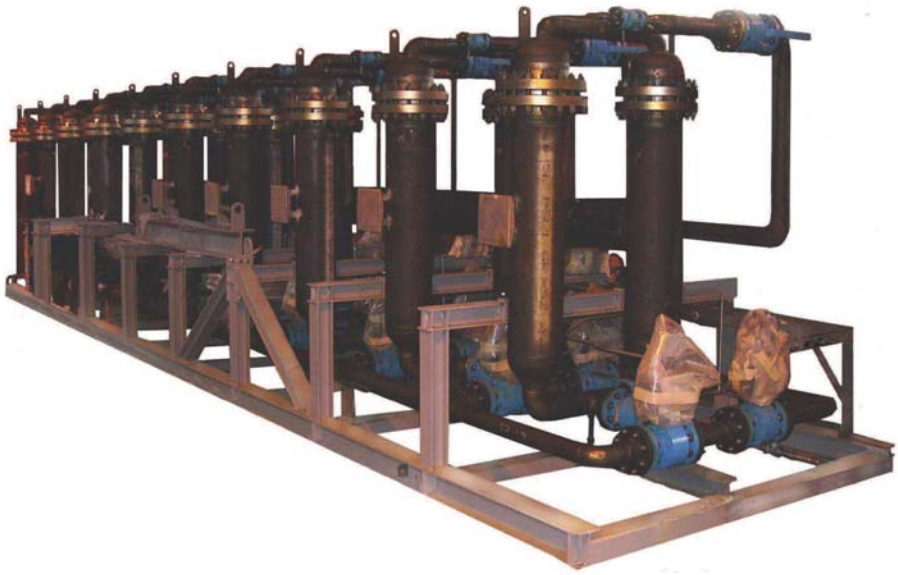
Series MBW

SELF- CLEANING FILTERS
MODULAR DESIGN
TAILOR MADE



MAIN APPLICATIONS:

- **PETROCHEMICAL**
- **OIL & GAS**

CHARACTERISTICS:

- Construction materials:
  - Carbon steel
  - Stainless steel
  - 5% Cr alloy steel
  - *(other materials as option)*
- Conform to the codes:
  - ASME Sect. VIII Div. 1
  - EN 13445
  - VSR
  - *(other design codes as option)*
- Suitable for filtration of liquids Gr. 1 and 2
- Designed for fixed bed reactors protection
- Designed for maintenance free continuous service
- Conform to 97/23/CE Directive
- Conform to 94/9/CE Directive
- Modular design with single or twin body filtration station
- Multiple filtration banks design for high flow-rate
- From 4 to 20 filtration stations for each banks
- Internal or external fluid back-wash design
- Manual or automatic back-wash cycles control
- Single filtration station isolation option available
- Minimal fluid loss on back-wash
- In/out header connections up to 16" (DN 400)
- Flow-rate up to 1000 m^3/h
- Wedge-wire type filter elements
- Filtration rating from 25 to 500 µm

Brochure nr: 210-MBW-10-UK-0

ASCO FILTRI

ASCO Filtri s.r.l.
Via G. Brodolini, 1
20089 Rozzano (MI) - Italia
Phone: +39 02 89703.1
Fax: +39 02 89703.410
E-mail: asco@ascofiltri.com
Web: www.ascofiltri.com

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TECHNICAL DATA:

CONSTRUCTION MATERIAL

Body:
- Carbon steel
- 304 SS
- 316 SS
- 5% Cr alloy steel
- Other materials available

Filtering candles:
- 316L SS
- Other materials available

GASKETS
- Spiral wound
- KlingerSil

IN/OUT HEADERS
- Up to 16”

FLOW-RATE
- Up to 1000 m^3/h

FILTER CANDLES FOR STATION
- Da 4 a 31

ACCESSORIES
- Split-body or top-entry automatic ball valves
- Differential pressure switch
- Differential pressure transmitter
- Control unit
- Header isolation valves
- Station isolation valves
- Vent valve
- Drain valve
- Pressure safety valve
- Steam tracing
- Insulation

Working principle:

Modular back-washing feed filter has been designed to prevent fixed bed reactor catalyst fouling.
Designed for continuous operation, these filtration units are suitable for automatic back-wash with process filtered fluid or with an external fluid, as stated by process requirements and conditions. According to flow-rate, the fluid can be filtered in one or more skid mounted parallel banks, connected by common headers.

Reactor feed product is filtered across slotted (wedge-wire) filter elements from outside to inside, to collect the solids on the filtering candles external surface.
When pressure drop reaches the set point (detected by a differential pressure switch or transmitter), the back-washing procedure starts automatically from the first station of first bank to the last one of last bank; each station is back-washed while all others remains in service; in this way the filtration systems remain in service, losing only a fraction of flow volume.

The washing time is adjustable between five to twenty seconds perstation, depending on the nature and quantity of collected solids. Back-washing fluid is generally cooled and routed to a collection sump blanketed at 0.6 barg (cooling facility is not included within the filter).

All back-wash cycle operations are usually controlled by customer’s DCS which is implemented with the logic program software supplied by us; pneumatic logic or local PLC control can be supplied by ASCO Filtri upon request.
Pneumatic operated ball valves are sequentially controlled by solenoid valves wired to a junction box on board of bank steel frame; all electrical equipments are suitable for classified area and ATEX certified.

Design specific flow-rate (“flux” - $m^3/h\ m^2$) will comply to process licensor requirements or selected by our process department according to previous experiences and particular process conditions: i.e. viscosity, pressure, temperature, dirt content, presence of sulphur or asphaltenes, etc.

Acceptable dirt content normally ranges between 50 to 100 ppm with 200 ppm as peak condition; however, in some particular operating conditions, dirt amount can reach as much as 1000 ppm and our modular filter selection will be done accordingly.

Extraordinary maintenance reasons may require some repairs which would oblige to by-pass the filter unit for a while; to avoid the global shutdown of the filtration system it is advisable to provide one spare bank or, alternatively, a set of isolation manual valves (two for each station) to allow removal of one single station at a time while all the remaining stations will be normally operating.

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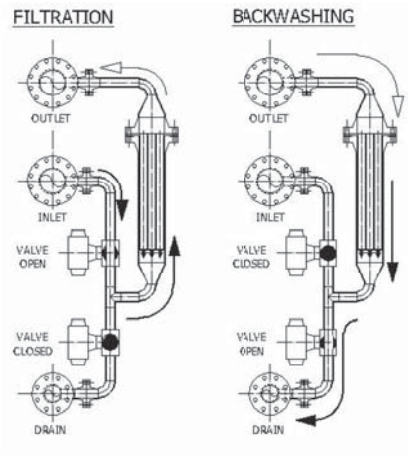
Back-washing:

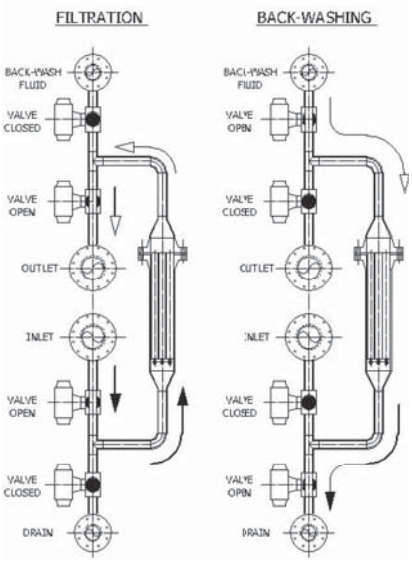
In case of modular filtration system with internal fluid back-wash, the feed fluid is distributed from inlet header to the stations; the automatic inlet valve is open while the automatic drain valve is closed.
During back-washing, one station at a time, the two automatic valves are operated simultaneously, so the drain valve opens while the feed valve closes. The difference between the system pressure and the discharge pressure, usually atmospheric, allows the flux inversion and, consequently, the isolated station back-washing.

INTERNAL FLUID BACK-WASH



In case of modular filtration system with external fluid back-wash, the feed fluid is distributed from inlet header to the stations; the automatic feed and the outlet valves are open while the automatic drain and the back-wash fluid feed valves are closed.
During back-washing, one station at a time, the two open automatic valves (process fluid inlet and outlet) close, while the two closed automatic valves (drain and back-washing fluid feed) open.
The back-washing external fluid crosses the filtering candles from in to out, cleaning them and then it is discharged into the drain line.

EXTERNAL FLUID BACK-WASH



Filter element:

The "wedge-wire" filter elements are manufactured with triangular shape wire spiral wrapped and welded to vertical support bars.
Wires and support bars can be manufactured with different shape, dimensions and materials to withstand different temperature or pressure.
The particular design offer high mechanical resistance, great net filter area and low tendency to clogging because the solids cannot get stuck between the wires as it happens with wire mesh.

MAIN APPLICATIONS:

- HYDROCRACKER
- HYDROTREATER
- DESULFURIZATION
- DELAYED COKER
- AMINE SWEETENING
- STEAM CRACKER

FLUIDS:

- DIESEL OIL
- VACUUM GASOIL
- HEAVY FUEL OIL
- HVGO
- LIGHT FUEL OIL
- COKER GASOIL
- NAPHTHA
- AMINE

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Ordering information:

MBW	1	-	10	25	-	C	08	A	-	XXXX

Banks quantity
1 2
3 4
...

Station q.ty for bank
... 4 5
6 7 8
9 ...

Filtration
025 - 25 µm
050 - 50 µm
075 - 75 µm
...

Materials
C - Acc. Carbonio
W - AISI 304
S - AISI 316
A - 5% Cr
...

In/out headers size
3 - 3"
4 - 4"
6 -6"
...

Headers flanges type
F - UNI flange
A - ANSI flange
S - Butt weld

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