Culligan®

WATER TREATMENT
FOR COMMERCE AND INDUSTRY

CATALOG

Culligan®

Culligan Italiana S.p.A.

Via Gandol□, 6 – 40057 Cadriano di Granarolo dell'Emilia (BO)
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A member of the group coordinated by Culligan International Co., USA

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The Culligan company

Culligan International is a long-standing company founded in Chicago in 1936, and is one of the most renowned in the worldwide water treatment sector. In its early years, the company's primary field of specialization was the development of solutions - at that time decidedly innovative and pioneering - for treating water for domestic and office use. During its over 80 years of history, Culligan International has grown steadily, due to both its internal development and its policy of acquisitions... progressively expanding the portfolio of solutions and services it offers, until they now cover the entire range of possible water treatments.
Expansion into international markets has brought Culligan to more than 90 countries, with 12 directly owned structures and/or joint ventures - in Italy, France, Spain, Belgium, Africa, Australia, UK, Dubai, Qatar, China, Canada and Argentina - and over 900 dealerships serving over 3 million customers.
Culligan's philosophy has always been based on the idea that only a global approach to water problems - from its collection to its return to nature - can provide intelligent and far-sighted solutions for the use of this vital resource.
Today, with its fully in-house production, the Culligan brand is recognized worldwide as 'The Great Water Expert', a leader in water treatment solutions for all application areas: Municipal, Industrial, Commercial, Domestic, Swimming Pools and Medical uses.
Culligan came to Italy in 1960. Since then, Italy has played an outstanding role in the Culligan Group, leading its business expansion in the industrial sector with the construction of a production center in Cadriano di Granarolo dell'Emilia in the

Culligan's figures

1936 Emmett Culligan opens the first Culligan store at a farrier's in Northbrook, Illinois

55 Years ago, Culligan Italiana starts its business and becomes the manufacturing center

50 Years ago, Culligan Italiana begins using diatomaceous filtration technology

+90 countries

+900 distributors

+12 sites

+3 million customers

province of Bologna, an area of mechanical manufacturing excellence and Italian quality. Here its long-standing know-how, combined with the skill of the local mechanical workforce and the vision of the Italian engineers, has allowed Culligan to create new advanced water treatment applications that are destined to become strategic assets for the multinational.

Today, Italy is still the largest Culligan Group production center in Europe, as well as a crucial product distribution hub for the waterworks and industrial markets throughout the EMEA (Europe, Middle East and Africa) area, as well as a number of Asia/Pacific areas.

With 18 branches throughout Italy, a direct sales network of over 300 people and 140 authorized distributors, Culligan Italiana now has a network that covers the whole country.

The sectors we serve

Culligan, the water treatment professionals

Culligan, was founded in 1936, and is a global leader in water treatment for homes, offices and industries. Culligan designs, engineers and manufactures water treatment equipment. Culligan formulates and blends water treatment chemicals to create pure, safe, healthy water for every need.

WATER FOR THE HOME

Culligan supplies softened water and high purity drinking water to millions of homes worldwide. Culligan supplies under sink drinking water systems to give pure water from the tap. Chilled, sparkling and instant boiling water straight from your kitchen tap. Then, the china and glasses will sparkle and the hair and skin will feel amazing.

WATER AT WORK

The employees can have access to high quality drinking water every day. Culligan has a full range of drinking water solutions all designed, engineered and manufactured in-house. Culligan manufactures high quality units to ensure the best quality of chilled, sparkling and boiled water constantly available. Backed up by Culligan's worldwide service network.

WATER FOR RESTAURANTS

Culligan Water on tap in the restaurant is an ideal way to service the valued customers, save cost and protect the environment. Great tasting water, pure clear ice, reduced scale and iron build up, easier cleaning, less detergents usage and softer brighter linens– a total Culligan water solution.

WATER FOR LEISURE

Culligan designs, engineers and produces systems for public pools, private pools, spas and resorts. Culligan invented the HCF filter that cleans the water 10x greater than a traditional sand filter with no backwashing, saving energy, water usage and chemicals.

The sectors we serve

90 Countries
900 Dealerships
15 Direct company structures
3 Million Customers

WATER FOR CRUISE SHIPS

Culligan designs, engineers and produces custom water treatment solutions which are installed in over 160 cruise ships like the largest cruise ship in the world. Culligan provides the entire ship water system. Whatever the use, wherever in the world, the water quality on the cruise will be to Culligan standards. Crusies are more relaxing and enjoyable.

WATER FOR HOTELS

Culligan customers in the hospitality industry can realize substantial benefits by using treated water in boilers, hot water heaters, cooling towers, food service, laundry, and services. Culligan's water treatment systems help uphold quality standards, while adding value to the business.

WATER FOR INDUSTRY

Water impacts every part of the industrial value chain. In the beverage industry, water of different qualities is required for cooling water, boilers for steam generation, bottle washing, machine sanitization and water to be part of the product. From oil refineries, to breweries which use water for the product composition as well as washing and sanitisation, Culligan has the full range of equipment and speciality chemicals to cover every application.

WATER FOR HEALTHCARE

Doctors, nurses and patients, get more than just great-tasting water from Culligan systems. Culligan supplies and services every water need of hospitals - cooling water, boiler water, water for hydrotherapy pools, full solutions for restaurant and canteen, drinking water, treatment and recycling for laundry and all the clinical needs.

WATER FOR VILLAGES, TOWNS, CITIES

Hundreds of municipalities have chosen Culligan filtration systems. Culligan has unique high rate reactor filters called OFSY, which are able to reliably treat highly variable turbid river water, with a significantly reduced footprint and limited civil construction.

Water softening

Softening means removing from water the hardness mainly due to Calcium and Magnesium salts, exchanging them with Sodium salts, which do not precipitate or form scale.
To obtain the ion exchange, the water is made to pass through a bed of resins previously loaded with Sodium, using Sodium Chloride (common table salt) as a regenerant.
Culligan uses Cullex food-grade exchange resins, which feature high resistance to mechanical wear, long life, high exchange capacity and low consumption of salt.
For regeneration, Potassium Chloride can also be used for specific applications.

MODELS

Culligan water softeners come in the following models:

- AQUA HE, softeners in enclosures for residential and professional use, for flow rates up to 3.8 m^3/h
- HE & HE TWIN, for professional and semi-industrial uses, for flow rates up to 8.6 m^3/h
- CTM, for professional, semi-industrial and industrial uses, for flow rates up to 24 m^3/h
- ULTRA LINE, HA and HB lines, for industrial uses, for flow rates up to 227 m^3/h

NOTE: The available versions are given in the table, each with its own dimensional characteristics, with different exchange capacities and flow rates.

MATERIALS USED

Depending on the model, the HE AQUA, HE and HE Twin line resin containers are in "Quadra-Hull" or composite material with PE liner coated in glass fiber and epoxy resin.
The Culligan patented Quadra Hull® containers consist of a reinforced fiberglass body with food-grade inner lining; the outer covering in ABS is moisture and UV resistant.
The CTM line tanks are in composite material with PE liner coated in fiberglass and epoxy resin, whereas in the Ultra Line FRP HA HB are in anti-corrosion reinforced fiberglass.
The Ultra Line HA and HB tanks are made of painted carbon steel; the interior is protected by a layer of epoxy resins, suitable for contact with water intended for human consumption and with food substances.
The valve group is made of plastic material for all HE AQUA, HE, HE Twin, CTM and Ultra Line models up to 1550.
In the Ultra Line models from 1700 the distribution unit has cast iron valves and flanged steel pipes, coated internally and externally with epoxy paint.

OPERATION

All Culligan water softeners are fully automatic.
The models of the HE AQUA, HE, HE Twin and CTM lines are equipped with a motorized or rotary piston distribution valve and a specific multifunction programmer, which manages their different operating phases (service, wash, regeneration). All Ultra Line models are equipped with a distribution unit complete with diaphragm valves, and their different operating phases (service, wash, regeneration) are controlled by an electronic control unit which activates the valves via a specific distributor pilot.
The water softening system can also have volumetric operation, which activates the regeneration phase according to the amount of water delivered. The volume of treated water is measured by an impulse emitter turbine or by a meter, and the electronic control panel controls regeneration when the preset volume is reached. Regeneration can also be started manually, without interfering with the preset automatic mechanism.
A Duplex and/or Triplex version is also available, which allows one or two softening columns to be automatically put into service once the resins of the softener in operation are depleted, while the first switches to regeneration. There is also a Progressive Flow version available for all models, for managing several softening columns in parallel cascade operation, to cover the peaks in demand for treated water without having to oversize the actual softener.
With these functions it is possible to have an uninterrupted flow of softened water.
On request, the Culligan softener can be supplied with a complete self-disinfection system.
All the water softeners can be supplied with Brine System (brine container) of different sizes and capacities, to be chosen according to available space and operating conditions.

MAIN APPLICATIONS

- Cooling plants
- Hot water producers
- Low pressure steam generators
- Textile industry
- Food industry
- Ceramic industry
- Pharmaceutical industry
- Professional kitchens
- Hotels
- Restaurants
- Bakeries
- Professional laundries
- Car washes
- Poultry and livestock farms

AQUA HE

Description	IN/OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	Salt consumption per regeneration kg	Quantity of CULLEX resins for tank L/ liters	Max. flow rate m3/h	Overall dimensions (LxDxH) mm	Weight in operation kg	Shipping weight kg
Mini Aqua HE Water Softener	3/4	30/44	min. 0.95 – max. 1.35	9	3.8	270x461x479	15	19
MIDI AQUA HE WATER SOFTENER	3/4	47/68	min. 1.26 – max. 1.80	12	3.5	270x461x554	17	23
MASTER AQUA HE WATER SOFTENER	3/4	71/102	min. 1.90 – max. 2.70	18	3.3	270x461x707	24	29

HE

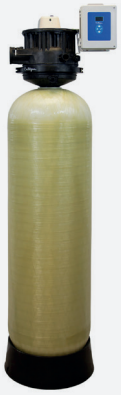
Description	IN/OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	Salt consumption per regeneration kg	Quantity of CULLEX resins for tank L/ liters	Max. flow rate m3/h	Overall dimensions (LxDxH) mm	Weight in operation kg	Shipping weight kg
HE 1" 20 meter	1	97/150	min. 1.8 – max. 5.4	20	2.5	690x460x1270	260	55
HE 1" 40 meter	1	194/356	min. 2.7- max. 8.2	40	2.5	720x460x1580	290	77
HE 1" 60 meter	1	226/401	min. 3.6- max. 8.2	56	2.9	920x610x1530	490	115
HE 1.5" 60 meter	1.5	214/395	min. 3.6 – max. 13.6	56	8.4	970x610x1530	525	112
HE 1.5" 90 meter	1.5	343/621	min. 5.4 – max. 20.4	85	8.6	1020x610x1530	550	135
HE 1.5" 120 meter	1.5	505/887	min. 7.3 – max. 27.2	113	7.2	1020x610x1880	735	170
HE 1.5" 150 meter	1.5	602/977	min. 9.1 – max. 34.0	142	8.1	1300x770x1550	1030	240
HE 1.5" 210 meter	1.5	744/1521	min. 12.7 – max. 47.6	198	8.5	1300x770x1780	1180	295

The exchange capacity is calculated on the treatment of water having a total hardness of 40 °f and with salinity of 500 ppm, free of oil and turbidity, colorless and delivered with the flow rate foreseen for continuous service; however, it can vary according to other parameters such as chloride content, available hydraulic pressure, discontinuous drawing of treated water, purity and type of regenerant used.
NOTES: Weights are approximate. • The above dimensions can vary by ± 2%.

HE TWIN

Description	IN/OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	Salt consumption per regeneration kg	Quantity of CULLEX resins for tank L/ liters	Max. flow rate m3/h	Overall dimensions (LxDxH) mm	Weight in operation kg	Shipping weight kg
HE TWIN 1" 40 meter	1	194/356	min 2.7 - max. 8.2	40	2.5	720x460x1580	290	77
HE TWIN 1" 60 meter	1	226/401	min. 3.6 – max. 8.2	56	2.9	1520x610x1530	630	215
HE TWIN 1.5" 60 meter	1.5	214/395	min. 3.6 – max. 13.6	56	8.4	1470x610x1530	690	206
HE TWIN 1.5" 90 meter	1.5	343/621	min. 5.4 – max. 20.4	85	8.6	1730x610x1530	710	250
HE TWIN 1.5" 120 meter	1.5	505/887	min. 7.3 – max. 27.2	113	7.2	1730x610x1880	960	315
HE TWIN 1.5" 150 meter	1.5	602/977	min. 9.1 – max. 34	142	8.1	2030x770x1550	1560	450
HE TWIN 1.5" 210 meter	1.5	744/1521	min. 12.7 – max. 47.6	198	8.5	2030x770x1780	1600	555

CTM



Description	IN/OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	Salt consumption per regeneration kg	Quantity of CULLEX resins for tank L/ liters	Max. flow rate m3/h	Overall dimensions (LxDxH)mm	Weight in operation kg	Shipping weight kg
CTM 60	2	259/388	min. 6.3 – max. 13.6	56	16	996x610x1791	500	125
CTM 90	2	388/583	min. 8.2 – max. 21	85	17	1047x610x1791	600	150
CTM 120	2	518/777	min. 8.2 – max. 27.7	113	16.6	1047x610x2121	720	180
CTM 150	2	648/972	min. 14.5 – max. 34	142	17.3	1325x762x1816	1120	280
CTM 210	2	907/1360	min. 20 – max. 47.4	198	19.3	1325x762x2045	1248	312
CTM 300	2	1296/1944	min. 30 – max. 74.7	283	21.6	1402x762x2299	1680	420
CTM 450	2	1944/2916	min. 40 – max. 104 kg	425	23.6	1859x1067x2299	2620	655
CTM 600	2	2592/3888	min. 52.2 – max. 136.2	566	24.8	2012x1067x2299	3592	898

The exchange capacity is calculated on the treatment of water having a total hardness of 40 °f and with salinity of 500 ppm, free of oil and turbidity, colorless and delivered with the flow rate foreseen for continuous service; however, it can vary according to other parameters such as chloride content, available hydraulic pressure, discontinuous drawing of treated water, purity and type of regenerant used.
NOTES: Weights are approximate. • The above dimensions can vary by ± 2%.

WATER SOFTENERS CTM

Description	IN/ OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	Salt consumption per regeneration kg	Quantity of CULLEX resins for tank L/ liters	Max. flow rate m3/h	Overall dimensions (LxDxH)mm	Weight in operation kg	Shipping weight kg
CTM 60 Duplex (complete with solenoid valves and connection cables)	2	259/388	min. 6.3 – max. 13.6	56	16	1352x610x1791	896	224
CTM 90 Duplex (complete with solenoid valves and connection cables)	2	388/583	min. 8.2 – max. 21	85	17	1454x610x1791	1092	273
CTM 120 Duplex (complete with solenoid valves and connection cables)	2	518/777	min. 8.2 – max. 27.7	113	16.6	1454x610x2121	1292	323
CTM 150 Duplex (complete with solenoid valves and connection cables)	2	648/972	min. 14.5 – max. 34	142	17.3	1858x762x1816	2016	504
CTM 210 Duplex (complete with solenoid valves and connection cables)	2	907/1360	min. 20 – max. 47.4	198	19.3	1858x762x2045	2240	560
CTM 300 Duplex (complete with solenoid valves and connection cables)	2	1296/1944	min. 30 – max. 74.7	283	21.6	2012x762x2299	2880	720
CTM 450 Duplex (complete with solenoid valves and connection cables)	2	1944/2916	min. 40 – max. 104 kg	425	23.6	2621x1067x2299	5364	1341
CTM 600 Duplex (complete with solenoid valves and connection cables)	2	2592/3888	min. 52.2 – max. 136.2	566	24.8	2927x1067x2299	7036	1759

The exchange capacity is calculated on the treatment of water having a total hardness of 40 °f and with salinity of 500 ppm, free of oil and turbidity, colorless and delivered with the flow rate foreseen for continuous service; however, it can vary according to other parameters such as chloride content, available hydraulic pressure, discontinuous drawing of treated water, purity and type of regenerant used.
NOTES: Weights are approximate. • The above dimensions can vary by ± 2%.

ULTRALINE HA - HB

Model	IN/OUT fittings Ø (")	CULLEX	m3 x °f min / max	Max. flow rate m3/h	Overall dimensions (LxDxH)mm	Weight in operation kg	Shipping weight kg
HA 200 FRP	1½	196	734/1188	18	555x2063x715	495	395
HA 290 FRP	2	280	1047/1698	26	610x2298x850	715	570
HA 320 FRP	2	308	1150/1869	26	610x2298x850	750	600
HA 430 FRP	2	420	1570/2550	30	770x2353x1025	1080	860
HA 510 FRP	2	504	1887/3060	30	770x2353x1025	1160	930
HA 770 FRP	2	756	2827/4587	34	927x2410x1070	1830	1470
HA 850 FRP	2	840	3141/5097	34	927x2410x1070	1940	1550
HA 1200 FRP	2	1204	4503/7136	34	1226x2654x1580	2800	2240
HA 1400 FRP	2	1400	5235/8325	34	1226x2654x1580	3000	2420
HB 770 FRP	2½	756	2827/4587	50	927x2410x1070	1840	1480
HB 850 FRP	2½	840	3141/5097	50	927x2410x1070	1950	1560
HB 1200 FRP	2½	1204	4503/7136	50	1126x2654x1580	2810	2250
HB 1400 FRP	2½	1400	5235/8325	50	1226x2654x1580	3010	2430
HB 1550 FRP	2½	1512	5549/8825	60	1418x3310x1580	4200	2580

ULTRALINE FRP HB 3"

Model	IN/OUT fittings Ø (")	CULLEX	m3 x °f min / max	Max. flow rate m3/h	Overall dimensions (LxDxH)mm	Weight in operation kg	Shipping weight kg
HB 770 FRP	3	756	2827/4587	50	927x2410x1070	1840	1480
HB 850 FRP	3	840	3141/5097	55	927x2410x1070	1950	1560
HB 1200 FRP	3	1204	4503/7136	65	1126x2654x1580	2810	2250
HB 1400 FRP	3	1400	5235/8325	70	1226x2654x1580	3010	2430
HB 1550 FRP	3	1512	5549/8825	75	1418x3310x1580	4200	2580

ULTRALINE HA

Model	IN/OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	CULLEX	Service flow rate m3/h	Dimensions for Tank			Weight in operation kg	Shipping weight kg
					resin cont. Ø mm	resin cont. height mm	salt cont. Ø mm		
HA 200	1½	734/1188	198	18	500	1915	715	495	395
HA 230	1½	838/1359	226	18	500	1915	715	530	425
HA 290	2	1047/1698	283	26	600	1930	850	715	570
HA 320	2	1150/1869	311	26	600	1930	850	750	600
HA 430	2	1570/2550	424	30	750	1980	1025	1080	860
HA 510	2	1887/3060	510	30	750	1980	1025	1160	930
HA 770	2	2827/4587	764	34	950	2056	1070	1830	1470
HA 850	2	3141/5097	849	34	950	2056	1070	1950	1550
HA 1200	2	4503/7136	1217	34	1200	2172	1580	2800	2250
HA 1400	2	5235/8325	1415	34	1200	2172	1580	3010	2430
HA 200 DUPLEX	1½	734/1188	198	18	500	1915	715	495	395
HA 230 DUPLEX	1½	838/1359	226	18	500	1915	715	530	425
HA 290 DUPLEX	2	1047/1698	283	26	600	1930	850	715	570
HA 320 DUPLEX	2	1150/1869*	311	26	600	1930	850	750	600
HA 430 DUPLEX	2	1570/2550	424	30	750	1980	1025	1080	860
HA 510 DUPLEX	2	1887/3060	510	30	750	1980	1025	1160	930
HA 770 DUPLEX	2	2827/4587	764	34	950	2056	1070	1830	1470
HA 850 DUPLEX	2	3141/5097	849	34	950	2056	1070	1950	1550
HA 1200 DUPLEX	2	4503/7136	1217	34	1200	2172	1580	2800	2250
HA 1400 DUPLEX	2	5235/8325	1415	34	1200	2172	1580	3010	2430

NB: The technical data for the Duplex versions refers to each single column

*The exchange capacity is calculated on the treatment of water having a total hardness of 40 °f (400 ppm CaCO3) and with salinity of 500 ppm, free of oil and turbidity, colorless and delivered with the flow rate foreseen for continuous service; however, it can vary according to other parameters such as chloride content, available hydraulic pressure, discontinuous drawing of treated water, purity and type of regenerant used.

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

ULTRALINE HB

Model	IN/OUT fittings Ø (")	Exchange capacity m3 x °f min / max. per tank	CULLEX	Service flow rate m3/h	Dimensions for Tank			Weight in operation kg	Shipping weight kg
					resin cont. Ø mm	resin cont. height mm	salt cont. Ø mm		
HB 770	2½	2830/4587	764	50	950	2056	1070	1840	1480
HB 850	2½	3141/5097	849	50	950	2056	1070	1950	1550
HB 1200	2½	4503/7136	1217	50	1200	2172	1580	2810	2250
HB 1400	2½	5235/8325	1415	50	1200	2172	1580	3010	2430
HB 1550	2½	5549/8825	1500	60	1400	2392	1580	4200	2580
HB 1700	4	5970/10430	1568	114	1500	2620	1580	6105	3355
HB 2100	4	7520/11390	1904	114	1500	2620	1580	6354	3644
HB 2500	4	8470/16050	2296	114	1800	2660	BRINE MAKER	8480	4500
HB 3000	4	9680/18480	2632	114	1800	2660	BRINE MAKER	8760	4790
HB 4500	6	15520/28500	4032	227	2100	3030	BRINE MAKER	13080	7300
HB 6600	6	23180/42900	6020	227	2500	3100	BRINE MAKER	19585	10485
HB 770 DUPLEX	2½	2830/4587	764	50	950	2056	1070	1840	1480
HB 850 DUPLEX	2½	3141/5097	849	50	950	2056	1070	1950	1550
HB 1200 DUPLEX	2½	4503/7136	1217	50	1200	2172	1580	2810	2250
HB 1400 DUPLEX	2½	5235/8325	1415	50	1200	2172	1580	3010	2430
HB 1550 DUPLEX	2½	5549/8825	1500	60	1400	2392	1580	4200	2580
HB 1700 DUPLEX	4	5970/10430	1568	114	1500	2620	1580	6105	3355
HB 2100 DUPLEX	4	7520/11390	1904	114	1500	2620	1580	6354	3644
HB 2500 DUPLEX	4	8470/16050	2296	114	1800	2660	BRINE MAKER	8480	4500
HB 3000 DUPLEX	4	9680/18480	2632	114	1800	2660	BRINE MAKER	8760	4790
HB 4500 DUPLEX	6	15520/28500	4032	227	2100	3030	BRINE MAKER	13080	7300
HB 6600 DUPLEX	6	23180/42900	6020	227	2500	3100	BRINE MAKER	19585	10485

NB: The technical data for the Duplex versions refers to each single column

* The exchange capacity is calculated on the treatment of water having a total hardness of 40 °f (400 ppm CaCO3) and with salinity of 500 ppm, free of oil and turbidity, colorless and delivered with the flow rate foreseen for continuous service; however, it can vary according to other parameters such as chloride content, available hydraulic pressure, discontinuous drawing of treated water, purity and type of regenerant used.

The Brine Maker dimensions are given on the executive drawings.

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

FRP DENITRIFIERS

Model	IN/OUT fittings Ø (")	Strong anion resin Liters	EXCHANGE CAPACITY g NO3 / kg salt	Dimensions ØxHxØ salt container mm	Weight in operation kg	Shipping weight kg
HB 200 FRP	2	200	3000/40	610x2298x850	500	406
HB 350 FRP	2	350	5200/70	770x2353x1025	820	627
HB 600 FRP	2½	600	9000/120	927x2410x1070	1065	880
HB 1000 FRP	2½	1000	15000/200	1226x2654x1580	1770	1450
HB 1700 FRP	2½	1700	23250/310	1418x3310x1580	3646	2360

OPERATION DATA					
	ACQUA HE	HE / HE TWIN	CTM	ULTRA LINE HA and HB	NITRATE REMOVAL UNITS
Minimum operating pressure	1.5 bar	1.4 bar for model 1" 1.7 bar for model 1.5"	2 bar	2 bar	2 bar
Maximum operating pressure	5 bar	8.6 bar for model 1" 8.3 bar for model 1.5"	8.5 bar	7 bar for models 200 to 2100 5 bar for later models 10 bar for FRP version	7 bar for models up to 1700 5 bar for model 2500 10 bar for FRP version
Operating temperature	1 - 40 °C	0 - 49° for model 1" 4.4 - 38° for model 1.5"	1 - 40 °C	1 - 40 °C	2 - 40 °C
Power supply	230/24 V - 50/60 Hz	230/24 V - 50/60 Hz	230/24 V - 50/60 Hz	110/230/24 V - 50/60 Hz	110/230/24 V - 50/60 Hz
Installed power	-	8.4 Watts - 21.6 Watts	20 W	20 W	10 W
Pressure loss	-	from 0.8 to 1 bar for model 1" from 1 to 1.7 bar for model 1.5"	~0.5 bar at average flow rate ~1.5 bar at max. flow rate	~0.5 bar at average flow rate ~1.5 bar at max. flow rate	0.3 - 0.6 bar

Filtration

Filtration means removing sediment load, from the coarsest to the colloidal, from the water, adsorbing unpleasant tastes, smells and colors, as well as harmful inorganic and organic micro pollutants, eliminating Iron, manganese, arsenic and other heavy metals, and neutralizing acidity.
These results are achieved with an adequate filtration system, in some cases assisted by pre-oxidation and chemical conditioning.
With biological filtration it is possible to remove Ammonia by nitrification.

SELF-CLEANING FILTERS

The Self-cleaning filters are designed to reduce the turbidity of the water, while eliminating the operations necessary for replacing the filter cartridge.
They are available in semi-automatic and automatic versions and, depending on the models, are used for small and high flow rates. The cartridge consists of an AISI 316 stainless steel mesh, fitted with a rotor that periodically eliminates the retained impurities with a backwashing action. The cartridge is available from 60 to 100 μ.
For high flow rates there are self-cleaning filters provided with DN 65-80 fittings (flanged). In the semi-automatic models washing is obtained by opening of the discharge valve; in the automatic industrial series the backwash cycles are timed, programmable at intervals of 1 to 999 hours, with reduced water consumption.
The self-cleaning filters are CE compliant, compatible with the directive on machinery and building materials, and electromagnetic compatibility.

THREADED SELF-CLEANING FILTER

Model	Max. flow rate at 0.2 bar m3/h	FITTINGS Ø "	DIMENSIONS Ø X height mm	PN bar
Self-cleaning semi – automatic in brass	1.5 – 1.8	¾"F – 1"M	187x335	12
Self-cleaning semi – automatic in brass	3.4	1"	187x335	12
Self-cleaning semi – automatic in brass	9	1"1/2	132x360	16
Self-cleaning semi – automatic in brass	17.4	2"	132x360	16

NOTE: Maximum operating pressure: 16 bar • Maximum water/ambient temperature: 65° / 40 °C Power supply: 220/24 V - 50 Hz

FLANGED SELF-CLEANING FILTER

Model	Max. flow rate at 0.2 bar m3/h	FITTINGS Ø "	DIMENSIONS Ø X height mm	PN bar
Self-cleaning semi – automatic in brass	27	DN 65	240x750	16
Self-cleaning semi – automatic in brass	40	DN 80	240x750	16

NOTE: Maximum operating pressure: 16 bar • Maximum water/ambient temperature: 5° / 40 °C Power supply: 220/24 V - 50 Hz

MICROFILTRATION

GARD SYSTEM

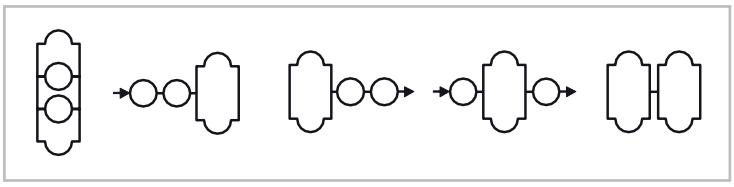
Single or multiple filters with ¾", 1" and 1½" fittings. A highly versatile modular system allowing the combination in different configurations (parallel, series, series-parallel, parallel-series) of turbidity filters of different finenesses, activated carbon filters, dissolvers for the prevention of corrosion. Gard System cartridges come in the following versions:

- STRAINER, with washable steel mesh filtering element, to remove suspended solids up to 110 μ.
- MONOSTAGE or MULTISTAGE, with food-grade polypropylene filtering element, for the selective removal of turbidity.
- The purity of the filtrate varies from 1 to 100 μ, depending on the type of cartridge.
- CARTRIDGE U, phosphate crystal cartridge, for preventing corrosion.
- CARTUCCIA R, activated carbon cartridge, for adsorption of organic substances and dechlorination.

FGX3

Multiple cartridge filters, with satin finish AISI 316 stainless steel container and UNI 338 male threaded inlet/outlet connections, for medium flow rates. The system allows the fitting of cartridges of different filtration fineness (1 - 5 - 20 μ) using standard lengths of 10, 20, 30, 40 inches (250, 500, 750, 1000 mm). Cartridge replacement is quick, thanks to the "bell" opening system. The filter comes complete with tripod support for ground installation.

GARD SYSTEM



The diagram shows some of the possible combinations obtainable with 2, 3 and 4 elements.

NOTE: For the Gard System technical data refer to the separate datasheet.

FGX3

Model	Flow rate m3/h	Cartridges	FITTINGS Ø "	DIMENSIONS Ø mm	DIMENSIONS maximum height with support* mm	WEIGHT for shipment kg
FGX3 125	7.5	3x500 mm	2	168.3	1115	20
FGX3 150	9	3x750 mm	2	168.3	1365	22
FGX3 250	15	3x1000 mm	2	168.3	1620	24
FGX3 415	24.9	7x750 mm	2½	219.1	1371	27
FGX3 580	34.8	7x1000 mm	2½	219.1	1630	34
FGX3 750	45	9x1000 mm	3	273	1780	44

Variable heights for support tripod adjustment.

NOTE: Operating pressure: 8 bar
Test pressure: 11.4 bar

FILTERS

For each type of Culligan filter it is possible to choose the most suitable filter bed from a complete range of minerals, to address every specific problem. Refer to the table on the next page.
The available versions are:

FILTR-CLEER

A multi-layer filter whose typical application is the removal of turbidity, suspended solids and small quantities of heavy metals (mainly Iron and Manganese).
The minerals used are "Cullcite", a low-density granular anthracite, forming the top layer, and "Cullsan", a pure silica sand, chemically inert and of almost unlimited duration.

CULLAR

Whose typical application is the removal of Chlorine and unpleasant tastes and odors.
Cullar is a granular activated carbon characterized by high porosity, which gives it a high adsorbing capacity.

CULLNEU

Whose typical application is the demineralization-neutralization of acidic waters, in order to inhibit aggression and increase hardness. Cullneu is a Calcium carbonate-based granular mineral, which dissolves in proportion to the acidity neutralized, and must therefore be regularly topped up.

SUPER IRON

A multilayer filter using a selective mineral with catalytic effect on Iron, Manganese and Arsenic, reactivatable with various types of oxidants.

G.A.C.

G.A.C., granular activated carbon, specific for adsorbing organohalogenated compounds, antiparasitics, heavy metals and other substances harmful to health.

BIOFILTER

A special filter for removing Ammonia, where the main function of the quartzite filtering media is to support the nitrification biomass consisting of two strains of aerobic bacteria (Nitrosamonas and Nitrobacter). The Biofilter can also oxidize and remove appreciable concentrations of Iron and Manganese when present in the water.

UFX

A filter using a specific mineral to adsorb Arsenic and Vanadium. The mineral cannot be regenerated on site, therefore it must be replaced when depleted; for this reason its use is not recommended for the removal of high concentrations. Ideal for "refining" water previously treated with another more economical process.

OFSY®

An exclusive Culligan dual-stage filtration system, ideal for removing high amounts (or variable amounts) of turbidity and suspended solids. The special feature of the system is that of being able to directly treat highly loaded waters, therefore without any settling or clarification pre-treatment.

CHOOSING THE MOST EFFECTIVE FILTER BED													
	Filtr-Cleer UF		Cullar UR		Cullneu UU		Super Iron		UFX HF9	FHT	Bio - Filtro BF	G.A.C.	OFSY
	HE CTM HF6	HF9	HE CTM HF6	HF9	HE CTM HF6	HF9	HE CTM HF6	HF9					
Turbidity	◢◢	◢◢◢								◢◢			◢◢◢
High and/or variable turbidity	◢◢	◢◢											◢◢◢
Tastes			◢	◢◢								◢◢◢	
Odors			◢	◢◢								◢◢◢	
Colors			◢	◢◢								◢◢◢	
Atrazine and similar				◢								◢◢◢	
Tri + tetrachlorethylene and similar				◢								◢◢◢	
Acidity					◢◢	◢◢◢							
Iron	◢	◢◢					◢◢	◢◢◢			◢		◢◢◢
Manganese		◢					◢	◢◢	◢◢◢		◢		◢◢
Arsenic and Vanadium		◢						◢	◢◢◢				◢◢
Ammonia											◢◢◢		

◢ Acceptable ◢◢ Good ◢◢◢ Excellent

NOTE: In addition to the standard production, for higher flow rates there are specific treatment plants as well as plants pre-assembled on skids or in containers for special applications, and plants to DIN standards, ASME, RINA, etc.

MATERIALS USED

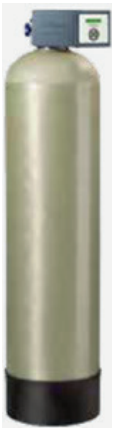
Manufactured entirely at the Culligan works, the standard filters are in steel with corrosion protection consisting of a thick layer (250-300 μ) of food-grade epoxy resins inside and an 80-100 μ layer of protection on the outside.
Exceptions are the HE Series filters, the FHT manual filters and the FRP Series, whose tank is in anti-corrosion reinforced fiberglass (or Culligan Quadra-Hull® system for HE filters only).

OPERATION

Automatic operation of the filters is regulated by a group of hydraulic diaphragm valves actuated by a multi-port pilot which, controlled by an electronic programmer, alternates the service and wash phases.
Culligan HE Series filters are controlled by a multi-piston valve, which ensures easy maintenance and longer life. The installation of a communication kit (optional) is used for alerting if the filter needs servicing.
The Culligan Controller, included in the entire range of filters, allows easy control of the plant and its operation.
Flow rates in the various service and wash phases are controlled by automatic flow regulators that prevent leakage of the minerals during the backwash and optimize
filter efficiency in the service phase.

NOTE: The standard versions and ranges available are given in the technical specifications, on the following pages.

HE



Description	Fittings (")	Service flow rate max. m3/h	Counter-current flow rate m3/h	Dimen-sions Ø mm	Dimensions Height mm	Weight in oper-ation kg	Shipping weight kg
HE FILTR-CLEER UF12	1½	2.6	2.3	305	1575	190	148
HE CULLAR UR12	1½	1.8	1.8	305	1575	165	123
HE CULLNEU UU12	1½	1.8	1.8	305	1575	165	115
HE SUPER IRON UFP12	1½	1.8	1.8	305	1575	190	140
HE FILTR-CLEER UF14	1½	3.6	3.4	356	1905	250	179
HE CULLAR UR14	1½	2.5	2.3	356	1905	250	179
HE CULLNEU UU14	1½	2.5	2.3	356	1905	225	145
HE SUPER IRON UFP14	1½	2.1	3.4	356	1905	300	220
HE FILTR-CLEER UF16	1½	4.7	4.5	406	1905	340	255
HE CULLAR UR16	1½	3.2	3.4	406	1905	315	231
HE CULLNEU UU16	1½	3.2	3.4	406	1905	290	197
HE SUPER IRON UFP16	1½	2.5	3.4	406	1905	365	272
HE FILTR-CLEER UF21	1½	8.1	6.8	533	1600	470	322
HE CULLAR UR21	1½	5.4	6.8	533	1600	395	247
HE CULLNEU UU21	1½	5.4	6.8	533	1600	434	286
HE SUPER IRON UFP21	1½	3	6.8	533	1600	484	336

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

CTM

Description	Fittings (")	Service flow rate max. m3/h	Counter-current flow rate m3/h	Dimen-sions Ø mm	Dimensions Height mm	Weight in oper-ation kg	Shipping weight kg
CTM FILTR-CLEER UF 21	2	8.1	6.8	533	2045	570	335
CTM CULLAR UR 21	2	5.4	6.8	533	2045	400	235
CTM SUPER IRON UFP 21	2	3	6.8	533	2045	615	360
CTM ARSENIC UFX 21	2	3	3.4	533	2045	655	385
CTM FILTR-CLEER UF 24	2	11	11	610	2299	890	522
CTM CULLAR UR 24	2	7	11	610	2299	720	422
CTM SUPER IRON UFP 24	2	4.5	7.9	610	2299	975	572
CTM ARSENIC UFX 24	2	4.5	4.5	610	2299	975	572
CTM FILTR-CLEER UF 30	2	17	16	762	2299	1195	702
CTM CULLAR UR 30	2	11	16	762	2299	1156	680
CTM SUPER IRON UFP 30	2	7	11.3	762	2299	1500	880
CTM ARSENIC UFX 30	2	6.8	6.8	762	2299	1585	930

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

FHT

Model	FLOW RATE max. service m3/h	FLOW RATE counter-cur-rent m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
FHT 500	0.5	1.5	¾	230	-	500	-	70
FHT 1000	1	3	¾	265	-	950	-	90
FHT 2500	2.5	5	1	686	817	1005	-	-

Model FHT 2500 can be supplied in manual, automatic, high and low temperature versions
NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

HI - FLO 6

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
FILTR-CLEER (turbidity)								
UF 60	36.2	61.3	80	1500	1760	2200	4640	3290
UF 72	52	90.8	100	1800	2150	2282	6455	4655
UF 84	70.4	129.4	100	2100	2450	2340	8325	5825
UF 90	81.6	147.7	100	2300	2630	2350	12250	7250
UF 100	101.2	174.9	150	2500	2950	2614	13445	9145
UFe 100	101.2	174.9	100	2500	2850	2564	13445	9145
UF 120	145	250	150	3000	3490	2890	27000	15500
CULLAR (taste – odor – color)								
UR 60	36.2	27.3	80	1500	1760	2200	4395	2795
UR 72	52	40.9	80	1800	2100	2282	6025	3875
UR 84	70.4	52.2	100	2100	2450	2340	8190	5190
UR 90	81.6	65	100	2300	2630	2350	11200	6080
UR 100	101.2	79.5	100	2300	2850	2564	12250	7750
UR 120	145	114	150	3000	3490	2890	25000	13400
CULLNEU (acidity)								
UU 60	22.7	61.3	80	1500	1760	2200	4640	3290
UU 72	32.7	90.8	80	1800	2150	2282	6455	4655
UU 84	40.9	129.4	100	2100	2450	2340	8325	5825
UU 90	47	147.7	100	2300	2630	2350	12290	7250
UU 100	59	174.9	150	2500	2950	2614	13445	9145
UUe 100	59	174.9	100	2500	2850	2564	13445	9145
UU 120	80	250	150	3000	3490	2890	27000	15500
SUPER IRON (Iron – Manganese)								
UFP 60	28	52.2	80	1500	1760	2200	4800	3310
UFP 72	40	68	100	1800	2150	2282	6750	4750
UFP 84	52	95.5	100	2100	2450	2340	8600	6100
UFP 90	58	114	100	2300	2630	2350	12500	7500
UFP 100	79	143	150	2500	2950	2614	12900	9500
UFPe 100	79	143	100	2500	2850	2564	12900	9500
UFP 120	112	200	150	3000	3490	2890	27250	15750

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

HI - FLO 6 TWIN

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
TWIN - FILTR-CLEER (turbidity)								
UF 248	41	41	65	2600	1536	2125	9000	5500
UF 260	72.4	61.8	100	3300	1880	2140	9300	6600
UF 272	104	90.8	100	3900	2110	2260	12930	9350
UF 284	140.8	129.4	150	4580	2360	2385	16500	11700
UF 290	163.8	150	150	4950	2600	2460	24530	14550
UF 2100	202.4	274.9	150	5300	2970	2640	26900	18300
UF 2120	290	250	150	6400	3395	2845	54000	31000
TWIN - CULLAR (taste – odor – color)								
UR 248	41	18.2	65	2600	1536	2125	8100	4600
UR 260	72.4	29	100	3300	1880	2140	8800	5600
UR 272	104	40.9	100	3900	2110	2260	12070	7770
UR 284	140.8	52.2	150	4580	2360	2385	16400	10400
UR 290	163.2	68	150	4980	2600	2460	22420	12200
UR 2100	202.4	79.5	150	5300	2970	2640	24530	15530
UR 2120	290	114	150	6400	3395	2845	50030	26850
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	9550	6800
UFP 272	80	68	100	3900	2110	2260	13200	9600
UFP 284	104	95.5	150	4580	2360	2385	17200	12000
UFP 290	116	114	150	4980	2600	2460	25000	15000
UFP 2100	158	143	150	5300	2970	2640	17500	19000
UFP 2120	224	200	150	6400	3395	2845	55000	31500
UFP 120	112	200	150	3000	3490	2890	27250	15750

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

HI - FLO 9 FRP

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
FILTR-CLEER (turbidity)								
UF 21	4.7	7.9	1"1/2	710	987	2043	770	470
UF 24	6.7	10.9	1"1/2	710	1039	2298	1100	680
UF 30	11	15.9	1"1/2	747	1204	2353	1700	1030
UF 36	17	27.3	2"	941	1414	2410	2980	1910
UF 48	27	40.9	2"1/2x2x2"1/2	1264	1657	2654	4490	2790
UF 55	37	56	2"1/2	1418	1900	3306	4800	3100
CULLAR (taste – odor – color)								
UR 21	4.7	3.4	1"1/2	710	987	2043	760	460
UR 24	6.7	4.5	1"1/2	710	1039	2298	1030	600
UR 30	11	6.8	1"1/2	747	1204	2353	1600	930
UR 36	17	10.9	2"	941	1414	2410	2720	1650
UR 48	27	18.2	2"	1264	1657	2654	3500	2410
UR 55	37	25	2"1/2x2x2"1/2	1418	1900	3306	4250	2950
CULLNEU (acidity)								
UU 21	3	7.9	1"1/2	710	987	2043	830	530
UU 24	4.5	10.9	1"1/2	710	1039	2298	1150	725
UU 30	7	15.9	1"1/2	747	1204	2353	1780	1110
UU 36	11	27.3	2"	941	1414	2410	3030	1955
UU 48	18	40.9	2"1/2x2x2"1/2	1264	1657	2654	4785	3085
UU 55	25	56	2"1/2	1418	1900	3306	5100	3250
SUPER IRON (Iron – Manganese)								
UFP 21	3	5.7	1"1/2	710	987	2043	770	470
UFP 24	4.5	7.9	1"1/2	710	1039	2298	1100	680
UFP 30	7	13.6	1"1/2	747	1204	2353	1700	1030
UFP 36	11	20.5	2"	941	1414	2410	2980	1910
UFP 48	18	31.9	2"1/2x2x2"1/2	1264	1657	2654	4490	2790
UFP 55	25	45.8	2"1/2	1418	1900	3306	4800	3100
CULLAX (Arsenic-Vanadium)								
UFX 21	3	3	1"1/2	710	987	2043	760	460
UFX 24	4.5	4.5	1"1/2	710	1039	2298	1030	600
UFX 30	6.8	6.8	1"1/2	747	1204	2353	1600	930
UFX 36	10.9	10.9	2"	941	1414	2410	2720	1650
UFX 48	17	17	2"	1264	1657	2654	3500	2410
UFX 55	25	25	2"1/2x2x2"1/2	1418	1900	3306	4250	2950

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

HI - FLO 9

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
FILTR-CLEER (turbidity)								
UF 20	4.7	7.9	1½"	710	735	1950	770	470
UF 24	6.7	10.9	1½"	710	835	1985	1100	680
UF 30	11	15.9	1½"	765	985	2050	1700	1030
UF 36	17	27.3	2"	975	1215	2131	2980	1910
UF 48	27	40.9	2½	1258	1436	2235	4490	2790
UF 54	37	56	2½	1432	1632	2367	4800	3100
UF 60	42	61.3	DN80	1500	1760	2700	5500	4050
UF 72	60	90.8	DN100	1800	2150	2782	6400	5450
UF 84	80	129.4	DN100	2100	2450	3090	10650	7700
UF 90	86	147.7	DN100	2300	2630	3100	12450	9010
UF 100	117	174.9	DN150	2500	2950	3364	16100	11700
UFe 100	117	174.9	DN100	2500	2850	3314	16100	11700
UF 120	170	250	DN150	3000	3490	3600	32000	18880
CULLAR (taste – odor – color)								
UR 20	4.7	3.4	1½"	710	735	1950	760	460
UR 24	6.7	4.5	1½"	710	835	1985	1030	600
UR 30	11	6.8	1½"	765	385	2050	1600	930
UR 36	17	10.9	2"	975	1215	2131	2720	1650
UR 48	27	18.2	2"	1258	1465	2235	3500	2410
UR 54	37	25	2½"	1432	1626	2367	4250	2950
UR 60	42	27.3	DN 80	1500	1760	2700	4500	3350
UR 72	60	40.9	DN 80	1800	2100	2782	5550	4600
UR 84	80	52.2	DN 100	2100	2450	3090	8100	5900
UR 90	86	61.8	DN 100	2450	2630	3100	9806	7600
UR 100	117	79.5	DN 100	2630	2850	3314	11100	9400
UR 120	170	114	DN 150	2850	3490	3600	29000	15250
SUPER IRON (Iron – Manganese)								
UFP 20	3	5.7	1½"	710	735	1950	770	470
UFP 24	4.5	7.9	1½"	710	835	1985	1100	680
UFP 30	7	13.6	1½"	765	985	2050	1700	1030
UFP 36	11	20.5	2"	975	1215	2130	2980	1910
UFP 48	18	31.9	2½"	1258	1436	2235	4490	2790
UFP 54	25	45.8	2½"	1432	1632	2367	4800	3100
UFP 60	28	52.2	DN 80	1500	1760	2700	5700	4300
UFP 72	40	68	DN 100	1800	2150	2780	7000	5900
UFP 84	52	95.5	DN 100	2100	2450	3090	11700	8700
UFP 90	58	114	DN 100	2300	2630	3100	14000	10560
UFP 100	79	143	DN 150	2500	2950	3364	17900	13200
UFPe 100	79	143	DN 100	2500	2850	3314	17900	13200
UFP 120	112	200	DN 150	3000	3490	3600	34600	20500

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

HI - FLO 9

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
CULLAX (Arsenic-Vanadium)								
UFX 20	3	3	1½"	710	735	1950	760	460
UFX 24	4.5	4.5	1½"	710	835	1985	1020	600
UFX 30	6.8	6.8	1½"	765	985	2050	1590	930
UFX 36	10.9	10.9	2"	975	1215	2131	2550	1650
UFX 48	17	17	2"	1258	1465	2235	4060	2410
UFX 54	25	25	2½"	1432	1626	2367	5050	2950
UFX 60	27.3	27.3	DN 80	1500	1760	2700	5970	3350
UFX 72	40	40	DN 80	1800	2100	2782	8350	4600
UFX 84	52.2	52.2	DN 100	2100	2450	3090	11150	5900
UFX 90	61.8	61.8	DN 100	2300	2630	3100	13900	7600
UFX 100	75	75	DN 100	2500	2850	3364	16900	9400
UFX 120	105	105	DN 100	3000	3490	3600	24750	13250
BIOFILTERS (Ammonia - Iron - Manganese)								
BF 48	17	36	2"	1285	1465	2235	4150	2500
BF 54	22.5	47	2½"	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	1½"	710	735	1950	830	530
UU 20	4.5	10.9	1½"	710	835	1985	1150	725
UU 30	7	15.9	1½"	765	985	2050	1780	1110
UU 36	11	27.3	2"	975	1215	2131	3030	1955
UU 48	18	40.9	2½"	1258	1436	2235	4785	3085
UU 54	25	25	2½"	1432	1632	2367	5100	3250

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

HI - FLO 9 TWIN

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
TWIN - FILTR-CLEER (turbidity)								
UF 260	72.4	61.9	100	3300	1880	2610	10900	7500
UF 272	104	90.8	100	3900	2110	2760	12700	10700
UF 284	140.8	129.4	150	4580	3135	3135	21200	15300
UF 290	163.2	150	150	4980	3210	3210	29074	17800
UF 2100	202.4	174.9	150	5300	3390	3390	31500	22700
UF 2120	290	250	150	6400	3595	3595	63300	36900
TWIN - CULLAR (taste – odor – color)								
UR 260	72.4	29	100	3300	1880	2610	8900	6600
UR 272	104	40.9	100	3900	2110	2760	11000	9100
UR 284	140.8	52.2	150	4580	3135	3135	16100	11700
UR 290	163.2	61.2	150	4980	3210	3210	18760	13650
UR 2100	202.4	79.5	150	5300	3390	3390	21500	18100
UR 2120	290	114	150	6400	3595	3595	57300	29800
TWIN - SUPER IRON (Iron – Manganese)								
UFP 260	56	52.2	100	3300	1880	2610	11300	8000
UFP 272	80	68	100	3900	2110	2760	13900	11500
UFP 284	104	95.5	150	4580	3135	3135	23200	17000
UFP 290	116	114	150	4980	3210	3210	27800	20500
UFP 2100	158	143	150	5300	3390	3390	35500	26000
UFP 2120	224	200	150	6400	3595	3595	67500	40000

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

OFSY

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
OFSY 20	4.5	7.9	1½"	1100	880	1960	1320	1050
OFSY 24	5.7	10.9	1½"	1200	980	2000	1820	1400
OFSY 30	9.1	15.9	1½"	1600	1130	2050	2820	2110
OFSY 36	13.6	27.3	2½"	2010	1480	2130	4350	3400
OFSY 48	21.8	40.9	2½"	2500	1730	2235	7800	5600
OFSY 54	29.6	56.9	2½"	2920	1930	2367	8800	6000
OFSY 60	36.3	61.3	DN 80	3200	1760	2150	10500	7200
OFSY 72	60	90.8	DN 100	3750	2150	2150	15000	10500
OFSY 84	68.1	129.4	DN 100	4350	2450	2160	20000	16000
OFSY 90	82	159	DN 100	4750	2600	2250	25000	17000
OFSY 100	100	174.9	DN 100	5200	2950	2370	29500	21000
OFSY 120	139	250	DN 100	6300	3430	2890	54000	31000

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

G.A.C.

Model	FLOW RATE max. service m3/h	FLOW RATE counter-current m3/h	FITTINGS in/out Ø "	DIMENSIONS			Weight in operation kg	Shipping weight kg
				width mm	depth mm	height mm		
G.A.C. 20	3	3.4	1"	500	660	2480	640	400
G.A.C. 24	4.5	4.5	1"	600	760	2515	800	500
G.A.C. 30	7	7	1½"	750	1020	2585	1000	600
G.A.C. 36	10.8	11	1½"	950	1217	2650	1500	950
G.A.C. 48	18	20.5	2½"	1200	1470	2770	2700	1600
G.A.C. 54	23	20.5	2½"	1400	1670	2870	3200	1900
G.A.C. 60	27	28	2½"	1500	1770	3000	3500	2500
G.A.C. 72	40	41	DN 80	1800	2100	3110	4900	3500
G.A.C. 84	54	55	DN 80	2100	2400	3160	6500	4500
G.A.C. 90	60	60	DN 100	2300	2705	3370	7000	5000
G.A.C. 100	80	80	DN 100	2500	2850	3420	8500	6500
G.A.C. 120	108	113	DN 100	3000	3430	3890	15000	9000

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

OPERATION DATA				
	HE	CTM	FHT	HI-FLO 6 / HI-FLO 9 / TWIN / OFSY / G.A.C.
Minimum operating pressure	2 bar	2.4 bar	4 bar	1.5 bar
Maximum operating pressure	8.3 bar	8.6 bar	4 bar	7 bar up to model 60" 5 bar for later models 10 bar for FRP version
Operating temperature	0.5 - 49 °C	4.4 - 49°C	5 - 50°C	5 - 40°C
Power supply	230/24 V 50 / 60 Hz	230/24 V 50 / 60 Hz	only model 2500 230 V/50-60 Hz	110/230/24 V 50 / 60 Hz
Installed power	22 W	22 W	only model 2500 10 W	10 W
Pressure loss	1- 1.7 bar	Between 0.3 and 0.8 bar, depending on the model and type of filter	--	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

DEGASSING TOWERS

MATERIALS USED

Aeration Tower models 400, 600, 1000 and 1400 are entirely in Polypropylene PP, whereas model 1800 is entirely in steel, protected inside by epoxy paint and outside by two layers of antirust paint.
The filling bodies are in polypropylene (for all models).

OPERATION

The Aeration Towers are equipped with one or more fans which force air upwards to the water spray which descends, taking the gases collected from the fragmented water towards the discharge flue.
A siphon at the bottom of the Aeration Tower prevents the air produced by the electric fan from being dispersed downwards.

OPTIONAL ACCESSORIES

In some cases, in order to optimize the efficiency of the Aeration Towers, the following accessories are available for the entire PP line:

- DROP-STOP FILTERS, to reduce the "aerosol" effect or, more simply, to improve separation of the water droplets in the forced air flow; they are installed immediately before the gas outlet flue.
- SPRAY NOZZLES, able to obtain maximum stripping of the unwanted gases; they are installed on the distribution pipes of the water to be treated inside the tower.

Model	FLOW RATE*		ELECTRIC FAN 220/380V - 50 Hz - 3 ph		AIR FLOW RATE	DIMENSIONS			Weight in operation kg	Shipping weight kg
	(1) m^3/h	(2) m^3/h	Power kW	Max. head mm H2O	m^3/min	width mm	depth mm	height mm		
Ø 400	4	10	0.55	-140	13	560	1180	2620	220	110
Ø 600	9	22	1.5	-140	29	780	1475	2620	350	148
Ø 1000	24	60	3	-140	80	1120	1920	2620	1000	335
Ø 1400	50	120	5.5	-140	160	1545	2400	2620	1600	540
Ø 1800	80	200	11	-140	260	1960	2785	3310	3000	1400

* Operating temperature: 5-60 °C • (1) Hydrogen Sulphide and Trihalomethanes • (2) Carbon Dioxide and Methane.
NOTE:
– Weights are approximate. • The above dimensions can vary by ± 2%.
– In addition to the standard models indicated, larger Aeration Towers, expressly designed according to the required removal of gas, can also be supplied.

DYNAMIC SEPARATORS

MATERIALS USED

The models available, with 1" to 3" fittings, are in carbon steel, painted externally, for non-aggressive or non-corrosive waters.

OPERATION

The Dynamic Separator exploits the centrifugal movement of the water to separate the solid parts from the liquid.
The water enters tangentially at the top and is conveyed, through holes that are also tangential, inside a pipe where separation of the solid particles occurs.
The water runs through the pipe with strong centrifugal energy that allows the separation of parts of higher specific weight.
These descend by gravity and are collected in the lower accumulation chamber, whereas the clarified water flows upwards, along the middle part of the pipe, to the upper outlet.

DYNAMIC SEPARATORS

Model	Min. flow rate m3/h	Max. flow rate m3/h	In/Out fittings"	Discharge fittings "	COLLECTION CHAMBER CAPACITY liters	DIMENSIONS diameter x height mm	Weight in operation kg	Shipping weight kg
DSA 1	4.5	7.5	1	¾	1.2	152x762	17	11
DSA 1.5	10.5	16	1½	¾	1.2	152x762	18	11
DSA 2	14.5	24	2	¾	3	219x854	45	22
DSA 2.5	21.5	35	2½	¾	4.7	219x940	50	25
DSA 3	33.5	66	3	¾	8.3	73x1067	80	46

Max. operating temperature: 70 °C • Minimum operating pressure: 1 bar • Max. pressure: 8 bar.
NOTES: Weights are approximate. • The above dimensions can vary by ± 2%.

Reverse osmosis

Reverse Osmosis (R.O.) exploits the ability of semi-permeable membranes to separate the water from the substances dissolved in it. Applying a pressure, the water is forced through the membrane: pure water (permeate) will thus be separated from the water containing salts (reject).
The osmotic membrane performs the highest possible level of filtration. It not only acts as a barrier against salts and inorganic substances, but also organic substances with molecular weights above 100 Dalton. This means it is also an excellent defense against micro-pollutants, pesticides, pyrogens, viruses and bacteria.
Reverse osmosis is a physical process, which does not require the use of chemical regenerants. Because of its versatility, excellent performance and ease of use, reverse osmosis technology offers an all-round guarantee.
Over the years, the types of membranes available have increased, up to the latest energy efficient types, and their quality and reliability are now guaranteed even for those specifically designed for targeted applications.

MODELS

The range of Reverse Osmosis desalters includes the following standard lines:

- E1, G1 SERIES for flow rates of 40 to 350 l/h
- AQUA-CLEER NFC SERIES (designed to feed industrial dishwashers) for flow rates of 180 l/h
- AQUA-CLEER MFP 5 SERIES for flow rates of 400 to 3600 l/h
- AQUA-CLEER RO 2 for flow rates of 410 to 1600 l/h
- AQUA CLEER IW EVO SERIES for flow rates of 5000 to 36000 l/h
- AQUA-CLEER SW SERIES for flow rates of 4000 to 40000 l/h

S.D.S. MD EVO SERIES for flow rates up to 80 l/h

- AQUA-CLEER R.O.^{2} MD* SERIES for flow rates of 450 to 2700 l/h
- AQUA-CLEER R.O. ^{2} BIO E SERIES for flow rates of 1000 to 3800 l/h
- AQUA-CLEER R.O. ^{2} BIO THERMO SERIES for flow rates of 730 to 3200 l/h
- PHARMA ((for producing pure water for laboratories) for flow rates of 35 to 160 l/h)

* The R.O.^{2} Series plants are also available in "Medical Device" version.

NOTE: R.O.^{2} Series plants operate with double Osmosis in series, or alternatively in single pass with alternating operation. They are particularly suitable for the hemodialysis sector and for the most sophisticated uses.
"Custom" plants with higher flow rates are possible in addition to the standard systems.

MATERIALS USED

The heart of an R.O. desalter is the osmosis membrane. Aqua-Cleer systems normally use spiral membranes, selected according to the feed water characteristics and the required quality of the treated water. SW Series desalters use membranes suitable for treating sea water with salinity up to 45000 ppm.
The materials used for their construction, in particular for the parts in contact with water, are highly resistant to corrosion (AISI 316 stainless steel, PVC and Polyethylene) and food-grade.

AUTOMATION AND ACCESSORIES

All Aqua-Cleer desalters have automated systems for controlling all operating and quality parameters, with respective indicators, and safety.
Various specific accessories for dialysis are available to complete the installation, based on our experience and designed according to the current regulations, including the specific device to prevent the rise of bacteria and any possible backflow between the discharge pipe and the artificial kidney.
The device is made of steel, with internal siphon, and is complete with quick connector. In addition to the above, there is also a hot water producer for thermal sanitization of the distribution loop, as well as a cover panel for soundproofing the R.O. plant.

Soundproof enclosure for Bi-Osmosis Medical Device

Hot water producer for sanitization

PLC electric panel

Kidney discharge device

MAIN APPLICATIONS

When water of high chemical and bacteriological quality is required, with the advantage (compared to demineralization) of not having problems regarding regeneration discharges and handling chemicals:

- desalination and potabilization of brackish and sea water
- feeding of medium and high pressure steam generators
- humidification systems
- electronics industry, for cleaning microchips
- cosmetic and pharmaceutical industry
- textile industry
- food industry
- catering, to optimize the results of automatic dishwashers
- pretreatment with deionization system and boiler
- drinking water for making ice
- offset printing centers, to improve efficiency and reduce waste
- chemical laboratories, for washing instruments and glassware
- floriculture
- in the preparation of water for dialysis, with the "Medical Device" version, in conformity with Standard ISO 13485 by the Notified Body CE 0476
- ... and whenever specific water is needed

AC COMPACT PRO AND LAB

TECHNICAL SPECIFICATIONS					
Model	AC COMPACT PRO-80	AC COMPACT LAB-80	AC COMPACT PRO-160	AC COMPACT LAB-160	AC COMPACT PRO-300
NOMINAL FLOW RATE L/H	80	80	160	160	300
NUMBER OF MEMBRANES	1	1	2	2	3
POWER SUPPLY V	220	220	220	220	220
FREQUENCY HZ	50	50	50	50	50
DIMENSIONS LXDXH	350x530x485	350x530x485	350x530x485	350x530x485	350x530x485
SHIPPING WEIGHT Kg	24.5	24.5	24.5	24.5	24.5

* Average values calculated under the following standard conditions: water temperature 20°C; operating pressure 112 or 140 psi (8 or 10 bar); recovery ratio percentage 55%; raw H2O salinity 250 ppm NaCl; product H2O pressure 0 bar; new modules.
** weight only refers to AC COMPACT without accessories

E1 G1 SERIES

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE* l/h	DIMENSIONS	
		in feed Ø mm	out product Ø mm		width mm	depth mm
DESALTERS FOR BRACKISH WATER						
E1 SERIES						
E1-1S	0.25	10	10	40	885	312
E1-2S	0.25	10	10	80	885	312
E1-3S	0.25	10	10	120	885	312
E1-2L	0.56	10	10	190	885	312
E1-3L	0.56	10	10	270	885	312
E1-4L	0.56	10	10	350	979	312
G1 SERIES						
G1-2S	0.25	10	10	80	955	312
G1-3S	0.25	10	10	120	955	312
G1-2L	0.56	10	10	190	955	312
G1-3L	0.56	10	10	270	955	312
G1-4L	0.56	10	10	350	1048	312

*Average values calculated under the following conditions: water temperature 25 °C; raw H2O salinity 500 ppm NaCl; product H2O pressure 0 bar; new modules.

NOTE: Available for WALL or FLOOR installation

NFC SERIES

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
SYSTEM FOR DRINKING WATER								
NFC 99	0.42	½	½	180	570	460	605	48

* Average values calculated under the following conditions: water temperature 20 °C; raw H2O salinity 500 ppm NaCl; product H2O pressure 0 bar; new modules.

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

MFP 5

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
DESALTERS FOR BRACKISH WATER								
400	1.6	1	½	400	500	700	1535	115
800	1.6	1	½	800	500	700	1535	140
1200	2.3	1	½	1200	500	700	1535	170
1600	2.3	1	½	1600	500	700	1535	190
2200	4.2	1	¾	2000	500	700	1830	220
2800	4.2	1	¾	2400	500	700	1830	250
3300	4.2	1	¾	2800	500	700	1830	280
3600	4.2	1	¾	3200	500	700	1830	310
4000	4.2	1	¾	3600	500	700	1830	370

Average values calculated under the following conditions: water temperature 20 °C; operating pressure 200 or 261 psi (14 or 18 bar); recovery ratio percentage 75%; raw H2O salinity 500 ppm NaCl; product H2O pressure 0 bar; new modules.

NOTE: Weights and dimensions are approximate and may vary in the versions with accessories (antiscalant and flushing). • The above dimensions can vary by ± 2%.

AQUA-CLEER RO2

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
BI-OSMOSIS								
RO2 400	1.6	1	1½	500	1000	700	1850	220
RO2 800	1.6	1	1½	1000	1000	700	1850	260
RO2 1200	3.2	1	1½	1500	1000	700	1850	310
RO2 1600	4.2	1	1½	2000	1000	700	1850	350

average values calculated under the following conditions: water temperature 20 °C; raw H2O salinity 1500 ppm NaCl; product H2O pressure 0 bar; new modules.

IW EVO

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
DESALTERS FOR FRESH AND BRACKISH WATER • 380/660 V - 50 Hz								
IW05 EVO	4	1½	1½	5000	4678	1195	1900	650
IW08 EVO	7.5	2	1½	8000	3720	1195	1940	710
IW12 EVO	11	2	2	12000	3720	1195	1940	950
IW16 EVO	15	3	2	16000	6750	1250	1985	1280
IW24 EVO	15	3	2½	23000	6750	1250	2130	1370
IW32 EVO	22	4	3	32000	6750	1250	2130	1600
IW40 EVO	22	4	3	36000	6750	1250	2130	1850

* average values calculated under the following conditions: water temperature 20 °C; raw H2O salinity 1500 ppm NaCl; product H2O pressure 0 bar; new modules.

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.
(Basic machine consisting of frame, pressurizing pump, pre-filter, FGX3 - 5μ, vessels and membranes. WITHOUT instrumentation and control).

The automatic configurator is available: please contact the Cadriano premises

SW EVO

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS		
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm
DESALTERS FOR SEAWATER							
SW 04 EVO	22	1½	1	4000	6900	1340	2070
SW 08 EVO	24	2½	1½	8000	6900	1340	2070
SW 12 EVO	35.5	3	2	12000	6900	1340	2070
SW 16 EVO	48	4	2	16000	6900	2150	2170
SW 20 EVO	56	4	2½	20000	6900	2150	2170
SW 24 EVO	66	4	2½	24000	6900	2150	2170
SW 32 EVO	93.5	5	3	30000	6900	2200	2190
SW 40 EVO	108.5	6	3	40000	6900	2200	2190

* Average values calculated under the following conditions: water temperature 25 °C; raw H2O salinity 36000 ppm NaCl; product H2O pressure 0 bar; new modules.

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

CLASS IIB MEDICAL DEVICE

AQUA CLEER S.D.S. MD EVO

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
SYSTEM FOR DRINKING WATER								
S.D.S.	0.60	8	6	80 - 100	375	365	900	50

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

CLASS IIB MEDICAL DEVICE

AQUA-CLEER RO2 MD

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
BI-OSMOSIS								
RO2 400	3.2	1	1½	450	1000	700	1850	220
RO2 800	4.6	1	1½	900	1000	700	1850	260
RO2 1200	6.4	1	1½	1350	1000	700	1850	310
RO2 1600	8.4	1	1½	1800	1000	700	1850	350
RO2 2800	8.4	1	1½	2250	1000	700	1850	390
RO2 3300	8.4	1	1½	2700	1000	700	1850	430

* average values calculated under the following conditions: water temperature 20 °C; raw H2O salinity 1500 ppm NaCl; product H2O pressure 0 bar; new modules.

CLASS IIB MEDICAL DEVICE

R.O.2 BIOE - BIO THERMO

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
BI-OSMOSIS								
R.O.² BiO 1E	6.5	1	1	1000	1800	800	1905	565
R.O.² BiO 2E	6.5	1	1	1425	1800	800	1905	590
R.O.² BiO 3E	9	1	1	2500	1800	800	1905	665
R.O.² BiO 4E	9	1	1	3800	1800	800	1905	730
BI-OSMOSIS WITH THERMAL SANITIZATION								
R.O.² BiO 1 THERMO	6.5	1	1	730	1800	800	1905	750
R.O.² BiO 2 THERMO	12	1	1	1450	1800	800	1905	820
R.O.² BiO 3 THERMO	12	1	1	2600	1800	800	1905	910
R.O.² BiO 4 THERMO	16	1	1	3200	1800	800	1905	950

* Average values calculated under the following conditions: water temperature 20 °C; raw H2O salinity 500 ppm NaCl; product H2O pressure 0 bar; new modules

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%. Thermal sanitization can be supplied separately.

PHARMA

Model	INSTALLED POWER KW	FITTINGS		NOMINAL FLOW RATE*	DIMENSIONS			Shipping weight kg
		in feed Ø mm	out product Ø mm		width mm	depth mm	height mm	
FOR PRODUCTION OF 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. • The above dimensions can vary by ± 2%.

OPERATION DATA			
	E1 - G1 SERIES AQUA-CLEER SB 200 NFC SERIES	MFP 5 / R.O.² / SW IW EVO	S.D.S. / PHARMA
Minimum inlet water pressure	E1 - G1 Series: 1.4 bar Aqua-Cleer SB 200: 2 bar NFC Series: 1 bar	2 bar 3 bar SW	S.D.S.: 1bar Pharma: 1.5 bar
Operating pressure	E1 - G1 Series: 10.5 bar Aqua-Cleer SB 200: 13 bar NFC Series: 12 bar	MFP and R.O.²: 14 bar up to model 1600; 18 bar for other models. SW: 62 bar - IW EVO: ≤ 16 bar	S.D.S.: 1bar Pharma: 1.5 bar
Power supply	E1 - G1 Series: 230 V - 50 Hz Aqua-Cleer SB 200: 380 V - 50 Hz NFC Series: 24/230/110 V - 50 Hz	380 V - 50 Hz	380 V - 50 Hz
Inlet salinity	500 ppm	MFP and R.O.²: 3000 ppm up to model 1600; 1500 ppm other models. IW EVO: 1500ppm÷4500ppm SW EVO: 36000ppm÷42000ppm	1500 ppm
Recovery ratio	E1- G1 Series: 40-50% Aqua-Cleer ????Aqua-Cleer SB 200: 75% NFC Series: 20-60%	75% max SW: 40%	S.D.S.: 50% Pharma 20: 20-25% Pharma 45-80-120: 20-30%

Ultrafiltration

Ultrafiltration is a separation process under pressure, able to divide the insoluble particles from the water and totally eliminate suspended solids.
The heart of the Ultrafiltration system consists of the modules that perform the actual process.

MODELS

The Ultrafiltration systems come in various models, with flow rates of 6 to 142 m3/h. The modules offer high resistance to mechanical stress from rubbing and consist of a double layer of hollow fibers (capillaries) in PVDF.

OPERATION

The fully automated system carries out programmed washes during the production cycle. It also has pressure differential, able to detect a possible excessive pressure loss (caused by clogging of the membranes) and start the wash cycle. To manage the plant's automation there is an electric panel complete with PLC, and instrumentation for control and manual command of several plant functions (such as flow meters or pressure transducers) by the operator.

MAIN APPLICATIONS

- Filtration of water contaminated by turbidity, suspended solids and microbiological impurities.
- Production of drinking water from surface water, spring or well water.
- Pretreatment for Reverse Osmosis plants.
- Tertiary filtration in plants for the reuse of non-potable water.

Description	Modules no.	Flow rate m3/h	Maximum Installed power KW	HYDRAULIC CONNECTIONS	DIMENSIONS (length x width x height) mm
ULF 01	1	5.8	3.9	DN 40	1400 X 1900 X 2345
ULF 02	2	11.6	5.6	DN 50	1400 X 1940 X 2345
ULF 03	3	17.5	7	DN 50	1400 X 2025 X 2345
ULF 04	4	23.5	11.2	DN 65	1400 X 2025 X 2345
ULF 05	6	35.4	13.8	DN 80	1400 X 2385 X 2345
ULF 06	8	47.1	15.7	DN 100	1515 X 2875 X 2345
ULF 07	10	57.9	20.5	DN 100	1550 X 3320 X 2345
ULF 08	12	66.8	21.5	DN 100	1650 X 3680 X 2345
ULF 09	14	81.6	28.9	DN 150	2310 X 4045 X 2345
ULF 10	16	93.1	30.4	DN 150	2310 X 4045 X 2345
ULF 11	20	116.2	41.9	DN 150	2330 X 4790 X 2345
ULF 12	24	141.6	43.9	DN 150	2330 X 5240 X 2345

NOTE: Power supply 380 V - 50 Hz 3 ph + ground.

Demineralization

Demineralization (or deionization) is a process that can almost completely remove the salinity of the water through ion exchange using resins.
The positively charged ions are called "cations", those negatively charged are "anions".
The exchange can occur through successive steps on cation and anion resins, or in a single step on intimately mixed resins, with "mixed bed", each of which able to produce different quality levels of treated water.
When the resins are saturated it is necessary to carry out a regeneration with hydrochloric acid and caustic soda, to restore the exchange capacity.

EDI

EDI (Continuous electrodemineralization) has been studied for the particular and delicate, high quality water production market. It is a demineralization system whose operation cycle does not require the use of regenerants such acid and soda, typical of demineralization systems with ion-exchange resins. To obtain very high quality standards the EDI plant uses electricity, selective membranes and ion exchange resins.

MODELS

EDI line models are designed and manufactured to the highest standards of quality, safety and quiet operation. EDI provides for an electric panel complete with PLC which makes it autonomous in management, and a brine injection system complete with tank and recirculating pump. Lastly, the front panel complete with flow and pressure measurers makes the system a complete and compact.

MATERIALS USED

The construction materials used, and in particular those of the parts in contact with water, are all of proven corrosion resistance and do not give rise to transfer phenomena.

OPERATION

Electrodeionization can produce ultrapure water through the use of spiral wound membranes, combined with ion exchange resins. A continuous electrical current source connected to an anode and a cathode keeps the resins activated and also, by means of the electric field formed between the anode and cathode, favors the electrolysis of water and separates the ions dissolved in it.
This process enables the production of very high quality water (18 MOhms) starting from previously demineralized feed water with double osmosis step or with double bed of exchange resins.

MAIN APPLICATIONS

- Electronics
- Boilers
- Painting
- Printing
- Distilleries
- Pharmaceutical
- Cosmetics
- Replenishing water

EDI

Model	Modules	Flow rate m3/h	Power KW	Hydraulic connections				Dimensions (length x width x height)
				Alignment	Product	Electronics	Concentrate	
EDI 10	1	2.2	2	1½"	1"	tube Ø 6	1"	1700 x 1200 x 1500
EDI 20	2	4.5	3.5	2"	1"	tube Ø 6	1"	1700 x 1200 x 1500
EDI 30	3	6.5	5	2"	1"	tube Ø 6	1"	1700 x 1200 x 1500
EDI 40	4	9	7	2"	1½"	tube Ø 6	1"	1700 x 1550 x 1500
EDI 60	6	13	10	2"	1½"	tube Ø 6	1"	1700 x 1550 x 1500

PDI

PDI (Portable demineralization) includes small ion exchange demineralization systems featuring easy management, and using a resin not regenerated on site.

MODELS

PDI line systems come in the following standard models:
• Deionizer D 25 P, MB 9 and MB 16 with mixed bed resins.
• Refill Line with a disposable cartridge of high exchange capacity resins, ideal for medium/low flow rates.
• Pharma for the production of ultrapure water, to meet the most demanding needs of analysis laboratories.

MATERIALS USED

The containers of the Deionizer D and MB Series line are in fiberglass; only the MB Series container has neutral color plastic external covering.
The containers of the Refill Line can be supplied in steel or PVC.
Pharma is a compact, transportable and silent system. All the hydraulic components used are in food and medical-grade corrosion resistant materials and designed to amply withstand the foreseen operating conditions.

OPERATION

D and MB Series deionizers can be connected to the water supply via the flexible fittings supplied. A quality control device signals depletion of the resins, which are regenerated at the Culligan service center. Pharma has been rationally designed, considering a feed with drinking water and using (in the final refining phase) 'disposable' resins that offer exchange capacities higher than the normal regenerated resins, and avoid the hassle and cost of handling containers for the periodic regeneration. A device for partial recirculation and stop timing allows either continuous or intermittent use, keeping the quality of the product water always at the highest levels. A second timer signals (with an audible and visual alarm) when it is advisable to replace the pre-filtration cartridges. The quality of the treated water is continuously monitored by a conductivity meter that detects the purity of the final treated water or, optionally, the osmotized water.

MAIN APPLICATIONS

- Pharmaceutical
- Cosmetics
- Boilers
- Laboratories
- Printing
- Distilleries

DEIONIZER D

Model	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	OPERATING FLOW RATE L/m	FITTINGS in/out Ø "	DIMENSIONS		WEIGHT	
				Ø mm	height mm	In operation	For shipment
D 25 P	0.16	3	¼	190	600	20	16.2

NOTE: The above dimensions can vary by ± 2%.

DEIONIZER MB

Model	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	OPERATING FLOW RATE L/m	FITTINGS in/out Ø "	DIMENSIONS		WEIGHT	
				Ø mm	height mm	In operation	For shipment
MB 9	0.7	15	½	255	1450	80	58.5
MB 16	2.2	50	½	406	1620	200	150

NOTE: The above dimensions can vary by ± 2%.

REFILL LINE

QUANTITY OF RESINS OR CARBON liters	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	OPERATING FLOW RATE L/m	TREATED WATER QUALITY	OPERATING LIMITS drinking water
MIXED BED				
10 l resin	220	250	≥ 2Ω 80% of cycle - 0.5Ω cycle end	TDS ≥ 500 ppm
20 l resin	450	500	≥ 2Ω 80% of cycle - 0.5Ω cycle end	TDS ≥ 500 ppm
SOFTENER				
10 l resin	600	500	TH < 5 °f	TDS ≥ 35 °f
20 l resin	1200	1000	TH < 5 °f	TDS ≥ 35 °f
ACTIVATED CARBON				
10 l carbon	according to load	400	Chlorine free	Chlorine ≥ 3 ppm
20 l carbon	according to load	1200	Chlorine free	Chlorine ≥ 3 ppm

NOTE: The above dimensions can vary by ± 2%.

PHARMA

Model	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	OPERATING FLOW RATE L/m	DIMENSIONS			Shipping weight Kg
			Width mm	Depth mm	Height mm	
PHARMA 20	0.22	35	380	440	920	80
PHARMA 45	0.22	80	500	500	1450	123
PHARMA 80	0.22	120	500	500	1450	130
PHARMA 120	0.22	160	500	500	1450	140

NOTE: The above dimensions can vary by ± 2%.

AUTOMATIC DEMINERALIZATION

The automatic demineralization systems are often a component integrated into Culligan systems where large volumes of high quality water are required to be treated.

MODELS

• Deionizer DS with separate beds (cation and anion column), for flow rates with automatic regeneration in current.
• Deyolit NRC, with separate beds and counter-current regeneration, for producing high quality water with low consumption of regenerants.
• Deyolit AMB, with mixed bed, able to completely remove the water salinity (ideal for refining the quality of water produced by demineralizers with separate beds or R.O. desalters).

MATERIALS USED

The containers of the Deionizer DS Series line are in fiberglass.
The containers of the Deyolit line are in carbon steel, coated internally with a layer of ebonite and painted externally with anti-corrosive enamel. The group in PVC with valves in Noryl can withstand extreme pH conditions over a wide pressure range.

OPERATION

All Culligan demineralizers are fully automatic, with programmable logic systems for control of the service and regeneration phases. DS Series Deionizers have two programmers: one for the cation column and one for the anion column. The Deyolit line has a command and control panel (comprising an electronic conductivity meter) which ensures automation of the various operating phases by controlling resin washing and regeneration when the quality of the product water deviates from the predetermined value.

MAIN APPLICATIONS

- Electronics
- Boilers
- Painting
- Printing
- Distilleries
- Pharmaceutical
- Cosmetics
- Replenishing water

DEIONIZER D

Model	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	OPERATING FLOW RATE L/m	FITTINGS in/out Ø "	DIMENSIONS			WEIGHT	
				Width mm	Depth mm	height mm	In operation	For shipment
DS 50	2	1.6	1	2400	680	1600	300	154
DS 100	4	2.5	1	2450	785	1855	520	300
DS 200	6.5	3.4	1	2450	785	1850	750	450

DEYOLIT NRC

Model	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	OPERATING FLOW RATE L/m	FITTINGS in/out Ø "	DIMENSIONS			WEIGHT	
				Width mm	Depth mm	height mm	In operation	For shipment
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. • The above dimensions can vary by ± 2%.

DEYOLIT AMB

Model	EXCHANGE CAPACITY PER CYCLE kg (CaCO3)	RAW WATER FLOW RATE m3/h	DEMINER-AL. WATER FLOW RATE m3/h	FITTINGS in/out Ø "	DIMENSIONS			WEIGHT	
					Width mm	Depth mm	height mm	In operation	For shipment
AMB 3000	3	3.4	7.9	1½	830	750	2892	600	350
AMB 5000	5	4.5	10.9	2	900	850	3025	700	400
AMB 7500	7.5	6.8	15.9	2	900	860	3000	880	500

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

OPERATION DATA					
	EDI	D 25 P - MB 9-16	DS	NRC	AMB
Minimum operating pressure	2.5 bar	2 bar	2.8 bar	3 bar	2 bar
Maximum operating pressure	4.1 bar	7 bar	5.5 bar	5 bar	5 bar
Operating temperature	10 - 38° C	4 - 35° C	5 - 40° C	5 - 40° C	3 - 35° C
Power supply	230 V - 50 Hz	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

Wastewater purifiers

A complete treatment solution must take into account the possibility of reducing water consumption through the reuse of wastewater.
Less wastage means better efficiency, reduced costs and lower environmental impact.

MODELS

- DUPLOX: the purification plants of this line are designed to treat civil wastewaters polluted by biodegradable organic substances. Culligan offers four different basic models, to serve settlements of 60 to 250 inhabitants. The size of each unit is based on "population equivalent".
- OFSY-WGR: a system consisting of two filtration units arranged in series. Available in five models in the version with threaded fittings, and four models in the version with flanged fittings.
- MBR: Membrane BioReactors combine conventional biological treatment technology with membrane filtration to offer superior organic and suspended solids removal. MBR technology eliminates the need for a clarifier, reducing footprint whilst providing superior performance. The compact size allows a container solution, ideal for remote installations.

MATERIALS USED

DUPLOX mainly consists of a tank, in which the wastewaters undergo intense aeration, with stay times of approx. 20 hours.
Aeration occurs through the blowing of compressed air by an electric blower. A submersible pump allows the purified product to be transferred to the discharge.
All the equipment outside the tank is placed in a galvanized steel booth.
The filters making up the OFSY-WGR system are in steel, protected internally against corrosion by a thick layer (250-300 μ) of specific epoxy resins and externally with an 80-100 μ protection layer.

OPERATION

DUPLOX works according to two different plant principles: through repetition of cycles or with continuous flow. Biological treatment concentrates, in short times and in small volumes, the purification processes carried out in nature by microorganisms. The biological plant can be considered a "farm" of microorganisms that reproduce using atmospheric Oxygen dissolved in the water. Organic pollution is expressed as BOD. The microorganisms are separated from the purified water and recirculated in the treatment water.

The Omnifiltration system (OFSY-WGR) consists of two filtration units arranged in series, whose operation is regulated by 8 diaphragm valves, activated by an electronic controller and by a pilot distributor that manages their opening and closing, implementing the Service and Wash phases. During the Service phase, the water to be filtered passes downward through the filter minerals and comes out free of unwanted elements. When a certain pressure loss is reached, the filter is backwashed and rinsed using raw water.

DUPLOX

Model	FLOW RATE		POPULATION EQUIVALENT	LOAD RANGE	DIMENSIONS			WEIGHT	
	daily max. m^3/g	peak time m3/h	N.	kg BOD5/g	Ø cistern mm	Total length mm	Max. height mm	In operation Kg	For shipment Kg
DC 6	12	1.7	60	2.7 - 5.4	2100	5580	3800	19000	2500
DC 12	24	3	120	4.7 - 9.4	2100	8580	3800	28000	2800
DC 20	40	4.9	200	7.8 - 14	2500	10000	4200	46000	3200
DC 25	50	6	250	7.8 - 14	2500	12000	4200	60000	4000

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

OFSY-WGR

Model	FLOW RATE		FITTINGS in/out Ø	DIMENSIONS			WEIGHT	
	max. service m^3/h	counter - current m3/h		Total width mm	Total length mm	Max. height mm	In operation Kg	For shipment Kg
OFSY 20 WGR	2.5	9.1	1½"	1100	880	1935	1230	960
OFSY 24 WGR	3.4	13.2	1½"	1200	980	1983	1720	1300
OFSY 30 WGR	6.1	20.4	1½"	1600	1130	2022	2720	2010
OFSY 36 WGR	9.1	40.4	2½"	2010	1480	2110	4150	3200
OFSY 48 WGR	15.9	56	2½"	2500	1730	2235	7450	5250
OFSY 60 WGR	24.9	79.3	DN 80	3245	1880	2075	10500	7200
OFSY 72 WGR	34	118	DN 100	3895	2181	2150	15000	10500
OFSY 84 WGR	50	159	DN 100	4387	2437	2288	20000	14000
OFSY 100 WGR	68.1	225	DN 150	5200	2950	2320	29500	21000

NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

OPERATION DATA		
	DUPLOX	OFSY-WGR
Minimum operating pressure	-	1.8 bar
Maximum operating pressure	-	7 bar up to model 60" - 5 bar for later models
Operating temperature	-	5 - 50 °C
Power supply	80 V - 50 Hz	110/230/24 V - 50/60 Hz 40
Installed power	2.2 - 4.6 W	10 W
Pressure loss	-	0.6 bar

MBR - MEMBRANE BIO REACTOR

Model	NOMINAL CAPACITY at water temp. 20C°	POPULATION EQUIV-ALENT N.	ABSORBED POWER kW	DIMENSIONS mm	MBR MEMBRAN E AREA m2
MBR 25	25 m3/day	100	11	20-foot container 6058 x 2438 x H 2896	100
MBR 50	50 m3/day	200	18	40-foot container 12192 x 2438 x H 2896	200

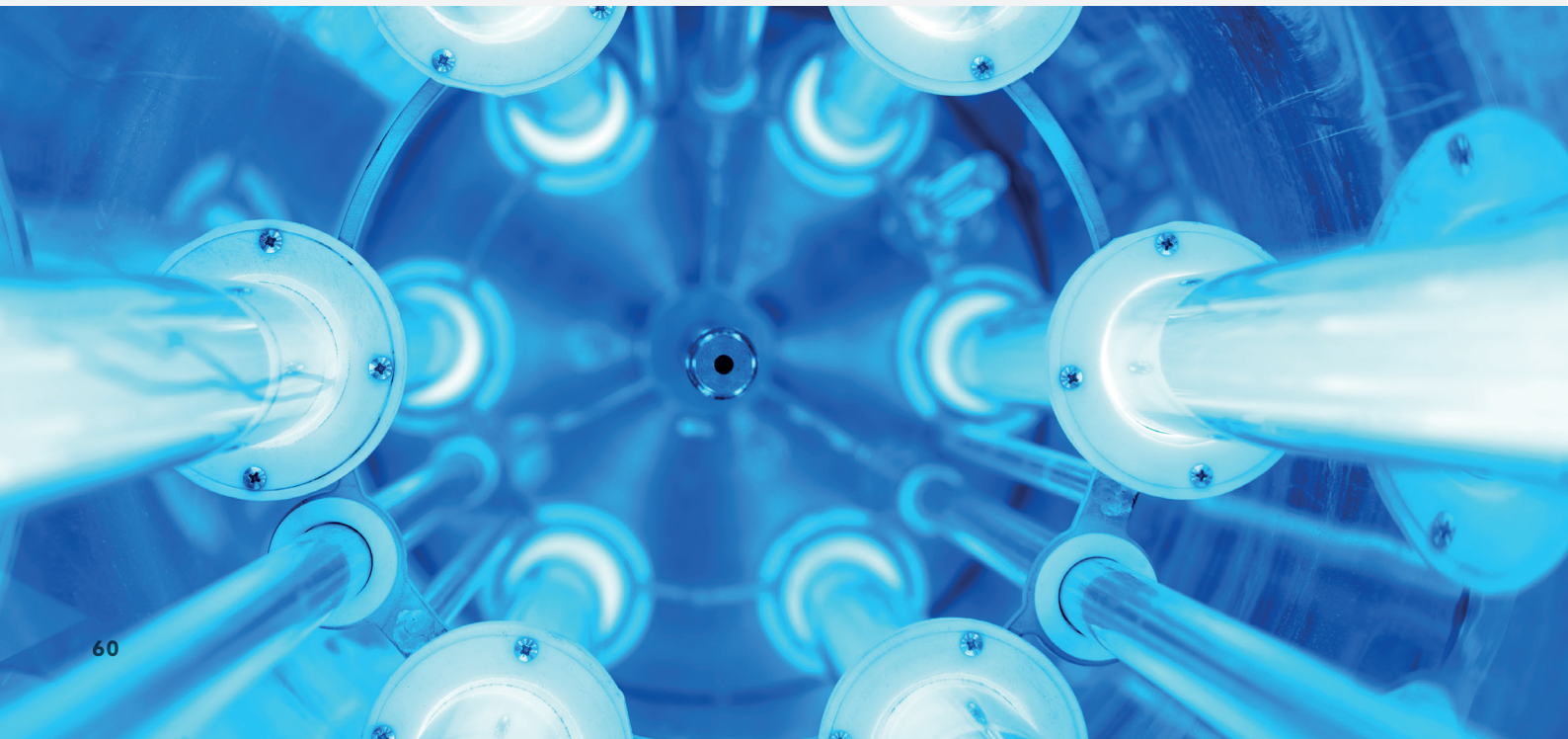
NOTE: Weights are approximate. • The above dimensions can vary by ± 2%.

Ultraviolet

U.V. rays (Ultraviolet) rays are generated by special lamps that "select" the most effective wavelength for killing/inactivating microorganisms.
U.V. rays are often chosen as an effective disinfection system when, for various reasons, it is best to avoid the use of chemical products.
In other cases, they are used to enhance the characteristics of other oxidants and/or disinfectants (ozone, oxygen, etc.).

MODELS

Ultraviolet Systems have high disinfectant power: tests have shown that at a wavelength of 254 nm (nanometers) 99.99% of the pathogens in the water are destroyed. They come in different models, as shown in the table below. Models 40 and 60 S, and 40, 60, 80, 100 and 120 L are also available in a version with sight glass.
The Ultraviolet models are mainly used for disinfection at the point of use in water treatment circuits for sanitary use and for bactericidal protection in closed-cycle circuits.
They are also suitable for the pretreatment of systems with Reverse Osmosis, and whenever chemicals for disinfection must not be used.



ULTRAVIOLET

Model	MAXIMUM FLOW RATE m^3/h	POWER ABSORBED BY PLANT V	POWER OF LAMPS W	WEIGHT	
				In operation Kg	For shipment Kg
U.V. 20S	4.0	100	2 x 40	19	15
U.V. 40S	11.5*	210	4 x 40	51	45
U.V. 60S	17.0*	300	6 x 40	60	52
U.V. 40L	23.0**	350	4 x 75	82	75
U.V. 60L	34.0**	500	6 x 75	150	102
U.V. 80L	45.5**	650	8 x 75	158	110
U.V. 100L	57.0**	800	10 x 75	215	132
U.V. 120L	68.5**	1000	12 x 75	228	145
U.V. 16L	91.5**	1200	16 x 65	240	150
U.V. 20L	114.5**	1450	20 x 65	336	210
U.V. 24L	137.0**	1800	24 x 65	400	250
U.V. 32L	171.0**	2300	32 x 65	600	350
U.V. 40L/0	229.0**	2900	40 x 65	750	440
U.V. 48L	274.5**	3480	48 x 65	950	500

* For primary water with radiation 400 J/m2 Transmittance T10>96%
** For primary water with radiation 400 J/m2 Transmittance T10>94%

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

Chlorine dioxide producers

Disinfection is not just dosing chemicals, but a "system" to be integrated into the water treatment: in fact, it is necessary to take into account everything that occurs before and after the point of application of the disinfectant. Therefore the choice of product to be dosed, the determination of dosages and selection of the equipment are done by expert technicians. Culligan disinfection systems help to preserve the quality of the treated water in the distribution lines and at the point of use for specific applications.
In addition to UV sterilization (mentioned in the part regarding products dedicated to pre-treatment), sanitization treatments are possible with specific Culligan chemicals (e.g. Sodium hypochlorite, Calcium hypochlorite, hydrogen peroxide, peracetic acid, etc.), for chlorination, ozonization.

CHLORINE

Chlorine is certainly the most common, cost-effective and permanent-effect disinfectant available everywhere (sometimes it can even be generated on site).

OZONE

Ozone is an unstable gas that breaks down and frees active Oxygen in contact with water. It must be produced on site and has no permanent effect.

CHLORINE DIOXIDE

Chlorine Dioxide is an oxidizing agent widely used as a disinfectant in drinking water.
It is prepared with specific products, installed on site, by proportioned mixing of Hydrochloric Acid and Sodium Chlorite.
The disinfectant properties of Chlorine Dioxide remain unchanged in a rather wide range of pH (pH 4-10), unlike other Chlorine -based compounds, such as hypochlorites, that have a real disinfectant power only at pH below 7.5.
Product dosage can be by manual selection, proportional in combination with an impulse emitting meter, or interlocked with specific analysis control units via a 4-20 mA signal.

In combination with the CHLORINE DIOXIDE PRODUCERS there are also accessories for proper management of the system, including: on-line analyzers (for checking the correct dosage), a room gas detector and eyewash. To offer the same advantages provided by chlorine dioxide in water systems also for civil users, such as hospitals, clinics, hotels, schools, etc., Culligan has completed its product range with Chem Oxide and Legion.

CHEM OXIDE

Chem Oxide is an innovative disinfection system able to generate a Chlorine dioxide solution with a purity above 99.9% in a liquid solution with concentration at 0.3%.
The method differs from that of conventional Chlorine dioxide production since a reactor is no longer needed, and almost completely eliminates the creation of by-products (such as Chlorides or Chlorates and Chlorites) and has a long kinetic half-life.

LEGION LINE

The LEGION line is a set of dosing and measuring solutions, allowing the correct use of chemicals in the anti-legionella treatment of hot water, in sanitary systems. The variety of combinations allows the dosage of biocide product to be managed, according to needs, in proportion to the flow rate, with the possibility of measuring it. The biocide product (oxidant) is always combined with the dosage of a protective product for the hydraulic circuit (film-forming). These systems are designed for the constant and complete disinfection of domestic hot water circuits (max. 70°C at 3 bar or 55°C at 6 bar), for the elimination of legionella. They are suitable for dosing different products and allow correct and safe management without wasting sample water. Panels and skids are supplied ready to use, assembled and wired in the factory.

CDP

Model	Production g/h	Injection	on-board analyzer
CDP 10	10	Direct	-
CDP 20	20	Direct	-
CDP 40	40	Direct	-
CDP 10-1	10	1 point	-
CDP 20-1	20	1 point	-
CDP 40-1	40	1 point	-
CDP A10-1	10	1 point	Amperometric Cell
CDP A20-1	20	1 point	Amperometric Cell
CDP A40-1	40	1 point	Amperometric Cell
CDP P10-1	10	1 point	Potentiometric Cell
CDP P20-1	20	1 point	Potentiometric Cell
CDP P40-1	40	1 point	Potentiometric Cell
CDP 10-2	10	2 points	-
CDP 20-2	20	2 points	-
CDP 40-2	40	2 points	-
CDP A10-2	10	2 points	Amperometric Cell
CDP A20-2	20	2 points	Amperometric Cell
CDP A40-2	40	2 points	Amperometric Cell
CDP P10-2	10	2 points	Potentiometric Cell
CDP P20-2	20	2 points	Potentiometric Cell
CDP P40-2	40	2 points	Potentiometric Cell
CDP 10-3	10	3 points	*
CDP 20-3	20	3 points	*
CDP 40-2	40	3 points	*

LEGION 1

Kit for dosing a biocide product (chlorine dioxide, hydrogen peroxide, sodium hypochlorite, calcium hypochlorite), proportional to the flow rate of water to be treated.

LEGION 2

Pre-assembled panel for dosing a biocide product (chlorine dioxide, hydrogen peroxide, sodium hypochlorite, calcium hypochlorite) and a film-forming product, both proportional to the flow rate of water to be treated. Panel dimensions 600 x 500 Panel weight approx. 10 kg

LEGION PLUS

LEGION PLUS Pre-assembled panel for dosing a biocide product (chlorine dioxide, hydrogen peroxide, sodium hypochlorite, calcium hypochlorite) and a film-forming product, both proportional to the flow rate of water to be treated. The dosage of the biocide product is monitored and possibly limited by a specific measuring instrument (chlorine or chlorine dioxide), equipped with a sensor capable of working at high temperatures and under pressure. Panel dimensions 700 x 900 mm Panel weight approx. 20 kg.

OPERATION DATA		
	CDP	LEGION
Operating temperature	10-40 °C	0-50 °C
Power supply	220 Vac ±10% - 50/60 Hz	230 Vac - 50 Hz
Installed power	200 W max	-
Protection rating	IP 56	IP 65

Dosing and instrumentation

To complete the treatment systems, Culligan has developed specific custom dosing systems that include electromagnetic-type dosing pumps with analog interface, storage tanks, chemical products and analysis and dosage management control units.

DOSING PUMPS

A dosing pump is a device most frequently used in all types of water treatment processes. A correct dosage of chemicals is the basis of operation of every water potabilization plant, every boiler water treatment plant, the correct water conditioning for swimming pools and in general every industrial or domestic system where the specific water quality is important. Culligan dosing pumps are electromagnetic with analog interface and PVDF body; the parts in contact with the liquid to be injected are in PVDF, Viton, PTFE and ceramic. They come in the following models:

PSS SERIES

Main features: Multi-language interface - LEV input for level probe - Alarms and errors (diagnostics) shown directly on the display - Simplified programming with saving of data on a non-volatile memory for at least 10 years.

PSM SERIES

Main features: - Multifunction pump with pulse and 0/4-20 mA inputs - Multi-language interface - EXT. CON / PULSE input for dosing enable - LEV input for level probe - FLW input, optional, for injection flow control - Relay output, programmable NO or NC - Alarms and errors (diagnostics) shown directly on the display - Two programming levels, standard and advanced, both password protected - Saving of programming and calibration data on non-volatile memory for at least 10 years - Internal clock, equipped with buffer battery to ensure operation even in the absence of power, usable for activating the pump at set times or days - Optional input for injection flow control - Integrated liter-counter of injected product, usable for maintenance requests and resettable with password - Membrane working hours and stroke counters, that be viewed and reset with a password - Restore factory values, which can differ depending on the pump configuration.

PSP SERIES

Main features: - Multifunction pump, with pulse and analog inputs (0/4-20 mA) - Multi-voltage power supply - Multi-language interface - Separate inputs for level control and injection flow control - Alarms and errors (diagnostics) shown directly on the display - Two programming levels, standard and advanced, both password protected - Saving of programming and calibration data on non-volatile memory for at least 10 years - Internal clock, equipped with buffer battery to guarantee operation even in the absence of power, usable for activating he pump or output relay at set times or days - Optional input for injection flow control - An optional auxiliary output: it can be a programmable NO or NC relay, a 4-20mA signal, a "Repeat" output to send remotely the impulse of the magnet to other pumps equipped with impulse input, or an RS232C serial port for communication with supervisor (e.g. RW14) or RS485 with Modbus communication protocol - Integrated liter-counter of injected product, usable for maintenance requests and resettable with a password - Membrane working hours and stroke counters, that can be viewed and reset with "service" password - Restore factory values with different codes according to the pump configuration - Self-priming function - Mechanical stroke adjustment (flow rate).

ACCESSORIES

For each model the following are available:

- tanks of different capacities, to be chosen according to the use
- minimum float level for the chemical product tank
- bracket for wall mounting
- impulse emitting meter
- antisiphoning kit

PSS SERIES

Version	Model / Auto blowdown	Inputs / level
PSS		STD
PSS AS	STD	STD

Version	Max. flow rate (L/h)	Max. pressure (bar)	Tube (IDxOD)
2@18	2	18	4 x 6
5@10	5	10	4 x 6
7@7	7	7	5 x 8
11@4	11	4	5 x 8
16@2	16	2	5 x 8

PSM SERIES

Version	Model Auto blowdown	Inputs				Outputs alarm relay
		Level	Enable or impulses	mA	Flow sensor	
PSS		STD	STD	STD		STD
PSM AS	STD	STD	STD	STD		STD
PSM FL		STD	STD	STD	STD	STD
PSM ASF	STD	STD	STD	STD	STD	STD

Version	Max. flow rate (L/h)	Max. pressure (bar)	Tube (IDxOD)
2@18	2	18	4 x 6
5@10	5	10	4 x 6
7@7	7	7	5 x 8
11@4	11	4	5 x 8
16@2	16	2	5 x 8

PSP SERIES

Version	Model Auto blowdown	Inputs				Outputs alarm relay		
		Level	Enable or impulses	mA	Flow sensor	Alarm relay	Impulse rep.	RS485
PSP		STD	STD	STD		STD		
PSP AS	STD	STD	STD	STD		STD		
PSP FL		STD	STD	STD	STD	STD		
PSP ASF	STD	STD	STD	STD	STD	STD		
PSP RI		STD	STD	STD			STD	
PSP ASR	STD	STD	STD	STD			STD	
PSP RF		STD	STD	STD	STD		STD	
PSP ARF	STD	STD	STD	STD	STD		STD	
PSP RS		STD	STD	STD				STD
PSP ARS	STD	STD	STD	STD				STD
PSP R4F		STD	STD	STD	STD			STD
PSP A4F	STD	STD	STD	STD	STD			STD

Version	Max. flow rate (L/h)	Max. pressure (bar)	Tube (IDxOD)
2@18	2	18	4 x 6
5@10	5	10	4 x 6
7@7	7	7	5 x 8
11@4	11	4	5 x 8
16@2	16	2	5 x 8

COOLING TOWER BLOWDOWN

The Automatic Blowdown for Cooling Towers includes a management/programming controller, conductivity meter, conductivity cell with continuous reading, motorized valve, dosing pump for shock biocide dosing, sampling point, electric and hydraulic interconnections between the parts.

SPECIFICATIONS

- Power supply: 230V~ ± 10% 50-60Hz
- Power: 7VA (conductivity meter only), 40VA (conductivity meter + dosing pump), 15VA (conductivity meter + solenoid valve)
- Fluid temperature: 40 °C max
- Dimensions: 495 x 300 x 655 mm (width x depth x height)
- Shipping weight: 15 kg

pH - METERS

Model S508-pH (FOR PANEL)

SPECIFICATIONS

- Standard measurement range: 0-14 pH
- Indicator: display LCD
- Current output: n. 2, 0-20/4-20 mA d.c. load ≤ 600 Ohm
- Protection rating: IP 54

Model S507-pH (FOR WALL) • S507-pH (PANEL)

SPECIFICATIONS

- Standard measurement range: 0-14 pH
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 66

REDOX - METERS

Model S508-Rx (FOR PANEL)

SPECIFICATIONS

- Standard measurement range: -1000 to +1000 mV
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. load ≤ 600 Ohm
- Protection rating: IP 54

Model S507-Rx (FOR WALL) • S507-Rx (PANEL)

SPECIFICATIONS

- Standard measurement range: -1000 to +1000 mV
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 66

TURBIDITY METERS

Model S507 / S508 (FOR PANEL)
Model S507 (FOR WALL) • S507 (PANEL)

SPECIFICATIONS

- Standard measurement range: -1000 to +1000 mV
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 54 (FOR PANEL); IP 66 (FOR WALL)

CONDUCTIVITY METERS

Model C2 - C2000 S508 (FOR PANEL)
Model C2 - C2000 S507 (FOR WALL)

SPECIFICATIONS

- Standard measurement range: 0-2000 μS
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 54 (FOR PANEL); IP 66 (FOR WALL)

RESIDUAL CHLORINE METERS

Potentiostatic or Amperometric Version

Model S508 (FOR PANEL)

SPECIFICATIONS

- Standard measurement ranges: 0.005 - 2 ppm / ClO2; 0.05 - 20 ppm / ClO2
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 54

Model S507 (FOR WALL)
S507 (FOR PANEL)

SPECIFICATIONS

- Standard measurement ranges: 0.005 - 2 ppm / ClO2; 0.05 - 20 ppm / ClO2
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 65
- With or without high temperature filter

CHLORINE DIOXIDE ANALYZERS

Model S508 (FOR PANEL)

SPECIFICATIONS

- Standard measurement ranges: 0.005 - 2 ppm / ClO2; 0.05 - 20 ppm / ClO2
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 54

Model S507 (FOR WALL)
S507 (PANEL)

SPECIFICATIONS

- Standard measurement ranges: 0.005 - 2 ppm / ClO2; 0.05 - 20 ppm / ClO2
- Indicator: LCD display
- Current output: n. 2, 0-20/4-20 mA d.c. max. load 600 Ohm
- Protection rating: IP 65
- With or without high temperature filter

DETECTORS

Ambient Chlorine Dioxide Detector

SPECIFICATIONS

- Power supply: 8-30 Vcd
- Dimensions: 154x166x105 mm
- Current output: 4-20 mA (closed circuit)
- Protection rating: IP 65

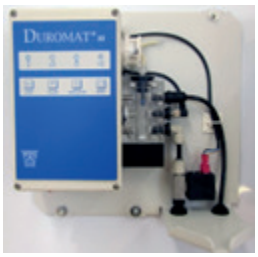
REMOTE CONTROL

RW14 remote control system via web

SPECIFICATIONS

- Cable 1.5 m
- Power supply: 240 V 50 Hz
- Sealed container: cm 20x20x11 (LxHxD)
- Protection rating: IP 56

RESIDUAL HARDNESS ANALYZERS



Model Duromat

SPECIFICATIONS
- Standard measurement ranges: 0.05 - 53.57 °f; 0.18 - 5.4 °f
- Measurements at adjustable intervals
- Pressure: max. 6 bar
- Temperature: max. 45 °C
- Parts in contact with water in anti-corrosion material
- Protection rating: with support IP 43 with mounting box IP 54

ELECTRONIC TIMERS

Command and control of the equipment is entrusted to two different types of timers, as required:

The Culligan T.C. Touch Controller is a programmable electronic device developed to allow the following systems to be controlled via the multiport pilot valve: Filters, WGR Filters, Q, OFSY, OFSY-WGR, Ofsy Q Filters Ultra Line Softeners

CIRCULATING PUMP KIT

Pre-assembled system for recirculating hot water, with or without filter for high temperatures

SPECIFICATIONS

- Power supply: 230V 50Hz + ground
- Mounting space: 500 x 600 mm (L x H)
- Protection rating: IP 44
- Operating pressure: max. 3 bar

Service

Culligan is the world leader in global water treatment solutions. We offer a highly reliable and professional After-Sales Service.

The integrated service consists of installation, commissioning, chemicals, contracts for routine maintenance and for extraordinary interventions: all this has a fundamental value in order to offer our customers a comprehensive solution.
We operate in over 90 countries worldwide with more than 800 dealers and licensees.
In Italy we are present nationwide, with 12 branches and 94 authorized distributors. Over 300 specialist technicians are always ready meet all the needs of our customers in the shortest possible time

Culligan technicians are able to service all the water treatment plants: we can offer a range of service solutions designed to meet the individual needs of our customers. Culligan technicians are highly experienced, in having worked on many types of water treatment plants in various sectors:

- Offshore plants and platforms
- Power Stations
- Systems for the pharmaceutical sector
- Systems for the marine sector (naval and commercial)
- Manufacture of semiconductors
- Systems for the food industry

We can also offer customers fixed prices specific for multi-year support contracts for long-term planning.
The Culligan Service offers a wide range of services, including:

- Installation and commissioning
- Maintenance contracts
- Plant performance monitoring and reports
- RO membrane chemical cleaning
- Upgrading / renewal of existing equipment
- Troubleshooting and Problem Solving
- Energy efficiency improvements
- Plant performance improvements
- OPEX cost reduction

All the replacement parts for our Culligan plants are available through the Customer Service network. For standard items our warehouse, supported by advanced logistics, ensures rapid deliveries throughout the country and internationally.

Genuine replacement parts ensure perfect operation. More than simply replacing "new for old", they can significantly improve the performance of your plant.
Our replacement parts are designed to extend the life of the components and reduce maintenance costs.

In addition to that described above, the Culligan Service plan also provides for the supply of a wide and innovative range of chemicals for technological use, offering a qualified choice of applications.

Ongoing research and the experience acquired have enabled Culligan to flank the line of treatment plants with a wide range of chemicals for water conditioning.

Current standards recommend addressing water treatment in the first instance with suitable equipment (filters, water softeners, deionizers) and integrating these treatments with appropriate chemical conditioning.

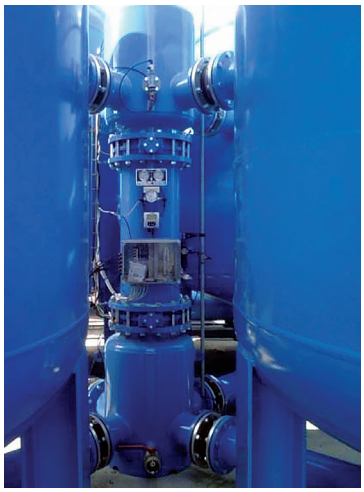
The above allows the formulation of proposals that do not prioritize plant or chemical conditioning criteria, but meet the user's technical and regulatory requirements in the subsequent management phase.

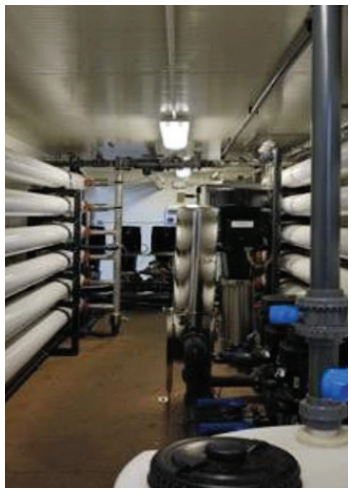
ASK THE CULLIGAN EXPERTS FOR DETAILS ABOUT THE APPLICABLE SERVICE SOLUTIONS.

In addition to the distribution of plants for the industrial market (in all specific sectors), Culligan addresses a highly differentiated clientele, in order to offer its treatment solutions.
Culligan is renowned for its high quality swimming pools, for water softening plants for the domestic market, and for refining water at the point of use.

Furthermore, our extensive After-Sales Service allows us to offer a fast and efficient service.

SOME OF OUR REFERENCES





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