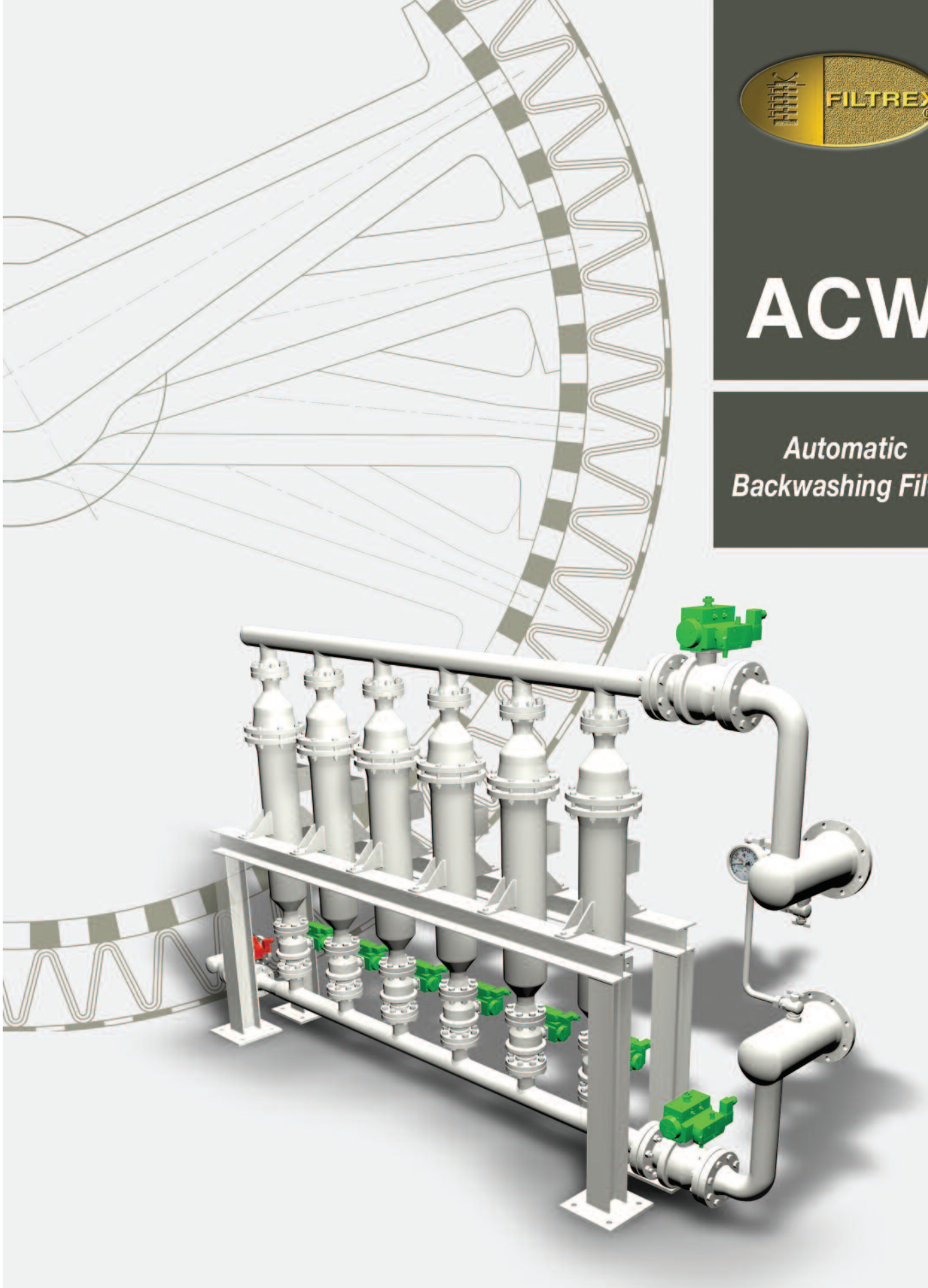
FILTREX®

ACW

Automatic Backwashing Filter



Conventional Refinery Filtration

The ACW Filter

Filtrex ACW filter consists of filter housings assembled in multiple banks which are skid mounted and equipped with headers, manual and automatic on/off valves. The banks operate in parallel, with each bank handling a portion of the total process flow.

The feed enters each housing through its inlet nozzle and goes through the filtering elements (candles), moving from the outside to the inside of the candles.

Filtration media can be either wedge wire or wire mesh candles bundle or pleated wire mesh basket type.

Solid particles bigger than the filtration degree are retained on the outer side of the candles or basket, while the filtered feed flows inside and leaves the housing through the outlet nozzle.

As solids accumulate on the filter element, the filter pressure drop increases. When the set point is reached, the automatic backwash step is performed.

The backwash can be done either with filtered feed or with external backwash fluid (wash oil).

It can be initiated automatically, based on the pressure drop set point, by time or by operator request. The operator can manually trigger a backwash sequence, which is then performed automatically. The housings of each bank are cleaned one by one and the banks are also cleaned one by one in sequence.

ACW Filter Features

The filter control system can be implemented into the Refinery DCS or integrated in a dedicated PLC.

The solenoid valves on the pneumatic actuated automatic valves are wired up to junction boxes, at the skid edge.

The control system operates in accordance with the logic diagrams and system description supplied by FILTREX.

ACW filter candles in wedge wire are available from 23 to 150 micron filtration degree, with backwash set point between 1.0 and 1.5 bar (14.5-21.8 PSI).

When file filtration is required (from 3 to 40 micron), candles or pleated basket with woven wire mesh can be provided, with backwash set point of 0.5 bar (7.3 PSI).

Both filter elements types are fully interchangeable providing flexibility for different applications.

Filter housings can be installed either vertically or horizontally in each bank, depending on the available plot plan, thus providing flexibility and improved maintenance access.

ACW Advantages

Traditional and proven technology
Vertical and/or horizontal installation
Availability of wedge wire and wire mesh filtering elements
Availability of steam option to improve the cleaning efficiency

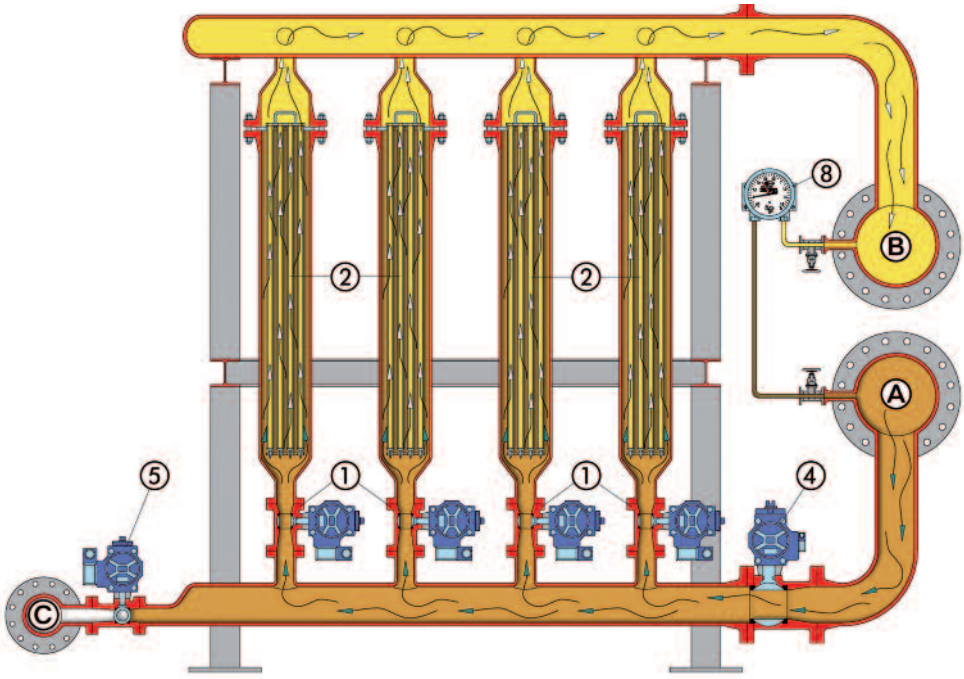
The Task

Reliable filtration of Process Fluids:
Cycle Oil (CO)
Coker Gas Oils (CGO)
Vacuum Gas Oils (VGO) and Heavy Vacuum Gas Oils (HVGO)
Atmospheric Gas Oil (AGO), Diesel
Naphtha
Amines

Backwash using the same filtered fluid

PHASE 1 - FILTRATION

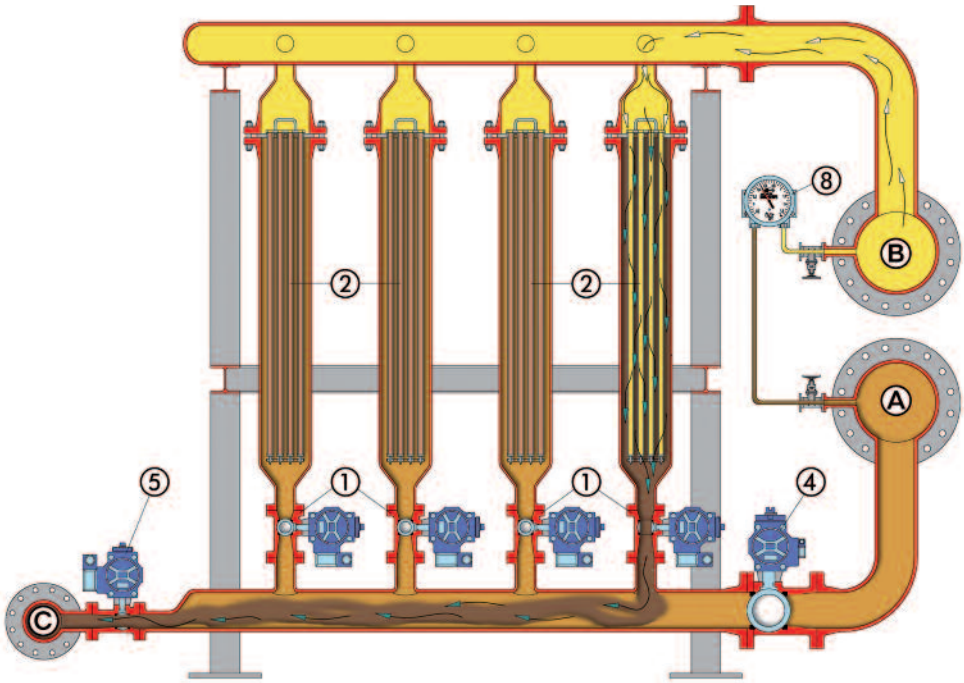
STATUS:
Δp < Set Point Δp



1 - FILTRATION:
The feed from inlet header Ⓐ enters each housing via the inlet valve ① and flows through the filtering elements (candles) ②. The feed flows from the outside to the inside of the candles ②.
Solid particles are retained on the outer side of the candles ②, while the filtered feed flows through the inner side and leaves the housing via the outlet header Ⓑ.
As solids accumulate on the candles ②, the filter pressure drop increases. When it reaches the set point of 1.0-1.5 bar (14.5-21.8 PSI), the automatic backwash phase 2 (cleaning) is started.

PHASE 2 - FILTRATION and CLEANING

STATUS:
Δp ≥ Set Point Δp



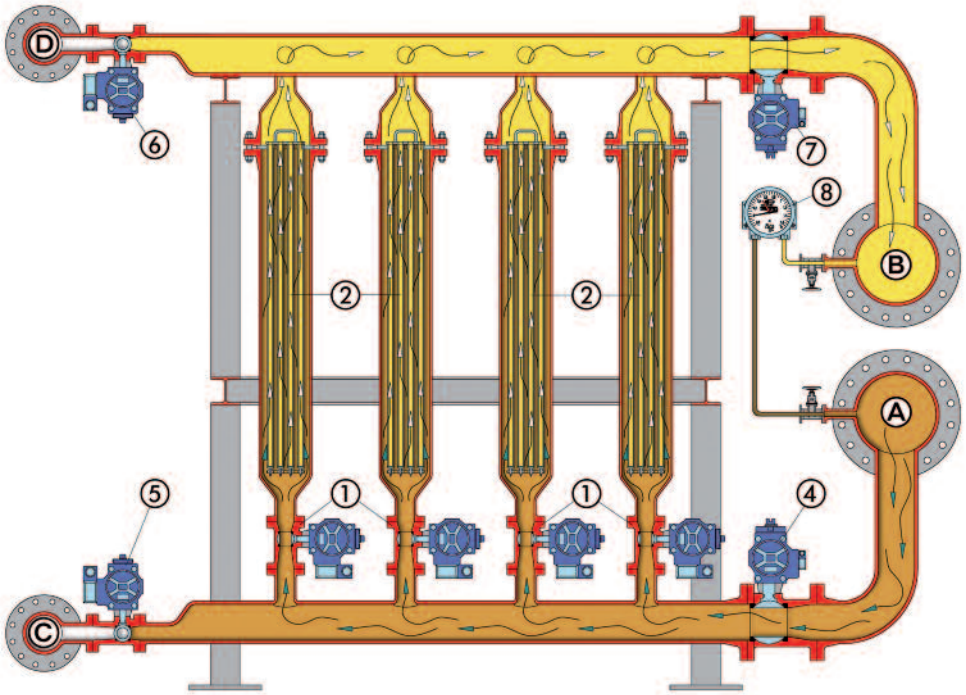
1 - FILTRATION:
While the automatic backwash is running in one bank at a time, all other banks are still in the filtration mode.

2 - AUTOMATIC BACKWASH:
The bank undergoing backwash is isolated, its feed inlet valve ④ closes and the housings feed automatic inlet valves ① also close. The backwash outlet valve ⑤ opens and each housing is individually backwashed by opening sequentially each valve ①. The candles ② in the housing under backwash are cleaned in reverse flow. The differential pressure between the feed outlet header Ⓑ and the backwash outlet line Ⓒ guarantees complete cleaning of the candles ②.
At the end of a backwash cycle in one bank, the backwash outlet valve ⑤ closes, the feed inlet valve ④ and the feed inlet valves ① open, thus restoring filtration (Phase 1).
The sequence is repeated in all the other banks till the whole filtration system is cleaned.

Backwash using external fluid

PHASE 1 - FILTRATION

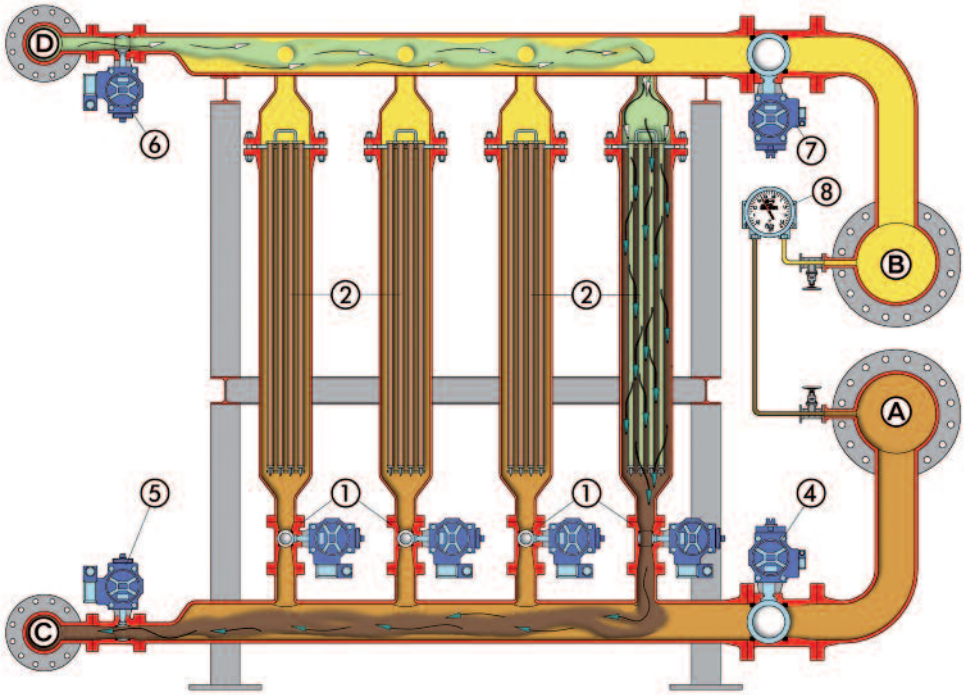
STATUS:
Δp < Set Point Δp



1 - FILTRATION:
The feed from inlet header Ⓐ enters each housing via the inlet valve ① and flows through the filtering elements (candles) ②. The feed flows from the outside to the inside of the candles ②.
Solid particles are retained on the outer side of the candles ②, while the filtered feed flows through the inner side and leaves the housing via the outlet header Ⓑ.
As solids accumulate on the candles ②, the filter pressure drop increases. When it reaches the set point of 1.0-1.5 bar (14.5-21.8 PSI), the automatic backwash phase 2 (cleaning) is started.

PHASE 2 - FILTRATION and CLEANING

STATUS:
Δp ≥ Set Point Δp



1 - FILTRATION:
While the automatic backwash is running in one bank at a time, all other banks are still in the filtration mode.

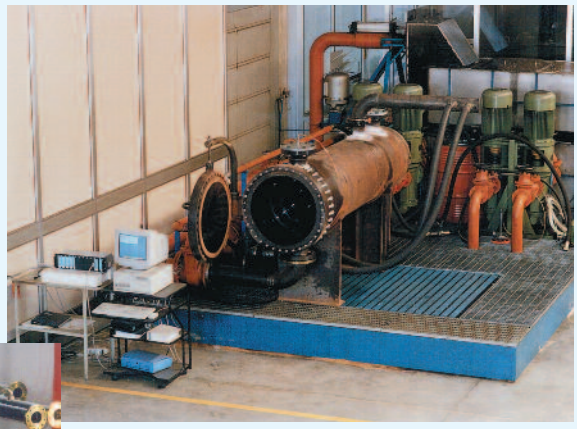
2 - AUTOMATIC BACKWASH:
The bank undergoing backwash is isolated, its feed inlet and outlet valves ④ and ⑦ close and the housings feed inlet valves ① also close. The backwash inlet valve ⑥ and the backwash outlet valve ⑤ open and each housing is individually backwashed by opening sequentially each valve ①. The candles ② in the housing under backwash are cleaned with the backwash fluid in reverse flow. The differential pressure between the backwash inlet Ⓓ and backwash outlet Ⓒ guarantees complete cleaning of the candles ②.
At the end of a backwash cycle in one bank, the backwash inlet and outlet valves ⑥ and ⑤ close, the bank inlet and outlet valves ④ and ⑦ and the vessel inlet valves ① open, thus restoring fltration (Phase 1).
The sequence is repeated in all the other banks till the whole filtration system is cleaned.

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.

The effort has produced the most advanced filtering equipments available today.



FILTREX Worldwide Experience in Refinery Filtration

ACW feed filter for DHDT and VGO Units. Bathinda, India

ACW feed filter for MHC Unit. José, Venezuela

ACW Feed Filter for Diesel HT and VGO HT. Kochi, India

ACW feed filter for HC Unit. Jamnagar, India

FILTREX *a worldwide organization*

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 Corporate Headquartes - Milano (Italy)

Filtrex Manufacturing Unit #4 - 22,000 covered sqmt - Vignate (Italy)

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

FILTREX s.r.l.
CORPORATE HEADQUARTERS
Via R. Rubattino 94/B - 20134 Milano (ITALY) -
tel: +39 027 533 841- fax: +39 027 531 383 - www.filtrex.it - info@filtrex.it

NORTH AMERICA
FILTREX USA LLC
Virginia Beach, VA23455
USA

SOUTH AMERICA
FILTREX de VENEZUELA C.A.
8050 Puerto Ordaz - Estado Bolivar
VENEZUELA

INDIA
FILTREX systems INDIA Pvt. Ltd.
Mumbai 400 072,
INDIA

CHINA
FILTREX CHINA LLC.
Shanghai 200135,
P.R. CHINA

KOREA
FILTREX KOREA
612-857 Busan
REPUBLIC OF KOREA

JAPAN
FILTREX JAPAN Co. Ltd
Kobe Chuo-ku, Hyogo 651-0083
JAPAN

Agents worldwide
For details please contact our headquarters or visit **www.filtrex.it**

Certified Quality:

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