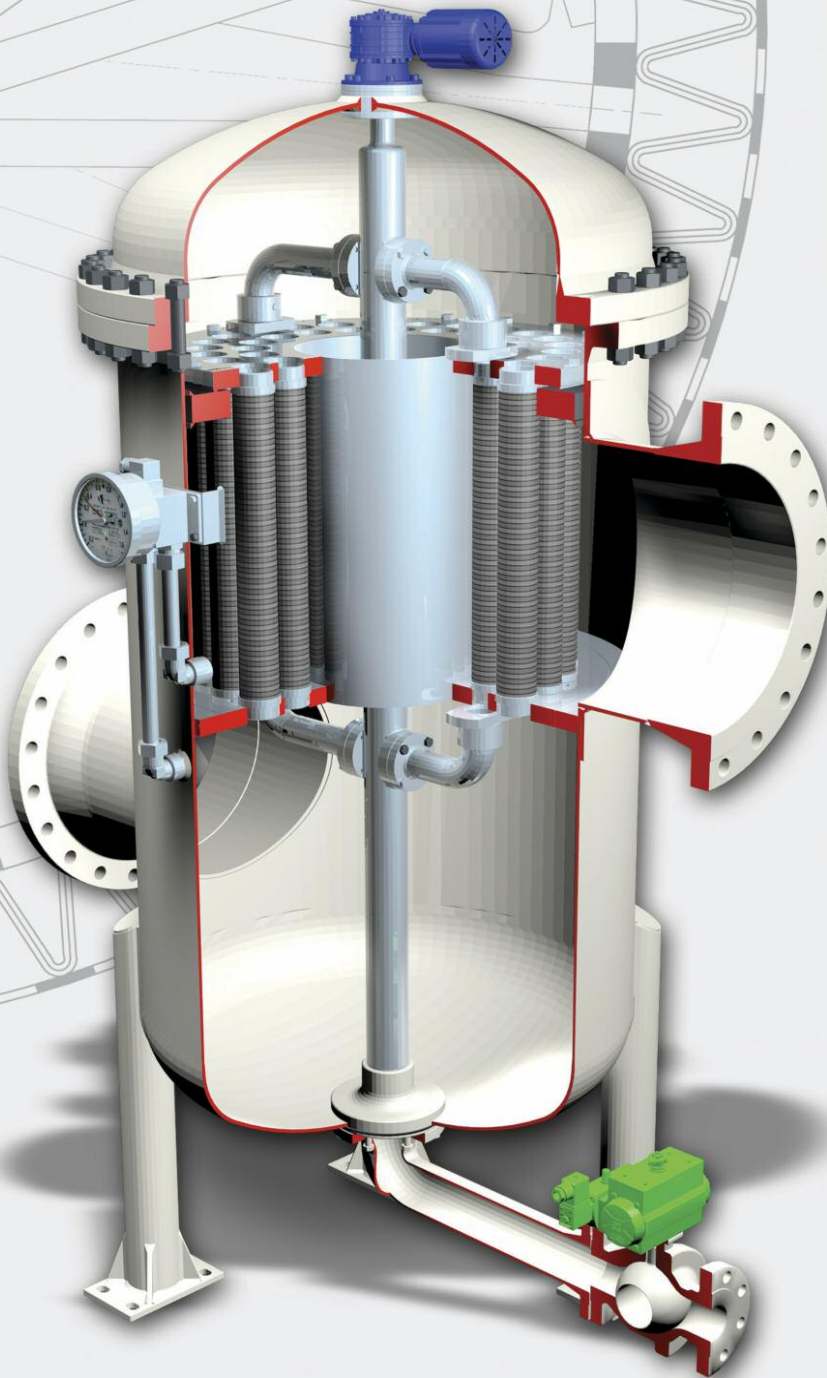




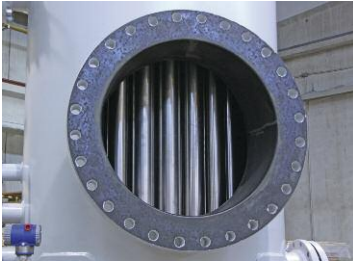
# AC

*Automatic  
Backwashing Filter*



*Conventional Water Filtration*

## The AC Filter



The AC Filter is an automatic backwashing system developed for water filtration. It is especially designed to handle the nature and volume of solids in seawater being used for oilfield injection or in demanding duties like the pre-treatment of water and waste water filtration.

## AC Features



- Large filtration area with low space and weight using a filtration media consisting of candle bundles assembled in a tube plate. This gives a higher specific flux rate in a compact and lightweight unit.
- Wedge wire filter surface provided in a rugged construction gives high mechanical strength
- Rotating backwash mechanism, using low friction material nozzles, eases engineering design where metal to metal surface contacts are common. In addition the backwash nozzles are designed to be self-loaded when in pressure, ensuring minimal wear of the contacting surface as a result of heavy suspended sand sediment content in water. This unique feature reduces any kind of drag efforts of the backwash arms, which in turn reduces load to backwash motor and gearbox, ensuring integrity of the internals that can be easily inspected through the hand/man hole.
- Maintenance is minimal in over 20 years of continual use. However, should dismantling be necessary, it is a quick and simple operation. The top cover can be easily opened to remove each single candle or the whole bundle assembly, adapting to the best plant maintenance procedure. No special tools are required in either case.

## AC Advantages



- Traditional and proven technology
- Vertical installation
- Wide selection of materials for the construction of both vessel and internals
- Simple design of vessel and internals allows the use of any kind of lining material to cope with the most severe applications.
- Available as stand alone or skid mounted packages, properly configured to cope with any flow rate and/or high level of suspended solids.
- Balanced rotating backwash mechanism with single or multiple arms

## The Task

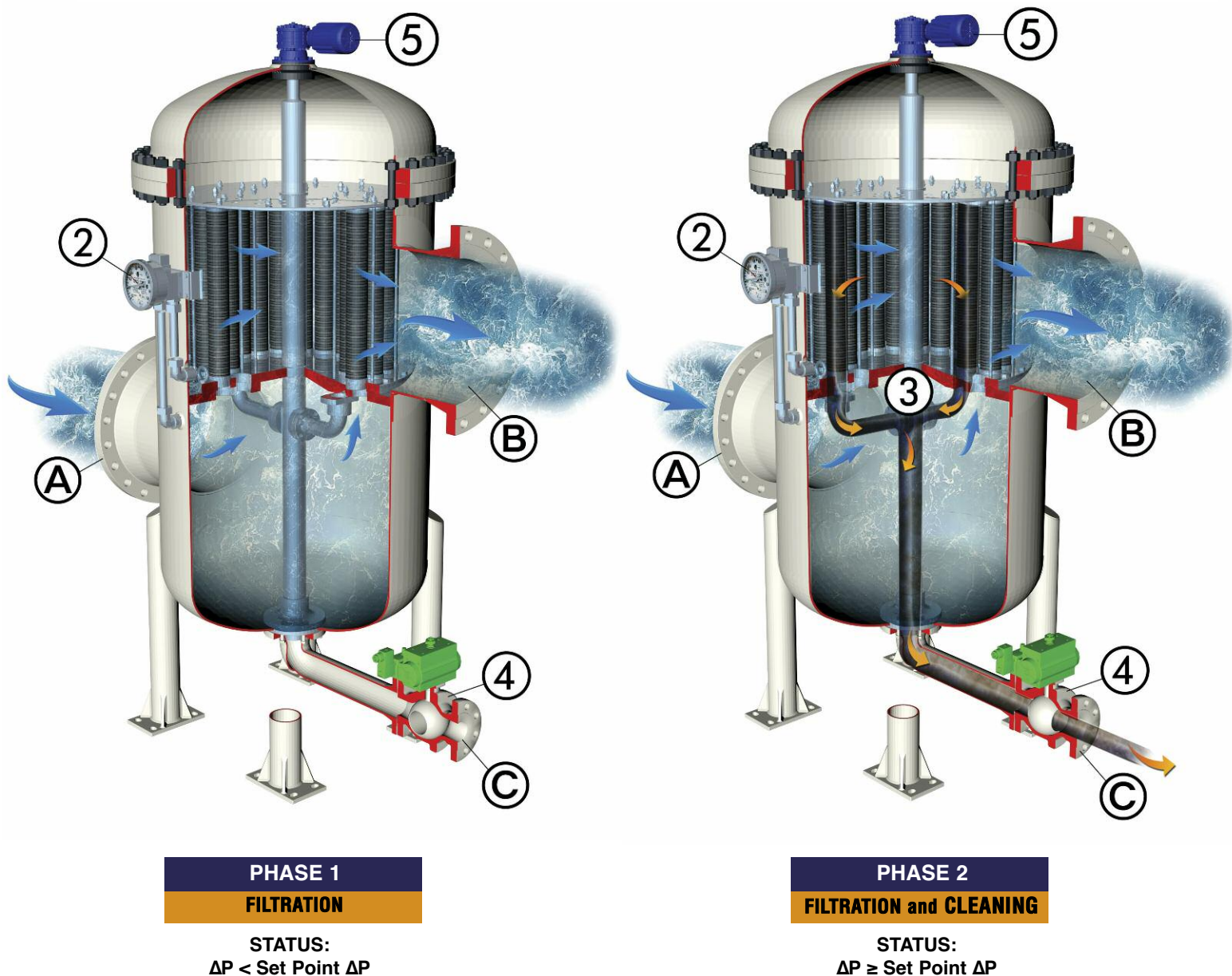


### **Reliable filtration of water under highly demanding conditions:**

- Pre-treatment of seawater in oilfield injection for Off/On Shore applications
- Main Seawater Filter and Fine Filter in Off-Shore applications
- Pre-treatment of river water / seawater in Power Plants
- Cooling water filtration
- Pre-treatment of seawater in desalination units
- Industrial applications for steelworks, paper mill manufacturing and heat exchanger protection
- Pre-treatment of ballast water



## Standard Backwash



### Phase 1 – Filtration

The water to be filtered enters from the inlet nozzle ① and flows into the filtering elements (candles) from the bottom side.

The water flows from the inside to the outside of the candles. Solid particles are retained on the inner side of the candles, while the water leaves the vessel via the outlet nozzle ②.

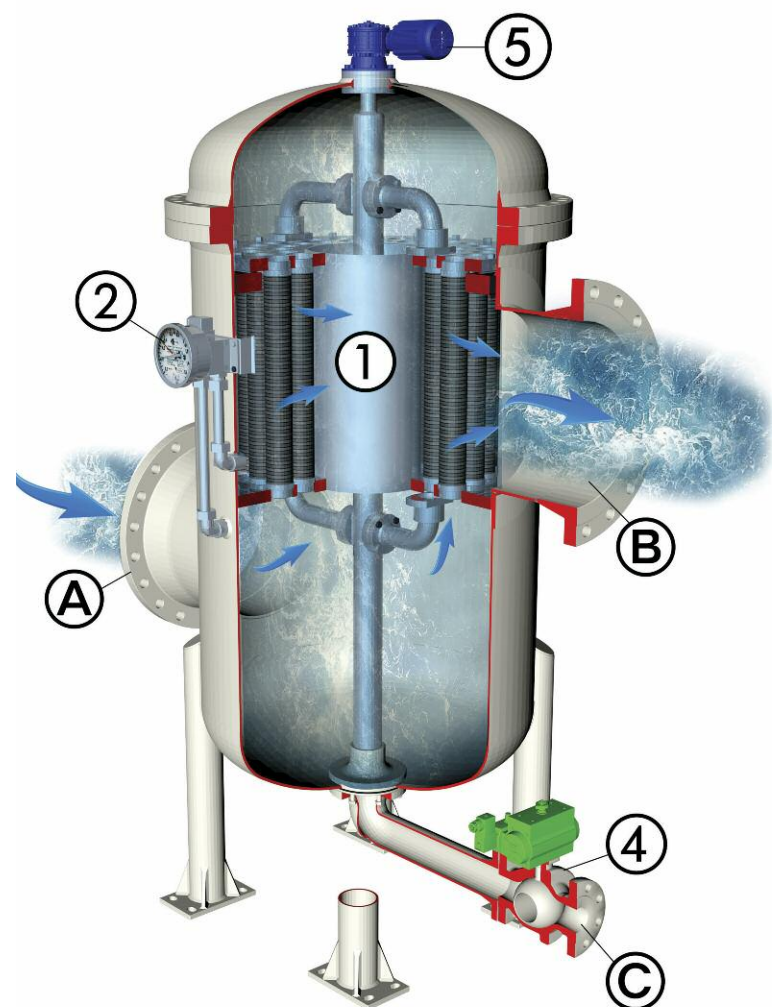
As more and more impurities build-up on the candles surface, the differential pressure  $\Delta p$  measured by the differential gauge ③ gradually increases with time until it reaches the set point value; the backwash valve ④ opens and the Phase 2 (Filtration and Cleaning) starts.

### Phase 2 – Filtration and Cleaning

While the candles are in filtration mode, the candles aligned with the rotating backwash mechanism ③ are cleaned by the reverse flow of filtered water drawn from the outside to the inside of the candles by the differential pressure with the nozzle ④ through the open backwash outlet valve ④. All the candles are then cleaned by the rotating backwash mechanism ③ operated by the motor ⑤.

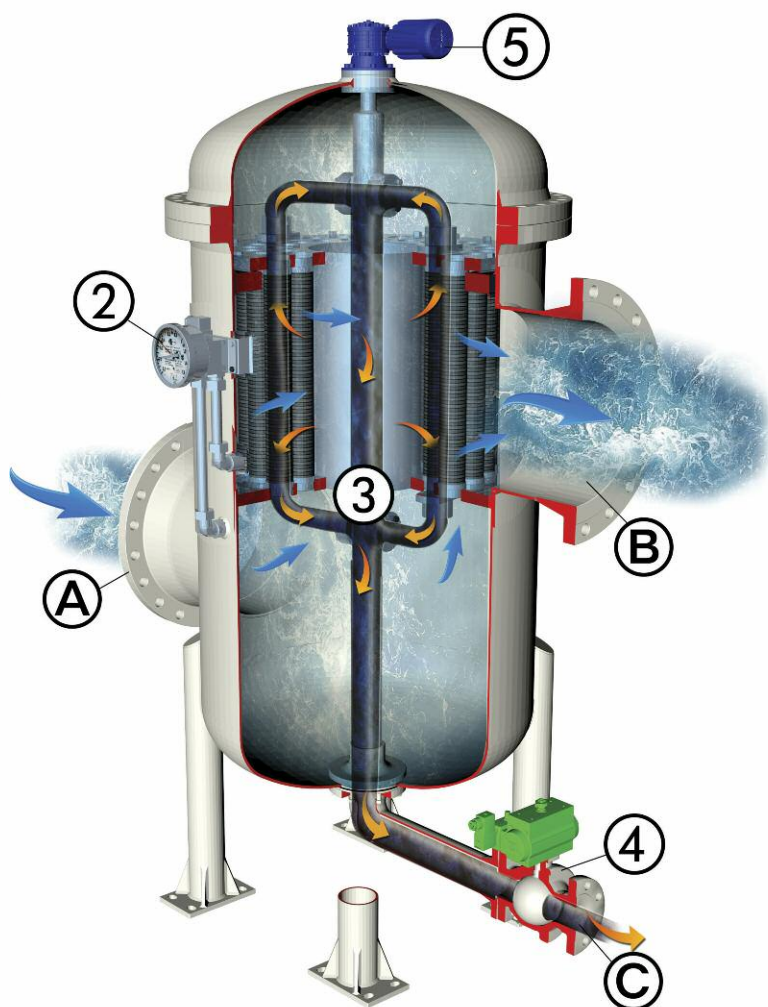
At the end of the backwash set-time, the motor ⑤ stops and the backwash valve ④ closes, thus returning to normal filtration (Phase 1).

## Bi-Directional Backwash



### PHASE 1 FILTRATION

STATUS:  
 $\Delta P < \text{Set Point } \Delta P$



### PHASE 2 FILTRATION and CLEANING

STATUS:  
 $\Delta P \geq \text{Set Point } \Delta P$

#### Phase 1 – Filtration

The water to be filtered enters from the inlet nozzle A and flows into the filtering elements (candles) from both the bottom and top side through the internal passage ①, equally distributing the water on both sides of the filtering elements.

The water flows from the inside to the outside of the candles. Solid particles are retained on the inner side of the candles, while the water leaves the vessel via the outlet nozzle B.

As more and more impurities build-up on the candles surface, the differential pressure  $\Delta p$  measured by the differential gauge ② gradually increases with time until it reaches the set point value; the backwash valve ④ opens and the Phase 2 (Filtration and Cleaning) starts.

#### Phase 2 – Filtration and Cleaning

While the candles are in filtration mode, the candles aligned (top and bottom side) with the rotating backwash mechanism ③ are cleaned by the reverse flow of filtered water drawn from the outside to the inside of the candles by the differential pressure with the nozzle C through the open backwash outlet valve ④. All the candles are then cleaned by the rotating backwash mechanism ③ operated by the motor ⑤.

At the end of the backwash set-time, the motor ⑤ stops and the backwash valve ④ closes, thus returning to normal filtration (Phase 1).

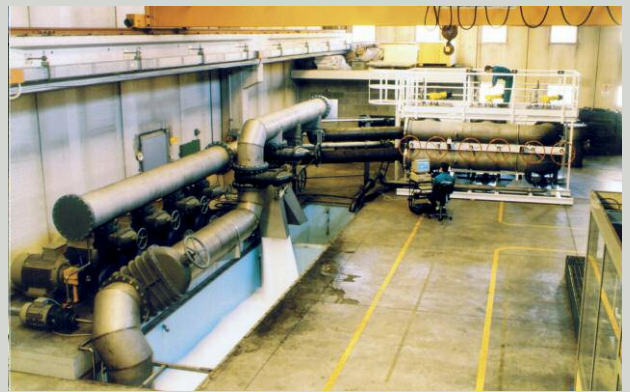


## *Constant Research is the key to a successful product*

Research has always been at the top of Filtrex priorities.

The company has invested heavily in sophisticated testing rigs and laboratories.

This effort has produced the most advanced filtering equipment available today.



## *FILTREX Worldwide Experience in Water Filtration*



LNG Terminal - WAFA, Libya



Refinery Desalting Unit  
Cagliari, Italy



FLNG - Prelude Project, Australia



Offshore Platform - Martin Linge  
Topside, North Sea Norway



LNG Terminal - Rotterdam, The Netherlands



Offshore Platform - Mariner Topside, North Sea UK



Ethylene Plant - Al Shuaiba, Kuwait



LLDPE Plant - MIC, Qatar





**Filtrex Corporate Headquartes - Milano (Italy)**

Filtrex s.r.l. with its headquarters and state of the art manufacturing facilities in Milano, Italy provides filtration solutions and technical services to many industries such as hydrocarbon, chemical, environment protection, power generation, water treatment, Navy and marine transport. Filtrex operates from its headquartes in Italy and through worldwide branches, and has received prestigious certifications for quality and standards of engineering and manufacturing.

Filtrex provides its customers with a comprehensive scope of work, services and supply, preparing the engineering design specifications and P&ID's, purchasing equipment and materials, fabricating and assembling the filters into module(s) in its fabrication shop, furnishing data books and operating manuals, and providing technical services for inspection, installation, commissioning, start up and after start up.



**Filtrex Manufacturing Unit #4 - Vignate (Italy)**

***AC is only one of the comprehensive range of filters manufactured by FILTREX.  
Please contact us for details and documentation***

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