

# Product Data Sheet

## Filter Housings FWS.. (16, 50 bar)

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### Field of application

Type FWS filter housings are designed as compressed air and vacuum filter housings at high volume flow with flange connections in the pressure levels 16 bar and 50 bar for compressed air without aggressive substances.

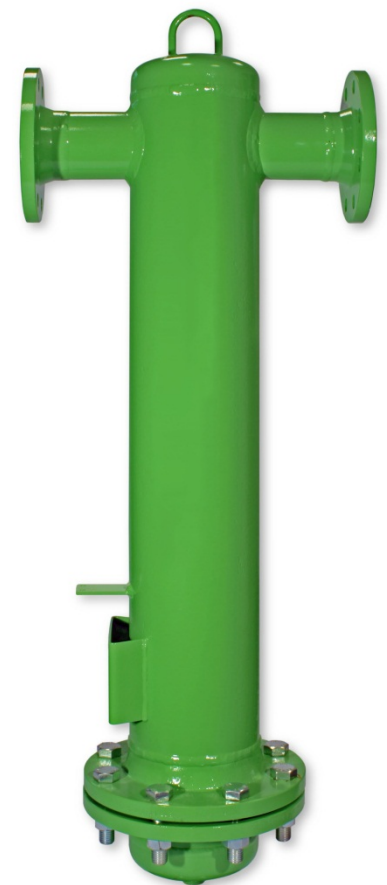
### Features

Type FWS filter housings are made from high-quality welded steel parts. For surface finishing purposes and for increasing the resistance the housings are sandblasted, then completely primed (except for the sealing surfaces). Finally, an additional layer is painted on the outer side.

Opening of the housings for filter element replacement is particularly easy because the housing flange is located far down which means that only the "light" housing base has to be removed. With the 200 - 2000 models the housing base is provided with a handle and a hinge and can therefore easily be opened. The filter element holder has a guideway in order for the filter elements to be automatically locked in the holder when installed. The housing base has a round design which allows for separated liquids to drain completely and which avoids risks resulting from residual amounts of liquid (risk of rust formation).

Type FWS filter housings are designed for one or more filter elements to be inserted and have a compressed air inlet and outlet with a flange connection each (flanges according to DIN 2633 (PN16), DIN 2635 (PN50)), a condensate outlet with a G 1/2 thread (models 140 - 190) or with a G 1 thread (models 200 - 2000) (threads according to DIN 259), and 2 x G 1/4 threaded connections for differential pressure monitoring and compressed air purity monitoring. A fixing latch enables mounting of differential pressure gauges or other monitoring equipment directly to the filter housing. An eyebolt on the filter housing provides for easy transportation and mounting.

The filter housings comply with the requirements of the Pressure Equipment Directive 2014/68/EU, and some have the CE marking of this European directive.



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### Basic data

Model	Nominal volume flow (VN) <sup>*1</sup>	Max. Operating pressure <sup>*2</sup>	Min./Max. operating temperature
FWS140	1,000 m <sup>3</sup> /h	---/50 bar	-10°C - +120°C
FWS170	1,500 m <sup>3</sup> /h	16/50 bar	
FWS190	2,500 m <sup>3</sup> /h	16/50 bar	
FWS200	3,000 m <sup>3</sup> /h	16 bar	
FWS300	4,500 m <sup>3</sup> /h	16 bar	
FWS400	6,000 m <sup>3</sup> /h	16 bar	
FWS600	9,000 m <sup>3</sup> /h	16 bar	
FWS800	12,000 m <sup>3</sup> /h	16 bar	
FWS1000	15,000 m <sup>3</sup> /h	16 bar	
FWS1200	18,000 m <sup>3</sup> /h	16 bar	
FWS1600	24,000 m <sup>3</sup> /h	16 bar	
FWS2000	30,000 m <sup>3</sup> /h	16 bar	

\*1 - refers to 1 bar(a) and 20°C at 7 bar operating pressure

\*2 - marking of 50 bar filter housing on vessel plate

### Volume flow conversion factors

#### «F1» - Pressure (in bar)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0.125	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13
17	18	19	20	25	30	35	40	45	50							
2.24	2.35	2.45	2.6	3.1	3.6	4.0	4.4	4.7	5.1							

#### «F2» - Temperature (in °C)

-30	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110	120
1.21	1.16	1.11	1.07	1.04	1.00	0.97	0.94	0.91	0.88	0.85	0.83	0.81	0.79	0.77	0.75

#### Calculation of the converted volume flow

Converted volume flow VK	Nominal required volume flow VN <sub>min</sub>
$VK = VN \times F1 \times F2$	$VN_{min} = VK / F1 / F2$

VK : Converted volume flow calculated for the operating conditions

VN<sub>min</sub>: Nominal required volume flow calculated for the operating conditions, based on the volume flow at operating conditions

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### Maintenance rules

Model	
All models	In the course of filter element replacement or cleaning: checking for serious rust formation
FWS400-FWS2000	According to Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBl. I p. 3777) §15 - Internal inspection every 5 years - Strength test every 10 years, carried out by an authorised inspection agency

### Materials

Component	
Filter housing	Steel, welded, sandblasted
Mounting parts, fittings	Brass, brass (nickel-plated), steel (galvanically zinc-plated)
Sealing materials	Aramide fibres, bonded with NBR (KLINGERSIL® C-4400), Teflon
Coating	Inside and outside: 1-component primer on a polyester resin basis; layer thickness approx. 40µ (e.g. Krönadol-A-HK / Kröna paint or similar) Outside: 2-component acrylic paint; layer thickness approx. 40µ (e.g. PercoTop 2:1 MS Top Coat Series 630 / DuPont or similar)

### Connections, dimensions and weight

#### 16 bar

Model	Connection	Outlet	Height	Width	Depth	Weight
FWS170	DN 80	G 1/2	1115 mm	440 mm	285 mm	46 kg
FWS190	DN 80	G 1/2	1115 mm	440 mm	285 mm	46 kg
FWS200	DN 100	G 1	1298 mm	550 mm	405 mm	105 kg
FWS300	DN 100	G 1	1298 mm	550 mm	405 mm	105 kg
FWS400	DN 150	G 1	1503 mm	640 mm	460 mm	136 kg
FWS600	DN 150	G 1	1531 mm	800 mm	580 mm	205 kg
FWS800	DN 200	G 1	1531 mm	800 mm	580 mm	208 kg
FWS1000	DN 200	G 1	1590 mm	840 mm	715 mm	342 kg
FWS1200	DN 250	G 1	1695 mm	940 mm	715 mm	450 kg
FWS1600	DN 250	G 1	1740 mm	940 mm	840 mm	537 kg
FWS2000	DN 300	G 1	1790 mm	940 mm	840 mm	558 kg

#### 50 bar

Model	Connection	Outlet	Height	Width	Depth	Weight
FWS140	DN 50	G 1/2	916 mm	440 mm	345 mm	83 kg
FWS170	DN 80	G 1/2	1166 mm	440 mm	345 mm	95 kg
FWS190	DN 80	G 1/2	1166 mm	440 mm	345 mm	95 kg

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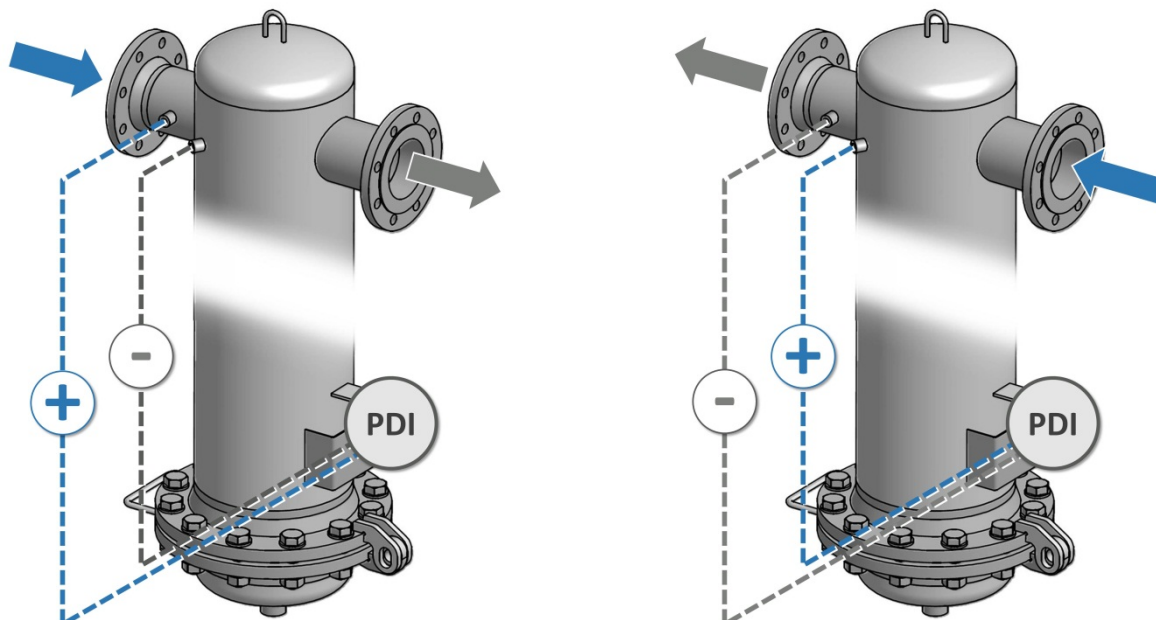
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### Connection differential pressure indication



### Classification according to Pressure Equipment Directive 2014/68/EU for group 2 fluids

Model	Volume	Category		Commissioning inspection <sup>*6</sup>		Routine inspection <sup>*6</sup>	
		16 bar	50 bar	16 bar	50 bar	16 bar	50 bar
FWS140	16 litres	II	II	NB <sup>*7</sup>	NB <sup>*7</sup>	---	---
FWS170	18 litres	II	II	NB <sup>*7</sup>	NB <sup>*7</sup>	---	---
FWS190	18 litres	II	II	NB <sup>*7</sup>	NB <sup>*7</sup>	---	---
FWS200	62 litres	II	---	NB <sup>*7</sup>	---	---	---
FWS300	62 litres	II	---	NB <sup>*7</sup>	---	---	---
FWS400	100 litres	III	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---
FWS600	170 litres	III	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---
FWS800	170 litres	III	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---
FWS1000	275 litres	IV	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---
FWS1200	300 litres	IV	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---
FWS1600	430 litres	IV	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---
FWS2000	446 litres	IV	---	NB <sup>*7</sup>	---	NB <sup>*7</sup>	---

\*6 - In Germany defined by the Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBl. I p. 3777) §14 and §15

\*7 - Authorised person (AP) or Notified Body (NB)

### Other directives

Model	
All models	Use of Directive 2014/68/EU replaces Directive 87/404/EC Design according to Directive 2014/68/EU and AD Codes