

# **SOUND-INSULATED CENTRIFUGAL FAN**



***Extero***



**OPERATION MANUAL**

**CONTENT**

Introduction	3
General	3
Safety rules	3
Transport and storage requirements	3
Manufacturer's warranty	3
Fan design	4
Delivery set	5
Technical data	5
Mounting and operation guidelines	5
Mounting sequence	6
Connection to power mains	6
Maintenance	7
Troubleshooting	8
Acceptance certificate	9
Connection certificate	9
Warranty card	9

BLAUBERG Ventilatoren GmbH is happy to offer your attention the exhaust centrifugal fan Extero.

## INTRODUCTION

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

## GENERAL

The exhaust centrifugal fan Extero is designed for exhaust ventilation of various premises.

The fan is designed for vertical installation at exhaust vents of Ø 100 up to 200 mm air ducts.

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 operation manual.

## 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 electrical connection of the fan, like servicing and repair works are allowed only after the 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 operation 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 servicing and repair works. Make sure the rotating parts have come to a full stop.

Take measures to prevent contact with the fan to avoid physical damages during the fan test 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 transported 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 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 intake or exhaust vent not to disturb the normal air passage.

Do not sit on the fan and do not put objects on it.

In case of unusual sounds, smoke disconnect the fan from power supply and contact the service centre.

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

Hazardous parts access and water ingress protection standard IPX4.

## STORAGE AND TRANSPORTATION RULES

Store the delivered fan in the manufacturer's original packing box in a dry ventilated premise with the ambient temperature from +5 °C up to +40°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.

Transportation of the fan is allowed by any vehicle provided the fan is transported in the original package and is protected against weather and mechanical damages.

Use hoist machinery for handling and transportation to prevent possible mechanical damages. Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Do not expose the fan 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.

The manufacturer hereby warrants normal operation of the fan over the period of two 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.

Fulfil the operation manual requirements to ensure a trouble-free and long service life of the fan.



### WARNING

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 product contains in part material that can be recycled and in part substances that should not end up as domestic waste. Dispose of the fan once it has reached the end of its working life according to the regulations valid where you are.

## FAN DESIGN

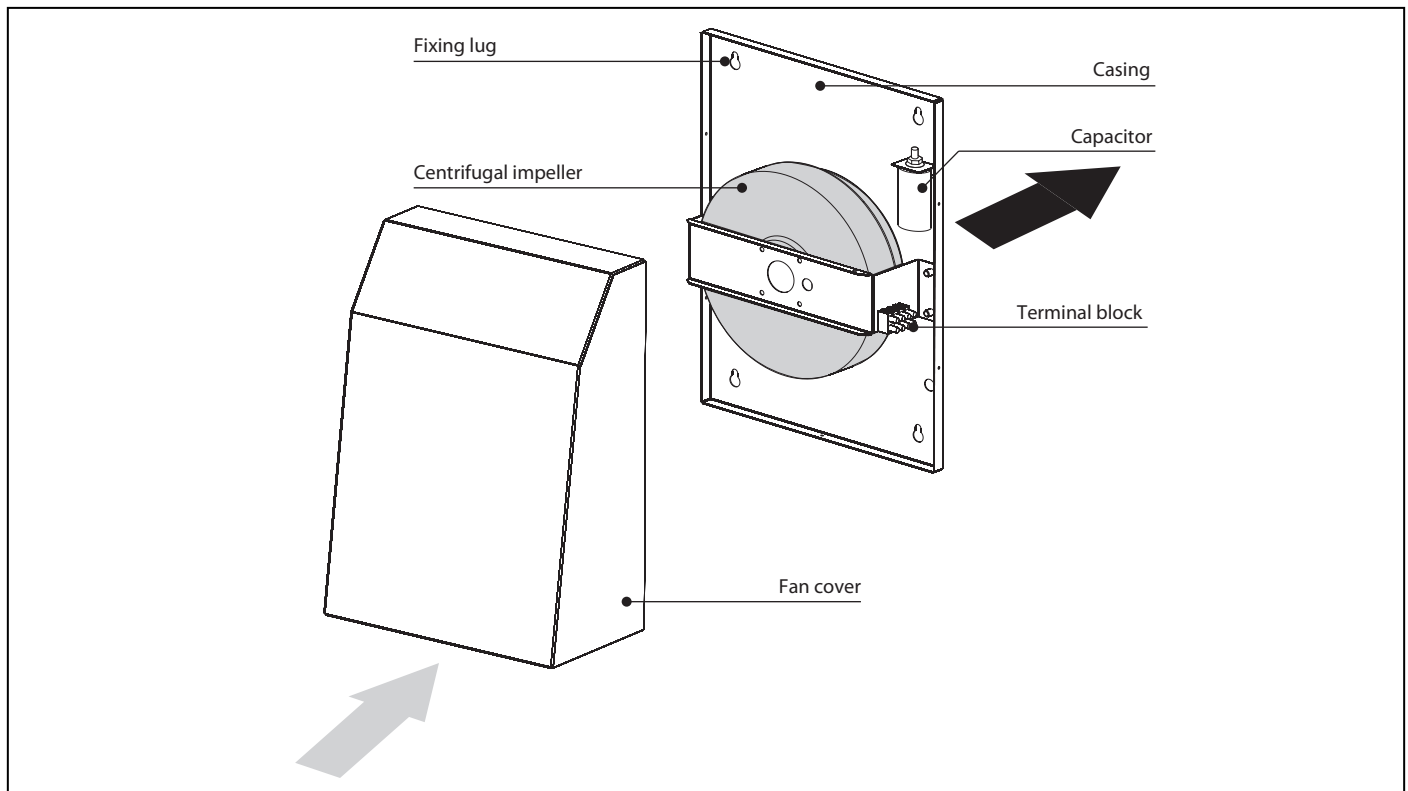


Fig. 1. Extero fan design

The fan casing is made of steel with a special polymer coating.

The special casing design protects the motor against direct sprays of water.

The round connecting spigots are rubber sealed. A special sealant applied on the fan back side ensures a tight contact and adaptation to the wall.

The air is exhausted downwards through a protecting grille against birds and rodents.

The fan is mounted with fixing lugs.

The fan is equipped with a single-phase external rotor motor and an impeller with backward curved blades.

The motor has an integrated thermal protection with automatic restart.

The motor is equipped with ball bearings for longer service life and a dynamically balanced turbine.

Smooth or step fan speed control is performed with a thyristor or autotransformer speed controller (available upon separate order).

## DELIVERY SET

- ✓ fan - 1 item;
- ✓ operation manual - 1 item.
- ✓ dowel and screw - 4 items.

**ATTENTION**

*Make sure the fan has no visible transport damages and check the ordered and the delivered goods for compliance.*

## TECHNICAL DATA

Table 1. Technical data

Parameters	Extero 100	Extero 125	Extero 150	Extero 160	Extero 200
Voltage, 50 Hz [V]	230	230	230	230	230
Power [W]	58	60	100	102	104
Current [A]	0.26	0.27	0.43	0.44	0.45
Max. air flow [m <sup>3</sup> /h]	280	390	600	650	710
RPM [min <sup>-1</sup> ]	2500	2500	2600	2600	2600
Noise level, 3 m [dBA]	54	54	58	60	62
Max. transported air temperature [°C]	55	55	55	55	55
Ingress Protection Rating	IP X4	IP X4	IP X4	IP X4	IP X4

Table 2. Overall dimensions

Type	Dimensions [mm]				Weight [kg]
	∅D	B	H	L	
Extero 100	99	260	355	138	4.1
Extero 125	124	260	355	138	4.1
Extero 150	149	300	400	138.2	4.5
Extero 160	159	300	400	138.2	4.5
Extero 200	199	300	400	138.2	4.5

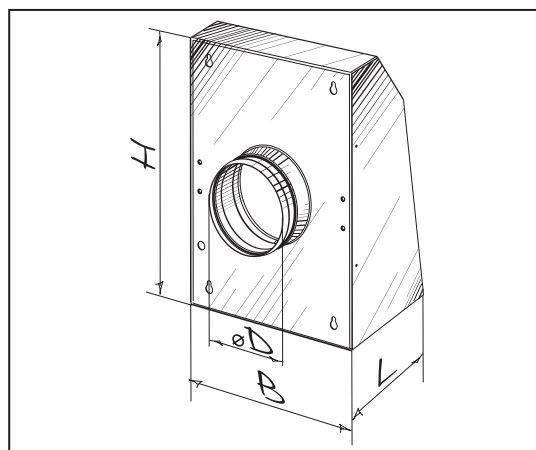


Fig. 2. Extero fan overall dimensions

## MOUNTING AND OPERATION GUIDELINES



### ATTENTION

Before starting mounting:

- ✓ Read carefully the fan mounting, start-up, operation and servicing instructions;
- ✓ Check the fan for integrity and no transport damages.

Follow the safety regulations during the fan start-up and operations.

The fan is designed for vertical installation on outer walls with respect to the air flow in compliance with the pointer on the fan casing.

The flexible air duct of the matching diameter is fixed on the fan spigot with a clamp.

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

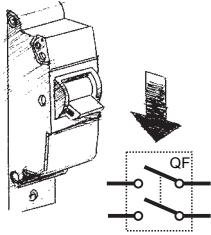
The fan mounting must ensure sufficient and quick access for servicing and repair operations.

The fan must be grounded.

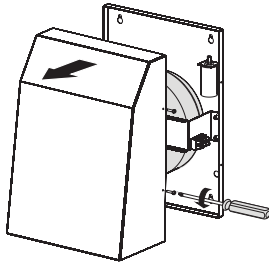
Shut off power supply prior to starting the fan mounting. Before mounting the fan drill a matching hole in the wall for the fan spigot.

**MOUNTING SEQUENCE**

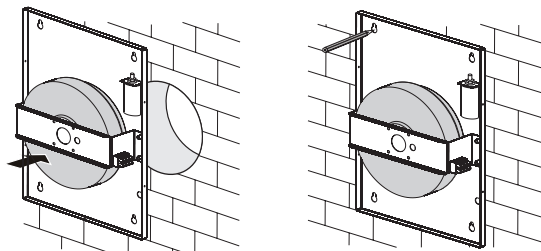
1. Cut off power supply.



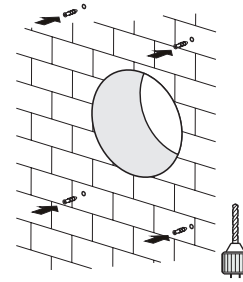
2. Remove the screws and take off the cover.



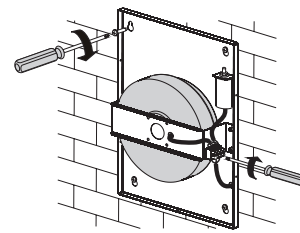
3. Mark the holes for dowels on the wall according to the openings on the fan casing.



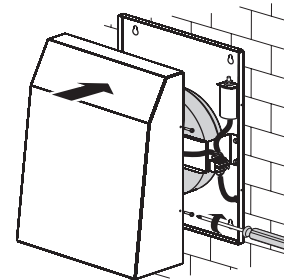
4. Drill the holes in the wall.



5. Route the power cable through the electric lead-in and screw the fan to the wall. Connect the fan to power mains in compliance with the wiring diagram, fig. 3.



6. Put the cover on the fan and fix it with the screws.

**CONNECTION TO POWER MAINS****WARNING**

Read the operation manual prior to any electric installations. Connection of the fan to power mains is allowed by a qualified electrician only.

The rated electrical parameters of the fan 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.

Follow the respective electric standards, safety rules (DIN VDE 0100), TAB der EVUs.

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 (VDE 0700 T1 7.12.2 / EN 60335-1).

The automatic switch trip current must exceed the fan current consumption, refer Table 1. Install the automatic switch to ensure prompt access.

The fan is rated for connection to single-phase alternating current power mains 230 V / 50 Hz.

The recommended rated automatic switch current is 1 A.

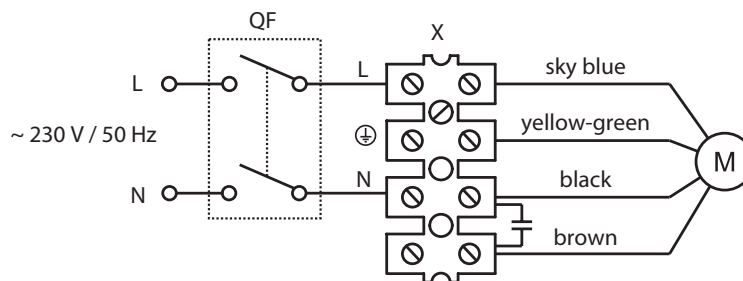
The electric connections must be performed with insulated, durable and heat-resistant conductors (cables, wires) with a matching cross section, min. 0.75 mm<sup>2</sup>. The referred conductor cross section is for reference only. While selecting the conductors with respective cross section consider the wire type, the maximum permissible conductor heating temperature, its insulation, length and layout.

The fan wiring diagrams are shown in fig. 3.

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 prior to finishing mounting.

Connection to power mains as follows:

1. Route the electric cable to the terminal box through the electric lead-in.
2. Connect the cable wires to the input terminal box in compliance with the wiring diagram, fig.3.
3. Re-install the terminal box cover and fix it with screws.
4. Turn the fan on by turning the automatic switch QF to ON position.



**X** – terminal block;  
**QF** – Automatic switch (not included into the delivery set);  
**M** – motor.

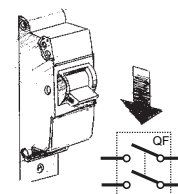
Fig. 3. Wiring diagram

## MAINTENANCE



### ATTENTION

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 prior to finishing maintenance.



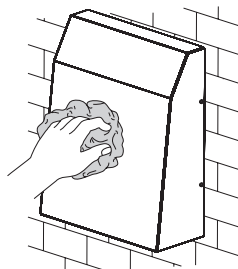
Disconnect the fan from power mains prior to any servicing and repair operations. Make sure the rotating parts have come to a full stop.

The fan technical maintenance consists in the periodic cleaning of the fan surfaces.

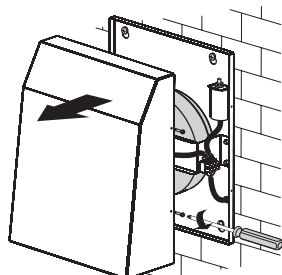
The impeller blades required thorough cleaning once in 6 months.

Maintenance sequence:

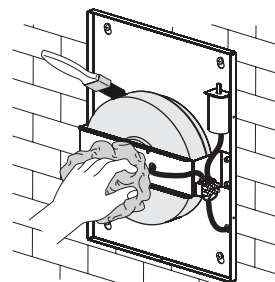
1. Cut off power supply to the fan.
2. Wipe the fan cover with a wet cloth wetted in a mild detergent solution.



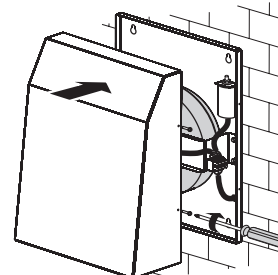
3. Remove the screws and take the fan cover off.



4. Clean the impeller blades with a dry soft brush or compressed air. Avoid liquid dripping on the motor and inside the electronic compartment. While cleaning the fan be careful not to displace the impeller counter weights.



5. After the impeller cleaning install the fan cover and fix it with screws.



## TROUBLESHOOTING

Table 3. Error list and troubleshooting

Fault	Possible reason	Remedy
<b>The fan does not operate.</b>	No power supply or connection error.	Make sure of correct power supply, otherwise troubleshoot the connection error.
	Jammed motor, soiled impeller blades.	Remove the motor jam, clean the impeller blades.
<b>Automatic switch tripping.</b>	Short circuit in power grid.	Turn the fan off and contact your seller for troubleshooting.
<b>Noise, vibration.</b>	The impeller is soiled.	Clean the impeller.
	The screw connection is loose.	Tighten the fastening screws.
	No flexible anti-vibration connectors are installed.	Install the flexible anti-vibration connectors.



**ACCEPTANCE CERTIFICATE**

**Exhaust centrifugal fan**

	100	<input type="checkbox"/>
	125	<input type="checkbox"/>
Extero	150	<input type="checkbox"/>
	160	<input type="checkbox"/>
	200	<input type="checkbox"/>

**is recognizes as serviceable.**

The product 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 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.

Approval mark

Manufacturing date \_\_\_\_\_

**CONNECTION CERTIFICATE**

**Exhaust centrifugal fan**

	100	<input type="checkbox"/>
	125	<input type="checkbox"/>
Extero	150	<input type="checkbox"/>
	160	<input type="checkbox"/>
	200	<input type="checkbox"/>

**is connected to power mains in compliance with this operation manual requirements by the professional:**

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

**WARRANTY CARD**

	100	<input type="checkbox"/>
	125	<input type="checkbox"/>
Extero	150	<input type="checkbox"/>
	160	<input type="checkbox"/>
	200	<input type="checkbox"/>

**SELLER**

**SALES DATE**

**REPRESENTATIVE IN EU**

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Germany







**BLAUBERG**  
*Ventilatoren*

