

Product Data Sheet

Activated carbon oil vapour adsorber

DSS 10-100 A

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Field of application

Type DSS 10-100 activated carbon oil vapour adsorber with filling 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 10-100 activated carbon oil vapour adsorber vessels are made from high-quality welded steel parts. For surface finishing purposes and for increasing the resistance the vessels are sand-blasted and primed (except for the sealing surfaces). Finally, an additional layer is painted on the outer side.

Compressed air, flowing from top to bottom, enters the vessel through the top inlet connection, passes the top flow distributor, then the activated carbon filling resting on a support screen. 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 leaves the vessel at the bottom outlet connection.

The flow distributor, 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 have the CE marking of this European directive.



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Specifications subject to change without notice

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Basic data

Model	Nominal volume flow (VN) ^{*1}	Min./Max. operating pressure	Min./Max. operating temperature
DSS 10 A	110 m ³ /h	0 - 16 bar (higher operating pressures on request)	+2°C - +60°C
DSS 15 A	150 m ³ /h		
DSS 20 A	200 m ³ /h		
DSS 25 A	260 m ³ /h		
DSS 30 A	320 m ³ /h		
DSS 40 A	410 m ³ /h		
DSS 60 A	590 m ³ /h		
DSS 80 A	770 m ³ /h		
DSS 100 A	1,000 m ³ /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}
$VK = VN \times F1 \times F2$	$VN_{min} = VK / F1 / F2$

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

All models	<ul style="list-style-type: none">■ If required:<ul style="list-style-type: none">- Check residual oil content (oil indicator), if required replace activated carbon*⁴■ Every 12 months:<ul style="list-style-type: none">- Replace activated carbon and oil indicator tube *⁴■ Every 48 months:<ul style="list-style-type: none">- Replace seals
DSS40A - DSS100A	<ul style="list-style-type: none">■ Every 5 /10 years<ul style="list-style-type: none">- Pressure vessel inspection acc. to Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBl. I p. 3777) §15

*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/m ³

*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 10 A	9,0 kg
DSS 15 A	11,4 kg
DSS 20 A	15,1 kg
DSS 25 A	19,4 kg
DSS 30 A	24,1 kg
DSS 40 A	30,5 kg
DSS 60 A	43,6 kg
DSS 80 A	55,6 kg
DSS 100 A	74,0 kg

Materials

Component	
Vessel and supports	Steel (P265GH, ST37.0, St35.8)
Coating	Outside : sand blasted SA2,5 (ISO8501) ; 1-component primer on alkyd resin base ; dry thickness approx. 40 µm (e.g. DuPont PercoTop 021, or similar product) 2-component acrylic resin paint ; dry thickness approx. 40 µm (e.g. DuPont PercoTop 9600, or similar product)
Desiccant support screen	Stainless steel 1.4301
Pipe connections (fittings)	Steel, galvanized
Filling	Activated carbon

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Connections, dimensions and weight

Model	Connection	Height	Width	Depth	Weight
DSS 10 A	G 1	1460 mm	265 mm	350 mm	45 kg
DSS 15 A	G 1	1700 mm	265 mm	350 mm	52 kg
DSS 20 A	G 1	1710 mm	290 mm	350 mm	67 kg
DSS 25 A	G 1	1720 mm	320 mm	350 mm	80 kg
DSS 30 A	G 1 1/2	1760 mm	345 mm	350 mm	95 kg
DSS 40 A	G 1 1/2	1820 mm	375 mm	350 mm	107 kg
DSS 60 A	G 1 1/2	1850 mm	425 mm	350 mm	143 kg
DSS 80 A	G 2	1980 mm	460 mm	400 mm	190 kg
DSS 100 A	G 2	2000 mm	515 mm	400 mm	230 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 10 A	21.0 litres	II	CE 0525	NB*7	---
DSS 15 A	26.0 litres	II	CE 0525	NB*7	---
DSS 20 A	34.5 litres	II	CE 0525	NB*7	---
DSS 25 A	44.5 litres	II	CE 0525	NB*7	---
DSS 30 A	55.6 litres	II	CE 0525	NB*7	---
DSS 40 A	71.0 litres	III	CE 0525	NB*7	NB*7
DSS 60 A	101.0 litres	III	CE 0525	NB*7	NB*7
DSS 80 A	132.0 litres	III	CE 0525	NB*7	NB*7
DSS 100 A	175.0 litres	III	CE 0525	NB*7	NB*7

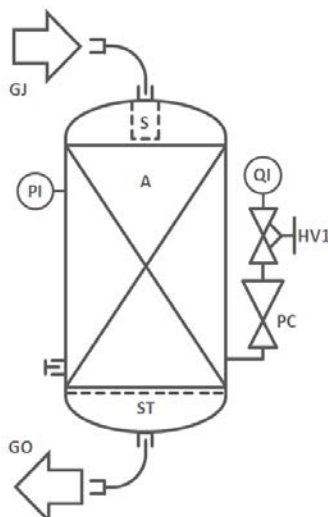
*6 - In Germany defined by the Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBl. I p. 3777) §14 and §15

*7 - Inspection by Authorised Person (AP) or Notified Body (NB)

Other Directives

Model	
All models	Use of Directive 97/23/EC replaces Directive 87/404/EC Design according to Directive 97/23/EC and AD Codes

Flow diagram (PID)



- GJ** Fluid inlet
- S** Flow distributor
- PI** Gauge
- QI** Oil indicator
- PC** Pressure regulator
- HV1** Manual valve
- Granulate evacuation
- ST** Support screen
- GO** Fluid outlet