Culligan®

WATER TREATMENT SYSTEMS AND EQUIPMENT

FILTRATION

SOFTENING

DESALINATION

DEIONISATION

DISINFECTION

INSTRUMENTS AND CONTROLS

AERATING TOWERS • MECHANICAL FILTRATION • CUSTOMER SERVICE

CULLIGAN: WORLD LEADER IN WATER TREATMENT

WATER PURIFICATION PLANT

THE COMPANY: CULLIGAN ITALIANA WAS ESTABLISHED IN 1960 AS THE ITALIAN LICENSEE OF CULLIGAN INTERNATIONAL, A PIONEER IN WATER TREATMENT AT THE TIME OF ITS FOUNDATION, 1936 IN CHICAGO (USA). IN 1969 CULLIGAN ITALIANA WAS INCORPORATED IN THE CULLIGAN INTERNATIONAL GROUP AS MANUFACTURER AND DISTRIBUTOR OF A WIDE RANGE OF WATER TREATMENT PRODUCTS FOR BOTH THE INDUSTRIAL AND THE CONSUMER MARKETS.

Water is unique, limited, non reproducible and is vital to human life and activities. Only a rational and sustainable approach will preserve this essential resource for future generations.
Culligan has led the water treatment industry in innovation and service for more than 70 years, designing and manufacturing equipment for water softening, filtration, desalination (via reverse osmosis or ion exchange) and chemical dosing.
Culligan offers an unmatched range of efficient and dependable products designed to meet the requirements of a wide range of applications (fully described in our technical literature). Products are constantly updated to incorporate the latest technological innovations, so you are always guaranteed to buy state-of-the-art equipment. Components are field tested by our engineers and are designed and manufactured in our factories under exacting quality control, for example hydraulic valves, controllers, instrumentation and many other components.
This catalogue includes the entire range of Culligan Commercial and Industrial products, with product applications and technical characteristics, and is a useful tool for the initial selection of the equipment required for a specific project. This can then be later finalised in consultation with our specialist application engineers for your specific market or applications.

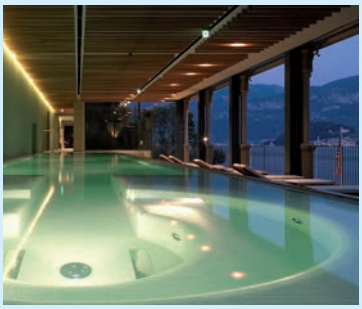
THE MASTER IN WATER TREATMENT

IN ADDITION TO DESIGNING AND BUILDING WATER TREATMENT EQUIPMENT FOR INDUSTRIAL APPLICATIONS, CULLIGAN ADDRESSES ALMOST EVERY ASPECT OF WATER USAGE IN AN EFFORT TO PRESERVE THIS PRECIOUS AND LIMITED RESOURCE.
CULLIGAN IS THE LEADER IN PRESTIGE SWIMMING-POOLS, HOUSEHOLD WATER SOFTENING AND POINT-OF-USE APPLICATIONS.

POOLS

Private pools


Spas, public and rehabilitation pools




WATER AT HOME

Water treatment for drinking water


Water treatment for household appliances


POINT-OF-USE WATER

Water Coolers
(19 litres)

Water Dispensers
Connected to mains water, they dispense filtered water at room temperature or cold, as well as carbonated cold water

1 FILTRATION AND PURIFICATION

FILTRATION IS USED IN MANY APPLICATIONS.

- REMOVE SUSPENDED SOLIDS FROM WATER, COARSE PARTICLES TO COLLOIDS
- ABSORBE AND REMOVE COLOUR, UNPLEASANT TASTE AND ODOUR, AS WELL AS ORGANIC AND INORGANIC CONTAMINANTS
- REMOVE IRON, MANGANESE, ARSENIC AND OTHER HEAVY METALS
- NEUTRALISE WATER ACIDITY
- REMOVE AMMONIA THROUGH ACCELERATED NITRIFICATION IN BIOLOGICAL FILTERS

THE APPROPRIATE MEDIA AND CHEMICAL CONDITIONING SHOULD BE SELECTED FOR THE SPECIFIC APPLICATION.

MODELS

Each model of Culligan filters can be selected with a choice of filtration media suitable for the specific application (see table on following page).

• FILTR-CLEER Multi-layer media typically employed for the elimination of turbidity, suspended solids and low concentrations of heavy metals (e.g. Iron and Manganese).

The main components are “Cullcite”, granular low density anthracite in the upper layer of the filter, and “Cullsan”, pure and chemically inert silica sand in the bottom layer.

• CULLAR Used for the removal of Chlorine, unpleasant taste and odour. Cullar is a Granular Activated Carbon especially selected for its extremely fine porosity and outstanding absorption capacity.

• CULLNEU Used for neutralising acidic water, raising hardness level and reducing the corrosive characteristics of water. Cullneu is mostly composed by granular Calcium Carbonate, which dissolves in water in direct proportion to the acidity removed; it therefore requires periodic refilling.

• SUPER IRON Selective catalytic media for removing Iron, Manganese and Arsenic, which is activated using various oxidants.

• G.A.C. Granular Activated Carbon-based filter, designed specifically for absorbing organics, pesticides heavy metals and other hazardous substances.

• BIOFILTER Special filter designed for the removal of Ammonia through accelerated nitrification by a biomass of aerobic bacteria (Nitrosamonas and Nitrobacter) supported by a layer of quartz-based media. Biofilters can also oxidise and remove low concentrations of Iron and Manganese.

• UFX Specific media for the absorption of Arsenic and Vanadium. The media cannot be regenerated and must be replaced when exhausted. It is ideally used for polishing water that has been pre-treated with less expensive processes.

• OFSY® Double-stage filtration system, exclusive to Culligan, ideally suited to remove elevated and variable quantities of suspended solids. The unique feature of this filter is its capacity to directly treat water with elevated concentrations of suspended solids, without any previous clarification.

NOTE: details of each standard model are listed in the Technical Specifications tables.

HOW TO CHOOSE THE MOST APPROPRIATE FILTRATION MEDIA FOR YOUR NEEDS												
	Filtr-Cleer UF		Cullar UR		Cullneu UU		Super Iron UFP		UFX	Bio-filter	G.A.C.	OFSY
	HF22 HF6	HF9	HF22 HF6	HF9	HF22 HF6	HF9	HF22 HF6	HF9	HF9	BF		
Turbidity/Suspended Solids	◆◆	◆◆										◆◆◆
Elevated and/or variable turbidity	◆	◆◆										◆◆◆
Taste			◆	◆◆							◆◆◆	
Odour			◆	◆◆							◆◆◆	
Colour			◆	◆◆							◆◆◆	
Atrazine and similar			◆	◆							◆◆◆	
Tri-tetrachloroethylene and similar			◆	◆							◆◆◆	
Acidity					◆◆	◆◆◆						
Iron	◆	◆◆					◆◆	◆◆◆		◆◆		◆◆◆
Manganese		◆◆					◆◆	◆◆◆		◆◆		◆◆◆
Arsenic and Vanadium		◆					◆	◆◆	◆◆◆	◆		◆◆
Ammonia		◆								◆◆◆		◆
◆ Acceptable ◆◆ Good ◆◆◆ Excellent												

NOTE: in addition to standard products, Culligan can design and supply customised units for larger applications and packaged complete systems either skid mounted or installed inside ISO containers. All systems are designed to the highest Standards included DIN, ASME, RINA, etc.

MATERIALS

Culligan's pressure vessels are entirely fabricated in our factories from high grade carbon steel with internal linings of food-grade epoxy resins (250-300 µm) and external corrosion protection using polyurethane paint (80-100 µm).

AUTOMATION

The automatic operation of filters is achieved via hydraulic diaphragm valves, driven by a pilot valve connected to an electronic controller that alternates service and wash cycles.
Culligan Hi-Flo 22 automatic filters are controlled via hydraulic piston valve.

Time, duration and frequency of wash cycles can be programmed from the control panel.
Automatic flow regulators limit the water flow rate in the different phases, preventing any loss of minerals during backwash and optimising filtration efficiency during service.

HI-FLO 22

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø "	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
FILTR-CLEER (Turbidity)								
UF 12	2.5	2.3	1 ½	404	304	1585	185	135
UF 14	2.9	3.4	1 ½	469	369	1901	260	180
UF 16	3.4	4.5	1 ½	506	406	1901	335	235
UF 21	5	6.8	1 ½	633	533	1622	480	350
CULLAR (Taste - Odour - Colour)								
UR 12	2.5	1.8	1 ½	404	304	1585	160	115
UR 14	2.9	2.3	1 ½	469	369	1901	240	160
UR 16	3.4	3.4	1 ½	506	406	1901	300	200
UR 21	5	5.7	1 ½	633	533	1622	410	280
SUPER IRON (Iron - Manganese)								
UFP 12	1.8	1.8	1 ½	404	304	1585	190	145
UFP 14	2.1	3.4	1 ½	469	369	1901	285	205
UFP 16	2.5	3.4	1 ½	506	406	1901	355	255
UFP 21	3	6.8	1 ½	633	533	1622	510	380

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

HI-FLO 6

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø DN	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
FILTR-CLEER (Turbidity)								
UF 60	36,2	61.3	80	1500	1760	2200	5040	3290
UF 72	52	90.8	100	1800	2150	2282	7155	4655
UF 84	70.4	129.4	100	2100	2450	2340	9325	5825
UF 90	81.6	147.7	100	2300	2630	2350	11450	7250
UF 100	101.2	174.9	150	2500	2950	2614	14145	9145
UFe 100	101.2	174.9	100	2500	2850	2614	14145	9145
UF 120	145	250	150	3000	3490	2890	22500	15500
CULLAR (Taste - Odour - Colour)								
UR 60	36.2	27.3	80	1500	1760	2200	4545	2795
UR 72	52	40.9	80	1800	2100	2282	6375	3875
UR 84	70.4	52.2	100	2100	2450	2340	8690	5190
UR 90	81.6	65	100	2300	2630	2350	10280	6080
UR 100	101.2	79.5	100	2500	2850	2614	12750	7750
UR 120	145	114	150	3000	3490	2890	20400	13400
CULLNEU (Acidity)								
UU 60	22.7	61.3	80	1500	1760	2200	5040	3290
UU 72	32.7	90.8	80	1800	2150	2282	7155	4655
UU 84	40.9	129.4	100	2100	2450	2340	9325	5825
UU 90	47	147.7	100	2300	2630	2350	11450	7250
UU 100	59	174.9	150	2500	2950	2614	14145	9145
UUe 100	59	174.9	100	2500	2950	2614	14145	9145
UU 120	80	250	150	3000	3490	2890	22500	15500
SUPER IRON (Iron - Manganese)								
UFP 60	28	52.2	80	1500	1760	2200	5060	3310
UFP 72	40	68	100	1800	2150	2282	7250	4750
UFP 84	52	95.5	100	2100	2450	2340	9600	6100
UFP 90	58	114	100	2300	2630	2350	11700	7500
UFP 100	79	143	150	2500	2950	2614	14500	9500
UFPe 100	79	143	100	2500	2950	2614	14500	9500
UFP 120	112	200	150	3000	3490	2890	22750	15750

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

HI-FLO 9

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
FILTR-CLEER (Turbidity)								
UF 20	4.7	7.9	1 ½"	710	735	1950	770	470
UF 24	6.7	10.9	1 ½"	710	835	1985	1100	680
UF 30	11	15.9	1 ½"	765	985	2050	1690	1030
UF 36	17	27.3	2"	975	1215	2131	2810	1910
UF 48	27	40.9	2 ½"	1258	1436	2235	4440	2790
UF 54	37	56	2 ½"	1432	1632	2367	5200	3100
UF 60	42	61.3	DN 80	1500	1760	2700	6675	4050
UF 72	60	90.8	DN 100	1800	2150	2782	9200	5450
UF 84	80	129.4	DN 100	2100	2450	3090	12950	7700
UF 90	86	147.7	DN 100	2300	2630	3100	15310	9010
UF 100	117	174.9	DN 150	2500	2950	3364	19200	11700
UFe 100	117	174.9	DN 100	2500	2850	3364	19200	11700
UF 120	170	250	DN 150	3000	3490	3600	30300	18800
CULLAR (Taste - Odour - Colour)								
UR 20	4.7	3.4	1 ½"	710	735	1950	760	460
UR 24	6.7	4.5	1 ½"	710	835	1985	1020	600
UR 30	11	6.8	1 ½"	765	985	2050	1590	930
UR 36	17	10.9	2"	975	1215	2131	2550	1650
UR 48	27	18.2	2"	1258	1465	2235	4060	2410
UR 54	37	25	2 ½"	1432	1626	2367	5050	2950
UR 60	42	27.3	DN 80	1500	1760	2700	5975	3350
UR 72	60	40.9	DN 80	1800	2100	2782	8350	4600
UR 84	80	52.2	DN 100	2100	2450	3090	11150	5900
UR 90	86	61.8	DN 100	2300	2630	3100	13900	7600
UR 100	117	79.5	DN 100	2500	2850	3364	16900	9400
UR 120	170	114	DN 150	3000	3490	3600	24750	13250
SUPER IRON (Iron - Manganese)								
UFP 20	3	5.7	1 ½"	710	735	1950	770	470
UFP 24	4.5	7.9	1 ½"	710	835	1985	1100	680
UFP 30	7	13.6	1 ½"	765	985	2050	1690	1030
UFP 36	11	20.5	2"	975	1215	2131	2810	1910
UFP 48	18	31.9	2 ½"	1258	1436	2235	4440	2790
UFP 54	25	45.8	2 ½"	1432	1632	2367	5200	3100
UFP 60	28	52.2	DN 80	1500	1760	2700	6925	4300
UFP 72	40	68	DN 100	1800	2150	2782	9650	5900
UFP 84	52	95.5	DN 100	2100	2450	3090	13950	8700
UFP 90	58	114	DN 100	2300	2630	3100	16860	10560
UFP 100	79	143	DN 150	2500	2950	3364	20700	13200
UFPe 100	79	143	DN 100	2500	2950	3364	20700	13200
UFP 120	112	200	DN 150	3000	3490	3600	32000	20500

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

HI-FLO 9

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
CULLAX (Arsenic - Vanadium)								
UFX 20	3	3	1 ½"	710	735	1950	800	500
UFX 24	4.5	4.5	1 ½"	710	835	1985	1070	650
UFX 30	6.8	6.8	1 ½"	765	985	2050	1710	1050
UFX 36	10.9	10.9	2"	975	1215	2131	2550	1650
UFX 48	17	17	2"	1258	1465	2235	4410	2750
UFX 54	25	25	2 ½"	1432	1626	2367	5800	3700
UFX 60	27.3	27.3	DN 80	1500	1760	2700	7075	4450
UFX 72	40	40	DN 80	1800	2100	2782	9650	5900
UFX 84	52.2	52.2	DN 100	2100	2450	3090	14000	8800
UFX 90	61.8	61.8	DN 100	2300	2630	3100	16900	10600
UFX 100	75	75	DN 100	2500	2850	3314	20300	12300
UFX 120	105	105	DN 100	3000	3350	3600	30500	19000
BIOLOGICAL FILTERS (Ammonia - Iron - Manganese)								
BF 48	17	36	2"	1258	1465	2235	4150	2500
BF 54	22.5	47	2 ½"	1432	1626	2367	5150	3050
BF 60	26	54	DN 80	1500	1760	3200	6325	3700
BF 72	38	80	DN 80	1800	2100	3282	8650	4900
BF 84	52	108	DN 100	2100	2450	3590	11350	6100
BF 90	62	126	DN 100	2300	2630	3660	14200	7900
BF 100	72	144	DN 100	2500	2850	3814	17300	9800
BF 120	106	216	DN 100	3000	3490	4100	25200	13700
CULLNEU (Acidity)								
UU 20	3	7.9	1 ½"	710	735	1950	830	530
UU 24	4.5	10.9	1 ½"	710	835	1985	1145	725
UU 30	7	15.9	1 ½"	765	985	2050	1770	1110
UU 36	11	27.3	2"	975	1215	2131	2855	1955
UU 48	18	40.9	2 ½"	1258	1436	2235	4735	3085
UU 54	25	56	2 ½"	1432	1632	2367	5350	3250

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

HI-FLO 6 TWIN

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø DN	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
TWIN - FILTR-CLEER (Turbidity)								
UF 248	41	41	65	2600	1536	2125	9000	5500
UF 260	72.4	61.8	100	3300	1880	2140	10080	6580
UF 272	104	90.8	100	3900	2110	2260	14310	9310
UF 284	140.8	129.4	150	4580	2360	2385	18650	11650
UF 290	163.8	150	150	4980	2600	2460	22900	14500
UF 2100	202.4	174.9	150	5300	2970	2640	28290	18290
UF 2120	290	250	150	6400	3395	2845	45000	31000
TWIN - CULLAR (Taste - Odour - Colour)								
UR 248	41	18.2	65	2600	1536	2125	8100	4600
UR 260	72.4	29	100	3300	1880	2140	9090	5590
UR 272	104	40.9	100	3900	2110	2260	12750	7750
UR 284	140.8	52.2	150	4580	2360	2385	17380	10380
UR 290	163.2	68	150	4980	2600	2460	20560	12160
UR 2100	202.4	79.5	150	5300	2970	2640	25500	15500
UR 2120	290	114	150	6400	3395	2845	40800	26800
TWIN - SUPER IRON (Iron - Manganese)								
UFP 248	36	31.9	65	2600	1536	2125	9100	5700
UFP 260	56	52.2	100	3300	1880	2140	10120	6620
UFP 272	80	68	100	3900	2110	2260	14500	9500
UFP 284	104	95.5	150	4580	2360	2385	19200	12200
UFP 290	116	114	150	4980	2600	2460	23400	15000
UFP 2100	158	143	150	5300	2970	2640	29000	19000
UFP 2120	224	200	150	6400	3395	2845	45500	25500

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

HI-FLO 9 TWIN

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø DN	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
TWIN - FILTR-CLEER (Turbidity)								
UF 260	72.4	61.9	100	3300	1880	2610	13350	8100
UF 272	104	90.8	100	3900	2110	2760	18400	10900
UF 284	140.8	129.4	150	4580	2360	3135	25900	15400
UF 290	163.2	150	150	4980	2600	3210	30620	18020
UF 2100	202.4	174.9	150	5300	2970	3390	38400	23400
UF 2120	290	250	150	6400	3395	3595	60600	37600
TWIN - CULLAR (Taste - Odour - Colour)								
UR 260	72.4	29	100	3300	1880	2610	11950	6700
UR 272	104	40.9	100	3900	2110	2760	16700	9200
UR 284	140.8	52.2	150	4580	2360	3135	22300	11800
UR 290	163.2	61.2	150	4980	2600	3210	27800	15200
UR 2100	202.4	79.5	150	5300	2970	3390	33800	18800
UR 2120	290	114	150	6400	3395	3595	49500	26500
TWIN - SUPER IRON (Iron - Manganese)								
UFP 260	56	52.2	100	3300	1880	2610	13850	8600
UFP 272	80	68	100	3900	2110	2760	19300	11800
UFP 284	104	95.5	150	4580	2360	3135	27900	17400
UFP 290	116	114	150	4980	2600	3210	33720	21120
UFP 2100	158	143	150	5300	2970	3390	41400	26400
UFP 2120	224	200	150	6400	3395	3595	64000	41000

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

OFSY

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
OFSY 20	4.5	7.9	1 ½"	1100	880	1960	1450	1050
OFSY 24	5.7	10.9	1 ½"	1200	980	2000	1960	1400
OFSY 30	9.1	15.9	1 ½"	1600	1130	2050	2990	2110
OFSY 36	13.6	27.3	2 ½"	2010	1480	2130	4600	3400
OFSY 48	21.8	40.9	2 ½"	2500	1730	2235	7800	5600
OFSY 54	29.6	56.8	2 ½"	2920	1930	2367	8800	6000
OFSY 60	36.3	61.3	DN 80	3200	1760	2150	10080	6580
OFSY 72	50	90.8	DN 100	3750	2150	2150	14310	9310
OFSY 84	68.1	129.4	DN 100	4350	2450	2160	18650	11650
OFSY 90	82	159	DN 100	4750	2600	2250	22900	14500
OFSY 100	100	174.9	DN 150	5200	2950	2370	28290	18290
OFSY 120	139	250	DN 150	6300	3430	2890	45000	31000

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

G.A.C.

MODEL	FLOW RATE service m³/h	FLOW RATE backwash m³/h	FITTINGS in / out Ø	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
G.A.C. 20	3	3.4	1"	500	660	2480	800	500
G.A.C. 24	4.5	4.5	1"	600	760	2515	1100	700
G.A.C. 30	7	7	1 ½"	750	1020	2585	1700	1000
G.A.C. 36	10.8	11	1 ½"	950	1217	2650	2900	1850
G.A.C. 48	18	18	2 ½"	1200	1470	2770	4500	2700
G.A.C. 60	27	28	2 ½"	1500	1770	3000	5600	4000
G.A.C. 72	40	41	DN 80	1800	2100	3110	7500	5500
G.A.C. 84	54	55	DN 80	2100	2400	3160	9800	7000
G.A.C. 90	60	60	DN 100	2300	2705	3370	11200	8500
G.A.C. 100	80	80	DN 100	2500	2850	3420	12500	10000
G.A.C. 120	108	113	DN 100	3000	3430	3890	30000	18000

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

OPERATING DATA

	HI-FLO 22	HI-FLO 6 / HI-FLO 9 / TWIN / OFSY / G.A.C.
Minimum operating pressure	2 bar	1.5 bar
Maximum operating pressure	7 bar	7 bar up to model 60" 5 bar from model 72" to model 120"
Operating temperature	4-50 °C	5-40 °C
Power supply	110/230/24 V - 50/60 Hz	110/230/24 V - 50/60 Hz
Power consumption	10 W	10 W
Pressure loss	0.5 bar	Hi-Flo 6, Hi-Flo 9, TWIN: UF 1 bar; UR 0.3 bar; UU and UFP: 0.5 bar OFSY and G.A.C. 0.5 bar

2 AERATION TOWERS

CULLIGAN AERATION TOWERS ARE DESIGNED TO REDUCE, THROUGH FORCED DRAFT AERATION, THE CONCENTRATION OF DISSOLVED GAS IN WATER. FORCED AERATION OXIDISES WATER AND REMOVES GASES SUCH AS METHANE (CH_4), CARBON DIOXIDE (CO_2) AND HYDROGEN SULPHIDE (H_2S). DEGASSERS ARE INSTALLED ABOVE WATER COLLECTING TANKS AND ARE EQUIPPED WITH A SPECIAL FLANGE FOR EASY INSTALLATION.

MATERIALS

Aeration towers models 400, 600, 1000 and 1400 are entirely manufactured in polypropylene (PP), while model 1800 is in high grade carbon steel with a food-grade epoxy resins (250-300 µm) internal lining and external corrosion protection using polyurethane paint (80-100 µm).
Packing rings for all models are in polypropylene (PP).

OPERATION

Aeration towers are equipped with electric fans that force air from the bottom towards the fine water droplets falling from the top, thereby separating gas from water which is expelled through a vent.

A specially designed device at the base of the aeration tower prevents air from dispersing towards the water collecting tank.

OPTIONAL ACCESSORIES

The efficiency of aeration towers can be improved with the following optional accessories which are available for all models:

• DEMISTER: reduces the amount of water carried over by the air stream and are installed just prior to the gas outlet.

• SPRAY NOZZLES: designed for maximum water nebulisation are installed on the inlet distributor.

MODEL	CAPACITY*		ELECTRIC FAN 220/380V - 50 Hz - 3 ph		AIR FLOW RATE	SIZE			WEIGHT	
	(1)	(2)	power	max head		width	depth	height	in operation	shipping
	m^3/h	m^3/h	kW	mm H_2O	m^3/min	mm	mm	mm	kg	kg
F.D.A. 400	4	10	0.55	~ 140	13	560	1180	2620	220	110
F.D.A. 600	9	22	1.5	~ 140	29	780	1475	2620	350	148
F.D.A. 1000	24	60	3	~ 140	80	1120	1920	2620	1000	335
F.D.A. 1400	50	120	5.5	~ 140	160	1545	2400	2620	1600	540
F.D.A. 1800	80	200	11	~ 140	260	1960	2785	3300	3000	1400

***** Operating temperature: 5-40 °C • (1) Hydrogen Sulphide and Trihalomethanes (THM's) • (2) Methane and Carbon Dioxide.

NOTE – Weights are approximate. • Dimensions may vary by ± 2%.
– In addition to the standard models above, aeration towers for larger volumes of water and/or for removing specific gasses are designed upon request.

3 WATER SOFTENING

SOFTENING IS THE REMOVAL OF HARDNESS FROM WATER. REMOVAL IS OBTAINED THROUGH THE EXCHANGE OF CALCIUM AND MAGNESIUM IONS WITH SODIUM IONS WHICH DO NOT FORM DEPOSITS OR SCALE. RAW WATER IS PASSED THROUGH A LAYER OF RESIN PREVIOUSLY LOADED WITH SODIUM, USING SODIUM CHLORIDE. CULLIGAN'S CULLEX PROPRIETORY FOOD-GRADE EXCHANGE RESIN IS HIGHLY RESISTANT TO MECHANICAL WEAR, LONG-LASTING, AND SALT-EFFICIENT.
POTASSIUM CHLORIDE CAN ALSO BE USED FOR RESIN REGENERATION.

NOTE Specific resin can be used for Nitrate removal. Our specialist application engineers department will provide you with appropriate specifications for converting water softeners into Nitrate removal units.

MODELS

- GOLD & MEDALLIST, for use in apartment blocks, commercial or light industrial settings, maximum flow rate: 3.6 m^3/h.
- WATER SYSTEM, for commercial and light industrial applications, maximum flow rate: 9.9 m^3/h.
- HI-FLO 3e, for large commercial and industrial applications, maximum flow rate: 22.7 m^3/h.
- ULTRA LINE, HA and HB, for industrial applications, maximum flow rate: 227 m^3/h.

NOTE: details of each standard model are listed in the Technical Specifications tables.

MATERIALS

Exchange resins in the Gold "Quadra-Hull" range are housed in reinforced fiberglass tanks, with internal food-grade lining and external ABS jacket. Tanks used in Water System and Hi-Flo 3e are in fiberglass. The Ultra Line HA and HB range are made from high grade carbon steel, with internal lining of food-grade epoxy resins (250-300 µm), and external protection using polyurethane paint (80-100 µm).

AUTOMATION

All Culligan water softeners are fully automatic with the phases (operation, backwash and regeneration) supervised by electronic controllers. Face piping is in PVC and reinforced PP hydraulic valves up to 2$^{1}/_{2}$" size. Larger sizes feature carbon steel piping, flanges and cast iron hydraulic valves coated inside and outside in food grade epoxy paint.
Softeners may be operated either on time or metered water volume and regeneration is initiated in accordance with pre-set parameters.

Duplex softeners are available, consisting of two identical units which alternate operation to ensure a continuous flow of softened water.
Disinfecting systems for water softeners are available as an option.
All water softeners can be equipped with Brine System (salt container) of different sizes according to available space and operational requirements.

ACCESSORIES

• WATER METER for regeneration on water volume. The electronic controller triggers regeneration when the pre-set volume is reached. In the Ultra Line range, a PLF 2K controller is used with simplex units, while a PLM 2K controller is used with duplex softeners.

PRINCIPAL APPLICATIONS

- refrigeration systems
- textile industry
- food industry
- ceramic industry
- pharmaceutical industry
- professional kitchens
- hotels and restaurants
- bakeries
- professional laundries and cleaners
- low pressure boilers
- car washes
- animal farms

MEDALLIST

MODEL	FITTINGS in / out M Ø "	EXCHANGE CAPACITY minimum m³.°f	minimum salt kg	maximum m³.°f	maximum salt kg	CULLEX litres	SERVICE FLOW RATE m³/h	TOTAL DIMENSIONS width x depth mm	TOTAL DIMENSIONS height mm	SALT TANK CAPACITY kg
915	3/4	65	1.5	105	4	15	1.8	600x330	1145	50
925	3/4	100	4	175	7	25	1.8	770x465	1300	140
1042	3/4	170	4	260	8	42	1.8	770x465	1600	140

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

GOLD

MODEL	FITTINGS in / out Ø "	EXCHANGE CAPACITY max ★ m³ ·°f	CULLEX litres	SERVICE FLOW RATE m³/h	TOTAL DIMENSIONS resin tank Ø mm	TOTAL DIMENSIONS resin tank height mm	TOTAL DIMENSIONS salt tank Ø mm	WEIGHT in operation kg	WEIGHT shipping kg
GOLD 45	1 1/4	291	42	3.6	340	1350	610	430	105
GOLD 60	1 1/4	389	56	3.6	340	1350	610	450	160
GOLD 90	1 1/4	580	85	3.6	390	1655	610	600	200

★ The exchange capacity is calculated assuming water hardness equal to 40 °f (400 ppm $CaCO_3$) and salinity equal to 500 ppm, free from colour, oil, and turbidity, at continuous operation flow rate. Capacity may vary in accordance to other parameters, such as the percentage of Chlorides, water pressure, and the purity and type of regenerant.

NOTE Weights are approximate. • Dimensions may vary by ± 2%. • Available for Duplex installations.

WATER SYSTEM

MODEL	FITTINGS in / out Ø "	EXCHANGE CAPACITY max ★ m³ ·°f	CULLEX litres	SERVICE FLOW RATE m³/h	TOTAL DIMENSIONS resin tank Ø mm	TOTAL DIMENSIONS resin tank height mm	TOTAL DIMENSIONS salt tank Ø mm	WEIGHT in operation kg	WEIGHT shipping kg
WS 60	1 1/2	389	56	8.4	356	1194	610	480	115
WS 90	1 1/2	580	85	8.4	406	1346	610	520	170
WS 120	1 1/2	778	113	8.4	406	1651	610	720	210
WS 150	1 1/2	972	142	9.9	533	1372	715	790	250
WS 210	1 1/2	1360	198	9.9	533	1753	715	820	250

★ The exchange capacity is calculated assuming water hardness equal to 40 °f (400 ppm $CaCO_3$) and salinity equal to 500 ppm, free from colour, oil, and turbidity, at continuous operation flow rate. Capacity may vary in accordance to other parameters, such as the percentage of Chlorides, water pressure, and the purity and type of regenerant.

NOTE Weights are approximate. • Dimensions may vary by ± 2%. • Available for Duplex installations.

HI-FLO 3e

MODEL	CONNECTIONS in / out Ø "	EXCHANGE CAPACITY max ★ m³ ·°f	CULLEX litres	SERVICE FLOW RATE m³/h	TOTAL DIMENSIONS resin tank Ø mm	TOTAL DIMENSIONS resin tank height mm	TOTAL DIMENSIONS salt tank Ø mm	WEIGHT in operation kg	WEIGHT shipping kg
HB 175	2	1164	170	17.7	533	1372	610	452	252
HB 200	2	1361	198	18.3	533	1753	610	508	308
HB 300	2	1944	283	19.3	610	1829	762	704	424
HB 480	2	2916	424	22.7	762	1829	1066	1084	644
HB 600	2	4074	595	22.7	914	1829	1066	1494	894

★ The exchange capacity is calculated assuming water hardness equal to 40 °f (400 ppm $CaCO_3$) and salinity equal to 500 ppm, free from colour, oil, and turbidity, at continuous operation flow rate. Capacity may vary in accordance to other parameters, such as the percentage of Chlorides, water pressure, and the purity and type of regenerant.

NOTE Weights are approximate. • Dimensions may vary by ± 2%. • Available for Duplex installations.

ULTRA LINE HA

MODEL	FITTINGS in / out Ø "	EXCHANGE CAPACITY max ★ m³·°f	CULLEX litres	SERVICE FLOW RATE m³/h	TOTAL DIMENSIONS resin tank Ø mm	resin tank height mm	salt tank Ø mm	WEIGHT in operation kg	WEIGHT shipping kg
HA 200	1½	1188	198.2	18	500	1915	715	495	395
HA 230	1½	1359	226.5	18	500	1915	715	530	425
HA 290	2	1698	283	26	600	1930	850	715	570
HA 320	2	1869	311	26	600	1930	850	750	600
HA 430	2	2550	424.5	30	750	1980	1025	1080	860
HA 510	2	3060	510	30	750	1980	1025	1160	930
HA 770	2	4587	764	34	950	2056	1070	1830	1470
HA 850	2	5097	849	34	950	2056	1070	1940	1550
HA 1200	2	7136	1217	34	1200	2172	1580	2800	2240
HA 1400	2	8325	1415	34	1200	2172	1580	3000	2420

★ The exchange capacity is calculated assuming water hardness equal to 40 °f (400 ppm $CaCO_3$) and salinity equal to 500 ppm, free from colour, oil, and turbidity, at continuous operation flow rate. Capacity may vary in accordance to other parameters, such as the percentage of Chlorides, water pressure, and the purity and type of regenerant.

NOTE Weights are approximate. • Dimensions may vary by ± 2%. • Available for Duplex installations.

ULTRA LINE HB

MODEL	FITTINGS in / out Ø "	EXCHANGE CAPACITY max ★ m³·°f	CULLEX litres	SERVICE FLOW RATE m³/h	TOTAL DIMENSIONS resin tank Ø mm	resin tank height mm	salt tank Ø mm	WEIGHT in operation kg	WEIGHT shipping kg
HB 770	2½	4587	764	50	950	2056	1070	1840	1480
HB 850	2½	5097	849	50	950	2056	1070	1950	1560
HB 1200	2½	7136	1217	50	1200	2172	1580	2810	2250
HB 1400	2½	8325	1415	50	1200	2172	1580	3010	2430
HB 1550	2½	8825	1500	60	1400	2392	1580	4200	2580
HB 1700	4	10430	1568	114	1500	2620	1580	6105	3355
HB 2100	4	11390	1904	114	1500	2620	1580	6354	3644
HB 2500	4	16050	2296	114	1800	2660	BRINE MAKER♦	8480	4500
HB 3000	4	18480	2632	114	1800	2660	BRINE MAKER♦	8760	4790
HB 4500	6	28500	4032	227	2100	3030	BRINE MAKER♦	13080	7300
HB 6600	6	42900	6020	227	2500	3100	BRINE MAKER♦	19585	10485

★ The exchange capacity is calculated assuming water hardness equal to 40 °f (400 ppm $CaCO_3$) and salinity equal to 500 ppm, free from colour, oil, and turbidity, at continuous operation flow rate. Capacity may vary in accordance to other parameters, such as the percentage of Chlorides, water pressure, and the purity and type of regenerant.

♦ See separate data sheet for concrete Brine Maker dimensions.

NOTE Weights are approximate. • Dimensions may vary by ± 2%. • Available for Duplex installations.

OPERATING DATA

	MEDALLIST	GOLD / WATER SYSTEM	ULTRA LINE HA e HB
Minimum operating pressure	1.5 bar	2 bar	2 bar
Maximum operating pressure	8.6 bar	8.5 bar	7 bar from mod. 200 to mod. 2100 5 bar for other models
Operating temperature	1-50 °C	1-40 °C	1-40 °C
Power supply	230/24 V – 50/60 Hz	230/24 V – 50/60 Hz	110/230/24 V – 50/60 Hz
Power consumption	3-35 W	20 W	20 W
Pressure loss	~ 1 bar at medium flow rate	~ 0.5 bar at medium flow rate ~ 1.5 bar at maximum flow rate	~ 0.5 bar at medium flow rate ~ 1.5 bar at maximum flow rate

4 REVERSE OSMOSIS

REVERSE OSMOSIS IS THE PROCESS OF FORCING WATER FROM A COMPARTMENT OF HIGH SALT CONCENTRATION THROUGH SEMIPERMEABLE MEMBRANES TO A COMPARTMENT OF LOWER SALT CONCENTRATION.
OSMOTIC MEMBRANES ARE THE FINEST FILTERS ACTING AS A BARRIER FOR SALTS AND ORGANICS WITH MOLECULAR WEIGHT ABOVE 100 DALTON AND ARE AN OUTSTANDING PROTECTION AGAINST MICRO-POLLUTANTS, PESTICIDES, PYROGENS, VIRUSES AND BACTERIA.
THE REVERSE OSMOSIS PROCESS IS VERY SIMPLE AND RELIABLE AND IN RECENT YEARS THE MEMBRANES HAVE BEEN DEVELOPED TO GIVE A LOWER ENERGY CONSUMPTION.

MODELS

The range of standard available R.O. units are listed below:

• AQUA-CLEER "AQUA" SERIES
for brackish water, capacity from 50 to 100 l/h

• AQUA-CLEER "E" SERIES
for brackish water, capacity from 180 to 350 l/h

• AQUA-CLEER "NFC" SERIES
for brackish water, designed for use with industrial dishwashers, capacity 180 l/h

• AQUA-CLEER "MFP" SERIES *
for brackish water, capacity from 450 to 3500 l/h

• AQUA-CLEER "R.O.^{2}" SERIES *
for the production of pure water, capacity from 500 to 2000 l/h

• AQUA-CLEER "SW" SERIES
for sea water, capacity from 300 to 6000 l/h

• AQUA-CLEER "IW E" & "IW L" SERIES
for brackish water, capacity from 5000 to 30000 l/h

Compact Systems

• AQUA-CLEER "S.D.S."*
for home-based dialysis; capacity from 80 to 100 l/h

• PHARMA
for the production of pure water for laboratories, capacity from 35 to 160 l/h

* Models in the MFP, R.O.^{2} and S.D.S. range are also available with Medical Device certification.

NOTE: R.O.^{2} models are composed by two reverse osmosis units, which are normally operated simultaneously in series (double pass R.O. or product staging), in emergency the units can be operated one at the time (single pass R.O.). These units are suitable for use in hemodialysis and other critical applications.

MATERIALS

Semipermeable membranes are the very heart of any R.O. unit. Culligan's Aqua-Cleer systems use spiral wound membranes, selected in accordance with the characteristics of the water to be treated and the required capacity.
For Sea Water R.O. units, membranes suitable for high salinity are used.

Materials used in fabrication, particularly for parts in contact with water, are food-grade and selected for high resistance to corrosion (AISI 316 stainless steel, PVC and polyethylene).

AUTOMATION AND ACCESSORIES

Aqua-Cleer R.O. units are equipped with automatic control systems for operations and quality control.

A number of accessories specifically designed for dialysis are available, meeting current regulatory standards, including:

- backflow preventer for artificial kidneys which prevents any backflow from the discharge line back into the dialysis machine;
- flexible PVDF inlet tubing designed for hot water sanitisation.

Hot water production systems are also available for thermal sanitisation of water distribution loops, as well as cabinets for sound proofing the R.O. units.

Hot Water Disinfection System

Sound proof enclosure for BIOMOSIS Medical Device

Connection accessories for dialysis machines

Electric Control Panel

PRINCIPAL APPLICATIONS

For use in applications where high level of chemical and bacteriological water purity is required and in contrast to traditional deionisation systems there is no handling or discharge of hazardous chemicals.

- desalination for potable water production from brackish or sea water
- pure water for medium to high pressure boilers
- humidifiers
- microchip rinsing for the micro-electronic industry,
- pharmaceutical and cosmetic industry
- textile industry
- food production
- restaurants, for best dishwasher performance
- offset printing, to maximise quality and improve production yield
- chemical laboratories, for rinsing instruments and glassware
- horticulture
- dialysis applications using "Medical Device" models certified to MedDev 0373
- ...and in many other applications where pure water is required

AQUA SERIES

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø mm	FITTINGS out product Ø mm	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
R.O. UNITS FOR BRACKISH WATERS								
AQUA 50	0.245	8	6	50	590	320	780	26
AQUA 100	0.245	8	6	100	590	320	780	28

★ Average values based on the following standard conditions: water temperature 20 °C; TDS 500 ppm as NaCl; product water pressure 0 bar.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

E SERIES

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø mm	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
R.O. UNITS FOR BRACKISH WATERS								
E 180	0.60	¾	10	180	715	250	780	57
E 350	0.60	¾	10	350	715	250	780	60

★ Average values based on the following standard conditions: water temperature 20 °C; TDS 500 ppm as NaCl; product water pressure 0 bar.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

NFC SERIES

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
R.O. UNIT FOR BRACKISH WATERS								
NFC	0.42	½	½	180	570	460	605	48

★ Average values based on the following standard conditions: water temperature 20 °C; TDS 500 ppm as NaCl; product water pressure 0 bar.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

MFP

MODEL	INSTALLED POWER kW	FITTINGS in aliment. Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE TREATED WATER★ l/h	FLOW RATE DRAIN max★★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT Shipping kg
R.O. UNITS FOR BRACKISH WATERS									
MFP 4-44 400	1.5	1	½	450	1685	500	660	1550	115
MFP 4-44 800	1.5	1	½	900	1370	500	660	1550	140
MFP 4-44 1200	2.2	1	½	1350	2655	500	660	1550	170
MFP 4-44 1600	2.2	1	½	1800	2340	500	660	1550	190
MFP 4-44 2200	4	1	¾	2350	3925	500	660	1800	220
MFP 4-44 2800	4	1	¾	2850	3610	500	660	1800	250
MFP 4-44 3300	4	1	¾	3350	3295	500	660	1800	280

★ Average values based on the following standard conditions: water temperature 20 °C; operating pressure 200 or 260 psi (14 or 18 bar depending upon the model); recovery ratio 75%; TDS 500 ppm as NaCl; product water pressure 0 bar.

★★ Maximum values based on the following standard conditions: water temperature 10 °C; operating pressure 200 or 260 psi (14 or 18 bar depending upon the model); reject recycle fully closed.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

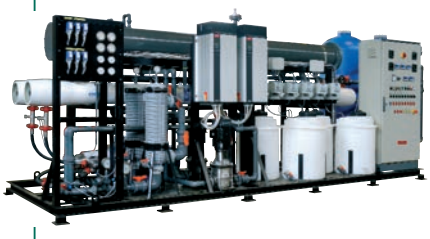
R.O.²

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
R.O. UNITS FOR PURE WATER PRODUCTION								
R.O.² 400	1.5 + 1.5	1	½	500	1000	750	1700	220
R.O.² 800	2.2 + 2.2	1	½	1000	1000	750	1700	260
R.O.² 1200	3 + 3	1	½	1500	1000	750	1700	310
R.O.² 1600	4 + 4	1	½	2000	1000	750	1700	350

★ Average values based on the following standard conditions: water temperature 20 °C; operating pressure 1st stage at 18 bar, 2nd stage at 13 bar; recovery ratio 75%; TDS 500 ppm as NaCl; product water pressure 0 bar.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

SW



MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
SEA WATER R.O. UNITS								
SW 300	5.5	1	½	300	CHANGES ACCORDING TO CONFIGURATION			
SW 600	5.5	1	½	600				
SW 900	15	1½	¾	900				
SW 1500	18.5	1½	1	1500				
SW 2000	18.5	1½	1	2000				
SW 3000	37	2	1½	3000				
SW 4000	45	2½	1½	4000				
SW 6000	55	2½	1½	6000				

★ Average values based on the following standard conditions: water temperature 20 °C; TDS 35000 ppm as NaCl; product water pressure 0 bar.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

IW E • IW L

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
R.O. UNITS FOR BRACKISH WATERS								
IW E 5	7.5	2	1½	5000	3900	1300	1700	650
IW E 8	7.5	2	2	8000	3900	1300	1700	710
IW E 12	11	2	2	12000	3900	1300	1700	950
IW E 16	11	2	2	16000	5600	1300	2100	1280
IW E 20	15	3	2	20000	5600	1300	2100	1370
IW E 23	15	3	2	23000	7300	1300	2100	1600
IW E 26	18.5	3	2½	26000	7300	1300	2100	1850
IW E 30	22	3	2½	30000	7300	1300	2100	2100
IW L 5	7.5	2	1½	5000	3900	1300	1700	650
IW L 8	7.5	2	2	8000	3900	1300	1700	710
IW L 12	11	2	2	12000	3900	1300	1700	950
IW L 16	11	2	2	16000	5600	1300	2100	1280
IW L 20	15	3	2	20000	5600	1300	2100	1370
IW L 23	15	3	2	23000	7300	1300	2100	1600
IW L 26	18.5	3	2½	26000	7300	1300	2100	1850
IW L 30	22	3	2½	30000	7300	1300	2100	2100

★ Average values based on the following standard conditions: water temperature 20 °C; operating pressure 13-14 bar; recovery ratio 75%; TDS 1500 ppm as NaCl; product water pressure 0 bar.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

S.D.S.

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
R.O. UNIT FOR HOME-BASED DIALYSIS								
S.D.S.	0.39	8	6	80-100	375	365	900	50

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

PHARMA

MODEL	INSTALLED POWER kW	FITTINGS in feeding Ø "	FITTINGS out product Ø "	NOMINAL FLOW RATE ★ l/h	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT shipping kg
PURE WATER FOR LABORATORIES								
Pharma 20	0.25	10	6	35	380	440	920	80
Pharma 45	0.42	12	8	80	500	500	1450	123
Pharma 80	0.42	12	8	120	500	500	1450	130
Pharma 120	0.42	12	8	160	500	500	1450	140

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

DUAL BOX

In hospitals it is often necessary to install equipment quickly and within limited space. Dual Box is the answer. A packaged system housed in two steel free standing industrial enclosures, containing pre-treatment and Bi-Osmosis units, fully pre-assembled with all connections and electronic controls.

These systems are “plug and play”, you only need to connect water inlet, outlet and drain and power supply.
Bi-Osmosis units are equipped with a PLC control panel for managing all operational functions.
Enclosures are lockable for complete security.

OPERATING DATA

	AQUA 50-100 SERIES E 180-E 350 SERIES / NFC	MFP / R.O.² / SW IW E / IW L	S.D.S. / PHARMA
Minimum Inlet Water Pressure	1 bar	2 bar	S.D.S.: 1 bar Pharma: 1.5 bar
Operating Pressure	Aqua Series: 14 bar E Series - NFC: 12 bar	MFP and R.O.²: 14 bar up to 1600 model 18 bar for other models SW: > 35 bar - IW E / IW L: 14 bar	S.D.S.: 14 bar Pharma 20: 10 bar Pharma 45-80-120: 14 bar
Power Supply	24/230/110 V – 50/60 Hz	380 V – 50 Hz	230 V / 50 Hz
TDS (maximum salinity as NaCl)	500 ppm	3000 ppm up to 1600 model 1500 ppm for other models	1500 ppm
Recovery Ratio	Aqua 50: 20% – Aqua 100: 33% E 180: 30-65% E 350: 45-65% NFC: 20-60%	75% max	S.D.S.: 50% Pharma 20: 20-25% Pharma 45-80-120: 20-30%

5 DEIONISATION

DEIONISATION (OR DEMINERALISATION) IS A PROCESS TO REMOVE SALTS FROM WATER THROUGH ION EXCHANGE RESIN.
WATER IS PASSED THROUGH CATION AND ANION RESIN, EITHER SEPARATELY OR MIXED TOGETHER. POSITIVELY CHARGED IONS (CATIONS) AND NEGATIVELY CHARGED IONS (ANIONS) ARE RETAINED BY CATION AND ANION RESIN RESPECTIVELY.
ONCE THE RESIN BECOMES SATURATED WITH RETAINED SALTS, REGENERATION WITH HYDROCHLORIC ACID AND SODIUM HYDROXIDE IS NECESSARY TO RESTORE THE EXCHANGE CAPACITY.

MODELS

- DEIONISER "D" AND "MD", mixed bed portable exchange, not suitable for on-site regeneration.
- REFILL LINE, high-capacity single-use mixed bed resin cartridge ideal for low volume applications.
- DEIONISER DS, separate exchange columns (cation and anion), with automatic on-site resin regeneration
- DEYOLIT NRC, separate exchange columns and counter-current regeneration, for high quality water and low regenerant consumption.
- DEYOLIT AMB, mixed bed unit, for complete removal of salts from water (ideal for polishing water already treated by separate two bed deionisers or R.O. units).

NOTE: in addition to standard models, custom built units are available to meet specific needs.

MATERIALS

Resin vessels in the Deionisers D, DS and MB are manufactured in fiberglass. MB fiberglass vessels are protected by external ABS jacket.
Refill Line vessels are available in stainless steel or PVC.

Deyolit resin vessels are manufactured in high grade carbon steel, internally coated in ebonite (hard rubber) and externally painted with corrosion proof paint. Valves in Noryl and piping in PVC are ideally suited to withstand extreme pH conditions.

AUTOMATION

Culligan on-site regenerable deionisers are fully automatic, with programmable service and regeneration cycles.
D and MB Deionisers can be connected to the water supply via flexible hoses which are supplied. A monitoring device will indicate when the resin is exhausted. Regeneration is carried out in Culligan premises.

DS Deionisers are equipped with two automatic valves (one per column) and one common control panel.
Deyolit series Deionisers are equipped with a control panel (including conductivity meter) designed to monitor the process and automatically initiate regeneration when water quality deteriorates to a pre-determined limit.

PRINCIPAL APPLICATIONS

- pharmaceutical industry
- chemical industry
- cosmetic industry
- electronic industry
- glass industry
- printing industry
- high pressure boilers
- preparation and dilution of liquors
- ice making
- analytical laboratories

DEIONISER D

MODEL	EXCHANGE CAPACITY PER CYCLE kg ($CaCO_3$)	SERVICE FLOW RATE l/min.	FITTINGS in/out Ø "	DIMENSIONS Ø mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
D 25 P	0.16	3	¼	190	600	20	16.2

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

DEIONISER MB

MODEL	EXCHANGE CAPACITY PER CYCLE kg ($CaCO_3$)	SERVICE FLOW RATE l/min.	FITTINGS in/out Ø "	DIMENSIONS Ø mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
MB 9	0.7	15	½	255	1450	80	58.5
MB 16	2.2	50	½	406	1620	200	150

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

DEIONISER DS

MODEL	EXCHANGE CAPACITY PER CYCLE kg ($CaCO_3$)	SERVICE FLOW RATE m^3/h	FITTINGS in/out Ø "	DIMENSIONS width mm	DIMENSIONS depth mm	DIMENSIONS height mm	WEIGHT in operation kg	WEIGHT shipping kg
DS 50	2	1.6	1	2400	680	1600	300	154
DS 100	4	2.5	1	2450	785	1850	520	300
DS 200	6.5	3.4	1	2450	785	1850	750	450

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

REFILL LINE

QUANTITY OF RESINS litres	ECHANGE CAPACITY g ($CaCO_3$)	FLOW RATE l/h	TREATED WATER QUALITY	OPERATING LIMITS drinking water
MIXED BED				
10	220	250★	≥ 2 MΩ 80% of cycle - 0.5 MΩ end of cycle	TDS ≤ 500 ppm
20	450	500★	≥ 2 MΩ 80% of cycle - 0.5 MΩ end of cycle	TDS ≤ 500 ppm
SOFTENER				
10	600	500	TH < 5 °f	TH ≤ 35 °f
20	1500	1000	TH < 5 °f	TH ≤ 35 °f

★ When the unit is fed with R.O. water, the flow rate can be doubled.
Treated water quality improves as well.

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

DEYOLIT NRC

MODEL	EXCHANGE CAPACITY PER CYCLE kg ($CaCO_3$)	SERVICE FLOW RATE m^3/h	FITTINGS in/out Ø "	DIMENSIONS width mm	depth mm	height mm	WEIGHT in operation kg	shipping kg
NRC 12/12	12	6.5	2	2000	1000	2950	1625	1300
NRC 20/20	20	11	2	2100	1100	3000	3063	2450
NRC 30/30	30	16	2	2280	1270	3050	4500	3600
NRC 50/50	50	23	2	2480	1470	3100	7000	5600
NRC 80/80	80	40	2½	2980	1720	3250	10500	8400

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

DEYOLIT AMB

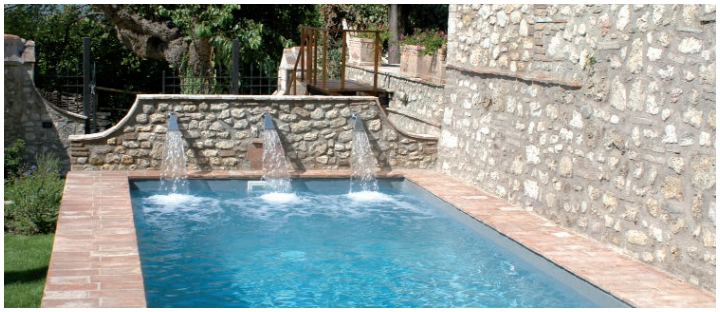
MODEL	EXCHANGE CAPACITY PER CYCLE kg ($CaCO_3$)	RAW WATER FLOW RATE m^3/h	D.I. WATER FLOW RATE m^3/h	FITTINGS in/out Ø "	DIMENSIONS width mm	depth mm	height mm	WEIGHT in operation kg	shipping kg
AMB 3000	3	3.4	7.9	1½	830	750	2710	600	350
AMB 5000	5	4.5	10.9	2	1000	850	2800	700	400
AMB 7500	7.5	6.8	15.9	2	1000	1000	3200	880	500

NOTE Weights are approximate. • Dimensions may vary by ± 2%.

OPERATING DATA

	D 25 P – MB 9-16	DS	NRC	AMB
Minimum operating pressure	2 bar	2.8 bar	3 bar	2 bar
Maximum operating pressure	7 bar	5.5 bar	5 bar	5 bar
Operating temperature	4-35 °C	5-40 °C	5-40 °C	3-35 °C
Power supply	230 V – 50 Hz	230/24 V – 50/60 Hz	230 V – 50 Hz	230 V – 50 Hz
Installed power	-	3-35 W	50 W	250 W

6 DISINFECTION



THE DISINFECTION SYSTEM NEEDS CAREFUL SELECTION TO ENSURE THE MOST EFFECTIVE PROCESS IS INTEGRATED INSIDE THE WATER TREATMENT SYSTEM. IT IS THEREFORE NECESSARY TO EXAMINE THE ENTIRE WATER TREATMENT PROCESS AND DELIVERED WATER REQUIREMENTS.

CHLORINE

CHLORINE is the most cost effective and widely used disinfectant, is readily available around the world (it can be generated on-site, if required), and maintains permanent water disinfection.

CHLORINE DIOXIDE

CHLORINE DIOXIDE (ClO_2) is also widely used as disinfectant for potable water. It is generated on-site in dedicated reactors, by mixing Hydrochloric Acid (HCl) and Sodium Chlorite ($NaClO_2$) in appropriate proportions. Chlorine Dioxide is effective over a wide range of pH (4-10) compared to other Chlorine based compounds, which are not effective for pH values above 7.5.

Dosing can be controlled either manually or automatically (using flow rate or residual Chlorine).

In addition to CHLORINE DIOXIDE GENERATOR UNITS (PBC), the following accessories are available: ClO_2 monitor (measures ClO_2 concentration in water to determine correct dosing), Sensor for gas leakage alarm and Safety eye wash fountain.

PBC

MODEL	MAXIMUM PRODUCTION g/h	MAXIMUM PRESSURE bar	MAXIMUM REAGENT CONSUMPTION l/h	AVERAGE ABSORBED POWER W
PBC 8 D	8	6	0.2	80
PBC 30 D	35	12	0.91	70
PBC 60 D	54	12	1.35	70
PBC 140 D	143	8	3.6	70
PBC 220 D	220	10	5.5	90
PBC 400 D	400	10	10.0	100
PBC 600 D	640	7	16.0	100

OPERATING DATA	
Operating temperature	4–40 °C
Power supply	210/230 V – 50 Hz – single phase
Installation site	aerated room

UV DISINFECTION

UV (Ultraviolet) Rays are generated by special lamps emitting the appropriate wavelength of light for killing/inactivating microorganisms. UV rays at 254 nm (nanometer) destroy 99.9% of pathogens and unlike Chlorine no residual is left in the water. UV technology is often selected when an efficient system for eliminating pathogens without using any chemical is preferred. Sometimes UV is used in conjunction with other oxidants/disinfectants (Ozone, Oxygen, etc.) to increase their effectiveness.

Some of the main advantages of using UV disinfection are:

- excellent efficiency (for water with very low turbidity);
- no alteration in the composition of water;
- no byproducts and change in odour or taste.

ULTRAVIOLET

MODEL	MAXIMUM FLOW RATE	FITTINGS	POWER CONSUMPTION	LAMP POWER	WEIGHT in operation	WEIGHT shipping
	m^3/h	Ø	V	W	kg	kg
U.V. 20S	4.0	1.5" F	100	2 x 40	19	15
U.V. 40S	11.5 *	2" F	210	4 x 40	51	45
U.V. 60S	17.0 *	2" F	300	6 x 40	60	52
U.V. 40L	23.0 **	DN 80	350	4 x 75	82	75
U.V. 60L	34.0 **	DN 80	500	6 x 75	150	102
U.V. 80L	45.5 **	DN 80	650	8 x 75	158	110
U.V. 100L	57.0 **	DN 80	800	10 x 75	215	132
U.V. 120L	68.5 **	DN 80	900	12 x 75	228	145
U.V. 16L	91.5 **	DN 80	1200	16 x 65	240	150
U.V. 20L	114.5 **	DN 80	1450	20 x 65	336	210
U.V. 24L	137.0 **	DN 80	1800	24 x 65	400	250
U.V. 32L	171.0 **	DN 80	2300	32 x 65	600	350
U.V. 40L/0	229.0 **	DN 150	2900	40 x 65	750	440
U.V. 48L	274.5 **	DN 80	3480	48 x 65	950	500

* For inlet water with Transmitance T10>96% the dosage is 400 J/m^2
** For inlet water with Transmitance T10>94% the dosage is 400 J/m^2

OPERATING DATA

Maximum operating pressure	8 bar
Operating temperature	room 4-45 °C; water 2-80 °C
Pressure loss at maximum flow rate	0.14 bar for 20S model - 0.2 bar for other models
Power supply	230V - 50/60 Hz

DOSING PUMPS

Dosing pumps are widely used in water treatment. Correct dosing of chemical products is base for good operation of any water treatment where water quality is critical.

Culligan produces solenoid driven metering pumps with analogue or digital interfaces. All parts in contact with water are made in corrosion resistant material, like PVDF, Viton, PTFE and ceramics.

The following models are available:

- BASIC2 Continuous operation or controlled via ON-OFF switch.
- PROP2 Continuous operation, controlled via ON-OFF switch or pulse emitter.
- LOGIC2 Continuous operation, controlled via ON-OFF switch, or proportional to regulating 4-20mA signal.

Accessories

For each model the following accessories are available:

- chemical tanks of various sizes, depending on application
- tank minimum level switch
- wall-mounting bracket
- water meter with pulse emitter
- anti-syphon kit

BASIC2

MODEL	NOMINAL FLOW RATE l/h	PRESSURE max bar	VOLUME/ STROKE cm³	STROKES PER MINUTE max	OPERATION	POWER CONSUMPTION W	WEIGHT kg
BASIC2 40	4	10	0.55	120	continuous or ON/OFF switch	17	3.6
BASIC2 80	8	8	0.83	160		18	4.1
BASIC2 130	13	8	0.72	300		32	4.1
BASIC2 400	40	2	2.22	300		30	4.1

NOTE Power supply 110/240 V - 50/60 Hz • Protection degree IP 65.

PROP2

MODEL	NOMINAL FLOW RATE l/h	PRESSURE max bar	VOLUME/ STROKE cm³	STROKES PER MINUTE max	OPERATION	POWER CONSUMPTION W	WEIGHT kg
PROP2 40	4	10	0.55	120	continuous, ON/OFF switch or pulse emitter	17	3.6
PROP2 80	8	8	0.83	160		18	4.1
PROP2 130	13	8	0.72	300		32	4.1
PROP2 400	40	2	2.22	300		30	4.1

NOTE Power supply 110/240 V - 50/60 Hz • Protection degree IP 65.

LOGIC2

MODEL	NOMINAL FLOW RATE l/h	PRESSURE max bar	VOLUME/ STROKE cm³	STROKES PER MINUTE max	OPERATION	POWER CONSUMPTION W	WEIGHT kg
LOGIC2 40	4	10	0.55	120	continuous, ON/OFF switch, free program-mable pulse or 4-20 mA	17	3.6
LOGIC2 80	8	8	0.83	160		18	4.1
LOGIC2 130	13	8	0.72	300		32	4.1
LOGIC2 400	40	2	2.22	300		30	4.1

NOTE Power supply 110/240 V - 50/60 Hz • Protection degree IP 65.

CHEMICAL PRODUCTS

Water contains dissolved salts which may cause severe problems to users and water distribution systems. The appropriate water treatment equipment (filters, softeners, deionisers) in conjunction with chemical treatment is the right solution. Culligan offers a complete range of chemical products for use in water treatment to be used in combination with the suitable water treatment equipment for the best results.

Applications

WATER CONDITIONING FOR STEAM GENERATORS AND SUPERHEATED WATER

• CHEM B 32
Package: canister kg 25 - drum kg 200
Multi-purpose liquid conditioner for protection against scaling, corrosion and deposits in steam and superheated water systems where feed water is softened, decarbonated, deionised or osmotised.

• CHEM B 34
Package: canister kg 25 - drum kg 200
Multi-purpose liquid conditioner for protection against scaling, corrosion and deposits in steam and superheated water systems where feed water is softened, decarbonated, deionised or osmotised.
All components are FDA approved in the United States (Part 21, Sections 173.310 and 176.170).

• CHEM B 36
Package: canister kg 25
Anti-corrosion solution for saving water recovery lines from steam.
All components are FDA approved in the United States (Part 21, Sections 173.310).

WATER CONDITIONING FOR HOT AND COLD WATER CIRCUITS

• KORROMIND
Package: canister kg 10 - kg 25

• KORROMIND CONCENTRATE
Package: canister kg 10 - kg 25
Food-grade anti-corrosion liquid agent for recovering hot and cold distribution circuits made from galvanised steel, brass and copper that have been attacked by corrosion.

• CHEM P 13
Package: canister kg 10 (powder)

• CHEM P 14
Package: canister kg 25
Food-grade soluble antiscalant powder for stabilising water hardness, preventing the scaling of hot and cold water circuits.

WATER CONDITIONING FOR CLOSED CIRCUITS

• CHEM C22
Package: canister kg 5 - kg 25
Water conditioner for rapid and efficient cleaning of heating and cooling systems affected by deposits, corrosion, or gas generation with no need to interrupt operation. Specific inhibitors against corrosion of steel, copper, aluminum and related alloys are added.

• CHEM C 24
Package: canister kg 5 - kg 25
Multi-purpose liquid conditioner for protection against corrosion and scaling in any type of closed water circuit in heating and cooling systems, where feed water is hard, softened, deionised or osmotised. Specific inhibitors against corrosion of steel, copper, aluminum and related alloys are added.

• CHEM RC 53
Package: canister kg 5 - kg 25
A wide-spectrum concentrated biocide for eliminating bacteria (particularly anaerobic), algae and fungi in closed circuits of cold or hot, deionised or sea water, as well as in cooling towers.

COOLING TOWERS AND EVAPORATIVE CONDENSERS CONDITIONING

• CHEM R 43
Package: canister kg 25 - drum kg 200
Multi-purpose liquid conditioner for protection against corrosion, deposits and scaling in cooling towers and evaporative condensers, where feed water is softened or osmotised. Specific inhibitors against corrosion of copper, aluminum and related alloys are added.

• CHEM R 44
Package: canister kg 25
Multi-purpose biostatic liquid conditioner for protection against corrosion, deposits and scaling as well as biological growths in cooling towers and evaporative condensers where feed water is softened or osmotised. Specific inhibitors against corrosion of steel, copper, aluminum and related alloys are added.

• CHEM R 45
Package: canister kg 25 - drum kg 200
Multi-purpose liquid conditioner for protection against corrosion, deposits, and scaling as well as biological growths in cooling towers and evaporative condensers where feed water is softened or osmotised. Specific inhibitors against corrosion of steel, copper, aluminum and related alloys are added.

• CHEM RT 50
Package: canister kg 5 - kg 25
Wide spectrum polymer-based biocide, prevents microbial and algae growth that may clog refrigerating circuits.

• CHEM RT 55
Package: canister kg 5 - kg 25
Multi-purpose biocide for refrigeration units preventing sludge deposition in the circuits.Two wide spectrum active ingredients are extremely effective against the most dangerous bacteria, including Legionella Pneumophila.

• CHEM RT 58
Package: canister kg 25
Liquid conditioner for removing and preventing organic deposits in closed refrigeration circuits. It is especially effective against Legionella Pneumophila.

DESCALING AND ACID RINSE

• CHEM D 60
Package: canister kg 25
Rapid-action acid-based non-foaming concentrated descaling liquid, for heat exchangers, condensers, boilers and pipelines in cast iron, steel (non galvanized), copper and copper alloys, effective on scale or metal oxide deposits.

• CHEM D 61
Package: canister kg 10
Rapid-action soluble descaler powder, acid-based with adequate inhibitors, for heat exchangers, condensers, boilers, tubes, in cast

iron, copper, steel, stainless steel, aluminum, copper or copper alloys. Effective on scale or metal oxyde deposits, and can also be used with due caution on galvanised components.

ANTI-FOAM

• CHEM AF 31
Package: canister kg 10
A blend of akylenic alkalis and superior alkalis, free of mineral oil for eliminating foam formation in waste water treatment plants.

CONDITIONING FOR REVERSE OSMOSIS MEMBRANES

• CHEM 2000
Package: canister kg 25 - drum kg 270
Liquid stabiliser for reverse osmosis. It is used to avoid scaling or fouling of osmotic membranes and ensure proper long lasting operations.
Prevents Iron (up to 1 ppm) and Silica (up to 80 ppm) precipitation.

• CHEM 3000
Package: canister kg 20
Liquid stabiliser for reverse osmosis especially formulated for high Silica concentration. It is used to avoid scaling or fouling of osmotic membranes and ensure proper long lasting operations. Prevents Iron (up to 1 ppm) and Silica (up to 180 ppm) precipitation.

• CHEM BIO-RO 58
Package: canister kg 25
Organic Bromine based liquid biocide for reverse osmosis and nano-filtration systems where biological growth occurs. It inhibits bacteria growth and organic lime buildup, which could otherwise lead to membrane fouling.

• CHEM CRO 400
Package: canister kg 25
Liquid cleaning agent for reverse osmosis systems where membranes are fouled by inorganic compounds of Calcium, Magnesium, Barium, Beryllium, Strontium, Iron and Manganese. A blend of inorganic acids contains a unique dispersant polymer that maintains in suspension the removed material, facilitating rinsing out.

• CHEM CRO 450
Package: canister kg 25
Liquid cleaning agent for reverse osmosis and ultra-filtration systems where membranes are fouled by inorganic sediments of Iron and Manganese. A blend of inorganic acids contains a unique dispersant polymer that maintains in suspension the removed material, facilitating rinsing out.

• CHEM CRO 500
Package: canister kg 25
Liquid cleaning agent reverse osmosis and ultra-filtration systems where membranes are fouled by organic sediments (slime, algae). A blend of inorganic salts contains a unique dispersant polymer that maintains in suspension the removed material, facilitating rinsing out.

COAGULANTS AND FLOCCULANTS

• CHEM PF 81
Package: canister kg 10 - kg 25
Organic polymer-based high purity liquid flocculant, for use as primary flocculant or flocculation aid, for the coagulation and elimination of suspended solids from turbid water. It can be used both in clarifiers and (on line) ahead of pressure filters.

• CHEM PF 60
Package: canister kg 25
Inorganic polymer-based high purity liquid flocculant, for use as primary flocculant or flocculation aid, for the coagulation and elimination of suspended solids from turbid water. It can be used both in clarifiers and (on line) ahead of pressure filters. May also be used in pools, both for in-pool flocculation, and for multi-layer filter flocculation.

• ALUMINIUM SULPHATE
Package: sack kg 25
Soluble flocculant powder for the coagulation and elimination of suspended solids from water and waste water, both in clarifiers and (on line) ahead of pressure filters. May also be used in pools, both for in-pool flocculation, and for multi-layer filter flocculation.

CLEANERS

• CHEM 320
Package: canister kg 25
Passivating detergent liquid specifically blended for the protective passivation of high pressure steam boiler and heaters before start-up and after each acid pickling. Composed by alkalis, chelants and dispersants for the removal of oil, grease, oil derivatives, Silica, Aluminum from Iron and Iron alloys. It is also suitable for filter media cleaning.

• CHEM 340
Package: canister kg 25
Synergic blend of non-ionic dispersant and corrosion inhibitors in acid solution.
This product is free of Phosphates and Chlorides and is suitable for filter media acid cleaning.

• CHEM 310
Package: canister kg 25
A blend of wide spectrum biocides and dispersant cleaning agents is used as Cationic exchange resins cleaner. It can be used also on Iron or organic foulants. It can be used either continuously as preventive treatment or periodically.

ANTI-ALGAE FOR DECORATIVE POOLS

• CHEM 330
Package: canister kg 5
Liquid agent used for inhibiting algae growth. While it inhibits algae growth, does not affect fungi or bacteria.

7 MECHANICAL FILTRATION

MECHANICAL FILTERS ARE A HIGHLY FLEXIBLE, VERSATILE AND ECONOMICAL SOLUTION FOR ADDRESSING SMALL SCALE WATER FILTRATION APPLICATIONS. THEY ARE COMMONLY USED AS BARRIER AGAINST SUSPENDED SOLIDS FOR PROTECTING SENSITIVE EQUIPMENT.

MODELS

The range of mechanical filters includes various models designed to be fitted with different cartridges for removing suspended solids, for the absorption of Chlorine and for neutralising acidic water.

GARD SYSTEM

Single or multiple filters with 1" or 1½" BSPT-F connections. A highly versatile modular system, combining filters in various configurations (parallel, series, series-parallel, parallel-series) available for diverse applications:

- removal of coarse suspended solids
- removal of fine suspended solids
- adsorbtion of Chlorine and organics
- preventing corrosion
- STRAINER : with filtration element in washable stainless steel woven wire mesh for the removal of suspended solids larger than 100 µm.
- MONOSTAGE or MULTISTAGE: polypropylene food grade filtering element for the selective removal of turbidity. Depending on the type of cartridge used, the filtration range varies from 1 to 80 µm.
- IO-CHEM SP12: Crystal phosphate cartridge for corrosion prevention.
- CULLAR D: active carbon cartridge for the adsorption of organics and dechlorination.

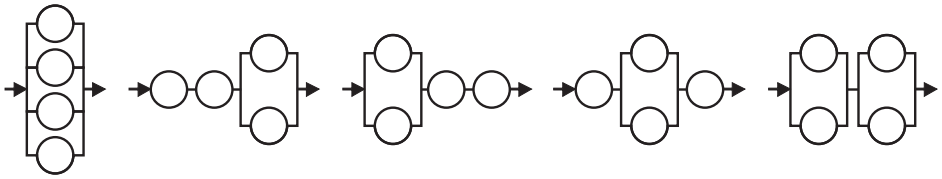
FGX2

Multiple cartridge filters for medium capacity applications, with AISI 316 stainless steel enclosures and inlet-outlet connections in BSPT–M. This system allows the installation of cartridges of different filtration levels (1-5-20 µm) in standard lengths of 10, 20, 30, and 40 inches. Cartridge replacement is easy and rapid due to quick-lock opening.

SELF-CLEANING FILTERS

Self-cleaning filters remove suspended solids from water without replacing filter cartridges. Available in fully automatic or semi-automatic versions with different capacities and filtration levels ranging from 50 to 500 µm.
Filtering elements are manufactured in stainless steel woven wire mesh and cleansing from retained impurities is made by reverse water jet flow.
In semi-automatic models the action of the jet is initiated by manual adjustment. In fully automatic models, a timer-programmer controls the washing intervals between 1 and 999 hours.
The cartridges are available in a range from 50 to 500 µm.
For high capacity applications EASY MAX self-cleaning filters with 2" connections (threaded to BSPT-M) and ND 65-80-100 (flanged to EN1092-1) are available.

GARD SYSTEM



The diagram shows some out of the many arrangements, which can be obtained with 2, 3 and 4 elements.

NOTE See separate sheets for Gard System technical data.

FGX2

MODEL	FLOW RATE l/min	CARTRIDGES no.	FITTINGS Ø "	DIMENSIONS Ø mm	DIMENSIONS height with stand* mm	WEIGHT shipping kg
FGX2 60	60	3 x 250 mm	1½ gas m	168.3	850	14
FGX2 120	120	3 x 500 mm	1½ gas m	168.3	1100	20
FGX2 180	180	3 x 750 mm	1½ gas m	168.3	1366	26
FGX2 240	240	3 x 1000 mm	1½ gas m	168.3	1630	32
FGX2 360	360	6 x 750 mm	2 gas m	219.1	1590	29
FGX2 480	480	6 x 1000 mm	3 gas m	219.1	1850	39
FGX2 720	720	9 x 1000 mm	3 gas m	273	1860	48

* The figures may change, according to the tripod adjustement.

NOTE Operating pressure: 8 bar
Test pressure: 11.4 from model 60 to model 480; 8.6 bar for model 720.

SELF-CLEANING FILTER

FAS
semi-automatic

EASY A
automatic

MODEL	FLOW RATE at 0.2 bar m³/h	FITTINGS Ø "	DIMENSIONS Ø x height mm	WEIGHT shipping kg
FAS semi-automatic	6	1	150 x 345	2.7
FAS semi-automatic	9.6	1½	150 x 345	3.2
EASY A automatic	6	1	110 x 380	3.6
EASY A automatic	8	1½	110 x 380	4.2

NOTE Maximum operating pressure: 16 bar
Maximum temperature, water / room: 80 / 40 °C
Power supply: 220/24 V – 50 Hz

EASY MAX

MODEL	FLOW RATE max m³/h	FITTINGS Ø	DIMENSIONS Ø x height mm	WEIGHT shipping kg
EASYMAX semi-automatic	62	2"	317 x 332	10.5
EASYMAX semi-automatic	75	DN 65	252 x 332	15.5
EASYMAX semi-automatic	103	DN 80	252 x 344	13.5
EASYMAX semi-automatic	108	DN 100	252 x 344	14.5
EASYMAX/A automatic	62	2"	317 x 346	11
EASYMAX/A automatic	75	DN 65	252 x 346	13
EASYMAX/A automatic	103	DN 80	252 x 358	14
EASYMAX/A automatic	108	DN 100	252 x 358	15

NOTE Maximum operating pressure: 16 bar
Maximum temperature, water / room: 80 / 40 °C
Power supply: 220/24 V – 50 Hz

8 INSTRUMENTS AND CONTROLS

WATER TREATMENT PROCESSES REQUIRE CLOSE CONTROL AND MONITORING OF SEVERAL CRITICAL PARAMETERS. THE MOST IMPORTANT BEING TEMPERATURE, pH, CONDUCTIVITY, REDOX, RESIDUAL CHLORINE.

CULLIGAN OFFERS A COMPLETE RANGE OF MONITORING INSTRUMENTS FOR USE IN WATER TREATMENT SYSTEMS.

pH-METER

Mod. µP97-pH (PANEL MOUNTING)

Technical Data

- Standard range: 0-14 pH
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 700 Ohm
- Protection degree: IP 54

Mod. µP97/S-pH (WALL MOUNTING)

Technical Data

- Standard range: 0-14 pH
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 66

REDOX-METER

Mod. µP97-Rx (PANEL MOUNTING)

Technical Data

- Standard range: 0-1000 mV
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 700 Ohm
- Protection degree: IP 54

Mod. µP97/S-Rx (WALL MOUNTING)

Technical Data

- Standard range: 0-1000 mV
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 66

TURBIDITY METER

Mod. µP93 (WALL MOUNTING)

Technical Data

- Standard range: 0-100 NTU
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 66

CONDUCTIVITY METER

Mod. C2 µP97-C0 (PANEL MOUNTING)
Mod. C2 µP97/S-C0 (WALL MOUNTING)

Technical Data
- Standard range: 0-2 µS/cm
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 54 (PANEL MOUNTING); IP 66 (WALL MOUNTING)

Mod. C20 µP97-C0 (PANEL MOUNTING)
Mod. C20 µP97/S-C0 (WALL MOUNTING)

Technical Data
- Standard range : 0-20 µS/cm
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 54 (PANEL MOUNTING); IP 66 (WALL MOUNTING)

Mod. C200 µP97-C0 (PANEL MOUNTING)
Mod. C200 µP97/S-C0 (WALL MOUNTING)

Technical Data
- Standard range: 0-200 µS/cm
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 54 (PANEL MOUNTING); IP 66 (WALL MOUNTING)

Mod. C2000 µP97-C0 (PANEL MOUNTING)
Mod. C2000 µP97/S-C0 (WALL MOUNTING)

Technical Data
- Standard range: 0-2000 µS/cm
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load: 500 Ohm
- Protection degree: IP 54 (PANEL MOUNTING); IP 66 (WALL MOUNTING)

RESIDUAL CHLORINE ANALYSER

Mod. µP97-Cl (PANEL MOUNTING)

Technical Data
- Standard range: 1/2/5/10 ppm of free Chlorine
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 700 Ohm
- Protection degree: IP 54

Mod. µP97/S-Cl (WALL MOUNTING)

Technical Data
- Standard range: 1/2/5/10 ppm of free Chlorine
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 66

CHLORINE DIOXIDE ANALYSER

Mod. µP97-ClO_2 (PANEL MOUNTING)

Technical Data

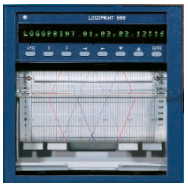
- Standard range: 0,005 - 2 ppm as ClO_2; 0,05 - 20 ppm as ClO_2
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 700 Ohm
- Protection degree: IP 54

Mod. µP97/S-ClO_2 (WALL MOUNTING)

Technical Data

- Standard range: 0,005 - 2 ppm as ClO_2; 0,05 - 20 ppm as ClO_2
- Display: 4-digit LED, h = 12.5 mm
- Power output: 2 off 0-20mA/4-20mA dc. Maximum load 500 Ohm
- Protection degree: IP 65

RECORDER



Mod. C500 (PANEL MOUNTING)

Technical Data

- Up to 3 programmable inputs
- Up to 6 programmable inputs
- Prints on paper
- Protection degree: IP 54

WATER HARDNESS MONITOR

Mod. Testomat

Technical Data

- Standard range: 0,09-0,89 °f; 0,45-4,48 °f; 1,79-17,90 °f; 4,4-4,44 °f
- Programmable measurements interval 5/10/20 or 30 minutes
- Pressure: 10 bar max
- Temperature: 45 °C max
- Parts in contact with water are in corrosion proof material

MONITORING DOSING SYSTEM

Mod. Wa.Co (WALL MOUNTING)

Technical Data

- pH: standard range: 0-14 pH
- Rx: range of measurement: 0-1000 mV
- Protection degree: IP 56

ELECTRONIC CONTROLLERS

Two types of controllers are available depending on application:

Electronic Timer PLF - 2K (PROGRAMMABLE LOGIC FUNCTION): for single units

Electronic Timer PLM - 2K (MULTITASK): for multiple units and systems

All Culligan controllers in the Commercial / Industrial Series use a 24 V – 50 Hz power feed. An appropriate transformer is available as an option.

9 CUSTOMER SERVICE: ADDED VALUE

WATER IS SERVED!

Culligan has more than 70 years of experience in water treatment. When you turn to Culligan for your water treatment needs, you find not only a complete range of products suitable for any application and qualified teams of experienced Application Engineers, but a professional service and support network worldwide as well.

This is our added value: no matter whether it's a small household filter, a municipal or industrial water treatment plant or a system supporting hospital patients' life.

Culligan's Service and Support team is always available for efficient and competent maintenance.

Technology moves fast, therefore only fully trained technical teams can be constantly updated for the best performance, that's why Culligan organizes regular seminars for service engineers.

Culligan has developed various service and maintenance contract options tailored to suit all requirements.

Our FULL RISK FORMULA has been developed for applications where any interruption in water supply is critical, for example hospitals and numerous industrial applications. Each customer can precisely budget the expense for the entire contract period during which we are responsible of making treated water continuously available.

If required, 24/7 support, including bank holidays, is available as an option.
With Full Risk Contracts: your water treatment system is in expert hands!

ON CALL SERVICE

Our team of professional service engineers is available on call and at short notice to assist our customers. In addition our emergency service deals with any urgent calls from customers with critical applications (for example haemodialysis).

SPARE PARTS AND CONSUMABLES

Our central warehouse, together with regional and local deposits provide our customers with all consumables and spare parts required.

"À LA CARTE" SERVICE

Our maintenance contracts reflect your actual needs for your particular equipment and application. Culligan has formulated personalised service contracts, that provides a combination of reliable, affordable operating costs and timely accurate service.

There is always a Culligan engineer nearby to service your needs.

CULLIGAN IS MUCH MORE!

In addition to our extensive range of standard products, listed in this catalogue, Culligan designs and fabricates custom built systems for any water treatment application, in accordance to the standards of most countries.

Our Application Engineering department manages complex projects: municipal, petrochemical, pharmaceutical, electronics, etc.

Besides ISO 9001:2000 Quality Certification, we are also certified to UDT, GOST and Medical Device Standards and bid for public tenders around the world.

1 Biological filters for potable water production

2 Demineralisation plant with polishing mixed bed on skid

1


2

3 Demineralisation plant with pre-treatment on skid

4 Reverse Osmosis plant for process water


3


4

5 Mobile emergency drinking water plant

6 Seawater desalination plant for potable water production in container


5


6

Culligan, in conjunction with national and international service and distribution network, provides timely, complete and accurate service, including systems start-up and after-sales assistance.

Culligan has many decades of experience in providing emergency water treatment systems. Complete filtration and purification systems, installed in containers or on skids, provide drinking water from heavily polluted or saline water in remote locations. These systems can be designed to customer's requirements: in containers, on skids, trailers, etc... Culligan has supplied emergency water treatment systems to civil protection agencies, armies and work camps across the world.

The images in these pages represent only a few customised plants and systems installed around the world.

7
Water filtration / softening system for commercial applications

8
Ultra-filtration system for waste water reuse


7


8

9
Arsenic removal for municipal water supply

10
Filtration system for municipal water supply


9

10

11
Seawater desalination with pre-treatment onto one skid

12
Surface water filtration system for municipal water supply


11


12

Culligan ALL OVER THE WORLD

WORLDWIDE PRESENCE, EITHER WITH DIRECT SUBSIDIARIES
OR VIA LOCAL INDEPENDENT DEALERS, WITH EXPERIENCED ENGINEERS
TO HELP YOU IN SOLVING ANY WATER TREATMENT PROBLEM
AND SPARE PART STORAGE TO KEEP YOU GOING.

MANUFACTURING HEADQUARTERS:

U.S.A. • CULLIGAN INTERNATIONAL Co.
9399 West Higgins Road - Suite 1100 - ROSEMONT, IL 60018
Tel. + 1 847.4302800 - Fax + 1 847.4301519 - www.culligan.com

ITALIA • CULLIGAN ITALIANA SpA
Via Gandolfi, 6 - 40057 CADRIANO di Granarolo Emilia (BO)
Tel. + 39 051.6017111 - Fax + 39 051.765602 - www.culligan.it

COMMERCIAL OFFICES:

BELGIUM • CULLIGAN N.V.
P. Gilsonlaan 45-49 - 1601 RUISBROEK
Tel. + 32 2.3777707 - Fax + 32 2.3770312 - www.culligan.be

FRANCE • CULLIGAN FRANCE S.A.
4, rue des Charmes - ZA du Buisson de la Couldre - 78190 TRAPPES
Tel. + 33 1.30162323 - Fax + 33 1.30162356 - www.culligan.fr

SPAIN • CULLIGAN ESPANA S.A.
C/ Trepadella 12 - 08755 CASTELLBISBAL (Barcelona)
Tel. + 34 93.5653300 - Fax + 34 93.5653309 - www.culligan.es

NETHERLANDS • CULLIGAN NEDERLAND B.V.
Lemelerbergweg 35 d - 1101 AH AMSTERDAM
Tel. + 31 20.3123040 - Fax + 31 20.3123080 - www.culligan.nl

UNITED KINGDOM • CULLIGAN INT. Co. U.K. Ltd
Culligan House - The Gateway Centre, Coronation Road
HIGH WYCOMBE - Buckinghamshire HP12 3SU
Tel. + 44 1494.441286
www.culligan.co.uk

U.A.E. • CULLIGAN INTERNATIONAL (EMIRATES) LLC
P.O. Box 37728 - Al Quoz Industrial Area, Dubai
Tel. + 971 4.3389880 - Fax + 971 4.3389881
P.O. Box 129054 - Abu Dhabi Tel. + 971 2.6667140 - Fax + 971 2.6667141
www.culligan.com

CHINA • CULLIGAN INTERNATIONAL CHINA
Shanghai Jjahua Business Center A3 - Room 3302
808 Hongqiao Road - SHANGHAI 200030
Tel. + 86 21.64479680 - Fax + 86 21.64479937 - www.culligan.com

QUALITY SYSTEM CERTIFIED ACCORDING TO UNI EN ISO 9001:2000 NORM

CULLIGAN ITALIANA SpA
culligan@culligan.it • www.culligan.it

Culligan Warranty: defects in manufacturing are covered by the Culligan Warranty Policy.

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