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# ETC®-SV

Class 0 oil-free compressed air through catalysis



## »»» The way to oil-free compressed air

### The ETC® operating principle

Through the process of catalytic oxidation, ETC® converts actively transform the oil and hydrocarbons in compressed air into water and CO<sub>2</sub>. ETC® Converter continuously supply Class 0 compressed air, in accordance with DIN ISO 8573-1, with a residual oil content of < 0.0025 mg/Nm<sup>3</sup> as well as an oil-free condensate.

With its catalytic technology for the treatment of compressed air, ETC® provides a technical solution that has been successfully used for many years in the automotive and chemical industries.

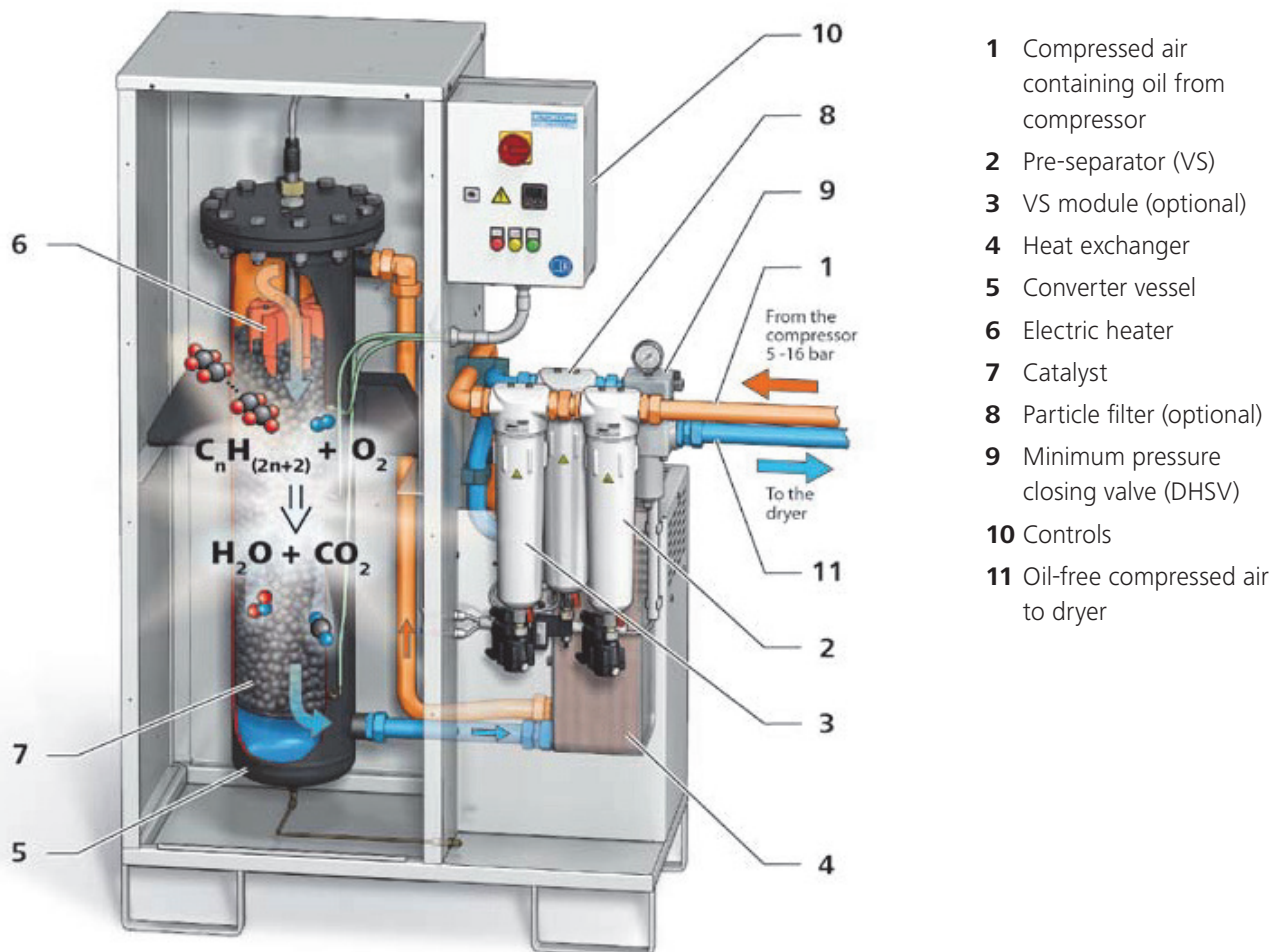
For compressed air upstream of a converter that has an oil content of max. 200 mg/Nm<sup>3</sup>, ROTORCOMP® guarantees oil-free Class 0 compressed air downstream of the converter.

In contrast to conventional filter systems (e.g., activated carbon), the air quality is constantly maintained over 20,000 hours of operation. Saturation and the risk of breakthrough by hydrocarbon compounds is avoided.

In contrast to oil-free compressors, the compressed air quality does not depend upon the hydrocarbon content of the ambient air.

The operation of the catalytic converter is independent of the temperature and humidity of the compressed air to be treated.

### ETC®-SV layout



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## »»» ETC®-SV – Catalytic air treatment

### Features and product advantages

- › Guaranteed oil-free compressed air in accordance with DIN ISO 8573-1 Class 0 (residual oil content  $\leq 0.0025$  mg/Nm<sup>3</sup>), confirmed by independent TÜV measurements
- › Absolutely secure system since a protective shutdown unit prevents oil-containing compressed air from entering into the network in the event of a malfunction
- › Guarantee on the operation of the catalyst for 20,000 operating hours, max. 30 months, for hydrocarbon concentrations at the ETC® inlet of up to 200 mg/Nm<sup>3</sup>
- › Improved insulation of converter and housing reduces energy consumption to a max. of 0.01 kWh/m<sup>3</sup>
- › Pressure drop over ETC®-SV system approx. 0.4 bar at design point at 7 barg
- › Minimizes the bacteria, fungus and microbial content in the compressed air
- › Collected in a dryer downstream of the ETC®, a clean and neutral condensate is produced that has a hydrocarbon content < 2 mg/liter and a pH value between 6 and 7 and can thus, according to regulations, be discharged indirectly without further treatment
- › In the converter, silicone monomers are adsorbed and converted to silicates
- › Partial load capacity of 20 to 110 % of the nominal flow rate when using the optional VS module
- › Increased service life for downstream adsorption dryer

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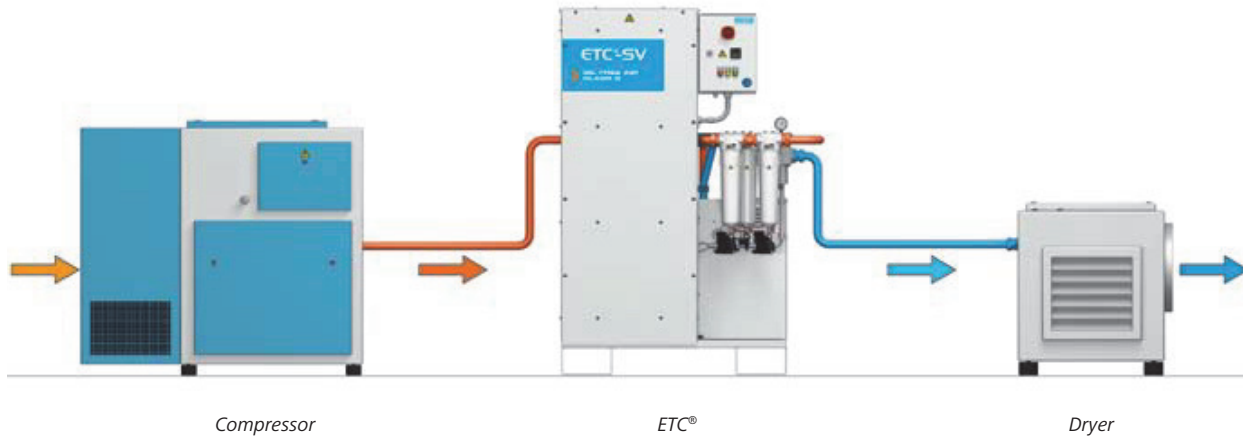
The ETC® is integrated into the compressed air network downstream of the compressor. The compressed air (1) containing oil that is flowing from the compressor is conducted over a pre-separation unit (2) and a VS module (3) into a plate heat exchanger (4). The pre-separation unit protects the ETC® against liquid oil and water. The optional VS module extends the max. working range by 20 to 110 % of the nominal flow. The compressed air is pre-heated in the plate

heat exchanger and subsequently flows into the converter vessel (5) containing the catalyst (7). By using an electric heater (6), the catalyst is held at a temperature that is necessary for the catalytic reactions to take place. The oil-free compressed air leaves the converter and is cooled down again in a counter flow in the plate heat exchanger and is conducted through an optional particle filtration unit (8) and the minimum pressure closing valve (9) to a dryer.

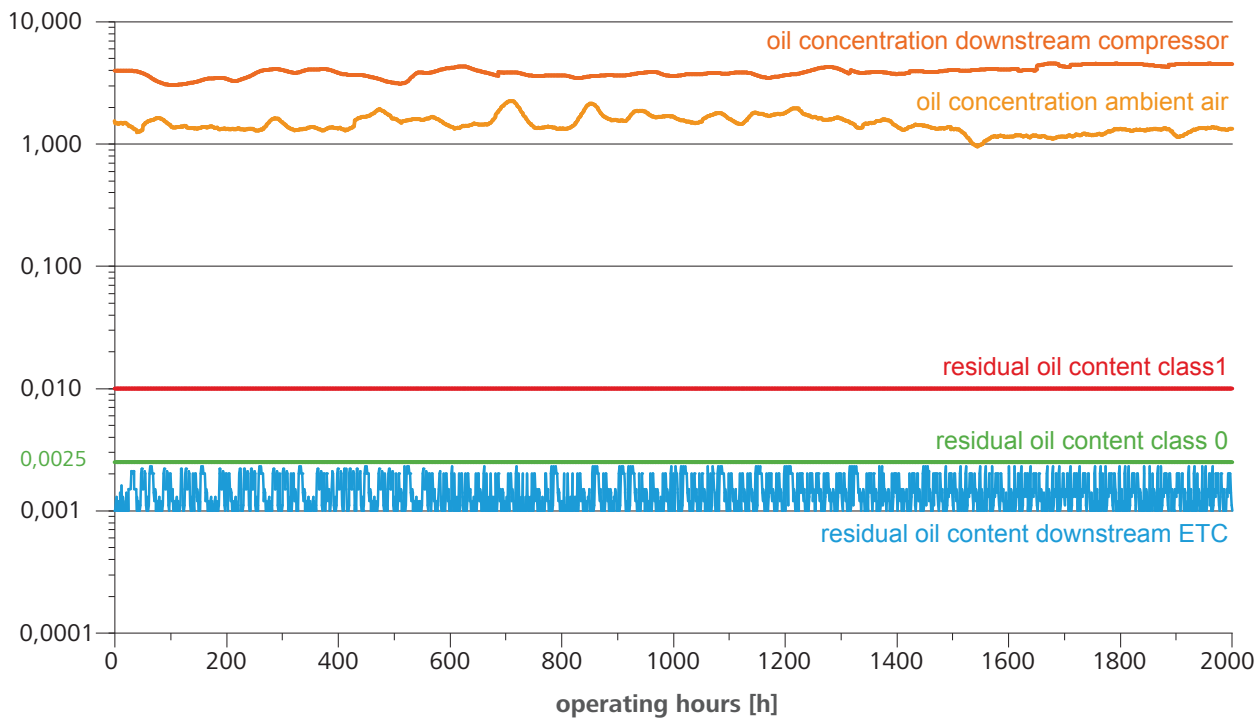
# ETC®-SV

## »»» Class 0 oil-free compressed air and clean condensate

### Hydrocarbon concentration measurements in air and compressed air



oil concentration [mg/Nm<sup>3</sup>]




Over a period of 2,000 hours, hydrocarbon concentrations

- › in the ambient air
- › downstream of an oil-injected screw compressor
- › after an ETC-SV5

were measured in accordance with ISO 8573-2, -5 and -6. For this a ROTORCOMP® on-line-measurement instrument type RCS NMHC/CH<sub>4</sub> NDIR was used, which is based on the measuring of NMHC (non-methane hydrocarbons) – values.


## TÜV test report: oil content measurements

**TÜV SÜD Industrie Service GmbH**  
Messstelle nach § 20/23 BImSchG  
Befristung der Bekanntgabe bis 22.05.2011  
Westendstraße 199  
80686 München



Industrie Service

Mehr Sicherheit  
Mehr Wert.



DAF-PA 2894 99  
DAF-PA 2894 99

**Report**  
on the measurement of oil content (aerosol and filter-passing) in the exhaust air of a compressor downstream of a converter for oil-free compressed air

System: Compressor with downstream converter for oil-free compressed air  
Date: 9 Mar 2010  
Our reference: S 4591-MUC.com  
Report No.: 118621

Owner/Operator: ROTORCOMP VERDICHTER GmbH  
Industriestr. 9  
82110 Germering  
This document consists of 7 pages  
Page 1 of 7

Location: Industriestr. 9  
82110 Germering  
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The test results refer exclusively to the units under test.

Date of order: 5 October 2009


Date of measurement: 13 April 2010

Date of report: 6 May 2010

Ordered by: Dr. Peitzker

Project No. 1396241

Terms of reference: Measurement of oil content (aerosol and filter-passing) in compressed air as per ISO 8573-1



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1/17  
Reference/Title of preparation: IS-081-MUC.com / 14.05.2010  
Report No.: 118621  
Reference: Verdichter GmbH, Chemischenanlage 2010



Industrie Service

**Summary**

Oil content in compressed air downstream of catalytic converter

Component measured	Unit	Mean	Maximum	Measurement uncertainty
Oil (aerosol)	mg/m <sup>3</sup>	0.0005	0.0008	0.0005
Filter-passing oils (gaseous and vaporous hydrocarbon compounds > C <sub>10</sub> )	mg/m <sup>3</sup>	0.0014	0.0017	0.0005
Total oil content	mg/m <sup>3</sup>	0.002	0.002	0.001

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## Technical data

Model	Nominal flow at 7 barg	Max. over-pressure	Pipe diameter*	Weight**	Width**	Depth**	Height**	Power supply	Specific energy consumption during operation	Energy consumption at nominal flow	Installed power
	[Nm <sup>3</sup> /min]	[bar]		[kg]	[mm]	[mm]	[mm]	[V]	[kWh/Nm <sup>3</sup> ]	[kWh]	[kW]
ETC-SV04	0.4	16	15 x 1.5mm	60	700	340	1400	230	0.009	0.2	1
ETC-SV1	1	16	18 x 1.5mm	140	860	455	1455	230	0.009	0.5	1.2
ETC-SV2	2	16	28 x 2 mm	160	860	455	1655	230	0.009	1.1	2.5
ETC-SV5	5	16	35 x 2 mm	360	1175	620	1890	400	0.007	2.1	5
ETC-SV7	7	16	42 x 2 mm	410	1175	620	1890	400	0.006	2.5	5
ETC-SV10	10	16	42 x 2 mm	590	1630	815	2100	400	0.005	3.0	10
ETC-SV15	15	16	DN 50	770	1630	880	2100	400	0.005	4.5	10
ETC-SV20	20	16	DN 65	900	1900	1140	2150	400	0.005	6.0	15
ETC-SV30	30	16	DN 65	1100	1900	1140	2150	400	0.005	9.0	21
ETC-S40	40	16	DN 80	1500	2200	900	2240	400	0.005	12.0	28
ETC-S50	50	16	DN 100	1700	2250	900	2240	400	0.005	15.0	28

\* Connection dependent on options (see installation drawing)

\*\* Weight and dimensions without pre-separator, VS module and particle filter

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ETC®-SV 03.11 | Technical modifications and errors excepted.