MOTOR EC

CENTRIFUGAL ROOF FAN

Tower-V
Tower-H
Tower-V EC
Tower-H EC

EN

OPERATION MANUAL

BLAUBERG Ventilatoren

CONTENTS

BLAUBERG Ventilatoren GmbH is happy to offer your attention the Tower-V(H) / Tower-V(H) EC centrifugal roof fan.

INTRODUCTION

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

Read carefully and understand the operation manual, especially the safety requirements, before the unit mounting and start up.

Keep the operation manual available as long as you use the unit.

GENERAL

The Tower-V(H) / Tower-V(H) EC centrifugal roof fans are designed for exhaust ventilation of various premises. The fan is suitable for vertical mounting on the exhaust ventilation shaft of the air duct.

The fan is not a ready to use product but a component part of a ventilation network.

The fan is 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.

Design of the fans is regularly improved, so some models can slightly differ from those ones described in this operation manual.

SAFETY REGULATIONS

All operations related to the unit electrical connections, servicing and repair works are allowed only after the unit is disconnected from power supply.

The unit is rated as a Class I electrical appliance.

All mounting and servicing operations must be carried out only by qualified personnel.

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 unit to power supply. The casing internals must be free of any foreign objects which can damage the impeller blades or the motor.

The unit maintenance and repair are allowed only after power cut-off and full stop of the rotating parts.

Misuse of the unit or any unauthorized modifications are not allowed.

The unit is designed for connection to power supply in compliance with the "Technical data" section.

The unit is rated for continuous operation.

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 unit is not rated for operation in a flammable or explosive medium.

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

TRANSPORTATION AND STORAGE REGULATIONS

Transportation of the unit is allowed by any vehicle provided the unit 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 of the unit. Fulfil the requirements for transportation of the specified cargo type.

Store the unit in a dry and cool place in the original packing.

The storage environment must not be subjected to any aggressive and/or chemical evaporations, admixtures, foreign objects that may provoke corrosion and damage connection tightness.

Store the unit in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations.

Do not expose the unit to the temperatures below +5 °C and above +40 °C .

Connection of the unit to power supply is allowed after the appliance has been kept indoors for minimum two hours.

MANUFACTURER'S WARRANTY

The unit 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 unit 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, which relate to electrical appliances used in set voltage classes.

The manufacturer hereby warrants normal operation of the unit over the period of two years from the retail purchase date provided observance of the installation and operation regulations. In case of a failure due to a manufacturing fault during the warranty period the consumer has the right to exchange it.

The replacement is offered by the Seller.

In case of no confirmation of the purchase date, the warranty period is calculated from the manufacture date.

The MANUFACTURER is not responsible for any damage resulting from any misuse of or gross mechanical interference with the unit.

The MANUFACTURER is not responsible for the damages resulted due to the use of third party equipment or to third party equipment.

WARNING

The unit may not be operated by children or persons with reduced physical, mental or sensory capacities, or lacking the appropriate training, 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 materials 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 in your country.

DESIGN

The fan casing is made of steel with a special weatherproof polymer coating. The air discharge is horizontal in the Tower-H / Tower-H EC models and vertical in the Tower-V / Tower-V EC models. The fan is equipped with a terminal box for connection to power mains. The fan is rated for continuous operation. The impeller is equipped with a protecting grille in Tower-H / Tower-H EC models. The upper cover is equipped with eye bolts for easy lifting of the fan to the roof using hoist machinery. A connecting plate is designed to facilitate mounting to the roof surface or to the mounting frame.

The Tower-H / Tower-V models are equipped with a two-, four- or six-pole asynchronous motor with an external rotor and a centrifugal impeller with backward curved blades. Single-phase (E) or three-phase (D) motor modifications. The motor is equipped with ball bearings for a longer service life. The built-in thermal switches are used for overheating protection. The thermal switches are equipped with terminals leaded outside for connection to external protecting controls. The thermal switch terminal leads are designed for connection to respective circuit of the terminal block, overload relay or respective terminals of an autotransformer or thyristor speed controller. Both smooth or step speed control is performed by means of the thyristor or autotransformer controller (both available upon separate order).

Tower-H EC / Tower-V EC fans are equipped with high-efficient external rotor EC motors and centrifugal impellers with backward curved blades. The motor is equipped with an integrated overheating protection with an automatic restart. The fan with a EC-motor is controlled with a 0-10 V external control signal, e.g. CDT E/0-10 speed controller for EC-motors.

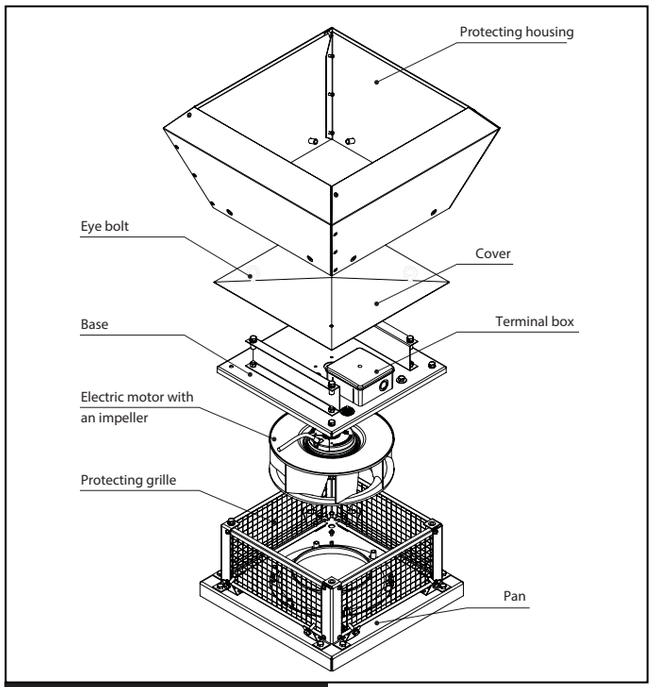


Fig. 1. Tower-V EC design

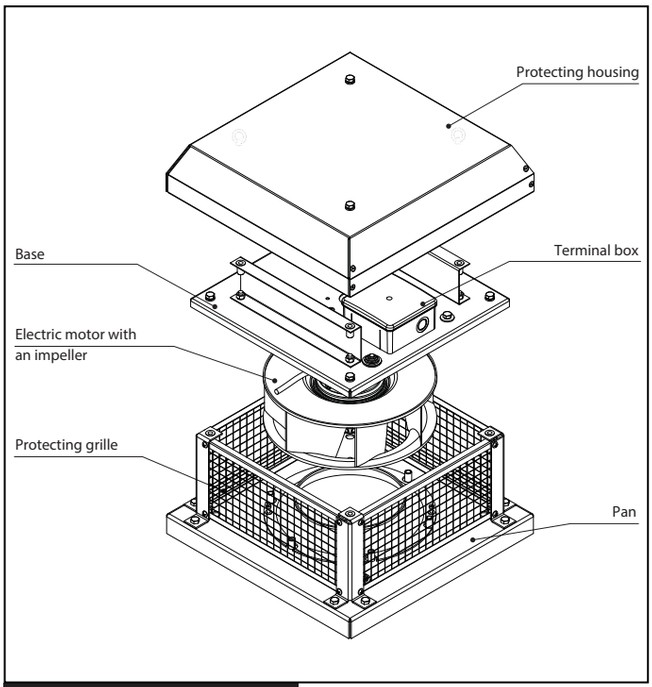


Fig. 2. Tower-H EC design

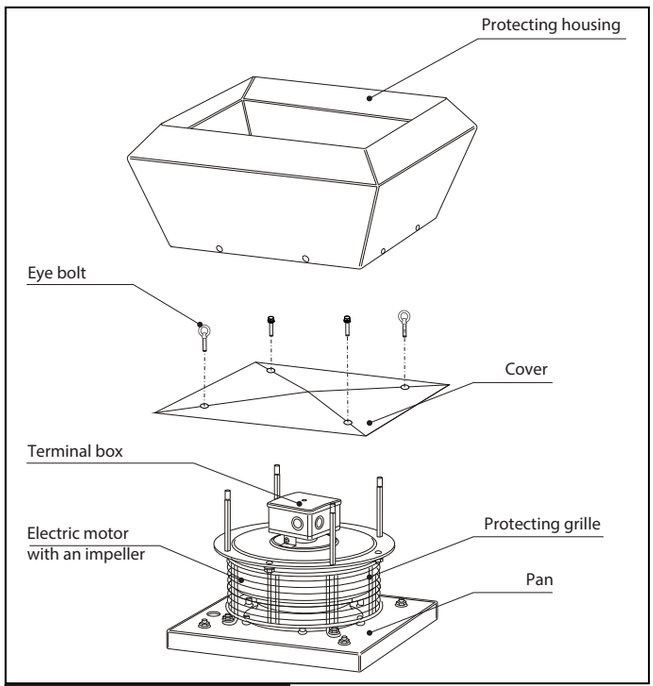


Fig. 3. Tower-V design

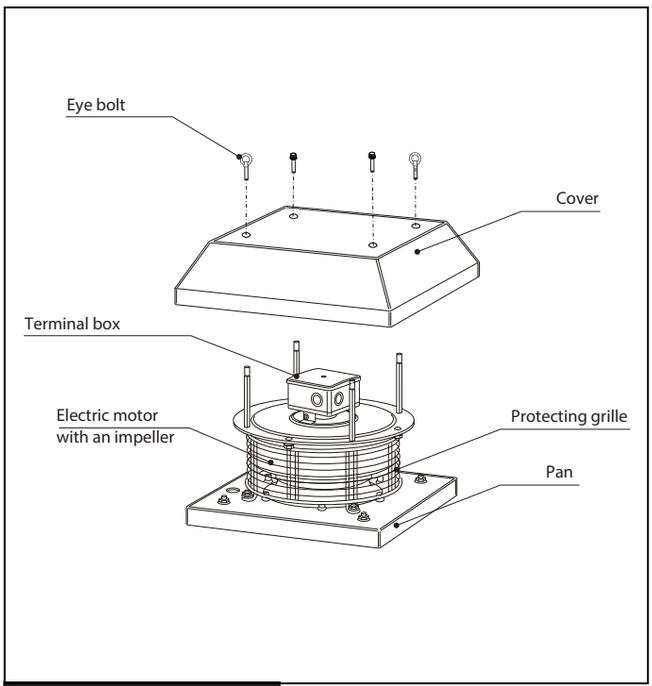


Fig. 4. Tower-H design

DELIVERY SET

- ✓ fan - 1 item;
- ✓ operation manual - 1 item;
- ✓ packing box - 1 item.

ATTENTION

Make sure the unit has no visible transport damages while accepting the goods. Check the ordered and the delivered goods for compliance.

TECHNICAL DATA

Table 1. Tower-V / Tower-H technical data

Parameters	Tower-V 220 2E Tower-H 220 2E	Tower-V 225 2E Tower-H 225 2E	Tower-V 250 2E Tower-H 250 2E	Tower-V 280 2E Tower-H 280 2E	Tower-V 310 4E Tower-V 310 4E
Voltage [V / 50 Hz]	230	230	230	230	230
Power [W]	85	135	155	225	120
Current [A]	0,38	0,6	0,7	1,0	0,54
Maximum air capacity [m³/h]	700	900	1300	1780	1820
RPM	2700	2650	2600	2700	1370
Sound pressure level at 3 m distance [dB(A)]	49	49	65	66	45
Max. transported air temperature [°C]	55	55	50	50	85
Ingress protection rating	IP X4	IP X4	IP X4	IP X4	IP X4

Parameters	Tower-V 310 4D Tower-H 310 4D	Tower-V 355 4E Tower-H 355 4E	Tower-V 355 4D Tower-H 355 4D	Tower-V 400 4E Tower-H 400 4E	Tower-V 400 4D Tower-H 400 4D
Voltage [V / 50 Hz]	400	230	400	230	400 Y
Power [W]	110	245	170	480	385
Current [A]	0,32	1,12	0,52	2,4	0,7
Maximum air capacity [m³/h]	1950	2800	2350	3400	3800
RPM	1400	1420	1400	1400	1430
Sound pressure level at 3 m distance [dB(A)]	53	46	53	52	52
Max. transported air temperature [°C]	65	50	70	80	60
Ingress protection rating	IP X4	IP X4	IP X4	IP X4	IP X4

Parameters	Tower-V 450 4E Tower-H 450 4E	Tower-V 450 4E Tower-H 450 4E	Tower-V 500 6E Tower-H 500 6E
Voltage [V / 50 Hz]	230	400 Y	230
Power [W]	640	470	385
Current [A]	3,1	0,82	1,82
Maximum air capacity [m³/h]	3850	4300	4700
RPM	1350	1430	880
Sound pressure level at 3 m distance [dB(A)]	53	53	47
Max. transported air temperature [°C]	50	50	50
Ingress protection rating	IP X4	IP X4	IP X4

Table 2. Tower-V EC / Tower-H EC technical data

Parameters	Tower-V EC 250 Tower-H EC 250	Tower-V EC 280 Tower-H EC 280	Tower-V EC 310 Tower-H EC 310	Tower-V EC 355 Tower-H EC 355
Voltage [V / 50-60 Hz]	1~ 200-277	1~ 200-277	1~ 200-277	3~ 380-480
Power [kW]	0,485	0,455	0,48	0,94
Current [A]	3,0	2,8	3,1	1,5
Maximum air capacity [m³/h]	1750	2650	3220	4500
RPM	3580	2600	2300	2215
Sound pressure level at 3 m distance [dB(A)]	47	47	48	51
Max. transported air temperature [°C]	-25 +60	-25 +40	-25 +60	-25 +60
Ingress protection rating	IP X4	IP X4	IP X4	IP X4

Table 2. Tower-V EC / Tower-H EC technical data (continued)

Parameters	Tower-V EC 400 Tower-H EC 400	Tower-V EC 450 Tower-H EC 450	Tower-V EC 500 Tower-H EC 500	Tower-V EC 560 Tower-H EC 560
Voltage [V / 50-60 Hz]	3~ 380-480	3~ 380-480	3~ 380-480	3~ 380-480
Power [kW]	0,77	1,01	2,7	2,3
Current [A]	1,3	1,6	4,3	3,6
Maximum air capacity [m^3/h]	5360	6700	10500	11400
RPM	1755	1560	1700	1350
Sound pressure level at 3 m distance [dB(A)]	53	55	63	65
Max. transported air temperature [°C]	-25 +60	-25 +60	-25 +60	-25 +60
Ingress protection rating	IP X4	IP X4	IP X4	IP X4

Table 3. Tower-V / Tower-V EC / Tower-H / Tower-H EC overall dimensions

Model	Dimensions [mm]					Weight [kg]
	ØD	H	L	L1	L2	
Tower-V 220 2E	213	275	338	245	460	8,9
Tower-V 225 2E	213	275	338	245	460	9,6
Tower-V 250 2E	285	275	425	330	520	12
Tower-V 280 2E	285	275	425	330	520	12,7
Tower-V 310 4E	285	330	438	330	560	17,8
Tower-V 310 4D	285	330	438	330	560	17,8
Tower-V 355 4E	438	420	598	450	783	22
Tower-V 355 4D	438	420	598	450	783	22
Tower-V 400 4E	438	420	598	450	783	27,5
Tower-V 450 4E	438	454	668	535	872	30
Tower-V 400 4D	438	420	598	450	783	27,5
Tower-V 450 4D	438	454	668	535	872	30
Tower-V 500 6E	438	454	668	535	872	33,8
Tower-V EC 250	285	320	435	330	528	16
Tower-V EC 280	285	327	435	330	557	18
Tower-V EC 310	285	327	435	330	557	21
Tower-V EC 355	438	387	595	450	708	38
Tower-V EC 400	438	387	595	450	708	82
Tower-V EC 450	438	464	665	535	898	84
Tower-V EC 500	438	464	665	535	898	88
Tower-V EC 560	605	560	940	750	1150	98

Model	Dimensions [mm]						Weight [kg]
	ØD	Ød	H	L	L1	L2	
Tower-H 220 2E	213	10	228	338	245	338	6,9
Tower-H 225 2E	213	10	228	338	245	338	7,1
Tower-H 250 2E	285	10	265	425	330	365	10,1
Tower-H 280 2E	285	10	265	425	330	365	10,2
Tower-H 310 4E	285	10	300	438	330	400	10,2
Tower-H 310 4D	285	10	300	438	330	400	10,2
Tower-H 355 4E	438	12	348	598	450	550	15,6
Tower-H 355 4D	438	12	325	598	450	550	15,6
Tower-H 400 4E	438	12	348	598	450	550	21
Tower-H 450 4E	438	12	400	668	535	640	22,7
Tower-H 400 4D	438	12	323	598	450	550	22
Tower-H 450 4D	438	12	400	668	535	640	22,7
Tower-H 500 6E	438	12	465	668	535	640	26,6
Tower-H EC 250	285	11	289	435	330	411	16
Tower-H EC 280	285	11	264	435	330	431	16
Tower-H EC 310	285	11	272	435	330	431	19
Tower-H EC 355	438	11	326	595	450	558	38
Tower-H EC 400	438	11	357	595	450	558	81
Tower-H EC 450	438	11	407	665	535	637	82
Tower-H EC 500	438	11	437	665	535	637	81
Tower-H EC 560	605	14	487	940	750	912	98

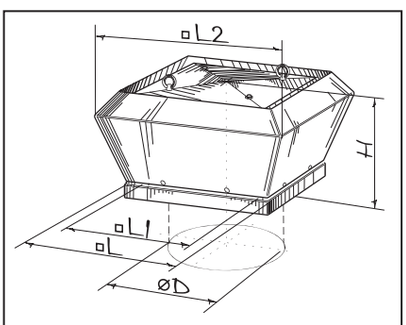


Fig. 5. Tower-V / Tower-V EC outline drawing

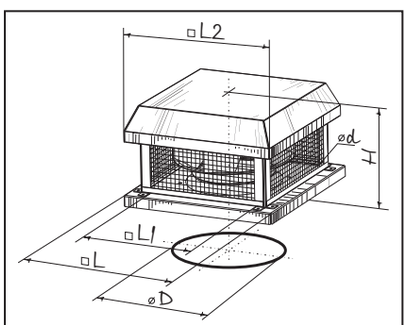


Fig. 6. Tower-H EC outline drawing

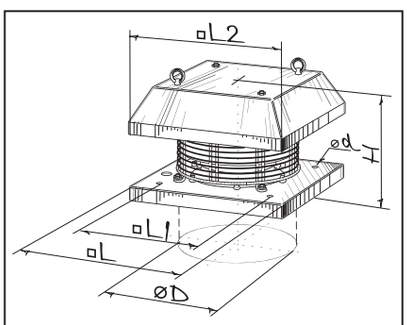


Fig. 7. Tower-H outline drawing

MOUNTING AND OPERATION GUIDELINES

WARNING

Before starting mounting:
✓ read carefully the operation manual of the unit;
✓ check the unit for possible transport damages.
Follow the safety regulations during the unit start-up and operation.

Fans are designed for mounting on a roof directly above an air duct or a ventilation shaft. The fan base has holes for fixing bolts that attach the fan to a stationary even surface. The fan is attached to a square air duct or to the MRDL/MRIDL mounting frame (available separately). The mounting frame prevents ingress of water or snow to the air duct.

The FDL counterflange mounted on the fan bottom (available separately) is designed for connection of the fan to a round air duct.

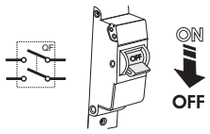
The KDL backdraft dampers (available separately) are designed to prevent back drafting when the fan is off.

The VDL flexible connectors (available separately) are designed to absorb vibration from the fan to the air duct.

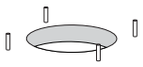
The external terminal box is used for connection to power mains.

Mounting sequence for Tower-V EC:

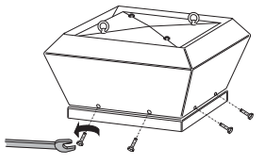
1) Cut off power supply.



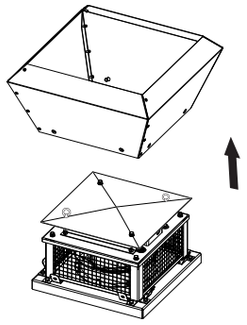
2) Mark and drill the holes for the dowels above the ventilation shaft.



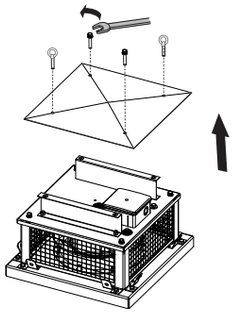
3) Unscrew 8 bolts that fix the protecting housing.



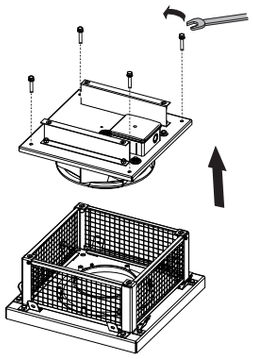
4) Remove the protecting housing.



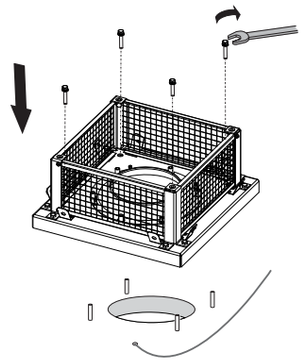
5) Unscrew 4 bolts and remove the cover.



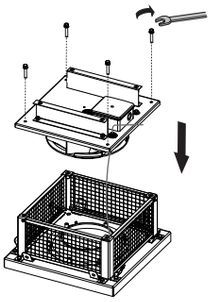
6) Unscrew 4 bolts and remove the base with the motor.



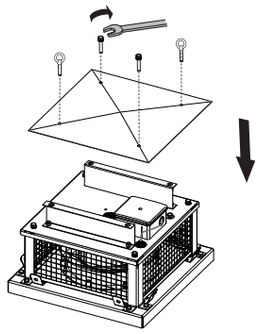
7) Lead the electric cable to the fan mounting place then route it through the electric lead-in located in the casing of the fan pan. Install the pan of the fan over the ventilation shaft and fix it using dowels.



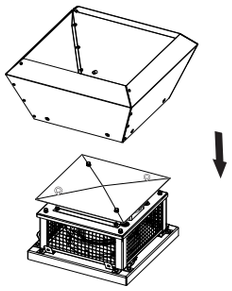
8) Route the electric cable through the electric lead-in located in the base casing. Install the base with the motor on the pan and fix it using bolts. Route the electric cable through the electric lead-in located in the terminal box casing and connect it to the terminal block according to the wiring diagram.



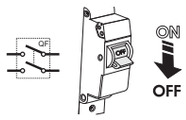
9) Install the fan cover and fix it with 4 bolts.



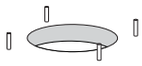
10) Install the protecting housing and fix it with 8 bolts.



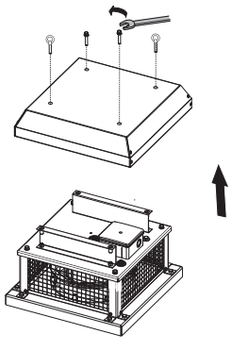
Mounting sequence for Tower-H EC:
1) Cut off power supply.



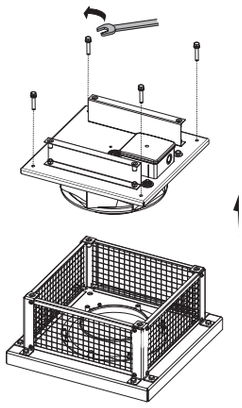
2) Mark and drill the holes for the dowels above the ventilation shaft.



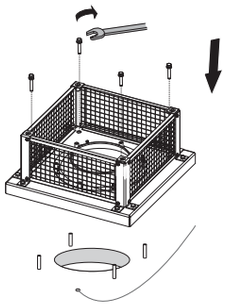
3) Unscrew 4 bolts that fix the protecting housing and remove it.



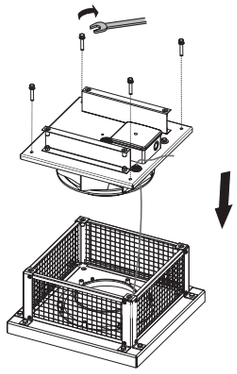
4) Unscrew 4 bolts and remove the base with the motor.



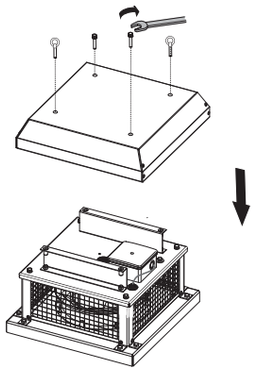
5) Lead the electric cable to the fan mounting place then route it through the electric lead-in located in the casing of the fan pan. Install the pan of the fan over the ventilation shaft and fix it using dowels.



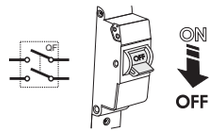
6) Route the electric cable through the electric lead-in located in the base casing. Install the base with the motor on the pan and fix it using bolts. Route the electric cable through the electric lead-in located in the terminal box casing and connect it to the terminal block according to the wiring diagram.



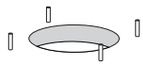
7) Install the protecting housing and fix it with 4 bolts.



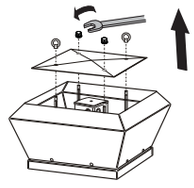
Mounting sequence for Tower-V:
1) Cut off power supply.



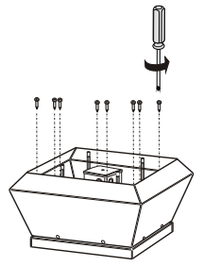
2) Mark and drill the holes for the dowels above the ventilation shaft.



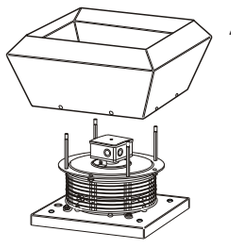
3) Unscrew 4 nuts and remove the cover.



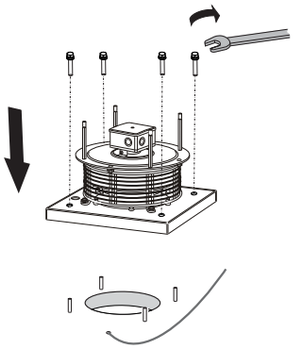
4) Unscrew 8 bolts that fix the protecting housing.



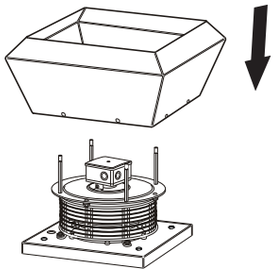
5) Remove the protecting housing.



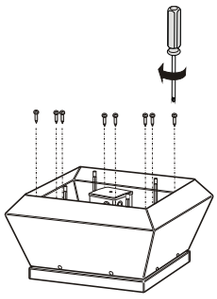
6) Lead the electric cable to the fan mounting place then route it through the electric lead-in located in the casing of the fan pan. Install the pan of the fan over the ventilation shaft and fix it using dowels.



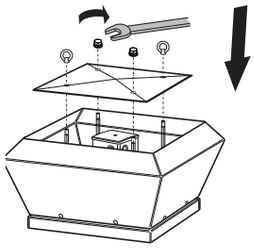
7) Install the protecting housing.



8) Fix the protecting housing using 8 bolts.



9) Fix the cover using 4 nuts.



CONNECTION TO POWER MAINS

WARNING

Connection of the fan to power mains must be carried out by a qualified electrician and after reading the operation manual. The rated electrical parameters are stated on the rating plate. Any tampering with the internal connections is prohibited and will void the warranty. Connect the unit 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 a magnetic trip automatic switch at the external input. The contact gap on all poles must be at least 3 mm (VDE 0700 T1 7.12.2 / EN 60335-1). The automatic switch trip current must be not below the rated current consumption (ref. Table 1, 4). Enable quick access to an automatic switch installation place.

Depending on the model the fan is rated for connection to 230 V / 50-60 Hz single-phase AC or to 400 V / 50-60 Hz three-phase AC power mains, refer to the Technical data section.

The recommended rated automatic switch trip current, the recommended cable cross section and the wiring diagram number is shown in Table 4.

The connection must be made using durable, insulated and heat-resistant conductors (cables and wires). When selecting conductors take into account the maximum permissible wire heating temperature, depending on the type of wire, its insulation, length and laying method, either open installation, cable channel installation or in-wall wiring.

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.

External wiring diagram and universal connection of fans with EC motors into a single group is shown in Fig. 14.

An example of the recommended fan wiring diagram using a motor overheating protection is shown in Fig. 15 for a single-phase motor and in Fig. 16 for a three-phase motor. The TW1, TW2 terminals 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 S1 button. In case of the motor overheating the contact gets broken and switches the starter coil off to cut power off and to stop the motor. The automatic switch QF, the magnetic starter KM1, the control knobs S1 and S2 are not included in the delivery set and must be installed independently.

Table 4. Technical data for connection to power mains

Model	Wiring diagram (Fig. number)	Automatic switch rated current [A]	Recommended cable: number of wires X cross section [mm²]
Tower-V 220 2E	Fig. 8	1	3 x 0,5
Tower-V 225 2E			
Tower-V 250 2E			
Tower-V 280 2E		1,6	
Tower-V 310 4E		1	
Tower-V 310 4D	Fig. 10		5 x 0,5
Tower-V 355 4E	Fig. 8	1,6	3 x 0,5
Tower-V 355 4D	Fig. 11	1	5 x 0,5
Tower-V 400 4E	Fig. 9	4	3 x 1
Tower-V 450 4E			
Tower-V 400 4D	Fig. 11	1	5 x 0,5
Tower-V 450 4D			
Tower-V 500 6E	Fig. 9	2,5	3 x 1
Tower-V EC 250	Fig. 12	4	
Tower-V EC 280			
Tower-V EC 310			
Tower-V EC 355	Fig. 13	2	5 x 0,75
Tower-V EC 400			
Tower-V EC 450			
Tower-V EC 500		10	5 x 1,5
Tower-V EC 560			

Model	Wiring diagram (Fig. number)	Automatic switch rated current [A]	Recommended cable: number of wires X cross section [mm²]
Tower-H 220 2E	Fig. 8	1	3 x 0,5
Tower-H 225 2E			
Tower-H 250 2E			
Tower-H 280 2E		1,6	
Tower-H 310 4E		1	
Tower-H 310 4D	Fig. 10		5 x 0,5
Tower-H 355 4E	Fig. 8	1,6	3 x 0,5
Tower-H 355 4D	Fig. 11	1	5 x 0,5
Tower-H 400 4E	Fig. 9	4	3 x 1
Tower-H 450 4E			
Tower-H 400 4D	Fig. 11	1	5 x 0,5
Tower-H 450 4D			
Tower-H 500 6E	Fig. 9	2,5	3 x 1
Tower-H EC 250	Fig. 12	4	
Tower-H EC 280			
Tower-H EC 310			
Tower-H EC 355	Fig. 13	2	5 x 0,75
Tower-H EC 400			
Tower-H EC 450			
Tower-H EC 500		10	5 x 1,5
Tower-H EC 560			

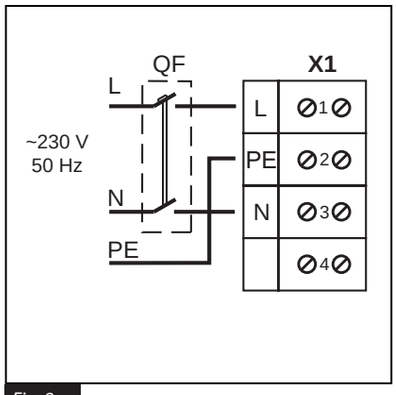


Fig. 8.

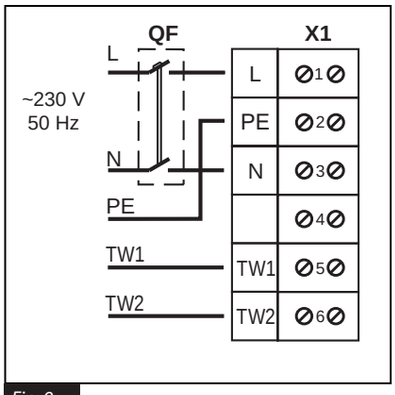


Fig. 9.

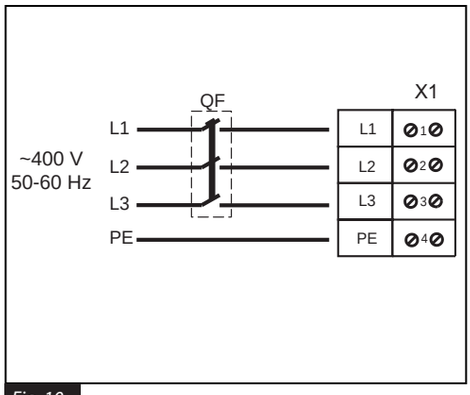


Fig. 10.

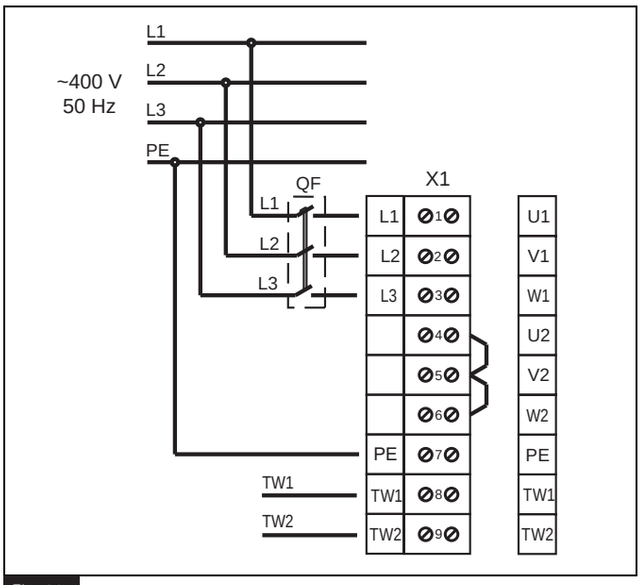
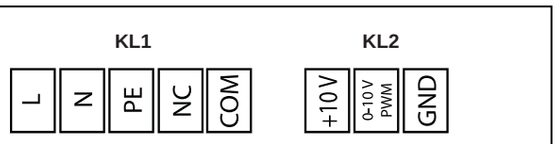
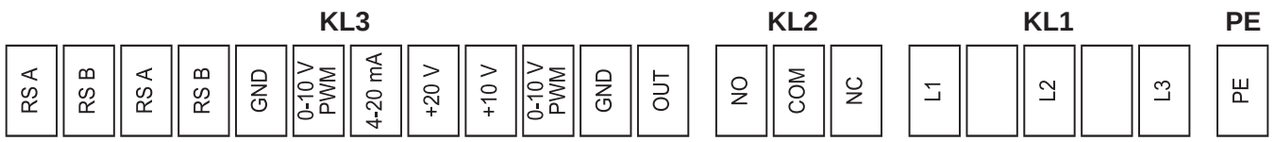


Fig. 11.



Terminal block	Contact	Purpose/function
KL1	L	power mains 50-60 Hz, phase
	N	power mains 50-60 Hz, zero wire
	PE	protective ground
	NC	warning relay, normally closed contact
	COM	warning relay, common
KL2	+ 10 V	voltage output +10 V (no more than 1.1 mA)
	0-10 V/PWM	control input 0-10 V / PWM (full resistance 100 kOhm)
	GND	ground

Fig. 12.



Terminal block	Contact	Purpose/function
KL3	OUT	control signal output 0-10 V max. 3 mA
	GND	ground
	0-10 V / PWM	Control input (full resistance 100 kOhm)
	+ 10 V	external potentiometer power supply, 10 V (+10 %) max. 10 mA
	+ 20 V	external sensor power supply, 20 V (±20%) max. 50 mA
	4-20 mA	Control input
	0-10 V / PWM	Control input
	GND	ground
	RSB	RS485 interface for ebmBUS; RS B
	RSA	RS485 interface for ebmBUS; RS A
	RSB	RS485 interface for ebmBUS; RS B
	RSA	RS485 interface for ebmBUS; RS A

Terminal block	Contact	Purpose/function
PE	PE	protective ground conductor
KL1	L3	power mains 50-60 Hz - L3
	L2	power mains 50-60 Hz - L2
	L1	power mains 50-60 Hz - L1
KL2	NC	warning relay, normally closed contact
	COM	COMMON warning relay (2A, 250 V, AC1)
	NO	alarm relay, normally opened contact

Fig. 13.

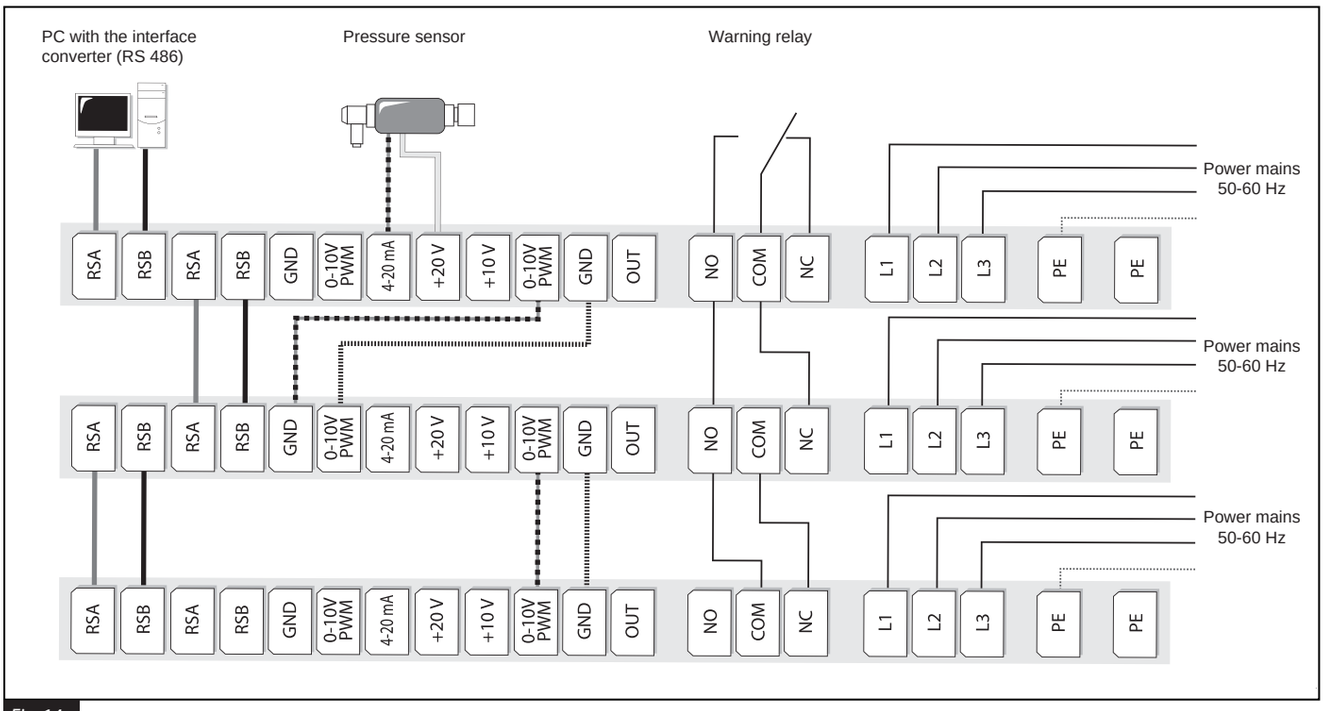


Fig. 14.

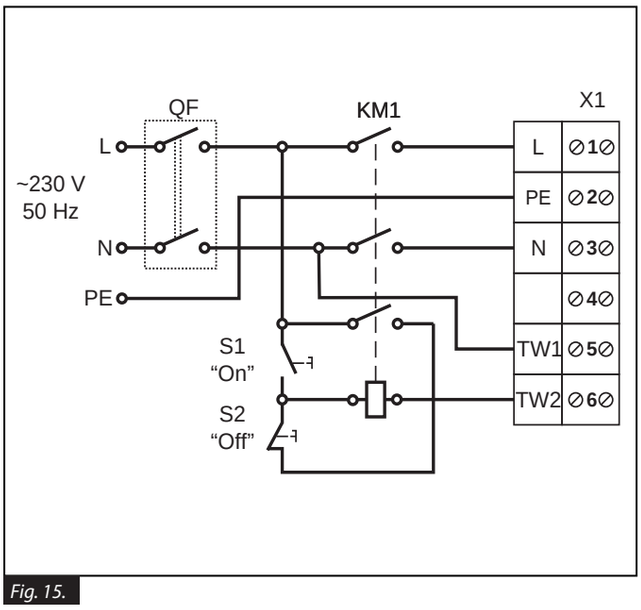


Fig. 15.

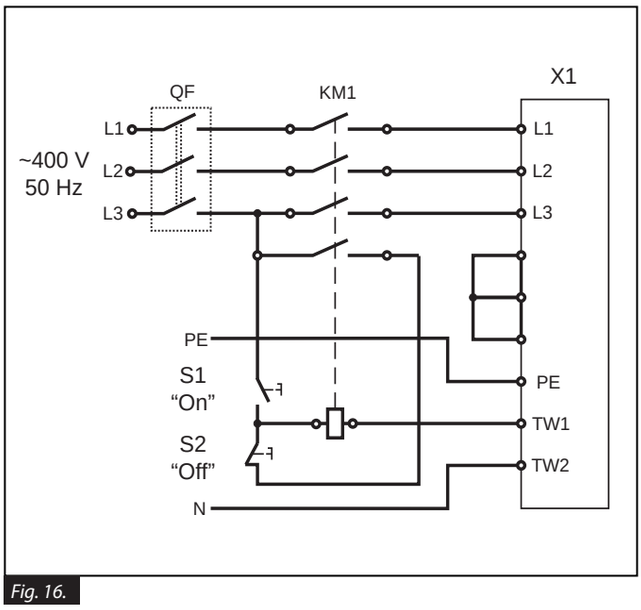


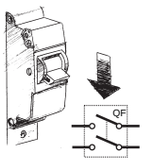
Fig. 16.

TECHNICAL MAINTENANCE

WARNING

Cut power supply to the fan off by turning the automatic electric switch QF to OFF position prior to any maintenance operations.

Take steps to prevent activation of the automatic switch prior to finishing maintenance.



Disconnect the fan from power mains prior to any operations related to servicing and repair works. 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 require thorough cleaning once in 6 months.

Cleaning procedure:

1. Cut off power supply to the fan.
2. Partially dismantle the casing for accessing the contaminated parts of the fan.
3. Clean the impeller blades with a dry soft brush or compressed air. While cleaning the fan be careful not to displace the impeller counter weights. Clean the fan casing with a wet cloth. Protect the electric motor against liquid ingress.
4. Assemble the fan in the reverse order after cleaning.

TROUBLESHOOTING

Table 5. Possible faults and troubleshooting

Fault	Possible reason	Troubleshooting
The fan does not operate	No power supply or connection error.	Connect the fan to power mains. Troubleshoot the connection error.
	Jammed motor, soiled impeller blades.	Remove the motor jam, clean the impeller blades.
Automatic switch tripping	Short circuit in power grid.	Turn the fan off and contact the seller for troubleshooting.
Noise, vibration	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

Centrifugal roof fan

Tower-V ☐
Tower-H ☐

220 ☐
225 ☐
250 ☐
280 ☐
310 ☐
355 ☐
400 ☐
450 ☐
500 ☐

2E ☐
4E ☐
4D ☐

Tower-V EC ☐
Tower-H EC ☐

250 ☐
280 ☐
310 ☐
355 ☐
400 ☐
450 ☐
500 ☐
560 ☐

is recognized 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 unit 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, which relate to electrical appliances used in set voltage classes.

This certificate is issued following test carried out on samples of the product referred to above.

Quality Inspector's Stamp Manufacture Date _____

CONNECTION CERTIFICATE

Centrifugal roof fan

Tower-V ☐
Tower-H ☐

220 ☐
225 ☐
250 ☐
280 ☐
310 ☐
355 ☐
400 ☐
450 ☐
500 ☐

2E ☐
4E ☐
4D ☐

Tower-V EC ☐
Tower-H EC ☐

250 ☐
280 ☐
310 ☐
355 ☐
400 ☐
450 ☐
500 ☐
560 ☐

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

Company: _____

Expert's Full Name_____

Date_____Signature_____

WARRANTY CARD

Tower-V ☐
Tower-H ☐

220 ☐
225 ☐
250 ☐
280 ☐
310 ☐
355 ☐
400 ☐
450 ☐
500 ☐

2E ☐
4E ☐
4D ☐
6E ☐

Tower-V EC ☐
Tower-H EC ☐

250 ☐
280 ☐
310 ☐
355 ☐
400 ☐
450 ☐
500 ☐
560 ☐

SELLER

PURCHASE DATE

REPRESENTATIVE IN EU

BLAUBERG Ventilatoren GmbH
Aidenbachstr. 52a,
D-81379 Munich,
Germany

BLAUBERG Ventilatoren

NOTES

BLAUBERG
Ventilatoren

www.blaubergventilatoren.de
Tower-H (V) / v.4(7) / EN