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OPERATION AND MAINTENANCE MANUAL

Axial fan in a box housing

mcr Monsun T-CCT
mcr Monsun F-CCT

Version: Monsun T/F_CCT 25.05.26.1

FIRE VENTILATION SYSTEMS

TABLE OF CONTENTS:

CAUTION:

Risk of injury from sharp edges, sharp corners and thin sheet metal elements.
Be careful when handling and working with the device.
Wear protective gloves, safety shoes and a helmet.

Risk of electric shock. Do not touch live parts. Only employees with the appropriate qualifications and certificates may perform electrical connections.
Disconnect the power supply before starting work on electrical equipment.

NOTE

All previous issues of this Technical Manual expire on the date of issue hereof.
This O&MM does not apply to fans manufactured before the date of its issue.

1. FOREWORD

This O&MM is intended for users of axial fans in box housings, type mcr Monsun T-CCT and mcr Monsun F-CCT. Its purpose is to provide guidance on the application, construction, commissioning and operation of the above-mentioned product.

Read this document thoroughly before installing this device at its operating site and its start-up.

In the event of faulty operation or defects, please contact the manufacturer or its authorised representative.

Due to the constant improvement of our products, we reserve the right to make design changes that increase the performance and safety of the device.

The design of the fans meets the essential requirements of the PN-EN 12101-3:2015 standard regarding smoke exhaust fans. It also meets the requirements of the current state of technology and ensures safety and health protection.

2. MANUFACTURER'S DISCLAIMER

- The manufacturer shall not be liable for any consequences of misuse of the device.
- Do not install additional elements on the device that are not its component or accessory.
- Any unauthorised alterations or modifications to the device are prohibited.
- The device housing must be protected from mechanical damage.
- Before installing the device, check the load-bearing capacity of the structural elements to which the device will be attached. Unreliable attachment may result in damage or destruction of the device, and may also pose a risk to people nearby.
- This fan is not intended for forcing air with viscous pollutants that may settle on the device, and especially on its rotor.
- This fan is not intended for forcing air with corrosive pollutants that may be detrimental to the device.
- During use, the maximum speed of the rotor should not be higher than the rated speed.
- The manufacturer shall not be liable for any injuries, trauma or other bodily harm caused by misuse of this device.

3. SUBJECT OF DOCUMENTATION

The subject of this O&MM is:

- mcr Monsun T-CCT F400/F300 axial fan in a box housing
- mcr Monsun F-CCT (BO) axial fan in a box housing

4. INTENDED USE

4.1. Application

The mcr Monsun T-CCT axial fans in a box housing are designed to remove smoke and heat generated in rooms during a fire. They facilitate evacuation of persons from the area on fire,

protect the building structure and its furnishing from high temperature, facilitate firefighting, and inhibit spreading of fire to adjacent fire zones. Fans without fire resistance are designed to ventilate rooms on a daily basis – designation: mcr Monsun F-CCT (BO).

The available versions:

- unidirectional, with a single-speed or two-speed motor
- reversible, with a single-speed or two-speed motor

The fans are installed inside, in a horizontal position on appropriate supports.

The fan in the general ventilation system can operate in the ambient temperature range from -20 °C to +40 °C.
It can force dry air with dust content no greater than 0.3 g/m³.

This fan is not intended for forcing air with viscous pollutants that may settle on the device, and especially on its rotor.

This fan is not intended for forcing air with corrosive pollutants that may be detrimental to the device.

During use, the maximum speed of the rotor should not be higher than the rated speed.

A fan that has been operating in extreme fire conditions is not suitable for further operation.

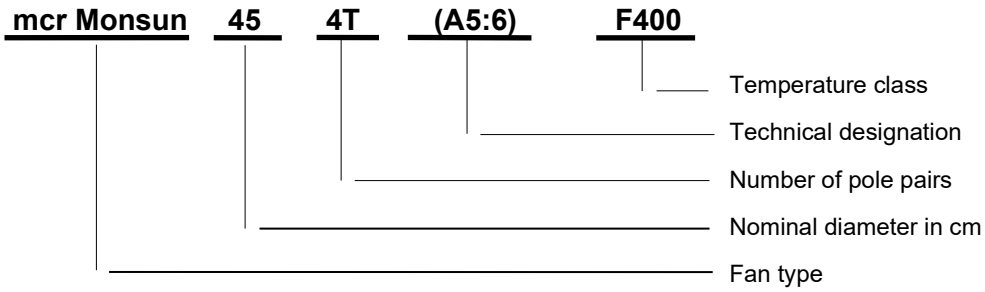
4.2. Fire resistance

- Class F400/F300 – fire resistance at 400°C or 300 °C for 120 minutes
- Class BO – without fire resistance

4.3. Versions

- two-speed or single-speed fans - unidirectional
- two-speed or single-speed fans - reversible

5. DESIGNATION



6. DESIGN AND OPERATING PRINCIPLE

6.1 Design

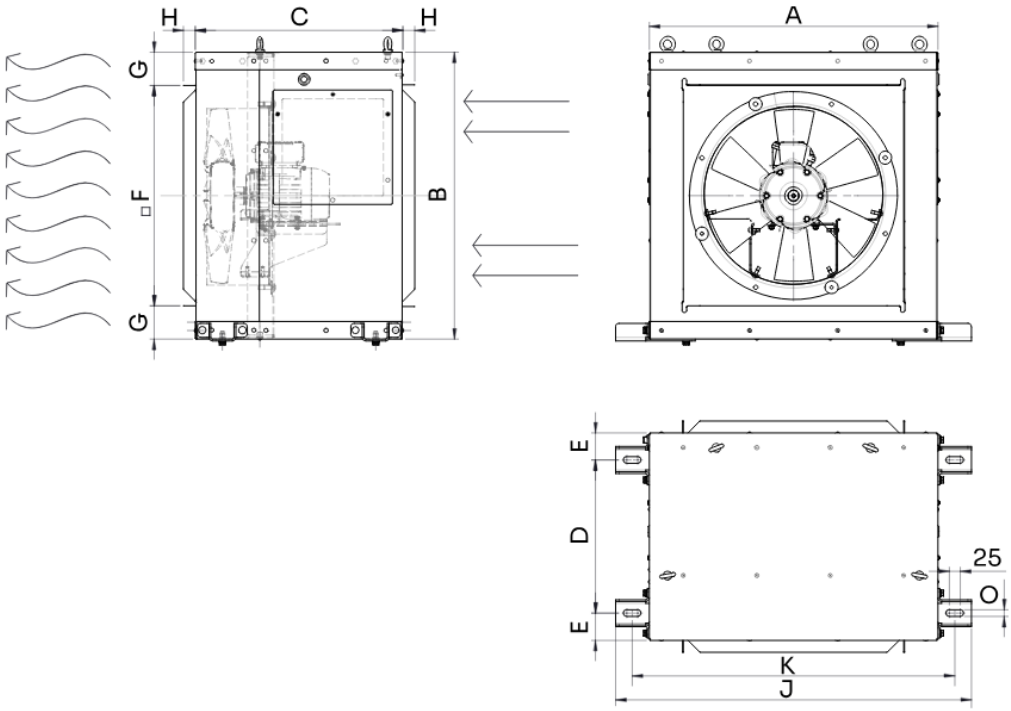
The mcr Monsun T-CCT and mcr Monsun F-CCT axial fan in a box housing consists of an electric motor made in an appropriate insulation class, an axial rotor, a set of blades, an external housing and an acoustically and thermally insulated box housing.
The motor is connected directly to the bearing rotor, on which the profiled blades are placed. The angle and number of blades depend on the required thrust and efficiency of the fan. The motor bearings for the T-CCT version are resistant to high temperatures. The forced medium flows through the housing, motor blades and silencers - fire gases, smoky air or clean air (F-CCT version).
The mcr Monsun T-CCT and F-CCT axial fan in the box housing has a junction box installed on the motor.

6.2 Operation

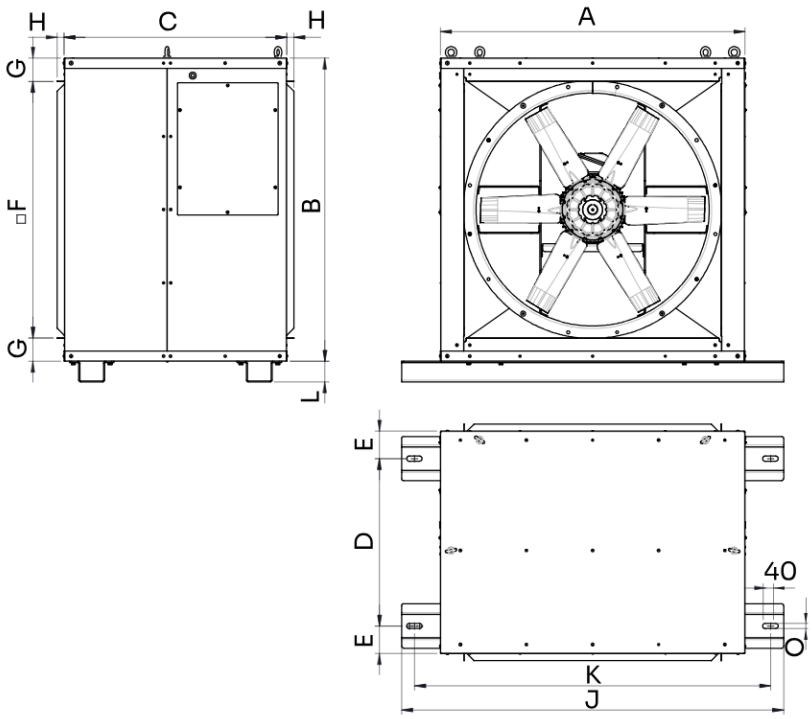
The fan does not run in standby. The fan starts up and operates after applying 3-phase voltage to the terminals of the junction box of the device.

6.3 Dimensions and technical data

The basic dimensions and technical data and parameters of the fans are given below.



mcr Monsun T-CCT and F-CCT, dimensions up to 80



mcr Monsun T-CCT and F-CCT, dimensions over 80

DIA [cm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	O [mm]
45	651	651.2	467.8	347.5	60	503.2	74	28.5	806.8	731.8	x	15
50	651	651.2	467.8	347.5	60	503.2	74	28.5	806.8	731.8	x	15
56	781.5	781.2	543.3	363.3	90	633.2	74	28.5	937.3	862.3	x	15
63	781.5	781.2	543.3	363.3	90	633.2	74	28.5	937.3	862.3	x	15
71	951.5	951.2	598.3	388.3	105	803.2	74	28.5	1107	1032	x	15
80	951.5	951.2	598.3	388.3	105	803.2	74	28.5	1107	1032	x	15
90	1181	1176	863.3	649.6	106.85	995	90.65	27	1480.5	1380	80	20
100	1181	1176	863.3	649.6	106.85	995	90.65	27	1480.5	1380	80	20
112	1420	1416	1025.79	812	106.85	1245	85.59	27	1720.5	1620	100	20
125	1420	1416	1025.79	812	106.85	1245	85.59	27	1720.5	1620	100	20

7. ASSEMBLY

The mcr Monsun T-CCT axial fan in a box housing is designed for installation in rooms where air and fire gases are to be removed (in a fire zone) or outside the fire zone. The mcr Monsun F-CCT version is designed for the purpose of pumping clean air (e.g. comfort ventilation).

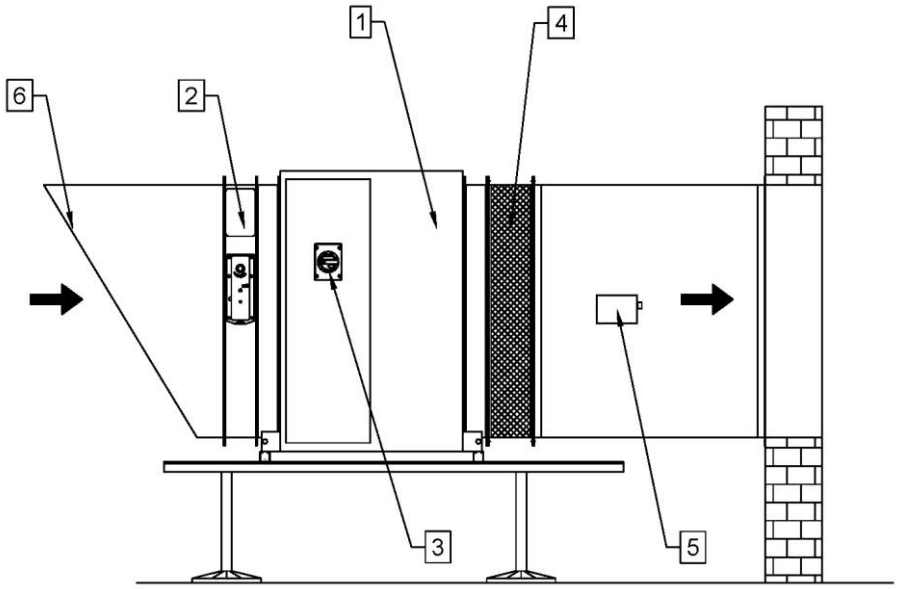
7.1. Pre-assembly inspection

Each smoke exhaust fan is inspected by the manufacturer prior to packing and shipping. Upon unpacking the delivered smoke exhaust fan, visually examine it for any damage in transport.
The motor shaft with rotor should rotate without noticeable resistance or grinding.

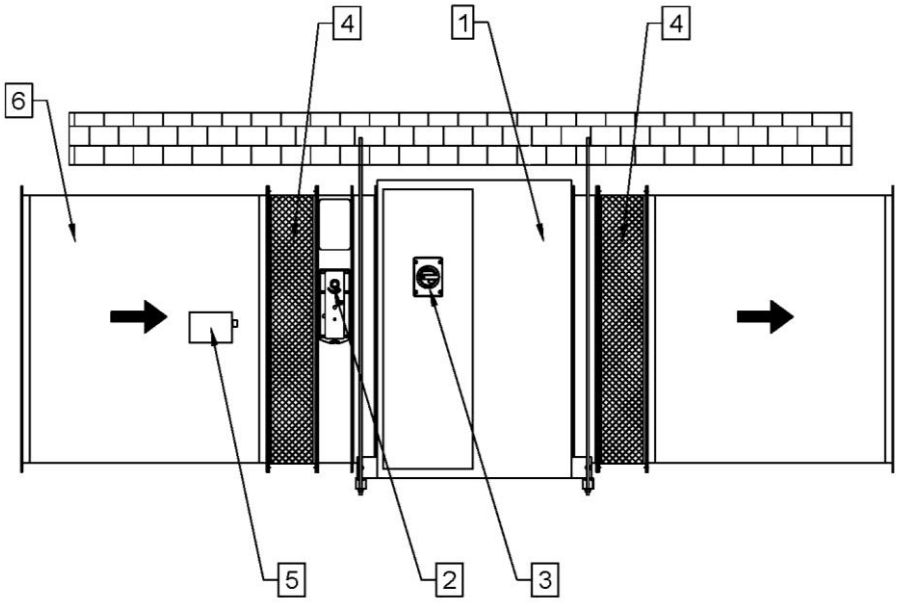
7.2. Location and assembly

The mcr Monsun T-CCT or F-CCT axial fan in a box housing is designed for mounting in a horizontal position. Before installing the fan, check the load-bearing capacity of the ceiling structure or other structural element where the device is to be suspended or placed. The mounting frame or brackets supplied with the

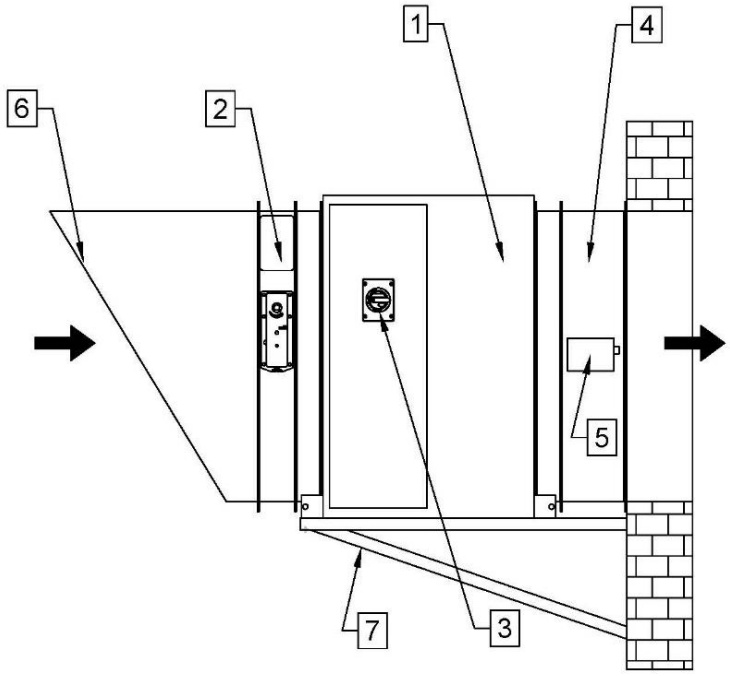
fan (being its integral part) are used for installation. The device is mounted to the structure using screws or mounting hangers (not supplied in the set) using the above-mentioned element.
Screws, mounting anchors, suspensions (diameter, length) and other mounting elements must be selected appropriately for the given size of the device and the required fire resistance.



1- mcr Monsun T-CCT or F-CCT fan
2- throttle/shut-off flap (not supplied)
3- service switch
4- flexible joint
6 – inlet nozzle with mesh (not supplied)



1- mcr Monsun T-CCT or F-CCT fan
2- throttle/shut-off flap (not supplied)
3- service switch
4- flexible joint
6 – ducts (not supplied)

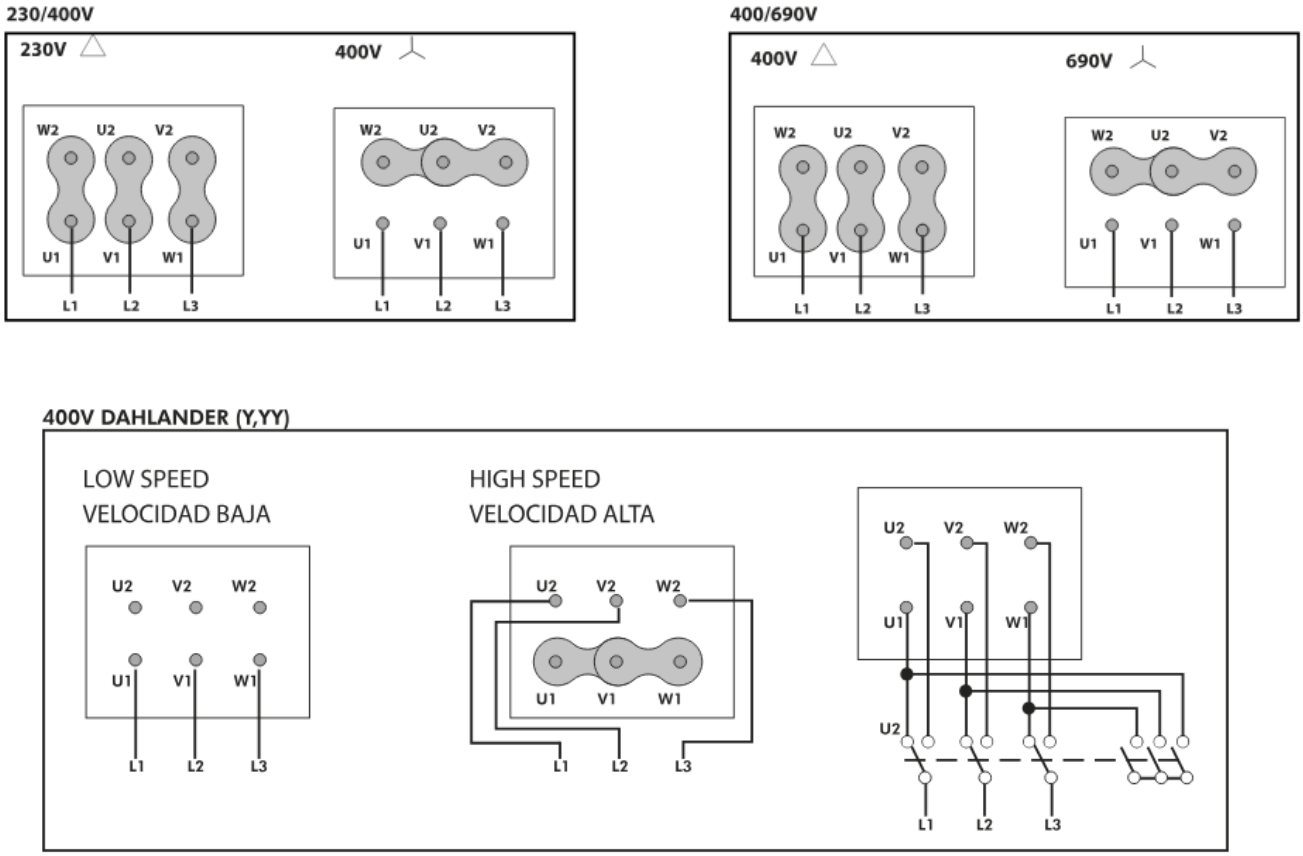


1- mcr Monsun T-CCT or F-CCT fan
2- throttle/shut-off flap (not supplied)
3- service switch
4- nozzle - connection duct (not supplied)
6 – inlet nozzle with mesh (not supplied)
7 – supporting structure (not supplied)

Examples of device mounting solutions.

7.3. Electrical connections

After the fan has been properly positioned, the electrical wiring should be properly connected to the device. The wires should be fed through the glands into the junction box located in the fan housing and connected in accordance with the description in the box. The electrical wire with the appropriate fire resistance, on the junction box-motor section, is normally installed by the manufacturer. The motor of each fan should be connected to the grid via a circuit breaker. The protection level should be set according to the motor's rated current. Grounding should be performed in accordance with standards.
After starting the fan in the ventilation system, the current consumption should be measured and checked for compliance with the motor nameplate. The current consumed by the fan during set operation must not exceed 1.1 times the rated current.
The fan's electrical supply - from the control cabinet to the fan's junction box - must be made to ensure an uninterrupted supply of electrical power during a fire. This can be achieved by using high temperature resistant cables or by using protective pipes and selecting appropriate installation routes. No external service/maintenance switches are used, which prevents inadvertent shutdown of the fan (with the sole exception of the fan-dedicated service switch with remote indication of current circuit switching). The fan control cabinets must be powered directly from mail switchboards with guaranteed uninterrupted power supply, even if the entire building is cut off from the power grid. When using a main fire switch that cuts off the power supply to the entire building, the fan power supply must be independent and allow for its normal operation during a fire.



7.4. START-UP

Before start-up of the installed fan, do the following:

- check the correctness and stability of the fan mounting.
- check all seals
- check that all electrical wiring is properly and firmly connected
- check that the phase connection sequence and PE/neutral wiring is properly connected.
- check that there are no foreign objects in the fan
- check that the protective elements are attached
- after the completed inspection, switch on the fan and check the operating properties
- when switching on the fan, also check the direction of the motor rotation by verifying the correct rotation with the direction of the arrow placed on the housing

8. TRANSPORT AND STORAGE CONDITIONS

The mcr Monsun fans are placed on pallets for transport and storage. Do not topple or throw the packaging during loading and transport. Fans may be transported by any means of transport, provided they are protected against the effects of weather conditions. Fans placed on means of transport should be protected against changing their position during transport. A visual inspection of each device should be carried out after each transport operation.

Storage should take place in rooms where:

- there is no access to dust, gases, corrosive fumes and other aggressive chemical fumes that have a destructive effect on insulating elements, motor and fan construction elements,
- the maximum relative humidity does not exceed 80% at a temperature of + 20 ºC,
- the ambient temperature is between – 20 ºC and + 40 ºC,
- there are no vibrations.

9. OHS MANUAL

Read this O&MM before fan start-up and operation. The fan does not pose a hazard provided it is carefully secured in the ventilation system and to the supporting structure. The electrical connection must be made precisely according to the attached diagram and in accordance with the instructions presented in point 7.3 of this manual. It should be performed by a person with confirmed qualifications, in accordance with applicable regulations. During use, the fan connection to the PE protective conductor should be checked. All inspection work on the fan should be performed only after disconnecting the device from the power supply.

CAUTION:
1. High-pressure and steam washers should not be used to clean the fan from deposits.
2. Leaks in connections and flexible nozzles may lead to hazards related to the release of the forced medium and should be replaced immediately.

In the event of a faulty operation of the device (excessive noise, vibrations, uneven operation), disconnect the fan from the power supply, notify the manufacturer's service or a company with the appropriate authorisation from the manufacturer to perform inspections and repairs.

10. MAINTENANCE AND SERVICING

MERCOR devices should undergo periodic technical inspections and maintenance activities at least every 12 months during the entire period of use, i.e. during the warranty period, as well as after the warranty period. Inspections and maintenance should be carried out by the manufacturer or by companies authorised to service MERCOR devices.

The obligation to perform regular service inspections of fire protection devices results from Article 3(3) of the Regulation of the Minister of Internal Affairs and Administration of 7 June 2010 on fire protection of buildings, other construction facilities and areas (Journal of Laws 2010, No. 109, item 719).

It is recommended to perform the following between inspections:

- Check the condition of electrical connections, paying particular attention to mechanical damage.
- Check the condition of the device body, paying particular attention to mechanical damage.
- Checking whether there are no obstacles that could affect the correct operation of the devices.

In order to perform activities falling within the scope of service inspections as well as service and warranty activities such as inspections or repairs, it is required for the User to provide physical access to the devices by, for example, dismantling thermal insulation, dismantling suspended ceilings, dismantling other installations if they prevent free access to the device, etc.

If the device is used for smoke exhaust during a fire only, it should be periodically run for approx. 10 minutes every 3 months.

For matters related to technical inspections, maintenance and service of the devices, please contact the representatives of the MERCOR Service Department serwis@mercor.com.pl, phone +48 58 341 42 45 ext. 170 or fax +48 58 341 39 85 from 8:00 a.m. to 4:00 p.m. (Mon-Fri).

11. WARRANTY AND GUARANTEE CONDITIONS

1. MERCOR grants a 12-month quality guarantee and warranty for the devices, counted from the date of purchase, unless the agreement provides otherwise.
2. A guarantee claim should be sent to MERCOR within 7 days from the date of discovery of the defect covered by the guarantee (and/or warranty).
3. Guarantee claims can be submitted by phone: +48 58 341 42 45, by fax: 58/341-39-85, e-mail: reklamacje@mercor.com.pl or by sending a letter to the following address: MERCOR, ul. Grzegorza z Sanoka 2, 80-408 Gdańsk.
4. If during the guarantee and warranty period any physical defects covered by the warranty and/or guarantee are revealed, MERCOR undertakes to remove them as soon as possible, counting from the date of receipt of the written claim and delivery of proof of purchase (agreement, invoice, delivery document), subject to point 10.

5. MERCOR reserves the right to extend the repair time in the case of complicated repairs or repairs requiring the purchase of non-standard components or spare parts.
6. The liability under the guarantee and warranty covers only defects resulting from causes inherent in the sold devices.
7. In the case of defects resulting from improper use of the devices (inconsistent with the O&MM) or other reasons indicated in point 10, the Buyer / person entitled to the guarantee may be charged with the costs of their removal.
8. The condition for removing defects is that the reporting party provides access to the full work site, in particular ensuring: a lift in the case of devices installed at a height above 3 m, free access to the rooms in which the devices were installed and necessary revisions, dismantling of thermal insulation, dismantling of suspended ceilings, dismantling of other installations if they prevent free access to the device.
9. In the event that the device cannot be repaired at the place of its installation, MERCOR reserves the right to dismantle it, possibly deliver it to the address indicated by MERCOR and reassemble it. The cost of this operation is borne by the buyer/guarantee holder.
10. The guarantee and warranty do not cover:
    - damage and failure of devices caused by misuse (inconsistent with the Operation and Maintenance Manual), interference by the user or persons unauthorised by MERCOR, lack of periodic technical inspections, failure to perform maintenance activities described in the "MAINTENANCE AND SERVICING" section of this document,
    - damage to equipment resulting from reasons other than those attributable to MERCOR, in particular: random events such as torrential rain, flood, hurricane, inundation, lightning strike, overvoltage in the grid, explosion, hail, aircraft crash, fire, avalanche, landslide and secondary damage resulting from the above-mentioned reasons. Torrential rain is considered to be rain with a performance factor of at least 4, as determined by the Polish Institute of Meteorology and Water Management - National Research Institute (IMiGW). If it is not possible to determine the factor referred to in the preceding sentence, the actual state and extent of damage at the place of its occurrence, which will indicate the effect of torrential rain, will be taken into account A hurricane is considered to be a wind with a speed of at least 17.5 m/s (damage is considered to have been caused by a hurricane if the effect of a hurricane has been confirmed in the immediate vicinity),
    - damage resulting from failure to immediately report a detected defect,
    - deterioration in the quality of coatings caused by their natural ageing processes,
    - defects caused by the use of abrasive or aggressive cleaning agents,
    - damage resulting from the action of aggressive external factors, in particular chemical and biological factors, or the origin of which is related to production processes and activities carried out in the facility or its immediate vicinity in which the devices were installed,
    - parts subject to natural wear and tear during use (e.g. seals), unless they have a manufacturing defect,
    - damage resulting from improper transport, unloading or storage of the device,
    - damage resulting from assembly not in accordance with the provisions of the O&MM and good construction practice,
    - devices or their parts in the event that the nameplate or guarantee seals have been torn off or damaged.
11. The guarantee and warranty expire with immediate effect in the event that:
    - The Buyer/guarantee and warranty holder makes design changes on their own without prior agreement with MERCOR,
    - periodic technical inspections and maintenance activities were not performed on time or were performed by unauthorised persons or service not authorised by MERCOR SA or when the devices were used incorrectly,
    - there was any interference by persons unauthorised by MERCOR - outside the scope of activities falling within the scope of normal operation of the devices.
12. The buyer/guarantee and warranty holder is obliged to properly operate (in accordance with the O&MM) the devices and to carry out periodic technical inspections and maintenance activities, in accordance with the principles described in this document in the section "MAINTENANCE AND SERVICING".

In matters not covered by these warranty and guarantee conditions, the relevant provisions of the Civil Code shall apply.

FAN MEASUREMENT REPORT

FAN TYPE	
SERIAL NO.	
INSTALLATION SITE	
RATED CURRENT	

After installing the fan in its intended place and making the appropriate electrical connections, immediately measure the current consumption during steady operation.

MEASUREMENT RESULTS [A]

U1	V1	W1	U2	V2	W2

NOTES:

Full name of the person performing the measurements	Measurement date	Signature

Return this Report immediately after completion of measurements to:

Mercor Light&Vent Sp. z o.o.
Fire Ventilation Systems
Ul. Grzegorza z Sanoka 2
80-408 Gdańsk

within a maximum of 8 weeks from the date of purchase of the device (the date of purchase is the date of the VAT invoice).

SENDING THE MEASUREMENT REPORT IS THE BASIS FOR THE VALIDITY OF THE WARRANTY/GUARANTEE GIVEN FOR THE DEVICE