filter-technics
Filter-Technics bvba
Adrian Van Roeyenstraat 28- 2070 Zwijndrecht - Belgium
Phone : +32 32540567 - Fax : +32 32540495
info@filter-technics.be - www.filter-technics.be

the powerful and professional filtration support

DFX

Series Efficient Scraping Self-cleaning Filter

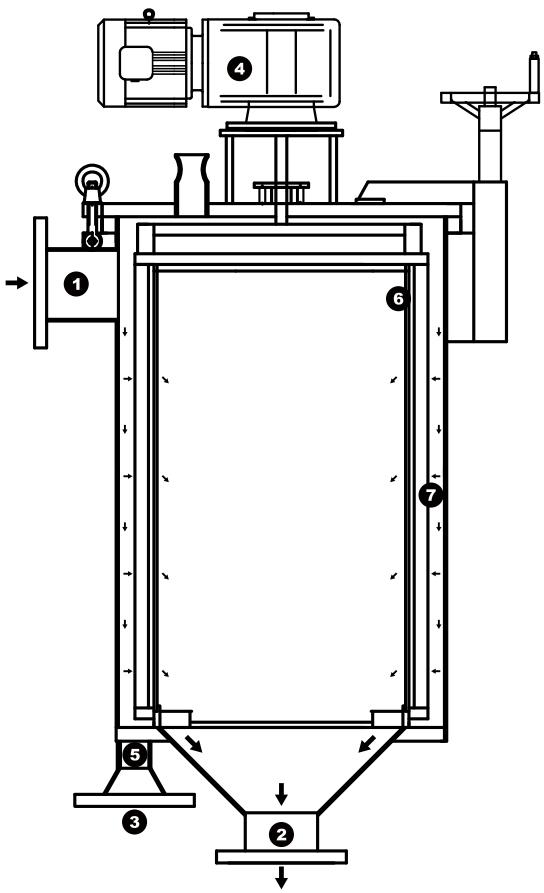
DFX SERIES SELF-CLEANING FILTER

DFX series self-cleaning filter (DFX Filter for short), is the high efficiency scraping self-cleaning filter independently developed by LIVIC. Removing the impurities particles on the filter element outside by mechanical scraping, it continuously filters on-line. DFX filter is designed for fine and accurate filtration ranging from 50-500 micron. It can avoids extruding and breaking the impurities and is capable of the filtration for water and liquids of viscosity up to 800000cps. DFX filter is designed and manufactured per LIVIC's high performance, high quality and high reliability standard. It is a world-class quality filter.

The conventional filters get clogged frequently when filtering the viscous liquid and removing the soft impurites. The customers have to select larger filters and clean the filter manually and freqeuntly, which means expensive investment, hard work, valuable liquid loss. DFX filter solves these kinds of problems by its advanced self-cleaning. It always keeps the filter element clean, discharges waste liquid with high impurity concentration, reduces the liquid loss. When filtering the viscous liquids such as dirty water, adhesives, resins, polymers and oils, DFX filter works more efficiently. DFX filter is taking place of the vibrating screen, bag filter, basket filter and some kind of back-flushing filter by its technical advantages and low running cost.

LIVIC is the world leading self-cleaning filter manufacturer with its complete series of scraping self-cleaning filters, which has three sub-series: DFX series, motor-driven external scraping; DFA pneumatic-driven internal scraping; DFM motor-driven internal scraping. They are suitable at different applcations and meet the various mechanical self-cleaning

DFX FILTER WORKING PRINCIPLE



The liquid enters the filter from the inlet(1), flows through the filter element(6) from outside to inside. The filter element bottom is connected to the outlet(2), through which the liquid flows out. After the filter element captures the impurities, the cleaning action is triggered by the preset time or differential pressure value. The gear motor(4) drives the scraping blades(7) to rotate and remove the impurities on the filter element outside surface. The impurities moves off along the blades and falls down to the filter bottom. The rotating plates push the gravity impurities into the collection chamber(5). The impurities are collected at the filter bottom and in the collection chamber. The discharging valve opens per the preset time and purges the waste liquid with high impurity concentration through the drain outlet(3), the waste liquid can be reclaimed if necessary.

Filter Element Scraping Blade

TECHNICAL FEATURES AND ADVANTAGES

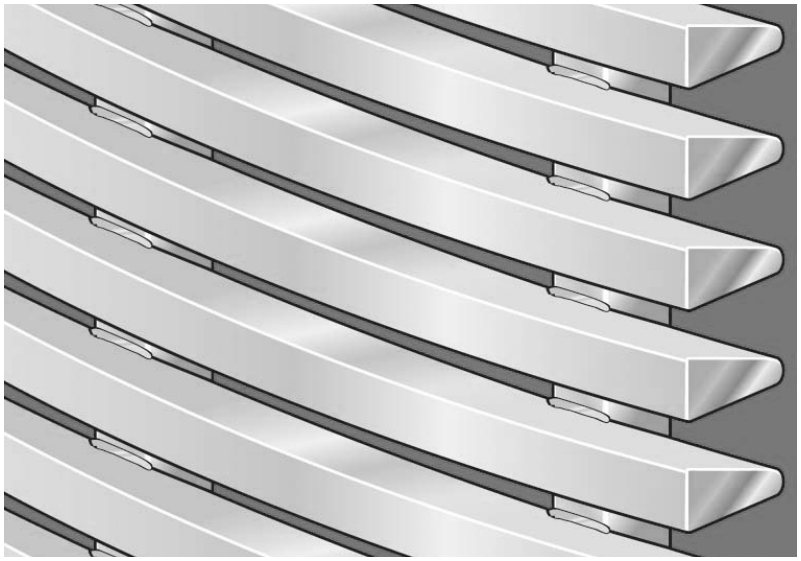
- Automatic 24-hour continuously on-line filtration, no hard work for frequent replacement and cleaning
- No disposable filter media comsuption, save filter media cost and environment treatment cost
- Stainless steel scraping blade, good impurity removing performance, no impurity extruding and breaking
- Top quality V-SLOT filter element, accurate slots, extremely smooth, easy to scrape clean, long service life
- Very low pressure drop, stable flowrate, save energy comsuption, good for continuous and consistent process
- back-flushing function can be added to help clean the filter element
- Close filtration, no dangerous liquid leakage, good for safe production
- Discharge waste liquid with high impurity concentration, avoid high valuable liquid loss
- Various modular combination and automation modes available, meet different filtration needs.
- Equiped with world-famous gear motor, high reliablity and long service life
- Assitant lifting device as the standard design, only one operator can open and close the filter cover

V-SLOT HIGH PERFORMANCE PRECISION FILTER ELEMENT

Filtration Rating Conversion	mesh	300	200	150	120	100	75	60	50	40	30
	μm	50	75	100	125	150	200	250	300	375	500

DFX Filter is equiped with the top quality V-SLOT slotted precision metal filter element with the following advantages:

- Filtration ratings range from 50μm to 500 μm
- Accurate slot width with deviation less than 5 μm
- 316L screen material , excellent corrosion resistance
- V Shape slot, rarely clogged, long time stable flowrate
- Smooth outside surface, easy to scrape clean, slow scraping blade abrasion
- Capable of filtration of difficult impurities like oil mud, soft particles, etc..
- Special surface harden treatment, greatly increase the service life
- Heavy duty structure, no slot deformation when pressure drop rising
- Suffer the high pressure from both forward and reverse direction



Filter Element Section

ACS AUTOMATIC SELF-CLEANING CONTROL SYSTEM

ACS self-cleaning control system can help the DFX filter work efficiently. DCS remote control access is available if custom-made design required. ACS starts cleaning by pressure drop and preset time. Pressure drop cleaning mode applies to most conditions and it is the most efficient triggering mode, because the pressure drop reflects the filter cake accumulation or the clogging of filter elements. When the pressure drop reaches the set value, the self-cleaning action begins. Generally we suggest 0.05MPa as the cleaning pressure drop value. And it can be adjusted between 0.01 and 0.1MPa according to the specific condition.The time-set cleaning mode can be adjusted from 0 to 24 hours. If the pressure drop cleaning mode malfunctions, the time-set mode still works, which acts as the final safety protection. The cleaning cycle should be set close to the average period as under the pressure drop cleaning mode.

ACS has two types pressure drop instruments. PDT can output the real-time pressure drop, has high sensitivity and reliability and is good for DCS remote monitoring; DPS specially designed by LIVIC, has high sensitivity and long-term reliability. It has two pressure drop set-points. The setting precision is ±5 Kpa. One setting point is for cleaning pressure drop value setting (ex. 0.05Mpa) and the other one is for the alarm. When pressure drop is overloaded, It sends alarm signal to DCS control system.

Differential Pressure Transmitter(PDT)

Differential Pressure Switch(DPS)

ACS CONTROL SYSTEM CONFIGURATION

ACS Control System Mode	DX200	DX201	DX300	DX301	DX400	DX401	DX500	DX501
Time Cleaning Mode	■	■	■	■	■	■	■	■
Time Discharging Mode	■	■	■	■	■	■	■	■
Differential Pressure Cleaning Mode			■	■	■	■	■	■
Differential Pressure Switch			■	■				
Differential Pressure Transmitter					■	■		
Anti-Blocking Differential Pressure Transmitter							■	■
Ex-Proof Design		■		■		■		■

TYPICAL APPLICATIONS

■ Applicable Industry: oils and fats, water treatment, pulp and paper, petro-chemical, fine chemical

■ Applicatble liquids: wax, kerosene, monomer, polymer, citric acid, fermented broth, cosmetics, silicon solution, soap, sorbitol, steriodsugar, wet end additives, adhesives, inks, lubricating oil, coatings, resin, rubber, ethanol, miscella, diesel, etc.

MAIN SPECIFICATION

Applicable Liquid	water and viscous liquids(<800000cps), impurity <1000ppm
Filtration Rating	50-500μm
Standard Design Pressure	1.0MPa, high design pressure available
Design Temperature	0-200℃(determined by the seal material)
Filter Area Per Filter	0.11m2-1.36m2
Cleaning Differential Pressure	0.05MPa
Differential Pressure Instrument	differential pressure transmitter(DPT) or differential pressure switch(DPS)
Gear Motor	180W, three phase, 380V, protection class IP 55; worm reduction gear
Inlet and Outlet Standard	flange, HG20592-2009(DIN compatible), HG20615-2009(ANSI B16.5 Compatible)
Filter Element Type	V-SLOT slotted metal filter element, 316L material
Housing Wet Part Material	304/316L/CS
Scraping Blade Material	304/316L
Housing Seal Material	NBR/VITON(FKM)
Discharging Valve	Pneumatic ballvalve, protection class IP65
Supply Facility Requirement	380V AC, 0.4-0.6MPa clean and dry compressed air

Filter Main Mode	DFX11	DFX22	DFX34	DFX75	DFX100	DFX136
Filter Area(m2)	0.11	0.22	0.34	0.75	1.0	1.36
Volume(L)	16	30	50	145	195	320
Inlet and Outlet Size	DN40-DN50	DN50-DN80	DN50-DN100	DN65-DN100	DN80-DN125	DN100-DN150
Drain Size	DN40	DN40	DN50	DN50	DN50	DN50

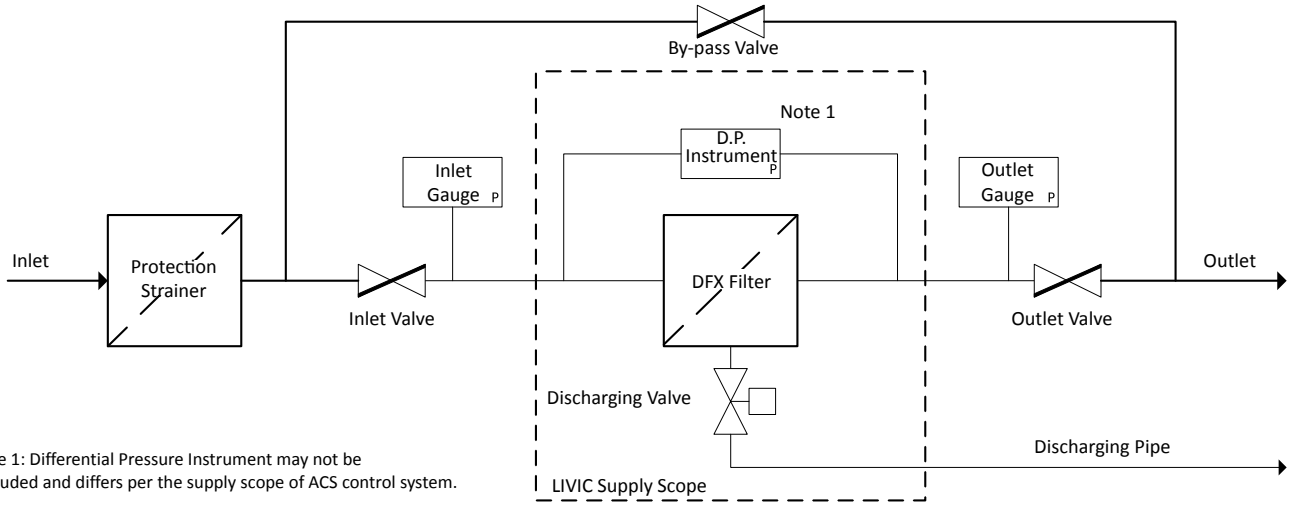
DFX FILTER CUSTOM-MADE OPTIONS

DFX filter has many custom-made options and meets customers' need better.

- Jacket design for thermal oil or steam, keep the temperature and fluidity
- Ex-proof design including the gear motor and the control system, filter the flammable and explosive liquids safely
- Internal food grade polish, easy to clean
- Spring-loaded heavy duty scraping blades for super high viscous filtration
- discharging valve malfunction feedback
- Modular combination for high flowrate

Heavy Duty Scraping Blade

TYPICAL INSTALLATION DIAGRAM



Note 1: Differential Pressure Instrument may not be included and differs per the supply scope of ACS control system.

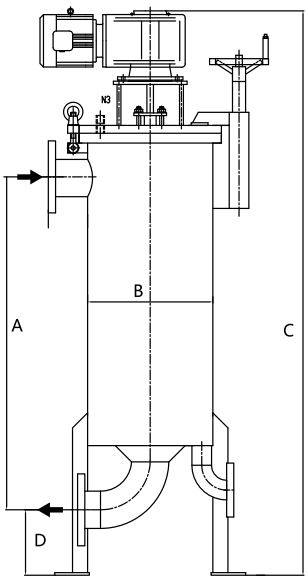
PROTECTION STRAINER

It is necessary to install the 4mm protection strainer before the pump or DFX filter to remove the large particles or impurities like rope and yarn, which maybe block the filter's moving parts. LIVIC SF series strainers have the full series, large filter area and easy operation. It is the ideal protection strainer for the DFX filter.

DIMENSION CHART

Main Mode	DFX11	DFX22	DFX34	DFX75	DFX100	DFX136
A	740	970	977	1151	1146	1217
B	219	219	250	400	500	650
C	1390	1419	1551	1725	1778	1914
D	400	200	200	200	334	400

NOTE: this chart is only for the dimension reference. different mode has different outlet and drain layout. See the drawing for more details.



HOW TO ORDER A DFX FILTER

The complete DFX filter ordering code includes the following five parts.

Filter Code + Filter Element Code + Control System Code + Discharging Assembly Code + Seal Code

- DFX Filter Complete Ordering Code Example: DFX100F125P10AEX-X100A100-DX501-PF5A-ORGX100V

- Filter Ordering Code Example: DFX100F125P10AEX

1	2	3	4	5	6
DFX100	F	125	P10	A	EX

1	DFX Filter Main Code
DFX11	DFX11
DFX22	DFX22
DFX34	DFX34
DFX75	DFX75
DFX100	DFX100
DFX136	DFX136

2	Inet and Outlet Standard
F	Flange, HG20592-2009 (DIN compatible)
A	Flange, HG20615-2009 (ANSI B16.5 compatible)

3	Inlet and Outlet Size
40	DN40
50	DN50
65	DN65
80	DN80
100	DN100
125	DN125
150	DN150

4	Design Pressure Class
P10	1.0MPa(Standard Design)
P16	1.6MPa
	Higher Design Pressure Available

5	Wet Part Material
A	304
D	316L
E	CS(Q235-B)

6	Custom-made(Multi)
	default, Standard Design, No custom-made
EX	Ex-Proof Design
FP	Internal Food Grade Polish
JK	Jacket Design
HB	Heavy Duty Scraping Blade

- Fitler Element Ordering Code Example: X100A100

1	2	3
X100	A	100

1	Filter Element main type
X11	filter element for DFX11
X22	filter element for DFX22
X34	filter element for DFX34
X75	filter element for DFX75
X100	filter element for DFX100
X136	filter element for DFX136

2	Filter Element End Cap Material
A	304
D	316L

3	Filtration Degree(μm)
50	50
75	75
100	100

3	Filtration Degree(μm)
125	125
150	150
200	200
250	250
300	300
400	400
500	500

- ACS Control System Ordering Code Example

Available code: DX200, DX201, DX300, DX301, DX400, DX401, DX500, DX501, See the ACS control system configuration chart for more details.

- Discharging Assembly Ordering Code Example: PF5A

1	2	3	4
P	F	5	A

1	Valve Type
P	Pneumatic Valve (Standard)

2	Valve Connection Standard
F	Flange, HG20592-2009 (DIN compatible)
A	Flange, HG20615-2009 (ANSI B16.5 compatible)

3	Discharge Nozzle Size
4	DN40
5	DN50

4	Wet Part Material
A	304
C	316
E	WCB

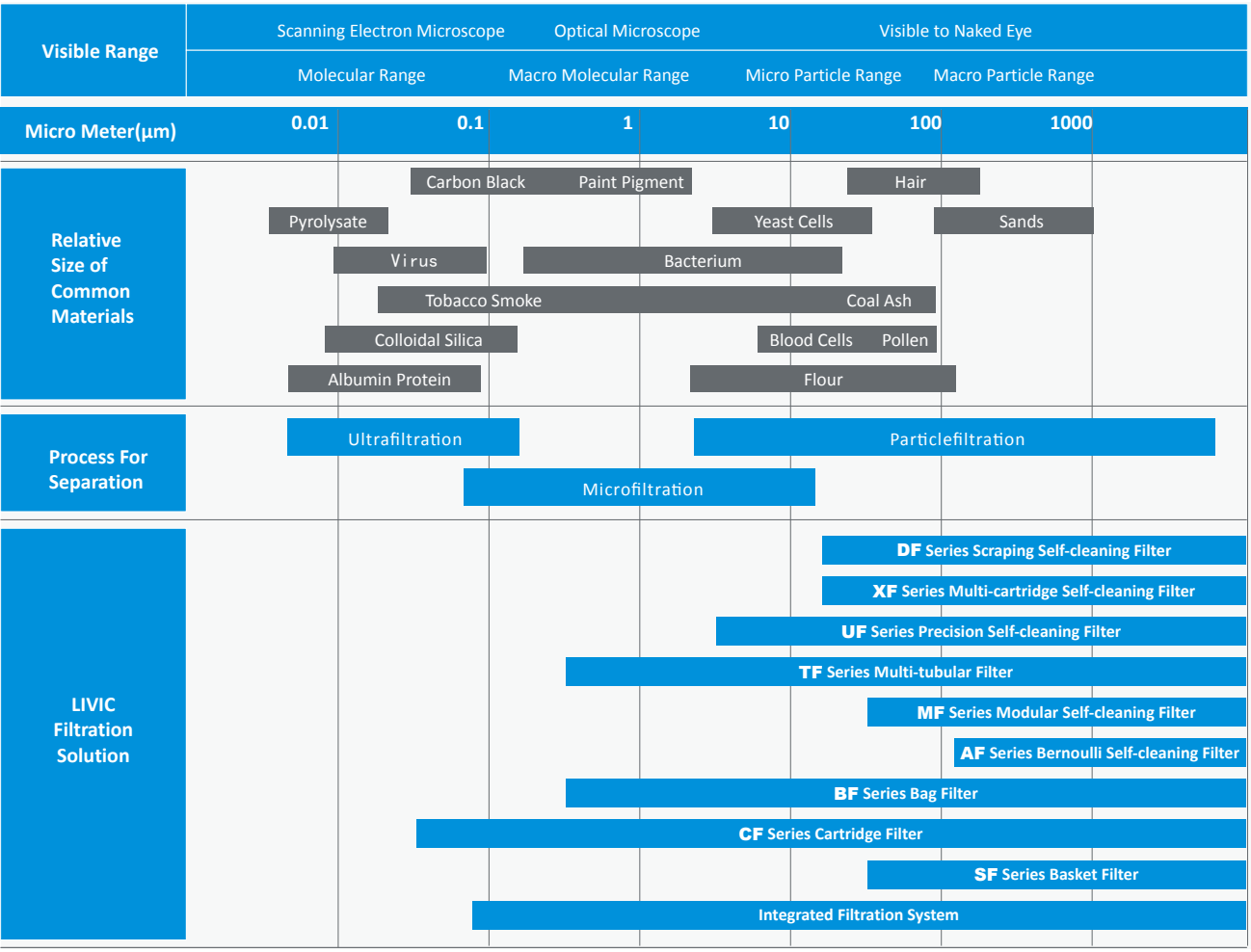
- Seal Ordering Code Example: ORGX100V

1	2	3
ORG	X100	V

1	Seal Type
ORG	O-ring Seal

2	Applicable Filter Mode
X22	DFX11,DFX22
X34	DFX34
X75	DFX75
X100	DFX100
X136	DFX136

3	Seal Material
N	NBR
V	VITON
S	Silicone Rubber
E	PTFE Encapsulated Silicone Rubber



Filter-Technics bvba
Tel +32(0) 3.254.0567
Fax +32(0) 3.254.0495
Mob +32(0) 495 577
636bart.smets@filter-technics.be
www.filter-technics.be

Authorized Distributors

filter-technics

DOC NO.: LDB/DFX/ENG/14.1