

# ILMAP

*Filter Nozzles, Safety Traps and  
Drain Systems for Water Treatment*



# BUSINESS AREAS OF ILMAP PRODUCTS

## **WATER TREATMENT**

### FOR INDUSTRY

- ▶ *Electricity Power Generation*
- ▶ *Chemicals & Pharmaceuticals*
- ▶ *Petrochemicals, Metals and Paper*
- ▶ *Food & Beverage*
- ▶ *Agricultural & Zootechnics*
- ▶ *Health & Swimming Pools*

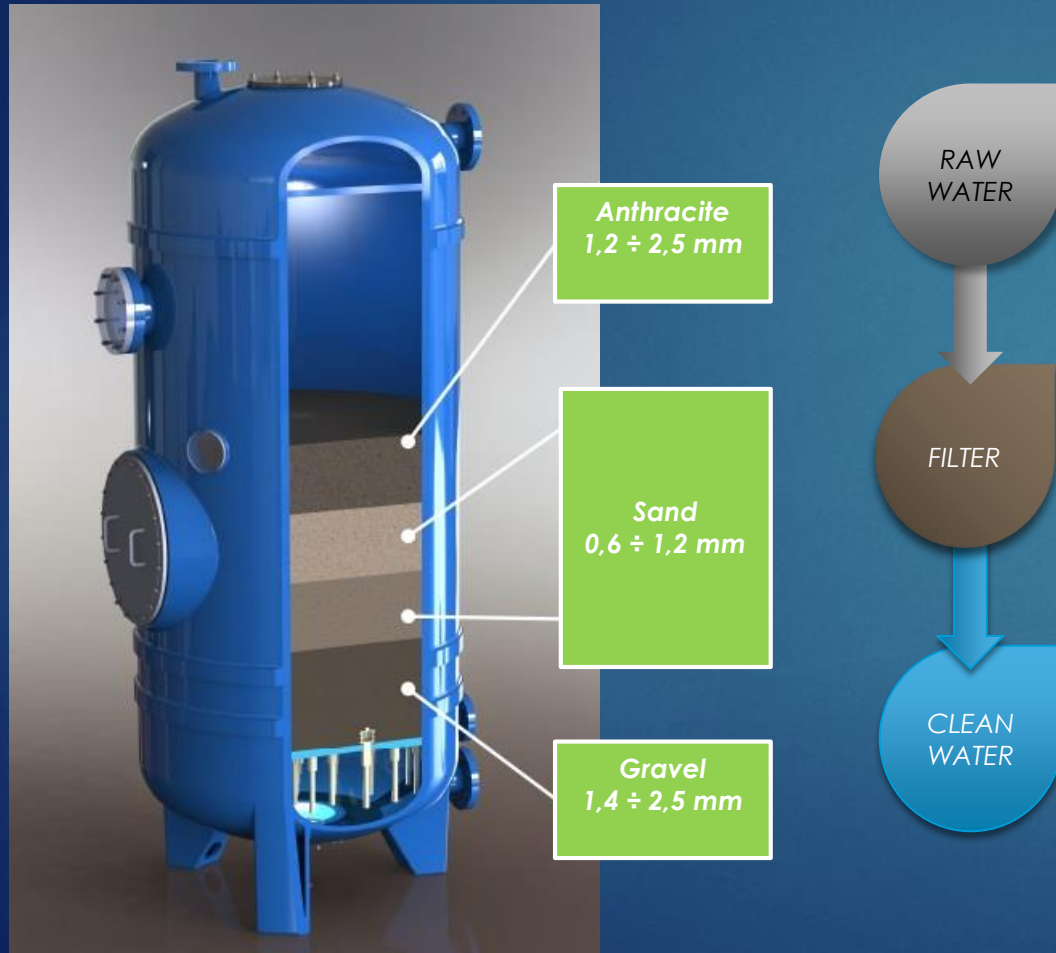
## **WATER TREATMENT**

### FOR PUBLIC COMPANIES

- ▶ *Drinking Water Production*
- ▶ *Urban WasteWater Treatment*
- ▶ *Desalination*
- ▶ *Electricity Power Generation*
- ▶ *Domestic & Residential*

# FILTRATION PROCESSES

## Simple Filtration Process with MultiMedia Filters and Activated Carbon Filters



**MultiMedia Filters** refers to a pressure filter vessel which utilizes three or more different media ordered in decreasing size, as opposed to a "sand filter" that typically uses one grade of sand alone as the filtration media.

### **MULTI MEDIA FILTERS main applications**

- Treatment of WasteWater
- Production of Drinking Water
- Filtration of Cooling Water
- Organic Matter & Iron Removal

**Activated Carbon Filters** are generally employed in the process of removing organic compounds or free chlorine from water, thereby making the water suitable for discharge or use in manufacturing processes

### **CARBON FILTERS main applications**

- Chlorine Removal
- Organic Matter Removal
- Odour Removal




# FILTRATION PRODUCTS

*ILMAP products used in Industrial Water Treatment – MultiMedia Filters & Carbon Filters*



*Vertical Filter sample*

  
*Filter Nozzles*



*Vertical Slots*



*Horizontal Slots*



*Stainless Steel*

*Thermoplastic or Stainless Steel Filter Nozzles according to manufacturer specifications*

# FILTRATION PRODUCTS

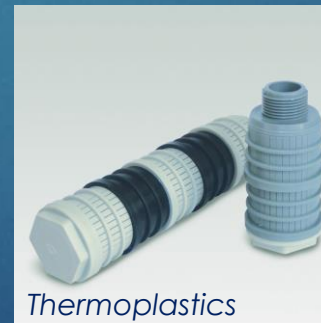
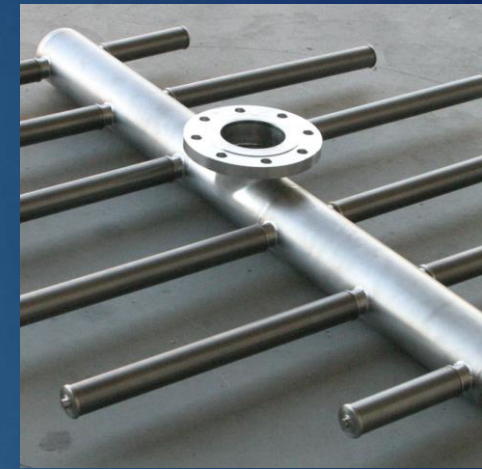
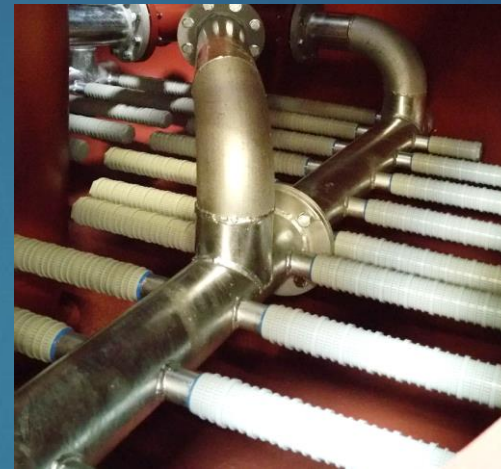
*ILMAP products used in Industrial Water Treatment - MultiMedia Filters & Carbon Filters*



*Vertical Filter Sample*



*Filter Arms*



*Thermoplastics*



*Thermoplastics*



*Stainless Steel*

*Thermoplastic or Stainless Steel Filter Arms according to manufacturer specifications*

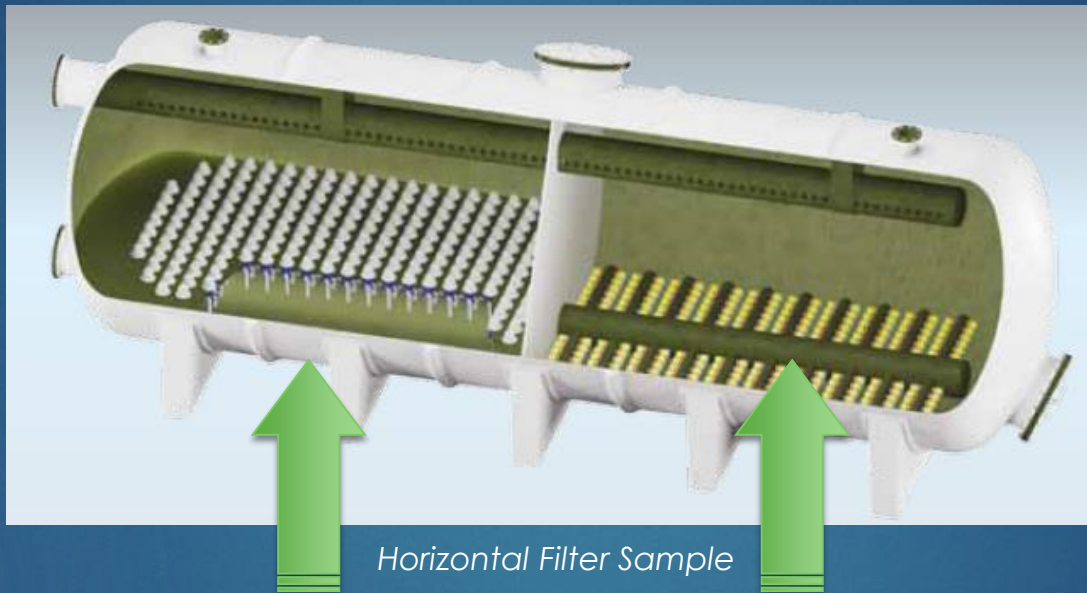


# FILTRATION PRODUCTS

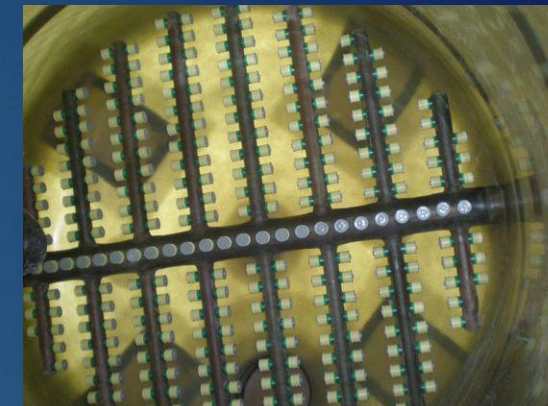
ILMAP products used in Industrial Water Treatment - MultiMedia Filters & Carbon Filters



Filter Nozzles on plate



Horizontal Filter Sample



Filter Nozzles on pipe



Vertical Slots



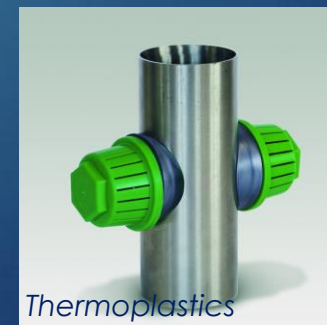
Horizontal Slots



Stainless Steel



Thermoplastics



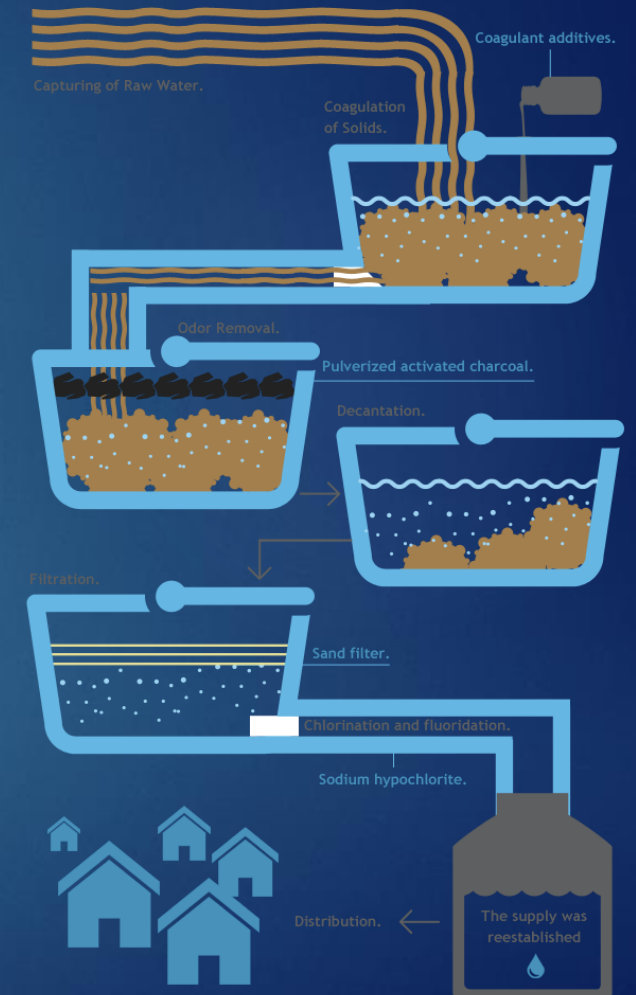
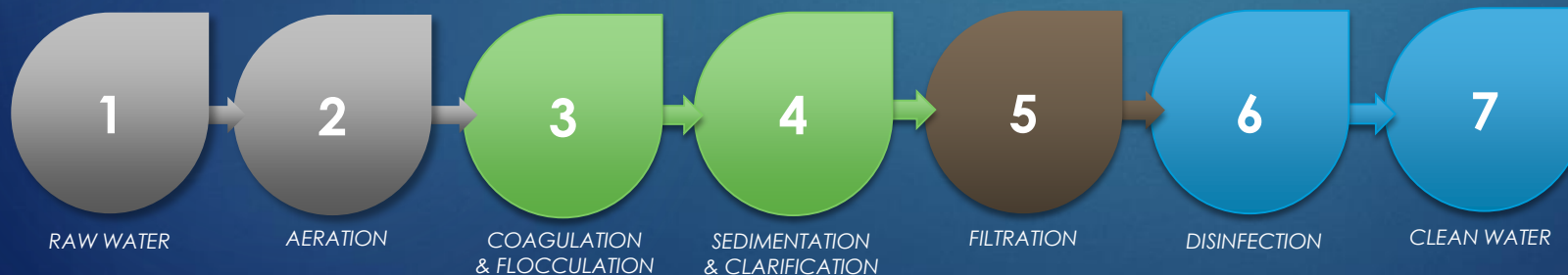
Thermoplastics



Stainless Steel

# WATER TREATMENT PROCESS

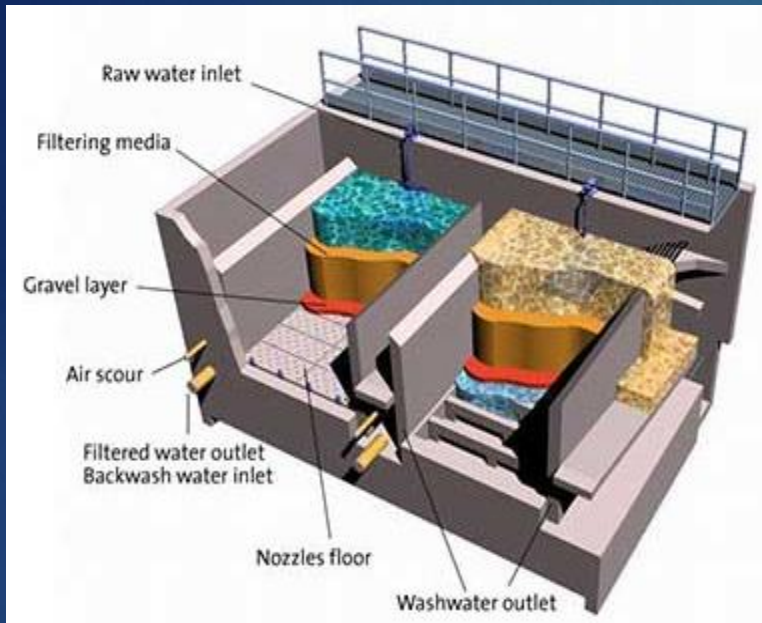
WasteWater Treatment and Water Purification





# FILTRATION PROCESSES

## Filtration Poces in Waste Water Treatment - Gravity Filters



- Used to remove suspended solids from the service water and are typically downstream of pre-treatment clarifiers.
- Commonly used when the turbidity and color of the influent are too high for pressure filters.
- Advantage of being unable to drive suspended matter through the filter bed and into the effluent.



Nozzles Floor under construction



Nozzles Floor Installed



Nozzles Floor Installed



Gravity Filter Air Backwash



Gravity Filter Water Backwash

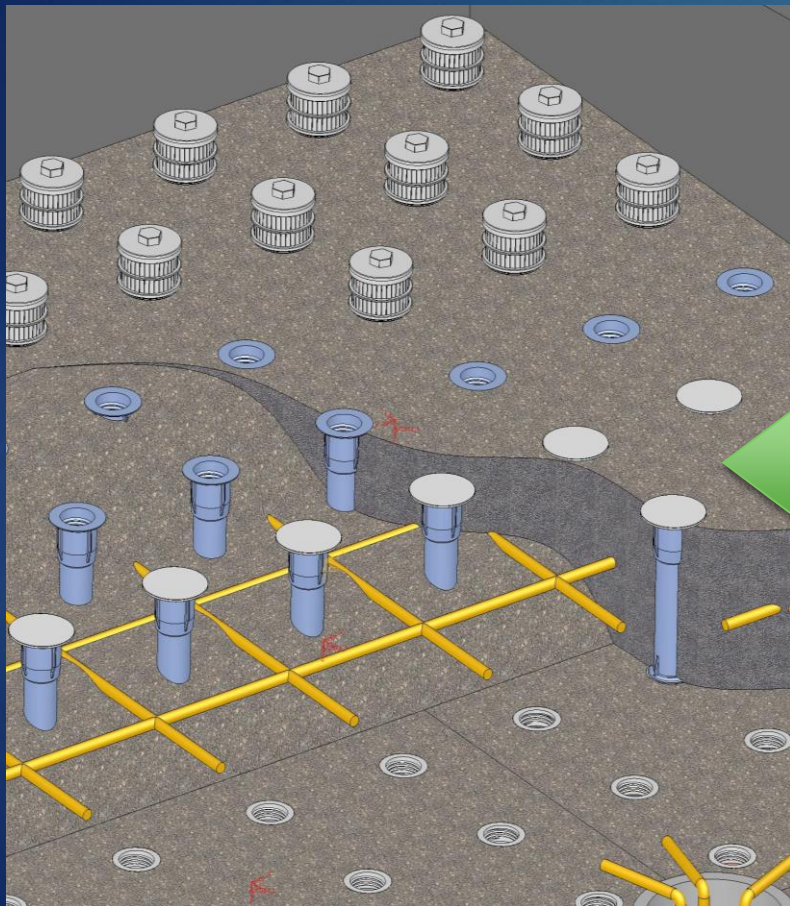


Gravity Filter Clean Water



# FILTRATION PRODUCTS

ILMAP products used in Gravity Filters Nozzles Floor construction



G



GM



GE



M

Sleeves for concrete plates



CF



PD



PDT

Fixing accessories for sleeves



UD

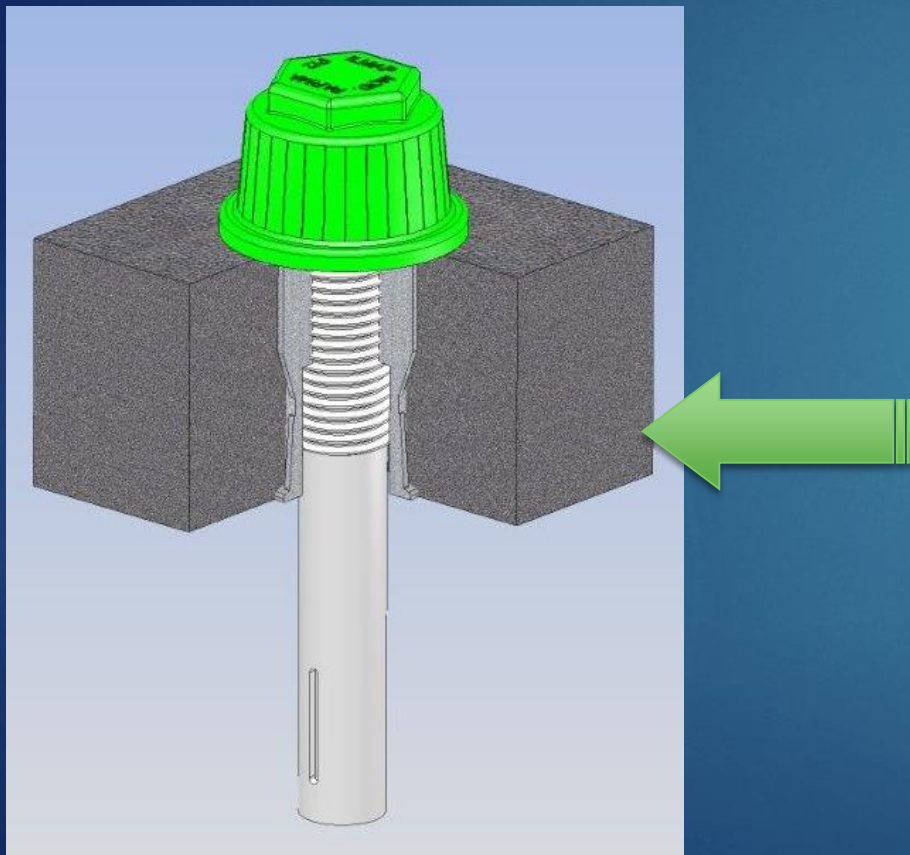


UN

Protection accessories for sleeves

# FILTRATION PRODUCTS

*ILMAP products used in Waste Water Treatment Process - Gravity Filters*



*Filter Nozzles*



# DIFFUSION PRODUCTS

ILMAP products used in Water Treatment Process - Aerators and Air Diffusers



## MAIN APPLICATIONS

- Homogenization & Equalization Tanks
- Oil Separators and Sand Removers

Used to mix wastewaters and to obtain a homogenous substance; we usually found coarse bubble diffuser in the area of equalization tank. The goal is to obtain an homogenized wastewater from different water inlets.

In the equalization tank, Mixing process is usually done by using compressor or blower that is blown through the diffuser. The advantages of this process is that we can add oxygen to the wastewater while performing mixing process.

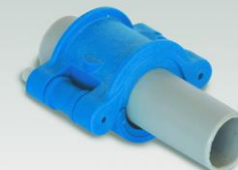


MB

Coarse Bubbles  
Diffusers



MBW



MBB

BioFilter  
Air Diffusers

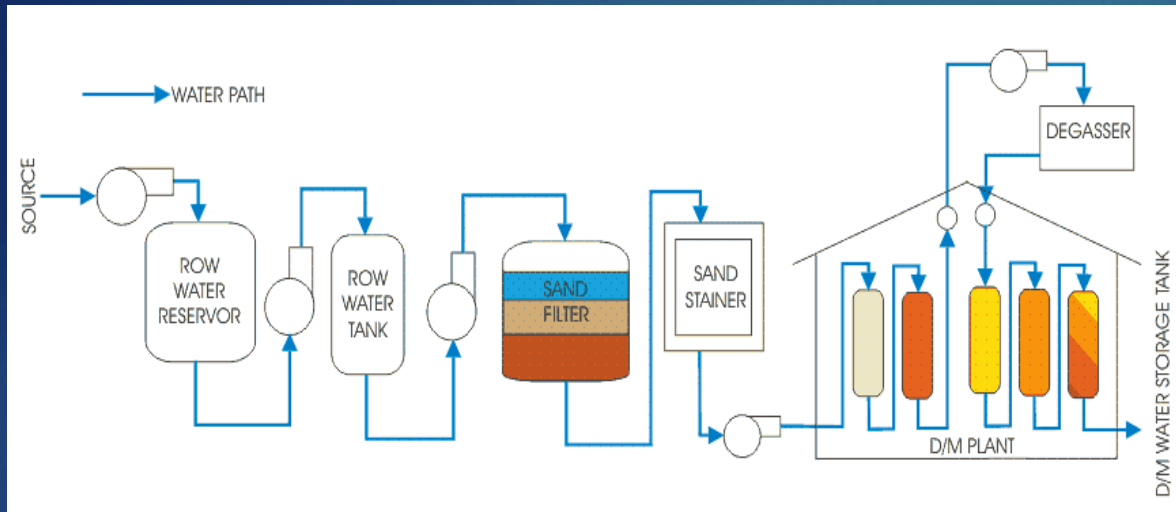


B

BioTunnel  
Air Diffusers

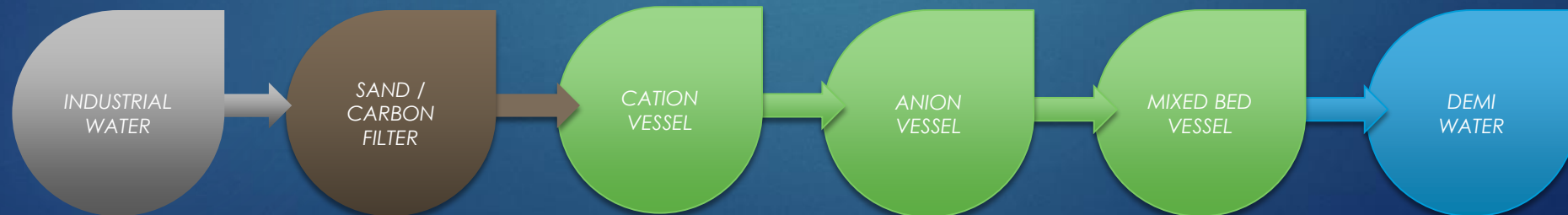
# WATER TREATMENT PROCESSES

## Ion Exchange Systems - Industrial Process of Demineralized Water production



### ION EXCHANGE SYSTEMS main applications

- Demineralization
- Sugar Juice
- Condensate Polishing
- Ultra Pure Water Feeding
- Nitrate Removal
- Waste Treatment
- Chemical Processing – Catalysis
- Purification
- Chromatographic Separation
- Pharmaceuticals and Fermentation



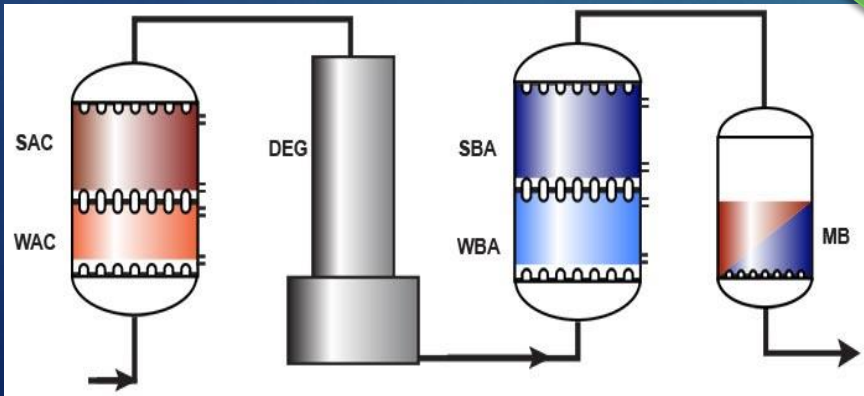
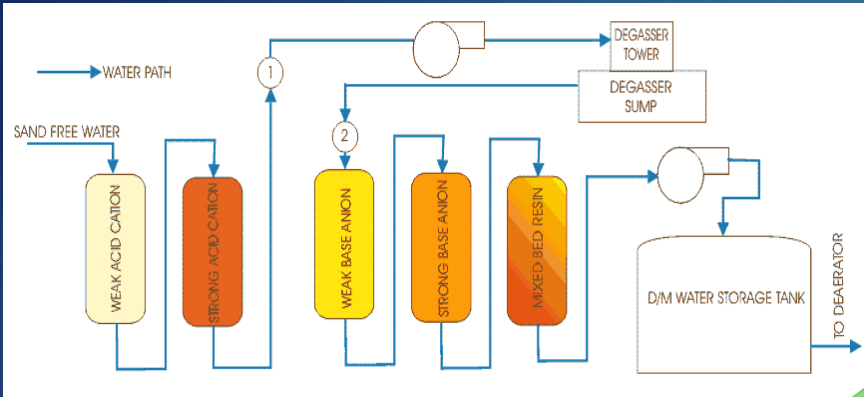


# FILTRATION PRODUCTS

## Ion Exchange Systems - Industrial Process of Demineralized Water production

### Demineralization

Ion exchange demineralization is a two step process involving treatment with both cation and anion exchange resins. The choice of the ion exchange system for demineralization depends on the water quality desired and composition of the raw water. ILMAP can provide a wide range of products for any installation requirements depending on the treatment which must be be performed.



Thermoplastic or  
Stainless Steel  
Filter Nozzles  
according to  
specifications



Thermoplastic or  
Stainless Steel Filter  
Nozzles for  
intermediate plate  
or round pipe



P5 / P6

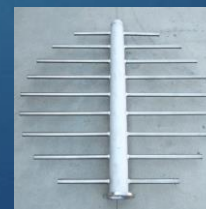


V / VL



DPI / DPS

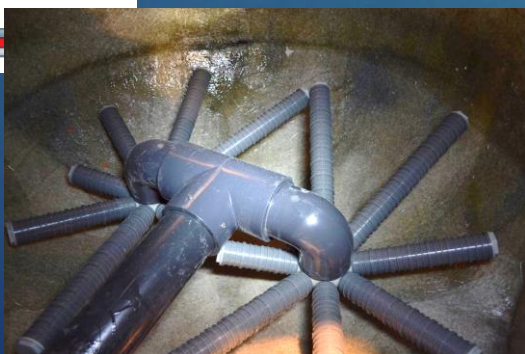
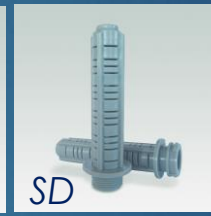
Distribution of  
Resins  
Regenerating  
Solution



Thermoplastic  
or Stainless Steel  
Drain &  
Distribution  
Systems

# FILTRATION PRODUCTS

ILMAP products used in Irrigation and Swimming Pools Filters





# FILTRATION PRODUCTS

*ILMAP products used in Water Softening for domestic installations*



*Top Filters*

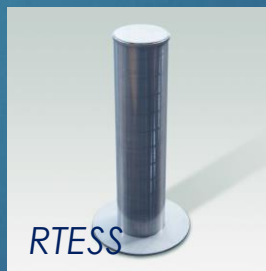
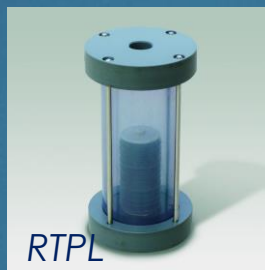


*Bottom Filters*



# SAFETY DEVICES

ILMAP products used downstream Filtration – Safety Traps



Devices mainly used in the outlet of purity water pipelines to control the loss of expensive resin and carbon and can also prevent damage to equipment. Safety Traps, placed inline, provide protection and capture particles of any size.

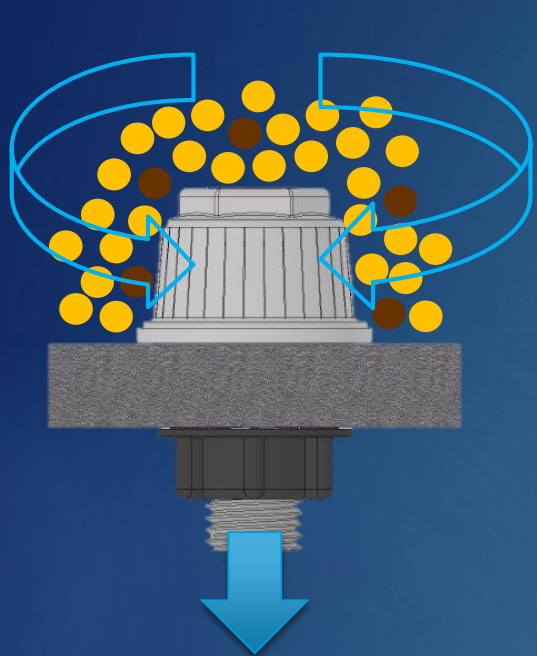
- Prevents loss of expensive resins or carbon
- Prevents mixing of ion exchange resins
- Prevents plant shut down
- Protects expensive equipment
- Long life and resistance to corrosion

## Main applications

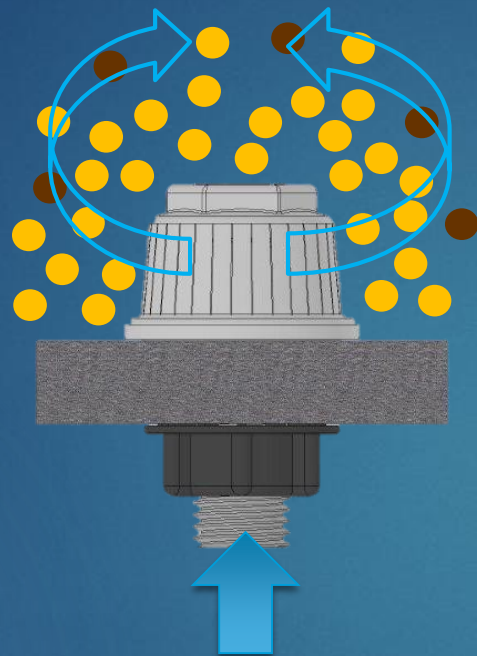
- Ion Exchange Columns & Water Softeners
- Pressure, Gravity sand and Carbon Filters
- Pharmaceutical Resin Treatments
- Food Industry processes



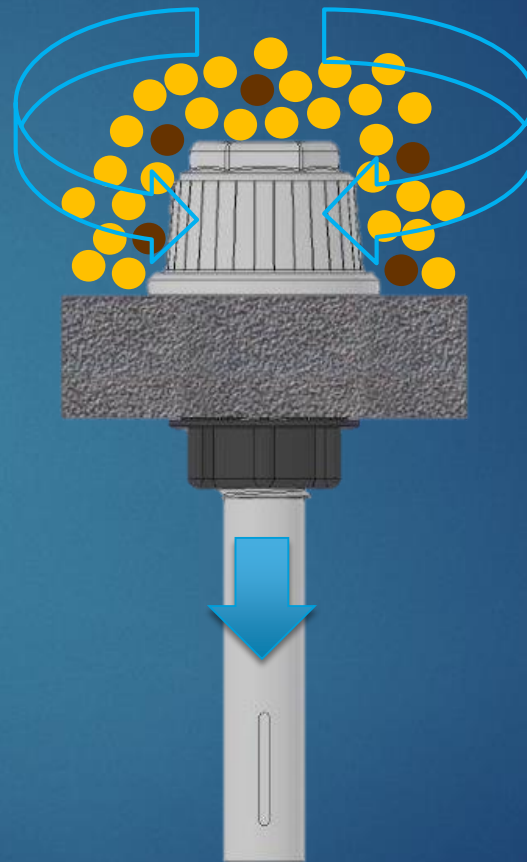
# FILTER NOZZLES - How Nozzles work



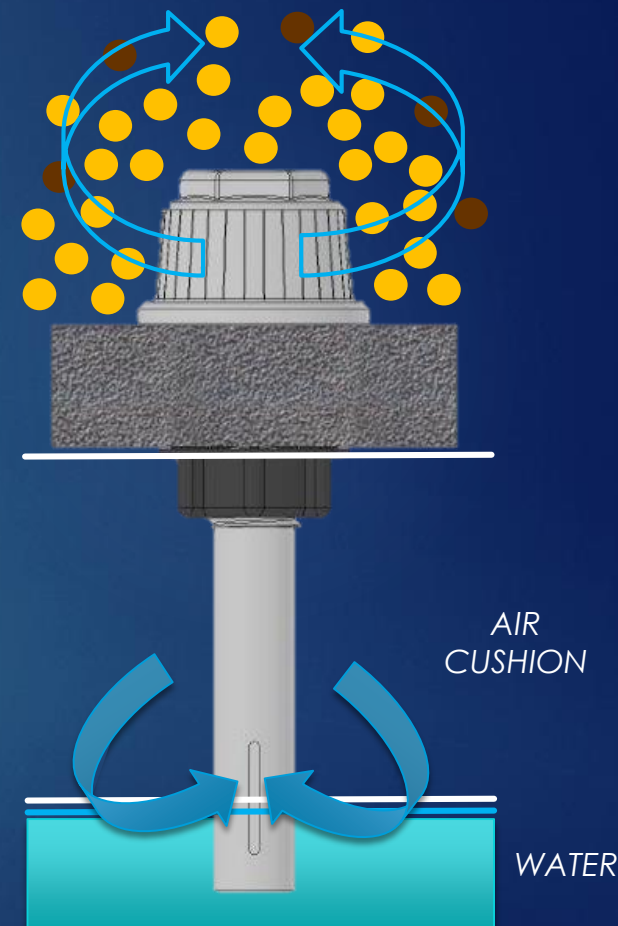
*Filtration Cycle  
Media retention  
and Fluid Filtration*



*Water Backwash Cycle  
Media expansion  
and Dirt Removal*



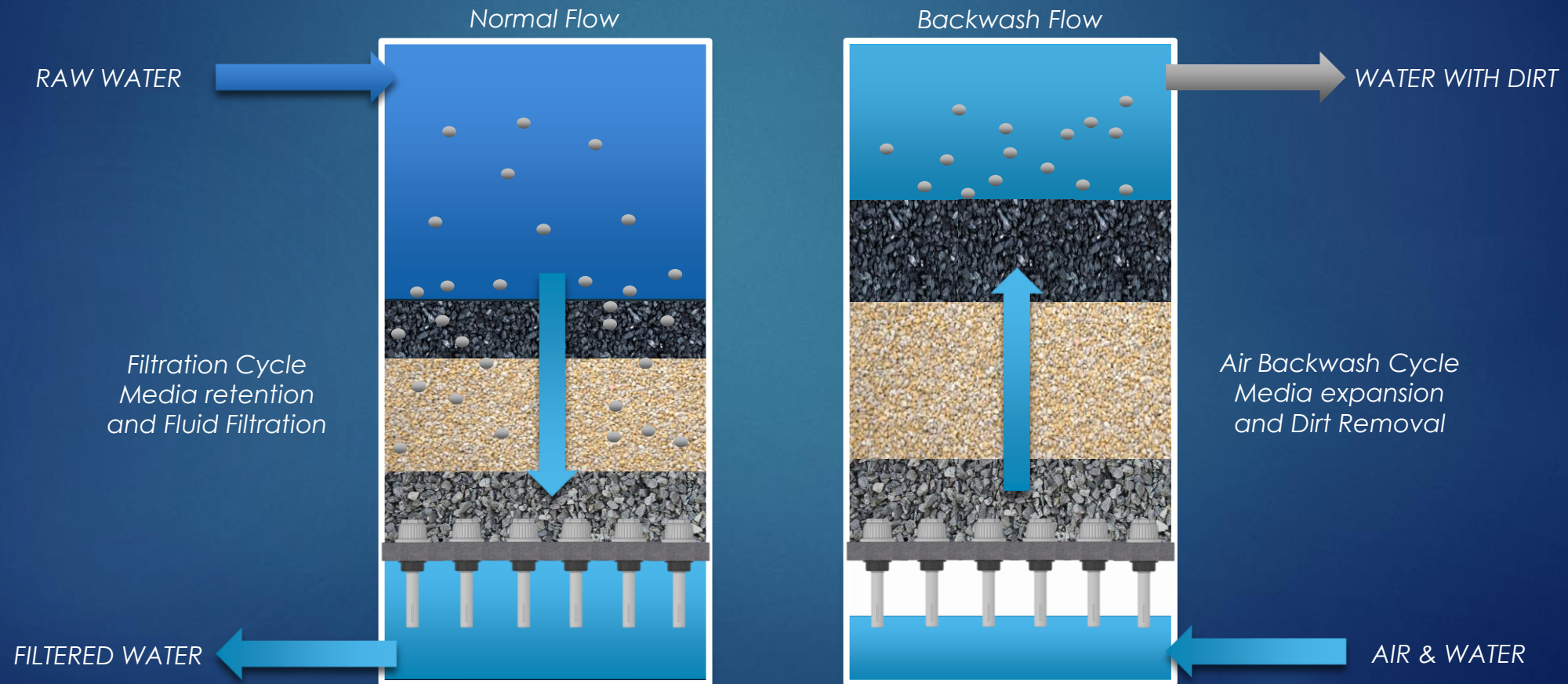
*Filtration Cycle  
Media retention  
and Fluid Filtration*



*Air Backwash Cycle  
Media expansion  
and Dirt Removal*

# FILTER NOZZLES - How Nozzles work

During the cleaning cycle, called "backwash", the bed is lifted (or "fluidized") to loosen the filter media and release trapped dirt which is removed in the backwash flow. After the backwash cycle, the bed is allowed to settle before the filter is returned to service (normal flow). A "filter-to-waste" cycle is used following the settling to assure the filtration media has sufficiently re-stratified and that any loose dirt is removed from the underdrain & collectors.





# *FILTER NOZZLES - How Nozzles work*



*MultiMedia & Carbon Filters - sample*

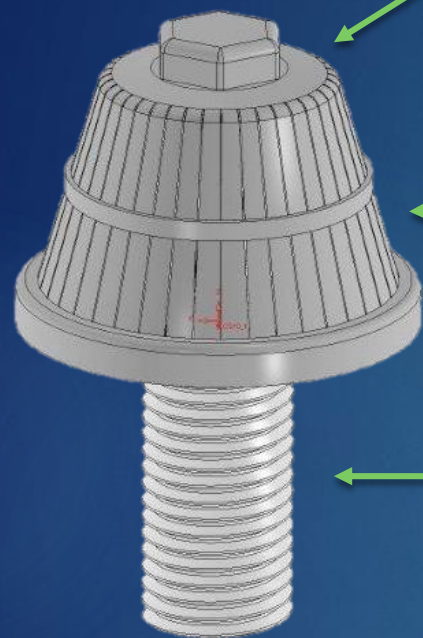
# FILTER NOZZLES - How Nozzles work



Gravity Filter - sample



# FILTER NOZZLES - Features



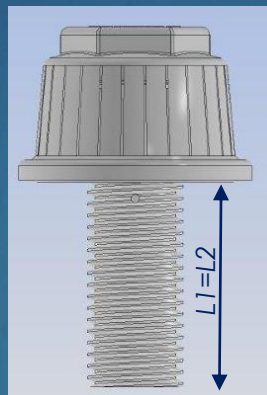
**Nozzle Type**  
according to slots  
area, slot dimension,  
thread availability and  
mechanical strength

**Slot Width**  
according to media  
dimensions

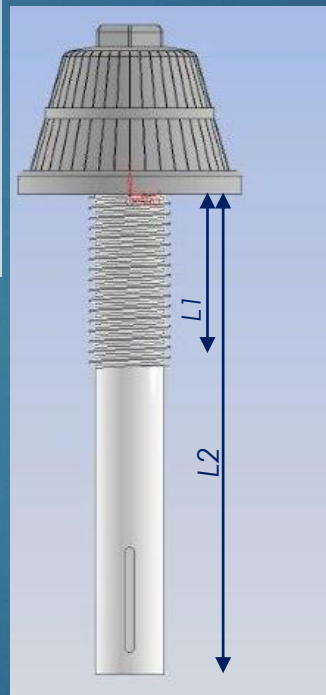
**Thread**  
according to ID required  
and to the holes on plate  
**L1 – L2 – L3**  
according to thickness  
of the plate and to  
the backwash cycle

**Stem ID**  
according to the design  
pressure loss and flow rate

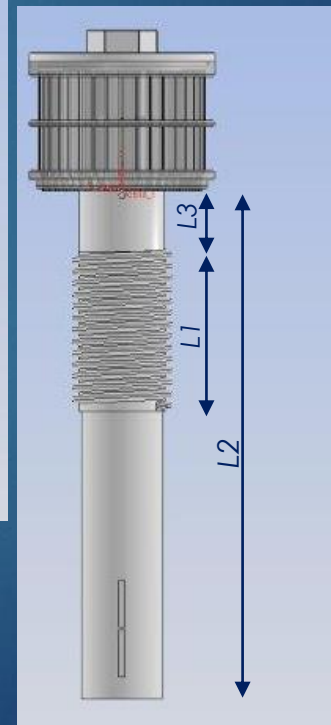
**Material**  
according to working  
temperatures and  
chemical agents



P-0,50-15/16"W-ID16-50-50-PP



T-0,50-15/16"W-ID16-50-120-0-PP



R-0,25-1.1/4"W-ID21-50-140-20-PP

# FILTER NOZZLES - Quality



## CONTACT WITH DRINKING WATER

Our nozzles and its accessories are manufactured with top quality materials purchased permanently by leading suppliers. Polypropylene, PVDF, ABS and Masterbatches used are certified by the manufacturer for contact with drinking water according to the main current world regulations.

## CERTIFICATIONS

**The certificate of the raw material is invalidated by the transformation process of the material from grain to the object, a process that takes place at high temperature and that, if not well controlled, it may cause the formation of toxic monomers and their resulting release into the water.**

In compliance with the regulations **ILMAP have audited its products at authorized laboratories** and obtained the following certifications:

**ITALY** – D.M.174 - 06.05.2004 – at Laboratorio Studio Alfa – Reggio Emilia - Italy

**FRANCE** - ACS - Laboratoires Carso – Lyon – France

**UNITED KINGDOM** - WRAS - BS 6920 – WRc - NSF Ltd - Gwent – UK (**being renewed**)

**EU** - Regulation EN10/2011 - on plastic materials and articles intended to come into contact with food (**process of obtaining**)



ILMAP uses a different coloring of the heads to identify uniquely the size of the Slots of every Filter Nozzle.

0,15 mm – white

0,20 mm – black

0,25 mm – dark gray

0,30 mm – green

0,35 mm – yellow

0,40 mm – light blue

0,50 mm – light gray

0,60 mm – red

0,80 mm – brown

1,00 mm – green

2,00 mm – blue

3,00 mm – black

5,00 mm – orange



# FILTER NOZZLES - Materials



## **THERMOPLASTICS**

A wide range of materials allows ILMAP to make the best choice in accordance with the operating conditions of the plant, to provide excellent mechanical, chemical and heat strength, ensuring excellent functionality and guarantees a long-life of products.

### **PP - POLYPROPYLENE**

It is an excellent thermoplastic resin with good technical characteristics; good resistance to temperature (max. peak value of 70 °C), good resistance to chemicals and organic solvents, good resistance to abrasion.

### **PPFV - 30% POLYPROPYLENE WITH GLASS FIBRE (chemically bounded)**

Is used when the operation temperature is higher than 80° C up to a maximum capacity of 110° C. In addition to glass fibers which give greater rigidity to the product, the PPGF contains an additive which maintains the properties of the PP for a longer period.

### **PVDF - POLYVINYLIDENE FLUORIDE**

It is the strongest of the thermoplastic resins, having excellent mechanical strength, high abrasion resistance, high thermal stability (max peak value of 135° C), high purity, resistance to most chemicals and solvents (only limited resistance to high concentrations of alkaline substances), excellent resistance to aging.



## **STAINLESS STEEL**

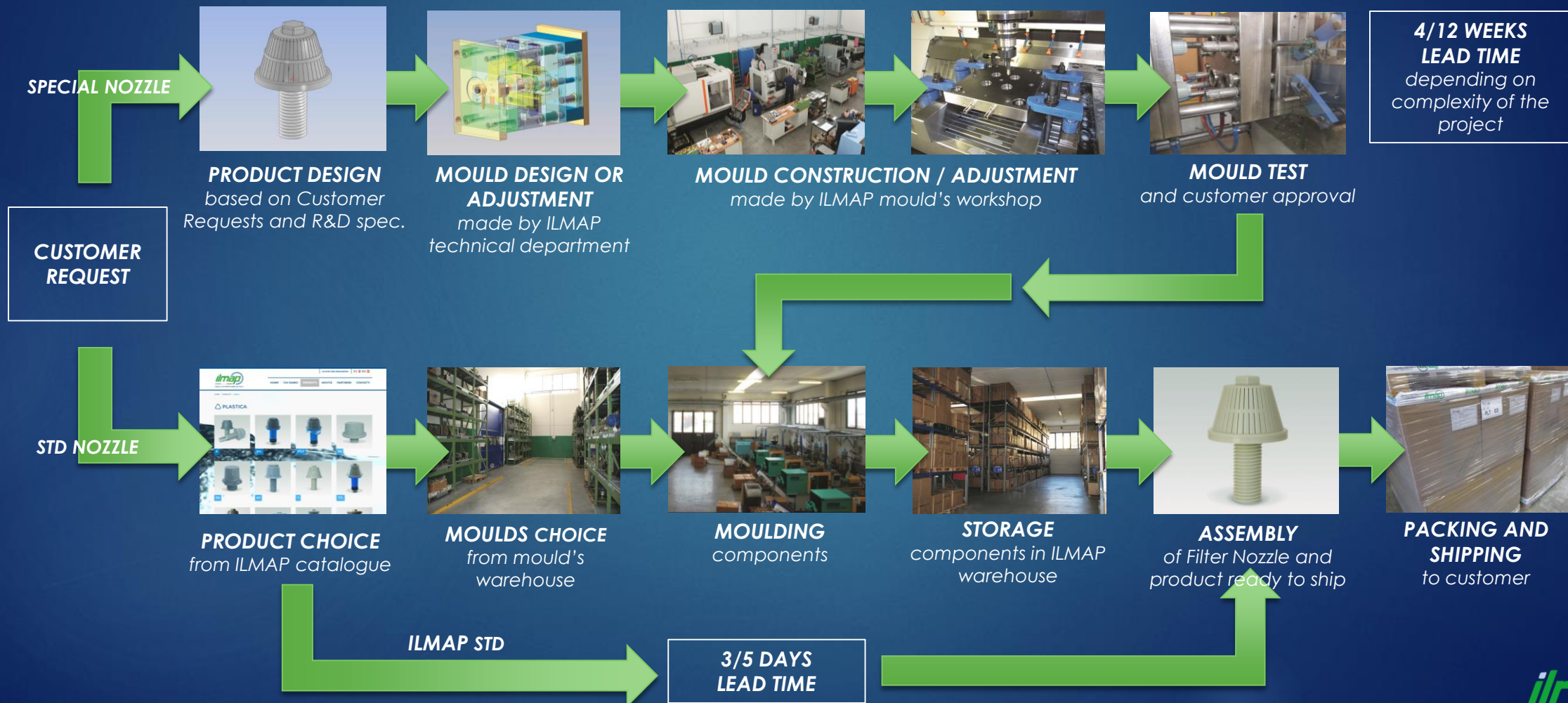
Austenitic steels are used in various aggressive environments, low and high operating temperatures; good corrosion resistance, high resistance to hot oxidation up to 925° C, good resistance to fatigue stresses, also usable for uses at cryogenic temperatures (-160° C).

### **DIN 1.4404 - AISI 316L**

Steel which has a limited resistance against acid solutions and concentrated hydrochloric acid, is commonly used for special applications and for temperatures higher than 135 °C.

# FILTER NOZZLES — Product Choice or Product Design

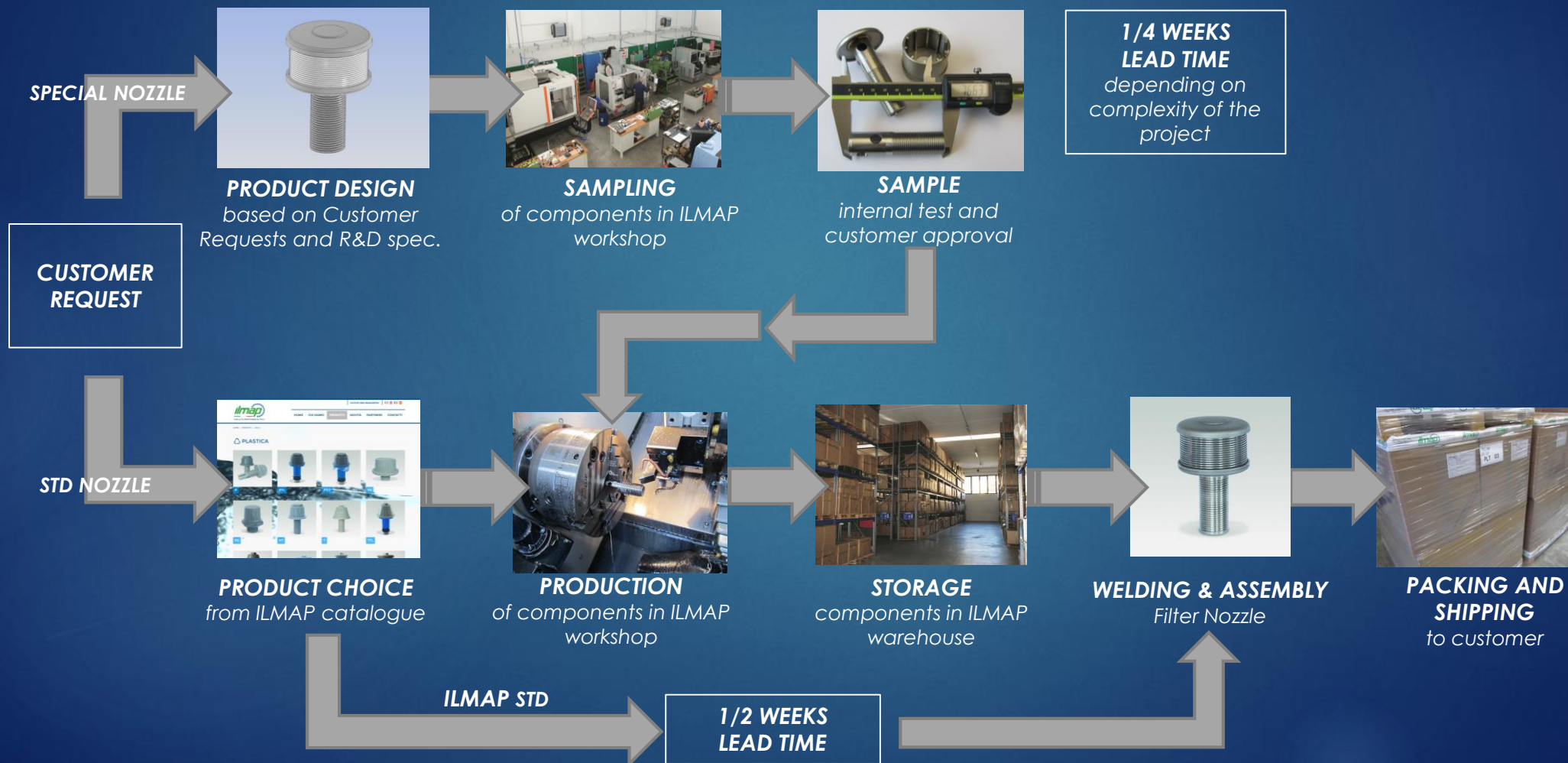
## THERMOPLASTIC





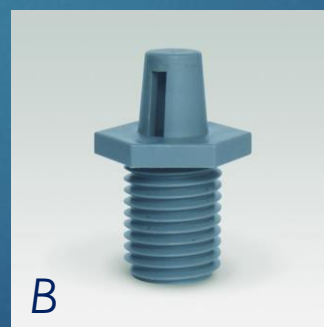
# FILTER NOZZLES — Product Choice or Product Design

## STAINLESS STEEL



# PRODUCTS OVERVIEW

## FILTER NOZZLES WITH VERTICAL SLOTS



# PRODUCTS OVERVIEW

## FILTER NOZZLES WITH HORIZONTAL SLOTS





# PRODUCTS OVERVIEW

## ***FILTER NOZZLES PROVIDED WITH ACCESSORIES***



***DRILLED PLATE MOUNTING***



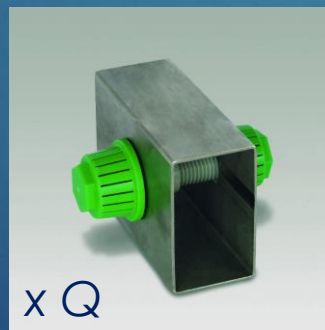
***ROUND PIPE MOUNTING***

# PRODUCTS OVERVIEW

## MATCHED FILTER NOZZLES



INTERMEDIATE  
PLATE MOUNTING



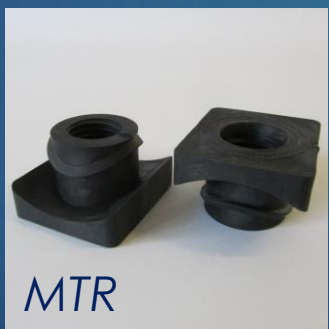
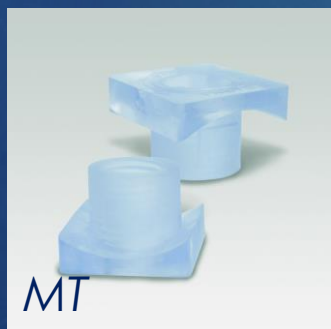
ROUND PIPE  
MOUNTING

# PRODUCTS OVERVIEW

## FIXING ACCESSORIES FOR FILTER NOZZLES



**DRILLED PLATE  
MOUNTING**



**ROUND PIPE  
MOUNTING**



# PRODUCTS OVERVIEW

## CONCRETE PLATES SLEEVES & ACCESSORIES



# PRODUCTS OVERVIEW

## ***FILTER NOZZLES FOR SOFTENERS***



***BOTTOM FILTER NOZZLES***



***TOP FILTER NOZZLES***

# PRODUCTS OVERVIEW

## DRAIN AND DISTRIBUTION SYSTEMS COMPONENTS



CSI05



CSI06



CST06



CSD06



CSI08



CST08



CSG08



CSD08



CB06



CB08



CC06



CC12



# PRODUCTS OVERVIEW

## DRAIN AND DISTRIBUTION SYSTEMS COMPONENTS



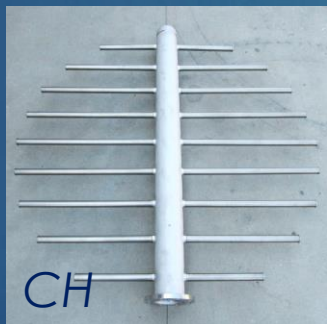
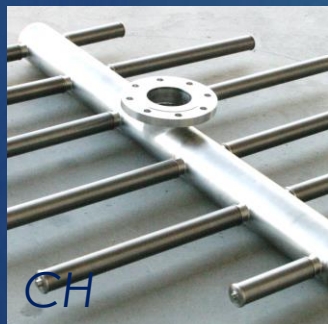
# PRODUCTS OVERVIEW

## ARMS FOR DRAIN AND DISTRIBUTION SYSTEMS



# PRODUCTS OVERVIEW

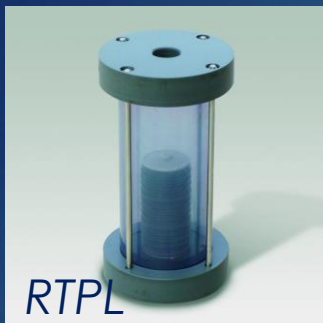
## DRAIN AND DISTRIBUTION SYSTEMS – COMPLETE SYSTEMS SAMPLES





# PRODUCTS OVERVIEW

## SAFETY TRAPS



# ILMAP COMPANY

For over 50 years the **ILMAP** Company produces filter nozzles in thermoplastic material for water treatment. The first filter nozzle manufactured by **ILMAP** dates back to the early 60's for Ing. G. Rossetti of Milan. The following collaborations with the main Italian Engineering Company has enabled the acquisition of a significant amount of information and experience regarding the use of these articles in various applications. Our customer's requests and great experience on the field have led to a wide differentiation of the nozzles and of the accessories needed for installation. In the year 1992 **ILMAP** was completely taken over by the current management who developed new products and expanded its own product range for water treatment. In the year 2004 **ILMAP** realizes the current factory in Sorbolo (Parma) with a total area of 5,000 m2, expanding in the year 2015 with a new area of 1,700 m2.

**MOULD'S TECHNICAL OFFICE** - In addition to other activities, **ILMAP** adds now the design and construction of new moulds upon specific customer request.

**WORKSHOP** - An area of 400m2 which houses the Mould's workshop and Stainless Steel workshop. Modern CNC milling machines allow continuous improvement of the existing mould, a rapid response in the maintenance and construction of new moulds for ILMAP production and ensure internal production of steel components.

**MOULD'S WAREHOUSE** - Physically separated from production and from workshop activities, **ILMAP** created the mould's warehouse. An area of 100 m2 arranged to contain a large number of moulds and to allow a quick access to the moulds by technicians of workshop and production.



## COMMERCIAL AND TECHNICAL OFFICE

## PACKING AND SHIPPING DEPARTMENT

**PRODUCTION DEPARTMENT** – An area of 600 m2 and 11 modern injection moulding machines of leading brand known for quality and reliability allow production **ILMAP** to respond quickly to customer requests. Nowadays the number of filter nozzles produced in a year is approximately more than 2.000.000 pcs. Our production capability with existing machine park is around 3.500.000 pcs/year.

**PRODUCTS WAREHOUSE** - More than 700 m2 of indoor warehouse and 350 m2 of roofed storage allow **ILMAP** to guarantee his customers standard lead times for orders. A supply assurance concerning procedures and delivery time.



# ILMAP COMPANY

WORKSHOP



MOULD'S WAREHOUSE





# ILMAP COMPANY

PRODUCTION DEPARTMENT



PRODUCTS WAREHOUSE





# ILMAP COMPANY

