

Filter Fan (24...630)m³/h and Exhaust Filter

7F
SERIES



Drying kilns



Textile machines



Machines
for paper
processing



Machines
for ceramics



Wood-
processing
machines



Panels for
electrical
distribution



Control panels



Forced-air
ventilators



Ordering information

Example: Series 7F, Exhaust Filter for mounting in sidewalls, size 1.

7	F	.	0	2	.	0	.	0	0	0	.	1	0	0	0	.	
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Series
7F = Exhaust Filter - for indoor use

Type
02 = Exhaust Filter - for indoor use
05 = Exhaust Filter - for indoor use
07 = EMC Exhaust Filter - for indoor use

Supply and operating voltage
0 = Not applicable for Exhaust Filter

Operating voltage
000 = Not applicable for Exhaust Filter

Enclosure cut-out
1000 = Size 1 (92^{+1.0} x 92^{+1.0}) mm
2000 = Size 2 (125^{+1.0} x 125^{+1.0}) mm
3000 = Size 3 (177^{+1.0} x 177^{+1.0}) mm
4000 = Size 4 (223^{+1.0} x 223^{+1.0}) mm
5000 = Size 5 (291^{+1.0} x 291^{+1.0}) mm

Colour
Empty = Grey RAL 7035
0 = Black RAL 9004 (only for 7F.02)

Exhaust Filter - All versions		
Standard-versions	EMC - versions	
7F.02.0.000.1000	—	Exhaust Filter, Size 1
7F.02.0.000.2000	—	Exhaust Filter, Size 2
7F.02.0.000.3000	—	Exhaust Filter, Size 3
7F.02.0.000.4000	—	Exhaust Filter, Size 4
7F.05.0.000.5000	7F.07.0.000.5000	Exhaust Filter, Size 5

Components

Standard-Filter Fan	Standard-Exhaust Filter	EMC-Filter Fan	EMC-Exhaust Filter	Filter mat	Size
7F.20.8.xxx.1020	7F.02.0.000.1000	—	—	07F.15	1
7F.20.8.xxx.2055	7F.02.0.000.2000	—	—	07F.25	2
7F.20.8.xxx.3100	7F.02.0.000.3000	—	—	07F.35	3
7F.20.8.xxx.4250	7F.02.0.000.4000	—	—	07F.45	4
7F.20.8.xxx.4400	7F.02.0.000.4000	—	—	07F.45	4
7F.50.8.xxx.5500	7F.05.0.000.5000	7F.70.8.230.5500	7F.07.0.000.5000	07F.55	5
7F.50.8.xxx.5630	7F.05.0.000.5000	7F.70.8.230.5630	7F.07.0.000.5000	07F.55	5
7F.20.9.024.1020	7F.02.0.000.1000	—	—	07F.15	1
7F.20.9.024.2055	7F.02.0.000.2000	—	—	07F.25	2
7F.20.9.024.3100	7F.02.0.000.3000	—	—	07F.35	3
7F.20.9.024.4250	7F.02.0.000.4000	—	—	07F.45	4

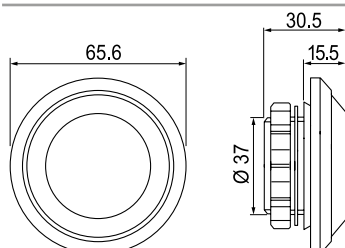
Spare Filter mats	07F.15	07F.25	07F.35	07F.45	07F.55
Protection category	IP54				

Accessories



07F.80

Pressure compensation device, for pressure compensation in closed cabinets or enclosures		07F.80
Air interface area	cm ²	7
Mounting		PG 29 thread with union nut
Torque	Nm	5 (max. 10)
Material		plastic according to UL94-V0
Dimensions (diameter/depth)	mm	65.5/30.5
Mounting position		upper part of cabinet sidewalls
Ambient temperature	°C	-45...+70
Protection category		IP 55



Unit package contains 2 pressure compensation devices

Exhaust Filter

The size of the Exhaust Filter should match the size of the Filter Fan to achieve the best ventilation within the cabinet

- Minimum depth within enclosure
- Time-saving installation and maintenance
- Easily replaceable filter mat
- Black colour RAL 9004 Available

NEW 7F.02.0.000.1000



- For Filter Fans 7F.20.x.xxx.1020
- Size 1

NEW 7F.02.0.000.2000



- For Filter Fans 7F.20.x.xxx.2055
- Size 2

NEW 7F.02.0.000.3000



- For Filter Fans 7F.20.x.xxx.3100
- Size 3

For outline drawing see page 14

Other data

Housing, cover	Plastics according to UL94 V-0
Filter mat (included)	G3 according to EN 779, filtering degree (80...90)%
Filter material	Synthetic fibre with progressive construction, temperature resistant to +100 °C, self extinguishing, Class F1 (DIN 53438)
Protection category according to EN 60529	IP 54
Protection category according to NEMA	Type 12
Approvals (according to type)	CE EAC cULus

Exhaust Filter

The size of the Exhaust Filter should match the size of the Filter Fan to achieve the best ventilation within the cabinet

- Minimum depth within enclosure
- Time-saving installation and maintenance
- EMC Exhaust Filters (7F.07 only for 7F.05)
- Easily replaceable filter mat (7F.02)
- Black colour RAL 9004 Available (only for 7F.02)

NEW **7F.02.0.000.4000**


- For Filter Fans
7F.20.x.xxx.4250 or
7F.20.8.xxx.4400
- Size 4

7F.05.0.000.5000

- For Filter Fans
7F.50.8.xxx.5500 or
7F.50.8.xxx.5630
- Size 5

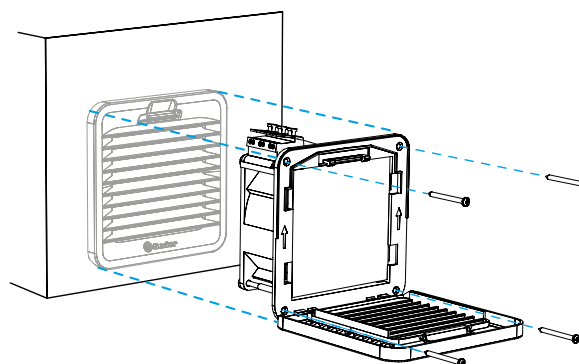
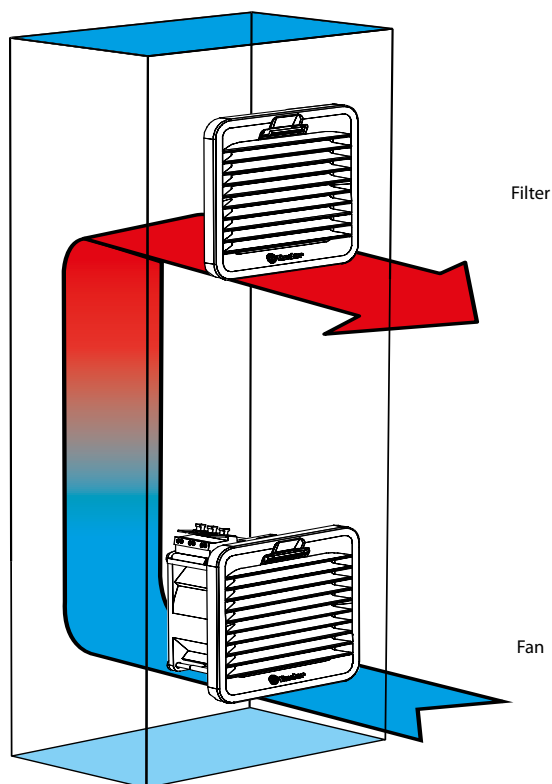
For outline drawing see page 15

Other data

Housing, cover	Plastics according to UL94 V-0, light grey (RAL 7035)
Filter mat (included)	G3 according to EN 779, filtering degree (80...90)%
Filter material	Synthetic fibre with progressive construction, temperature resistant to +100 °C, self extinguishing, Class F1 (DIN 53438)
Protection category according to EN 60529	IP 54
Protection category according to NEMA	Type 12
Approvals (according to type)	CE EH cUL US

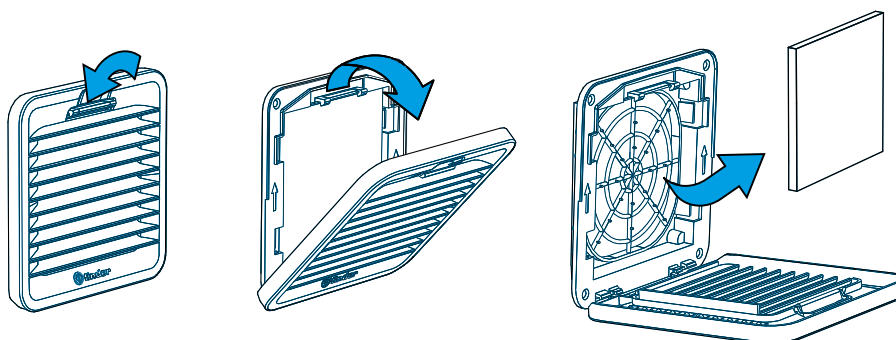
Mounting instructions for Filter Fans

Mounting arrangement of Filter Fans and Exhaust Filter

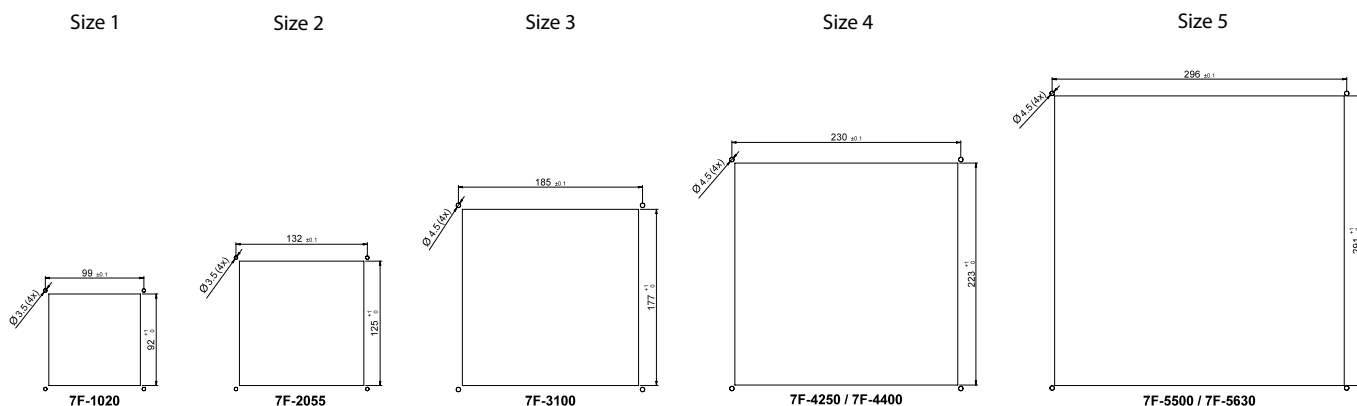


The installation with the only clips is optimized for 1.5 mm thick sheets; it is also possible with thicknesses from 1 to 2.5 mm. Fixing with screws (supplied) is recommended. Tightening torque 0.3 Nm.

G Replacement of Filter mat (Type 7F.20)



Drilling template and mounting cut-outs for Filter Fans and Exhaust Filter



Mounting and maintenance

1. Make the panel cut-out according to the size of the Filter Fan or Exhaust Filter in the sidewall of the cabinet as appropriate.
A template of the panel cut-out is included in the packaging of the Filter Fan or Exhaust Filter.
2. Make the electrical connection.
3. Mount by simply snapping the side-located lugs on the Filter Fan or Exhaust Filter into the panel cut-out (without using screws for sidewall thickness of 1.2...2.4 mm).
At other thickness it is recommended to mount the Filter Fan by the screws supplied (for size 1, the template shows the mounting cut-out only).
4. When screws are needed for the mounting, remove the plastic cover and fix the Filter Fan with the 4 screws supplied.
Then insert the filter mat and snap the plastic cover to the mounting frame.
5. During maintenance or when replacing the filter mat remove the plastic cover, replace the filter mat and snap on the plastic cover.

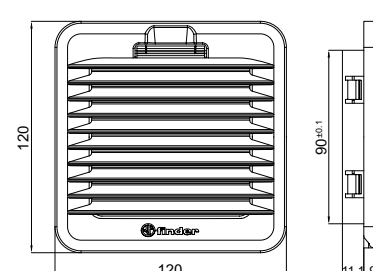
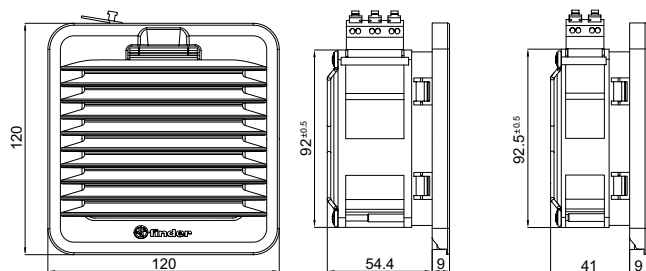
Outline drawings

Type 7F.20.x.xxx.1020

AC version

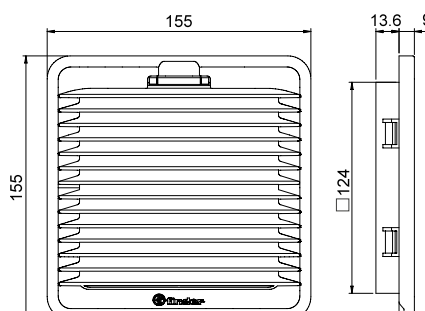
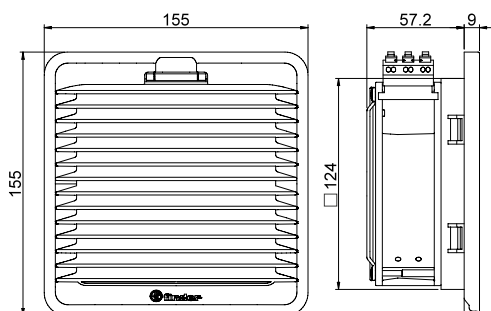
DC version

Type 7F.02.0.000.1000



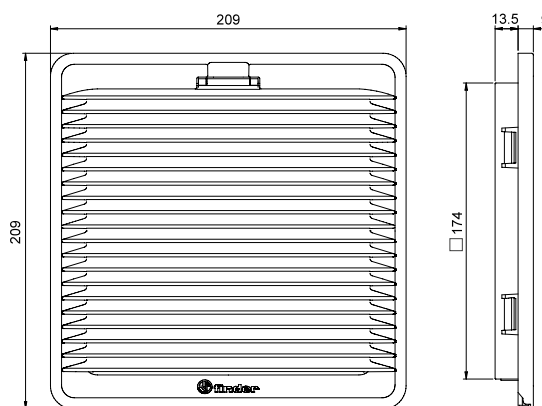
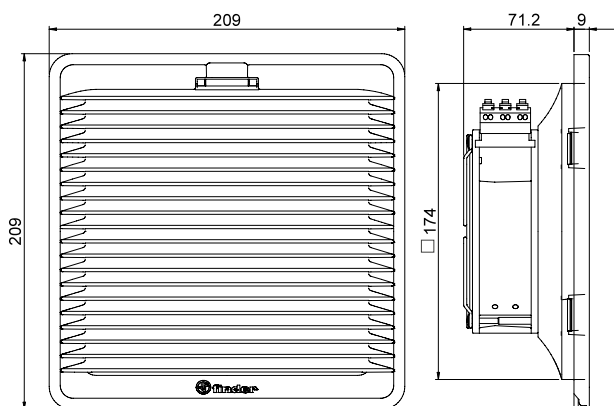
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Type 7F.02.0.000.2000



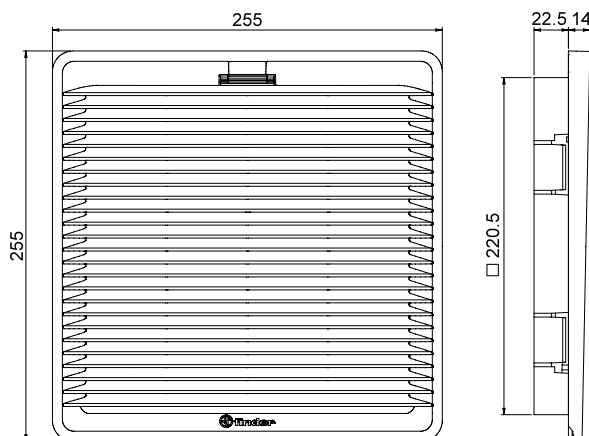
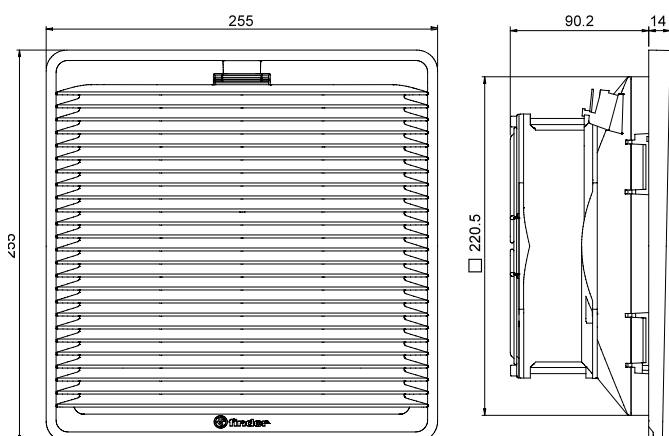
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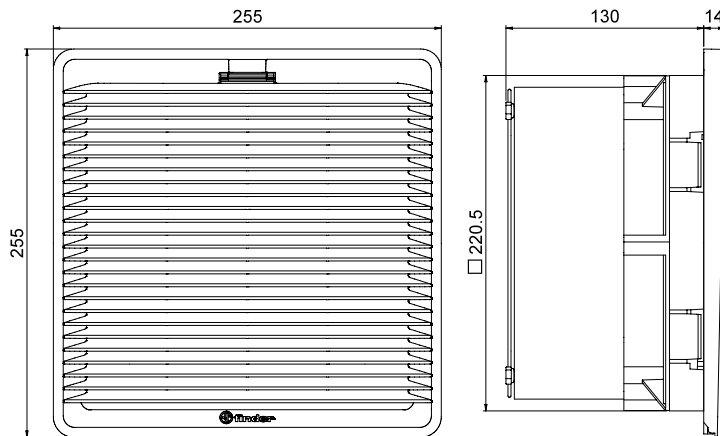
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Type 7F.02.0.000.4000

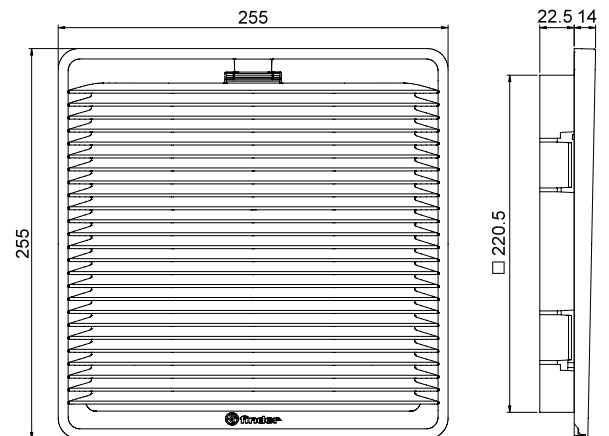


Outline drawings

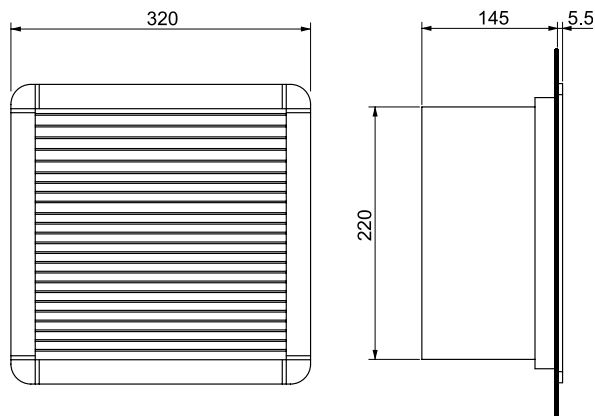
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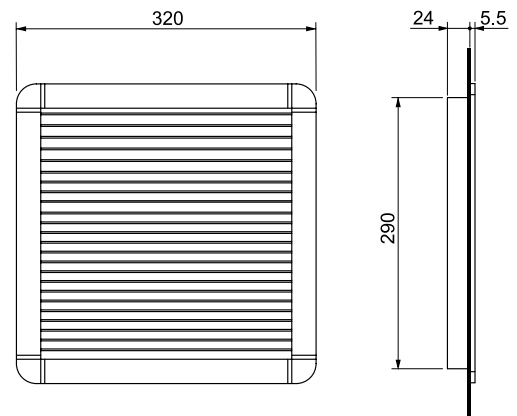
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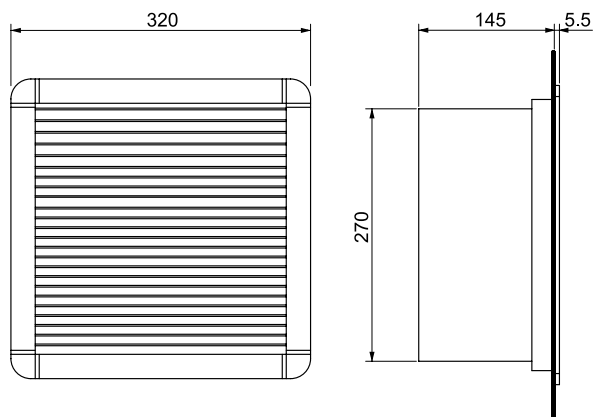
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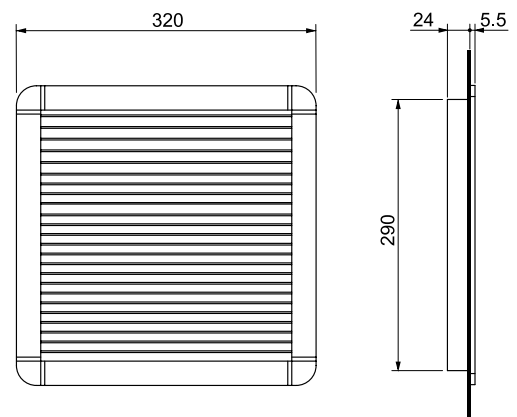
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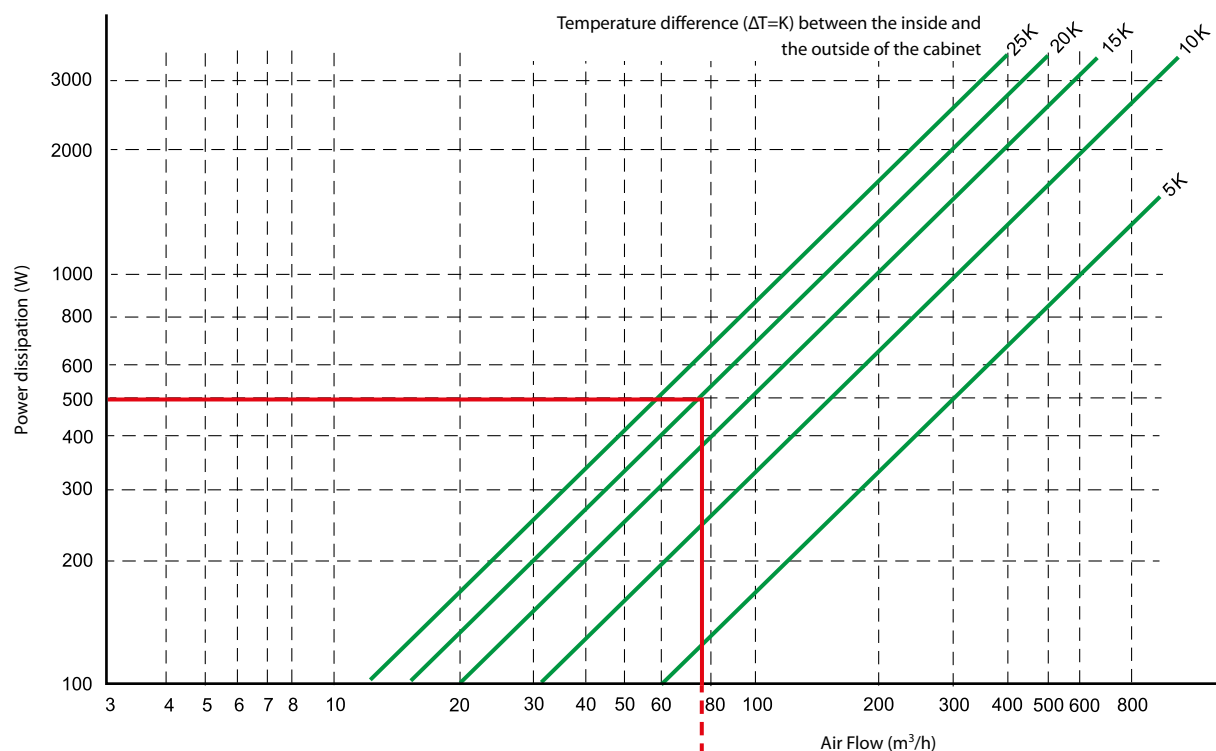
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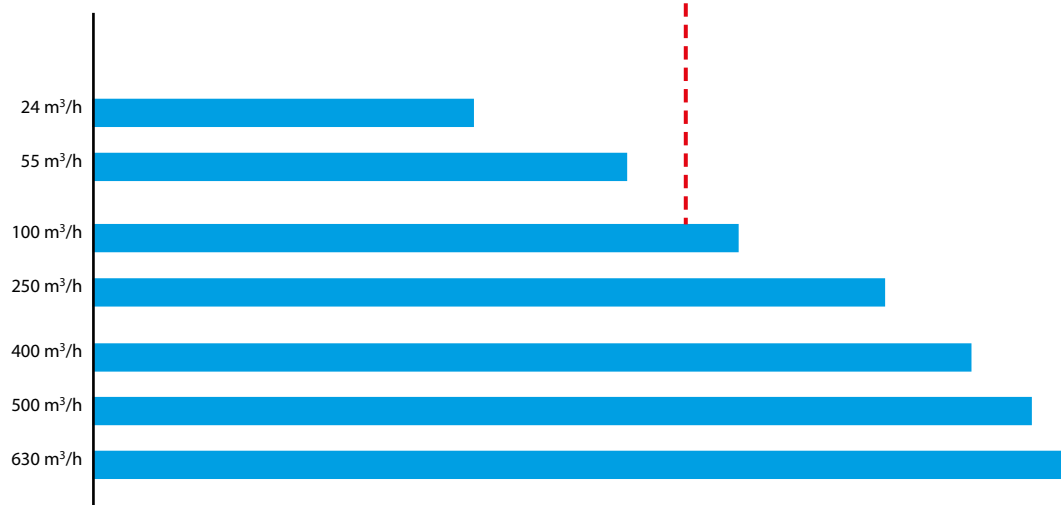
Type 7F.05.0.000.5000



Fan selection



G



Example

First, estimate the power dissipated within the cabinet. Then calculate the maximum difference between the internal and external temperature (green lines) by considering the difference between the maximum permitted internal temperature (as dictated by the temperature rating of the enclosed components, or specification) and the maximum temperature expected outside the cabinet.

The projection onto the X axis, of the intersection between the power (watts) and the appropriate green line, corresponds to the air flow rate in m³/h required to meet the maximum internal temperature limit. Extending this line vertically to intersect with the blue horizontal lines, indicates the most appropriate model of 7F fan to be fitted to the cabinet to provide the requisite air flow.

The example above considers a cabinet with an internal thermal power dissipation of 500 W, and assumes the maximum temperature difference between the inside and the outside of the cabinet to be 20K. The required air flow can be seen to be a little less than 80 m³/h.

It is suggested that this is increased by 10% to allow for the affects of a dirty filter.

And so, it can be seen that models of the 7F with 100 m³/h flow rate will provide the proper dissipation of heat under these circumstances.

Application notes

Filter Fan

The ball-bearing axial fan housing is made of aluminium and the rotor is made of plastic or metal (depending on the type).

Filter classes

Within EN 779 are specified 9 filter classes, categorised into 4 coarse dust filters and 5 fine dust filters.

The coarse dust filters G1 - G4 are able to filter particles > 10 µm and the fine dust filters G5 - G9 are able to filter particles from (1...10)µm.

Filter classes	Example of particle	Particle size
G1 - G4 (EU1 - EU4)	Textile fibers, hair, sand, pollen, spores, insects, cement dust	> 10 µm
G5 - G9 (EU5 - EU9)	Pollen, spores, cement dust, tobacco smoke, oil smoke, soot	(1...10)µm

Filtering degree (Am)

The degree of filtering (Am) is the percentages of dust, by weight, that is caught and retained by the filter.

Filter mats

The quality of these filter mats has been independently tested, according to EN 779 and branded after passing the test.

The filter mats are to filter class G3 and have an average filtering degree of (80...90)%.

Filter material

The filter material consists of a synthetic fiber with progressive construction which is moisture-resistant to 100% RH and temperature resistant to +100 °C.

According to the strict requirements of fire class F1, DIN 53438, these filter mats are self extinguishing.

Progressive construction at filter mats

The individual fibers of these filter mats are bonded by a special process to provide a progressive construction where the fiber size and spacing varies through the thickness of the filter mat.

This means that coarse dust particles are caught early and fine dust later through the thickness of the mat. In this way the entire depth of the filter mat is used.

Flammability class of the housing and the cover

The plastic materials used comply with flammability class V-0, according to UL94.

EMC Filter Fans and EMC Exhaust Filters

The plastic mounting frame of the EMC Filter Fans (7F.70) and EMC Exhaust Filters (7F.07) are sprayed with a conductive (metallic) paint.

The gasket located on the mounting frame, for sealing the Filter Fan or Exhaust Filter in the cabinet is also metalised.

In addition; located at the EMC Filter Fan between the metalized mounting frame and the filter mat, is a metal grid.

Therefore, between the metal parts of the Filter Fan and the metal cabinet, there is a conductive connection.

Filter Fan in "reverse flow" version

As supplied, the standard Filter Fan is in "Draw-In"- mode, which means that cool air is filtered and drawn into the cabinet. In some cases it may be required that the warm air is blown out of the cabinet.

In which case it is possible to get Filter Fans in "Exhaust Filter" mode version (7F.21 and 7F.80).

Mounting of the pressure compensation device

In sealed cabinets and enclosures the internal pressure can vary due to changes in temperature. The pressure compensation device (07F.80) will relieve this internal/external pressure differential whilst maintaining a high level of protection - preventing the ingress of dust and moisture into the cabinet or the enclosure. The pressure compensation device is approved for use in cabinets and enclosures according to DIN EN 62208.

Drill a hole Ø 37^{+1.0} mm in the housing wall and fix the pressure compensation device with the accompanying nut. It is important to ensure that the sealing ring is located on the outside. To ensure optimum pressure balance, it is recommended to fit 2 pressure compensation device at the upper sides of the cabinet or enclosure.