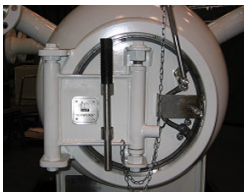
Filter separators

Both filter and separator equipment are delivered by DKG-EAST as a mechanical subcontractor, and as an owner of technology of the complete filtration and separation. This activity can be performed in the frame of an own complex main contractiing too. As a result, our devices can be found in deliveries of some other companies being active in the business of filtration and separation, and in our technological systems too. Here you can find some descriptions of our equipment that can be the solution to different needs.



Pipeline filters

In its general design one or two filter cartridges are placed in the vertical pressure vessel. Any dust, corrosion and other solid particles are eliminated from the dry gas flow by the fine filter cartridges in a proven and safe manner.

GF25.76-63 Filter

Benefits:

a “one-line” planning: the in- and outlet are in one line, it is easy to fit it into their place
a fine filter: appropriate cartridges for the safe filtration
discharge chamber: with wide dimensions in order to provide a large capacity
quick-action stop valve: to provide a quick and easy replacement of filters (optional)

House:

According to the demand of Clients the vessels are planned and manufactured according to PED/EN13445, PED/AD2000, PED/ASME or with an ASME U marking. After the sand spraying, the surface will be provided with a multi-layer coating according to our standards, or on the basis of painting instructions of the clients. In the case of special wishes some inner coating can be applied too.

QOC:

The high-pressure and high diameter devices have been equipped with a quick-action stop valve. As a result of this, the filter element can be replaced extraordinarily quickly and easily.

DKG-East Zrt. has an own quick-action stop valve named Flash-Lock

Inner structure:

After the entry the contaminated gas will reach the external wall of the outlet pipe. After the impact the larger particles will be separated already in the collecting chamber. The basic material of the fine cartridge filters is usually polyester and cellulose. In order to achieve a larger surface, the filter is corrugated. In the duration of a shorter time the filter can be used for wet gases too. It will be delivered with a solid external grid and with a top and bottom cover - a felt gasket. Naturally, on request of clients a buffer can be placed at the gas inlet too.

Collection Chamber:

A stud closed with a blind flange, having been planned for this purpose, can be found on the bottom of the device.

Technical Data:

Separation	
Solid Parts	99,9%
Pressure drop in a clean filter	< 30 mbar
Pressure drop at filter replacement	0,8 bar
Planned Pressure	by 63 bar
Planned Temperature	-20 .. +80°C

Type range:

Type	s1	s2	D	B			s3	s4	s5	L2	H	Filter Surface m2
				PN16	PN25	PN63						
GF 25.76-25	25	25	76		240		R1/8"	R1/8"		200	365	0,05
GF 25.76-63	25	25	76			300	R1/8"	R1/8"		210	375	0,05
GF 50.114-25	50	50	114		310		R1/8"	R1/8"		300	460	0,34
GF 80.168-16	80	80	168	380			R1/8"	R1/8"		335	520	0,5
GF 80.219F.1	80	80	219	460	480	550	R1"	R1/8"	R1/8"	450	1050	1,14
GF 100.219F.1	100	100	219	460	480	550	R1"	R1/8"	R1/8"	450	1250	2,28
GF 100.273F.1	100	100	273	530	560	650	R1"	R1/8"	R1/8"	500	1130	1,47
GF 100.273F.2	100	100	273	530	560	650	R1"	R1/8"	R1/8"	500	1330	2,94
GF 150.324F.1	150	150	324	610	650	770	R1"	R1/8"	R1/8"	700	1600	3,4
GF 150.324F.2	150	150	324	610	650	770	R1"	R1/8"	R1/8"	700	1800	5,1
GF 150.324F.3	150	150	324	610	650	770	R1"	R1/8"	R1/8"	700	2000	6,8
GF 200.406F.1	200	200	406	740	780	900	R1"	R1/8"	R1/8"	700	1980	6,44
GF 200.406F.2	200	200	406	740	780	900	R1"	R1/8"	R1/8"	700	2280	9,3
GF 250.508F.1	250	250	508	850	900	1050	R1"	R1/8"	R1/8"	800	2240	9,26
GF 250.508F.2	250	250	508	850	900	1050	R1"	R1/8"	R1/8"	800	2500	11,24
GF 250.508F.3	250	250	508	850	900	1050	R1"	R1/8"	R1/8"	800	2700	14,56
GF 300.610F.1	300	300	610	960	1000	1160	R1"	R1/8"	R1/8"	900	2860	18,26

Performance:

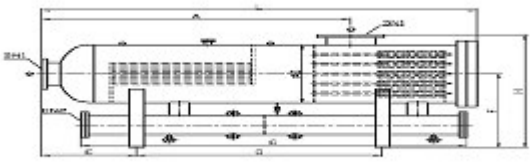
Type	Volume Rate of flow (nm3/h) in the case of following operational pressure (bar)							
	2	4	8	12	16	25	40	50
GF 25.76-63	104	135	180	215	250	310	390	430
GF 25.76-25	104	135	180	215	250	310	-	-
GF 50.114-25	630	915	1230	1480	1690	2090	-	-
GF 80.168-16	1040	1350	1810	2170	2490	-	-	-
GF 80.219F.1	1400	2400	4100	4950	5650	7000	8800	9800
GF 100.219F.1	2430	4050	7250	9900	11300	14000	17600	19600
GF 100.273F.1	2430	4050	5300	6300	7300	9000	11300	12600
GF 100.273F.2	2430	4050	7250	10500	13700	18000	22700	25300
GF 150.324F.1	5370	9000	12300	14700	16900	20900	26200	29200
GF 150.324F.2	5370	9000	16100	22100	25300	31300	39300	43900
GF 150.324F.3	5370	9000	16100	23300	30500	41800	52400	58500
GF 200.406F.1	9000	15000	23200	27900	32000	39500	49700	55400
GF 200.406F.2	9000	15000	27000	39000	46200	57100	71700	80000
GF 250.508F.1	14300	24000	33400	40200	46000	56900	71400	79700
GF 250.508F.2	14300	24000	40600	48800	55800	69000	86700	96700
GF 250.508F.3	14300	24000	43000	62000	72300	89000	112000	125000
GF 300.610F.1	20000	34000	61000	79300	90700	112000	141000	157000

Horizontal composition

Generally there are two kinds of design to manufacture, either with storage tank or sump

Storage tank design:

This equipment is specially designed to separate solid and liquid from larger gas lines. Usually the separators have three parts with a divided, detached storage tank which is suitable for conveying a large quantity of liquid.



m^3/h_{max} at pe_{min}	DN1	DN2	D	L	H	A	C	E	F	G	Filter pcs
1250	150	150	508	3250	1500	1750	2500	750	1050	1750	4
2000	200	200	610	3750	1750	2150	3000	900	1250	1950	7
3500	250	250	700	4250	1900	2500	3600	1000	1350	2450	10
4000	300	300	800	4750	2200	3200	3800	1050	1450	2700	14
5000	300	300	900	4950	2200	3300	4100	1050	1500	2850	19
8500	400	400	1000	5400	2400	3700	4600	1100	1700	3200	22
12500	500	500	1200	5700	2600	4100	4900	1200	1850	3300	31
17500	600	500	1500	6000	2900	4250	5400	1300	2050	3400	50
20000	700	600	1800	6200	3300	4400	5500	1350	2300	3500	72

These data are informative and may vary according to the customer's claim

Advantages:

-eligible filtration with coagulator-cartridge
-low speed of flowing gas between second and third step in separation.
-stainless demister or lamellar block for liquid separation.
-flashlock
-easy to change cartridge
-low deficit of pressure in the beginning

Performance and function:

The filter separator is a horizontally arranged equipment with welded carbon-steel body. The separation of solid and liquid comes to fruition in three steps. At the bottom, there is the storage tank segmented in accordance with the first, second and third step.

The first step:

Through the top or side nozzle the gas gets to the pre-disjunctive part in the separator. The flow of gas slows down here and meets filter supporting pipes. The heavier particles fall down to the storage tank due to gravitation.

The performance of coagulator-cartridge:

- Inside steel barrel
- metal bonnets at the ends
- collection channels of fiberglass
- every filter part is clamped safely with metal bonnet

Filtration efficiency:

- particles bigger than 8.0 µm 100%
- particles between 0.5 and 8.0 µm 99.5%

The second step

The gas flows through the coagulator-cartridge which is especially suitable for wet gas. The way of gas is from outside to inside to keep back particles on outer surface. Using this method the moisture agglomerates to bigger drops around the filter parts which results in better separation.

To change filter easily and quickly, there is a flash-lock on the shell, which has the same size as the diameter of the body.

The third step:

The final liquid separation goes off on a stainless demister, which consists of some bent deflection angle plates close to each other or made of pressed wire netting. A demister can be horizontally or vertically positioned, its size is detemined to induce the least possible pressure drop. The separated and collected drops go to the second section of the lower storage tank.

Every inside part is designed to be removable and rechangeable from the shell. As a result, reviews can easily be carried out by inspectors, who can recognize any possible corrosion problem in time.

The 100% separation of liquid phase means expelling particles at a size bigger than 8 µm. The high level separation begins at a size of particles over 3 µm.

Technical data:

Medium: sweet gas, non-agressive or agressive, for H_2S contained acid gas it is necessary to use NACE MR0175 direction.
Working temperature -10 up to +50°C
Other conditions according to the customers' claim.

DN800 PN63 Filter Seperator

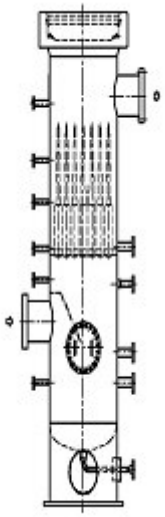
Storage sump design:

This separator has the same attribution as it is determined in point a.). There are some differences in performance, storage element and mode of collecting separated material.

Vertical position

Their application is suggested, if:

- the rate of liquid phase is high in the gas flow
- there is a large quantity of sand or dirt or other components in the gas flow
- there is not enough horizontal room (sea platforms)
- there is a lot of liquid in the gas flow
- there are non-bound liquid drops in gas



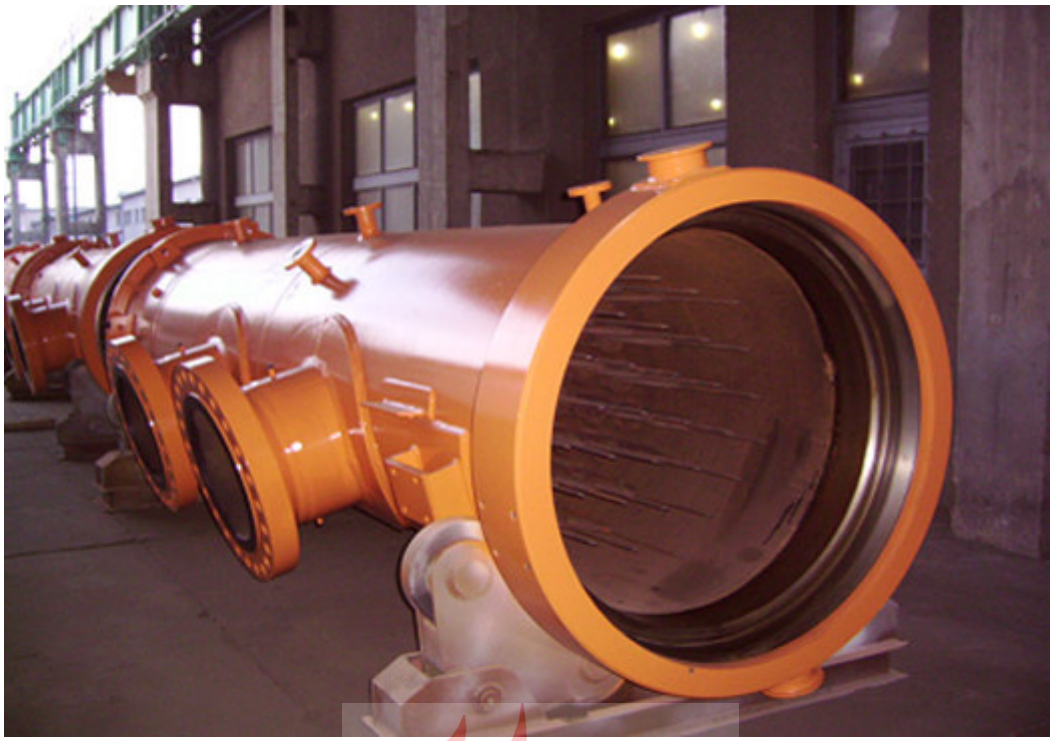
The vertical filter separators with the same capacity are bigger and more expensive than horizontal separators because the falling drops cramp gas flowing upwards.

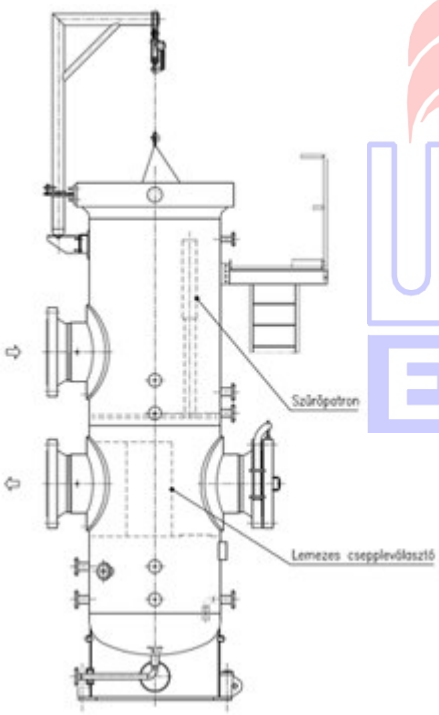
Technicals conditions:

Design pressure	up to 160 bar
Working temperature	-10 .. +50℃
Filtration efficiency	up to 500000 m3/h

Other conditions by customers' claim.

manufacturing separator at 1200 mm diameter, 143 bar pressure for KVAERNER (MOL project)





Equipment at 1400 mm diameter, 63 bar pressure (MOL)