



Culligan®

FILTRATION FOR
INDUSTRIAL APPLICATION



CULLIGAN: WORLD LEADER IN THE WATER TREATMENT

 *Equipment according to CE Directives in force*



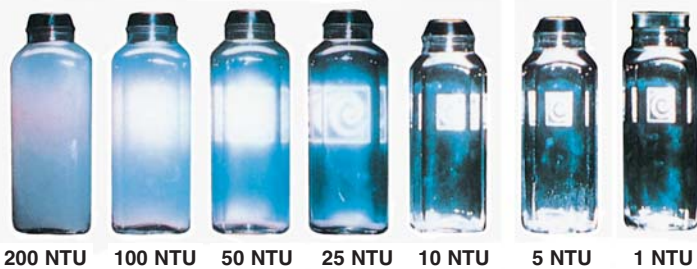
Culligan: a specific water, from the experts

Filtration Process

Filtration is the process of removing **turbidity** from water, both coarse as well as colloidal, adsorbing undesired odours, taste and colours and organic pollutant (antiparasitics, solvents, cyanotoxins), eliminating **Iron, Manganese, Arsenic** and other heavy metals (such as Chromium, Aluminium, Nickel, etc.) or neutralising the water acidity.

All these results can be achieved with a proper filtration treatment that in many cases is preceded by a pre-oxidation and chemical conditioning equipment. Filtration makes possible to remove **Ammonia** by means of nitrification.

Simple in appearance, filtration is in reality a sophisticated water treatment process available. It does not always correlated to precise chemical reactions but, in many instances, it is connected to mechanical and biological reactions, not always easily explainable.



A few examples of turbidity expressed as Nephelometric Turbidity Units. The Filtr-Cleer process of filtration makes possible the reduction of the water turbidity to below 4 NTU (0.4 NTU for OFSY).

CULLIGAN FILTERS

Our industrial filters are entirely manufactured in our Culligan plants. They are made of steel and are protected by **anti-corrosion coatings**, a heavy layer of food-grade epoxy resin on the inside, and synthetic paint on the outside. The smaller Hi-Flo 22 Filters are manufactured in FRP fiberglass, with internal protection achieved with a non-toxic polyethylene liner. On the industrial filters, the **automatic cycles** of service and backwash are regulated by a group of diaphragm hydraulic valves driven by an hydraulic pilot that, in turn, is controlled by an electronic logic programmer. Hi-Flo 22 Filters are controlled by a hydraulic piston valve. Starting time, duration and frequency of backwashes can be programmed on the logic programmer. The flow rate control of all the service and backwash phases is performed by **automatic flow rate controllers**, which prevent leakage of the minerals during the backwash and optimise filter efficiency during service.

→ **Models: Hi-Flo 22, Hi-Flo 6 and Hi-Flo 9.**

The filters of the Hi-Flo 6 and Hi-Flo 9 series can be combined in modules achieving filtration systems of greater capacity (see later "Twin System" or "Four-leaf Clover System"); they can also be combined as double filtration in series, making Culligan's exclusive "Omnifiltration" system.

FILTERING MINERALS

A **complete range of filtering minerals** can be selected for all types of Culligan filter, achieving the best solution for each problem. The more common **versions** are:

- **FILTR-CLEER**, a multi-layer filter whose typical application is the elimination of **turbidity**, suspended solids and of small quantities of **heavy metals** (particularly Iron and Manganese). The minerals utilised in the filter bed are Cullcite, a granular anthracite with a low density that makes the upper layer, and Cullsan, an ultra-pure silica sand with no carbonates, chemically inert and with a unlimited life.
- **CULLAR** typical applications are removal of undesired **odours** and **tastes** and excess **Chlorine** and its derivatives. Cullar is a granular form of activated carbon with high degree of porosity, giving it an extraordinary adsorbing capacity.
- **CULLNEU** typical applications are **remineralisation** of water with low mineral content and **neutralisation** of acid water, inhibiting water aggressiveness toward metal piping. Cullneu is a granular Calcium Carbonate mineral that dissolves in proportion to the amount of neutralised acidity and must therefore be refilled periodically.
- **SUPER IRON**, a multi-layer filter using a selective mineral for **Iron** and **Manganese** removal. Super Iron can be activated with many oxidising agents.
- **G.A.C.**, granular activated carbon, a specific adsorbent for organohalogenated compounds, antiparasitics, heavy metals and other substances harmful to health.
- **BIOFILTER**, a special filter for removing Ammonia, where the main function of the quartz filter media is to support the nitrification biomass, consisting in two strains of aerobic bacteria. Nitrosomonas converts ammoniacal Nitrogen to nitrous Nitrogen, while the nitrobacter completes the oxidation to nitric, transforming Ammonia ultimately into Nitrate. The biofilter is also able to oxidise and remove appreciable concentrations of Iron and Manganese when present in the water.

MULTI-LAYER FILTRATION

Filtration made with the traditional “single layer” filters has three limitations: only the upper part of the mineral layer “works” trapping the turbidity, while the lower layers remain idle; the resistance opposed to the water flow (pressure loss) increases very rapidly, making frequent backwashes necessary. Flow rates have to be decreased in order to maintain quality.

The most recent “multi-layer” filters allow selective turbidity removal within the filtering layers. Layers have different thicknesses and are made of minerals with different mesh and specific weight.

This technology allows a higher filtration speed (if necessary) and very low usage of coagulants.

Multi-layer filtration was developed and perfected by Culligan and its most common application is in “Filtr-Cleer” filters and in “Omnifiltration” system.

OMNIFILTRATION® SYSTEM AND OFSY FILTERING GROUPS

While “multi-layer filtration” performed by Filtr-Cleer captures very large quantity of turbidity with limited pressure losses, it does not prevent the leakage of small turbidity particles that escape from the granules before maximum adsorbing capacity of filtering beds is reached. In order to solve this problem, Culligan has developed the “Omnifiltration” system, made of two filtering sections of “Filtr-Cleer” placed in series: the first works until complete saturation of the mineral is achieved and the second buffers any turbidity leakage, guaranteeing output of constantly crystal-clear water, even if the quality of the inlet water changes.

Some of the most appreciated features of the OMNIFILTRATION system (OSFY) are: low installation and operation costs, smaller size, high versatility, simple and quick start-up procedure, as well as excellent quality of water produced.

The OSFY system is by far superior to any other conventional filtration method. OSFY is in operation in hundreds of waterworks around the world.



Culligan equipment: a guarantee for quality and efficiency

HI-FLO 22

Fully automatic filters, controlled by a hydraulic piston valve which directs water during service and backwash phases. They are manufactured in FRP fiberglass, with internal protection achieved with a non-toxic polyethylene liner.
→ Available in different versions: see models in the Technical Specifications.



BIOFILTER

A special filter, recommended for Ammonia removal.
→ Available in BF version, models from 48" to 120".

HI-FLO 6

Filters suitable for industrial applications. Differing from the Hi-Flo 9 in that they have lower filtering bed thickness (and therefore total height). They are recommended for treatment of water without specific characteristics.

→ Available in different versions: see models in the Technical Specifications.

HI-FLO 9

Industrial filters suitable for commercial and industrial applications. Available models from 20" to 120" (20" to 48" range features Noryl valves and non toxic piping).

The tank is protected by a layer of food-grade epoxy resin inside and by synthetic paint outside.

→ Available in different versions: see models in the Technical Specifications.





“TWIN” CONFIGURATION

The picture shows two Hi-Flo 9 filters in TWIN configuration characterised by a single group of valves that controls both filters. The advantage of this configuration is that the flow rates for service as well for backwash are the same. Backwash occurs in sequence one filter after the other, thus saving on plumbing and pumping costs.

OMNIFILTRATION SYSTEM (OFSY)

The versatility and adaptability of the Omnifiltration (OFSY) is certified by hundreds of systems installed in waterworks plants around the world, with a wide range of flow rates. The Omnifiltration System has acquired a well deserved reputation thanks to its excellent performance, both from an economical and quality point of view.



“FOUR-LEAF CLOVER” CONFIGURATION

This system is made of four filters assembled in a “clover” configuration, controlled by a single centralised group of valves. The compactness of the system is clear. The modular design of the system makes it possible to be very flexible whenever capacity increases are necessary, or when stand-by equipment is mandatory.



Technical Specifications

BIOFILTER

| MODEL | FLOW RATE m ³ /h | | | |
|---|-----------------------------|-----|----------|------------|
| | Service | | Backwash | |
| | min. | max | with air | with water |
| BIOFILTER (ammonia - iron - manganese) | | | | |
| BF 48 | 8.5 | 17 | 72 | 36 |
| BF 60 | 13 | 26 | 108 | 54 |
| BF 72 | 19 | 38 | 160 | 80 |
| BF 84 | 26 | 52 | 216 | 108 |
| BF 90 | 31 | 62 | 252 | 126 |
| BF 100 | 36 | 72 | 288 | 144 |
| BF 120 | 53 | 106 | 432 | 216 |

HI-FLO 9

| MODEL | FLOW RATE m ³ /h | | |
|---|-----------------------------|-----|----------|
| | Service | | Backwash |
| | min. | max | |
| HI-FLO 9 filtr-cleer (turbidity - iron - manganese) | | | |
| UF 20 | 2 | 4.7 | 7.9 |
| UF 24 | 2.8 | 6.7 | 10.9 |
| UF 30 | 4.5 | 11 | 15.9 |
| UF 36 | 7 | 17 | 27.3 |
| UF 48 | 11 | 27 | 40.9 |
| UF 54 | 18 | 37 | 56 |
| UF 60 | 17 | 42 | 61.3 |
| UF 72 | 25 | 60 | 90.8 |
| UF 84 | 32 | 80 | 129.4 |
| UF 90 | 36 | 86 | 147.7 |
| UF 100 | 49 | 117 | 174.9 |
| UF _{Fe} 100 | 49 | 117 | 174.9 |
| UF 120 | 70 | 170 | 250 |
| UF 400 | 195 | 470 | 700 |
| UF 480 | 280 | 670 | 1000 |
| HI-FLO 9 cullar (taste - odours - colours - micropollutants) | | | |
| UR 20 | 1.2 | 4.7 | 3.4 |
| UR 24 | 2.8 | 6.7 | 4.5 |
| UR 30 | 4.5 | 11 | 6.8 |
| UR 36 | 7 | 17 | 10.9 |
| UR 48 | 11 | 27 | 18.2 |
| UR 54 | 18 | 37 | 25 |
| UR 60 | 17 | 42 | 27.3 |
| UR 72 | 25 | 60 | 40.9 |
| UR 84 | 32 | 80 | 52.2 |
| UR 90 | 36 | 86 | 61.8 |
| UR 100 | 49 | 117 | 79.5 |
| UR 120 | 70 | 170 | 114 |
| UR 400 | 195 | 470 | 320 |
| UR 480 | 280 | 670 | 480 |
| HI-FLO 9 cullneu (acidity) | | | |
| UU 20 | - | 3 | 7.9 |
| UU 24 | - | 4.5 | 10.9 |
| UU 30 | - | 7 | 15.9 |
| UU 36 | - | 11 | 27.3 |
| UU 48 | - | 18 | 40.9 |
| UU 54 | - | 25 | 56 |
| HI-FLO 9 super-iron (iron - manganese - arsenic) | | | |
| UFP 20 | 1.5 | 3 | 7.9 |
| UFP 24 | 2.2 | 4.5 | 10.9 |
| UFP 30 | 3.5 | 7 | 15.9 |
| UFP 36 | 5.5 | 11 | 27.3 |
| UFP 48 | 9 | 18 | 40.9 |
| UFP 54 | 12 | 25 | 56 |
| UFP 60 | 14 | 28 | 61.3 |
| UFP 72 | 20 | 40 | 90.8 |
| UFP 84 | 25 | 52 | 129.4 |
| UFP 90 | 29 | 58 | 147.7 |
| UFP 100 | 39 | 79 | 174.9 |
| UFP _e 100 | 39 | 79 | 174.9 |
| UFP 120 | 56 | 112 | 250 |

For filtration and Iron removal only

Minimum flow rate is recommended for turbid water and for the removal of high concentration of suspended solids (> 4 mg/l in total). Average flow rate is recommended for water of average turbidity and for the removal of average concentration of suspended solids (1-4 mg/l in total). Maximum flow rate is recommended for water with low turbidity and for the removal of low concentration of suspended solids (< 1 mg/l in total).
Note: Hi-Flo 9 filters from 20" to 48" have Noryl valves.

HI-FLO 22

| MODEL | FLOW RATE m ³ /h | | |
|--|-----------------------------|-----|----------|
| | Service | | Backwash |
| | average | max | |
| HI-FLO 22 filtr-cleer (turbidity - iron - manganese) | | | |
| UF 12 | 1.8 | 2.5 | 2.3 |
| UF 14 | 2.5 | 2.9 | 3.4 |
| UF 16 | 2.5 | 3.4 | 4.5 |
| UF 21 | 3.2 | 5 | 6.8 |
| HI-FLO 22 cullar (taste - odours - colours - micropollutants) | | | |
| UR 12 | 0.9 | 2.5 | 1.8 |
| UR 14 | 1.1 | 2.9 | 2.3 |
| UR 16 | 1.6 | 3.4 | 3.4 |
| UR 21 | 2.5 | 5 | 5.7 |
| HI-FLO 22 cullisorb (iron - manganese - arsenic) | | | |
| UFP 12 | 1.1 | 1.8 | 1.8 |
| UFP 14 | 1.1 | 2.1 | 3.4 |
| UFP 16 | 1.8 | 2.5 | 3.4 |
| UFP 21 | 2.5 | 3 | 6.8 |

HI-FLO 6

| MODEL | FLOW RATE m ³ /h | | |
|---|-----------------------------|-------|----------|
| | Service | | Backwash |
| | min. | max | |
| HI-FLO 6 filtr-cleer (turbidity - iron - manganese) | | | |
| UF 60 | 21.7 | 36.2 | 61.3 |
| UF 72 | 31.2 | 52 | 90.8 |
| UF 84 | 42.2 | 70.4 | 129.4 |
| UF 90 | 49 | 81.6 | 147.7 |
| UF 100 | 60.7 | 101.2 | 174.9 |
| UF _{Fe} 100 | 60.7 | 101.2 | 174.9 |
| UF 120 | 87 | 145 | 250 |
| UF 400 | 242.8 | 404 | 700 |
| UF 480 | 348 | 580 | 1000 |
| HI-FLO 6 cullar (taste - odours - colours - micropollutants) | | | |
| UR 60 | 21.7 | 36.2 | 27.3 |
| UR 72 | 31.2 | 52 | 40.9 |
| UR 84 | 42.2 | 70.4 | 52.2 |
| UR 90 | 49 | 81.6 | 65 |
| UR 100 | 60.7 | 101.2 | 79.5 |
| UR 120 | 87 | 145 | 114 |
| UR 400 | 242.8 | 404 | 320 |
| UR 480 | 348 | 580 | 480 |
| HI-FLO 6 cullneu (acidity) | | | |
| UU 60 | - | 22.7 | 61.3 |
| UU 72 | - | 32.7 | 90.8 |
| UU 84 | - | 40.9 | 129.4 |
| UU 90 | - | 47 | 147.7 |
| UU 100 | - | 59 | 174.9 |
| UU _e 100 | - | 59 | 174.9 |
| UU 120 | - | 80 | 250 |
| HI-FLO 6 super-iron (iron - manganese - arsenic) | | | |
| UFP 60 | 15.9 | 28 | 61.3 |
| UFP 72 | 27.3 | 40 | 90.8 |
| UFP 84 | 36.3 | 52 | 129.4 |
| UFP 90 | 42.3 | 58 | 147.7 |
| UFP 100 | 52.2 | 79 | 174.9 |
| UFP _e 100 | 52.2 | 79 | 174.9 |
| UFP 120 | 73.5 | 112 | 250 |

Hi-Flo 6 Filtr-Cleer filtration is intended to remove natural turbidity in general (for the specific removal of metals such as Iron, Manganese, etc. please refer to Hi-Flo 9). In case of colloidal substances, coagulant agents must be added. For Cullar models, the minimum flow rate is recommended for the removal of organic matter and micropollutants and for the dechlorination of water in continuous treatment (waterworks, etc.). The maximum flow rate is recommended for the removal of low contents of residual Chlorine (< 2 mg/l).

HI-FLO 6 TWIN

| MODEL | FLOW RATE m ³ /h | | |
|--|-----------------------------|-------|----------|
| | Service | | Backwash |
| | min. | max | |
| HI-FLO 6 TWIN filtr-cleer (turbidity - iron - manganese) | | | |
| UF 248 | 24.5 | 41 | 41 |
| UF 260 | 43.4 | 72.4 | 61.8 |
| UF 272 | 62.4 | 104 | 90.8 |
| UF 284 | 84.4 | 140.8 | 129.4 |
| UF 290 | 98 | 163.8 | 150 |
| UF 2100 | 121.4 | 202.4 | 174.9 |
| UF 2120 | 174 | 290 | 250 |
| HI-FLO 6 TWIN cullar (taste - odours - colours - micropollutants) | | | |
| UR 248 | 24.5 | 41 | 21 |
| UR 260 | 43.4 | 72.4 | 29 |
| UR 272 | 62.4 | 104 | 40.9 |
| UR 284 | 84.4 | 140.8 | 52.2 |
| UR 290 | 98 | 163.2 | 68 |
| UR 2100 | 121.4 | 202.4 | 79.5 |
| UR 2120 | 174 | 290 | 114 |
| HI-FLO 6 TWIN super-iron (iron - manganese - arsenic) | | | |
| UFP 248 | 20.5 | 36 | 41 |
| UFP 260 | 31.6 | 56 | 61.8 |
| UFP 272 | 54.6 | 80 | 90.8 |
| UFP 284 | 72.6 | 104 | 129.4 |
| UFP 290 | 84.6 | 116 | 150 |
| UFP 2100 | 104.4 | 158 | 174.9 |
| UFP 2120 | 147 | 224 | 250 |

Hi-Flo 6 Twin Filtr-Cleer filtration is intended to remove natural turbidity in general (for the specific removal of metals such as Iron, Manganese, etc. please refer to Hi-Flo 9 Twin).
In case of colloidal substances, coagulant agents must be added.

G.A.C.

| MODEL | FLOW RATE m ³ /h | | |
|------------|-----------------------------|------|----------|
| | Service | | Backwash |
| | min. | max | |
| G.A.C. 20 | 1.2 | 3 | 3.4 |
| G.A.C. 24 | 1.7 | 4.5 | 4.5 |
| G.A.C. 30 | 2.6 | 7 | 7 |
| G.A.C. 36 | 3.8 | 10.8 | 11 |
| G.A.C. 48 | 6.8 | 18 | 18 |
| G.A.C. 60 | 10.5 | 27 | 28 |
| G.A.C. 72 | 15.2 | 40 | 41 |
| G.A.C. 84 | 20.7 | 54 | 55 |
| G.A.C. 100 | 29.4 | 80 | 80 |
| G.A.C. 120 | 42.5 | 108 | 113 |

HI-FLO 9 TWIN

| MODEL | FLOW RATE m ³ /h | | |
|--|-----------------------------|-------|----------|
| | Service | | Backwash |
| | min. | max | |
| HI-FLO 9 TWIN filtr-cleer (turbidity - iron - manganese) | | | |
| UF 260 | 43.4 | 72.4 | 61.9 |
| UF 272 | 62.4 | 104 | 90.8 |
| UF 284 | 84.4 | 140.8 | 129.4 |
| UF 290 | 98 | 163.2 | 150 |
| UF 2100 | 121.4 | 202.4 | 174.9 |
| UF 2120 | 174 | 290 | 250 |
| HI-FLO 9 TWIN cullar (taste - odours - colours - micropollutants) | | | |
| UR 260 | 43.4 | 72.4 | 29 |
| UR 272 | 62.4 | 104 | 40.9 |
| UR 284 | 84.4 | 140.8 | 52.2 |
| UR 290 | 98 | 163.2 | 61.2 |
| UR 2100 | 121.4 | 202.4 | 79.5 |
| UR 2120 | 174 | 290 | 114 |
| HI-FLO 9 TWIN super-iron (iron - manganese - arsenic) | | | |
| UFP 260 | 31.6 | 56 | 61.9 |
| UFP 272 | 54.6 | 80 | 90.8 |
| UFP 284 | 72.6 | 104 | 129.4 |
| UFP 290 | 84.6 | 116 | 150 |
| UFP 2100 | 104.4 | 158 | 174.9 |
| UFP 2120 | 147 | 224 | 250 |

OFSY

| MODEL | FLOW RATE m ³ /h | |
|----------|-----------------------------|----------|
| | Service - max | Backwash |
| OFSY 20 | 4.5 | 7.9 |
| OFSY 24 | 5.7 | 10.9 |
| OFSY 30 | 9.1 | 15.9 |
| OFSY 36 | 13.6 | 27.3 |
| OFSY 48 | 21.8 | 40.9 |
| OFSY 60 | 36.3 | 61.3 |
| OFSY 72 | 50 | 90.8 |
| OFSY 84 | 68.1 | 129.4 |
| OFSY 100 | 100 | 174.9 |
| OFSY 120 | 139 | 250 |
| OFSY 400 | 400 | 700 |
| OFSY 480 | 556 | 1000 |

OPERATING DATA

| | HI-FLO 22 | HI-FLO 6 / HI-FLO 9 / G.A.C. / TWIN / OFSY |
|----------------------------|---|---|
| Minimum Operating Pressure | 2 bar | 1.5 bar |
| Maximum Operating Pressure | 7 bar | 7 bar up to model 60" 5 bar from model 72" to 120" |
| Operating Temperature | 4-48 °C | 5-40 °C |
| Power Supply | 24/230 V - 50-60 Hz Single-phase + earth | 24/230 V - 50-60 Hz Single-phase + earth |
| Installed Power | 10 W | 10 W |

Some References

(for medium/high flow rate)

→ OIL REFINERY INDUSTRIES

Process Water Filtration

| | | | |
|------------------|-------------|--------|-------------------|
| AGIP PETROLI SpA | Rome, Italy | 320 | m ³ /d |
| AL FURAT | Syria | 340 | m ³ /d |
| B.P. SOLAR | Spain | 800 | m ³ /d |
| DANIELI SpA | Yazd-Iran | 50.000 | m ³ /d |
| MOBIL OIL | Egypt | 2.300 | m ³ /d |

→ flow rate

→ MUNICIPALITIES

Surface Water Filtration

| | | | |
|--------------------------------|----------------------|---------|-------------------|
| AGAC | Reggio Emilia, Italy | 42.000 | m ³ /d |
| VELIA CONSORTIUM, ALENTO BASIN | Salerno, Italy | 100.000 | m ³ /d |
| FORNOVO DI TARO WATERWORKS | Parma, Italy | 1.500 | m ³ /d |
| CASTELPOLE WATERWORKS | Ireland | 5.400 | m ³ /d |
| BOG OF THE RING | Ireland | 5.000 | m ³ /d |
| BUK WATERWORK | Hungary | 4.000 | m ³ /d |
| EGER | Hungary | 18.000 | m ³ /d |
| ASHGABAT WATERWORKS | Turkmenistan | 350.000 | m ³ /d |
| CASTEL GANDOLFO WATERWORKS | Rome, Italy | 6.000 | m ³ /d |
| SULMONA WATERWORKS | L'Aquila, Italy | 3.600 | m ³ /d |
| VALPOVŌ WATERWORKS | Croatia | 5.200 | m ³ /d |
| ROLLE WATERWORKS | Switzerland | 5.100 | m ³ /d |
| BYGDOSZ WATERWORKS | Poland | 40.800 | m ³ /d |
| ELBLAG WATERWORKS | Poland | 50.000 | m ³ /d |
| RAWA MAZOWIECKA WATERWORKS | Poland | 12.000 | m ³ /d |
| SUWALKI WATERWORKS | Poland | 16.000 | m ³ /d |
| RADOM WATERWORKS | Poland | 23.000 | m ³ /d |

→ STEAM BOILER FEED

| | | | |
|------------------------|---------------------------|--------|-------------------|
| FATRO FARMACEUTICI SpA | Ozzano E., Bologna, Italy | 40 | m ³ /d |
| TURBOTECNICA SpA | Florence, Italy | 240 | m ³ /d |
| DANIELI SpA | Buttrio, Udine, Italy | 15.600 | m ³ /d |
| BORMIOLI ROCCO CASA | Fidenza, Parma, Italy | 350 | m ³ /d |

→ SPECIAL APPLICATIONS

| | | | |
|---|-------------------------------------|---------|-------------------|
| MUNICIPAL WATERWORKS Arsenic Removal (see picture 3) | Subotica, Serbia | 24.000 | m ³ /d |
| MUNICIPAL WATERWORKS Arsenic Removal | Canneto s/Oglio, Mantova, Italy | 1.500 | m ³ /d |
| MUNICIPAL WATERWORKS Chrome Removal | Lumezzane, Brescia, Italy | 1.400 | m ³ /d |
| MUNICIPAL WATERWORKS Iron and Manganese Removal | Quercioli, Reggio Emilia, Italy | 9.000 | m ³ /d |
| MUNICIPAL WATERWORKS Giardia Removal | New Zealand | 3.100 | m ³ /d |
| MUNICIPAL WATERWORKS High turbidity removal without chemical products | Oporto, Portugal | 150.000 | m ³ /d |
| MUNICIPAL WATERWORKS Biologic filtration (see picture 1) | Ostrolenka, Polonia | 14.500 | m ³ /d |
| MUNICIPAL WATERWORKS Arsenic Removal and Ammonia Nitrification | Isola Dovarese, Cremona, Italy | 2.100 | m ³ /d |
| MUNICIPAL WATERWORKS Iron and Manganese Removal | Quinzano d'Oglio, Brescia, Italy | 5.000 | m ³ /d |
| MUNICIPAL WATERWORKS Arsenic, Vanadium and Fluorides Removal (see picture 2) | Velletri, Rome, Italy | 3.600 | m ³ /d |



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

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In the interest of product development we reserve the right to alter specifications without prior notice. All photographs are to be used as a guide only.

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