



F SERIES
COMMERCIAL FILTER



Features & Advantages

- 100% factory tested according to international and Minder improved standard.
- Smart air relief valve for manual and automatic air pressure release
- Designed to assemble with valve manifold
- In-fluent manifold distribution to prevent clogging
- Materials used are durable and suitable for all-weather performance
- 10-15 years life-time
- Available in standard 2.5bar and advance 4.0bar operating pressure model

Warranty

Fittings	1 year
Filter Tank	5 years

Minder F Series vertical Commercial filters are designed with top quality in mind for various high applications. F Series filters size range from 1200mm to 3000mm in diameter with optional accessories.

Operating Limits

Model	2.5bar	4.0bar
Maximum water temperature	40°C	40°C
Operating Pressure	2.5bar	4.0bar
Maximum Pressure	4.0bar	6.0Bar

Optional Components

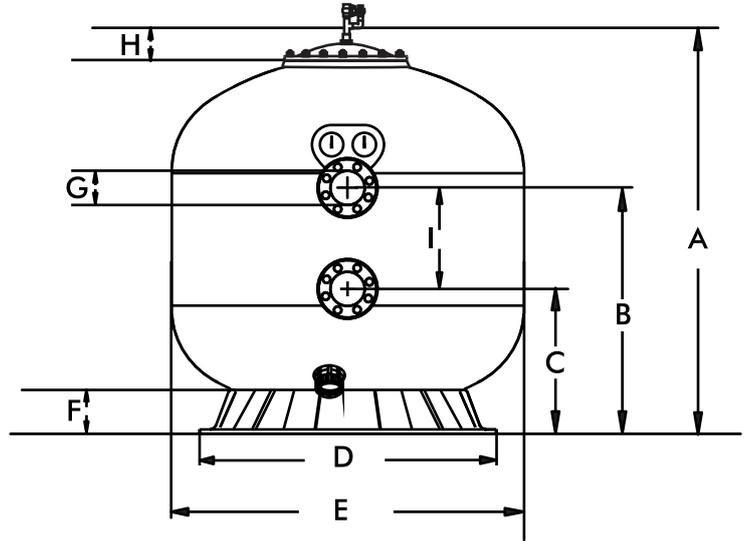
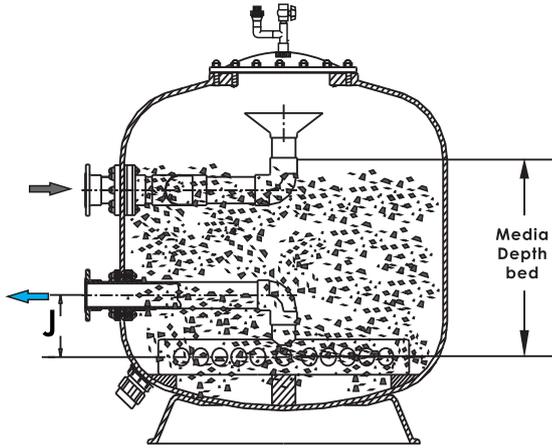
- Nozzle collection system
- Additional bed depth
- Internal sight glass
- Inline sight glass
- side Manhole
- Valve manifold (valve battery)
- Vinyl-ester internal coating

Technical Specification

Model	Code		Tank Ø mm	Flange Connection mm	Filtration Area m ²	Designed Velocity m ³ /h/m ²	Maximum Flow Rate		Backwash Flow at 40m ³ /h/m ²		Media Depth Bed mm	Gravel Required (kg)		Sand Required (kg)
	2.5bar	4.0bar					m ³ /h	lpm	m ³ /h	lpm		1-1.2mm	1-2mm	
F1200	70130	71097	1200	90	1.13	50	52	860	45	753	1000	1200	300	1375
F1400	70131	71098	1400	110	1.54		69	1,150	62	1,027	1000	1900	450	1650
F1600	70132	71099	1600	110	2		90	1,500	80	1,333	1000	2600	675	2150
F1800	70133	73001	1800	160	2.7		120	2,000	108	1,800	1100	3600	750	2800
F2000	70134	73002	2000	160	3.14		141	2,350	126	2,093	1200	5100	1050	3800
F2350	70135	73003	2350	200	4.3		206	3,440	172	2,867	1200	7600	1800	5275
F2500	70137	73004	2500	200	4.9		235	3,920	196	3,267	1200	9200	2200	5950
F3000	70138	73005	3000	250	7.07		353	5,883	283	4,713	2200	12000	3300	8600

*Flange connection standard: DIN (Other standard is available upon request)

*Silica sand data is only for reference as different sand size will weigh differently



Dimensions

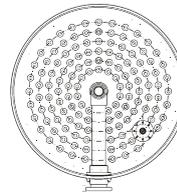
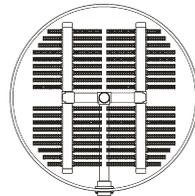
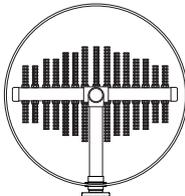
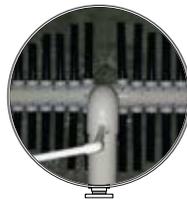
Model	Code	A	B	C	D	E	F	G	H	I	J
		mm									
F1200	70130	1450	900	530	920	1200	170	80	100	360	230
F1400	70131	1520	1000	530	1210	1400	180	100	100	470	300
F1600	70132	1800	1100	610	1210	1600	180	100	100	470	300
F1800	70133	1900	1200	640	1440	1800	230	150	100	560	350
F2000	70134	2150	1340	780	1440	2000	230	150	100	560	350
F2350	70135	2350	1450	890	1950	2350	280	200	100	560	500
F2500	70137	2650	1610	1050	1950	2500	280	200	100	560	500
F3000	70138	3040	1880	1330	1950	3000	280	250	100	560	700

Collection Systems

Standard Lateral System
F1200 / F1400 / F1600

Standard Lateral System
F1800 / F2000 / F2300 /
F2500 / F3000

Optional Nozzle
collection system



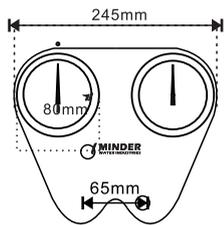
Optional Nozzle Collection System is made available to all F series Filters.

Nozzle collection system provides wider and much even collection of water flow. Also, the media system can be backwashed by pairing air and water which reduce the amount of wastewater by 50%.

Standard Inclusions for F and B Series

All Minder commercial filters come with the following fittings. Please inform our representative if you prefer not to have these items installed.

Pressure Gauge Panel



Every F or B series comes with a pressure gauge panel with dual extra large gauges. Gauges are oil-filled for long-lasting durability.

Re-order code: 30144

Water Drain



Easy draining of sand and water for F & B series

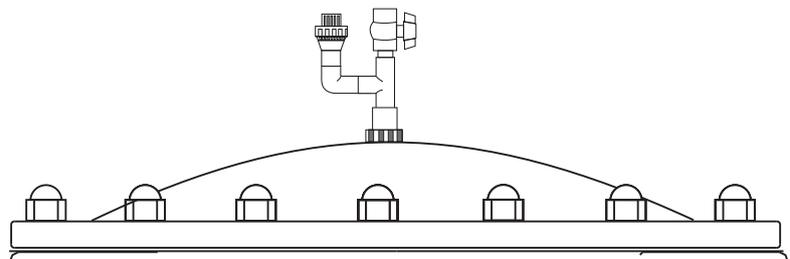
Re-order code: 70306

Smart Air Release Valve

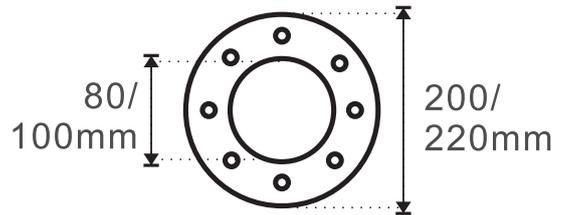
Minder's unique feature "Smart Air Release Valve" can manually release the air inside the tank. Also, the one way valve is able to automatically release negative pressure during water drainage to minimize the impact to the filter tank.



Re-order code: 90577



Internal Sight Glass

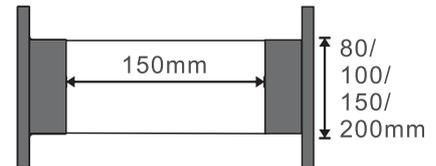


Model	Code	Inner Dia. (mm)	Outer Dia. (mm)
SG80	70713	80	200
SG100	70714	100	200

Operational internal sight glass for F or B series. Available in 2 sizes. Position above sand bed.

Inline Sight Glass (External Sight Glass)

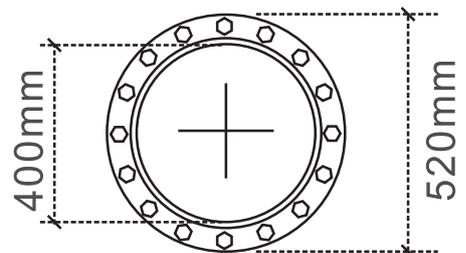
Model	Code	Inner Dia. (mm)	Outer Dia. (mm)
ILSG80	70715	80	150
ILSG100	70716	100	150
ILSG150	70717	150	150
ILSG200	70718	200	150



Optional inline sight glass for F or B series. Available in 4 sizes. Allows operators to effectively monitor water condition during backwashing.

Manhole

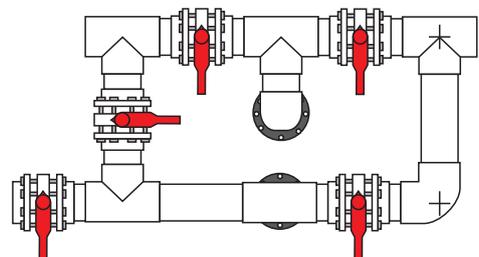
Model	Code	Inner Dia. (mm)	Outer Dia. (mm)
MH400	30234	400	520



Optional manhole access for F or B series

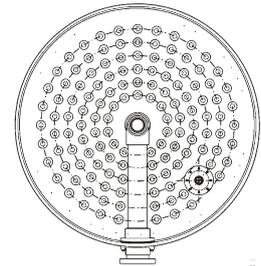
Valve Manifold (Valve Battery)

Model	Code	Inner Dia. (mm)
MF80	70719	80
MF100	70720	100
MF150	70721	150
MF200	70722	200



Nozzle Plate Collection System

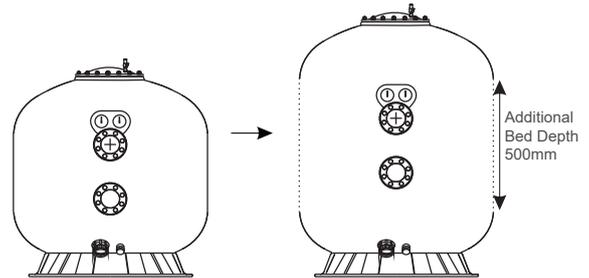
Model	Code	Sand Filter
NP1200	70515	F1200
NP1400	70516	F1400
NP1600	70517	F1600
NP1800	70518	F1800
NP2000	70519	F2000
NP2300	70520	F2300
NP2500	70521	F2500
NP3000	70522	F3000



Nozzle plate collection system allows equal distribution of water and enable air wash capability that optimize water saving. Suitable for F series only.

Additional Bed Depth

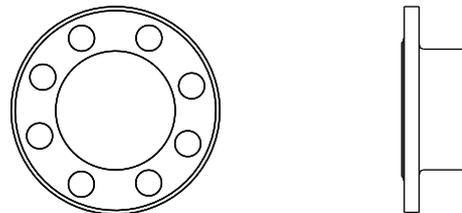
Model	Code	Sand Filter
ABD1200	70612	F1200
ABD1400	70613	F1400
ABD1600	70614	F1600
ABD1800	70615	F1800
ABD2000	70616	F2000
ABD2300	70617	F2300
ABD2500	70618	F2500
ABD3000	70619	F3000



Optional bed depth extension for deep bed filtration. Suitable for F series only. Extra depth is in 500mm block.

PVC Flanges

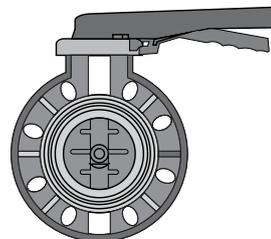
Model	Code	Inner Dia. (mm)
FG80	40154	80
FG100	40162	100
FG150	40178	150
FG200	40186	200



Optional PVC flanges for connecting valves and fittings. Available in 4 sizes. Suitable for F or B series.

Valve Butterfly

Model	Code	Inner Dia. (mm)
BV80	40247	80
BV100	40248	100
BV150	40249	150
BV200	40251	200



Vinyl-Ester Coating

Additional internal layer coating of Vinyl-ester for resistant against corrosion for ozone application

Bobbin wound material & Quality Test



Minder Offers 2 types of bobbin-wound threading: For commercial filter, the overlapping technology will be chosen, and for Minder domestic products, Minder's cross-winding technology will be chosen for great strength on Minder domestic products.

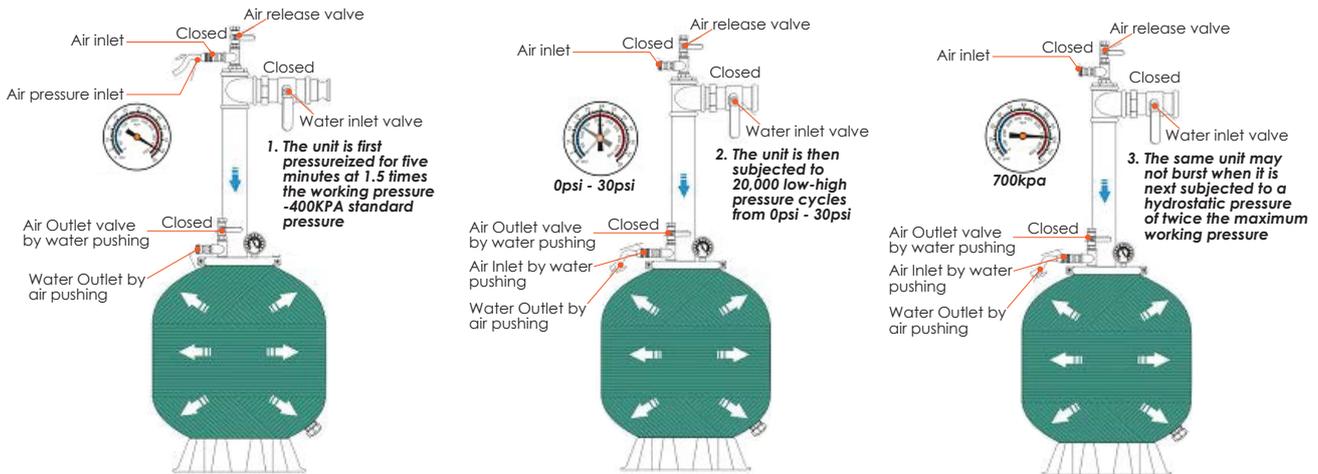
Minder filters are produced with 6 processes to achieve it's highest quality with possible extreme weather conditions in mind.

1. **Optional Vinyl-ester layer:** For resistance against corrosion for ozone application
2. **Chemical Layer:** ISO or VE laminated layer for resistance against corrosion
3. **Internal Structural Layer:** Threading of fibreglass thread with polyester resin
4. **Reinforcement Layer:** Thickening of fibreglass threading for additional strength
5. **Inner winding layer:** Further fibreglass threading for higher pressure strength
6. **Surface finishing:** UV screen coating for resistance against UV light and excellent surface finishing

Minder Filter are 100% tested with international and improved Minder standard to ensure filters are able to withstand up to it's maximum pressure and also for any possible leakage.

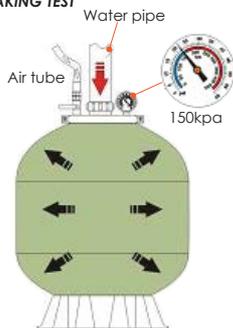
1. **Internal fibreglass layer:** Tested at operating pressure
2. **Completed filters:** Tested at maximum pressure

Testing method



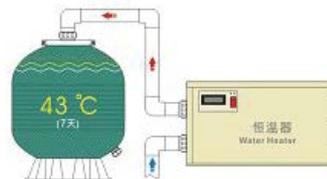
Additional Minder test standard

WATER LEAKING TEST



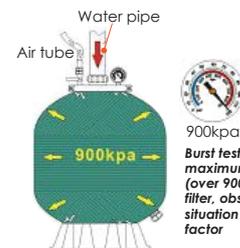
1. Test for supporting tank before winding fibreglass and tested at 400kpa, the unit must be passed pressure successfully at 150kpa for 5 minutes

HEAT - RESISTANT TEST



2. Test the unit at 43°C temperature for 7 days, be subjected to heat - resistant character used for swimming pools, spas/Hot tubs

BURST TEST



Burst test to exam the maximum pressure (over 900kpa) on pressure filter, observe temporal situation and analyze factor

Situation A

Pressure filter under 28 diameter, the cover O'ring move place and air bleed, thus release pressure, ni crack on tank body or the plastic ring on the top mount that inserted into fibreglass, which is also a part might cause leaking. If put the O'ring back in the propper position, test can be performed again

Situation B

Pressure filter above 32 diameter, water leaking from bottom of filter and air bleed, no crack on the sides. If happen based on production technology by no winding fibreglass on that side



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