

## Sorption Filter Element, Type WFZ



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For the separation of airborne particles, aerosols and olfactory pestering material in the nuclear industry, research, industry and so on, Krantz delivers a sorption filter cell for changing. For this type only the filter material and the sealing will be changed, while the housing could be further used. The using of this type instead of disposal filter cells, reduces the waste considerably. You do something for pollution control.

The dimensions of the filter cell are:  
610mm x 610mm x 292mm.

It could be filled with any kind of sorption material. The choice of the right sorption material is the precondition for attainment of high separation efficiency. For every requirement we suggest a consulting with our specialized engineers.

For operation of sorption filter elements in HVAC-plants, we produce compatible and approved filter housings. Of course the Krantz filter elements could be installed into other standard filter housings with adequate dimensions and ability.

Dust and dirt reduce significant the separation efficiency and the lifetime. For separation of dirt we advise the using of pre filter elements. In addition, sorption filter elements are combined with safety filter elements fitted after the sorption filter element. Thereby the abrasion of sorption material will be hold of. We provide suitable prefilter and safety filter elements.



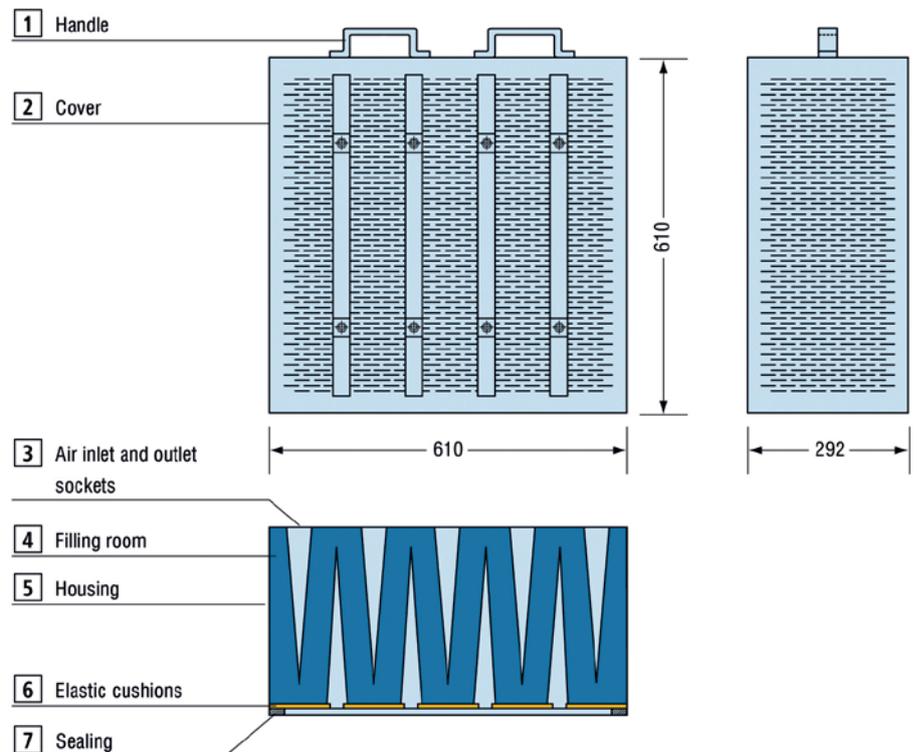
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### Design

In a block-shaped housing **5** the air inlet and outlet sockets **3** are arranged opposite in a V-shape. The housing is build with a small filling room. **4** Although this filling room is small, it guarantees a high incident flow of the filter area. Thereby we can separate high flow rates of gas with a minimum of sorption material per filter element.

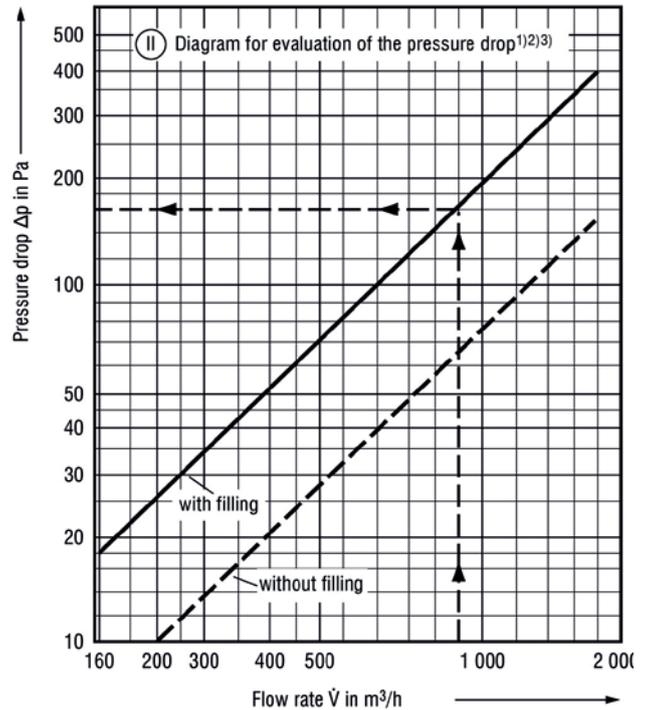
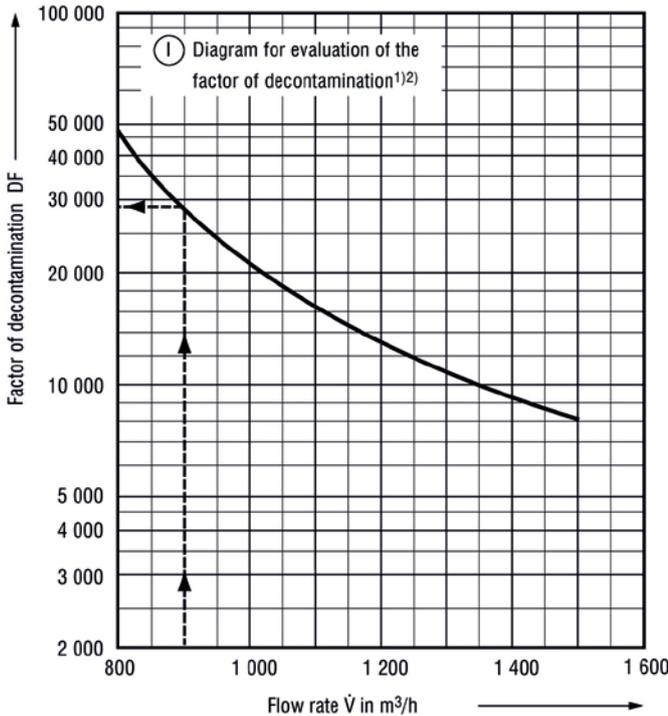
The removable cover **2** of housing has a slot boring. It will be underlain with permeable to air, elastic cushions **6** and tensed against the vibrated sorption material. Thereby will be avoiding the accumulation of air gaps. The good groove of the filter material, caused by the high in-and outlet areas (the cover will be flowed too), secures a high separation efficiency, low pressure drop and a long lifetime.

For sealing of the sorption filter cell is a circular sealing **7** fixed. To simplify the transport, handling and maintenance are two handles **1** fitted.



**Example for operation of sorption filter element to separate radioactive Methylidid**

Filter material: Activated carbon



**Design example**

Filter element with slot boring	
Flow rate:	900 m³/h
Factor of decontamination DF: (from diagram I)	28 000
Pressure drop Δp (from diagram II)	160 Pa

**Explanation of diagrams**

1) Factor of decontamination is the relation of concentration  $c_0/c$  :

$$DF = \frac{c_0}{c}$$

$c_0$  = Concentration in air flow air inlet

$c$  = Concentration in air flow air outlet

separation rate:

$$\eta = \left(1 - \frac{1}{DF}\right) \cdot 100 \text{ in \%}$$

2) The diagrams are valid for:

Activated carbon:

8–12 mesh = particle size 1.25–2.35 mm

Test-medium:

radioactive Methylidid  $CH_3^{131}$

Ambient pressure = 1 bar

Temperature = 21–26 °C

Rel. humidity = 40 %

For the values in the diagram I you have to consider a tolerance of 10 % !

3) The pressure drop stays almost unchanged during operation.

### Text for tender

Krantz sorption filter element in compact design with optimized relation between filling volume and filter area, thereby high separation rate respectively factor of decontamination, consisting of housing with slot boring, and removable cover with slot boring and rear-mounted elastic cushion.

**Technical data**

Fabricate:	Krantz
Type:	WFZ
Flow rate:	_____ m <sup>3</sup> /h
Filter material:	_____
Separation rate:	_____
Section area:	1.66 m <sup>2</sup>
Depth of filter bed:	50 mm
Pressure drop:	_____ Pa
Volume of filling:	approx. 75 l
Weight	
– without/with filling:	36 / 76 <sup>1)</sup> kg
Material:	
– Housing and cover:	Stainless steel (1.4301)
– elastic cushion:	mixture of rubber hair
– temperature-resistant up to:	60 °C <sup>2)</sup>

1) for activated carbon filling

2) if there are higher ambient temperatures,  
please do not hesitate to contact us

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The logo for Krantz GmbH, featuring the word "Krantz" in a stylized, blue, cursive script font.