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TECHNICAL MANUAL

Smoke exhaust axial fan

mcr Monsun T

Version: Monsun T 26.01.26.10

FIRE VENTILATION SYSTEMS

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.

CAUTION

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 Technical Manual is addressed to users/operators of type mcr Monsun T smoke exhaust axial fans. This document is intended to provide guidelines on the application, design, commissioning and operation of the product.

Read this Technical Manual thoroughly before installing this equipment at its operating site and commissioning.

If the equipment is found malfunctioning or defective, contact the manufacturer or their Authorised Representative.

Due to the continuous product improvement policy, we reserve the right to change the product design in order to improve its performance and safety.

The design of the fans complies with the essential requirements of PN-EN 12101-3:2015 for smoke exhaust fans. The design also meets the state of the art in technology, while assuring health and safety protection.

2. MANUFACTURER'S DISCLAIMER

- The manufacturer shall not be liable for any consequences of non-intended use or misuse of the equipment.
- DO NOT install any components that are not included in the equipment composition or accessories.
- Unauthorised modifications or alteration of this equipment is strictly prohibited.
- Protect the equipment enclosure (casing) from mechanical damage.
- Before attempting to install this equipment, verify the load bearing capacity of the structural members to which the equipment is to be fastened. Unreliable fastening may result in damage or failure of the equipment and/or be hazardous to all nearby personnel.
- This fan is not intended for forcing air with viscous pollutants that may settle on the equipment, and especially on its rotor.
- This fan is not intended for forcing air with corrosive pollutants that may be detrimental to the equipment.
- The maximum actual rotor RPM must never exceed the nominal (rated) RPM speed in operation.
- The manufacturer shall not be liable for any injuries, trauma or other bodily harm caused by misuse of this equipment.

3. SUBJECT

The subject of this Technical Manual is:

- mcr Monsun T F400, smoke exhaust axial fans
- mcr Monsun T F300, smoke exhaust axial fans

4. INTENDED USE

4.1. Application

The type mcr Monsun T smoke exhaust axial fans are ducted fans intended to remove smoke and heat generated in indoor rooms on fire. The equipment facilitates evacuation of persons from the area on fire, protect the building structure and its furnishing from high temperature, facilitate fire fighting, and inhibit spreading of fire to adjacent fire zones.
The versions available are:

- single-functional with single-speed motors;
- two-functional, i.e. for general and fire ventilation and with two-speed motors.

The fans can be installed indoors or outdoors: on suitable consoles with the motor in the vertical orientation, or on the bottom feet with the motor in the horizontal orientation.
The fan overall compression ratio makes them compatible with ventilation systems characterised by relatively high flow resistance.

The operating temperature range for fans in general ventilator systems is -20°C to + 40°C.
The fan may force dry air only and with a maximum particulate content of 0.3 g/m³.

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

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

The maximum actual rotor RPM must never exceed the nominal (rated) RPM speed in operation.

Following operation in actual fire conditions, the fan will not be fit for further use.

4.2. Fire resistance

- Class F400 – fire resistance at 400ºC for 120 minutes
- Class F300 – fire resistance at 300ºC for 60 minutes

4.3. Versions

- Single-speed fans
- Two-speed fans

Form versions

- Long horizontal casing
- Short casing
- Long vertical casing

5. DESIGN AND OPERATING PRINCIPLE

5.1 Design

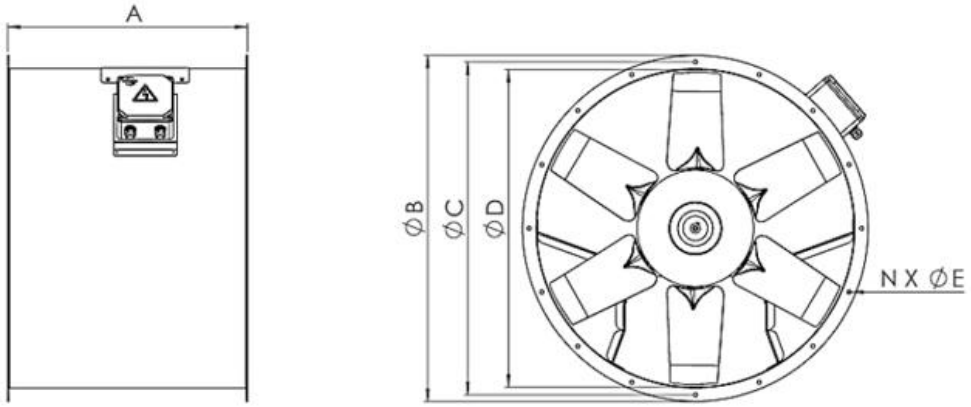
The mcr Monsun T axial smoke extraction fan consists of an electric motor with appropriate insulation class, an axial rotor, a blade assembly, and an external housing. The electric motor driving the fan is mounted on a support frame inside the housing. The motor is directly connected to a bearing-mounted rotor, which carries profiled blades. The angle and number of blades depend on the required pressure and efficiency for the fan. The motor bearings are resistant to high temperatures and require no maintenance. The pumped medium—fire gases and smoke-laden air—flows through the housing, motor, and blades. The fan has a connecting flange on both the suction and discharge sides.

5.2 Function

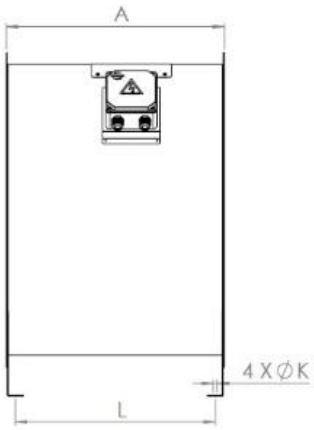
The single-functional fans do not run in standby. When supply voltage is present on the electric box terminals, the fan is started and running.
The two-functional fans run at low speed (RPM) to handle general ventilation under normal conditions. After providing the alarm signal to the control panel, it automatically starts running with the second speed, which is higher than the first one. The fan can be made unidirectional (working in one direction) or reversible (working in two directions, depending on the needs).

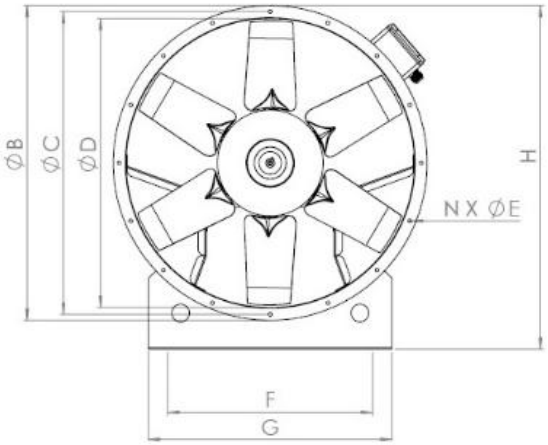
5.3 Dimensions

The basic dimensions are given below with technical data and parameters.

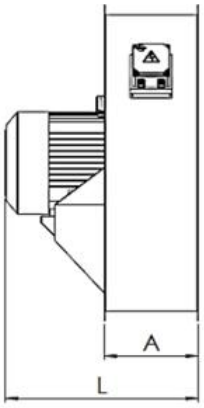


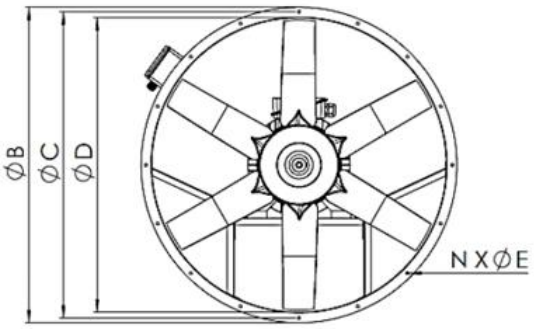
mcr Monsun T – long horizontal casing (U)					
Typ	A	B	C	D	N x ØE
mcr Monsun T 400	420	495	450	400	8 x Ø11
mcr Monsun T 450	420	545	500	450	8 x Ø11
mcr Monsun T 500	420	595	550	500	8 x Ø11
mcr Monsun T 560	420	655	610	560	8 x Ø11
mcr Monsun T 630	470	725	680	630	8 x Ø11
mcr Monsun T 710	500	805	760	710	8 x Ø11
mcr Monsun T 800	580	895	850	800	16 x Ø11
mcr Monsun T 900	700	995	950	900	16 x Ø13
mcr Monsun T 1000	775	1095	1050	1000	16 x Ø13
mcr Monsun T 1250	775	1345	1300	1250	16 x Ø13





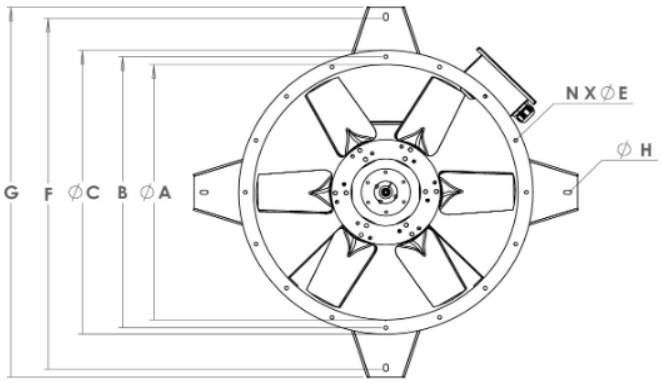
mcr Monsun T – long casing with assembly foot (UY)										
Typ	A	B	C	D	F	G	L	H	N x ØE	ØK
mcr Monsun T 400	420	495	450	400	200	400	364	500	8xØ11	Ø11
mcr Monsun T 450	420	545	500	450	250	450	364	550	8xØ11	Ø11
mcr Monsun T 500	420	595	550	500	300	500	364	600	8xØ11	Ø11
mcr Monsun T 560	420	655	610	560	360	560	364	670	8xØ11	Ø11
mcr Monsun T 630	470	725	680	630	430	630	414	790	8xØ11	Ø11
mcr Monsun T 710	500	805	760	710	510	710	444	870	8xØ11	Ø11
mcr Monsun T 800	580	895	850	800	500	800	522	970	16xØ11	Ø13
mcr Monsun T 900	700	995	950	900	600	900	974	1070	16xØ13	Ø13
mcr Monsun T 1000	775	1095	1050	1000	700	1000	717	1167	16xØ13	Ø13
mcr Monsun T 1250	775	1345	1300	1250	950	1250	717	1417	16xØ13	Ø13

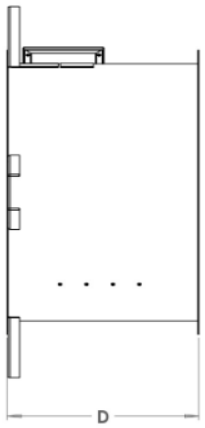




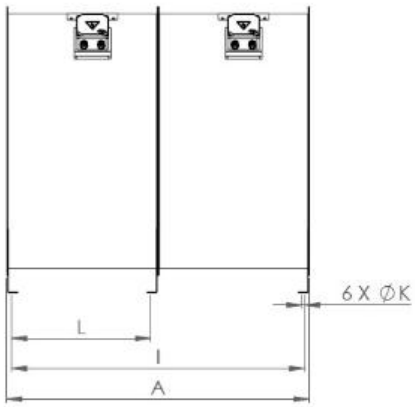
mcr Monsun T – short casing (K)						
Typ	A	B	C	D	L_{max}*	N x ØE
mcr Monsun T 400	400	495	450	400	700	8 x Ø11
mcr Monsun T 450	400	545	500	450	700	8 x Ø11
mcr Monsun T 500	400	595	550	500	700	8 x Ø11
mcr Monsun T 560	400	655	610	560	700	8 x Ø11
mcr Monsun T 630	400	725	680	630	850	8 x Ø11
mcr Monsun T 710	400	805	760	710	850	8 x Ø11
mcr Monsun T 800	400	895	850	800	940	16 x Ø11
mcr Monsun T 900	400	995	950	900	940	16 x Ø13
mcr Monsun T 1000	400	1095	1050	1000	990	16 x Ø13
mcr Monsun T 1250	400	1345	1300	1250	1150	16 x Ø13

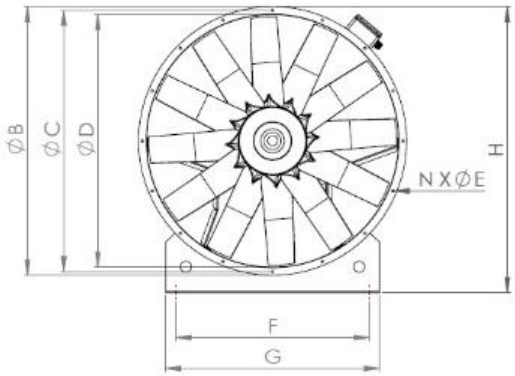
* dimension depends on the size of the fan motor



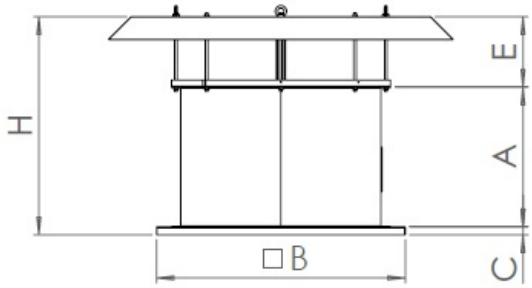


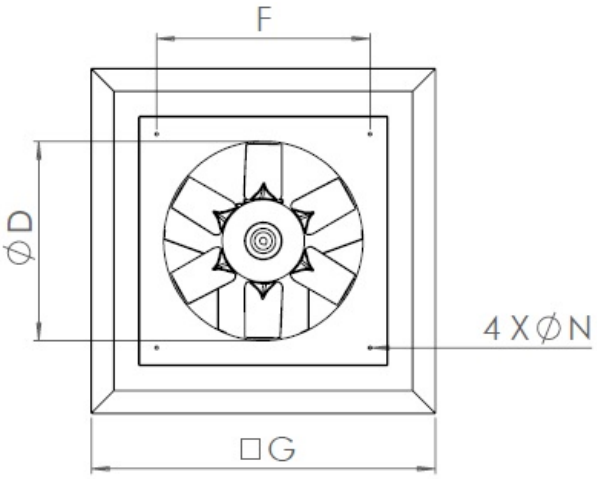
mcr Monsun T – long vertical casing(UD)								
Typ	A	B	C	D	F	G	NxØE	ØH
Monsun T 400	400	450	490	420	700	760	8X11	12
Monsun T 450	450	500	540	420	750	810	8X11	12
Monsun T 500	500	550	590	420	800	860	8X11	12
Monsun T 560	560	610	650	420	860	920	8X11	12
Monsun T 630	630	680	720	470	930	990	8X11	12
Monsun T 710	710	760	800	500	1010	1070	8X11	12
Monsun T 800	800	850	890	580	1100	1160	16X13	12
Monsun T 900	900	950	990	700	1200	1260	16X13	12
Monsun T 1000	1000	1050	1090	775	1300	1360	16X13	12
Monsun T 1250	1250	1300	1340	775	1550	1610	16X13	12



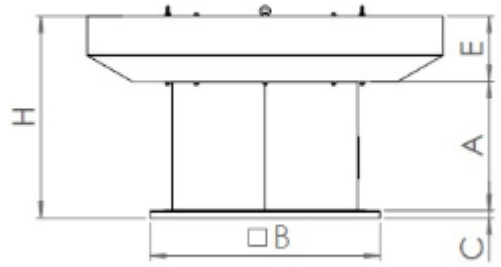


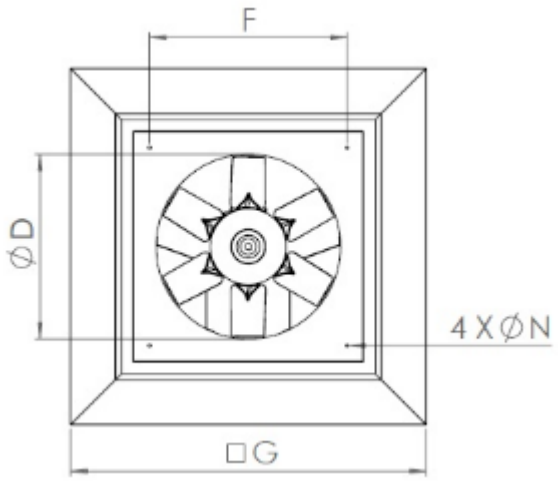
mcr Monsun F-S – series										
Typ	A	B	C	D	F	G	L	H	I	N x ØE
mcr Monsun F-S 400	840	460	430	400	300	360	378	500	798	8 x Ø11
mcr Monsun F-S 450	840	510	484	450	320	400	378	550	798	8 x Ø11
mcr Monsun F-S 500	840	560	537	500	370	450	378	600	798	8 x Ø11
mcr Monsun F-S 560	840	620	597	560	420	500	378	670	798	8 x Ø11
mcr Monsun F-S 630	940	690	667	630	460	540	428	790	898	8 x Ø11
mcr Monsun F-S 710	1000	770	747	710	500	600	458	870	958	8 x Ø11
mcr Monsun F-S 800	1160	880	844	800	580	680	538	970	1118	16 x Ø11
mcr Monsun F-S 900	1400	980	944	900	660	760	644	1070	1344	16 x Ø13
mcr Monsun F-S 1000	1550	1080	1044	1000	750	850	717	1167	1492	16 x Ø13
mcr Monsun F-S 1250	1550	1330	1294	1250	960	1060	717	1417	1492	16 x Ø13



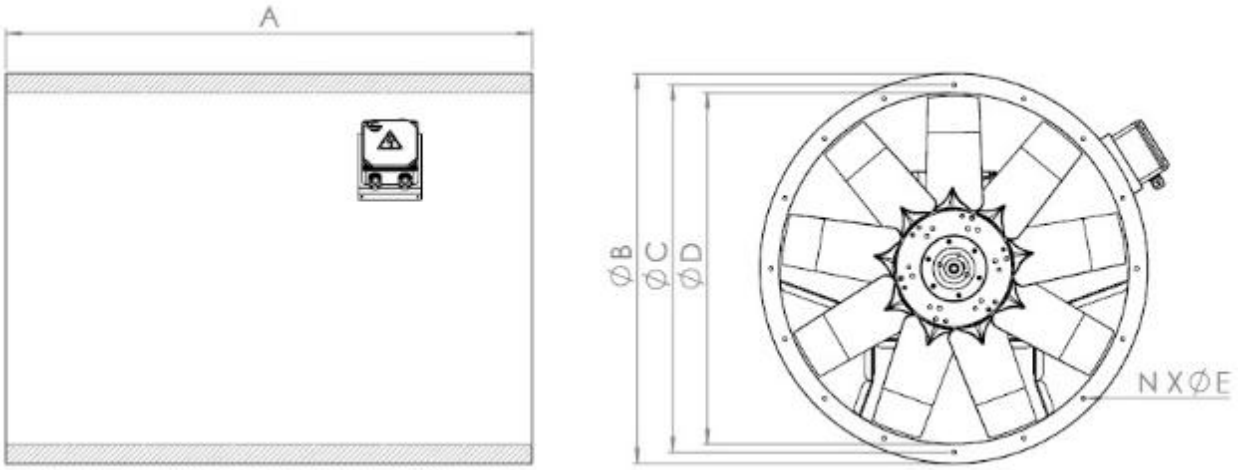


mcr Monsun T-HF – roof casing horizontal outflow									
Typ	A	B	C	D	E	F	G	H	ØN
mcr Monsun T-HF 400	420	575	30	400	155	525	900	660	Ø11
mcr Monsun T-HF 450	420	630	30	450	151	580	963	660	Ø11
mcr Monsun T-HF 500	420	695	30	500	147	645	1023	660	Ø11
mcr Monsun T-HF 560	420	745	30	560	140	695	1095	660	Ø11
mcr Monsun T-HF 630	470	815	30	630	151	765	1179	725	Ø11
mcr Monsun T-HF 710	500	895	30	710	178	845	1275	790	Ø11
mcr Monsun T-HF 800	580	995	30	800	191	945	1383	895	Ø13
mcr Monsun T-HF 900	700	1090	30	900	241	1040	1400	1075	Ø13
mcr Monsun T-HF 1000	775	1190	30	1000	265	1140	1624	1185	Ø13
mcr Monsun T-HF 1250	775	1355	30	1250	375	1305	1720	1185	Ø13

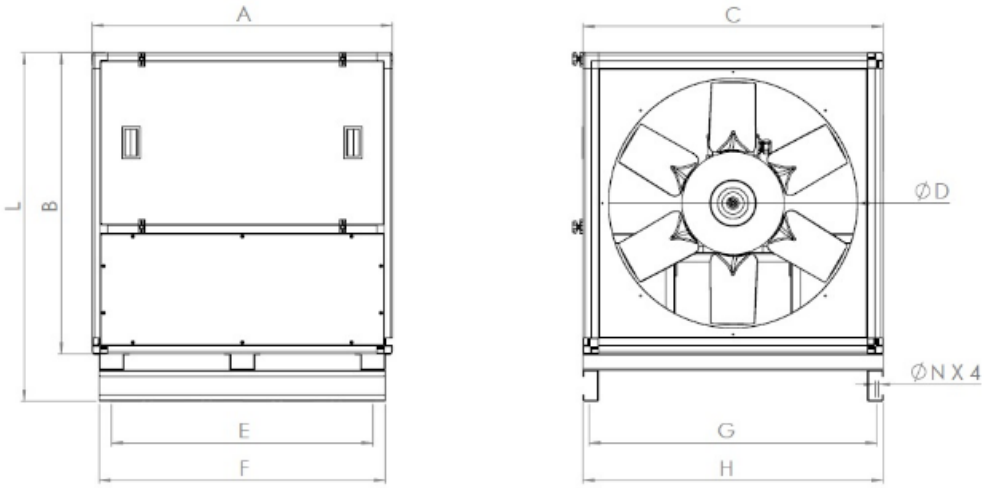




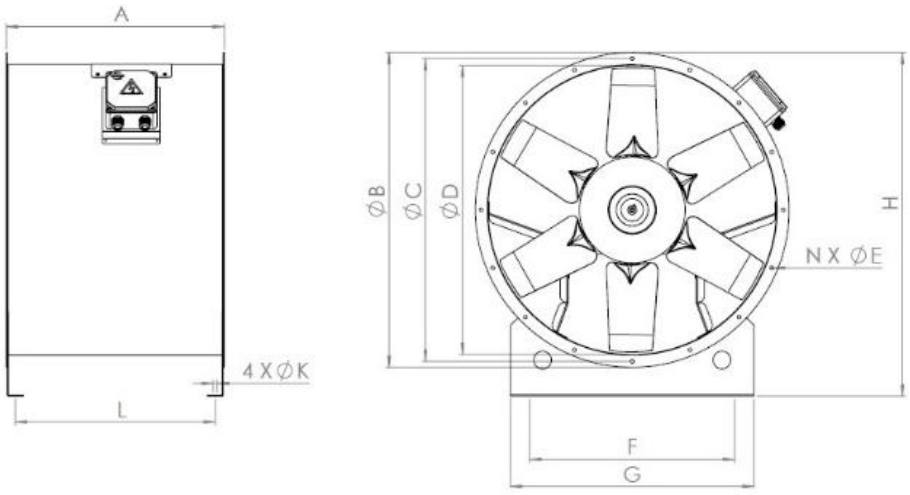
mcr Monsun T-VF – roof housing vertical outflow									
Typ	A	B	C	D	E	F	G	H	ØN
Typ	A	B	C	D	E	F	G	H	ØN
mcr Monsun T-VF 400	420	575	30	400	207	525	700	660	Ø11
mcr Monsun T-VF 450	420	630	30	450	208	580	852	660	Ø11
mcr Monsun T-VF 500	420	695	30	500	182	645	902	660	Ø11
mcr Monsun T-VF 560	420	745	30	560	210	695	1050	660	Ø11
mcr Monsun T-VF 630	470	815	30	630	225	765	1210	725	Ø11
mcr Monsun T-VF 710	500	895	30	710	250	845	1380	790	Ø11
mcr Monsun T-VF 800	580	995	30	800	282	945	1540	895	Ø13
mcr Monsun T-VF 900	700	1090	30	900	342	1040	1605	1075	Ø13
mcr Monsun T-VF 1000	775	1190	30	1000	377	1140	1875	1185	Ø13
mcr Monsun T-VF 1250	775	1145	30	1250	380	1095	2140	1185	Ø13



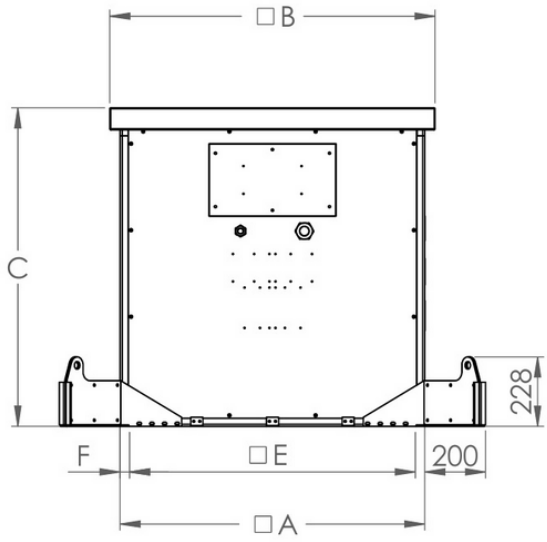
mcr Monsun T-SB – silencer body					
Typ	A	B	C	D	N x ØE
mcr Monsun T-SB 400	800	500	430	400	8 x Ø11
mcr Monsun T-SB 450	1000	550	484	450	8 x Ø11
mcr Monsun T-SB 500	1000	600	537	500	8 x Ø11
mcr Monsun T-SB 560	1000	660	597	560	8 x Ø11
mcr Monsun T-SB 630	1250	730	667	630	8 x Ø11
mcr Monsun T-SB 710	1250	810	747	710	8 x Ø11
mcr Monsun T-SB 800	1250	900	844	800	16 x Ø11
mcr Monsun T-SB 900	1250	1000	944	900	16 x Ø13
mcr Monsun T-SB 1000	1500	1100	1044	1000	16 x Ø13
mcr Monsun T-SB 1250	1500	1350	1294	1250	16 x Ø13

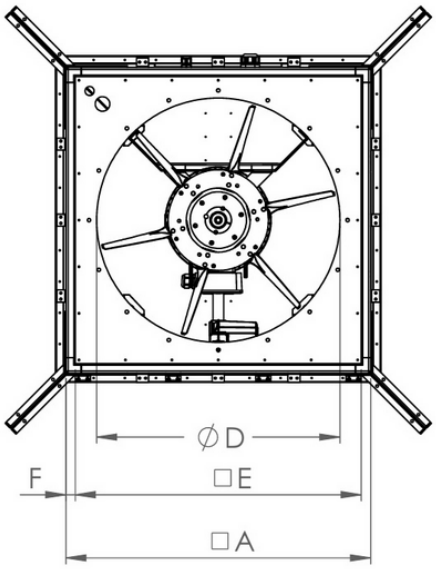


mcr Monsun T-CT– cel type casing										
Typ	A	B	C	D	E	F	G	H	L	ØN
mcr Monsun T-CT 400	570	570	570	400	445	525	530	570	723	Ø9
mcr Monsun T-CT 450	620	620	620	450	495	575	580	620	773	Ø9
mcr Monsun T-CT 500	670	670	670	500	545	625	630	570	823	Ø9
mcr Monsun T-CT 560	710	730	730	560	605	685	690	730	883	Ø9
mcr Monsun T-CT 630	800	800	800	630	675	755	760	800	953	Ø9
mcr Monsun T-CT 710	880	880	880	710	755	835	840	880	1033	Ø9
mcr Monsun T-CT 800	970	970	970	800	845	925	930	970	1123	Ø11
mcr Monsun T-CT 900	1070	1070	1070	900	945	1025	1030	1070	1223	Ø11
mcr Monsun T-CT 1000	1170	1170	1170	1000	1045	1125	1130	1170	1323	Ø11
mcr Monsun T-CT 1250	1420	1420	1420	1250	1295	1375	1380	1420	1573	Ø11



mcr Monsun T-TS – twin spindle									
Typ	A	B	C	D	F	G	L	H	N x ØE
mcr Monsun T-TS 400	550	460	430	400	300	360	508	500	8 x Ø11
mcr Monsun T-TS 450	550	510	484	450	320	400	508	550	8 x Ø11
mcr Monsun T-TS 500	550	560	537	500	370	450	508	600	8 x Ø11
mcr Monsun T-TS 560	600	620	597	560	420	500	558	670	8 x Ø11
mcr Monsun T-TS 630	700	690	667	630	460	540	658	790	8 x Ø11
mcr Monsun T-TS 710	750	770	747	710	500	600	708	870	8 x Ø11
mcr Monsun T-TS 800	850	880	844	800	580	680	808	970	16 x Ø11
mcr Monsun T-TS 900	900	980	944	900	660	760	844	1070	16 x Ø13
mcr Monsun T-TS 1000	1000	1080	1044	1000	750	850	942	1167	16 x Ø13
mcr Monsun T-TS 1250	1250	1330	1294	1250	960	1060	1192	1417	16 x Ø13





mcr Monsun T-L – casing type L Lobby						
Typ	A	B	C	D	E	F
mcr Monsun T-L 400	610	680	900	400	550	30
mcr Monsun T-L 450	660	730	925	450	600	30
mcr Monsun T-L 500	710	780	950	500	650	30
mcr Monsun T-L 560	770	840	975	560	710	30
mcr Monsun T-L 630	840	910	1000	630	780	30
mcr Monsun T-L 710	920	990	1025	710	860	30
mcr Monsun T-L 800	1010	1080	1050	800	950	30
mcr Monsun T-L 900	1110	1180	1075	900	1050	30
mcr Monsun T-L 1000	1210	1280	1100	1000	1150	30
mcr Monsun T-L 1120	1330	1400	1125	1120	1270	30
mcr Monsun T-L 1250	1460	1530	1150	1250	1400	30

Note - Dimension of the opening in the ceiling: dimension A-100 mm

5.4. Accesories

The fan can work with accessories such as:

- **The flexible joint**

The special fibreglass silicate textile ensure durability at 400ºC for 120 min. Flexible joint is used to eliminate the vibrations transmitted from the fan to the ventilation system. It acts as a vibration damper. It is also used to compensate for thermal elongation. The fan integrated in a ventilation system should feature the flexible joint on the suction and pressure sides.

- **The counterflange**

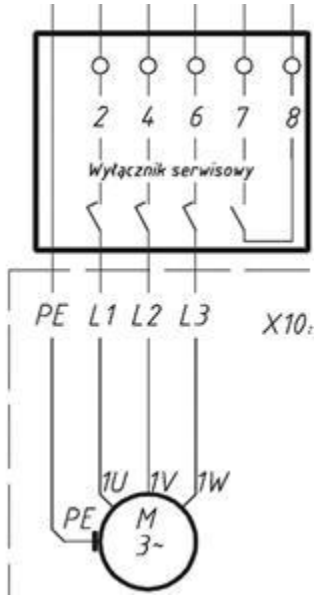
made of galvanized steel sheet. Powder-coated in standard, or galvanized on custom order. This fitting is first used for installation of flexible joints on the fan and to connect the ventilation system to the fan.

- **The safety mesh**

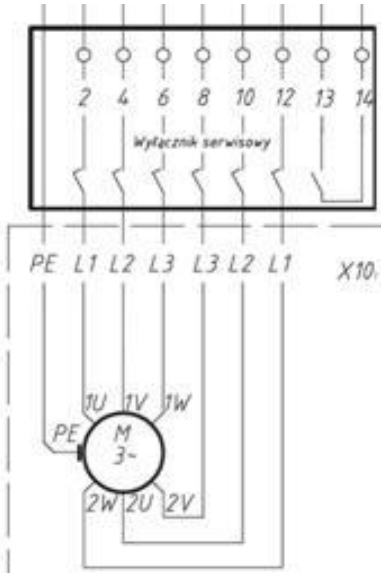
made of galvanized steel sheet and galvanized wire mesh. Powder-coated in standard, or galvanized on custom order. The fitting protects the fan from ingress of foreign bodies. The product is designed for direct mounting on the fan casing flange with free-flow suction and forcing. Periodically check that the safety mesh is clean and clean it when necessary.

- **The service switch**

isolates the fan from electrical power when inspection or maintenance work is necessary. Each service switch features an auxiliary contact which indicates the power off position.
Install the service switch at a minimum distance of 9 cm from the fan body, i.e. on a console attached to e.g. the casing flange.
The 3-pole service switch is designed for motors rated at 230/400 V [single-speed versions].
The 6-pole service switch is designed for single- and two-speed motors rated at 400/690 V and two-speed motors rated at 230/400 V.



Connection: 3-pole switch



Connection: 6-pole switch

- **The bottom feet**

made of galvanized steel sheet. Powder-coated in standard, or galvanized on custom order. The bottom feet are intended for horizontal installation of the fan [horizontal orientation of the fan axis]. Fasten the feet to the fan housing flange with M8 or M10 bolts, depending on the equipment size. Note that the motor base must be level in the horizontal plane once the fan has been set in place. The openings in the bottom shelf of each feet allow tightening of vibration dampers. Do not use the bottom feet for installation in the vertical orientation.

- **The kit with electric cable and connection box,**
- **The PTC probe, PT100, bimetallic detectors**
- **Automatic non-return damper**

the damper body is made of galvanized steel sheet. Powder-coated in standard, or galvanized on custom order. The damper blade is made of aluminium sheet. The automatic non-return dampers are installed to prevent air circulation and heat losses when the fan is in standstill. The damper needs to be truly level to operate correctly.

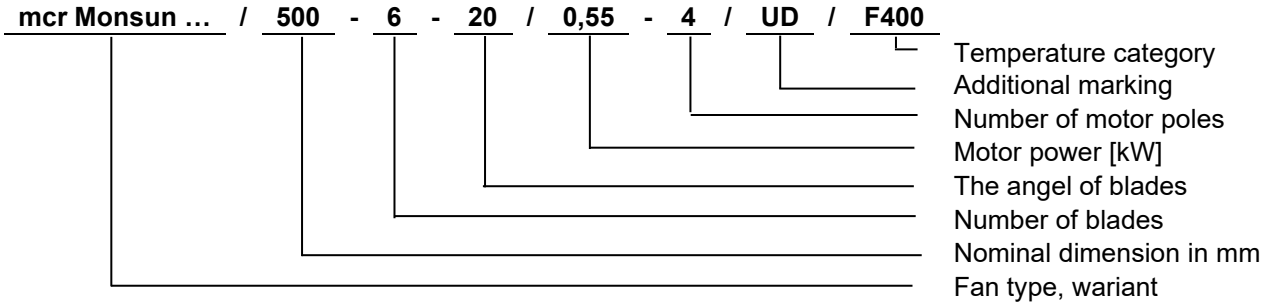
- **The noise muffler**

the noise muffler body is made of galvanized steel sheet. The inner core is made of perforated galvanized metal sheet. The muffling part is made of non-flammable sound-proofing wool.
The threaded holes in the noise muffler allow direct fastening on the fan housing flange. Seal the joint interface with high-temperature silicone. The noise muffler dampens the noise generated by the fan.

- **The nozzle**

the nozzle with safety mesh is made of galvanized steel sheet. The product is designed to equalize the air stream entering the fan.

6. IDENTIFICATION MARKING



7. INSTALLATION

The mcr Monsun T smoke exhaust axial fan is designed for vertical and horizontal installation.The equipment can be installed indoors or outdoors.

7.1. Pre-assembly inspection

Each smoke exhaust fan is factory 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 should rotate with the rotor without evident resistance or scraping.

7.2. Location and assembly

Fan type mcr Monsun T, Monsun T-S
The fan can be installed horizontally or vertically, depending on the version. Before installing the fan, check the load-bearing capacity of the roof, ceiling, walls, and floor of the room where the unit is to be installed.

If installing the fan on a roof or in a room, in a vertical operating position, prepare and secure an opening in the roof or ceiling/floor of the room, with dimensions appropriate to the diameter or opening of the fan. For roof installation, place a roof base appropriate for the roof type, fan weight, and diameter over the prepared opening. The base should be level and anchored to the roof slope. (The point of contact between the base and the roof slope should be protected from weather conditions with appropriate roofing materials.) Place the fan on the prepared base. Secure the assembly with screws. Protect the fan discharge outlet, e.g., with a roof outlet to prevent rainwater or snow from entering the building. The joints between individual devices (e.g., the base with the fan, the fan with the exhaust vent, etc.) should be sealed with materials that ensure a tight connection. If mounting the fan vertically on a roof or indoors, directly on the ceiling, a vertical bracket should be prepared or the fan should be ordered with a ready-made system bracket for vertical installation (vertical operation). It is recommended to screw vibration isolators to the bracket to reduce vibrations associated with the fan's operation.

If mounting the fan horizontally (e.g., on the roof or floor), the mounting feet should be attached to the fan housing using screws. The prepared assembly should be placed on vibration isolators previously prepared and anchored to the ground or frame. The screws and anchors (diameter and length) must be selected appropriately for the size of the unit. If mounting the fan under the ceiling, a suitable support structure should be constructed. After installing the vibration dampers and mounting feet, the fan should be placed on the structure. The mounting screws and anchors (diameter and length) must be selected appropriately for the given unit size.

Monsun T-L (lobby) fan
The fan can be installed in a vertical position. Before installing the fan, check the load-bearing capacity of the roof structure where the unit will be placed. The fan is equipped with mounting/transportation elements (reference 3 – drawing below). These elements can be removed or left, depending on the installer's decision. If the elements (reference 3) are removed, the holes in the fan housing remaining after disassembly should be sealed against the ingress of water, snow, etc. The mounting/transportation

elements can be used to anchor the fan to the roof slope, base, etc. Additionally, to anchor the fan to the roof slope or roof base, use elements such as an "L" type (not supplied with the fan). The number of elements should be adjusted to the size of the fan. The "L" elements are mounted to the lower part of the fan housing frame with screws and to the roof slope or roof base with mounting screws. The entire assembly must be protected from weather conditions (water, snow, etc.). If mounting on a roof base that does not allow the use of "L" elements, the base must be connected to the fan housing, e.g., using flat bars around the entire perimeter of the housing. The flat bars should be mounted to the lower part of the housing similarly to the "L" elements and to the base. The entire connection should be sealed (protected from weather conditions).

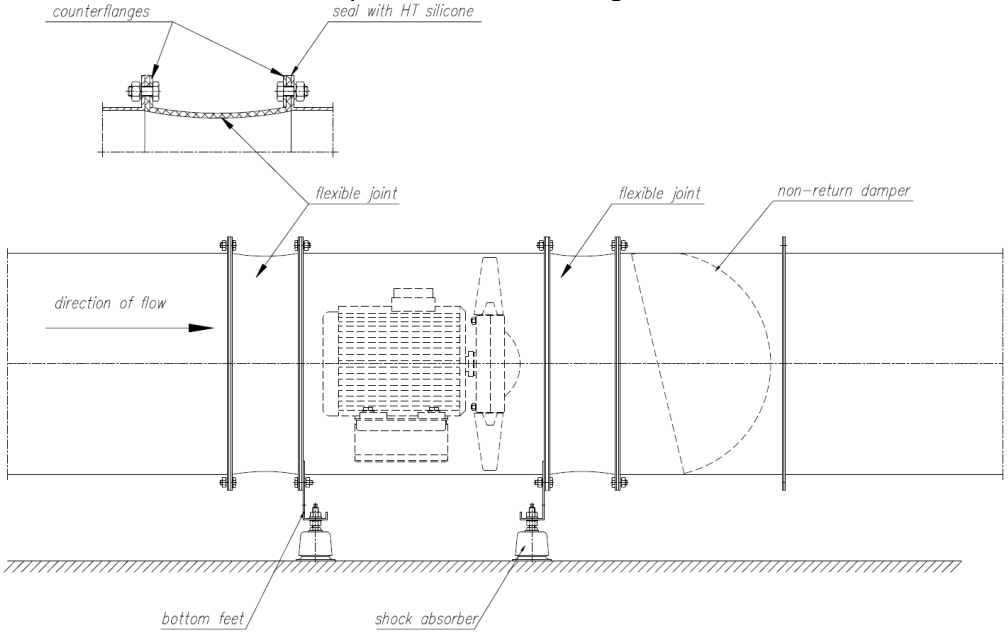
Monsun T-HF, T-VF Fan

The fan must be located outside the fire zone. It must be installed horizontally – with the motor axis vertical. Before installing the fan, check the load-bearing capacity of the roof structure on which the unit will be placed. Then, prepare and secure an opening in the roof slope with a diameter appropriate for the fan diameter. A roof base appropriate for the given roof type should be placed over the opening and leveled. After leveling, attach the base to the roof using mounting anchors, seal the joint between the base and the roof, and perform appropriate roofing work. Place the fan on the base, inserting an anti-vibration gasket between the roof base and the fan base. The device is secured using screws around the base's circumference.

Connecting the smoke exhaust fan to the (smoke) ventilation system:

Connect the ventilation duct to the smoke exhaust fan via the counterflanges. Use the flexible joints, which need to be fastened to the smoke exhaust fan to reduce the vibration transmission to the ducting. This assembly is installed by sealing the joint interfaces [with high-temperature silicone] and tightening the two parts with the bolts sized according to the fan size. The ventilation duct must not exert loads on the smoke exhaust fan or other components of the assembly. The ventilation duct must be supported by independent bearing slings. If the suction and forcing is free-flow, secure the smoke exhaust fan intake and exhaust with the safety mesh. If the smoke exhaust fan is operated within a ventilation system, secure the intake and exhaust sides from entrainment of foreign bodies or accidental entry of persons, animals, etc.

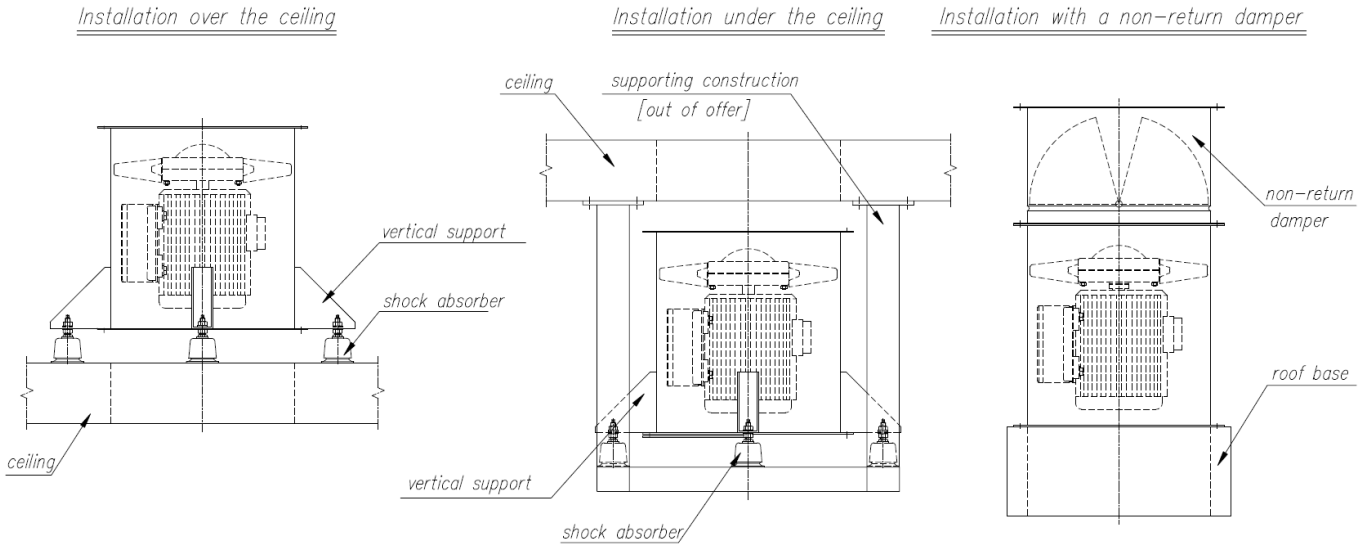
When installing the smoke exhaust fan, secure the installation site and all involved structures, and prepare passage and access ways for all personnel not involved in the installation. The smoke exhaust ventilation must be assured to enable inspection and servicing.



Example horizontal installation of the smoke exhaust fan type Monsun T, Monsun T-S

Notes:

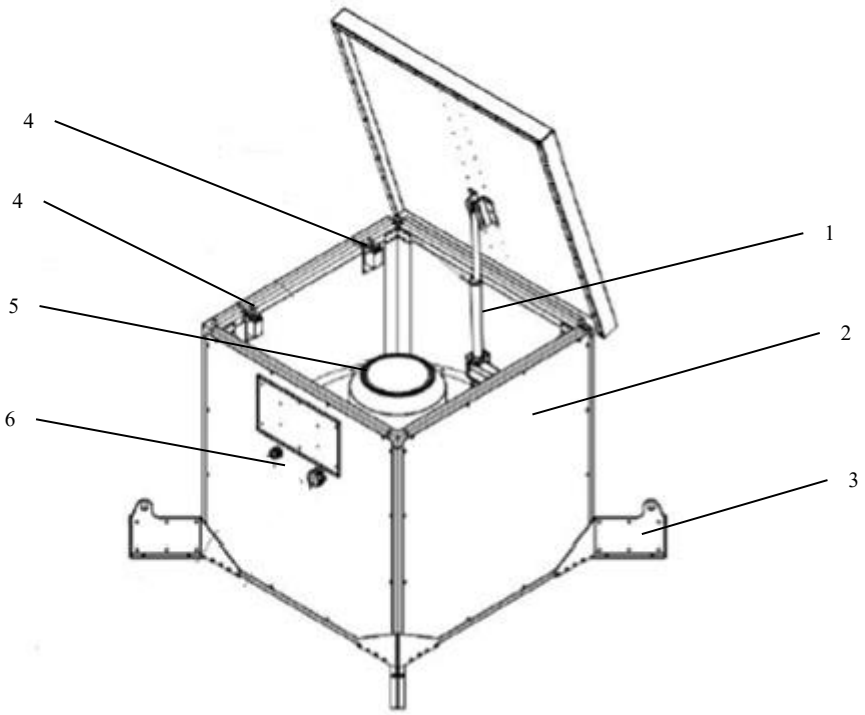
- Secure the system against entrainment of foreign bodies and accidental entry of persons, animals, etc.
- Ensure that the fan is aligned with the system components.
- The automatic non-return damper must be levelled for good performance.
- Install a straight duct section with a min. length of 2.5xD on the fan pressure side.
- Seal the system joints with silicone or other high-temperature compound.



Example vertical installation of the smoke exhaust fan type Monsun T, Monsun T-S

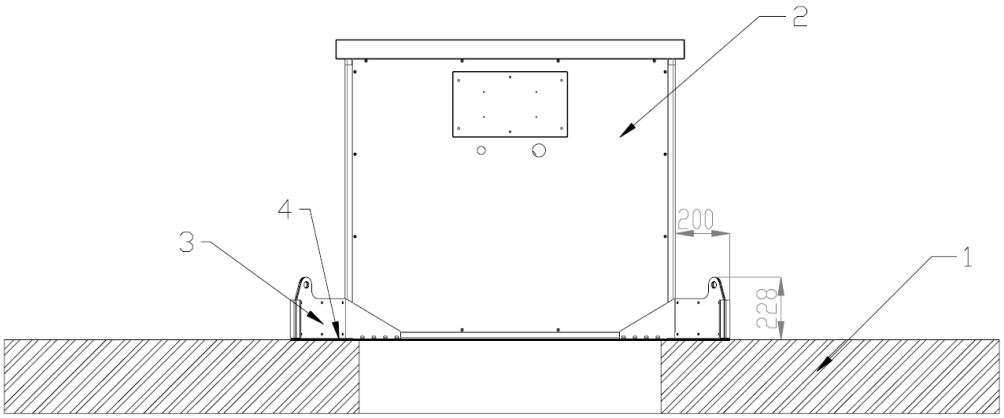
Notes:

- The support structure must carry the load of the fan weight



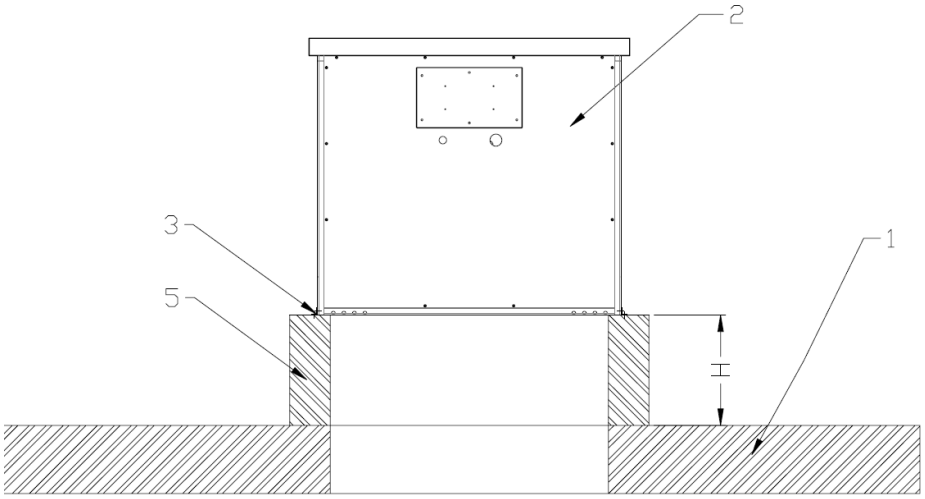
1 actuator for opening/closing the hatch
2 insulated box casing
3 transport and assembly elements
4 flap opening/closing limit switches
5 fan motor
6 electric cable glands

Monsun T - L version (Lobby) fan components



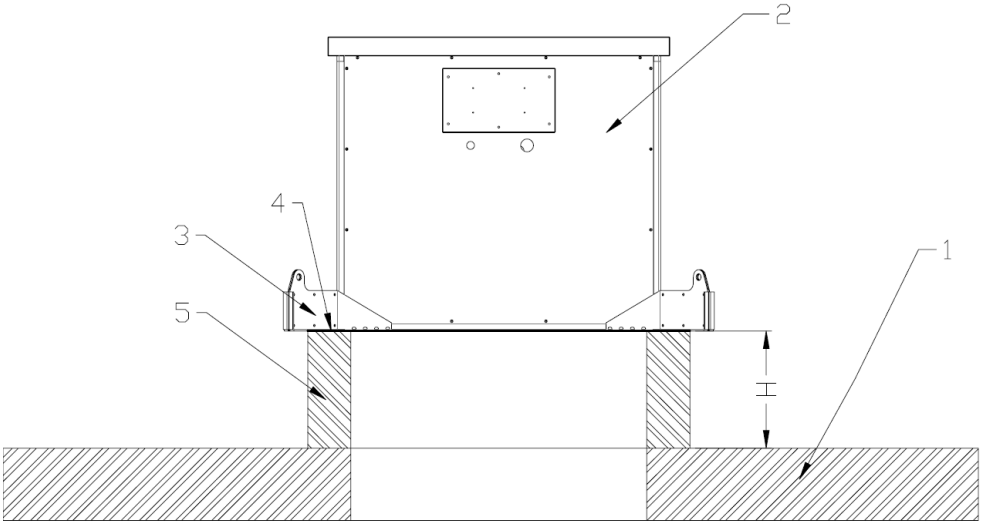
1 Celling
2 Fan
3 Mounting and transport elements
4 Sealing and roofing flashings

Example of installation directly on the roof surface



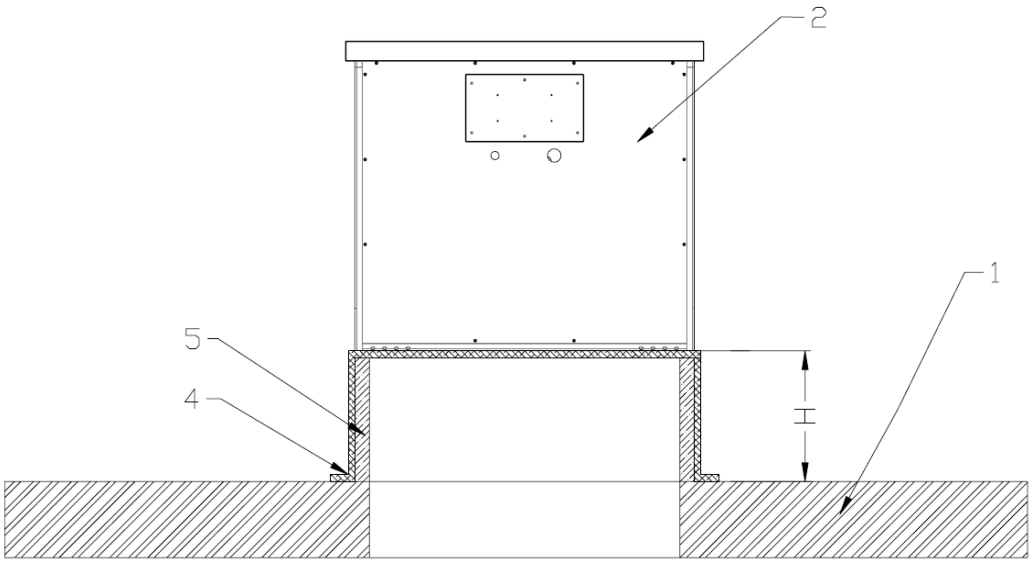
1 Celling
2 Fan
3 Sealing and roofing flashings
5 Concrete roof base

Example installation on a concrete roof base without transport elements



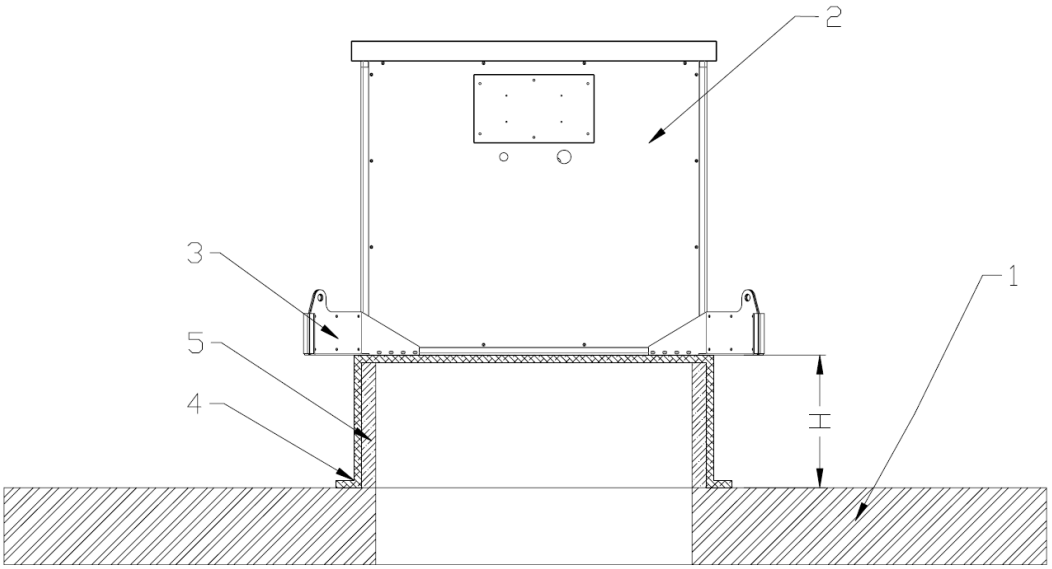
1 Celling
2 Fan
3 Mounting and transport elements
4 Sealing and roofing flashings
5 Concrete roof base

Example installation on a concrete roof base with transport elements



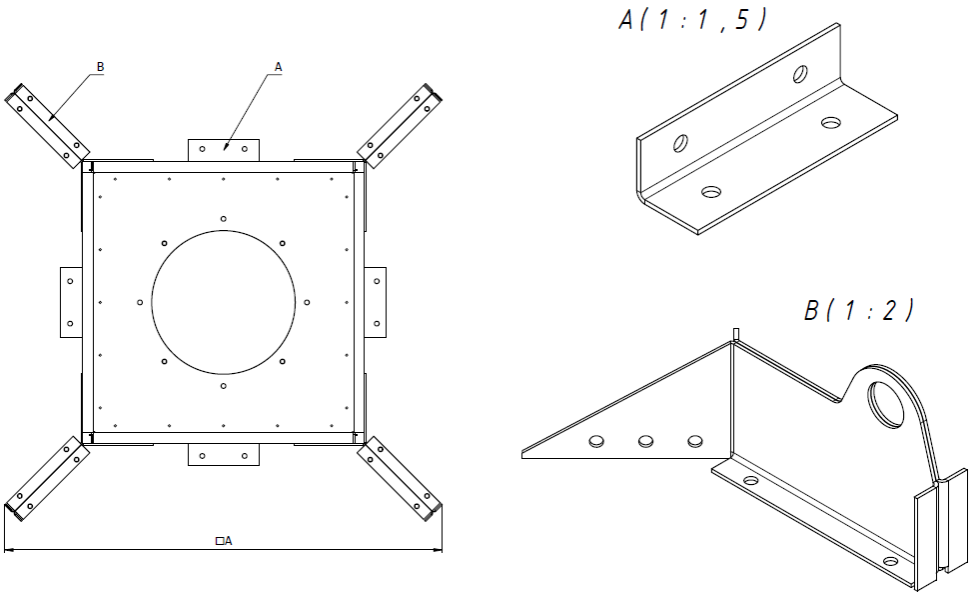
1 Celling
2 Fan
4 Sealing and roofing flashings
5 Dedicated stell roof base

Example installation on a dedicated roof base without transport elements



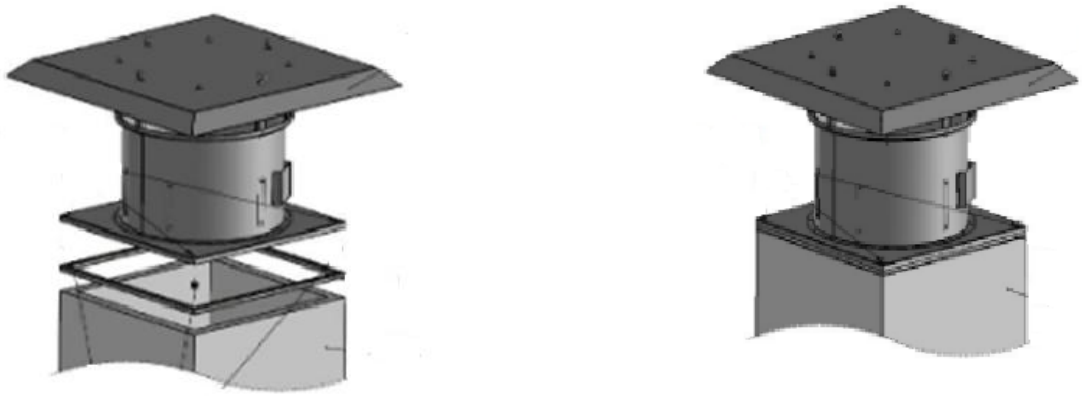
1 Celling
2 Fan
3 Mounting and transport elements
4 Sealing and roofing flashings
5 Dedicated stell roof base

Example installation on a dedicated roof base with transport elements

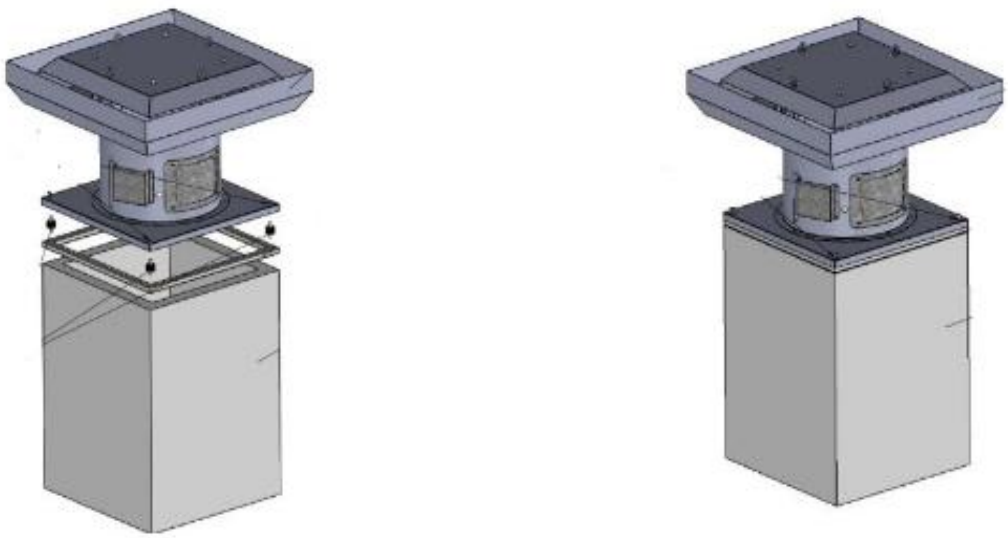


B – mounting/transport element
A – L-shaped mounting element

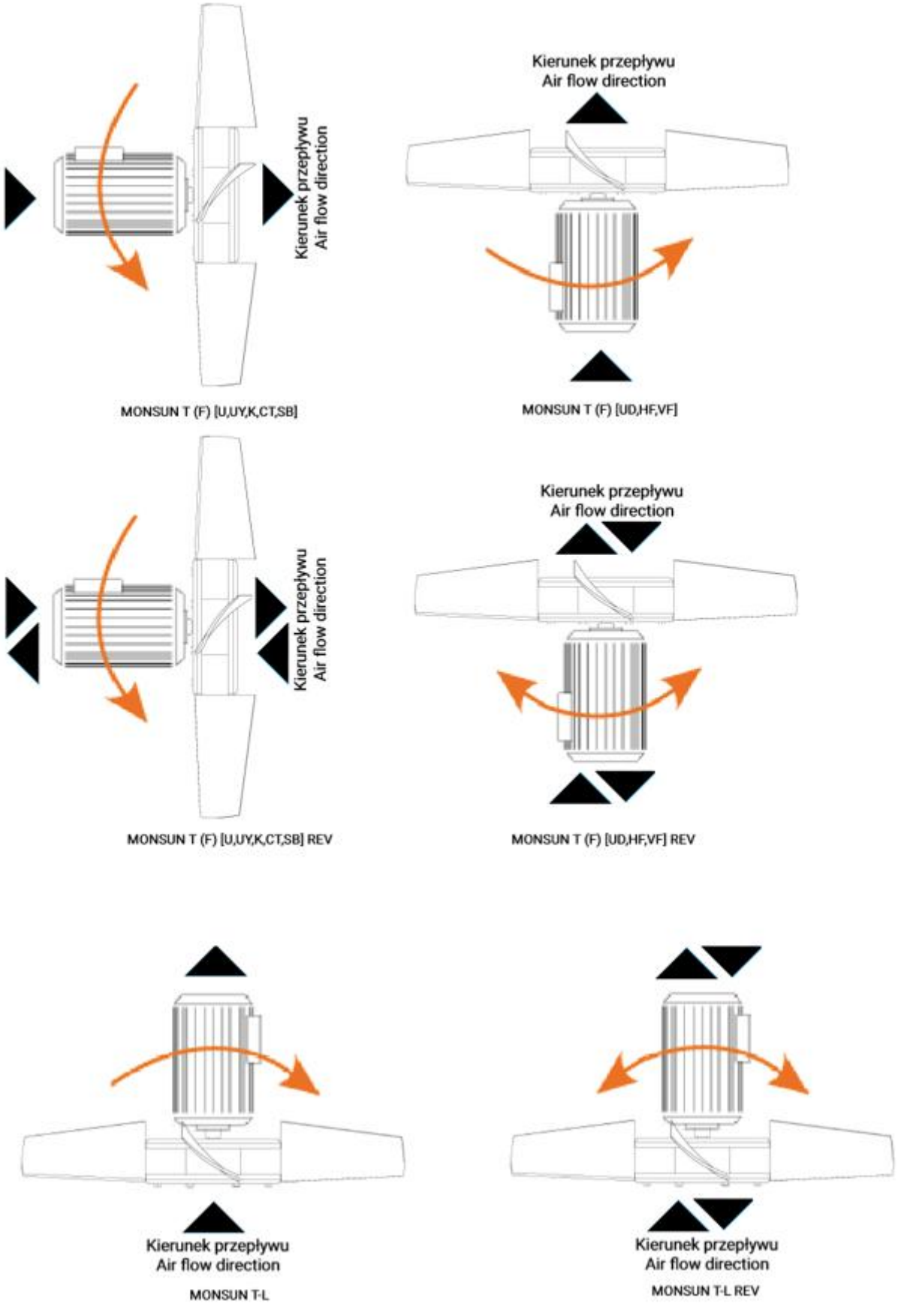
Bottom view of the Monsun T-L (Lobby) fan – mounting elements



Example installation Monsun T -HF fan



Example installation Monsun T-VF fan

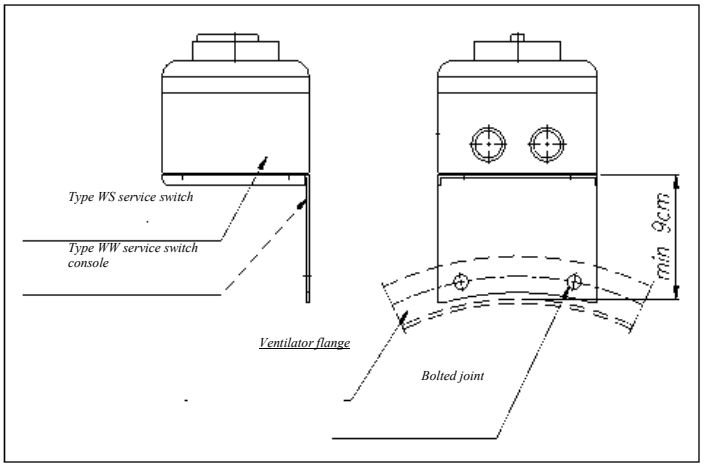


Flow directions, directions of rotation of the Monsun T fan impeller

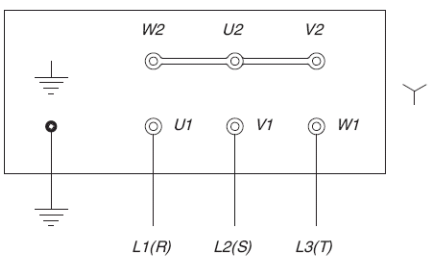
7.3. Electrical connections

After the fan is properly installed, connect the electrical wiring to the device. The wiring should be fed through cable glands into the junction box located on the fan housing or directly into the fan motor junction box (if there is no junction box on the fan housing) and connected as described in the junction box or in this manual. Each fan motor should be connected to the mains via a circuit breaker. The protection level should be set according to the motor's rated current. Grounding should be performed in accordance with applicable standards.
After starting the fan in the installation, measure the current draw and verify compliance with the motor's nameplate. The current drawn by the fan during steady-state operation must not exceed 1.1 times the rated current.
The fan's electrical power supply – from the control cabinet to the fan's power supply box – must be designed to ensure uninterrupted power supply during a fire. This can be achieved by using high-temperature-resistant cables or by using protective conduits and selecting appropriate wiring routes. No service switches are used to prevent accidental shutdown of the fan (an exception is a service switch with remote signaling of the fan's current path). Fan control cabinets must be powered directly from the main distribution boards, ensuring a continuous power supply – even if the building is disconnected.
When using a main fire switch that cuts off the power supply to the entire building, the fan's power supply must be independent and allow for normal operation during a fire.

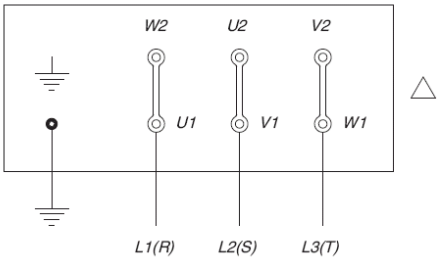
If a service switch is used in the system, it should be mounted outside the fan housing at a minimum distance of 9 cm, on a steel bracket screwed, for example, to the housing flange [a sample drawing of this solution is shown below]. The bracket is not supplied with the fan; you must provide your own.



Electrical wiring connections must only be made by electricians with valid licenses.
Electrical terminal connection diagrams for mcr Monsun T fan motors:



Connections for 230/400 V motors



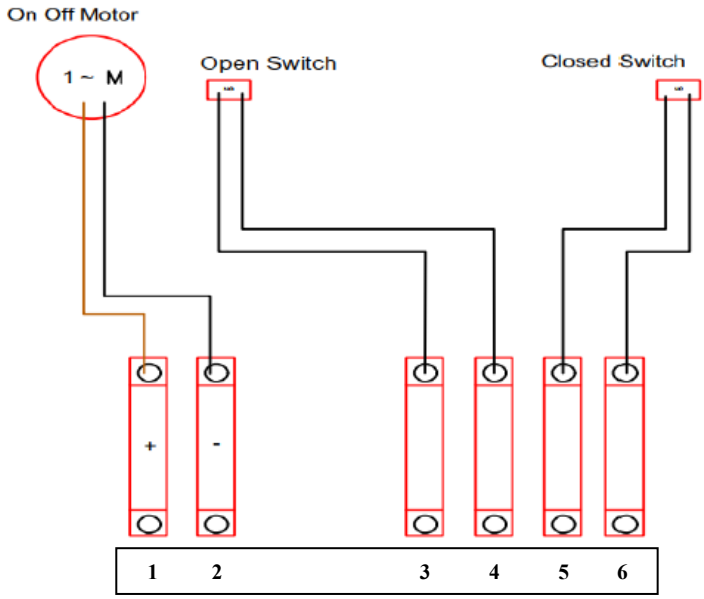
Connections for 400/690 V motors

Monsun T-L Fan – Electrical information

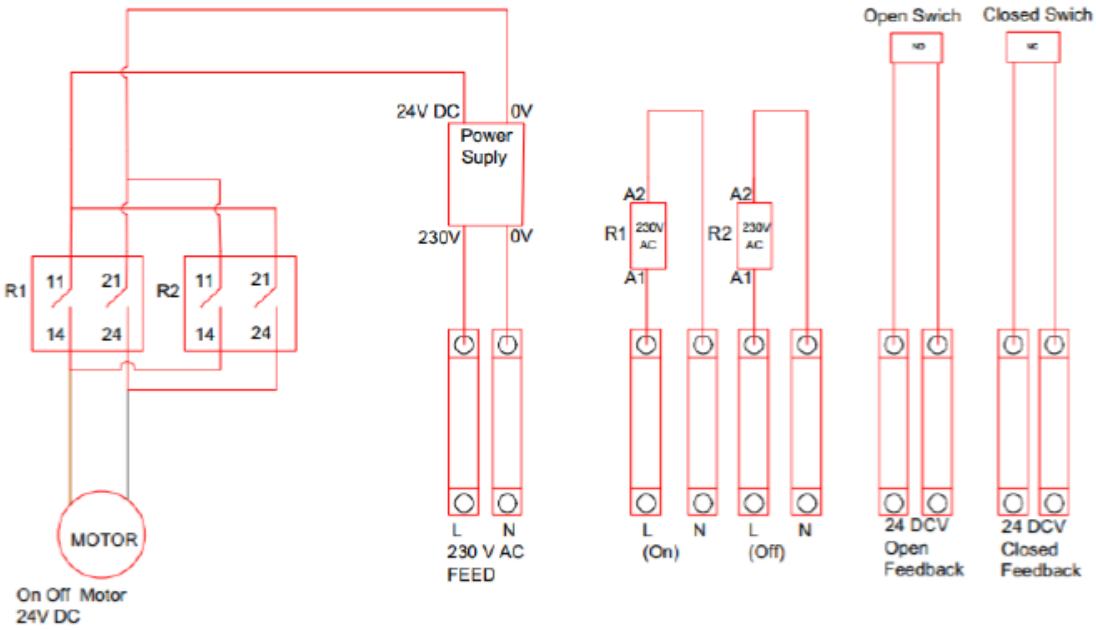
Hinged flap for box housing – mcr Monsun T-L fan

Electric actuator for the flap – supplying: 24V DC

The box flap is opened and closed by changing the polarity of the 24V DC supply voltage supplied to terminals 1 and 2.



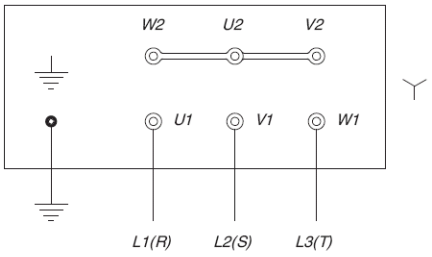
Connection diagram for the flap actuator and flap opening and closing signal switches 24V DC power supply



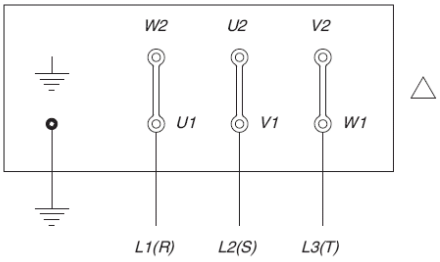
Wiring diagram for the swing flap actuator and flap opening and closing signal switches 230 V AC power supply

Motor connection data for the Monsun T-L fan

Motor power	<3kW	>3kW
Direct Connection	Y	Δ
Y/Δ Conenctionn	Impossible	Possible Remove bridges



Connections for 230/400 V motors



Connections for 400/690 V motors

7.4. COMMISSIONING

Before commissioning your installed smoke exhaust fan, do the following:

- Check that the smoke exhaust fan is properly and firmly fastened.
- Check all seals for tightness.
- 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 the smoke exhaust fan and its connected ducting are free of foreign bodies.
- Check that all protective/safety components have been installed.
- If the checks are positive, start the fan and do a functional test.
- When starting the smoke exhaust fan, verify the motor sense of rotation against the direction arrow on the enclosure.

8. TRANSPORT & STORAGE CONDITIONS

During transport and storage, the mcr Monsun T smoke exhaust fans are placed on pallets. Do not topple or throw the packaging during loading and transport. The smoke exhaust fan can be handled and shipped on any means of transport, provided that they are secured against weather and elements. The smoke exhaust fans on transport vehicles must be secured against shifting. Visually inspect each piece of equipment following transport and handling.

Store in sheltered rooms, where:

- there is no exposure to dust particulates, gases, corrosive vapours and other aggressive chemical emissions detrimental to insulation parts and structural components of the ventilator and/or its motor;
- the maximum relative humidity is 80% at 20°C;
- the ambient temperature does not exceed the range of -20ºC to + 40 ºC;
- no vibrations are present.

9. SAFETY MANUAL

Read and understand this Technical Manual before commissioning and servicing the product.

The smoke exhaust fan is not hazardous when firmly attached to a ventilation system and the fan support structure.

Make the electrical connections according to the enclosed electrical wiring diagram and the guidelines in Section 7.3. Electrical connections shall be made by personnel with relevant qualifications which have been certified as required by current laws.

Inspect the PE wire connection of the smoke exhaust fan during the operating life.

Disconnect the smoke exhaust fan from electrical power before any inspections or checks.

CAUTION:

1. Do not clean smoke exhaust fans of deposits with pressure or steam washers.
2. Loss of seal at the fan connections or flexible ends may result in hazards due to release of the forced medium and requires immediate replacement of leaking components.

If the equipment is malfunctioning (e.g. excessive noise, vibration and/or erratic operation is found), disconnect the fan from electrical power supply, and call the manufacturer's technical service or an inspection and repair contractor authorised by the manufacturer.

10. MAINTENANCE & SERVICING

The equipment from MERCOR L&V require periodic technical inspection and maintenance at least every 12 months throughout its operating life, i.e. during the warranty and post-warranty period. Inspection and maintenance may only be carried out by the manufacturer or contractors authorised by MERCOR L&V to service its products.

The obligation to carry our regular service inspections of fire protection devices results from the Art. 3(3) of the Regulation by the Minister of Internal Affairs and Administration of 7 June 2010 on fire protection of buildings, other civil structures and areas (Journal of Laws, Year 2010, No. 109, item 719).

Do these recommended actions in the inspection intervals:

- Check the electrical connections, especially for all mechanical damage.
- Check the equipment casing, especially for all mechanical damage.
- Check for any obstructions to proper performance of the equipment.

To facilitate the activities under service inspection, servicing and warranty claim response, e.g. visual inspection or repairs, the equipment user/operator shall provide physical access to the equipment by removing thermal insulation, suspended ceiling, and other installations, as required and applicable to warrant unobstructed access, etc.

In the case of roof mounted equipment, provide access to the area (via ladders or elevated platforms).

If the equipment is only operated for smoke exhaust during fire, test run it for ca. 10 minutes every 3 months.

Refer all matters related to technical inspection, maintenance and servicing of this equipment to the MERCOR L&V Service Department, serwis@mercor.com.pl, tel. +48 58 341 42 45 ext. 170, fax: +48 58 341 39 85, from 8 AM to 4 PM (Mo-Fri).

11. WARRANTY TERMS & CONDITIONS

1. MERCOR L&V provides a 12-month quality guarantee and warranty for the equipment, counting from the date of purchase, unless the contract stipulates otherwise.
2. The purchaser is obliged to check the Products in terms of quality and quantity upon receipt.
3. Any defects, shortages or damage noticed must be entered in the receipt documents or on the consignment note and reported in writing to MERCOR L&V, with all damage to the shipment or product documented with photographs.
4. Reports of damage to the shipment, product or quantity shortages must be sent in writing to MERCOR L&V within 24 hours of the date of receipt of the shipment.
5. Defects not visible at the time of delivery must be reported immediately to MERCOR L&V together with photographic documentation, and reports of quality defects must be made no later than within 5 working days of the date of receipt of the Products.
6. MERCOR L&V reserves the right not to consider the above-mentioned reports in the event of failure to provide (receive) photographic documentation or after the above-mentioned deadlines have been exceeded.
7. Complaints can be made by telephone: 58/341-42-45, by fax: 58/341-39-85, by e-mail: reklamacje@mercor.com.pl or by sending a letter to the following address: MERCOR L&V, ul. Grzegorza z Sanoka 2, 80-408 Gdańsk.
8. If, during the warranty and guarantee period, physical defects covered by the warranty and/or guarantee become apparent, MERCOR L&V undertakes to remove them as soon as possible, counting from the date of receipt of a written notification and delivery of proof of purchase (contract, invoice, delivery document), subject to point 14.

9. MERCOR L&V reserves the right to extend the repair time in the case of complex repairs or repairs requiring the purchase of non-standard components or spare parts.
10. Liability under the warranty and guarantee covers only defects arising from causes inherent in the equipment sold.
11. In the case of defects arising as a result of improper use of the equipment (not in accordance with the technical documentation) or other reasons specified in point 14, the Buyer/warranty holder may be charged with the costs of their removal.
12. The condition for the removal of defects is that the reporting party provides full access to the work site, in particular ensuring: a lift in the case of devices installed at a height of more than 3 m, free access to the rooms where the devices are installed and the necessary inspections, removal of thermal insulation, removal of suspended ceilings, removal of other installations if they prevent free access to the device.
13. If it is not possible to repair the device at the place where it is installed, MERCOR L&V reserves the right to dismantle it, deliver it to the address indicated by MERCOR L&V and reassemble it. The cost of this operation shall be borne by the purchaser/warranty holder.
14. The warranty and guarantee do not cover:
    - damage and failure of devices caused by improper operation (not in accordance with the technical documentation), interference by the user or persons not authorised by MERCOR L&V, lack of periodic technical inspections, failure to perform maintenance activities described in the 'MAINTENANCE AND SERVICE' section of this document;
    - damage to equipment caused by reasons other than those attributable to MERCOR L&V, in particular: random events such as torrential rain, flooding, hurricanes, flooding, lightning strikes, power surges, explosions, hail, aircraft crashes, fire, avalanches, landslides and secondary damage resulting from the above causes. Torrential rain is defined as rain with a yield coefficient of at least 4, as determined by the Institute of Meteorology and Water Management (IMiGW). If it is not possible to determine the coefficient referred to in the preceding sentence, the actual condition and extent of damage at the place where it occurred, which will indicate the effect of torrential rain, will be taken into account. A hurricane is considered to be wind with a speed of not less than 17.5 m/s (damage is considered to have been caused by a hurricane if hurricane activity has been confirmed in the immediate vicinity);
    - damage resulting from failure to comply with the obligation to immediately report a discovered defect;
    - deterioration in the quality of coatings caused by natural ageing processes;
    - defects caused by the use of abrasive or aggressive cleaning agents;
    - damage caused by aggressive external factors, in particular chemical and biological factors, or whose origin is related to production processes and activities carried out in the facility or in its immediate vicinity, where the equipment was installed;
    - parts subject to natural wear and tear during operation (e.g. seals), unless they have a manufacturing defect;
    - damage caused by improper transport, unloading or storage of the equipment;
    - damage caused by installation that does not comply with the technical documentation and good construction practice;
    - devices or their parts in the event of breakage or damage to the nameplate or warranty seals.

15. The warranty and guarantee shall expire with immediate effect if:
    - The buyer/warranty and guarantee beneficiary makes structural changes on their own without prior agreement with MERCOR L&V,
    - periodic technical inspections and maintenance activities were not performed on time or were performed by unauthorised persons or a service provider not authorised by MERCOR L&V, or if the equipment was operated incorrectly,
    - there has been any interference by persons not authorised by MERCOR L&V – apart from activities falling within the scope of normal operation of the equipment.

16. The purchaser/warranty and guarantee holder is obliged to operate the equipment properly (in accordance with the technical documentation) and to carry out periodic technical inspections and maintenance activities in accordance with the rules described in this document in the section ‘MAINTENANCE AND SERVICE’.

The relevant provisions of the Polish Civil Code shall apply to all matters not regulated in these Warranty Terms & Conditions.

FAN MEASUREMENT REPORT

FAN TYPE	
SERIAL NUMBER	
INSTALLATION SITE	
RATED CURRENT	

Once the fan has been installed at its intended operating site and all electrical connections have been made, immediately measure the current draw in steady-state operation of the equipment.

MEASUREMENT RESULTS [A]

U1	V1	W1	U2	V2	W2

NOTES:

Full name of the measuring technician	Date measured	Signature

Return this Report immediately after completion of measurements to:

MERCOR Light&Vent Sp. z o.o. (MERCOR L&V)
Fire Ventilation Systems
ul. Grzegorza z Sanoka 2
80-408 Gdańsk

and not later than in 8 weeks from the date of equipment purchase (equivalent to the date of the VAT sales invoice).

THE EQUIPMENT WARRANTY BECOMES ENFORCEABLE UPON RETURN OF THIS MEASUREMENT REPORT