TR27-38.1/19.1	315-53810	-	171	TULT12-4BU	553-41206	235	403
TLFX190DS-3x16YE	553-60051	-	409	TR27-4.8/2.4	315-50480	-	171	TULT12-4DS-1x50WH	553-71030	237	405
TLFX190WH	554-51600	-	407	TR27-50.8/25.4	315-55100	-	171	TULT12-4DS-1x50YE	553-71031	237	405
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TLFX24DS-1x50WH	553-60000	-	408	TR27-9.5/4.8	315-50950	-	171	TULT12-4DS-2x25YE	553-71033	237	405
TLFX24DS-1x50YE	553-60010	-	408	TRAKMARK DS 300DPI	556-05000	-	422	TULT12-4DS-3x16WH	553-71034	237	405
TLFX24DS-2x25WH	553-60020	-	408	TREDUX-1.5/0.5	319-00150	119-120	-	TULT12-4DS-3x16YE	553-71035	237	405
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TLFX24DS-3x16WH	553-60038	-	408	TREDUX-101.6/50.8	319-10200	120	-	TULT12-4WH	553-41209	235	403
TLFX24DS-3x16YE	553-60039	-	408	TREDUX-12/4	319-01200	119-120	-	TULT12-4YE	553-41204	235	403
TLFX24WH	554-51000	-	406	TREDUX-12/4-GNYE	319-01207	119-120	-	TULT18-6BK	553-41800	235	403
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TLFX254DS-1x50WH	553-60007	-	409	TREDUX-24/8	319-02407	120	-	TULT18-6DS-1x50WH	553-71036	237	405
TLFX254DS-1x50YE	553-60017	-	409	TREDUX-3/1	319-00300	119-120	-	TULT18-6DS-1x50YE	553-71037	237	405
TLFX254DS-2x25WH	553-60027	-	409	TREDUX-3/1-GNYE	319-00307	119-120	-	TULT18-6DS-2x25WH	553-71038	237	405
TLFX254DS-2x25YE	553-60036	-	409	TREDUX-38.1/19.1	319-03800	120	-	TULT18-6DS-2x25YE	553-71039	237	405
TLFX254DS-3x16WH	553-60052	-	409	TREDUX-38.1/19.1	319-03807	120	-	TULT18-6DS-3x16WH	553-71040	237	405
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TLFX254YE	554-51701	-	407	TREDUX-6/2	319-00607	119-120	-	TULT18-6WH	553-41809	235	403
TLFX32DS-1x50WH	553-60001	-	408	TREDUX-76.2/38.1	319-07600	120	-	TULT18-6YE	553-41804	235	403
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TLFX32YE	554-51101	-	406	TREDUX-HA47-68/22	321-50680	144	-	TULT24-8BK	553-42400	235	403
TLFX381DS-1x50WH	553-60008	-	409	TREDUX-HA47-85/25	321-50850	144	-	TULT24-8BU	553-42406	235	403
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TLFX381WH	554-51800	-	407	TREDUX-MA47-63/19	323-50630	142	-	TULT24-8DS-3x16YE	553-71047	237	405
TLFX381YE	554-51801	-	407	TREDUX-MA47-75/22	323-50750	142	-	TULT24-8RD	553-42402	235	403
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WIC3-9	561-03694	254	-				
WIC3-9	561-03699	254	-				
WIC3-A	561-03014	254	-				
WIC3-A,E,L,N,R,S,T,+,-,↓	561-03994	254	-				
WIC3-B	561-03024	254	-				
WIC3-C	561-03034	254	-				
WIC3-D	561-03044	254	-				
WIC3-E	561-03054	254	-				
WIC3-F	561-03064	254	-				
WIC3-G	561-03074	254	-				
WIC3-H	561-03084	254	-				
WIC3-I	561-03094	254	-				
WIC3-J	561-03104	254	-				
WIC3-K	561-03114	254	-				
WIC3-L	561-03124	254	-				
WIC3-M	561-03134	254	-				
WIC3-N	561-03144	254	-				
WIC3-O	561-03154	254	-				



### 1. Interpretation

#### 1.1 In these Conditions:

'ACKNOWLEDGEMENT OF ORDER' shall mean the document by which the Seller's authorised representative accepts the Order. 'BUYER' shall mean the purchaser of the Goods from the Seller. 'CONDITIONS' means the terms and conditions of sale set out herein and includes any special terms and conditions included in the Acknowledgement of Order. 'CONTRACT' shall mean the contract for the sale and purchase of the Goods made pursuant to these Conditions. 'DELIVERY' shall mean delivery of the Goods or any part of them in accordance with clause 6.1 of these Conditions. 'DELIVERY DATE' shall mean the date or period for Delivery set out in an Acknowledgement of Order or which is otherwise agreed by the Seller and the Buyer. 'FORCE MAJEURE' shall mean any circumstances beyond the reasonable control of the Seller. 'GOODS' shall mean the goods which the Seller has agreed to supply to the Buyer pursuant to these Conditions. 'INFORMATION' shall mean any and all IPR, technical or commercial data, know-how, show-how, formulae, processes, designs, photographs, drawings, specifications, samples, details of customers and suppliers, pricing information, samples, prototypes and other sensitive business information and any other information of a confidential nature together with any experimental or test data and results produced by the Seller as a result of it carrying out necessary tests for the purposes of performing the Contract which either directly or indirectly is disclosed by or on behalf of the Seller to the Buyer or to any person on behalf of the Buyer orally, in writing, by physical embodiment, by data transmission or in any other way. 'INTELLECTUAL PROPERTY RIGHTS' ('IPR') shall mean all patents, trade marks, service marks, design rights (whether patentable, registrable or otherwise), applications for any of the foregoing copyright, know-how, trade or business names, rights in databases, topography rights and other similar rights or obligations whether registrable or not in any country (including, but not limited to the United Kingdom). 'LOSS' shall mean all actions, claims, demands, losses (direct, indirect, consequential or otherwise), expenses, costs, actions and proceedings. 'ORDER' shall mean the Buyer's order for Goods. 'SELLER' shall mean HellermannTyton Ltd, a company registered in England and Wales under company number 05652018 and having its registered office at Stoner House, London Road, Crawley, West Sussex RH10 8LJ. 'SPECIFICATION' shall mean the description of the Goods set out in the Acknowledgement of Order pursuant to clause 3.4.

**1.2** Any reference in these Conditions to any provision of a statute shall be construed as a reference to that provision as amended re-enacted or extended at the relevant time.

**1.3** The headings in these Conditions are for convenience only and shall not affect their interpretation.

**1.4** In these Conditions 'Incoterms' means the international rules for the interpretation of trade terms of the International Chamber of Commerce 2000. Unless the Contract otherwise requires any terms or expression which is defined in or given a particular meaning by the provisions of Incoterms shall have the same meaning in these Conditions, but if there is any conflict between the provisions of Incoterms and these Conditions the latter shall prevail.

### 2. Basis of Sale

**2.1** These Conditions together with the Seller's Acknowledgement of Order apply to all Contracts between the Seller and the Buyer and shall prevail and be effective notwithstanding any variations or additions whether contained or referred to in the Buyer's order, or other document submitted by the Buyer including without limitation any standard conditions of purchase of the Buyer, acceptance of quotation or in correspondence or elsewhere, or implied by trade, custom, practice or course of dealing, and shall supersede all other and any prior promises, representations or undertakings.

**2.2** Where the Buyer purchases Goods from the Seller which include electrical and electronic equipment (as defined by the Waste Electrical and Electronic Equipment Regulations 2006), he does so on the understanding that he will, at his own expense, properly collect, treat, recover and dispose of it in an environmentally sound manner, or arrange for the proper collection, treatment, recovery and environmentally sound disposal of such electrical or electronic equipment in accordance with the requirements of the Waste Electrical and Electronic Equipment Regulations 2006. Further, the Buyer agrees that where the electrical and electronic equipment referred to above is intended to replace electrical or electronic equipment that was supplied to the Buyer prior to the 13 August 2005, it will be responsible for the environmentally sound collection, treatment, recovery and disposal of that electrical and electronic equipment being replaced and shall not ask the Seller to take it back in order to arrange the same.

**2.3** No variation to these Conditions shall be binding unless agreed in writing by an authorised representative of the Seller.

**2.4** The Seller's employees or agents are not authorised to make any representations or recommendations concerning the Goods unless confirmed by a duly authorised representative of the Seller in writing. In entering into the Contract the Buyer acknowledges that it does not rely on and waives any claim for breach of any such representations which are not so confirmed. For the avoidance of doubt, nothing herein contained shall be deemed to exclude the Seller's liability due to fraudulent misrepresentation.

**2.5** Any typographical clerical or other error or omission in any sales literature quotation price list Acknowledgement of Order invoice or other documentation or information issued by the Seller shall be subject to correction without any liability on the part of the Seller.

### 3. Orders and Specifications

**3.1** Every acceptance by the Buyer of any quotation given by the Seller shall be deemed an offer by the Buyer to purchase Goods from the Seller and will not be deemed to be accepted by the Seller until a duly authorised representative of the Seller has provided an Acknowledgement of Order in relation to such offer by the Buyer.

**3.2** No Order submitted by the Buyer shall be deemed to be accepted by the Seller unless and until confirmed by an Acknowledgement of Order.

**3.3** The Buyer shall be responsible to the Seller for ensuring the accuracy of the terms of any Order (including any applicable specification) submitted by the Buyer and for giving the Seller any necessary information relating to the Goods within a sufficient time to enable the Seller to perform the Contract in accordance with its terms.

**3.4** The quantity quality and description of and any specification for the Goods shall be those set out in the Seller's Acknowledgement of Order.

**3.5** If the Goods are to be manufactured by the Seller in accordance with a specification or instructions submitted by the Buyer:

**3.5.1** the Buyer shall indemnify the Seller against all Loss suffered by the Seller in connection with any claim by a third party that the manufacture and/or supply of the Goods to such specification or instructions infringes the rights of any third party; and

**3.5.2** the Buyer shall be responsible for supplying reliable and accurate information to the Seller (including, without limitation, drawings, plans and designs) to enable the Seller to manufacture the Goods. The Seller shall be entitled to assume that all information supplied by the Buyer is true, accurate, complete and fit for the purpose for which it is supplied and that the Seller can rely on the same. The Seller shall not be liable for

any Loss or delay in Delivery of the Goods which directly or indirectly arises from the Buyer's failure to supply accurate information at all or on time.

**3.6** The Seller reserves the right to make any changes in the Specification of the Goods which are required to conform with any applicable UK safety or other statutory requirements and/or where such changes do not materially affect the quality or performance of the Goods. For the avoidance of doubt and subject to clause 10.1, the Seller provides no implied warranties in relation to Goods supplied to the Buyer's specification.

**3.7** No Order which has been accepted by the Seller by an Acknowledgement of Order may be cancelled by the Buyer except with the agreement in writing of the Seller and on terms that the Buyer shall indemnify the Seller in full against all Loss incurred by the Seller as a result of cancellation.

### 4. Price of the Goods

**4.1** The price shall be the price in the Acknowledgement of Order ('Price').

**4.2** The Seller reserves the right by giving notice to the Buyer at any time before Delivery to increase the Price to reflect any increase in the cost to the Seller which is due to any factor beyond the control of the Seller (such as without limitation any foreign exchange fluctuation, currency regulation alteration of duties significant increase in the costs of labour materials or other costs of manufacture), any change in Delivery Dates quantities or specifications for the Goods which is requested by the Buyer or any delay caused by any instructions of the Buyer or failure of the Buyer to give the Seller adequate information or instructions.

**4.3** Except as otherwise stated in an Acknowledgement of Order all prices are given by the Seller for Delivery as defined in clause 6.1. Where the Seller agrees to deliver the Goods otherwise than as defined in clause 6.1 the Buyer shall be liable to pay the Seller's charges for transport packaging and insurance where requested.

**4.4** The price is exclusive of any applicable value added tax (which will be applied in accordance with the legislation in force at the tax point date) and which the Buyer shall be additionally liable to pay to the Seller.

### 5. Terms of Payment

**5.1** Subject to any special terms agreed in an Acknowledgement of Order the Seller shall be entitled to invoice the Buyer for the Price on Delivery immediately the Goods have been despatched, when they are ready for dispatch but are prevented or delayed from being despatched due to Force Majeure or the day the Goods are put out ready for collection (whichever event occurs the earliest).

**5.2** The Buyer shall pay the Price without deduction within 30 days of the date of the Seller's invoice notwithstanding that Delivery may not have taken place and the property in the Goods has not passed to the Buyer. The time of payment of the Price shall be of the essence of the Contract. Receipts for payment will be issued only upon request.

**5.3** If the Buyer fails to make any payment in accordance with clause 5.2 then without prejudice to any other right or remedy available to the Seller the Seller shall be entitled to:-

**5.3.1** cancel the contract or suspend any Deliveries to the Buyer;

**5.3.2** appropriate any payment made by the Buyer to such of the Goods (or the goods supplied under any other contract between the Buyer and the Seller) as the Seller may think fit (notwithstanding any purported appropriation by the Buyer);

**5.3.3** charge the Buyer interest on the amount unpaid at the rate of 3 percent per annum above HSBC Bank base rate from time to time until payment in full is made (a part of a month being treated as a full month for the purpose of calculating interest); and

**5.3.4** demand payment of all outstanding balances from the Buyer whether due or not and/or cancel all outstanding Orders and/or decline to make further Deliveries (under this or any other contract between the Buyer and the Seller) or provision of services.

**5.4** Except where insolvency laws provide otherwise the Buyer shall not be entitled to withhold or set off payment for Goods for any reason whatsoever. All Goods for which payment has not been made in accordance with clause 5.2 and which are held by the Seller at its premises are so held at the Buyer's risk.

### 6. Delivery

**6.1** Except as otherwise stated in an Acknowledgement of Order delivery shall take place when the Seller places the Goods at the disposal of the Buyer at the Seller's premises and not loaded on any collecting vehicle.

**6.2** Any Delivery Date is approximate only. The Seller shall not be liable for any Loss arising from any failure to deliver the Goods on the Delivery Date howsoever caused. Time for delivery shall not be of the essence unless previously agreed by the Seller in writing. The Goods may be delivered by the Seller in advance of the quoted delivery date upon giving reasonable notice to the Buyer.

**6.3** The Buyer shall not be entitled to change the Delivery Date without the consent of a duly authorised representative of the Seller.

**6.4** Where delivery of the Goods is to be made by the Seller, the Seller reserves the right to deliver up to 10 per cent more or 10 per cent less than the quantity ordered provided that there is a pro rata adjustment to the Price to reflect the Goods actually delivered and the quantity so delivered shall be deemed to be the quantity ordered. Goods delivered in excess of such tolerance may be rejected by the Buyer provided that it serves notice of rejection within 10 working days of Delivery.

**6.5** Where the Goods are to be delivered in installments each delivery shall constitute a separate contract and failure by the Seller to deliver any one or more of the installments in accordance with these Conditions or any claim by the Buyer in respect of any one or more installments shall not entitle the Buyer to treat the Contract as a whole as repudiated.

**6.6** Subject to clause 10.6 if the Seller fails to deliver the Goods for any reason other than Force Majeure or the Buyer's fault and the Seller is accordingly liable to the Buyer the Seller's only liability shall be limited to the excess (if any) of the cost to the Buyer (having used its best endeavours to replace the Goods by purchasing them in the cheapest available market) of purchasing similar goods to replace those not delivered.

**6.7** If the Buyer fails to take Delivery on the Delivery Date then without prejudice to any other right or remedy available to the Seller the Seller may:

**6.7.1** store the Goods until actual delivery and charge the Buyer for the costs (including insurance) of storage; or

**6.7.2** treat the Contract as repudiated by the Buyer and without prejudice to any other right it may have against the Buyer the Seller shall be entitled to resell the Goods and be indemnified by the Buyer for any Loss which it suffers.

### 7. Risk and Property

**7.1** Risk of damage to or loss of the Goods shall pass to the Buyer on Delivery of the Goods;

**7.2** Notwithstanding Delivery and the passing of risk in the Goods or any other provision of these Conditions the property in the Goods shall remain with the Seller until the Seller has received in cash or cleared funds payment in full of the Price and any other monies due to the Seller in respect of the Goods and all other goods agreed to be sold by the Seller to the Buyer for which payment is then due under the Contract or any other contract between the Seller and the Buyer (including without limitation costs of Delivery).

**7.3** Until such time as the property in the Goods passes to the Buyer the Buyer shall hold the goods as the Seller's fiduciary agent and bailee and shall keep the Goods separate from those of the Buyer and third parties and properly stored protected and insured and identified as the Seller's property.

**7.4** Until such time as the property in the Goods passes to the Buyer the Buyer shall be entitled to resell or use the Goods in the ordinary course of its business but shall account to the Seller for the proceeds of sale or otherwise of the Goods whether tangible or intangible including insurance proceeds and shall keep all such proceeds separate from any monies or property of the Buyer and third parties and in the case of tangible proceeds properly stored protected and insured.

**7.5** If the Goods are prior to sale by the Buyer made up or incorporated in or mixed with other goods, then if they remain separately identifiable the Seller shall retain property and title thereof and if they do not remain separately identifiable the Seller shall become a joint owner of the goods in or which the Goods are incorporated or mixed in such proportion as the value of the Goods bears to the value of the Goods in which the Goods are so incorporated or mixed.

**7.6** If the Buyer sells the Goods or the goods in which the Goods have been incorporated or mixed the sale shall be on behalf of the Seller as the joint owner thereof as the case may be and the proceeds of any such sale for the Seller's share thereof if the sale is of jointly owned property shall be held on trust for the Seller and in a separate identified account.

**7.7** Until such time as the property in the Goods passes to the Buyer (and provided the Goods are still in existence and have not been resold) the Seller shall be entitled at any time to require the Buyer to deliver up the Goods to the Seller and if the Buyer fails to do so forthwith to enter the premises of the Buyer or any third party where the Goods are stored and take possession of any Goods in which property remains in the Seller and remove and dispose of them as the Seller thinks fit. The Seller shall apply the proceeds of disposal (after deduction of all expenses) in discharge of the amount unpaid by the Buyer.

**7.8** The Buyer shall not be entitled to pledge or in any way charge by way of security for any indebtedness any of the Goods which remain the property of the Seller without the Seller's consent but if the Buyer does so all moneys owing by the Buyer to the Seller shall (without prejudice to any other right or remedy of the Seller) forthwith become due and payable.

## 8. Confidentiality and IPR

**8.1** The Buyer agrees and undertakes that it will keep confidential and will not disclose or use for any purpose (other than to perform its obligations under the Contract) any Information. Any Information supplied to the Buyer by the Seller shall at all times remain the property of the Seller. The Buyer shall not acquire any rights in the Information, which shall be returned to the Seller immediately upon request.

**8.2** Unless otherwise agreed in writing all IPR in relation to the Goods including without limitation their method of manufacture shall vest in the Seller and remain the property of the Seller notwithstanding the purchase of the Goods by the Buyer and the Buyer undertakes to do all acts and/or enter into such agreements or deeds as the Seller shall require to vest any such IPR in the Seller.

**8.3** Unless otherwise agreed in writing and notwithstanding that the Buyer may have contributed towards the costs of such items all tooling (and all IPR in relation to such tooling) produced or acquired by the Seller in relation to the manufacture of the Goods shall be and remain the property of the Seller.

## 9. Lien

**9.1** In addition to any other right or lien to which the Seller may by law or pursuant to these Conditions be entitled, the Seller shall be entitled to a general lien on all the goods and the property of the Buyer in the Seller's possession and a right of sale of such goods and property at the Seller's sole discretion for any unpaid money due under the terms of the same or any other Contract between the Seller and the Buyer.

**9.2** In addition and without prejudice to its other rights, the Seller shall have the right on fourteen days notice to the Buyer to put any goods or property over which it has a lien into a saleable state by any means whatsoever and (without prior notice to the Buyer) to sell such goods and shall be deemed the Buyer's agent for the purposes of effecting such sale. Out of the proceeds of the sale the Seller shall be entitled to retain a sum equivalent to all unpaid monies due to it from the Buyer as aforesaid together with the cost of putting the goods into a saleable state and the expenses of sale without prejudice to the Seller's right to recover the balance thereof from the Buyer.

## 10. Warranties and Liability

**10.1** The Seller warrants that at Delivery the Goods will be free from defect in materials, workmanship and design (where designed by the Seller) provided that subject as aforesaid and expressly provided in these Conditions, and except where the Goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977) all warranties conditions or other terms implied by statute and/or common law are excluded to the fullest extent permitted by law.

**10.2** Where the Goods are sold under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements) Order 1976) the statutory rights of the Buyer are not affected by these Conditions.

**10.3** Any specification supplied by the Seller in any estimate or quotation shall be approximate only and for information and guidance only and shall not form part of the Contract.

**10.4** Any claim based upon the quality or condition of the Goods or any failure of the Goods to meet the Specification ('Claim') by the Buyer shall (whether or not delivery is refused by the Buyer) be notified to the Seller in writing within 7 days from the date of delivery or (where the defect or failure was not apparent on reasonable inspection) within one month after discovery of the defect or failure. If delivery is not refused and the Buyer does not notify the Seller accordingly, the Buyer shall not be entitled to reject the Goods and the Seller shall have no liability in respect of such a Claim and the Buyer shall be bound to pay the Price as if the Goods had been delivered in accordance with the Contract. The Buyer shall not be entitled to make any Claim after the expiration of six months from the date of Delivery of the Goods.

**10.5** Where any valid Claim in respect of any of the Goods is notified to the Seller in accordance with clause 10.4 the Seller shall be entitled to replace the Goods (or the part in question) free of charge or at the Seller's sole discretion refund to the Buyer the Price (or a proportionate part of the Price) but the Seller shall have no further liability to the Buyer and the Buyer shall have no other remedy.

**10.6** The Seller shall have no liability to the Buyer in relation to non-delivery or short delivery of the Goods unless such non-delivery or short delivery is notified to the Seller in writing within fourteen days of the Delivery Date.

**10.7** Where any valid claim in respect of the Goods is notified to the Seller in accordance with clause 10.6 the Seller shall be entitled to deliver the Goods or the shortfall of the Goods, but the Buyer shall have no other remedy

**10.8** Except in respect of death or personal injury caused by the Seller's negligence the Seller's total liability to the Buyer under these Conditions shall not exceed the total price of all Goods supplied hereunder.

**10.9** The Seller shall have no liability to the Buyer under or arising out of or otherwise in connection with the Contract or the supply of Goods by the Seller to the Buyer and/or their use or resale by the Buyer in contract tort (including negligence or breach of statutory duty) or otherwise for loss of profit, business, contracts, revenues

or anticipated savings or for any special indirect or consequential damage or loss of any nature or for the costs of recall of any Goods except as may otherwise be expressly provided for in these Conditions.

**10.10** Notwithstanding any provision of these Conditions the Seller shall have no liability to the Buyer in respect of any defect in the quality of the Goods or the failure of the Goods to meet Specification where the defect or failure has arisen as a result of improper storage or any act or omission of the Buyer.

**10.11** For the avoidance of doubt nothing herein contained shall be deemed to exclude or restrict the Seller's liability for death or personal injury arising due to the Seller's negligence.

**10.12** Where any claim is made under this clause 10 the Buyer grants the Seller or its agents the right to enter upon the Buyer's premises to inspect the Goods Unless and until the Seller has been afforded an opportunity to examine the Goods no claim will be accepted.

**10.13** The Seller shall not be liable to the Buyer or be deemed to be in breach of the Contract by reason of any delay in performing or any failure to perform any of the Seller's obligations in relation to the Goods if the delay or failure was due to Force Majeure.

**10.14** The Buyer shall indemnify the Seller against all Loss suffered by the Seller which arises as a result of the breach by the Buyer of any provision of the Contract or the negligence of the Buyer or any of its representatives.

## 11. Insolvency of Buyer

**11.1** In the event that:

**11.1.1** the Buyer makes any voluntary arrangement with its creditors or becomes subject to an administration order or (being an individual or firm) becomes bankrupt or (being a company) goes into liquidation (otherwise than for the purposes of amalgamation or reconstruction);

**11.1.2** an encumbrancer takes possession or a receiver or administrator is appointed of any of the property or assets of the Buyer;

**11.1.3** the Buyer ceases or threatens to cease to carry on business;

**11.1.4** the Seller reasonably apprehends that any of the events mentioned above is about to occur in relation to the Buyer and notifies the Buyer accordingly; or

**11.1.5** if the Buyer's jurisdiction is not in England and Wales any events similar to those described in clauses 11.1.1 to 11.1.4 occur then without prejudice to any other right or remedy available to the Seller the Seller shall be entitled to suspend further performance of the Contract for such time as it shall in its absolute discretion see fit or treat the Contract as wrongfully repudiated by the Buyer and forthwith terminate the Contract (either with or without notice to the Buyer) without any liability to the Buyer and if the Goods have been delivered but not paid for the Price shall become immediately due and payable notwithstanding any previous agreement or arrangement to the contrary.

## 12. Export Terms

**12.1** Where the Goods are supplied for export from the United Kingdom the provision of this clause 12 shall (subject to any special terms agreed in writing between the Buyer and the Seller) apply notwithstanding any other provision of these Conditions.

**12.2** The Buyer shall be responsible for complying with any legislation or regulations governing the importation of the Goods into the country of destination and for the payment of any duties thereon. In particular, if any licence or consent of any government or other authority shall be required for the acquisition, carriage or use of the Goods by the Buyer the Buyer shall obtain the same at its own expense and if necessary produce evidence of the same to the Seller on demand. Failure to do so shall not entitle the Buyer to withhold or delay payment of the Price. Any additional expenses or charges incurred by the Seller resulting from such failure shall be for the Buyer's account.

**12.3** Unless otherwise agreed in writing between the Buyer and the Seller the Goods shall be delivered ex-works and the Seller shall be under no obligation to give the Buyer notice under section 32(3) of the Sale of Goods Act 1979.

**12.4** Notwithstanding clause 5.2 payment of all amounts due to the Seller shall be made by irrevocable letter of credit opened by the Buyer in favour of the Seller and confirmed by a bank in the United Kingdom acceptable to the Seller or if the Seller has agreed in writing on or before acceptance of the Buyer's order to waive this requirement for any other agreed method of payment

## 13. General

**13.1** The Seller shall be entitled to assign or subcontract all or any of its rights and obligations hereunder. The Buyer shall not be entitled to assign, transfer, subcontract or otherwise delegate any of its rights or obligations hereunder.

**13.2** Any notice required or permitted to be given by either party to the other under these Conditions shall be given in writing at its registered office or principal place of business or such other address as may be notified for such purpose to the party giving notice.

**13.3** No waiver by the Seller of any breach of Contract by the Buyer shall be considered as a waiver of any subsequent breach of the same or any other provision.

**13.4** If any provision of these Conditions is held by any competent authority to be invalid or unenforceable in whole or in part the validity of the other provisions of these Conditions and the remainder of the provision in question shall not be affected thereby.

**13.5** The parties hereto intend that no term of the Contract may be enforced by any person, entity or body that is not a party to the Contract.

**13.6** The Contract shall be governed by the laws of England and Wales and the Buyer and the Seller hereby submit to the exclusive jurisdiction of the English Courts save with respect to enforcement where their jurisdiction shall be non-exclusive.

HT UK Cond of Sale  
August 2007