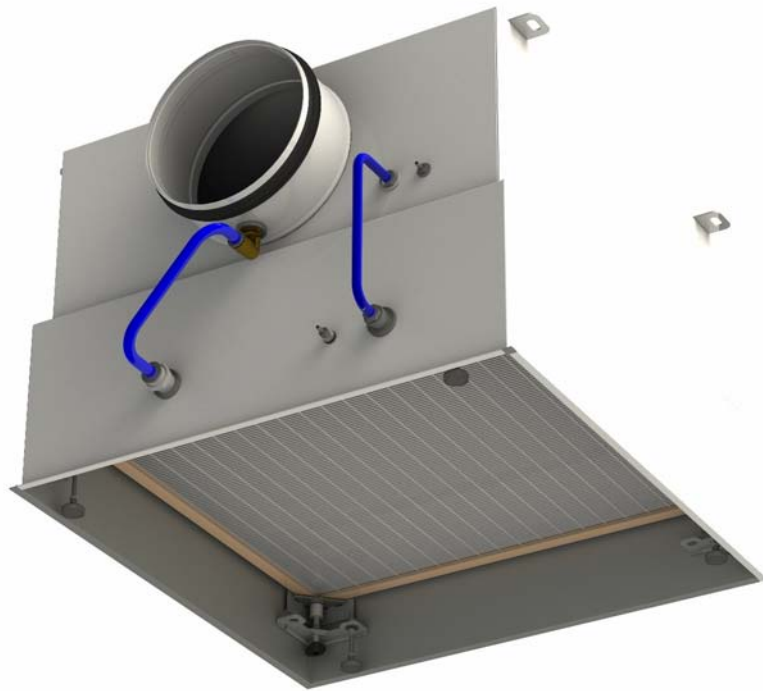




Additional operating instructions according to ATEX 2014/34/EU

Particle Filter Box Model FKF



SCHAKO KG
Steigstraße 25-27
D-78600 Kolbingen
Telephone +49 (0) 74 63 - 980 - 0
Fax +49 (0) 74 63 - 980 - 200
info@schako.de
schako.com

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Contents

General conditions	3
General description and instructions	3
Personnel qualification and training	3
Safety-conscious work	3
Designated use	3
Delivery and storage	3
Mounting information	3
Maintenance	3
Hazard caused by non-observance of the safety instructions	3
Description	4
Models and dimensions	5
Dimensions	5
Dimensions of accessories	10
Installation and maintenance	10
Information regarding assembly and commissioning	12
Information regarding maintenance and inspection	12
Type plate	13
Certificate of conformity	14

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

General conditions

General description and instructions



These additional operating instructions must be observed prior to mounting and commissioning the device.

These additional operating instructions contain basic information regarding its use in areas subject to explosion hazards to be observed during assembly, operation and maintenance.

Prior to mounting and commissioning and during maintenance work, the present additional operating instructions must be read by the installer and the responsible skilled personnel/system operator!

Personnel qualification and training

The personnel for assembly, inspection and maintenance must have the relevant qualification for this work.

The area of responsibility, competence and monitoring of the personnel must be exactly regulated by the system operator. If the personnel does not have the required knowledge, it must be trained and instructed. Moreover, the system operator must ensure that the contents of the additional operating instructions are understood completely by the personnel.

Safety-conscious work

The safety instructions given in these additional operating instructions, the existing national and international regulations on explosion protection, accident prevention and the system operator's internal work, operating and safety regulations must be observed.

Designated use

The devices have been designed for use in ventilation systems in areas subject to explosion hazards according to ATEX of Category II, Zones 1, 2 and Category III, Zones 21, 22.

These devices are not suitable for use in unreleased Ex zones.

The operating safety of the delivered devices is only guaranteed when used in accordance with their designated use.

Delivery and storage

Upon receipt, the devices must be checked for completeness and transport damage. If delivered incompletely or damaged, the forwarding company and the SCHAKO KG have to be informed immediately.

The device must not be exposed directly to weather, solar radiation and moisture.

Mounting information

Mounting, electrical connection work and commissioning must be carried out by skilled personnel only and in accordance with the recognised technical rules and the safety and accident prevention regulations.

Maintenance

Only a device subjected to proper maintenance and kept in perfect condition can guarantee safe and reliable operation.

When defective parts are replaced with spare parts, only SCHAKO original spare parts may be used. The SCHAKO KG cannot be held liable for any damage caused by using spare parts that are not original and will not give any warranty.

Hazard caused by non-observance of the safety instructions

Non-observance of the safety instructions can result both in putting persons and the environment and operating units at risk. Likewise, non-observance of the safety instructions will result in the loss of any claims for damages.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Description

The FKF particle filter box **with fluid seal on the filter cell** has been specially developed **for use in cleanrooms** as required by the pharmaceutical, electronic, precision mechanical and optical industries in hospitals and laboratories. **The integrated particle filter (to DIN EN 1822) removes particles, radioactive dust, mist, bacteria, viruses, etc., from the supply or return air.** This ensures that the incoming and outgoing air flows are extremely clean and germ-free.

The fluid is located at the filter cell and pressed into a sealing device especially developed for this purpose in the filter box when the filter cell is installed. Owing to the properties of the fluid, the filter cell can be mounted and dismantled several times without having to change the fluid.

The filter box, type FKF-... , consists of electrolytically galvanised sheet steel painted to RAL 9010 (white) or stainless steel V2A (1.4301) with a round connection spigot for hose connection while the type FKF-Q-... has a rectangular spigot with connection flange. A filter pressure device in the filter box ensures a safe seal. **As a standard feature, a differential pressure and aerosol monitoring device is integrated** in the particle filter box.

Optionally, the particle filter boxes FKF-H-... are additionally equipped with a shut-off damper sealing air-tight. This shut-off damper can be adjusted manually from below after the air diffuser is removed. Leakage at closed shut-off damper according to DIN EN 1751, class 4, at a duct pressure of up to 1000 Pa. An electric actuator is not available. As an alternative, a SCHAKO DKA-L in ATEX version can be used outside the filter box.

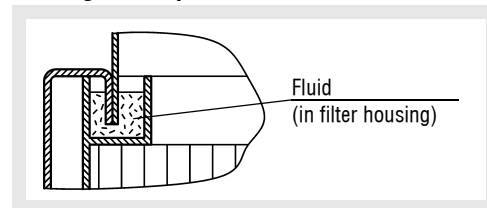
Attention!

We would like to point out that we supply the filter boxes with integrated spacers for fitting the filter clamps and the diffuser assembly pole brace. This makes it possible to fit the air diffuser without additional expense, even when the filter has not yet been inserted into the filter box.

The assembly of the air diffusers is effected via magnetic fastening. This allows the air diffusers to be easily taken off for filter replacement and decontamination without requiring tools. The following ceiling air diffusers in supply and return air models are suitable to be fitted to the particle filter box type FKF: FDQJ, FPIL, FDAV. Magnetic fastening is generally not possible for FPIL and FDAV and for air diffusers made of aluminium and stainless steel. These air diffusers are mounted via central fastening (-VM).

If required, the suitable particle filters can be included in the delivery.

Sealing on the particle filter



The filter boxes in stainless steel design 1.4301 are delivered together with the air diffuser FDQJ made of stainless steel. FPIL and FDAV are not available in connection with particle filter boxes made of stainless steel.

The particle filter box has the following ATEX marking:

 II 2G Ex h IIB T6 Gb EPS 09 ATEX 2 154 X
 II 2D Ex h IIC T80°C Db

This particle filter box meets the regulations of the ATEX directives and can be used in ventilation systems in areas subject to explosion hazards.

The particle filter box has been certified for the explosion protection group II for Zones 1, 2 and 21, 22.

Zones 1 and 2 represent the application range containing gases, while Zones 21 and 22 represent the application range containing dusts.

Classification by zone must be established by the system operator or planner in compliance with current standards.

Note:

In explosion-protected zones, only devices that have an ATEX approval for this use may be used.

Technical data, information

- The grounding terminals of the particle filter box must be connected to the equipotential bonding.
- It rests with the operator to ensure that the products are only used in zones specified by the product marking.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Special conditions

- It must be ensured that all metal components, in particular the filter frame, are properly and permanently connected to the equipotential bonding.

Note on operation

- In the case of a manually operated shut-off damper, care must be taken to operate the cable slowly.

Type of ignition protection

- The ignition protection type of the filter box is guaranteed by its safe design.

Quality assurance

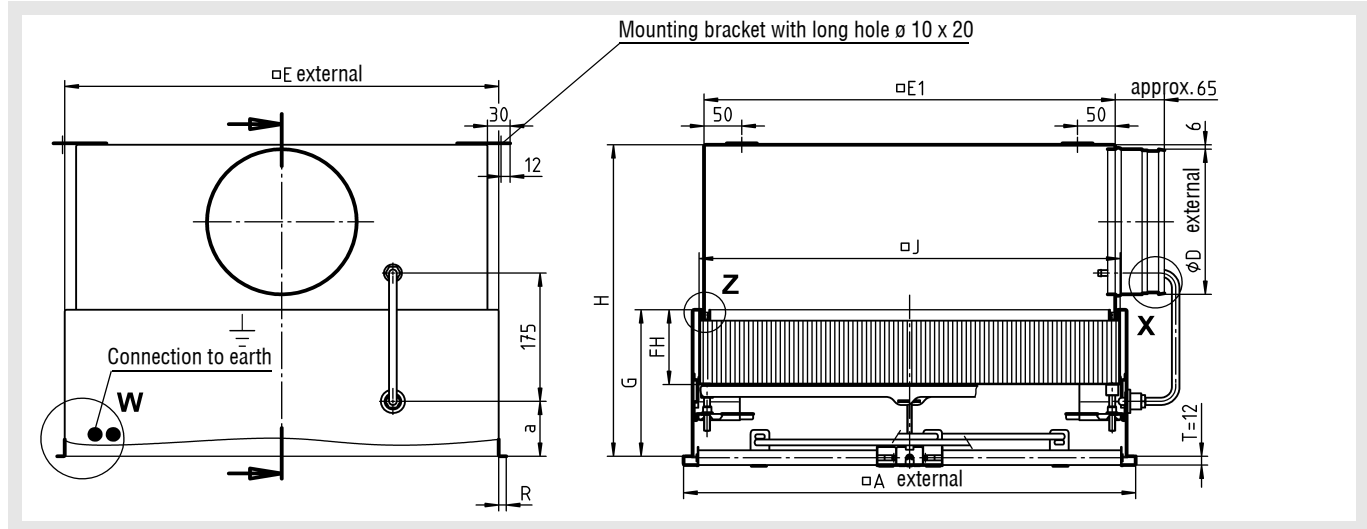
- The SCHAKO production facilities are certified according to the QM procedure EN ISO 9001.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

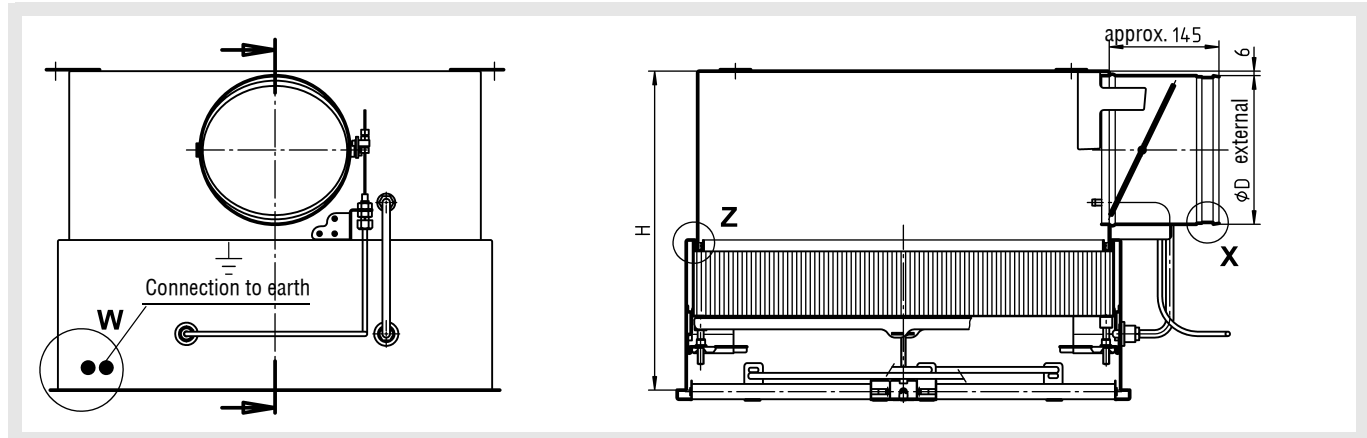
Models and dimensions

Dimensions

FKF-H-...-M000-D1-...



FKF-H-...-M001-D1-...



Available sizes

NW	Filter dimensions		$\square A$	ϕD	$\square E$	$\square E1$	R	FDQJ-Z / FDQJ-A (Supply air / return air)			FPIL-A / FDAV-A (return air)			FPIL-Z / FDAV-Z (supply air)		
	$\square J$	FH						H	G	a	H	G	a	H	G	a
400	357	102	398	148	374	344	10	375	200	75	375	200	75	415	240	115
500	457	102	498	158	474	444	10	385	200	75	385	200	75	425	240	115
600	557	102	598	198	574	544	10	425	200	75	425	200	75	465	240	115
625	575	102	623	198	592	562	12	425	200	75	425	200	75	465	240	115
650	610	102	648	248	627	597	10	475	200	75	475	200	75	515	240	115
800	762	102	798	248	779	749	9	475	200	75	-	-	-	-	-	-

Air diffusers for NW 650 consist of a 650x650 mm faceplate having a drill pattern of size 600.

For seal leakage monitoring system/differential pressure device/aerosol monitoring device, see page 8

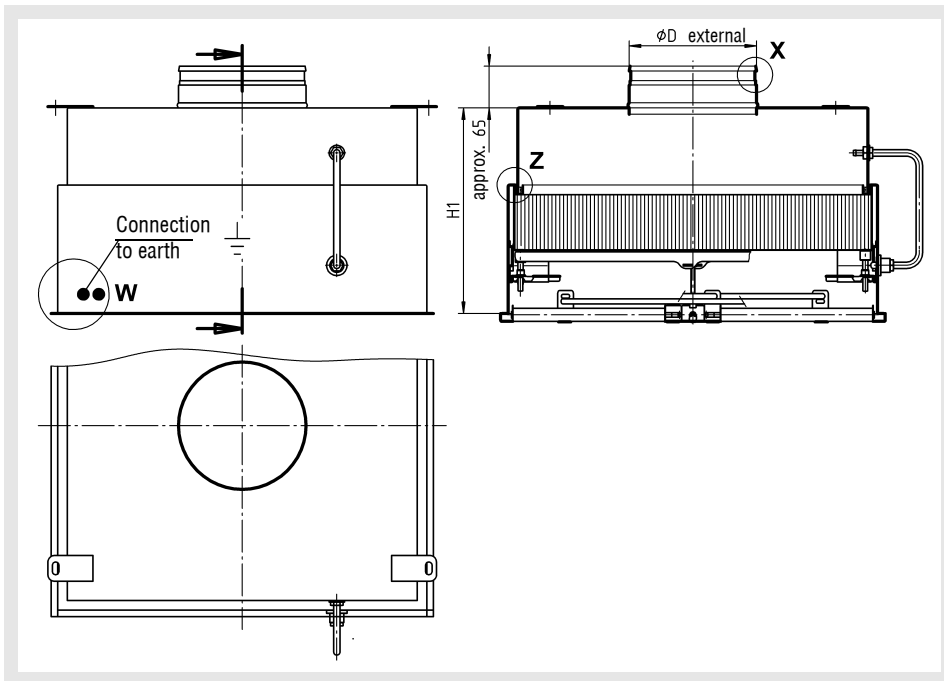
Detail X, see page 10.

Detail Z, see page 11.

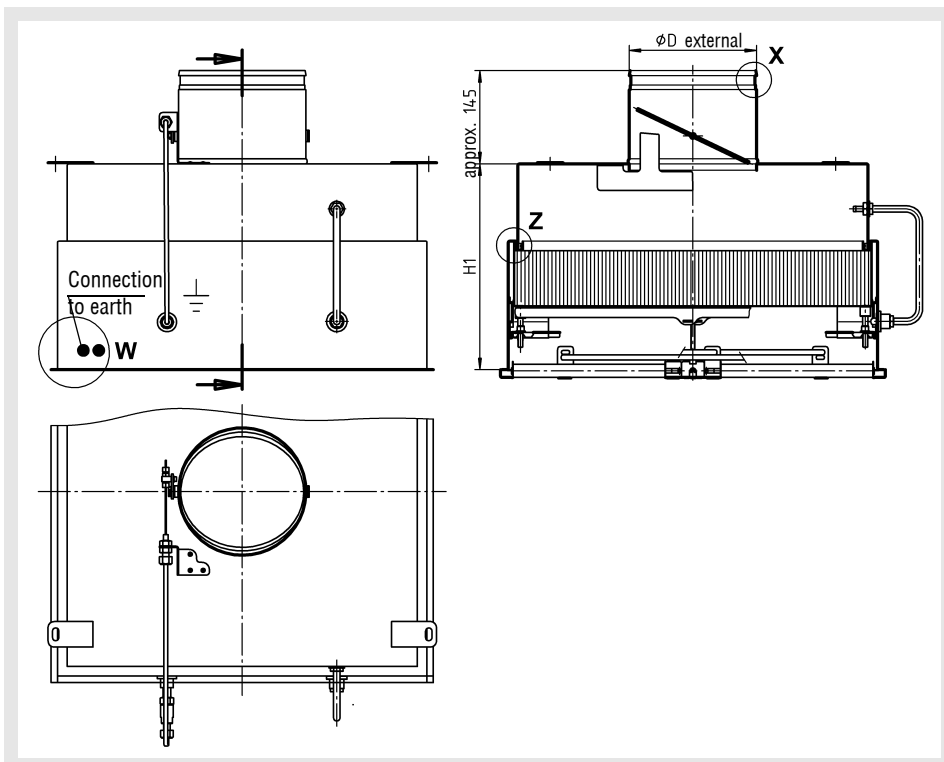
Detail W, earthing, see page 11.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

FKF-V-...-M000-D1-...



FKF-V-...-M001-D1-...



Available sizes

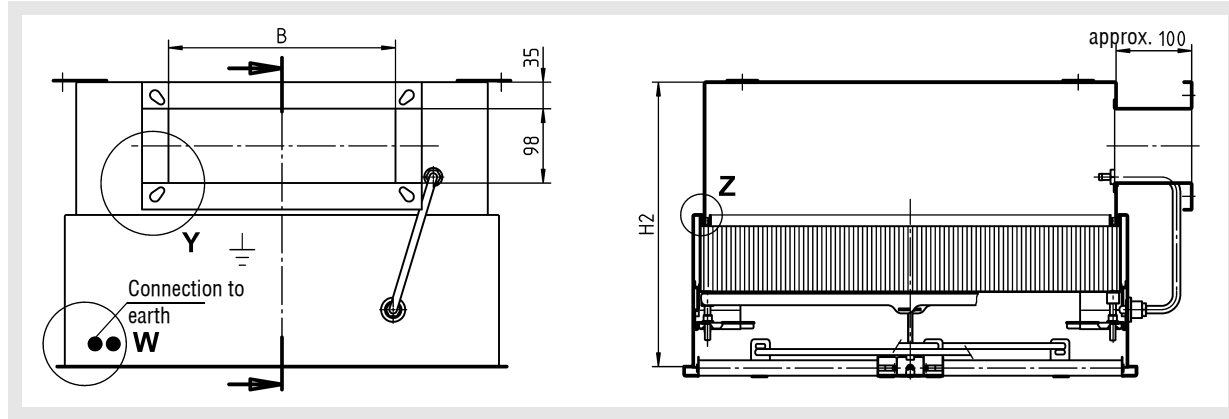
NW	H1		
	FDQJ-Z / FDQJ-A (Supply air / return air)	FPIL-A / FDAV-A (return air)	FPIL-Z / FDAV-Z (supply air)
400-650	320	320	360
800	320	-	-

Detail X, see page 10. Detail Z, see page 11.

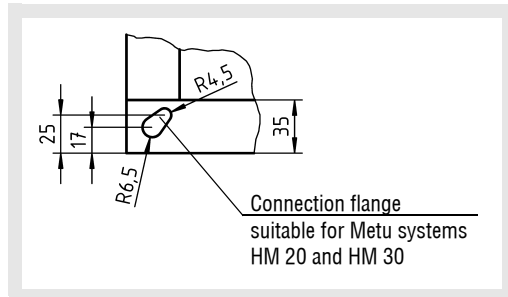
Detail W, earthing, see page 11.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

FKF-Q-...-D1-...



Detail Y



Available sizes

NW	B	H2		
		FDQJ-Z / FDQJ-A (Supply air / return air)	FPIL-A / FDAV-A (return air)	FPIL-Z / FDAV-Z (supply air)
400	200	375	375	415
500	250			
600	300			
625	300			
650	300			
800	500	-	-	-

Detail Z, see page 11.

Detail W, earthing, see page 11.

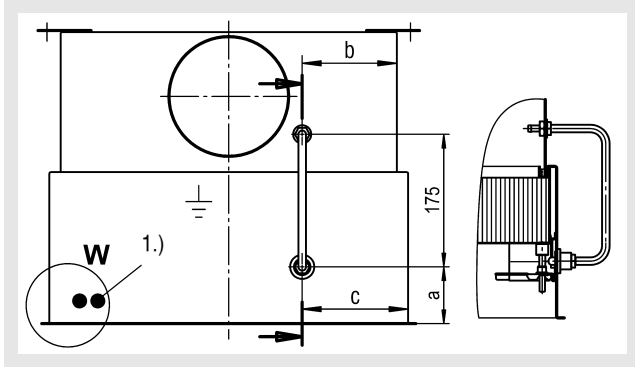
Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Differential pressure device / aerosol monitoring device

applies to models -H and -V

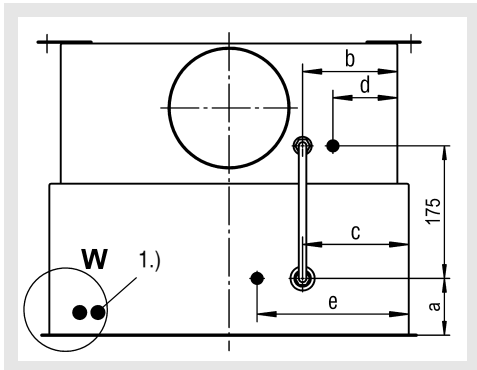
FKF-...-D1 (standard)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm.



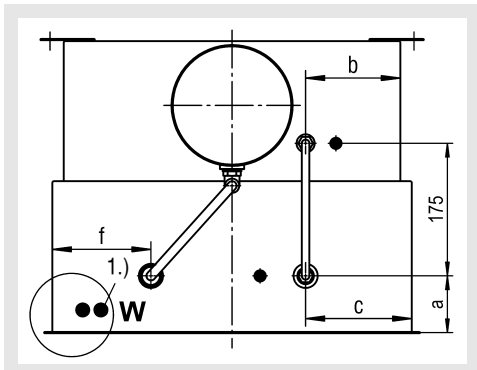
FKF-...-D2 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with 2 measuring spigots on the box outside, for a hose with an inner diameter of 4 mm.



FKF-...-D3 (at an extra charge)

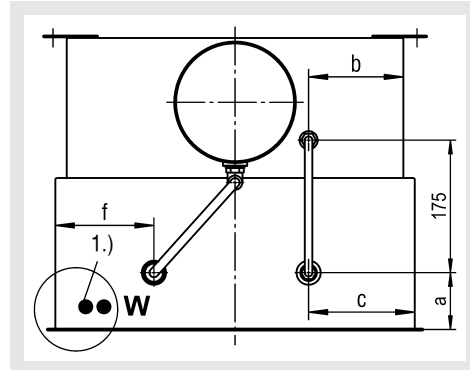
With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with 2 measuring spigots on the box outside, for a hose with an inner diameter of 4 mm and aerosol feeding device in the spigot of the box inside.



1.) Earthing \perp (Detail W, see page 11).

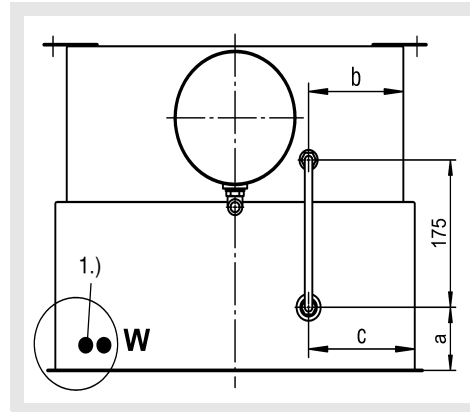
FKF-...-D4 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with aerosol feeding device in the spigot of the box inside.



FKF-...-D5 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with aerosol feeding device in the spigot on the outside.



Available sizes

NW	a		
	FDQJ-Z / FDQJ-A (Supply air / re- turn air)	FPIL-A / FDAV-A (return air)	FPIL-Z / FDAV-Z (supply air)
400-650	75	75	115
800	75	-	-

NW	b	c	d	e	f
400	75	90	35	150	80
500	125	140	85	200	130
600					180
625					189
650					206
800	129	144	89	204	282

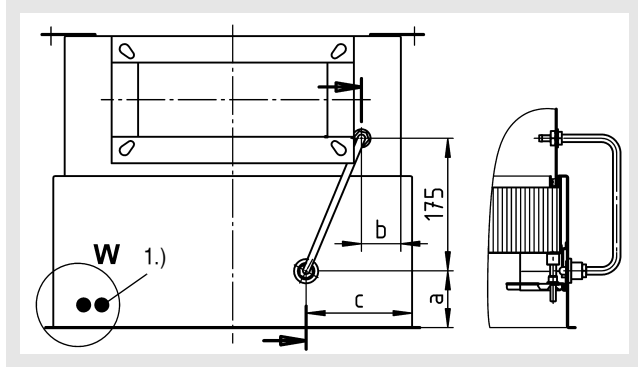
Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Differential pressure device / aerosol monitoring device

applies to model -Q

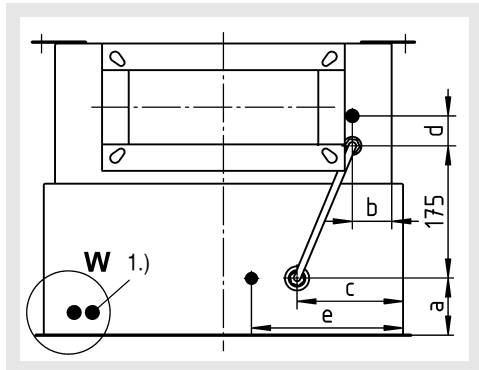
FKF-...-D1 (standard)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm.



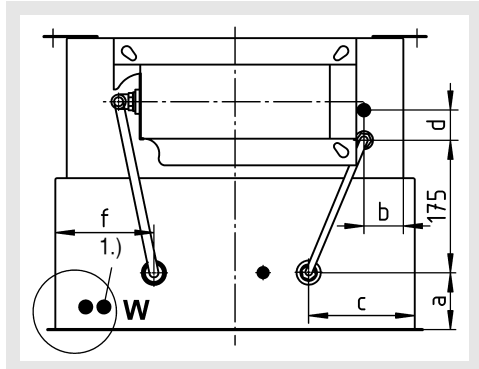
FKF-...-D2 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with 2 measuring spigots on the box outside, for a hose with an inner diameter of 4 mm.



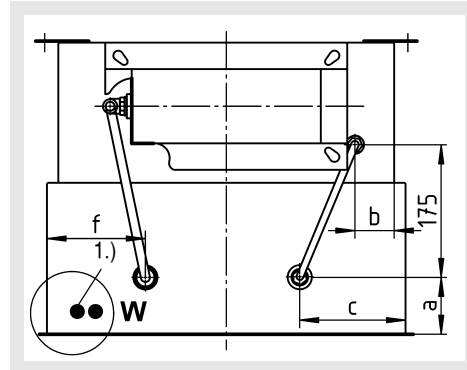
FKF-...-D3 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with 2 measuring spigots on the box outside, for a hose with an inner diameter of 4 mm and aerosol feeding device in the spigot of the box inside.



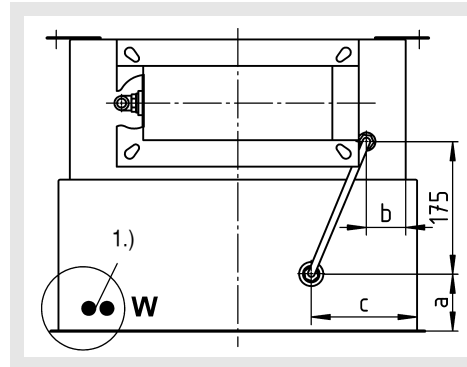
FKF-...-D4 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with aerosol feeding device in the spigot of the box inside.



FKF-...-D5 (at an extra charge)

With measuring spigot inside the box, for hose connection with an outer diameter of 10 mm. Additionally with aerosol feeding device in the spigot on the outside.



Available sizes

NW	a		
	FDQJ-Z / FDQJ-A (Supply air / re- turn air)	FPIL-A / FDAV-A (return air)	FPIL-Z / FDAV-Z (supply air)
400-650	75	75	115
800	75	-	-

NW	b	c	d	e	f
400	32	90	40	150	80
500	52	140		200	130
600	72			200	180
625	71			200	189
650	69			200	206
800	55	144	204	282	

1.) Earthing $\frac{1}{1}$ (Detail W, see page 11).

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

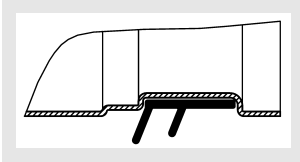
Accessories - dimensions

(at an extra charge)

Rubber lip seal (-GD1)

Detail X

Not for model FKF-Q-...!

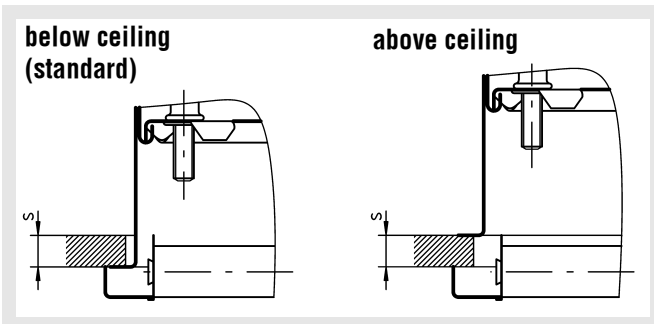


Installation and maintenance

Attention:

Please note that the O-rings (seals) of the bulkhead stuffing box may dry out over the months. Once the O-rings have dried out, the hoses can only be inserted, applying higher force. A common method of reoiling these bulkhead stuffing boxes is to impregnate a cloth with a universal oil, for example from Ballistol, and wipe it across the hose, before inserting it. This small amount is sufficient to make the bulkhead stuffing boxes running smoothly again.

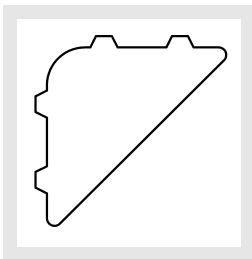
Installation situation



Attention:

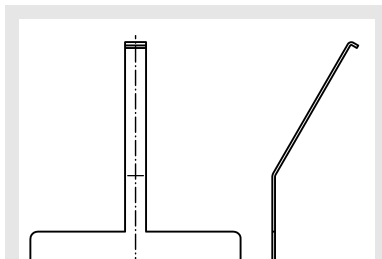
In case of installation above the ceiling, you have to specify the thickness of the ceiling "s".

Shipping brace



Mounting lever

For filter replacement.



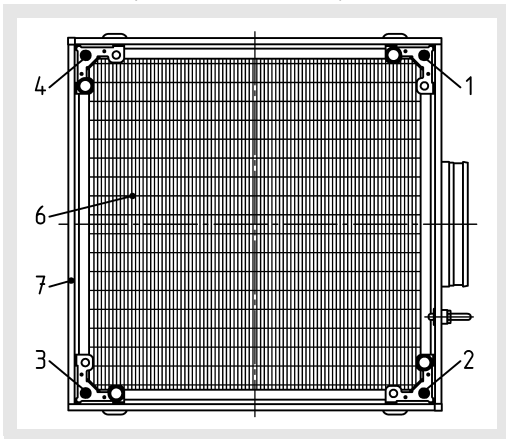
Attention! Before the particle filter unit can be inserted, the shipping brace clamped by means of the filter clamps must be removed!

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Installation (filter installation Instructions)

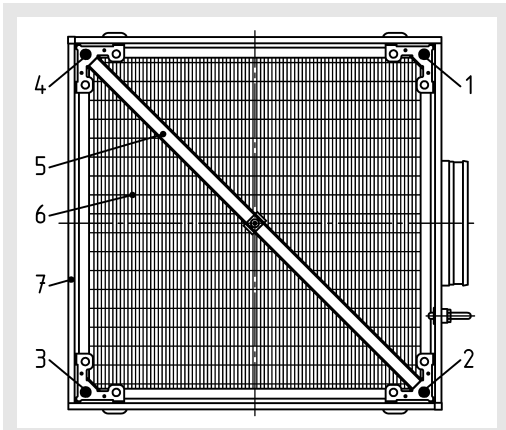
Diffusers with magnetic fastening (-MB)

NW 400-650 (NW 800 not available)



Diffusers with pole brace fastening (-VM)

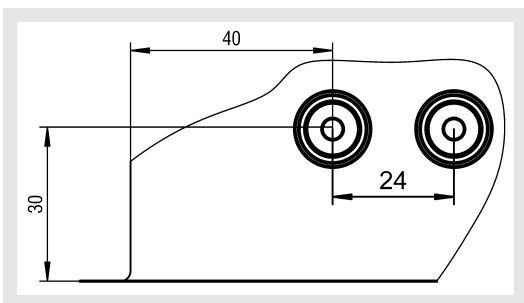
NW 400-800



With built-in spacers for fixing the filter clamps.

Fastening of grounding connection

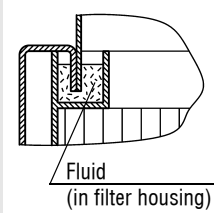
Detail W



The grounding connection is fastened on the clean air side of the filter box. 2 M4 riveting nuts are used for fastening. (Fastening screw on site)

Installation description

Detail Z



Loosen filter clamp (pos. 4) and remove it along with shipping brace. Press the particle filter unit (pos. 6) with the fluid seal (see detail Z) pointing upwards into the filter housing (pos. 7). Take care that the filter material is not irreparably damaged.

The filter unit can be easily locked using two diagonal filter clamps (pos. 1 and 3).

Next, the VM pole brace (pos. 5) is inserted and fastened using the other two filter clamps (pos. 2 and 4). Care must be taken that the filter clamps are at first tightened only slightly cross-wise (e.g. in the sequence filter clamps 1, 3, 2, 4). After tightening the filter clamps slightly, they can be tightened properly, again cross-wise and evenly until the filter unit has a tight fit. Care must be taken that the filter clamps are tightened to 2 Nm maximum. A buffer prevents the immersing sword from severing the fluid.

Dismounting

In case of concealed mounting (-VM), unscrew the air diffuser (in case of magnetic fastening (-MB), insert your hands into the air diffuser slots and remove the unit). Loosen the filter clamps and take off the VM pole brace. The particle filter cell can easily be taken off downwards with an assembly lever. The assembly lever is led sideways from the filter upwards and then hooked on the filter top edge. Gently pulling on the assembly lever removes the filter from the box.

Attention!

The particle filter cell may fall out of the filter housing when the filter clamps are removed!

Maintenance

In addition to keeping machines and equipment clean, the maintenance of the filters is especially important. A constant control of the filters is as essential as changing them when the maximum allowed particle absorption has been reached. The inspection must take place at short enough intervals to allow faults that have occurred or become apparent to be eliminated in time. The necessary intervals are set depending on the local conditions. The measured variable for the particle intake of the filter is the pressure difference. Because of this a differential pressure measure device is attached at every filter step to monitor the operating condition.

The filter is changed upon reaching the final resistance, which is set in advance when designing the ventilator capacity of the ventilation system. The final resistance is normally twice the starting resistance.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box

Information regarding assembly and commissioning

Prior to being installed in the ventilation system, the particle filter box must be checked for damage. Damaged fire dampers must not be installed.

The device may only be used in accordance with its designated use in air ventilation systems for supply air and return air.

Use only approved fastening material for mounting.

No additional parts must be fastened to the particle filter box.

The particle filter box must be connected to the ventilation duct network in electrically conducting manner.

In order to avoid the risk of static charges, the particle filter box must be connected to the on-site equipotential bonding on the grounding connection provided for this purpose.

Make sure that the ventilation systems are not subjected to any anomalous operating conditions, such as vibrations, pressure surges or high proportions of solids in the medium.

If required, the electrical connection diagrams can be found in the respective Schako additional information.

Electrical wiring and commissioning work must be performed by skilled personnel only.

Information regarding maintenance and inspection

Proper maintenance increases operational safety and the service life of the device. This is why the devices should be subjected to regular inspection.

If inspection dates are prescribed by law, they must be complied with.

The operating personnel must be informed, prior to starting maintenance and inspection work.

The personal safety measures must be looked up in the safety data sheet. Hazard caused by contact or inhaling hazardous substances must be excluded by taking appropriate safety measures.

Prior to maintenance or inspection, all system components up- and downstream of the device must be switched off and secured against being switched on again.

The following inspection criteria must be observed:

- Visual inspection of the device
- Check the fastening of the device
- Check the grounding connection for tight fit and good contact
- Functional check
- For additional inspections, please refer to the technical documentation or additional maintenance instructions

**Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box
Type plate**

The SCHAKO logo, identical to the one in the header, is centered at the top of the type plate.

Filterkasten FKF-Ex

Baugröße600.....
Baujahr2019.....
Auftragsnummer	KA19112436
Positionsnummer1.....
Seriennummer



II 2G Ex h IIB T6 Gb
II 2D Ex h IIIC T80°C Db



EPS 09 ATEX 2 154X

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box Certificate of conformity



Konformitätsbescheinigung

- (1) **Konformitätsbescheinigung**
- (2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen –
Richtlinie 2014/34/EU
- (3) Bescheinigungsnummer
EPS 09 ATEX 2 154 X Revision 2
- (4) Gerät: Schwebstofffilterkasten FK-FF und FKF-Ex
- (5) Hersteller: Schako KG
- (6) Anschrift: Steigstraße 25-27
78600 Kolbingen
Deutschland
- (7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Konformitätsbescheinigung festgelegt.
- (8) Bureau Veritas Consumer Products Services Germany GmbH bescheinigt aufgrund einer freiwilligen Prüfung auf Basis der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie. Die Ergebnisse der Prüfung sind in der vertraulichen Dokumentation unter der Referenznummer 09TH0026 festgelegt.
- (9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:
EN IEC 60079-0:2018 EN ISO 80079-36:2016 EN ISO 80079-37:2016
- (10) Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.
- (11) Diese Konformitätsbescheinigung bezieht sich nur auf Konzeption und Prüfung des festgelegten Gerätes gemäß Richtlinie 2014/34/EU. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.
- (12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

 II 2G Ex h IIB T6 Gb

 II 2D Ex h IIIC T80°C Db



Zertifizierungsstelle Explosionsschutz

H. Schaffer



Hamburg, 18.03.2021

Seite 1 von 2

Bescheinigungen ohne Unterschrift und Siegel haben keine Gültigkeit. Diese Bescheinigung darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung von Bureau Veritas Consumer Products Services Germany GmbH. EPS 09 ATEX 2 154 X, Revision 2.

Additional operating instructions according to ATEX 2014/34/EU for FKF particle filter box



(13)

Anlage

(14) **Konformitätsbescheinigung EPS 09 ATEX 2 154 X**

Revision 2

(15) Beschreibung des Gerätes:

Die Filterkasten FK-FF bzw. FKF-Ex werden in Lüftungsanlagen zur Schwebstofffilterung eingesetzt.

(16) Referenznummer: 09TH0026

(17) Besondere Bedingungen:

Es muss sichergestellt werden, dass alle metallischen Teile insbesondere der Filterrahmen ordnungsgemäß und dauerhaft mit dem Potentialausgleich verbunden sind.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen:

Durch Übereinstimmung mit Normen abgedeckt.



Hamburg, 18.03.2021

Seite 2 von 2

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