



INLINE CENTRIFUGAL FAN



Centro-M



OPERATION MANUAL



BLAUBERG
Ventilatoren

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BLAUBERG Company is happy to offer your attention a new high-quality inline centrifugal Blauberg Centro-M fan. The solid team of high-qualified professionals with many years of working experience, technological innovations in design and production, high-quality components and materials from the top worldwide producers have become the precondition for the best fan in its class.

INTRODUCTION

The present service instruction contains technical description, technical data sheets, operation and mounting guidelines, safety precautions and warnings for safe and correct operation of the fan.

GENERAL

The inline centrifugal fan BLAUBERG Centro-M is not a ready for use product. It is a component unit designed for integration into air conditioning and ventilation systems.

The fan is available for round air ducts from Ø100 up to Ø450 mm.

The fan must be grounded.

The fans are allowed for operation only after final mounting, that includes installation of protecting devices in compliance with DIN EN ISO 13875 (DIN EN ISO 12100) as well as other construction safety equipment.

The fan design is regularly improved, so some models can slightly differ from those ones described in this service instruction.

SAFETY RULES

The fan complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

All operations related to the fan electrical connections, servicing and repair works are allowed only after the fan disconnection from power mains.

All mounting and servicing operations are allowed for duly qualified electricians with valid electrical work permit for electric operations at the units up to 1000 V after careful study of the present user's manual.

Please follow the safety regulations and working instructions (DIN EN 50 110, IEC 364).

Make sure the impeller and the casing are not damaged before connecting the fan to power mains. The casing internals must be free of any foreign objects which can damage the impeller blades.

Disconnect the fan from power mains prior to any operations related to the fan servicing and repair works.

Take measures to prevent contact with the fan to avoid physical damages during the fan step and start-up.

Misuse of the product or any unauthorized modification are not allowed.

The fan is designed for connection to ac single-phase or ac three-phase power mains, see "Technical Data". The fan is rated for permanent operation during non-stop power supply.

Take steps to prevent ingress of smoke, carbon monoxide and other combustion products into the room through open chimney flues or other fire-protection devices. Sufficient air supply must be provided for proper combustion and exhaust of gases through the chimney of fuel burning

equipment to prevent back drafting. The maximum permitted pressure difference per living units is 4 Pa.

The air must not contain any dust or other solid impurities, sticky substances or fibrous materials.

The fan is not designed for use in an inflammable and explosive medium.

The transported medium must not have an aggressive effect on steel at the temperature stated in the table 1 of the section "Technical data".

Do not close or block the fan intake or exhaust vent not to disturb the normal air passage. Do not sit on the fan and do not put objects on the fan.

Follow the manual guidelines to ensure trouble-free operation and long service life of the product.

STORAGE AND TRANSPORTATION RULES

Store the delivered product in the manufacturer's original packing box in a dry ventilated premise with the ambient temperature from +5°C up to +40°C and relative humidity less than 80% at the temperature +25°C.

Store the fan in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations. Store the fan inside a room or under a shelter.

Transport of the product is allowed by any vehicle in the manufacturer's original packing box. Use hoist machinery for handling and transportation to prevent possible mechanical damages of the product. Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Do not expose the product to extremely low or high temperatures.

MANUFACTURER'S WARRANTY

The fan complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the following product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. This certificate is issued following test carried out on samples of the product referred to above. Assessment of compliance of the product with the requirements relating to electromagnetic compatibility was based on the following standards.

The manufacturer hereby warrants normal operation of the fan over the period of 2 years from the retail sale date provided observance of the installation and operation regulations.

In case of failure due to faulty equipment during the warranty period the consumer has the right to exchange it.

If case of no confirmation of the sale date, the warranty term shall be calculated from the manufacturing date.

The replacement is offered by the Seller.

The MANUFACTURER shall not be liable for any damage resulting from any misuse of or gross mechanic interference with the fan.

Please follow the operation guidelines always.



ATTENTION

The product is not allowed for use by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety. Supervise the children and do not let them play with the product.



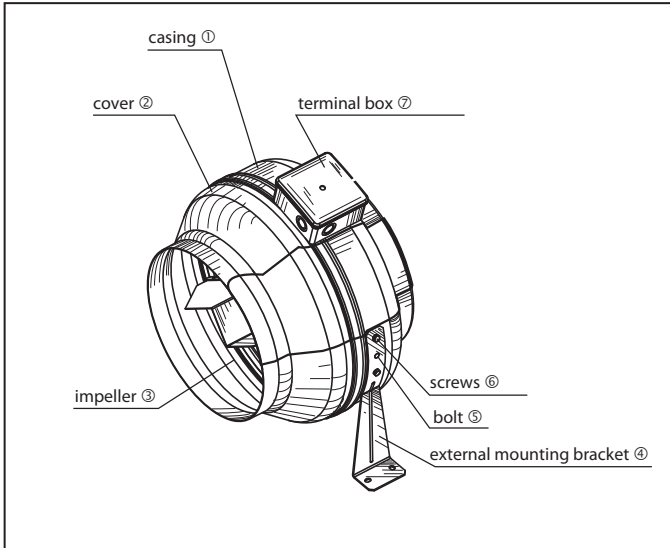
WARNING

Do not dispose in domestic waste.

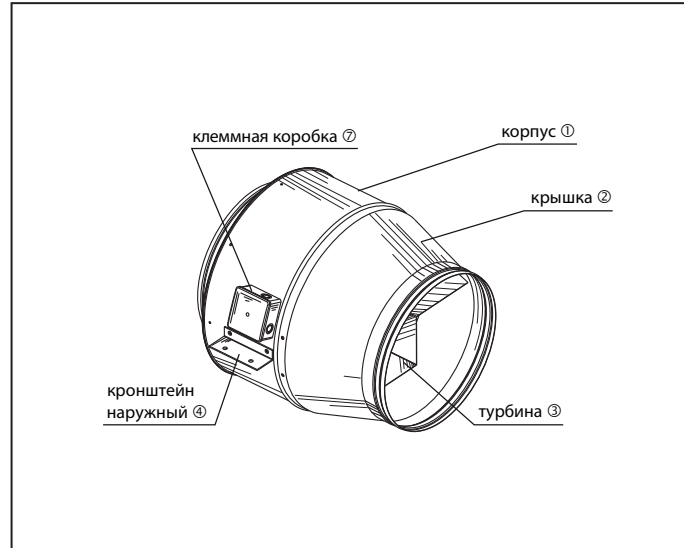
The unit contains in part material that can be recycled and in part substances that should not end up as domestic waste.

Dispose of the unit once it has reached the end of its working life according to the regulations valid where you are.

FAN DESIGN



Centro-M 100 – Centro-M 315



Centro-M 355 – Centro-M 450

DELIVERY SET

- ✓ fan - 1 item;
- ✓ operation manual.
- ✓ mounting brackets - 2 items;

MODIFICATIONS AND OPTIONS

Centro-M ___ FR

The fan is equipped with a built-in speed controller and an external temperature sensor for automatic fan speed control (air flow regulation) depending on the air temperature, fig. 2. The fan is equipped with a pre-wired cable with IEE plug.

Option FR1: The fan is equipped with a pre-wired cable with a standard plug.

Centro-M ___ G

The fan is equipped with a built-in speed controller with an external temperature sensor for automatic fan speed control (air flow regulation) depending on the air temperature, fig. 2.

If air temperature rises up to the thermostat set point, the fan switches to maximum speed.

If air temperature drops down 2°C below the set point or if the initial temperature is below the set point, the fan runs with the lower speed set by the speed controller.

The thermostat LED light on the fan cover glows red if air temperature exceeds set temperature point. The fan is equipped with a pre-wired cable with IEE plug.

Option G1: The fan is equipped with a pre-wired cable with a standard plug.

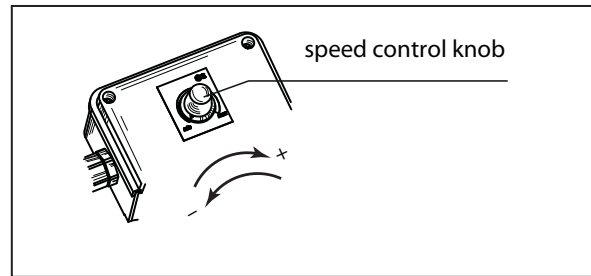


Fig. 1

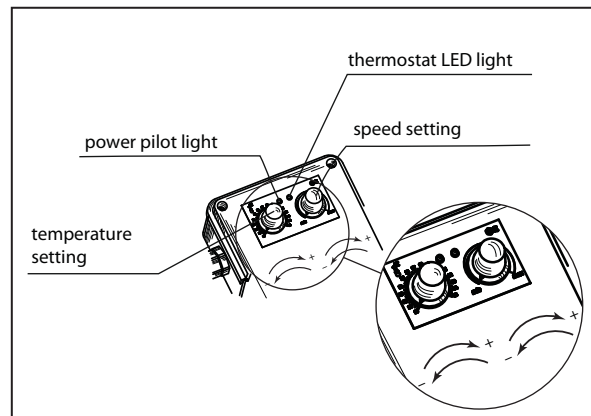
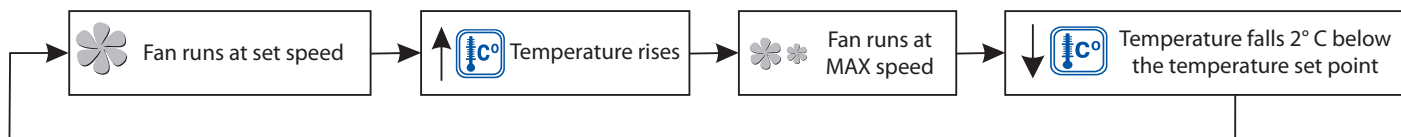


Fig. 2



TECHNICAL DATA

Table 1. Technical data

Parameters	Centro-M 100 L	Centro-M 100	Centro-M 125 L	Centro-M 125	Centro-M 150	Centro-M 160	Centro-M 200	Centro-M 200 max
Voltage, 50 Hz [V]	230	230	230	230	230	230	230	230
Power [W]	60	73	60	75	98	98	154	193
Current [A]	0,37	0,32	0,37	0,33	0,43	0,43	0,67	0,84
Max. air flow [m ³ /h]	210	270	255	355	555	555	950	1100
RPM [min ⁻¹]	2620	2830	2535	2800	2705	2660	2375	2780
Noise level, 3 m [dBA]	36	47	36	47	47	47	48	51
Max. transported air temperature [°C]	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+50	-25+45
Ingress Protection Rating	IP X4	IP X4	IP X4	IP X4	IP X4	IP X4	IP X4	IP X4

Parameters	Centro-M 250 L	Centro-M 250	Centro-M 315	Centro-M 315 max	Centro-M 355 L	Centro-M 400	Centro-M 450
Voltage, 50 Hz [V]	230	230	230	230	230	230	230
Power [W]	158	194	171	296	233	460	665
Current [A]	0,69	0,85	0,77	1,34	1,06	2,23	2,89
Max. air flow [m ³ /h]	1190	1310	1400	1880	2210	3050	5260
RPM [min ⁻¹]	2315	2790	2600	2720	1375	1370	1265
Noise level, 3 m [dBA]	52	52	52	54	58	61	65
Max. transported air temperature [°C]	-25+50	-25+50	-25+50	-25+45	-25+45	-40+80	-40+70
Ingress Protection Rating	IP X4	IP X4	IP X4	IP X4	IP X4	IP X4	IP X4

* Allowable deviation of the rated voltage: ±10%

Table 2. Overall dimensions

Type	Dimensions [mm]								Weight [kg]
	Ø D	Ø D1	B	B1	L	L1	L2	L3	
Centro-M 100 L	98	254	298	258	205	20	25	30	4,2
Centro-M 100	98	254	298	258	205	20	25	30	4,4
Centro-M 125 L	123	254	298	258	205	20	25	30	4,1
Centro-M 125	123	254	298	258	205	20	25	30	4,3
Centro-M 150	149	304	349	309	220	25	25	30	5,4
Centro-M 160	159	304	357	317	220	25	25	30	5,6
Centro-M 200	198	344	390	350	240	25	29	40	6,6
Centro-M 200 max	198	344	390	350	250	25	29	40	6,7
Centro-M 250 L	248	344	390	350	249	25	31	40	7,1
Centro-M 250	248	344	390	350	249	25	31	40	7,3
Centro-M 315	314	404	454	414	260	25	40	40	8,1
Centro-M 315 max	314	404	454	414	288	25	40	40	8,2
Centro-M 355 L	353	460	522	522	506	60	60	70	12,8
Centro-M 400	398	570	663	634	570	60	60	70	20,0
Centro-M 450	448	608	700	670	644	60	60	80	30,0

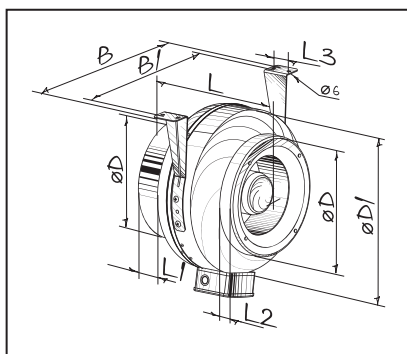


Fig. 3 Centro-M 100 – Centro-M 315

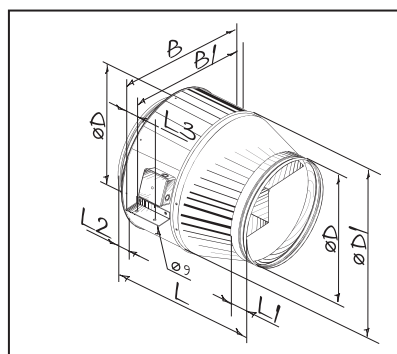


Fig. 4 Centro-M 355 – Centro-M 450

MOUNTING AND OPERATION GUIDELINES

The air motion direction in the system must match the pointer on the fan casing.

Install the fan to ensure sufficient and quick access for servicing and repair operations.

The fan must be grounded.

While mounting protect the fan against water ingress in the following way:

1. Install an outer hood on the intake flange in case of vertical mounting position, fig. 5.
2. Connect an air duct of the minimum length on both sides of the fan for any mounting position according to fig. 6.

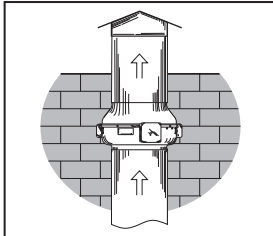


Fig. 5

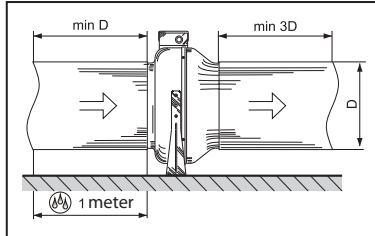


Fig. 6

MOUNTING SEQUENCE

1. Cut off power supply, fig. 7;
2. Remove the bolts (5) from the casing (1) and install the mounting brackets (4) in such a way so that the holes on the mounting brackets are aligned with the heads of the screws (6).
3. Fix the mounting brackets on the casing with the bolts, fig. 8.
4. Drill holes in the mounting surface to match the fitment holes of the mounting brackets, fig. 9-10.
5. Fix the fan with the screws, fig. 11.
6. Connect air ducts, fig. 12.

INSTALLATION AND CONNECTION TO POWER MAINS

Connection of the fan to power mains is allowed by a qualified electrician only. The rated electrical parameter are stated on the rating plate.

No modifications of internal connections are allowed and will result in void warranty. Connect the fan only to power mains with valid electric standards.

The house cabling system must be equipped with an automatic switch at the external input. Connect the fan to power mains through the automatic switch.

The contact gap on all poles at least 3 mm. The automatic switch trip current must be in compliance with the fan current consumption, refer Table 1.

Install the automatic switch to ensure prompt access. The fan wiring diagram is shown in fig. 18-20.

Cut power supply to the fan off by turning the automatic electric switch QF to OFF position. Take steps to prevent activation of the automatic switch.

Connection sequence of the fan basic model, without power supply cable, fig. 13-17:

1. Remove the screws that fix the terminal box and take off the cover.
2. Remove the screws of the cable clamp and remove the cable clamp.
3. Route the electric cable to the terminal box through the electric lead-in and fix the cable with the cable clamp and screws.
4. Connect the cable wires to the input terminal box in compliance with the wiring diagram, fig. 18-20.
5. Re-install the terminal box cover and fix it with screws.
6. Turn the fan on by turning the automatic switch QF to ON position.

NOTE: the fans Centro-M 355 – Centro-M 450 are supplied with pre-installed mounting brackets, fig. 4. For mounting, follow clauses 1, 4-6.

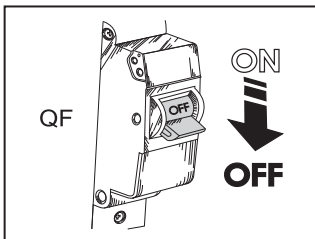


Fig. 7

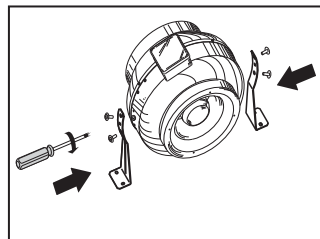


Fig. 8

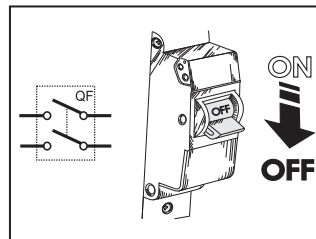


Fig. 13

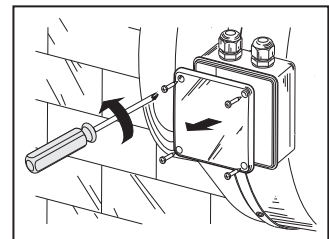


Fig. 14

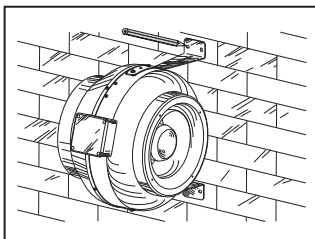


Fig. 9

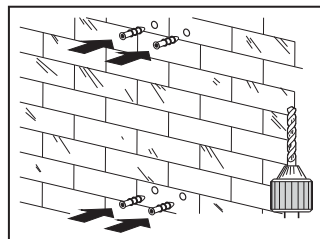


Fig. 10

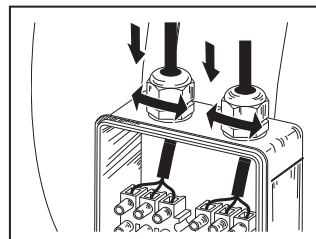


Fig. 15

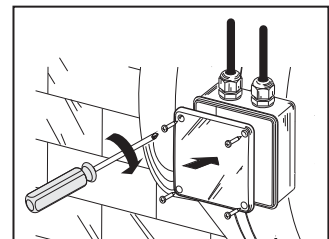


Fig. 16

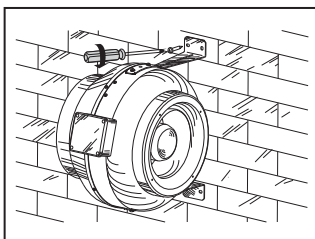


Fig. 11

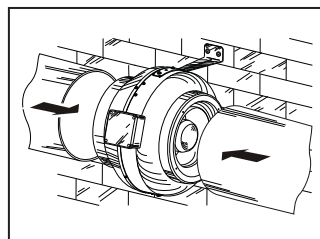


Fig. 12

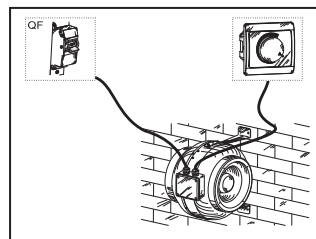


Fig. 17

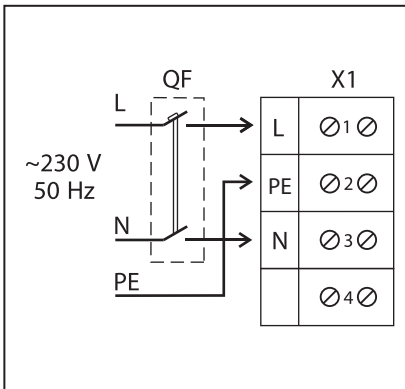


Fig. 18 Wiring diagram for the fans Centro-M 100 - Centro-M 315

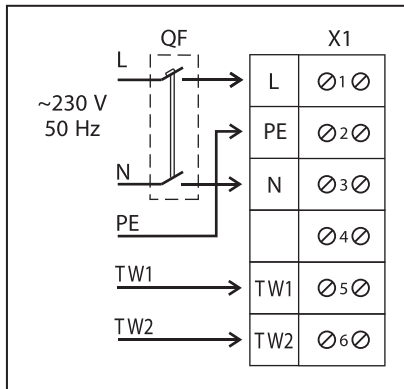


Fig. 19 Wiring diagram for the fans Centro-M 400, Centro-M 450

The recommended automatic switch trip current:
 - 2 A for the fans Centro-M 315 max, Centro-M 355 L;
 - 3,15 A for the fans Centro-M 400, Centro-M 450;
 - 1 A for other fan models.

The reference cable cross section is 0.75 mm². For the cable selection please consider the maximum cable temperature depending on the wire and insulation type, the maximum current, the cable length and its layout type.

Connect the fan to power mains through the terminal block located in the terminal box on the fan casing, following the wiring diagram and the terminal designation.

The rating plate with terminal designation is placed inside of the terminal block.

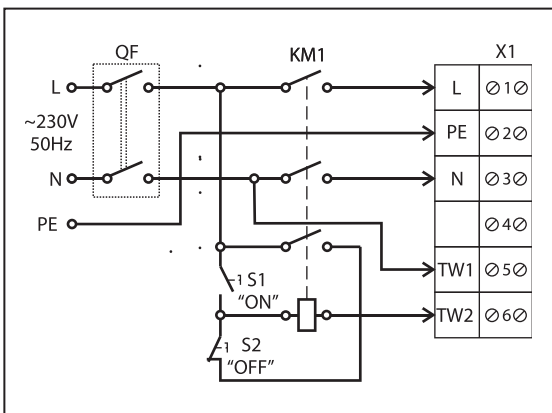


Fig. 20

The terminals TW1, TW2 are the electrical leads of the normally closed contact of the motor overheating protection. Connect the contact in series to power circuit of the magnetic starter coil KM1 that starts the motor after pressing the button S1. In case of the motor overheating the contact gets broken and switches the starter coil off to cut power off and stop the motor.

The automatic switch QF, the magnetic starter KM1, the control knobs S1 and S2 are not in the delivery set and must be installed independently. The motor connection example with leaded outside thermal protecting contacts are shown in fig. 20.

MAINTENANCE

Regular technical supervision and maintenance of the fan are required to ensure the product long service life and non-stop operation.

Disconnect the fan from power mains prior to any maintenance operations, fig. 21.

Maintenance of the fan is required and means cleaning the fan surfaces from dust and dirt. Maintenance includes regular cleaning, control of the clearance between the impeller and the casing, control of the impeller, motor, impeller blades and grounding.

Mounting sequence of the fan:

1. Cut power supply off, fig. 21;
2. Remove the air ducts from the fan, fig. 22;
3. Clean the fan surfaces with a soft cloth or a brush, wetted in a mild soap solution. Then wipe the surfaces dry, fig. 23.

4. Connect the air ducts to the fans.

5. Cut power supply on.

Clean the impeller blades with a soft cloth or a brush wetted in a mild soap solution. Avoid liquid splashing on the motor. Clean the impeller blades thoroughly at least once in 6 months, fig. 24.

Operation recommendations:

1. Clean the fan regularly from dust, dirt and foreign objects.
2. Check all fastening connections periodically.
3. Control generated noise and vibration. High vibration may indicate the bearing wear, sticking of the dirt particles contained in the transported air, the impeller blades wear, loose connection between the fan and the air duct.
4. Check periodically the fastening connections, impeller for possible blade damages, check connection of the fan to the air duct and coating.

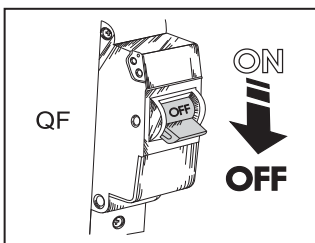


Fig. 21

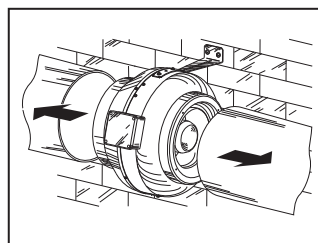


Fig. 22

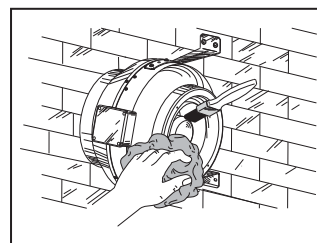


Fig. 23

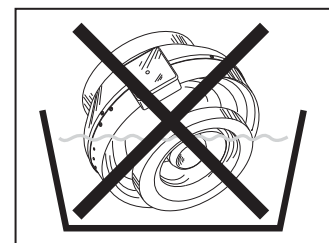


Fig. 24

WARRANTY CARD

BLAUBERG CENTRO-M

MANUFACTURE DATE

SELLER

SALES DATE

REPRESENTATIVE IN EU

Blauberg Ventilatoren GmbH
Aidenbachstr. 52a,
D-81379 München, Germany

