finder
SWITCH TO THE FUTURE

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



FINDER reserves the right to alter characteristics at any time without notice. FINDER assumes no liability for damage to persons or property, caused as a result of the incorrect use or application of its products.

Filter Fan for electrical cabinets and enclosures 120 V or 230 V AC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Nominal voltage: 120 or 230 V AC (50/60 Hz)
- Time-saving installation and maintenance
- Easily replaceable filter mat
- Filter Fan supplied in Reverse flow mode (7F.21)
- Black colour RAL 9004 Available

		7F.20.8.xxx.1020		7F.20.8.xxx.2055		7F.20.8.xxx.3100	
							
		• Nominal voltage 120 or 230 V AC • Air volume 50/60 Hz: 24/29 m³/h • Size 1		• Nominal voltage 120 or 230 V AC • Air volume 50/60 Hz: 55/63 m³/h • Size 2		• Nominal voltage 120 or 230 V AC • Air volume 50/60 Hz: 100/115 m³/h • Size 3	
For outline drawing see page 14							
Fan data							
Air volume (free flow): 50/60 Hz	m³/h	24/29		55/63		100/115	
Air volume (with exhaust filter installed): 50/60 Hz	m³/h	14/16.5		40/45.5		75/85.5	
Noise level	dB (A)	27		42		42	
Life time at 40 °C	h	50000		50000		50000	
Electrical data							
Nominal voltage (U_N)	V AC (50/60 Hz)	120	230	120	230	120	230
Operating range	AC	(0…1.1)U_N		(0.8…1.1)U_N		(0.8…1.1)U_N	
Current consumption: 50/60 Hz	A	0.23/0.18	0.1/0.08	0.25/0.21	0.13/0.11	0.25/0.21	0.13/0.11
Rated power: 50/60 Hz	W	27/21	23/18	30/25	29/25	30/25	29/25
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)					
Electrical connections		Push-in terminals					
Wire size (mm²)	min/max	0.7/2.5					
Wire size (AWG)	min/max	18/14					
Ambient temperature range	°C	–15…+55					
Protection category according to EN 60529		IP 54					
Protection category according to NEMA		Type 12					
Approvals (according to type)							

7F SERIES
Filter Fan (24...630)m³/h

Filter Fan for electrical cabinets and enclosures 120 V or 230 V AC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Nominal voltage: 120 or 230 V AC (50/60 Hz)
- Time-saving installation and maintenance
- Easily replaceable filter mat
- Filter Fan supplied in Reverse flow mode (7F.21)
- Black colour RAL 9004 Available

7F.20.8.xxx.4250



- Nominal voltage 120 or 230 V AC
- Air volume 50/60 Hz. 250/295 m³/h
- Size 4

7F.20.8.xxx.4400



- Nominal voltage 120 or 230 V AC
- Air volume 50/60 Hz: 400/445 m³/h
- Size 4

For outline drawing see page 15

Fan data					
Air volume (free flow): 50/60 Hz	m³/h	250/295		400/445	
Air volume (with exhaust filter installed): 50/60 Hz	m³/h	195/228		270/300	
Noise level	dB (A)	56		72	
Life time at 40 °C	h	50000		50000	
Electrical data					
Nominal voltage (U_N)	V AC (50/60 Hz)	120	230	120	230
Operating range	AC	(0.8…1.1)U_N		(0.8…1.1)U_N	
Current consumption: 50/60 Hz	A	0.35/0.40	0.2/0.22	0.6/1	0.3/0.49
Rated power: 50/60 Hz	W	42/48	46/50	72/120	69/112
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)			
Electrical connections		Push-in terminals			
Wire size (mm²)	min/max	0.7/2.5			
Wire size (AWG)	min/max	18/14			
Ambient temperature range	°C	–15…+55			
Protection category according to EN 60529		IP 54			
Protection category according to NEMA		Type 12			
Approvals (according to type)					

V-2022, www.findernet.com

Filter Fan for electrical cabinets and enclosures 120 V or 230 V AC versions

Type 7F.20.8.xxx.5550
- Easily replaceable filter mat
- Filter Fan supplied in Reverse flow mode (7F.21)
- Black colour RAL 9004 Available

Type 7F.50.8.xxx.5630
- EMC Filter Fan (7F.70) and EMC Exhaust Filter (7F.07)
- Filter Fan supplied in Reverse flow mode (7F.80)

- Very low acoustic noise
- Minimal depth within enclosure
- Nominal voltage: 120 or 230 V AC (50/60 Hz)
- Time-saving installation and maintenance

NEW **7F.20.8.xxx.5550**



- Nominal voltage 120 or 230 V AC
- Air Volume 50/60 Hz: 550/605 m³/h
- Size 5

7F.50.8.xxx.5630



- Nominal voltage 120 or 230 V AC
- Air volume 630 m³/h
- Rated power 130 W
- Size 5

For outline drawing see page 15

Fan data					
Air volume (free flow): 50/60 Hz	m³/h	550/605		630	
Air volume (with exhaust filter installed): 50/60 Hz	m³/h	400/440		470	
Noise level	dB (A)	75		72	
Life time at 40 °C	h	50000		50000	
Electrical data					
Nominal voltage (U_N)	V AC (50/60 Hz)	120	230	120	230
Operating range	AC	(0.8…1.1)U_N		(0.8…1.1)U_N	
Current consumption: 50/60 Hz	A	0.66/0.85	0.34/0.49	1.10	0.55
Rated Power: 50/60 Hz	W	75/102	76/116	130	130
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)			
Electrical connections		Push-in terminals		Screw Terminal	
Wire size (mm²)	min/max	0.7/2.5			
Wire size (AWG)	min/max	18/14			
Ambient temperature range	°C	–10…+70			
Protection category according to EN 60529		IP 54			
Protection category according to NEMA		Type 12		—	
Approvals (according to type)					

7F SERIES
Filter Fan (24...630)m³/h

Filter Fan for electrical cabinets and enclosures 24 V DC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Nominal voltage: 24 V DC
- Time-saving installation and maintenance
- Easily replaceable filter mat
- Filter Fan supplied in Reverse flow mode (7F.21)
- Black colour RAL 9004 Available

		7F.20.9.024.1020	7F.20.9.024.2055	7F.20.9.024.3100
				
		• Nominal voltage 24 V DC • Air volume 24 m³/h • Rated power 3.6 W • Size 1	• Nominal voltage 24 V DC • Air volume 55 m³/h • Rated power 7 W • Size 2	• Nominal voltage 24 V DC • Air volume 100 m³/h • Rated power 7 W • Size 3
For outline drawing see page 14				
Fan data				
Air volume (free flow)	m³/h	24	55	100
Air volume (with exhaust filter installed)	m³/h	14	40	75
Noise level	dB (A)	37.5	46	45
Life time at 40 °C	h	50000	50000	50000
Electrical data				
Nominal voltage (U_N)	V DC	24	24	24
Operating range	DC	(0.8…1.1)U_N	(0.8…1.1)U_N	(0.8…1.1)U_N
Current consumption	A	0.15	0.32	0.32
Rated power	W	3.6	7	7
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)		
Electrical connections		Push-in terminals		
Wire size (mm²)	min/max	0.7/2.5		
Wire size (AWG)	min/max	18/14		
Ambient temperature range	°C	–15…+55		
Protection category according to EN 60529		IP 54		
Protection category according to NEMA		Type 12		
Approvals (according to type)				

V-2022, www.findernet.com

Filter Fan for electrical cabinets and enclosures 24 V DC versions

- Very low acoustic noise
- Minimal depth within enclosure
- Nominal voltage: 24 V DC
- Time-saving installation and maintenance
- Easily replaceable filter mat
- Filter Fan supplied in Reverse flow mode (7F.21)
- Black colour RAL 9004 Available

7F.20.9.024.4250



- Nominal voltage 24 V DC
- Air volume 250 m³/h
- Rated power 43 W
- Size 4

For outline drawing see page 15

Fan data		
Air volume (free flow)	m³/h	250
Air volume (with exhaust filter installed)	m³/h	195
Noise level	dB (A)	64
Life time at 40 °C	h	50000
Electrical data		
Nominal voltage (U_N)	V DC	24
Operating range	DC	(0.8…1.1)U_N
Current consumption	A	1.8
Rated power	W	43
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)
Electrical connections		Push-in terminals
Wire size (mm²)	min/max	0.7/2.5
Wire size (AWG)	min/max	18/14
Ambient temperature range	°C	–15…+55
Protection category according to EN 60529		IP 54
Protection category according to NEMA		Type 12
Approvals (according to type)		

Ordering information

Example: Series 7F, Filter Fan for mounting in sidewalls, nominal voltage 230 V AC, size 1, air volume 24 m³/h.

7	F	.	2	0	.	8	.	2	3	0	.	1	0	2	0	

Series

Type
20 = Filter Fan - for indoor use
21 = Reverse flow Filter Fan - for indoor use
50 = Filter Fan - for indoor use
70 = EMC Filter Fan - for indoor use
80 = Reverse flow Filter Fan - for indoor use

Supply version
8 = AC (50/60 Hz)
9 = DC

Operating voltage
024 = 24 V DC
120 = 120 V AC
230 = 230 V AC

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

Nominal air volume (free flow)
020 = 24 m³/h
055 = 55 m³/h
100 = 100 m³/h
250 = 250 m³/h
400 = 400 m³/h
550 = 550 m³/h
630 = 630 m³/h

Colour
Empty = Grey RAL 7035
0 = Black RAL 9004
(only for 7F.20 and 7F.21)

G

Filter Fans - All versions

Standard versions	EMC versions	Reverse flow versions	
7F.20.8.120.1020	—	7F.21.8.120.1020	Filter Fan, Size 1
7F.20.8.120.2055	—	7F.21.8.120.2055	Filter Fan, Size 2
7F.20.8.120.3100	—	7F.21.8.120.3100	Filter Fan, Size 3
7F.20.8.120.4250	—	7F.21.8.120.4250	Filter Fan, Size 4
7F.20.8.120.4400	—	7F.21.8.120.4400	Filter Fan, Size 4
7F.20.8.120.5550	—	7F.21.8.120.5550	Filter Fan, Size 5
7F.50.8.120.5630	—	—	Filter Fan, Size 5
7F.20.8.230.1020	—	7F.21.8.230.1020	Filter Fan, Size 1
7F.20.8.230.2055	—	7F.21.8.230.2055	Filter Fan, Size 2
7F.20.8.230.3100	—	7F.21.8.230.3100	Filter Fan, Size 3
7F.20.8.230.4250	—	7F.21.8.230.4250	Filter Fan, Size 4
7F.20.8.230.4400	—	7F.21.8.230.4400	Filter Fan, Size 4
7F.20.8.230.5550	—	7F.21.8.230.5550	Filter Fan, Size 5
7F.50.8.230.5630	7F.70.8.230.5630	—	Filter Fan, Size 5
7F.20.9.024.1020	—	7F.21.9.024.1020	Filter Fan, Size 1
7F.20.9.024.2055	—	7F.21.9.024.2055	Filter Fan, Size 2
7F.20.9.024.3100	—	7F.21.9.024.3100	Filter Fan, Size 3
7F.20.9.024.4250	—	7F.21.9.024.4250	Filter Fan, Size 4

Note:
The technical features (air volume, dimensions and electrical parameters) for the Standard Filter Fans (7F.20 and 7F.50), the EMC Filter Fans (7F.70) and the Reverse flow versions (7F.21 and 7F.80) - are exactly the same.
7F.50.8.120.5630 has no UL approval. Other versions on request.

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	**7F.02.0.000.1000**  • For Filter Fans 7F.20.x.xxx.1020 • Size 1	**7F.02.0.000.2000**  • For Filter Fans 7F.20.x.xxx.2055 • Size 2	**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)			

G

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

	7F.02.0.000.4000	**7F.02.0.000.5000**
		
	• For Filter Fans 7F.20.x.xxx.4250 or 7F.20.8.xxx.4400 • Size 4	• For Filter Fans 7F.20.8.xxx.5550 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)		

G

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	

Series

Type
02 = 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	
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.02.0.000.5000	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.20.8.xxx.5550	7F.02.0.000.5000	—	—	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				

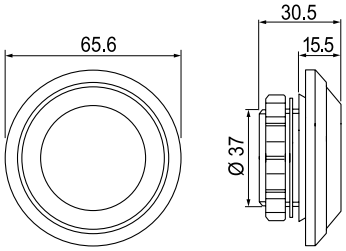
Accessories





07F.80

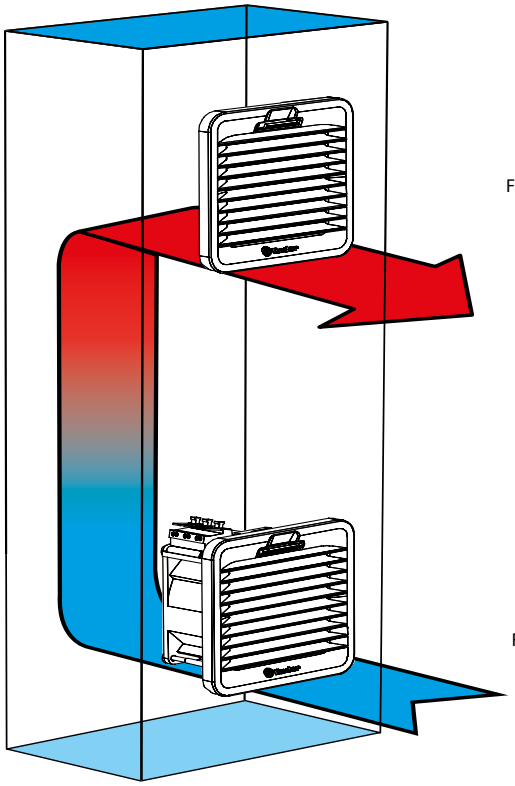
Pressure compensation device, for pressure compensation in closed cabinets or enclosures		**07F.80**
Air interface area	cm^2	7
Mounting		PG 29 thread with union nut
Torque	Nm	5 (max. 10)
Material		plastic according to UL94-V0
Dimensions (diameter/depth)	mm	65.5/30.5
Mounting position		upper part of cabinet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

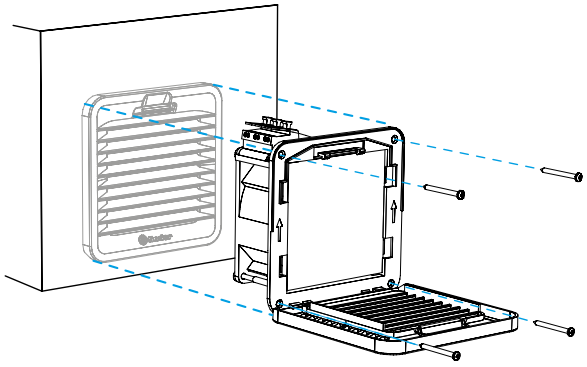


Unit package contains 2 pressure compensation devices

Mounting instructions for Filter Fans

Mounting arrangement of Filter Fans and Exhaust Filter

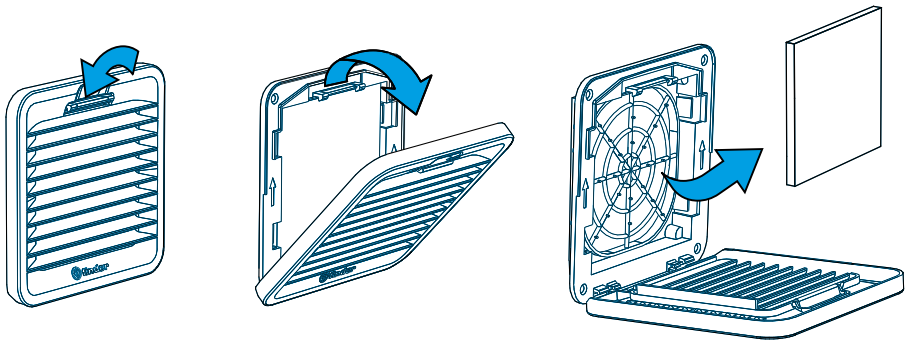




The installation with the only clips is optimized for 1.5 mm thick sheets;
it is also possible with thicknesses from 1 to 2.5 mm.
Fixing with screws (supplied) is recommended.
Tightening torque 0.3 Nm.

G

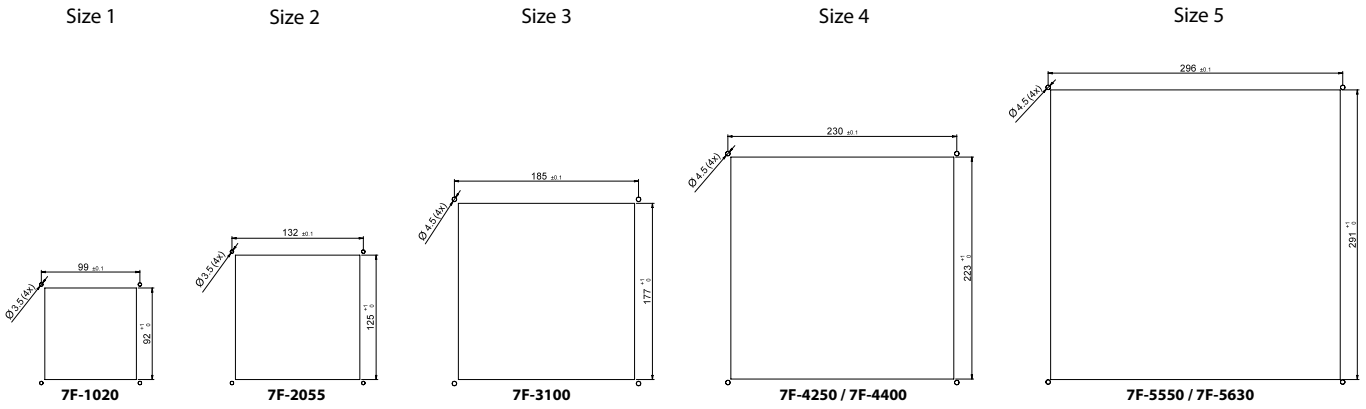
Replacement of Filter mat (Type 7F.20)





V-2022, www.findernet.com

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



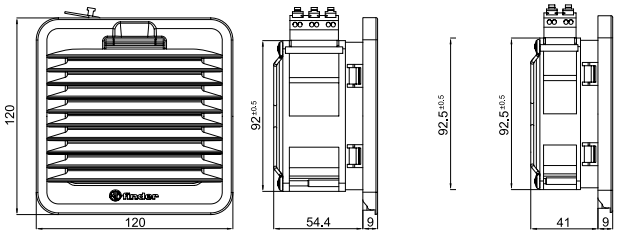
Mounting and maintenance

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.

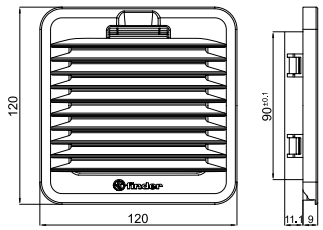
G

Outline drawings

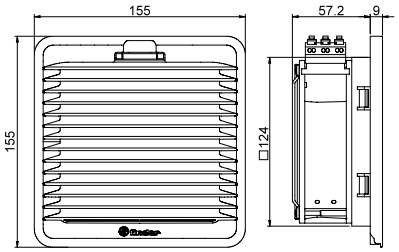
Type 7F.20.x.xxx.1020 AC version DC version



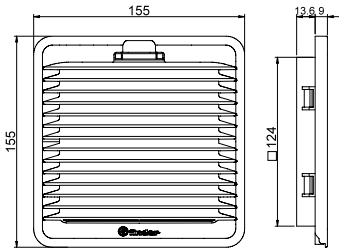
Type 7F.02.0.000.1000



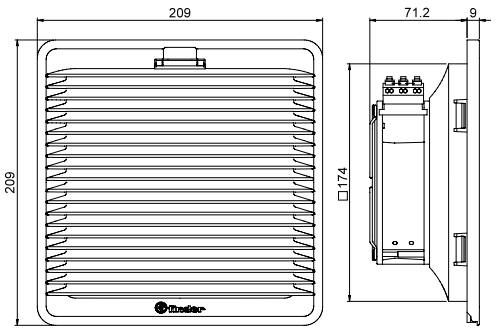
Type 7F.20.x.xxx.2055



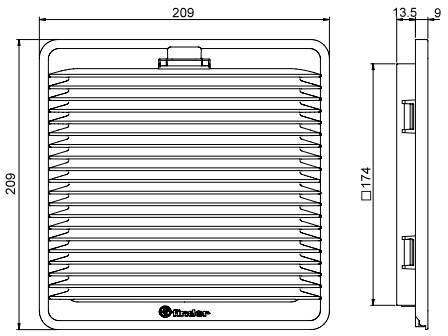
Type 7F.02.0.000.2000



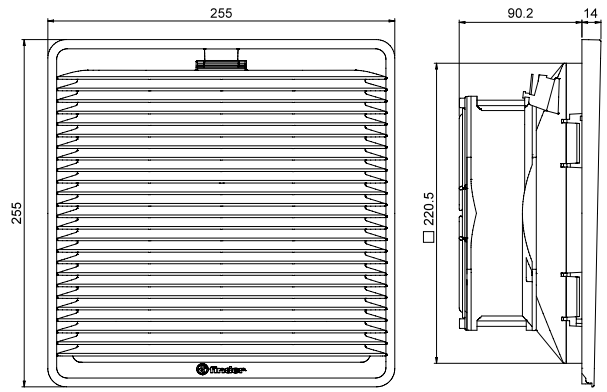
Type 7F.20.x.xxx.3100



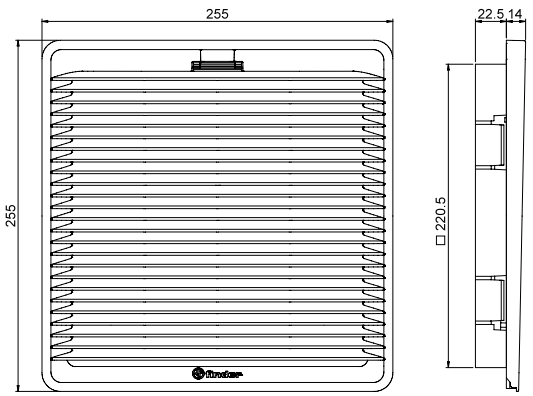
Type 7F.02.0.000.3000



Type 7F.20.x.xxx.4250



Type 7F.02.0.000.4000

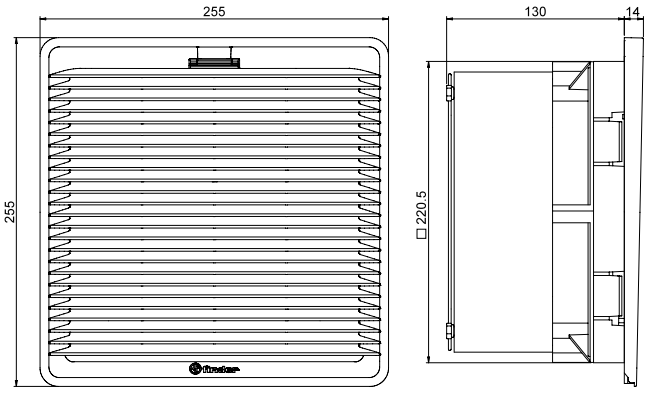


G

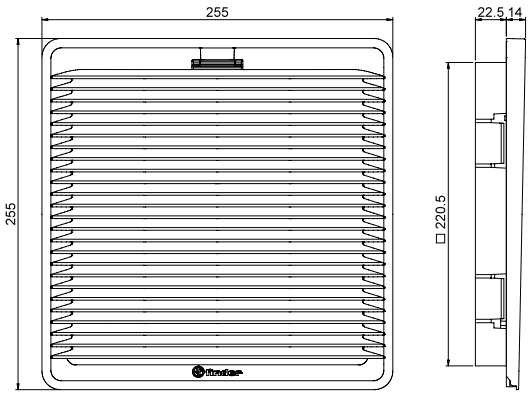
V-2022, www.findernet.com

Outline drawings

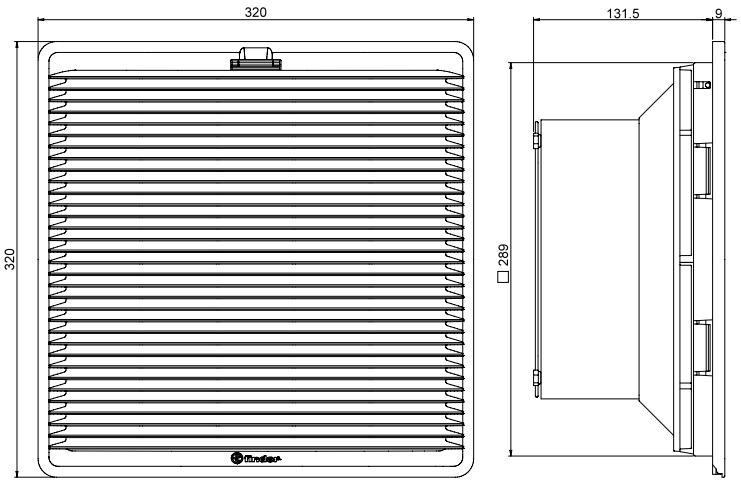
Type 7F.20.x.xxx.4400



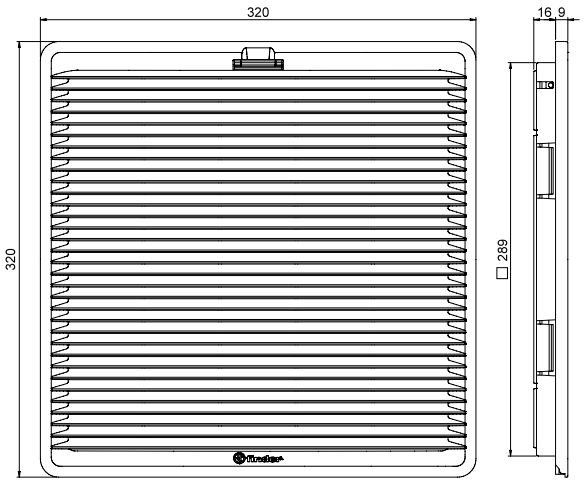
Type 7F.02.0.000.4000



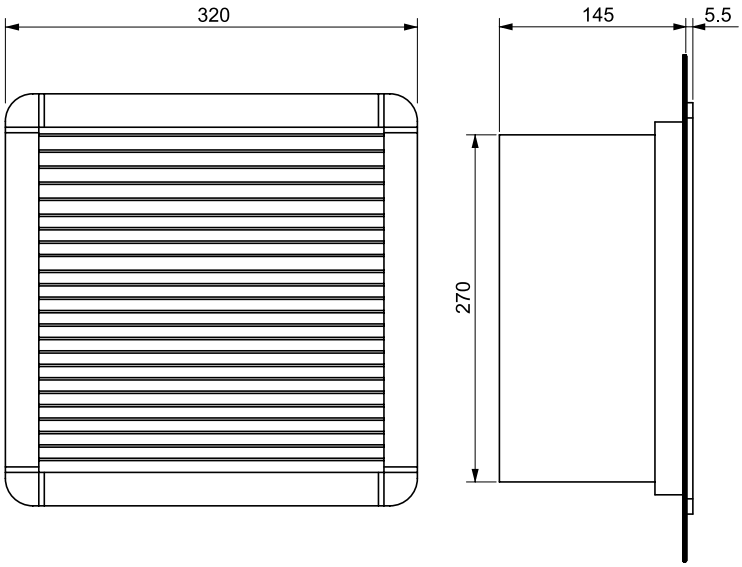
Type 7F.20.x.xxx.5550



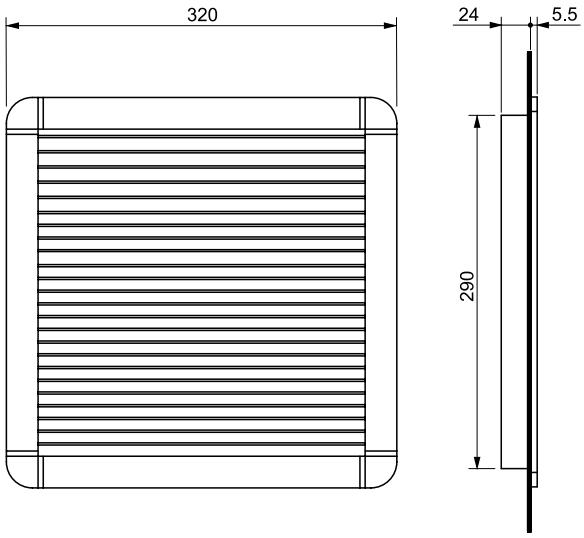
Type 7F.02.0.000.5000



Type 7F.50.x.xxx.5630



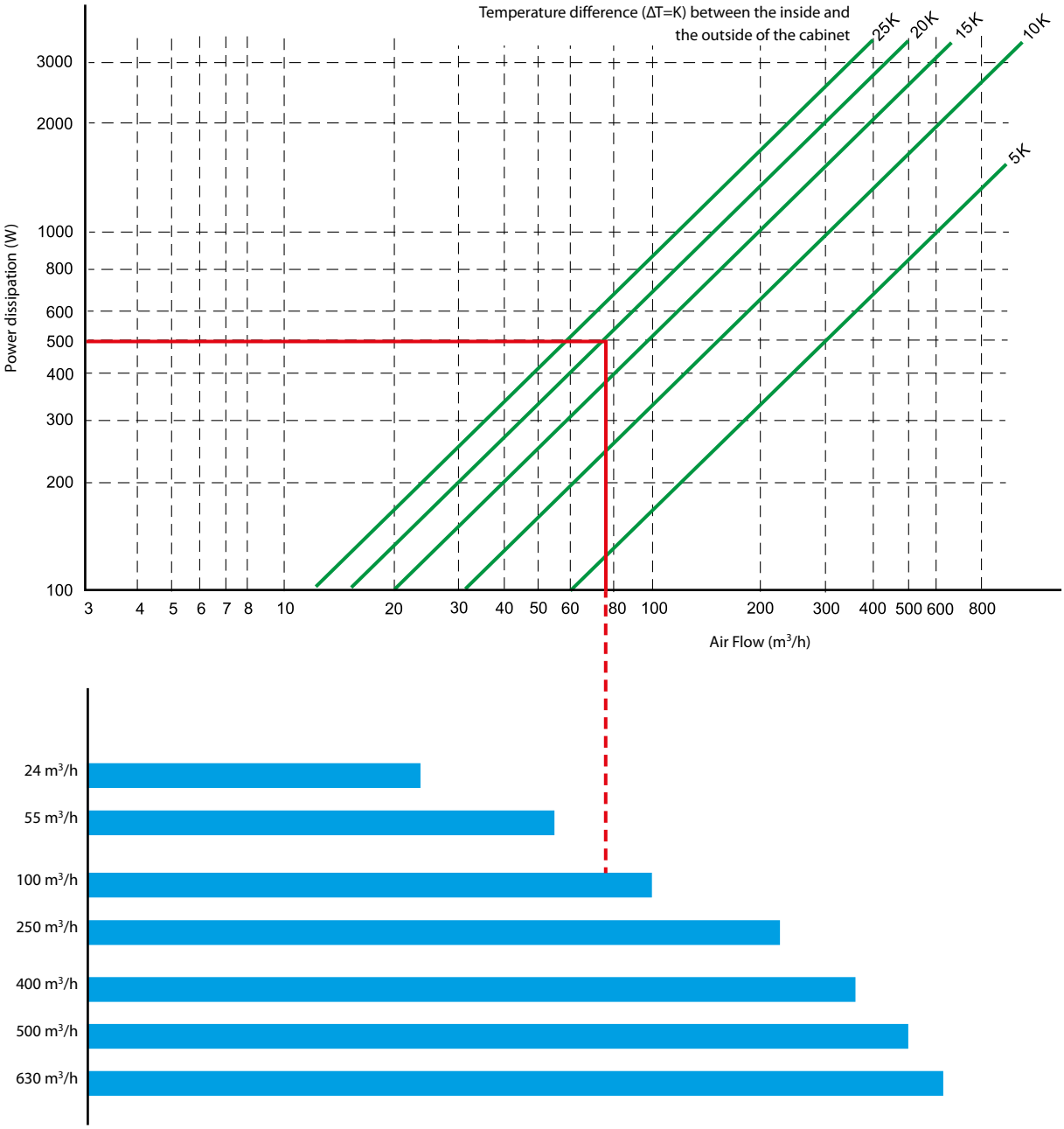
Type 7F.05.0.000.5000



G

7F SERIES
Filter Fan (24...630)m³/h

Fan selection



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 und 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 filters mats has been independently tested, according 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 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.

V-2022, www.findernet.com