Product Data Sheet
Activated Carbon Oil Vapour Adsorber DSS 1-8 A

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Field of application

Type DSS 1-8 activated carbon oil vapour adsorber with filling of type A (activated carbon) are mainly designed for separating oil vapours from compressed air flows (dry-type separation) in pressure levels up to 16 bar for compressed air without aggressive substances. Activated carbon oil vapour adsorbers are therefore used, if there are no liquid contaminants, especially water or oil, in the compressed air flow. Due to the properties of activated carbon some other gaseous contaminants are separated as well.

Features

Type DSS 1-8 activated carbon oil vapour adsorber vessels are made from extruded aluminium columns and machined aluminium top and bottom end plates, joint together with screwed connections. For surface finishing purposes and for increasing resistance all extruded vessel parts have to go through a chrome(VI)-free passivation process and are finished by an impact-proof and abrasion-proof powder coating which is provided on the outer side.
The activated carbon filling is embedded between two demister pads. Compressed air, flowing from top to bottom, first passes the top demister, then the activated carbon filling and finally the bottom demister before leaving the vessel. Within the activated carbon filling oil vapours and other organic substances (mainly long-chain hydrocarbons) are separated by an adsorption process. Finally, the treated and thus cleaned compressed air returns to the top in a riser tube which is integrated into the extruded aluminium column. This way inlet and outlet provide the same connection height. Type FCA compressed air filters can be directly connected to the inlet and outlet without the need for additional piping.
Both demisters, supplied as standard, distribute the compressed air flow to the entire surface of the activated carbon filling thus providing a evenly distributed flow. At the same time the activated carbon granulates are reliably kept inside the vessel. An oil indicator equipped with pressure regulator and manual valve is provided as a standard as well. An optional 1 micron downstream filter (fine filter) is recommended to hold back abrasion of the activated carbon.
The activated carbon oil vapour adsorbers comply with the requirements of the Pressure Equipment Directive 2014/68/EU, and some (depending on the model) have the CE marking of this European directive.

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Basic data

Model	Nominal volume flow (VN)*1	Min./Max. operating pressure	Min./Max. operating temperature
DSS 1 A	8 m³/h	0 - 16 bar	+2°C - +50°C
DSS 2 A	15 m³/h		
DSS 3 A	25 m³/h		
DSS 4 A	35 m³/h		
DSS 6 A	57 m³/h		
DSS 7 A	72 m³/h		
DSS 8 A	82 m³/h		

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

Purity classes according to ISO 8573-1

Contamination	
Solid particles *2	Class X
Water content *2	---
Total oil content *2*3	Class 0-1

*2 - typical result, on the assumption that the suitable inlet concentrations and operating and marginal conditions are given
*3 - the liquid residual oil content is not taken into account and may reduce the purity class (should be separated in advance by means of fine filtration)

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

«F2» - Temperature (in °C)

2	5	10	15	20	25	30	35	40	45	50
1.07	1.05	1.04	1.02	1.00	0.98	0.97	0.92	0.86	0.75	0.60

Calculation of the converted volume flow

Converted volume flow VK	Nominal required volume flow VN_{min}
VK = VN x F1 x 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

All models	■ If required: - Check residual oil content (oil indicator), if required replace activated carbon*4 ■ Every 12 months: - Replace activated carbon and oil indicator tube *4 ■ Every 48 months: - Replace demister and seals

*4 – The activated carbon must be disposed of according to the European waste code. A possible oil contamination must be taken into account.

Product specific data

Specification	
Oil vapour content (nominal)*5	≤ 0.003 mg/m³

*5 - at an inlet concentration ≤ 0.01 mg/m³, the liquid residual oil content is not taken into account (should be separated in advance by means of fine filtration)

Model	Amount of activated carbon
DSS 1 A	0,52 kg
DSS 2 A	1,01 kg
DSS 3 A	1,70 kg
DSS 4 A	2,39 kg
DSS 6 A	3,85 kg
DSS 7 A	4,86 kg
DSS 8 A	5,75 kg

Materials

Component	
Extruded aluminium profile	Aluminium AlMg0,7Si, Chrome III passivated
Housing end plates	Aluminium AlMg , anodised
Coating (Aluminium profile outside)	1-component power coating on polyester resin basis (free of TGIC), layer thickness approx. 80 µ
Demister	Stainless steel 1.4301
Sealing materials	NBR, PA (Polyamide)
Screws	5.6 steel, zinc-plated
Pipe connection	None (flow paths are integrated in the valve block)
Adjustable feet, wall bracket	Steel, zinc-plated
Mounting parts, fittings	Brass
Filling	Activated carbon

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Connections, dimensions and weight

Model	Connection	Height	Width	Depth	Weight
DSS 1 A	G 3/8	392 mm	158 mm	180 mm	3 kg
DSS 2 A	G 3/8	567 mm	158 mm	180 mm	5 kg
DSS 3 A	G 3/8	817 mm	158 mm	180 mm	7,5 kg
DSS 4 A	G 3/8	1067 mm	158 mm	180 mm	10 kg
DSS 6 A	G 1/2	1107 mm	208 mm	215 mm	20 kg
DSS 7 A	G 1/2	1332 mm	208 mm	215 mm	24 kg
DSS 8 A	G 1/2	1532 mm	208 mm	215 mm	28 kg

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

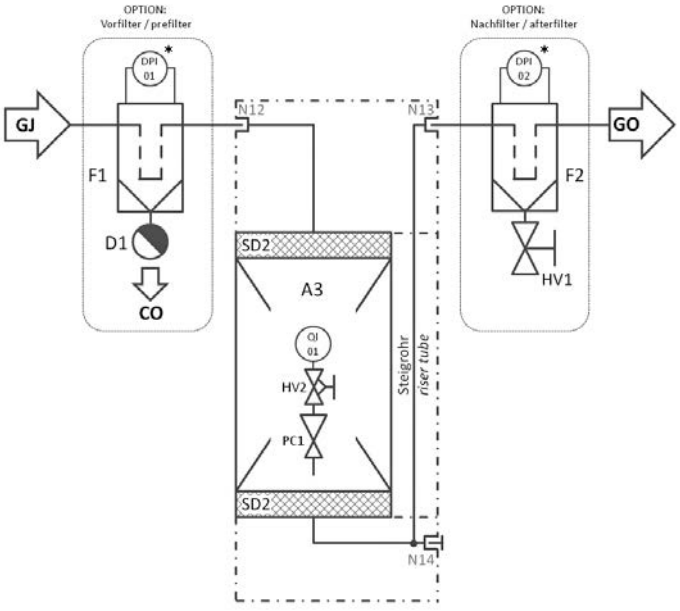
Model	Volume	Category	Marking	Commissioning inspection*6	Routine inspection*6
DSS 1	1.2 litres	Art.3 Abs.3	---	---	---
DSS 2	2.2 litres	Art.3 Abs.3	---	---	---
DSS 3	3.7 litres	I	CE	AP*7	---
DSS 4	5.1 litres	I	CE	AP*7	---
DSS 6	8.5 litres	I	CE	AP*7	---
DSS 7	10.5 litres	I	CE	AP*7	---
DSS 8	12.5 litres	I	CE	AP*7	---

*6 - In Germany defined by the Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBl. I p. 3777) §14 and §15
*7 - Inspection by Authorised Person (AP) or Notified Body (NB)

Other directives

Model	
All models	---

Flow diagram (PID)



A	Activated carbon vessel
F	Filter (option)
HV	Manual valve
SD	Demister
D	Condensate drain (option)
DPI *	Differential pressure gauge (option)
QI	Oil indicator
PC	Pressure regulator 7bar
GJ	Fluid inlet
GO	Fluid outlet
CO	Condensate outlet (option)

*= DPI available for size FCA30 and bigger

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