Product Data Sheet
Oil/Water Separator CSW-..

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

Field of application

Oil/water separators of the CSW-.. series are designed for compressed air condensate treatment. The condensate, mainly consisting of water and contaminated with some amounts of not emulsified, floating oil is treated according to the latest technologies. The oil is separated from the water, as a result the condensate can be discharged into the sewage system.

Features

Oil/water separators of the CSW-.. series consist of a plastic collecting vessel with integrated filter stages and a water outlet as well as of an upstream vent chamber for the condensate inlet. For the CSW-DRUKOSEP series the filter stages comprise a 3-stage combination filter (oil collecting filter, coalescing filter and activated carbon filter) and a downstream safety chamber. For the CSW-DRUKOMAT and CSW-DRUKOMAT PLUS series the filter stages comprise a sedimentation stage with oil outlet (including oil collecting canister with overflow protection) and a downstream prefilter and activated carbon filter. In addition, the CSW-DRUKOMAT PLUS series is provided with a coalescing filter (preko filter), which considerably increases the service life of the activated carbon and the performance of the oil/water separator. All the separator models are provided with a test valve, a test set, a filter in the vent chamber, and a documentation compartment. The CSW-DRUKOSEP 6-10 and CSW-DRUKOMAT PLUS models have an inspection glass for visually checking the filter (level switch for filter check is available as an option and can be retrofitted).
When mounting the separator in environments where there is a danger of frost, a heating system is optionally available and can be retrofitted at any time (not available for CSW-DRUKOSEP 1-3). The condensate may enter the oil/water separator either being under pressure or being depressurised. Oil mist occurring upon oil entering is absorbed by means of filters in the vent chamber. In the downstream filter stages the oil is separated from the water and separately discharged from the oil/water separator or collected in the filter and disposed of together with the filter.

FST GmbH - Im Teelbruch 106 - 45219 Essen - Germany - ☏ +49 (0)2054 8735-0 - 🖷 +49 (0)2054 8735-100 - info@fstweb.de

Basic data

Model	Nominal volume flow (VN)*1 screw and vane compressors	Nominal volume flow (VN)*1 piston compressors	Nominal condensate quantity screw and vane compressors	Nominal condensate quantity piston compressors	Max. operating pressure	Min./Max. operating temperature
CSW-DRUKOSEP1	108 m³/h	48 m³/h	0.9 litres/h	0.4 litres/h	---	+5°C - +60°C
CSW-DRUKOSEP2	150 m³/h	72 m³/h	1.3 litres/h	0.6 litres/h		
CSW-DRUKOSEP3	210 m³/h	108 m³/h	1.8 litres/h	0.9 litres/h		
CSW-DRUKOSEP6	360 m³/h	180 m³/h	3.1 litres/h	1.6 litres/h		
CSW-DRUKOSEP8	600 m³/h	300 m³/h	5.3 litres/h	2.6 litres/h		
CSW-DRUKOSEP10	720 m³/h	360 m³/h	6.3 litres/h	3.1 litres/h		
CSW-DRUKOMAT15	900 m³/h	300 m³/h	7.9 litres/h	2.6 litres/h		
CSW-DRUKOMAT30	1,800 m³/h	600 m³/h	15.8 litres/h	5.2 litres/h		
CSW-DRUKOMAT61	4,200 m³/h	1,800 m³/h	36.9 litres/h	15.8 litres/h		
CSW-DRUKOMAT15PLUS	1,500 m³/h	700 m³/h	13.1 litres/h	6.1 litres/h		
CSW-DRUKOMAT30PLUS	3,000 m³/h	1,200 m³/h	26.3 litres/h	10.5 litres/h		
CSW-DRUKOMAT31PLUS	3,600 m³/h	1,800 m³/h	31.6 litres/h	15.8 litres/h		
CSW-DRUKOMAT61PLUS	6,000 m³/h	2,500 m³/h	52.7 litres/h	21.9 litres/h		

*1 - refers to 1 bar(a) and 20°C at 7 bar operating pressure, intake air of compressor 25°C at 60% relative humidity, 35°C compressed air temperature, for non-emulsifying oils. In the event of unfavourable installation conditions of the compressors (e.g. warm and dusty) the values should be reduced.

Volume flow conversion factors

«F1» - Climate factor (intake temperature and relative humidity of compressors suction air)

	15°C	20°C	25°C	30°C	35°C	40°C	45°C
50%	0.72	0.98	1.30	1.71	2.24	2.88	3.69
60%	0.87	1.17	**1.56**	2.05	2.68	3.46	4.43
70%	1.01	1.37	1.82	2.40	3.13	4.04	5.17
80%	1.16	1.56	2.08	2.74	3.58	4.61	5.90
90%	1.30	1.76	2.34	3.08	4.02	5.19	6.64

«F2» - System factor aftercooler (operating pressure and compressed air discharge temperature of aftercooler)

	4 bar	5 bar	6 bar	7 bar	8 bar	9 bar	10 bar	11 bar	12 bar	13 bar	14 bar	15 bar	16 bar
3°C	0.14	0.11	0.10	0.08	0.08	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04
5°C	0.15	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.06	0.06	0.05	0.05	0.05
10°C	0.21	0.18	0.15	0.13	0.12	0.11	0.10	0.09	0.08	0.08	0.07	0.07	0.06
15°C	0.29	0.24	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.09
20°C	0.39	0.33	0.28	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11
25°C	0.52	0.43	0.37	0.32	0.29	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
30°C	0.68	0.57	0.49	0.43	0.38	0.34	0.31	0.29	0.26	0.24	0.23	0.21	0.20
35°C	0.89	0.75	0.64	**0.56**	0.50	0.45	0.41	0.37	0.34	0.32	0.30	0.28	0.26

Calculation of the converted volume flow

Converted volume flow VK	Nominal required volume flow VN_{min}
$VK = VN / (F1 – F2)$	$VN_{min} = VK \times (F1 – F2)$

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

FST GmbH - Im Teelbruch 106 - 45219 Essen - Germany - ☎ +49 (0)2054 8735-0 - 🖷 +49 (0)2054 8735-100 - info@fstweb.de

Maintenance rules

All models and sizes	Weekly : water test probe - visual inspection and inspection using test paper
	Once a year: filter exchange once a year, minimum - earlier, if necessary

Product-specific data

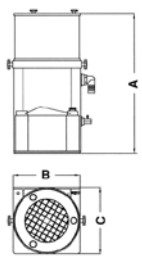
Specification	
Residual oil content	< 20 mg/litres

Materials

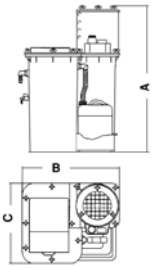
Component	
Vessel, body and parts	PE (polyethylene), PP (polypropylene)
Filter	PP (polypropylene), activated carbon

Connections, dimensions and weight

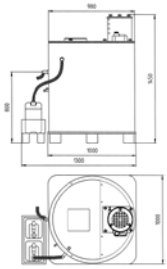
Model	Vessel volume (empty, without filter installed)	Connections of condensate inlet	Connection of water outlet	Connection of oil outlet	Height (A)	Width (B)	Depth (C)	Weight (empty)
CSW-DRUKOSEP1	6 litres	3 x G 1/2	G 1	---	450 mm	280 mm	210 mm	5 kg
CSW-DRUKOSEP2	9 litres	3 x G 1/2	G 1	---	550 mm	280 mm	210 mm	7 kg
CSW-DRUKOSEP3	14 litres	3 x G 1/2	G 1	---	610 mm	285 mm	285 mm	10 kg
CSW-DRUKOSEP6	40 litres	4 x G 1/2	G 1	---	908 mm	437 mm	325 mm	17 kg
CSW-DRUKOSEP8	74 litres	4 x G 1/2	G 1	---	962 mm	595 mm	375 mm	25 kg
CSW-DRUKOSEP10	120 litres	4 x G 1/2	G 1	---	965 mm	620 mm	520 mm	25 kg
CSW-DRUKOMAT15	160 litres	4 x G 1/2	G 1	G 1	1160 mm	620 mm	520 mm	28 kg
CSW-DRUKOMAT30	230 litres	4 x G 1/2	G 1	G 1	1160 mm	850 mm	520 mm	55 kg
CSW-DRUKOMAT61	790 litres	4 x G 1/2	G 2	G 2	1450 mm	1300 mm	1000 mm	90 kg
CSW-DRUKOMAT15PLUS	160 litres	4 x G 1/2	G 1	G 1	1160 mm	620 mm	520 mm	40 kg
CSW-DRUKOMAT30PLUS	230 litres	4 x G 1/2	G 1	G 1	1160 mm	850 mm	520 mm	60 kg
CSW-DRUKOMAT31PLUS	230 Liter	4 x G 1/2	G 1	G 1	1160 mm	850 mm	520 mm	70 kg
CSW-DRUKOMAT61PLUS	790 litres	4 x G 1/2	G 2	G 2	1450 mm	1300 mm	1000 mm	96 kg



CSW-DRUKOSEP



CSW-DRUKOMAT / CSW-DRUKOMAT PLUS


CSW-DRUKOMAT61 / CSW-DRUKOMAT61PLUS

FST GmbH - Im Teelbruch 106 - 45219 Essen - Germany - ☎ +49 (0)2054 8735-0 - 🖷 +49 (0)2054 8735-100 - info@fstweb.de

Product Data Sheet
Oil/Water Separator CSW-..

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

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

Model	Volume	Category
All models and sizes	Oil/water separators are not part of the Pressure Equipment Directive 2014/68/EU	

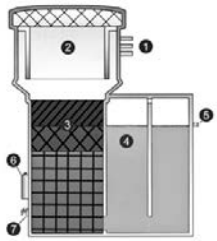
Other Directives

Waste code according to European waste catalogue (EWC):

- Filter:
  15 - WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTERMATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
  15 02 - absorbents, filter materials, wiping cloths and protective clothing
  15 02 02 - absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
- Oil*2 (canister):
  13 - OIL WASTES AND WASTES OF LIQUID FUELS (except edible oils, and those in chapters 05, 12 and 19)
  13 02 - waste engine, gear and lubricating oils
  13 02 05 - mineral-based non-chlorinated engine, gear and lubricating oils
  13 02 06 - synthetic engine, gear and lubricating oils
- Oil sludge*2 (sedimentation stage):
  13 - OIL WASTES AND WASTES OF LIQUID FUELS (except edible oils, and those in chapters 05, 12 and 19)
  13 05 - oil/water separator contents
  13 05 02 - sludges from oil/water separators

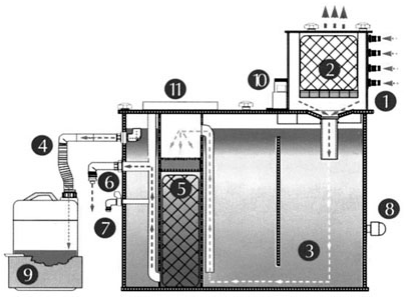
*2 - May differ for some customers. Contact the manufacturer or the service partner of the oil or observe the safety data sheet.

Flow diagram (example)



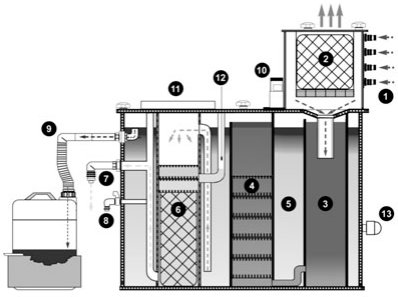
CSW-DRUKOSEP

1 - Condensate inlet
2 - Vent chamber with filter cartridge
3 - 3-stage combination filter
4 - Safety chamber
5 - Water outlet
6 - Test kit
7 - Test valve
Documentation compartment
Level monitoring (option)
Heating system (option)



CSW-DRUKOMAT

1 - Condensate inlet
2 - Vent chamber with filter cartridge
3 - Sedimentation stage
4 - Oil outlet
5 - Prefilter and activated carbon filter
6 - Water outlet
7 - Test valve
8 - Heating system (optional)
9 - Oil collecting canister with overflow protection
10 - Test kit
11 - Documentation compartment



CSW-DRUKOMAT PLUS

1 - Condensate inlet
2 - Vent chamber with filter cartridge
3 - Sedimentation stage
4 - Coalescing filter
5 - Deflection and settlement chamber
6 - Prefilter and activated carbon filter
7 - Water outlet
8 - Test valve
9 - Oil collecting canister with overflow protection
10 - Test kit
11 - Documentation compartment
12 - Level monitoring (option)
13 - Heating system (optional)

FST GmbH - Im Teelbruch 106 - 45219 Essen - Germany - ☎ +49 (0)2054 8735-0 - 🖷 +49 (0)2054 8735-100 - info@fstweb.de