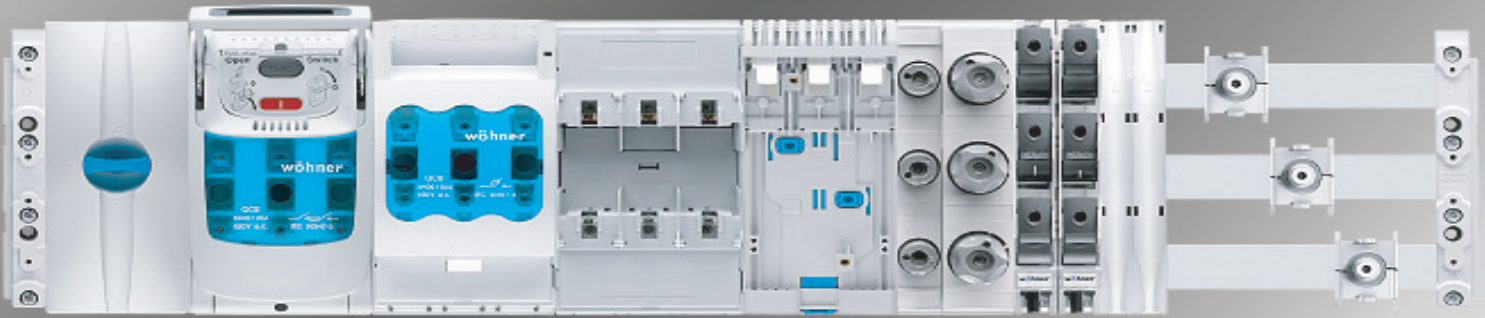


60mm Busbar System Technology



The easy way to connect

wöhner



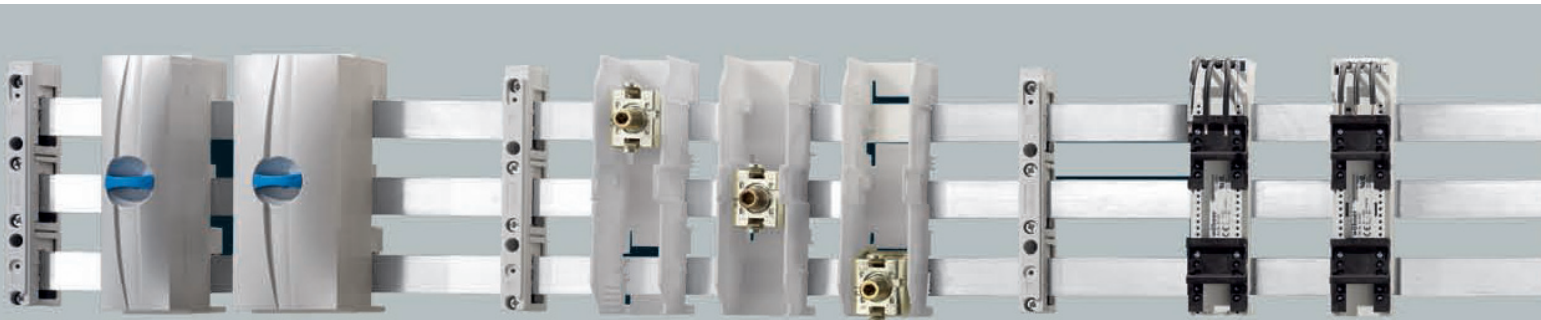
innovative
enclosure solutions
for industrial & electronic
applications

Introduction

60mm-system classic

Safe simple power distribution in a time and space-saving design.

The 60mm busbar system has undergone dramatic enhancements and innovation since its introduction in 1980. The advent of new safety standards for Industrial Control Panels, has prompted Wohner to continue their development of innovative designs for a world wide market. These efforts have resulted in the introduction of power distribution systems focused on electrical safety as well as a dramatic space-saving design. Their large and versatile selection of system components can be applied to traditional motor control panel applications as well as power distribution systems.



HIGHLIGHTS

- Modular power distribution system - design to suit.
- Space savings design may allow you to move to a smaller enclosure.
- Components to solve wire bending radius issues.
- Power distribution structure that spans a distance through the enclosure.
- Components to mount on top of the busbar structure.
- Parts are designed for versatility - one part can serve two purposes.
- Eliminates point-to-point wiring on the primary side of motor starter components.
- Eliminates power distribution blocks and lengths of duct.

APPLICATIONS

- Mounting platform for IEC Motor Controls.
- Power distribution for VFDs and soft starters.
- Mounting for main MCCBs
- Mounting for branch MCCBs
- Adapters for ABB, Allen-Bradley, Cutler-Hammer, GE, Merlin Gerin, Moeller, Siemens and Square-D.
- Mounting for UL Class J, CC and 10x38mm fuses.
- Mounting for International fuses- French Cylindrical, German NH, D and DO-type.
- Connection sets for AWG or flat flexible busbars.

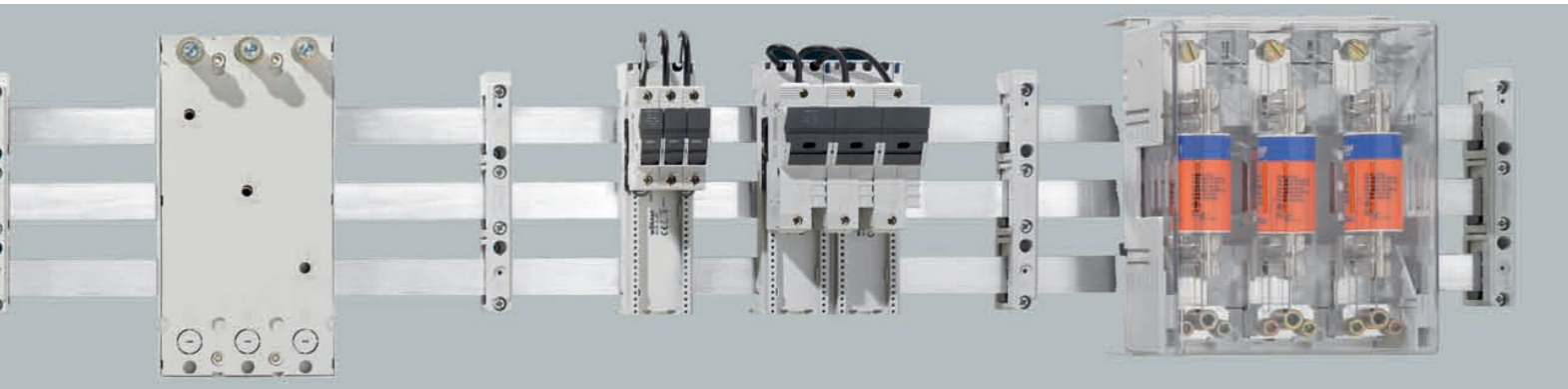
RATINGS

- Tinned Copper Busbar:
 - 12x5mm Bar: 200A
 - 15x5mm Bar: 250A
 - 20x5mm Bar: 320A
 - 25x5mm Bar: 400A
 - 30x5mm Bar: 450A
 - 12x10mm Bar: 360A
 - 20x10mm Bar: 520A
 - 30x10mm Bar: 630 / 800A
- 600Volts, AC and DC
- SCCR values up to 100kA

Introduction

60mm-system classic

Tinned Copper Busbar and Supports – The rigid copper conductors of the 60mm system will span a distance – either horizontally or vertically – through the electrical enclosure. Eight sizes of rectangular bar can be mounted in a universal busbar support to distribute up to 800 amps of current at up to 600 volts. The solution can be applied for both AC and DC systems. Higher current levels can be achieved with some basic design considerations. Spacing of the busbar supports will be determined by the available fault current and the current limiting capabilities of your overcurrent protection devices. Drill and tap the panel for the busbar supports and all other components fasten securely to the structure – saving time and labour.



Touch-safe Insulating Covers – The system adapters that mount to the busbar structure serve to cover the rigid copper conductors. Unused sections of busbar can be covered with touch-safe insulators – by phase conductor or by covering all phases together – to protect the system from unintentional contact. These covers can be added to a system design to allow for easy addition of outgoing circuits to a power distribution panel at a future date. Simply trim the covers from the system and add new adapters for additional outgoing circuits.

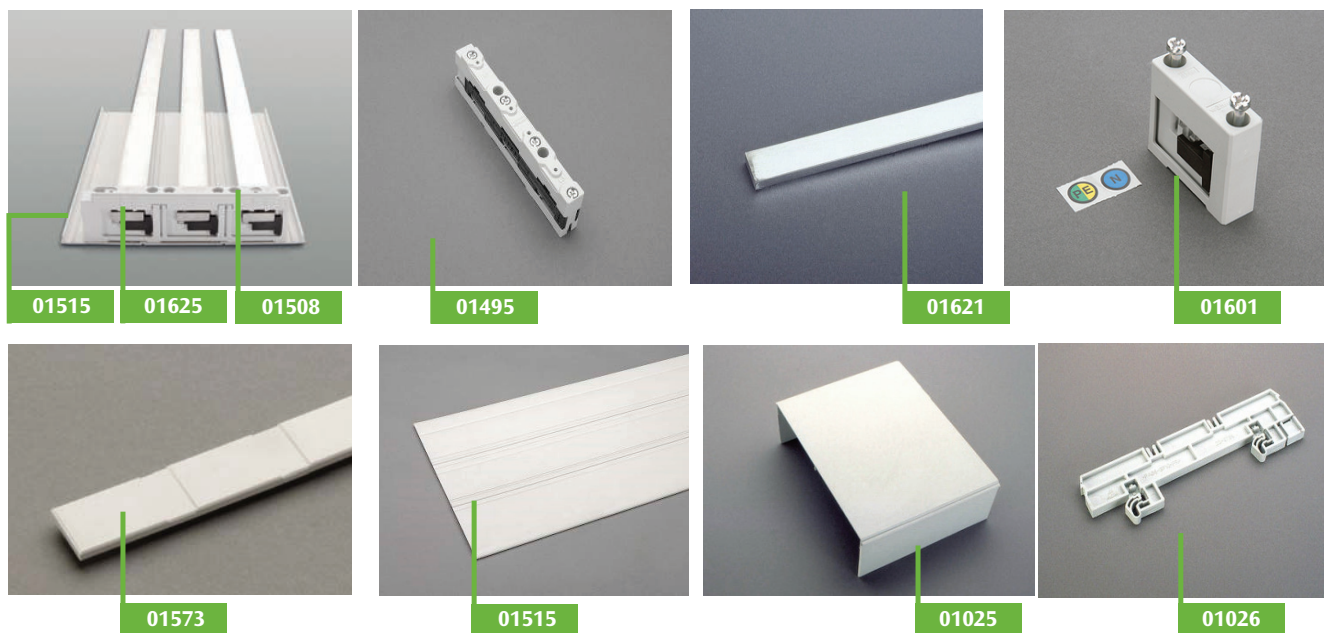
Power Connections – Using connection sets or individual connection terminals, we can introduce power to the busbar structure using round conductors up to 300mm² or two parallel flat flexible busbars up to 32 x 10mm. These connection methods can also be used to tap power from the busbars to feed outgoing circuits. Round conductors are subject to wire bending space constraints within European standards, the use of flat flexible busbar connections can solve these space issues.

Component Adapters – Mounting components to the busbar structure is quick and easy and eliminates drilling and tapping the panel for individual components or DIN rails. **EQUES PowerConnectors** are configured specifically for a wide variety of the industries leading manufacturers of molded case circuit breakers. View the table of manufacturers on page 7 of this brochure. Molded case breakers can be mounted for use as a main overcurrent protection device – eliminating the need for a connection set – or for use as a branch circuit protection device. **EQUES EasyConnectors & EQUES MotorControllers** are DIN rail mounting platforms for IEC Motor Control components or any other DIN mountable device.

Fuseholders – In addition to their extensive offering of mounting adapters for European fuses they have developed busbar mounted fuse holders for UL Class J, Class CC and midget (1-1/2" x 13/32") fuses. Their DIN mounted fuse holders for ferrule fuses are easily applied to the **EQUES EasyConnector** adapters or to DIN rail in the panel.

Supports, End Covers & Base Plates

60mm-system classic



Standard Busbar support, suitable for busbars 12, 15, 20, 25, 30 x 5/10

Dimension	Pack Size		Part No.
3-pole busbar support, with internal screw holes, suitable for busbars 12, 15, 20, 25, 30 x 5/10	10		01495
3-pole UL busbar support, with internal screw holes, suitable for 12, 20, 30 x 5/10	10		01508
1-pole support, suitable for busbars 12, 20, 30 x 5/10*	1		01601
End cover, for covering busbar ends, use with 01495 / 01508	10		01573

* 01601 includes earth and neutral labels

Busbar E-CU, flat busbars, tin plated, 2400mm long

Type	Pack Size		Part No.
12 x 5	1		01618
15 x 5	1		01619
20 x 5	1		01620
25 x 5	1		01621
30 x 5	1		01622
12 x 10	1		01623
20 x 10	1		01624
30 x 10	1		01625

Base plate, for UL busbar support 01508

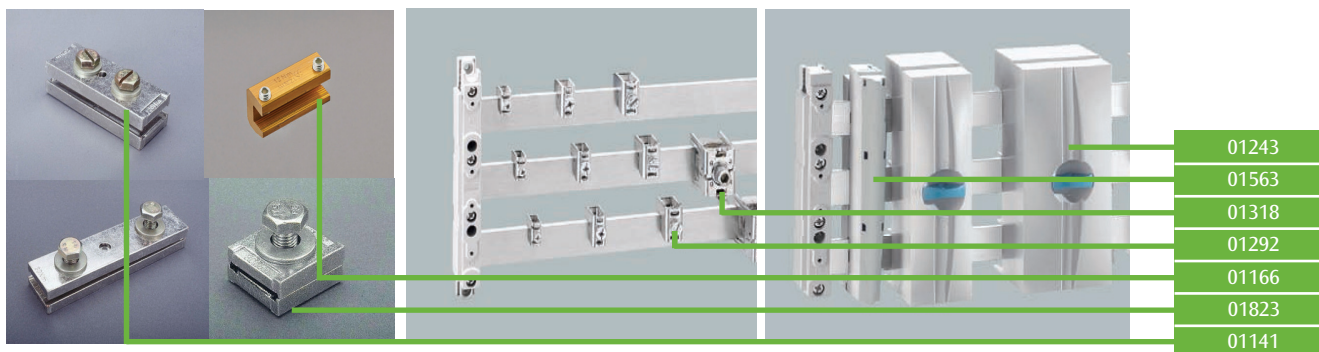
Type	Pack Size		Part No.
240 x 1100	2		01518
240 x 700	2		01515

Cover Section, and mount

Type	Pack Size		Part No.
3 pole cover, 1100mm long	2		01025
Mount for 01025, 2 required per section of mounted cover	10		01026

Connection Modules And Terminals

60mm-system classic



01243
01563
01318
01292
01166
01823
01141

Universal conductor terminal

Busbars	Connection min. – max.	Terminal Space W x H	For Use up to max.	Pack Size		Part No.
5mm flat busbars	1.5 - 16	7.5 x 7.5	180A	100		01284
	4 - 35	10.5 x 11	270A	50		01285
	16 - 70	14 x 14	400A	25		01287
	16 - 120	17 x 15	440A	25		01068
10mm flat busbars	1.5 - 16	7.5 x 7.5	180A	100		01289
	4 - 35	10.5 x 11	270A	50		01290
	16 - 70	14 x 14	400A	25		01292
	16 - 120	17 x 15	440A	25		01203

CRITO ®ProfiClip, brace terminals

Busbars		For Use up to max.	Pack Size		Part No.
20 x 5 – 30 x 10	for flat busbars up to 30 x 20	750A	6		01319
	Cu and Al* 95 - 185mm ² , rm, sm, CU or f	500A	6		01318
	for flat busbars up to 32 x 20	800A	3		01759
	Cu and Al* 120 - 300mm ² , rm, sm, CU or f	600A	3		01760

* not maintenance-free when aluminium conductors are used

Connection Modules, 3 poles

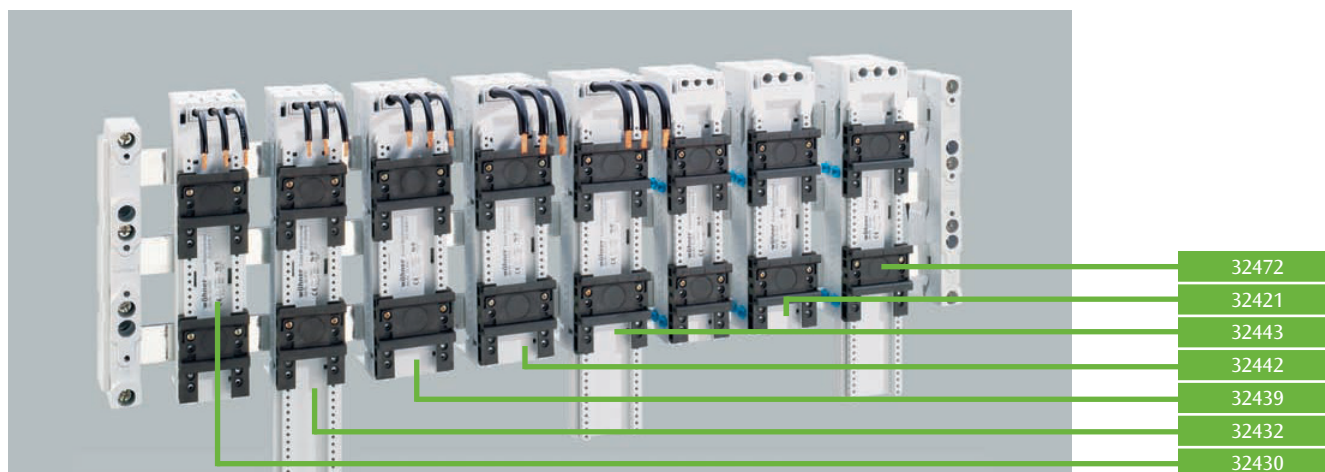
Connection	For Use up to max.	Width	Pack Size		Part No.
1.5 - 16mm ²	80A	20	8		01563
6 - 50mm ² , rm, f, f+AE, la. Cu 7 x 4 to 9 x 10	300A	54	1		01240
35 - 120mm ² , rm, f, f+AE, la. Cu 12 x 4 to 15.5 x 10	440A	84	1		01243
95 - 185mm ² , rm, sm,	460A	135	1		01199
120 - 300mm ² , rm, sm, Cu or f, connection set	560A	153	1		01537
for flat busbars up to 32 x 20, connection set	800A	153	1		01538
Cover cap for 01537 / 01538		153	1		01540

Busbar connector, transport splits for same-size busbars,

Busbars	Length	System Spacing	For use up to max.	Pack Size		Part No.
12 – 20 x 5 / 10	55	5-10	630A	12		01166
	150	100-110	630A	3		01193
20 – 30 x 5 / 10	40	9-20	630A	6		01990
	40	13-20	630A	6		01823
	95	50-60	630A	3		01141
	150	100-110	630A	3		01886

EQUES® EasyConnectors – Din Rail Adapters

60mm-system classic



EQUES® EasyConnector 25A, busbar adapter with leads AWG 12 (4mm²)

Type	Adapter width	Adapter length	Pack Size	Part No.
1 mounting rail	45	200	4	32430
2 mounting rails	45	200	4	32431
2 mounting rails	90	200	2	32432
2 mounting rails	45	260	4	32433

EQUES® EasyConnector 25A, busbar adapter with leads AWG 12 (6mm²) terminals, without leads

2 mounting rails	45	200	4	32436
2 mounting rails	45	260	4	32439

EQUES® EasyConnector 32A, busbar adapter with leads AWG 10 (6mm²)

1 mounting rail	54	200	4	32441
2 mounting rails	54	200	4	32442
1 mounting rail	63	200	4	32443
1 mounting rail	72	200	4	32444
2 mounting rails	81	200	4	32446
2 mounting rails	54	260	4	32449

EQUES® EasyConnector 63A, busbar adapter with leads AWG 8 (10mm²)

1 mounting rail	54	200	4	32454
2 mounting rails	54	200	4	32455
1 mounting rail	63	200	4	32456
1 mounting rail	72	200	4	32457
2 mounting rails	81	200	4	32459
2 mounting rails	54	260	4	32461

EQUES® EasyConnector 80A, busbar adapter with leads AWG 6 (16mm²) terminals, without leads

1 mounting rail	54	200	4	32466
2 mounting rails	54	200	4	32467
1 mounting rail	72	200	4	32469
2 mounting rail	54	260	4	32472
UL terminal cap for 32436 and 32439	45		4	32973
UL terminal cap for 32466, 32467, 32469 and 32472	54		4	32974

Earth/neutral adapter module, eith AWG 6 (16mm²) terminals, top and bottom

for EEC adaptors, connectable on both sides	18	260	4	32146
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EQUES® PowerConnector

60mm-system classic



32 017
32 660
32 570
32 575

EQUES® 60 Classic, busbar adapter, 3-pole, terminal pitch 23-30mm

Type	Rated current	Adapter length	Adapter width	Pack size	Part no.
for Siemens S3, ABB MS49x, top connection to system	100A	200	72	1	32 981
for Siemens 3VA1 and 3VT160, top connection to the system	160A	200	76	1	32 660
for Eaton NZM1, connection top/bottom	160A	200	92	1	32 570
for Allen-Bradley 140U-H, top connection to system	160A	200	90	1	32 577
for Allen-Bradley 140-CMN, top connection to system	160A	200	90	1	32 549
for ABB T-max T1 / XT1, T-max T2 / XT2, GE FD160, Schneider El. NS80, NSX80, top connection to system	160A	200	90	1	32 575
for ABB T-max T1, XT1, XT2, Allen-Bradley 140G-G and H, circuit breaker with terminals for flexible copper bars top connection to system	160A	200	90	1	32 018
for ABB T-max T1, XT1, XT2, Allen-Bradley 140G-G and H, circuit-breaker with connections for flexible copper bars bottom connection to the system	160A	200	90	1	32 020

EQUES® 60 Classic, busbar adapter, 3-pole, terminal pitch 35-36mm

Type	Rated current	Adapter length	Adapter width	Pack size	Part no.
for ABB T-max T4, Siemens 3RV1, connection to the system top	290A	240	105	1	32 601
for ABB T-max XT4, Allen-Bradley 140G-J	250A	192	105	1	32 023
for Allen-Bradley 140U-J and 140M-J	250A	192	106	1	32 137
for Schneider Electric NSX100-NSX250, GV7	250A	192	106	1	32 156
for Eaton NZM2-XKR40 and NZM2-XKR4U	250A	200	106	1	32 140
for Siemens 3VL1 UL	160A	192	108	1	32 976
for Siemens 3VL2, 3VL3 UL	250A	192	108	1	32 977
for Siemens 3VT250, OEZ BD250	250A	240	105	1	32 651
for Siemens 3VA2	250A	240	105	1	32 017
for Terasaki S250-NJ, top connection to system	250A	240	105	1	32 592

EQUES® 60 Classic, busbar adapter, 3-pole, terminal pitch 43-45mm

for ABB T-max T5 and Allen-Bradley 140G-K	580A	300	140	1	32 593
for Allen-Bradley 140U-K, 140U-L, 140M-L	600A	272	140	1	32 138
for Schneider Electric NS400/630, NSX 400/630	570A	272	140	1	32 157
for Eaton NZM3-XKR130 and NZM3-XKR13U	630A	300	140	1	32 978
for Siemens 3VL4	400A	295	140	1	32 975
For Siemens 3VT630, OEZ BH630	600A	300	140	1	32 641

NH Fuse Carriers, 3 pole.

60mm-system classic



- 33 603
- 33 602
- 33 601

QUADRON®60Classic, sizes 000 to 3, NH bus-mounting fuse disconnecter, connection top/bottom, 3-pole

Type	Rated current	Size	Pack size	Weight kg/100 u.	Part no.
box terminal	125A	NH000	1	113.0	33 216
box terminal	160A	NH00	1	100.0	33 198
connection screw M8	160A	NH00	1	103.0	33 398
box terminal	250A	NH1	1	266.0	33 600
connection screw M10	250A	NH1	1	266.0	33 601
connection screw M10	400A	NH2	1	522.0	33 602
connection screw M12	630A	NH3	1	756.0	33 603

QUADRON®60Classic, size 00 to 3, NH bus-mounting fuse disconnecter, connection top/bottom, 3-pole with electronic fuse monitoring

box terminal	160A	NH00	1	117.0	33 324
connection screw M8	160A	NH00	1	117.0	33 394
connection screw M10	250A	NH1	1	223.0	33 325
connection screw M10	400A	NH2	1	572.0	33 326
connection screw M12	630A	NH3	1	796.0	33 327

QUADRON®60Classic, size 00 to 3, NH bus-mounting fuse disconnecter, connection top/bottom, 3-pole with electro-mechanical fuse monitoring

box terminal	160A	NH00	1	180.0	33 206
connection screw M8	160A	NH00	1	180.0	33 420
connection screw M10	250A	NH1	1	333.0	33 160
connection screw M10	400A	NH2	1	574.0	33 161
connection screw M12	630A	NH3	1	824.0	33 162

Conversion kit

for 5mm busbars		2	1	6.5	33 148
for installing on Busbars 12, 15, 20, 25 and 30 x 5 for QUADRON®60Classic Size 2					

devices can be connected directly to 12, 15, 20, 25, 30 x 5, 10mm busbars.
conversion kit 33 148 is required for mounting size 2 onto 5mm busbars,
size 3 is not suitable for 5mm busbars.

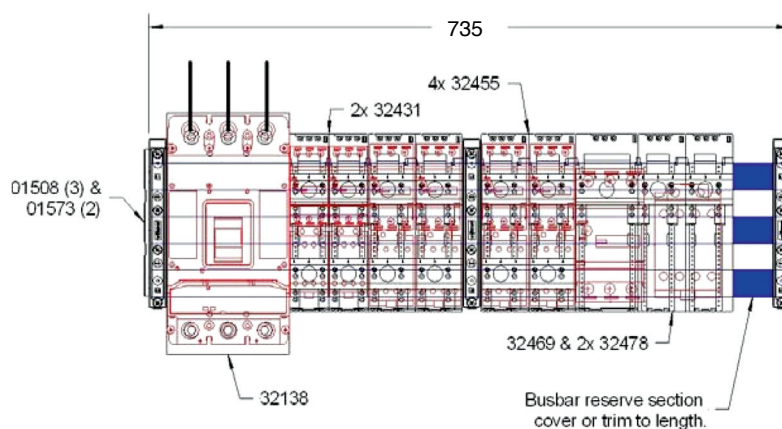
QCQ™ “Quick CAD Quote”

Busbar System Technology

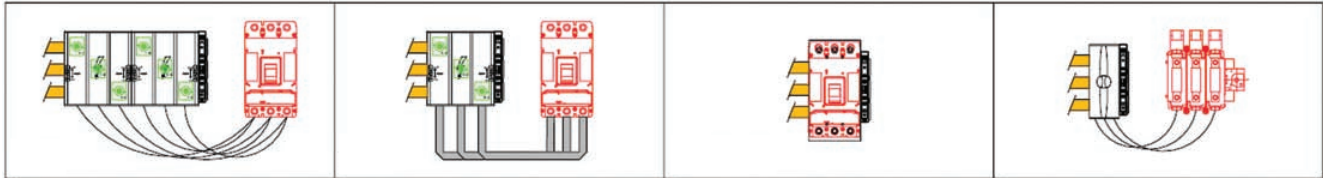
Woehner (UK) provides application assistance upon request. Tell us about your system requirements by answering the following 6 questions. Woehner (UK) can provide a recommended layout and quotation for the system you describe. Woehner (UK) assume 415V, 3 phase system, unless otherwise advised.

System Design Considerations	Parameters	*Example	Enter Feedback Here
Q1: What is the total current requirement of the system? Wohner systems utilise 8 standard sizes of busbar for systems up to 800A.	12 x 5 - 200A 15 x 5 - 250A 20 x 5 - 320A 25 x 5 - 400A 30 x 5 - 450A 12 x 10 - 360A 20 x 10 - 520A 30 x 10 - 630 / 800A	400 amps	
Q2: What is the main incoming protective device and where is it mounted? Identifying the make and model of the fuses, the fusible switch, the molded case circuit breaker or the main isolator.	I.D. Make and Model	Siemens 3VL MCCB Busbar mounted	
Q3: Size, No. and construction of incoming cables? Wohner systems can accommodate up to 300mm ² cables (560A). For higher current ratings we will use parallel conductors or propose insulated flat flexible busbar.	1.5 - 300mm ² Cable Flexibar to 10 x 32	300mm ² conductor, one per phase	
Q4: Define the outgoing circuits? A Wohner system is best suited to applications with at least 6 outgoing circuits – the more the better. It's all about power distribution to the outgoing circuits.	MCCBs IEC Motor Controls DIN Power Devices Fused Circuits Power Taps	4 x 4kW MPD 3 x 40A 3~M C B 3 x 100A MCCB 3 x 63A NH fuse Base	
Q5: Any size or space limitations? The busbar system may allow you to fit your system into a smaller, less expensive enclosure. It's a great way to beat the competition on system size and labour.	Enclosure H x W x D Panel H x W Vertical or Horizontal Transpot Splits	2000 x 2400 x 600 Split at 1200mm	
Q6: Other considerations? Does the system need to be UL 508 compliant? Has a required SCCR been determined? Any international listings needed?	UL 508 IEC Up to 100 kA SCCR	UL 508	

Based on the control system requirements described in the questionnaire above, a layout can be developed in a 2 dimensional CAD format (or 3D by request). From this layout they will compile the necessary bill of materials to create the assembly. A quotation for the Wöhner bill of material will be created by Eta. CAD assemblies can be provided upon purchase of the system. Create your own CAD assemblies by downloading the system elements from the Wöhner web site (www.woehner.com).



Main Overcurrent Protection Device:



Parallel feed with round conductors.

- For current ratings above 560A.

Standard feed using flexible busbar.

- Saves connection space on busbar system.
- Solves wire bend radius issues.

MCCB mounted on the busbar system.

- Most space saving design.
- Backfeeding orientation possible depending on the MCCB.

Standard feed from a fusible switch.

- Achieves higher SCCR values.
- Use cable or flexible busbar connections.

Outgoing Circuit Options:



MCCBs mounted on busbar system.

- Compact design.
- No line side wiring required.
- Up to 630A MCCBs
- Backfeeding orientation possible depending on the MCCB.

Combination motor controller.

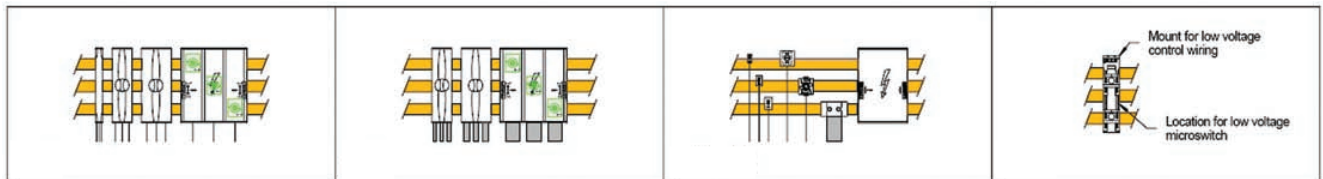
- Up to 80A outgoing circuits.
- Fusible or circuit breaker assemblies.

Reversing motor controller.

- Up to 80A outgoing circuits.
- Fusible or circuit breaker assemblies.

One and two pole device mounting.

- DIN rail mount up to 80A.
- Terminal type adapters.
- Choose phase connections for load balance.
- Fusible or circuit breaker assemblies



3-pole round conductor power taps.

- Up to 300mm².

3-pole flexible busbar power taps.

- Up to 2x32x10mm.

Universal terminals and covers.

- Round conductor up to 300mm².
- Flexible busbar up to 2 x 32 x 10mm.
- Ring lug connection option.
- Ground and neutral terminals
- Touchsafe covers.

Motor controller adapter *.

- Disconnect under load using microswitch assembly.
- Touchsafe design with component face plate removed.
- Mount for low voltage control wiring.



UL Class CC and Midget fuseholders

- 1, 2 and 3 pole devices.
- Busbar and panel mountings.
- Up to 1000V DC for photovoltaic applications

*UL Class J, 30 and 60 amp fuseholders *

- 1, 2 and 3 pole devices.
- Busbar and panel mountings.

Fuse Disconnect, NH000 - 3

- Compact, space saving design.
- Touchsafe design.
- Integrated fuse puller.
- See NEW Crosslink family.

UL Class J, 200 & 400 amp fuseholders *.

- Busbar and panel mountings.
- Touchsafe cover included.

Other Considerations:



Horizontal or vertical busbar orientation.

- Vertical orientation saves space.
- Consider heat effect on vertically mounted components.

Busbar transport splits.

- Shipping splits
- Assemblies greater than 2400mm.
- Phase barriers.
- Touchsafe covers.

Multiple busbar runs.

- Flexible busbar or AWG feed-through.
- Compact design in narrow enclosures.

Center feeding design.

- For higher current applications.
- Requires balanced loads on either side of parallel connections.

* - Enquire for further details on available ranges

A conceptual image showing three hands holding puzzle pieces against a blue background. The top hand holds a white puzzle piece with the 'wöhner' logo. The bottom-left hand holds a white puzzle piece with the 'COSMOTEC industrial cooling' logo. The bottom-right hand holds a white puzzle piece with a green square containing the 'eta' logo. The puzzle pieces are arranged in a triangular pattern, suggesting a unified solution.

Bringing together leading brands with combined expertise to deliver the perfect solution from one source

ETA is focused on delivering the very best in enclosure innovations with standard and modified enclosure solutions. Available in Mild steel and Stainless steel, we have an enclosure product to suit your exact requirements FROM STOCK. Modified enclosures available with short lead times.

Wöhner stands for competence in the field of busbar system technology, for trailblazing technology and for excellent service. Wöhner covers the whole spectrum in the busbar system technology sector, from analysis of market requirements and customer needs to customised manufacture. They can solve individual problems and offer forward-looking system technology in the areas of distribution-system, control-system and switchgear construction.

Cosmotec designs and produces products in the air conditioning and thermal management field, for industrial automation, telecommunications and data centres. All over the world, air-conditioning systems made by Cosmotec are keeping sensitive information and communication technology cool. Products include. Cabinet air-conditioners – Heat exchangers and fans / Filters.



innovative
enclosure solutions
for industrial & electronic
applications



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