TOTAL DEFENSE SYSTEM

TECHNICAL SHEET

M008-03 – Rev. 01 - 02/2014

The **Total Defense System** is recommended whenever it is necessary to improve the chemical and organoleptic characteristics of drinking water.

Due to its particular characteristics, it is often installed in the cabinet or the space under the sink.

These filters have been designed to solve the common problems of water quality by removing all traces of impurities and turbidity, as well as unpleasant tastes and odors caused by chlorine.

They also allow the filtration of micro-pollutants and organic matter present in the water, such as MTBE, cysts, chloramines, mercury, VOCs, atrazine.

The filter system consists of a permanently mounted head with integrated stop valve and a disposable pressurized cartridge.

OPERATING LIMITS

The inlet water must have chemical, physical and microbiological characteristics coming within with legal parameters applicable to drinking water intended for human consumption.

Min./max operating pressure	2,5 / 6 bar
Min./max operating temperature	4 / 37°C
Nominal flow rate *(with operating pressure 3.5 bar)*	1.9 liters/minute
Max recommended service life *(the frequency of replacement can vary depending on water quality and consumption)*	4000 liters
Inlet/outlet fittings	¼”
Dry weight with cartridge	1.3 kg
Filter overall dimensions (W x D x H)	90x110x380 mm

IMPORTANT

- **Equipment for the treatment of drinking water, conforming with the requirements of Min. Decree 25/2012.**
- Refer to the technical manual supplied with the system for all information and instructions.
- **Installation must be carried out by qualified personnel, in compliance with Min. Decree 37/08, the best state of the art and in conformity with the instructions given in the technical manual.**
- Any handling, installation, maintenance or repair work on the systems must be carried out by qualified personnel, in compliance with Min. Decree 37/08, the best state of the art and in conformity with the instructions given in the technical manual.
- The place where the systems, auxiliary material and consumables are located must comply with the storage, use and safety requirements of the current regulations.
- The water produced by each device must only be used for its specifically intended purpose. Culligan declines any liability for the consequences of improper use of the water produced by its equipment.
- Any operation fault in the systems must be promptly reported to the Culligan Service Center. Culligan declines any liability for the consequences of prolonged use of a faulty system.
- When necessary, the choice, dosing and handling of chemicals must be done by professionally qualified personnel, complying with the instructions provided by Culligan and in the Technical Safety sheets.
- Waste or consumable materials from the water treatment systems must be disposed of in accordance with the current regulations.
- Do not place the device on top of other electrical appliances.
- Position the device away from heat sources.
- In case of an anomaly (water leaks, etc.), disconnect the power supply and close the water inlet shutoff valve.
- Culligan also declines any liability in the following specific cases:

➢ improper use of the device;
➢ use contrary to the specific national regulations (power and water supplies, installation and maintenance);
➢ installation without following the instructions supplied in this manual;
➢ power and water supply faults (electrical discharges – voltage rushes – water supply overpressure – low water pressure);
➢ unsuitable ambient operating temperature;
➢ inadequate maintenance;
➢ unauthorized work or modifications;
➢ use of non-original replacement parts or not specific for the model;
➢ total or partial non-compliance with the instructions;

for anything not specified, the operator must rely on common sense when using the device.

WARRANTY

The system is guaranteed for a period of two years, as stated on the Culligan warranty claim/certificate. Refer to the certificate for details regarding the warranty terms and limits. The warranty is void if the system and/or its components are tampered with or there is damage caused by power surges. The warranty is void in case of conditions or uses not envisaged for normal use of the system.

SHIPMENT

The **Total Defense System** consists of: filter assembly, aqua meter controller, dispensing faucet.

Particular components

- Polypropylene head complete with fixing bracket and inlet/outlet one-touch fittings.
- Filter cartridge containing activated carbon and filtering material, with O-ring seal.
- One-touch fitting for connection in thermoplastic material.
- Polyethylene connection hoses.
- Dispensing faucet.
- Aqua Control volumetric liter-counter kit.
- Automatic fitting and non-return valve.

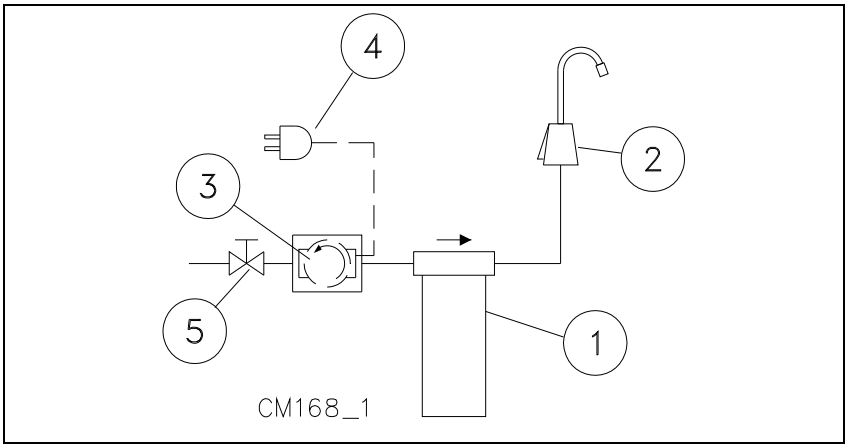
INSTALLATION

The water softener must be installed by qualified personnel, in compliance with Min. Decree 37/08, the best state of the art and in conformity with the instructions given in the technical manual.

Installation diagram

Legend

1) Total Defense filter
2) Faucet
3) Aqua Control Unit
4) Power supply plug
5) Water supply valve



MAINTENANCE

Total Defense Filter

To keep system in good working order it is necessary to change the filter and sanitize the system periodically.

As a rule this should be done once a year.

Another service may also be necessary depending on the operating conditions. For example, raw water with lots of sediment, chlorine, turbidity or hardness may require more frequent service, changing the filters every 6 months.

This procedure can be monitored by the Aqua-Control volumetric liter-counter, according to the alarm programming.

If the system is not used for a long time, it is necessary to call the Culligan Service Center which will carry out a general check and sanitization of the system before being restarted.

TABLE - REMOVAL OF UNWANTED SUBSTANCES

SUBSTANCE	Max concentration in feed mg/L	Max permissible concentration (WHO) mg/L	Minimum removal required %	Minimum reduction %	Average reduction %
STANDARD 42					
Free chlorine	2.0 mg/L + 10%		>50%	97.6%	98.0%
Combined chlorine	3.0 mg/L + 10%	0.5 mg/L		97.6%	98.0%
Particulates (0.5 - <um) Class I	10,000 particles/ml		>85%	99.9%	99.9%
STANDARD 53					
MTBE	0.015 + 20%	0.005 mg/L	69%	74.6%	83.3%
Cysts	Minimum 50.00/L		99.95%	99.95%	99.99%
Turbidity	11 mg/L +1 NTU	0.5 NTU		96.6%	98.0%
Lead (pH 6.5)	0.15 mg/L + 10%	0.010 mg/L		99.3%	99.3%
Lead (pH 8.5)	0.15 mg/L + 10%	0.010 mg/L		99.3%	99.3%
Mercury (pH 6.5)	0.006 mg/L + 10%	0.002 mg/L		96.6%	96.6%
Mercury (pH 8.5)	0.006 mg/L + 10%	0.002 mg/L		72.4%	95.4%
Chloroform (VOC)	0.300 mg/L + 10%	0.015 mg/L		95.2%	91.0%

SUBSTANCE	Max concentration in feed mg/L	Max permissible concentration *(WHO) mg/L*	Reduction %
Alachor	0.050	0.001	98
Atrazine	0.100	0.003	97
Benzene	0.081	0.001	99
Carbofuran	0.190	0.001	99
Carbon tetrachloride	0.078	0.002	99
Chlorbenzene	0.077	0.001	99
Chlorpicrin	0.015	0.000	100
2,4-D	0.110	0.002	98
Dibromochloroptopane (DBCP)	0.052	0.000	100
O-dichlorobenzene	0.080	0.001	99
P-dichlorobenzene	0.040	0.001	97
1,2-dichloroethane	0.088	0.005	94
1,1-dichloroethylene	0.083	0.001	99
Cis-1,2- dichloroethylene	0.170	0.001	94
Trans-1,2- dichloroethylene	0.086	0.001	99
1,2-dichloropropane	0.080	0.001	99
Cis-1,3- dichloropropylene	0.079	0.001	99
Dinoseb	0.170	0.000	100
Endrin	0.053	0.001	98
Ethylbenzene	0.088	0.001	99
Ethylene dibromide (EDB)	0.044	0.000	100
Haloacetonitriles (HAN)			
Bromochloroacetinitrile	0.022	0.001	95
Dibromoacetonitrile	0.024	0.001	96
Dichloroacetonitrile	0.001	0.000	100
Trichloracetonitrile	0.015	0.000	100
Haloketones (HK)			
1,1-dichloro-2-propane	0.007	0.000	100
1,1,1-trichloro-2-propane	0.008	0.000	100
Heptachlor	0.250	0.000	100
Heptachlor epoxide	0.011	0.000	100
Hexachlorobutadiene	0.044	0.001	98
Hexachlorocyclopentadiene	0.060	0.000	100
Lindane	0.055	0.000	100
Methoxychlor	0.050	0.000	100
Pentachloophenol	0.096	0.001	99

M008-03– Rev. 01 - 02/2014

CULLIGAN - Via Gandolfi, 6 - 40057 Cadriano BO (ITALY) - Phone +39 0516017111 – fax +39 051765602