



Glass Microfiber filter elements (CR/CRE)

Type: (CR/CRE) oil - separating - filters

contec-Microfiber disposable filter elements are manufactured from precise mixtures of borosilicate glass microfiber to the very highest standards of quality control. These elements offer exceptional filtration efficiency at very low-pressure drops and being +90 % void volume give very long service life. The elements are self-sealing and easily sealed into the housing by axial compression with an integrated special support core or tie rod. The special 2-layer-construction consists of an integrated supporting inner layer sandwiched between two bound outer layers. This design provides excellent bursting strength, optimizes the coalescing of the droplets and guarantees a constant high efficiency removal of the oil aerosols. The homogeneous structure of the filter element allows an easy and environment-friendly disposal of the filter elements.

Features & advantages

- Reinforced glass fibers filter elements – (2 layers)
- Binder type: Kynar (PVDF)
- Reinforced construction with woven fabric inlay
- Removal of oil and water aerosols from gases
- Filtration efficiency: >99,98% with 0,1µm
- Filter surface from 140 to 1.500 cm²
- Easy handling
- Very cost effective and solid

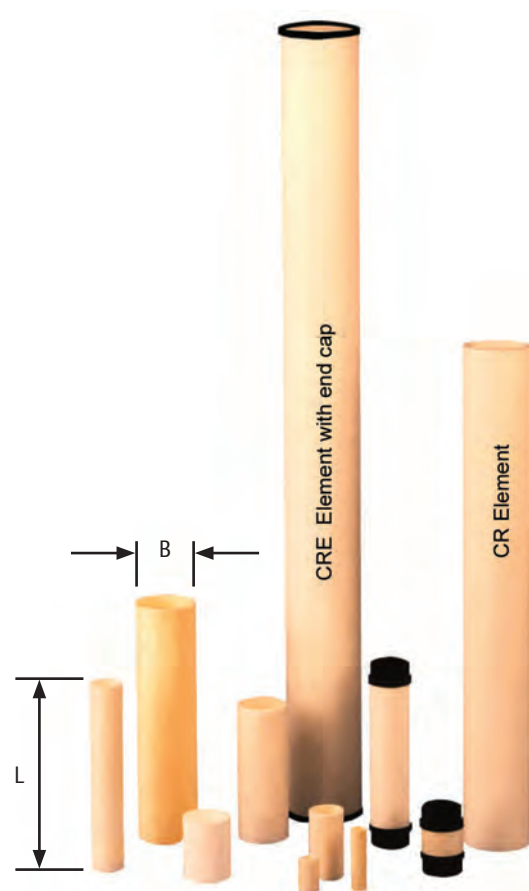
Technical data

Order - Code:	B - L - filtration grade
Material:	Borosilicate glass microfiber with PVDF binder (Kynar)
CR - design:	2 layer with fabric inlay, inner layer fine-pored, outer layer coarse-pored
CRE - design:	2 layer, as CR but with additional end caps
Color:	White (sometimes light brownish coloration due to usage of PVDF binder)
Max. temperature:	150 °C (302 °F) CR (without end caps) 90 °C (194 °F) CRE (with end caps)

Principle specifications

Material order - no.	(B) inside-Ø		(L) length		xx - grade of filtration			
	mm	Inch	mm	Inch	50 CR	70 CR	50 CRE	70 CRE
COMS-180-XS-xx/COMS-300-XS-xx	50,8	2"	230,0	9 1/16"	•	•		
COMS-550-S-xx/COMS-1500-S-xx	50,8	2"	476,0	18 1/2"	•	•		
COMS-13-M-xx	63,5	2 1/2"	380,0	15"	•	•		
COMS-2200-L-xx/COMS-3000-L-xx/COMS-4000-L-xx	63,5	2 1/2"	540,0	21 1/4"			•	•
COMS-3000-XL-xx/COMS-5500-XL-xx/COMS-7500-XL-xx/COMS-8000-XL-xx/COMS-9200-XL-xx	63,5	2 1/2"	762,0	30"			•	•

Further dimensions: longer filter elements (up to 1 m) and other inner diameter Ø (up to 90 mm) are available and can be supplied ex stock.



Applications

CR/CRE – type filter elements are specifically designed for the removal of oil and water in vacuum exhaust air filtration with a very effective removal of liquid aerosols from gases. These elements also remove particles with the same efficiency.

The glass microfiber filter elements are excellent as standard elements for coalescing and all removal applications of smallest particles an aerosols form gases. Borosilicate glass microfiber that is used for the filter elements has a very low thermal expansion coefficient, about one-third that of ordinary glass. This reduces material stresses caused by temperature gradients, thus making the filter elements more resistant to breaking. CR-filter elements are self-sealing. CRE-filter elements are sealed via an O-Ring which is fixed in the end caps. These elements are suitable as well as liquid filters.



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Principle specifications

Filter element code (CR, CRE)	Grade of filtration* air (0,1 µm)
50	> 99,98%
70	> 95%

*The filtration grade of air has been defined by the NaCl-testing method at a specific filter discharge flow through of 0,2 m/s.

Technical data

Element Code	I-Ø	A-Ø	Length (L)	Sectional Filter area		Air flow rate	
	(B) mm	(A) mm		Filter area cm ²	(inside) cm ²	(0,2 m/s) m ³ /h	(0,3 m/s) m ³ /h
COMS-180-XS-xx/COMS-300-XS-xx	50,8	58,0	230,0	20,3	367	26	39
COMS-550-S-xx/COMS-1500-S-xx	50,8	58,0	476,0	20,3	759	42	55
COMS-13-M-xx	63,5	84,0	380,0	31,7	756	42	56
COMS-2200-L-xx/COMS-3000-L-xx/COMS-4000-L-xx	63,5	84,0	540,0	31,7	1075	60	80
COMS-3000-XL-xx/COMS-5500-XL-xx/COMS-7500-XL-xx/ COMS-8000-XL-xx/COMS-9200-XL-xx	63,5	84,0	762,0	31,7	1520	70	90

The air flow rates are valid for normal air operation conditions (1 bar, 25°C, 60% r.h.). The specific filter discharge flow rate of 0.3 m³/s for each 1 m² filter surface (= 0.3 m/s) should be used as the relevant design data only for a moderate removal of liquid aerosol (oil and water) from air and similar gases.

All technical data (dimensions, filter areas and flow rates) are only reference data for the technical lay out and design. Any conclusion about the operational life of the filter elements can not be derived.

Installation note

Coalescing filter elements have always to be installed vertically. The element has a two-layer-structure, an inner particle capture layer and an outer drainage-layer. The flow of the dirty wet air through the element is always from inside to outside. Liquid droplets remain mobile once captured and travel through the fine-pored capture-layer, along the intersecting microfibers, growing in size as they progress. These coalesced droplets are transferred to the large-pored drainage layer, from where they drain by gravity into the filter bowl. Coalescing filter elements should not be immersed into liquid. The outer coarse-pored layer functions as drainage-layer for the liquid droplets, by gravity down into the filter bowl.

Coalescing filter elements (type CR) are sealed without any gasket into the filter housing simply by tightening a retaining nut. Avoid tightening the retaining nut too much which leads to a compression of the microfibers on the end sides of the element. The length tolerance of the filter element is ± 0,5 to ± 1,0 mm.

Glass microfiber filter elements with end caps (type CRE) are sealed by a Nitrile O-ring gasket that is embedded into the end cap. The discoloration of the elements (a typical PVDF binder characteristic) has no influence on the function or filtration grade of the filter.

The max. permissible differential pressure is 0.9 bar for dry elements and 0.6 bar for saturated wet elements.

Packaging for contec Oil Mist Separators

Number of pcs. in one pack	Packaging
1 pcs. COMS-13-M-xx	Standard-packaging for COMS 13/138
4 pcs. COMS-180-XS-xx	Standard-packaging for COMS 180/435
9 pcs. COMS-300-XS-xx/ COMS-550-S-xx/ COMS-1500-S-xx/COMS-2200-L-xx/COMS-3000-XL-xx/	Standard-packaging for COMS 300/935, 550/980, 1.500/980, 2.200/630 and 3.000/762
13 pcs. COMS-3000-L-xx	Standard-packaging for COMS 3.000/630
18 pcs. COMS-4000-L-xx/COMS-5500-XL-xx/ COMS-7500-XL-xx/	Standard-packaging for COMS 4.000/630, 5.500/762 and 7.500/762
24 pcs. COMS-8000-XL-xx	Standard-packaging for COMS 8.000/762
30 pcs. COMS-9200-XL-xx	Standard-packaging for COMS 9.200/762



- IUTA-CERTIFICATE -

Validation of compressed air filters in the style of ISO 12500-1:2007

(Filters for compressed air – Test methods – Oil aerosols)

Customer: Contec GmbH, Heideweg 24, 53604 Bad Honnef, Germany

Tested product: 3 filter cartridges type „COMS-1500-S50“

IUTA test report: UN2-140811–55959.00-006

Test parameters				
Inlet pressure	1 bar (a)			
Air flow	20 m ³ /h (ANR) = 100 % nominal flow rate			
Test inlet oil concentration	108 ± 2 mg/m ³			
Compressor oil viscosity	ISO VG 46			
Test results	Cartridge 1	Cartridge 2	Cartridge 3	Average
Dry pressure drop* (mbar)	25	26	26.5	25.8
Saturated pressure drop* (mbar)	74.2	62.8	70.25	69.2
Mean outlet oil concentration [mg/m³ (ANR)]**	0.046	0.017	0.018	0.027
Filtration efficiency (The calculation is based on the data shown in the test report)				99.98 %

* Pressure drop measured upstream and downstream of the filter-housing.

** Mean value of 3 analyses per cartridge (see test report).

-The filter cartridges were tested in the filter housing type “Contec AA433-763”

- During the test of the filter no particles between 0.2 µm and 9 µm (aerosol spectrometer: WELAS 2100) could be found in the clean gas.

• **Contec IUTA Certification** is a third part certification on the efficiency of our oil mist separators. IUTA (<http://www.iuta.de/>) is a German research institute that investigates aerosols, fine dust and nanotechnology. Our claim of a 99.98% reduction in oil mist is based on their findings using rigorous engineering standards and testing.

Duisburg, 29th October 2014

Managing Director

Department Head