

Product Data Sheet

Activated carbon oil vapour adsorber

DSS 120-630 A

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Author: Tassilo Tappe

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Field of application

Type DSS 120-630 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 11 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

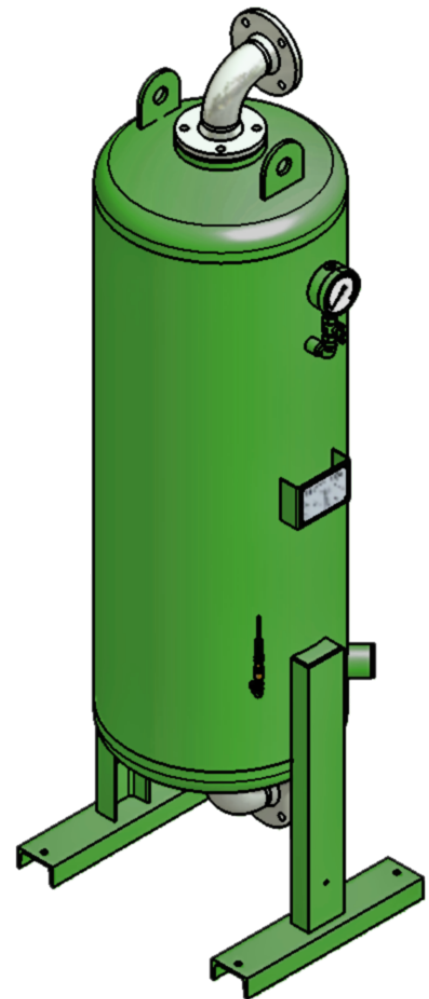
Type DSS 120-630 activated carbon oil vapour adsorber vessels are made from high-quality welded steel parts. For surface finishing purposes and for increasing the resistance the vessels are sand-blasted and primed (except for the sealing surfaces). Finally, an additional layer is painted on the outer 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 120 A	1,200 m ³ /h	0 - 11 bar (higher operating pressures on request)	+2°C - +60°C
DSS 150 A	1,480 m ³ /h		
DSS 210 A	2,080 m ³ /h		
DSS 240 A	2,430 m ³ /h		
DSS 290 A	2,930 m ³ /h		
DSS 370 A	3,700 m ³ /h		
DSS 510 A	5,080 m ³ /h		
DSS 630 A	6,290 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
0.125	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50

«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■ 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
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*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	$\leq 0.003 \text{ mg/m}^3$

*5 - at an inlet concentration $\leq 0.01 \text{ mg/m}^3$, 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 120 A	90 kg
DSS 150 A	111 kg
DSS 210 A	156 kg
DSS 240 A	182 kg
DSS 290 A	227 kg
DSS 370 A	284 kg
DSS 510 A	392 kg
DSS 630 A	489 kg

Materials

Component	
Vessel and supports	Steel (P265GH, ST37.0, St35.8)
Coating	<u>Inside</u> : 1/3 lower part of the vessels painted with "Brantho KorruX" <u>Outside</u> : 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	Steel, galvanized
Sealing materials	PTFE, Viton, Klingersil C4400
Screws	5.6 and 8.8 steel, zinc-plated
Filling	Activated carbon

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Connections, dimensions and weight

Model	Connection	Height	Width	Depth	Weight
DSS 120 A	DN 50 - PN16	2020 mm	450 mm	570 mm	260 kg
DSS 150 A	DN 65 - PN16	2070 mm	500 mm	650 mm	325 kg
DSS 210 A	DN 65 - PN16	2100 mm	600 mm	745 mm	410 kg
DSS 240 A	DN 80 - PN16	2200 mm	650 mm	800 mm	495 kg
DSS 290 A	DN 80 - PN16	2200 mm	700 mm	855 mm	570 kg
DSS 370 A	DN 100 - PN16	2340 mm	800 mm	950 mm	715 kg
DSS 510 A	DN 100 - PN16	2600 mm	850 mm	1030 mm	940 kg
DSS 630 A	DN 125 - PN16	2820 mm	950 mm	1100 mm	1200 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 120 A	225 litres	III	CE 0525	NB*7	NB*7
DSS 150 A	280 litres	IV	CE 0525	NB*7	NB*7
DSS 210 A	395 litres	IV	CE 0525	NB*7	NB*7
DSS 240 A	470 litres	IV	CE 0525	NB*7	NB*7
DSS 290 A	570 litres	IV	CE 0525	NB*7	NB*7
DSS 370 A	660 litres	IV	CE 0525	NB*7	NB*7
DSS 510 A	980 litres	IV	CE 0525	NB*7	NB*7
DSS 630 A	1121 litres	IV	CE 0525	NB*7	NB*7

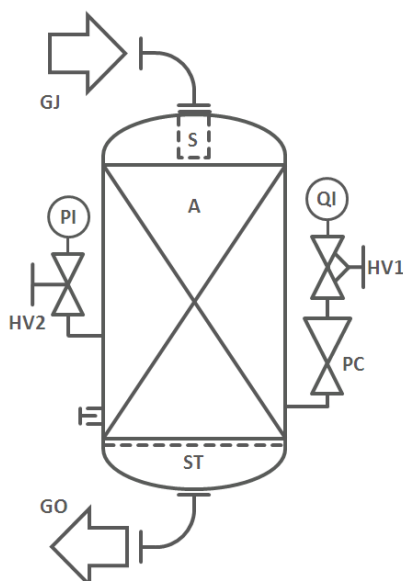
*6 - In Germany defined by the Ordinance on Industrial Safety and Health of September 27th, 2002 (BGBl. I p. 3777) §14 and §15

*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
- HV2** Manual valve
- QI** Oil indicator
- PC** Pressure regulator
- HV1** Manual valve
- Granulate evacuation
- ST** Support screen
- GO** Fluid outlet