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# ETC<sup>®</sup>-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® converters 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 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.

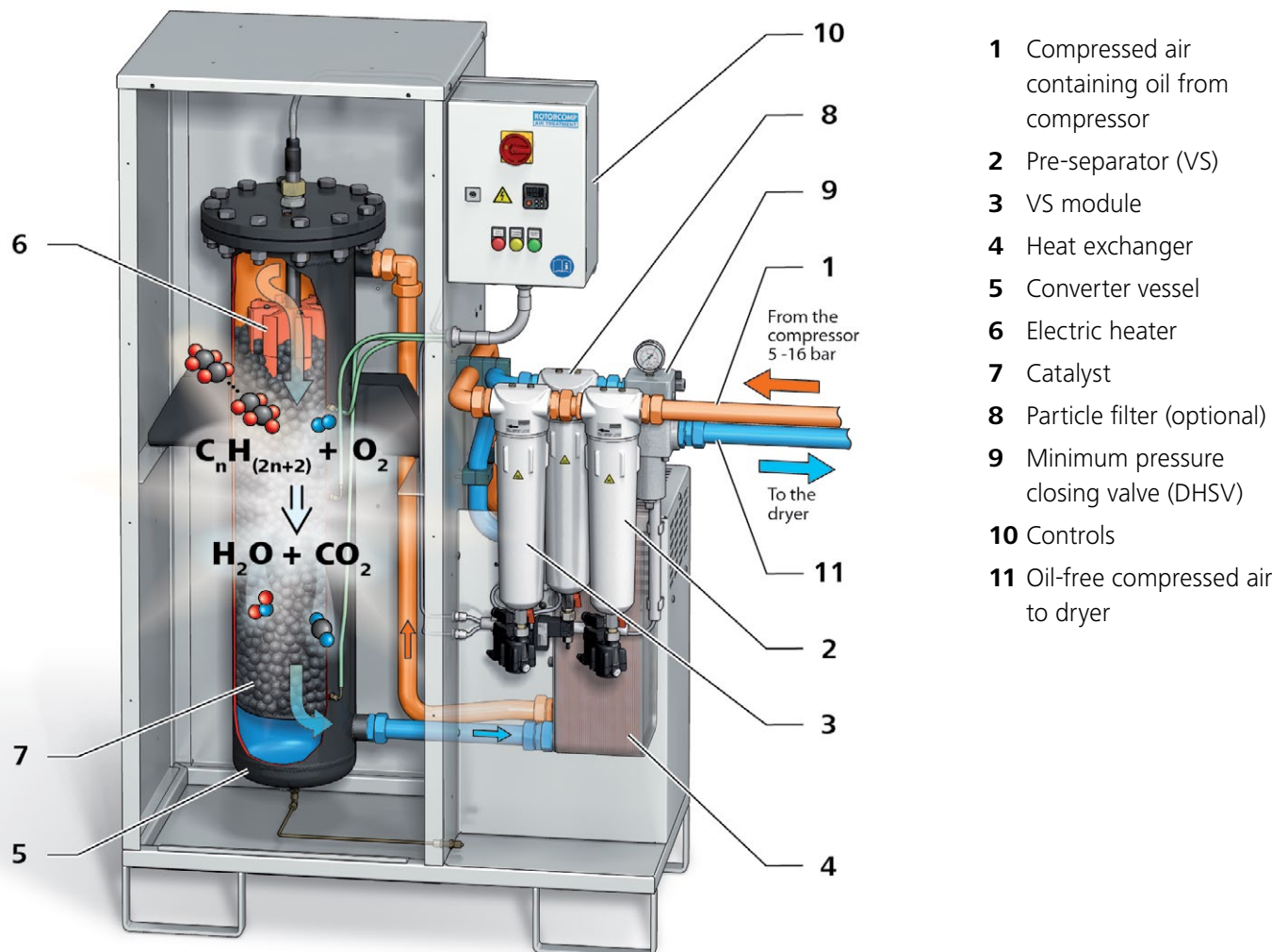
For compressed air upstream of a converter that has an oil content of max. 200 mg/Nm<sup>3</sup>, ROTORCOMP® guarantees oil-free Class 0 compressed air downstream of the converter.

In contrast to conventional filter systems (e.g., activated carbon), the air quality is constantly maintained. Saturation and the risk of breakthrough by hydrocarbon compounds are reliably prevented.

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 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 5 years for hydrocarbon concentrations at the ETC® inlet of up to 200 mg/Nm<sup>3</sup>
- › Lower energy consumption to a max. of 0.01 kWh/m<sup>3</sup> through improved insulation of converter and housing
- › Minimizes significantly the bacteria, fungus and microbial diversity content in the compressed air
- › Clean condensate after ETC®
- › Irreversible separation of silicon monomers out of the compressed air
- › Partial load capacity of 20 to 110% of the nominal flow rate when using the VS module
- › Increased service life for downstream dryer

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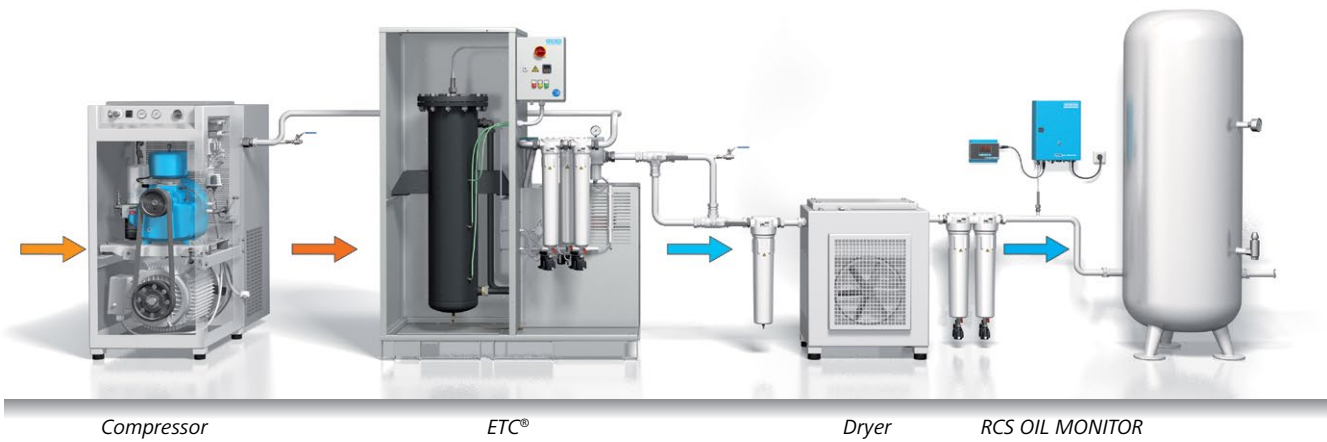
The ETC® is integrated into the compressed air network downstream of the compressor. The compressed air (1) containing oil that is flowing from the compressor is conducted over a pre-separation unit (2) and a VS module (3) into a plate heat exchanger (4). The pre-separation unit protects the ETC® against liquid oil and water. The 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 a particle filtration unit (8) and the minimum pressure closing valve (9) to a dryer.

# ETC®-SV

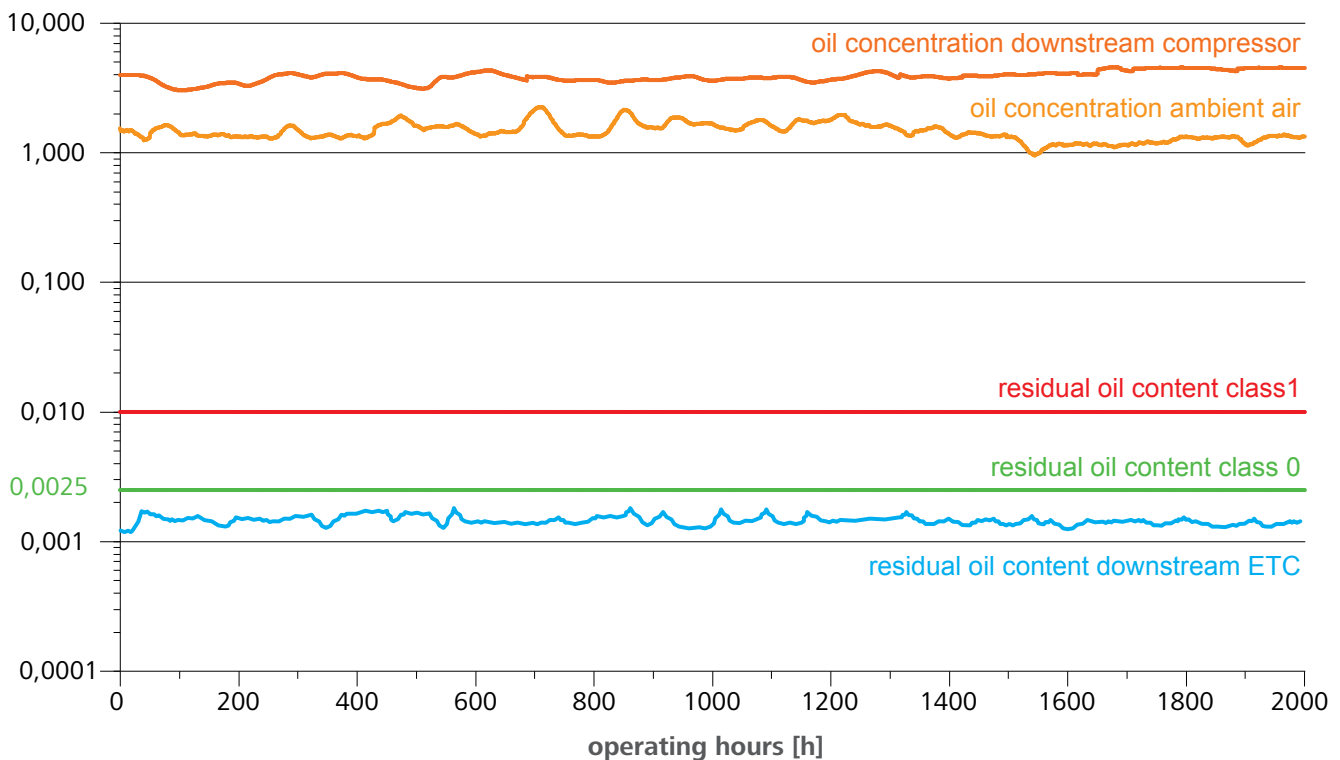
## »» Class 0 oil-free compressed air and clean condensate

### Oilfree compressed air station



### 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 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 §§ 26/28 BImSchG  
 Befristung der Bekanntgabe bis 22.05.2011  
 Westendstraße 199  
 80698 München

  
 Industrie Service  
 Mehr Sicherheit.  
 Mehr Wert.

**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  
**Owner/Operator:** ROTORCOMP VERDICHTER GmbH Industriestr. 9 82110 Germering  
**Location:** Industriestr. 9 82110 Germering  
**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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**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	0.0006	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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