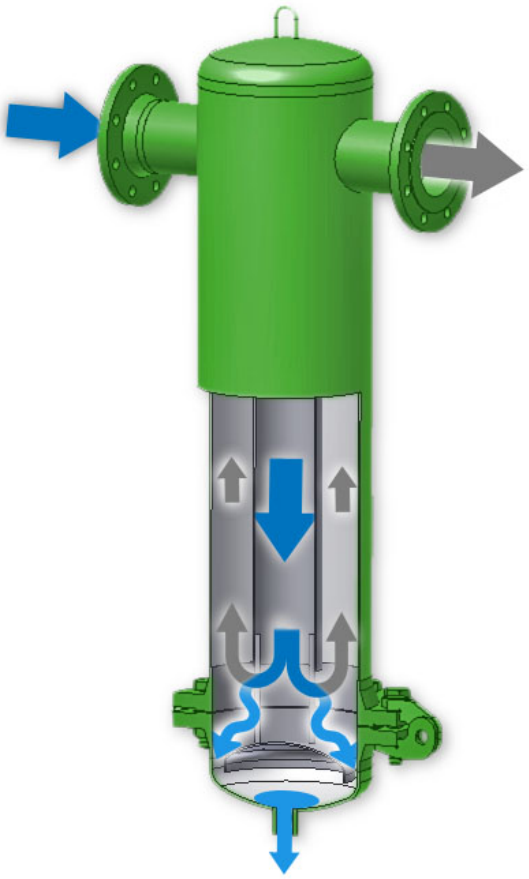
Product Data Sheet
Water Separators FWS..W - 16 bar - 50 bar

Version: 1.8.0 | Author: Manfred Loy | Date: 13.07.2018

Field of application

Type FWS..W water separators are mainly designed for separating great amounts of liquids from compressed air flows (liquid separation), i.e. separating compressed air condensate generated in after-coolers or refrigerant dryers. Larger solid contaminants are, of course, also separated during this process. Due to their internal separation process flow direction is from inside to outside (typical code 'S' for water separators is not applied).

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 cleaning purposes 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. An eyebolt on the filter housing provides for easy transportation and mounting. 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).

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

Welded within the filter housing there is a guidance pipe accelerating the compressed air flow, enriched with water, downwards to a separation cone which operates as a rebound plate at the same time. While the "light weighted" compressed air flow makes a total turn leaving the water separator from the bottom to the top **at substantially reduced velocity** the "heavy weighted" water is guided below the separation cone and thus outside the area of flow, leaving the filter housings through the condensate outlet. On purpose there is no 'cyclone flow' characteristic in order to avoid unnecessary pressure loss.

All the features mentioned above are a contribution to a water separator which has a high performance (water separation efficiency) combined with economic efficiency (low differential pressure) and maximum operating safety (integrated metal design).

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Specifications subject to change without notice Date 13.07.2018 Latest version see www.fstweb.de

Basic data

Model	Nominal volume flow (VN)*1	Max. Operating pressure*2	Min./Max. operating temperature
FWS140W	1,000 m³/h	---/50 bar	Process design +2°C - +80°C Housing design -10°C - +120°C
FWS170W	1,500 m³/h	16/50 bar	
FWS190W (identical to FWS170W)	2,500 m³/h	16/50 bar	
FWS200W	3,000 m³/h	16 bar	
FWS300W (identical to FWS200W)	4,500 m³/h	16 bar	
FWS400W	6,000 m³/h	16 bar	
FWS600W	9,000 m³/h	16 bar	
FWS800W	12,000 m³/h	16 bar	
FWS1000W	15,000 m³/h	16 bar	
FWS1200W	18,000 m³/h	16 bar	
FWS1600W	24,000 m³/h	16 bar	
FWS2000W	30,000 m³/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

Purity classes according to ISO 8573-1

Contamination	
Solid particles*3	Class X
Water content*3	Class 7
Total oil content*3	Class X

*3 - typical result, on the assumption of suitable inlet concentrations as well as operating and marginal conditions.

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)

-10	0	10	20	30	40	50	60	70	80	90	100	110	120
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_{min}
$VK = VN \times F1 \times F2$	$VN_{min} = VK / F1 / F2$

VK : Converted volume flow calculated for the operating conditions
VN_{min}: 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 cleaning: checking for serious rust formation
FWS400W-FWS2000W	According to Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBI. I p. 3777) §15 - Internal inspection every 5 years - Strength test every 10 years, carried out by an authorised inspection agency

Product specific data

Specification	
Efficiency (max.)	99.9%

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	Condensate Outlet	Height	Width	Depth	Weight
FWS170W	DN 80	G 1/2	1115 mm	440 mm	285 mm	47 kg
FWS190W (identical to FWS170W)	DN 80	G 1/2	1115 mm	440 mm	285 mm	47 kg
FWS200W	DN 100	G 1	1298 mm	550 mm	405 mm	96 kg
FWS300W (identical to FWS200W)	DN 100	G 1	1298 mm	550 mm	405 mm	96 kg
FWS400W	DN 150	G 1	1503 mm	640 mm	460 mm	136 kg
FWS600W	DN 150	G 1	1531 mm	800 mm	580 mm	205 kg
FWS800W	DN 200	G 1	1531 mm	800 mm	580 mm	208 kg
FWS1000W	DN 200	G 1	1590 mm	840 mm	715 mm	342 kg
FWS1200W	DN 250	G 1	1695 mm	940 mm	715 mm	450 kg
FWS1600W	DN 250	G 1	1740 mm	940 mm	840 mm	537 kg
FWS2000W	DN 300	G 1	1790 mm	940 mm	840 mm	558 kg

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Connections, dimensions and weight continued

50 bar

Model	Connection	Condensate Outlet	Height	Width	Depth	Weight
FWS140W	DN 50	G 1/2	916 mm	440 mm	345 mm	83 kg
FWS170W	DN 80	G 1/2	1166 mm	440 mm	345 mm	95 kg
FWS190W (identical to FWS170W)	DN 80	G 1/2	1166 mm	440 mm	345 mm	95 kg

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

Model	Volume	Category	
		16 bar	50 bar
FWS140W	16 litres	II	II
FWS170W	18 litres	II	II
FWS190W (identical to FWS170W)	18 litres	II	II
FWS200W	62 litres	II	---
FWS300W (identical to FWS200W)	62 litres	II	---
FWS400W	100 litres	III	---
FWS600W	170 litres	III	---
FWS800W	170 litres	III	---
FWS1000W	275 litres	IV	---
FWS1200W	300 litres	IV	---
FWS1600W	430 litres	IV	---
FWS2000W	446 litres	IV	---

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

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