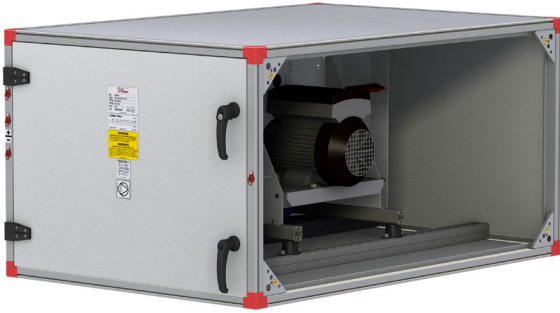


Fan fitting (code MIE-FD)



The MIE-FD fan fitting consists of mounting components and a front casing panel. Together with optional type ELFD fan and other functional sections in the Flexomix series, the unit is included as a supply air or extract air fan in air handling systems.

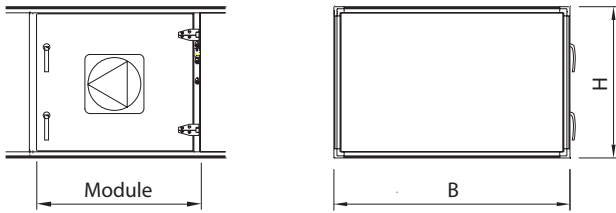
- The direct-driven fan is supplied with any of the following types of motor:
 - EC-motor including mounted frequency inverter.
 - motor type F1 including mounted frequency inverter
 - motor to efficiency class eff1/IE2, for connection to external frequency inverter. Motors for impeller size 025-071 have thermo-contact, motors for impeller size 080-090 have a thermistor.
- The fan and motor unit are mounted on slide rails to facilitate servicing.
- The air temperature should not exceed 50 °C to adequately cool the motor.
- Fan and motor are very effectively vibrationisolated from the casing by means of a vibration-isolating outlet connection and rubber antivibration mountings sized according to the fans operating conditions. The normal resonance frequency is 7-10 Hz.
- The design of some of the components in the fan system does not conform to corrosion resistance class C4.

Accessories for the MIE-FD

- Connection frame, large (code EMMT-02-a-1)
- Connection frame, maximal (code EMMT-02-a-2)
- Flexible connection, large (code EMMT-03-a-1)
- Flexible connection, maximal (code EMMT-03-a-2)
- Steel spring anti-vibration mountings (sizes 360–950) (code MIET-FD-03-a-d)
- Flow meter, manometer type (code MIET-AF-09-d-DD)
- Flow meter, electronic (code MIET-AF-10)

Dimensions and Weights

Fitting for direct-driven fan (code ELFD)

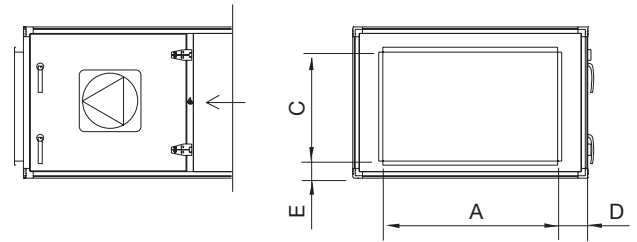


MIE-FD size -aaa-	Impeller size -ddd-	Module (mm)								Dim. (mm)		MIE-FD wgt. (kg)*	Max motor-size to IEC
		20	25	30	35	40	45	50	60	B	H		
060	025	600	-	-	-	-	-	-	-	850	440	35	71
100	028	600	-	-	-	-	-	-	-	980	505	45	80
150	035	-	750	-	-	-	-	-	-	1080	695	75	90
190	040	-	-	900	-	-	-	-	-	1360	695	90	100
240	050	-	-	900	-	-	-	-	-	1360	805	115	100
300	050	-	-	900	-	-	-	-	-	1580	805	120	100
360	050	-	-	-	1050	-	-	-	-	1580	990	125	100
360	056	-	-	-	1050	-	-	-	-	1580	990	140	112
480	056	-	-	-	-	1200	-	-	-	1950	990	145	100
480	063	-	-	-	-	1200	-	-	-	1950	990	230	132
600	063	-	-	-	-	1200	-	-	-	2160	1095	225	132
600	071	-	-	-	-	-	1350	-	-	2160	1095	250	132
740	071	-	-	-	-	-	1350	-	-	2480	1240	265	132
740	080	-	-	-	-	-	-	1500	-	2480	1240	335	160
750	071	-	-	-	-	-	1350	-	-	2020	1370	365	132
750	080	-	-	-	-	-	-	1500	-	2020	1370	335	160
850	071	-	-	-	-	-	1350	-	-	2560	1370	375	132
850	080	-	-	-	-	-	-	1500	-	2560	1370	345	160
950	080	-	-	-	-	-	-	-	1500	2020	1660	355	160
950	090	-	-	-	-	-	-	-	-	1800	2020	540	200

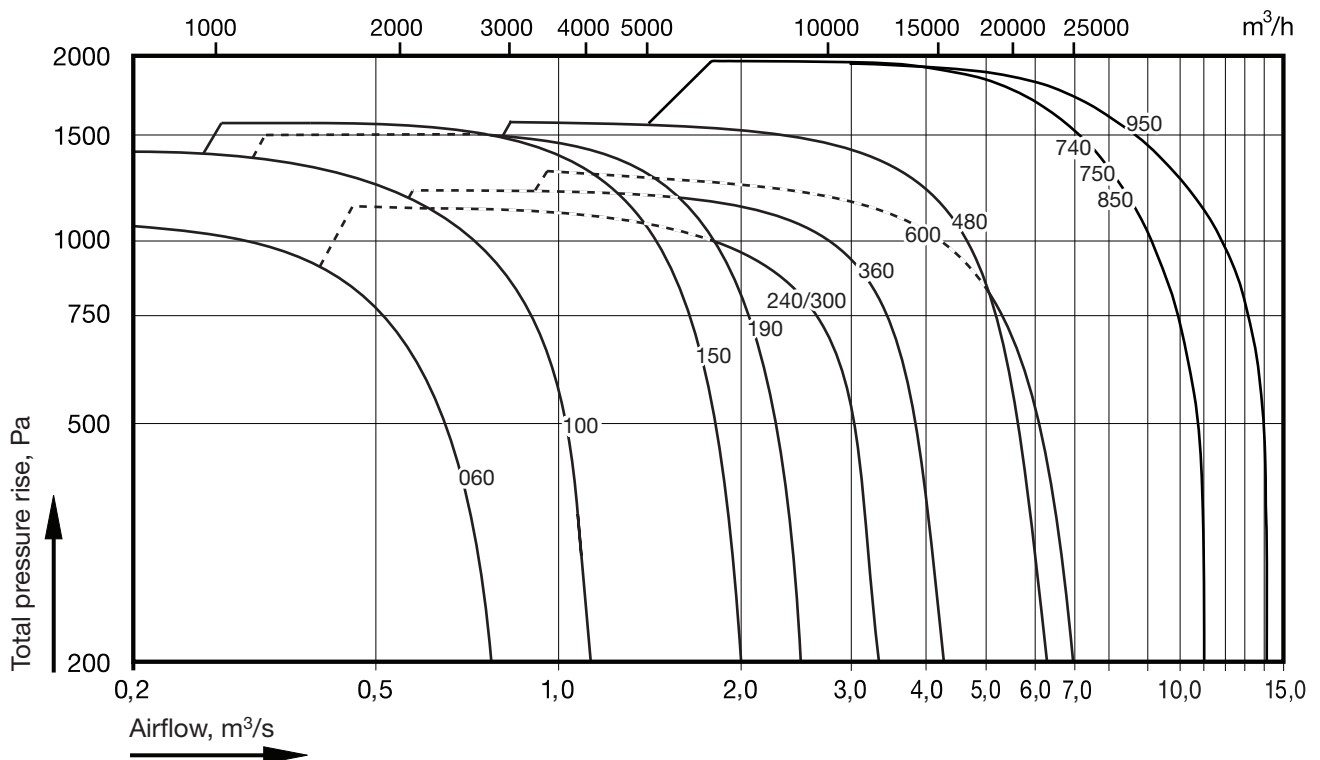
* Incl. fan/motor with greatest weight and casing with standard insulation. For calculating the weight of a casing conforming to fire resistance class EI30, use the IV Produkt Designer software.

Connection frames for MIE-FD, dim.

MIE-FD size	Large frame: EMMT-02 (mm)				Maximal frame: EMMT-02 (mm)			
	A	C	D	E	A	C	D	E
060	500	300	175	70	790	380	30	30
100	700	300	140	100	920	445	30	30
150	800	500	140	100	1020	635	30	30
190	1000	500	180	100	1300	635	30	30
240	1000	600	180	100	1300	740	30	30
300	1200	600	190	100	1520	740	30	30
360	1200	800	190	95	1520	930	30	30
480	1400	800	275	95	1890	930	30	30
600	1600	800	280	150	2100	1035	30	30
740	2000	900	240	170	2380	1140	50	50
750	1600	1000	210	185	1920	1270	50	50
850	2200	1000	180	185	2460	1270	50	50
950	1600	1200	210	230	1920	1560	50	50



Fan capacity (ELFD)



Fan, power supply and rated current

The power supply and rated current can be read from the fan rating plate (see example below) or the relevant values can be read from the table below.

Fläkt / Fan / Puhallin / Wentylator

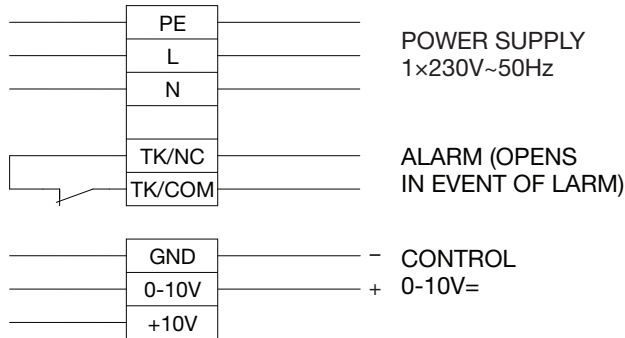
Typ Type Tyyppi Typ 025-EC-0042	Tillv. månad Manuf. month Valmistus kk Miesiąc 1105 YYMM
0.42 kW 230 V 2.8 A	Min./Max. frekvens Hz Min./Max. frequency Hz Min./Max. taajuuusalue Hz Min./Maks. częstotliwość Hz
290-2920 r/m	$Q = \frac{1}{K} \times \sqrt{p} \text{ (m}^3/\text{s)}$
K-faktor K-factor K-kerroin Wsp. K 51.43	Max. temp Max. temp Max. lämp. Maks. temp 50 °C

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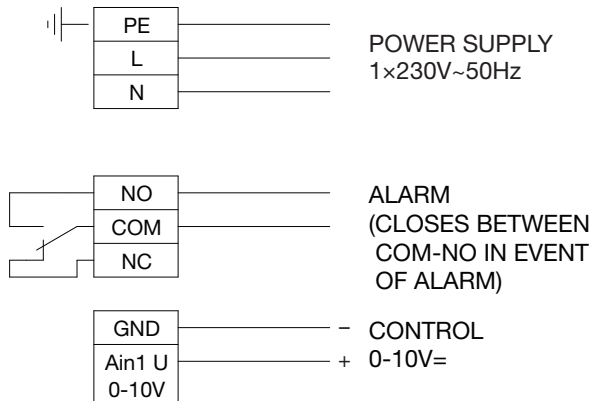
Typical fan rating plate

N.B! The fans can be of different sizes/variants. Read the rating plate of both the supply air and the extract air fan.

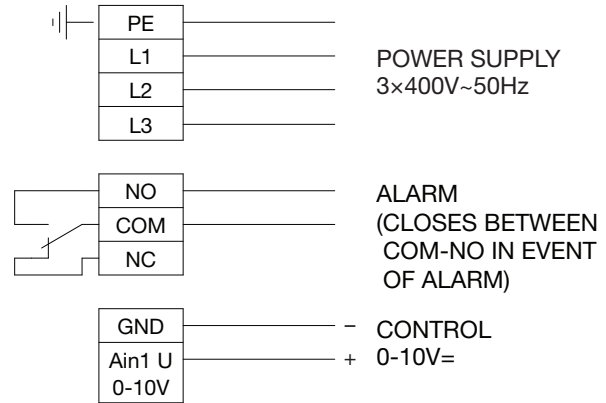
Motor type 025-EC 1x230V 0,42 kW



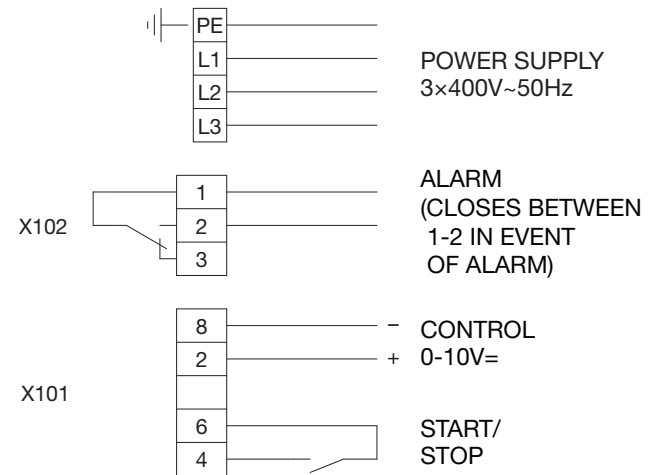
Motor type EC 1x230V (all excl. 025-EC 1x230V 0,42 kW)



Motor type EC 3x400V



Motor type I2F1 3x400V



Electrical data

Size	Impeller size	Motor type	Output (kW) *				Power supply (voltage)	Rated current (A) for 230 V	Rated current (A) for 400 V
060	025	EC	0,42	0,70			1×230V~ 50Hz	2,8 / 3,0	–
100	028	EC	0,72				1×230V~ 50Hz	3,5	–
		EC	1,00				3×400V~ 50Hz	–	1,6
		E1		1,1			3×230/400V~ 50Hz	3,95	2,28
100	310	EC	1,48				1×230V~ 50Hz	6,4	–
150	035	EC	1,00	1,5			3×400V~ 50Hz	–	1,75
		E1	1,1	1,5	2,2		3×230/400V~ 50Hz	4,21 / 5,72 / 7,5	2,43 / 3,3 / 4,3
150	040	EC	1,85				3×400V~ 50Hz	–	2,9
		EC	3,00				3×400V~ 50Hz	–	4,6
190	035	EC	1,00				3×400V~ 50Hz	–	1,75
190	040	EC	1,85				3×400V~ 50Hz	–	2,9
		EC	3,00				3×400V~ 50Hz	–	4,6
		E1	1,1	1,5	2,2	3,0	3×230/400V~ 50Hz	4,21 / 5,72 / 7,8 / 10,4	2,43 / 3,3 / 4,5 / 6,0
240, 300	045	EC	1,62				3×400V~ 50Hz	–	2,5
240, 300	050	EC	2,82				3×400V~ 50Hz	–	4,3
		EC	5,50				3×400V~ 50Hz	–	8,0
		E1	1,5	2,2	3,0		3×230/400V~ 50Hz	5,72 / 7,8 / 10,4	3,3 / 4,5 / 6,0
360	050	EC	2,82				3×400V~ 50Hz	–	4,3
		E1	2,2				3×230/400V~ 50Hz	7,8	4,5
360	056	EC	4,70				3×400V~ 50Hz	–	7,7
		E1		3,0	4,0		3×230/400V~ 50Hz	10,4 / 13,7	6,0 / 7,9
480	056	F1	3,0				3×400V~ 50Hz	–	6,4
		E1	3,0				3×230/400V~ 50Hz	10,4	6,0
480	063	F1		4,0	5,5	7,5	3×400V~ 50Hz	–	8,4 / 11,1 / 15,1
		E1		4,0	5,5	7,5	3×230/400V~ 50Hz	13,7 / 18,4 / 25,1	7,9 / 10,6 / 14,5
600	063	F1	4,0	5,5			3×400V~ 50Hz	–	8,4 / 11,1
		E1	4,0	5,5			3×230/400V~ 50Hz	13,7 / 18,4	7,9 / 10,6
600	071	F1			7,5		3×400V~ 50Hz	–	15,1
		E1			7,5		3×230/400V~ 50Hz	25,1	14,5
740, 750, 850	071	F1		7,5			3×400V~ 50Hz	–	15,1
		E1		7,5			3×230/400V~ 50Hz	25,1	14,5
740, 750, 850, 950	080	HE	5,5	7,5	11,0	15,0	3×230/400V~ 50Hz	–/–/–/–	12,8/17,0/24,5/28,5
950	090	HE	7,5	11,0	15,0	18,5	3×230/400V~ 50Hz	–/–/–/–	17,0/24,5/29,5/36,5

EC = EC motor with built-in electronic speed control

E1 = Motor to efficiency class 1, eff1/IE2

F1 = Motor with frequency inverter mounted on it

HE = 4 or 6-pole motor to IE2, 8-pole motor with enhanced efficiency

* For EC sizes 060–360: The value refers to the power consumption, for the other sizes the value refers to shaft power.

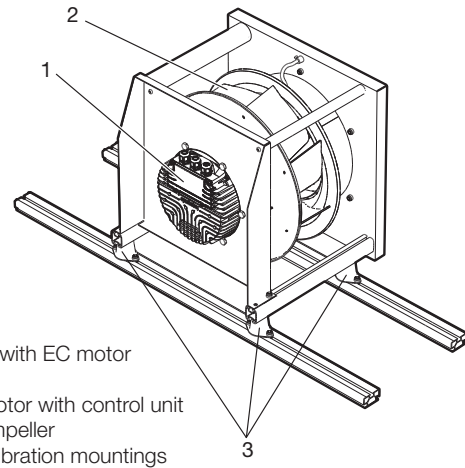
Operation and Maintenance Instructions

General

The function of the fan is to transport air through the system, i.e. the fan must overcome the air stream resistance present in air diffusers and grilles, the ducting and the air handling unit.

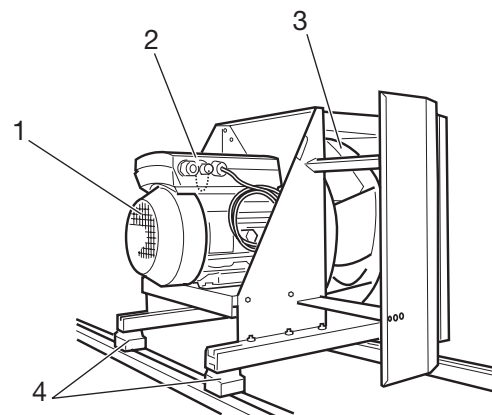
The fan speed is adjusted to provide the correct airflow. If the fan generates a lower airflow, this may disturb ventilation system performance.

- If the **supply airflow** is too low, there will be imbalance in the system and this may cause draught problems. If the ventilation capacity is too low, this may contribute to poor room climate.
- If the **extract airflow** is too low, poor ventilation capacity will result. Imbalance can also lead to damp air being pressed out into the building structure. An excessively low extract airflow causes increased power consumption if a means of heat recovery is installed. The reason why the fan impels too little air may be effect of dust deposits on the impeller blades.
- If a centrifugal fan rotates in the **wrong direction**, the air will flow in the correct direction but with reduced capacity. The direction of rotation should therefore be checked.



Fan unit with EC motor

1. EC motor with control unit
2. Fan impeller
3. Anti-vibration mountings



Fan unit including mounted frequency inverter

1. Motor
2. Control unit
3. Fan impeller
4. Anti-vibration mountings

Measures

Before working on the unit – switch off the unit via the control terminal, then turn the safety switch to the 0 position. For dual engines, there may be two safety switches.



WARNING!
High voltage and rotating impeller, risk of personal injury. Before working on/servicing the unit – switch off the unit via the control terminal, then turn the safety switch to the 0 position and lock it.

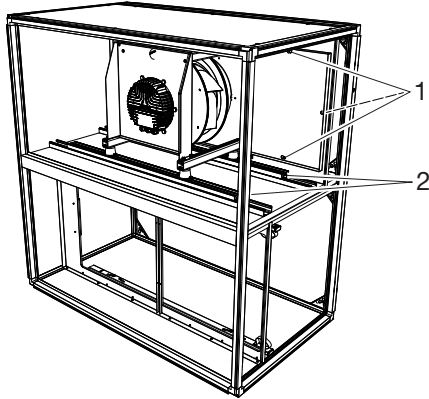


WARNING!
Rotating fan impeller, risk of personal injury. Shut down the air handling unit and wait at least 3 minutes before you open the inspection doors.

Inspection

1. Sizes 060–360:

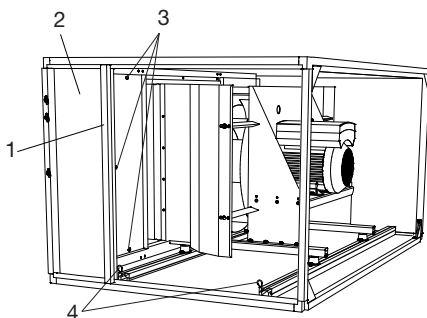
Remove the screws (item 1) and the pins/screws (item 2) and withdraw the fan units (fan and motor are mounted on slide rails).



Example fan unit sizes 060–360

Sizes 480–600:

Access to the fan is normally via the inspection door. If required, remove the centre upright beam (item 1) and fixed cover (item 2), remove the screws (item 3) and the pins (item 4) and withdraw the fan units (fan and motor are mounted on slide rails).



Example fan unit sizes 480–600

Sizes 740-950:

The fans are rigidly mounted and can be accessed through the inspection door/doors.

2. Check that the impeller rotates easily, is in balance and is not vibrating. Check also that the impeller is clean from any accumulation of particles. Imbalance may be due to a coating or damage to the impeller blades.
3. Listen to the sound from the motor bearings. If the bearings are in good condition you will hear a slight purring sound. A scraping or pounding sound may mean that the bearings are damaged and servicing is then required.
4. Check that the impellers are firmly mounted and that they have not shifted sideways toward the inlet cone.

5. The fan impeller and motor are mounted on a base frame fitted with rubber anti-vibration mountings. Check that the anti-vibration mountings are firmly mounted and are intact.
6. Check the condition of the mounting screws, the suspension devices and the base frame.
7. Check that the gaskets on the connection plates around the connection opening are intact and are firmly fitted.
8. Check that the measurement tubes are firmly fitted to their relevant measurement tapping.
9. Reassemble the fan units.
10. Check the airflows by measuring Δp in the connections for flow measurement. Use the AHU's flow label and read which flow corresponds to measured Δp .

Cleaning

1. Follow item 1-8 under *Inspection*.
2. Wipe the fan impeller blades to remove any coatings. Use an environment-friendly degreasing agent.
3. The external surfaces of the motor should be kept clean. Remove any dust, dirt and oil. Clean with a dry cloth. If they are severely fouled, use an environment-friendly degreasing agent. The motor is likely to overheat if thick layers of dirt prevent air from entering the motor to cool the stator structure.
4. Vacuum clean inside the air handling unit so that particles will not be blown out into the duct system.
5. Clean the other parts in the same way as the impeller. Check that the inlet cones are securely mounted.
6. Follow item 9 under *Inspection*.

To reset the overheating protection (EC motors)

1. Switch off the power supply to the fan motor.
2. Wait at least 20 sec. after the impeller has finished rotating.
3. Switch on the power supply to the fan motor.