



USA

CAN



BESB Box Ventilator



**READ AND SAVE
THESE INSTRUCTIONS**

EXHAUSTO

1200 Northmeadow Parkway, STE 180 • Roswell, GA 30076
(770) 587-3238 (800) 255-2923 Fax (770) 587-4731
info@exhausto.com us.exhausto.com

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Symbol Legend:

The following terms are used throughout this manual to bring attention to the presence of potential hazards or to important information concerning the product.



Danger: Indicates an imminent hazardous situation which, if not avoided, will result in death, serious injury or substantial property damage.



Caution: Indicates an imminent hazardous situation which, if not avoided, may result in personal injury or property damage.



TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

1. Use this unit in the manner intended by the manufacturer. If you have questions, contact the manufacturer at the address or telephone number listed on the front of the manual.
2. Before servicing or cleaning the unit, switch off at service panel and lock service panel to prevent power from being switched on accidentally.
3. Installation work and electrical wiring must be done by a qualified person(s) in accordance with applicable codes and standards.
4. Follow the appliance manufacturer's guidelines and safety standards such as those published by the National Fire Protection Associations (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.

5. This unit must be grounded.

How to use this manual

This installation manual does not contain any system design documentation. System design documentation is available from any authorized EXHAUSTO representative.

Accessories, fans and variable frequency drives are not covered by this manual. Please refer to these component's individual manuals.

1. Product Information

1.1 Function

Use

EXHAUSTO Model BESB is a box ventilator that can be used for the movement of air in exhaust and air supply systems where no explosive gases are present. The ventilator cannot be used for transport of large particles. It is designed to provide a high capacity at a high static pressure.

The ventilator can be installed indoors as well as outdoors. No special treatment or preparation is required for weather proofing.

Suitable uses include, but are not limited to: comfort ventilation, venting of commercial clothes dryers, exhaust and air supply.

The exhaust temperature must be above 10°F(-12°C) but should not exceed 175°F(80°C). The ambient temperature must be within -20°F(-30°C) and 105°F(40°C).

Construction

The ventilator housing is made in galvanized steel and insulated with fiber insulation. The collars are fitted with silicone seals to assure a tight assembly. The blower wheel is made in cast aluminum and the impellers are backward inclined. The motor is a direct drive, variable speed class B insulated type. It has permanently lubricated, sealed ball bearings and is maintenance free.

Listings

EXHAUSTO Model BESB is tested and listed to UL 705, Standard for Power Ventilators. It is also tested and listed with special consideration for exhausting of lint-laden air from commercial dryers.

The BESB can be used as a component in a MCAS, Modulating Combustion Air System, as well as a MDVS, Mechanical Dryer Venting System. The listings of these systems incorporate the BESB Box Ventilator.

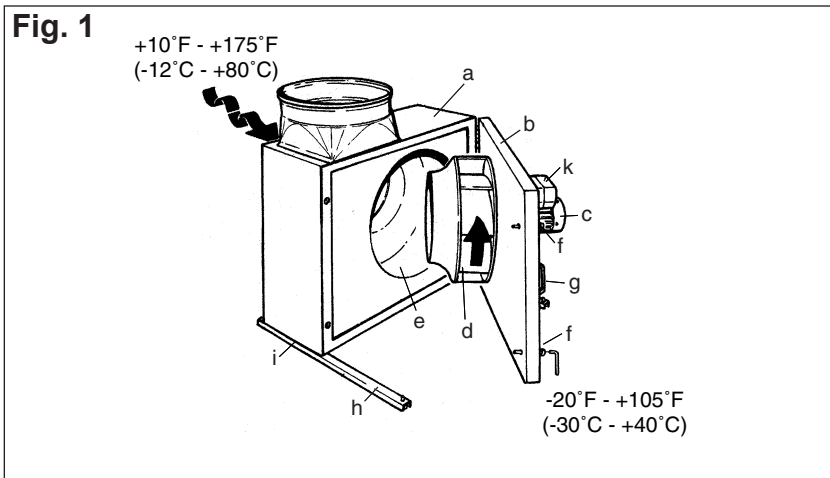


Do not use with explosive gases. Do not use for transport of large particles.

1.2 Components

The box ventilator consists of the following components:

- | | | | |
|----|----------------------|----|---|
| a. | Housing | f. | Locking screw |
| b. | Access door | g. | Door handle |
| c. | Motor | h. | Support legs with vibration dampers (2) |
| d. | Centrifugal impeller | i. | Sheet metal screws (4) |
| e. | Ventilator housing | k. | Junction box |



1.3 Shipping

Protection

The ventilator is shipped on a pallet and protected by a corrugated box as shown below in Fig. 2. Do not place other products or items on top of the box.

After unpacking, the product must be handled in a way to prevent damaging the collars and the ventilator housing. The door handle should never be used as a carrying handle. The access door can be removed if necessary as shown below in Fig. 3.



Never use the access door handle as a carrying handle!

Fig. 2

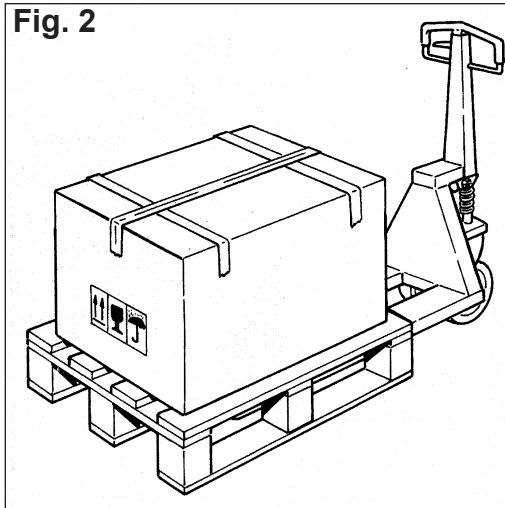
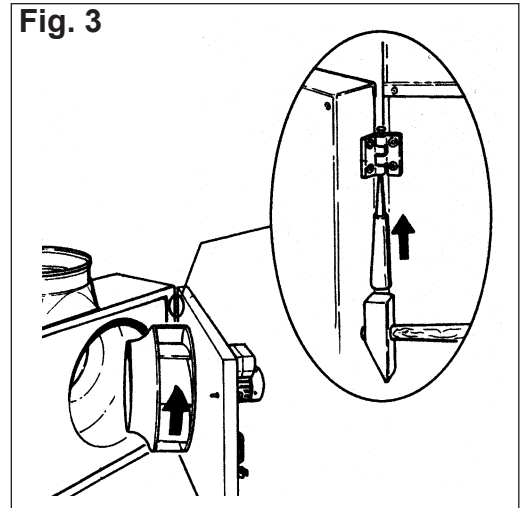


Fig. 3



Never operate the ventilator with the access door open!

Standard Packing

The ventilator is shipped with motor installed on the access door. If other components are shipped, these will appear on the shipment packing list.

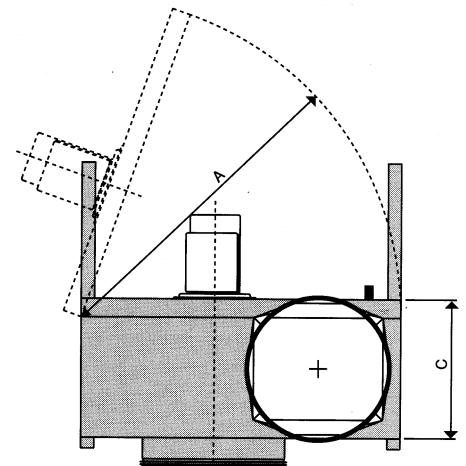
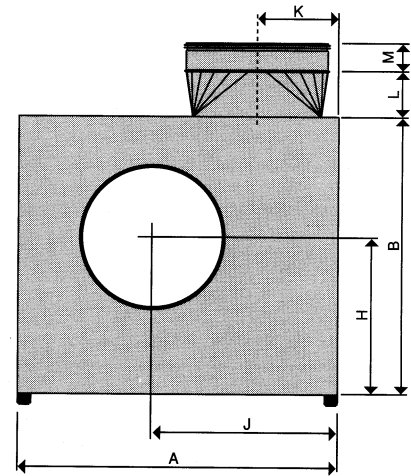
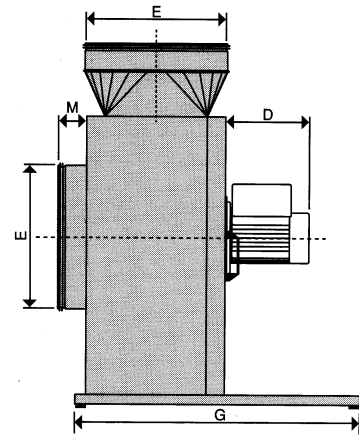
1.4 Warranty

Complete warranty conditions are available from EXHAUSTO.

2. Specifications

2.1 Dimensions & Capacities

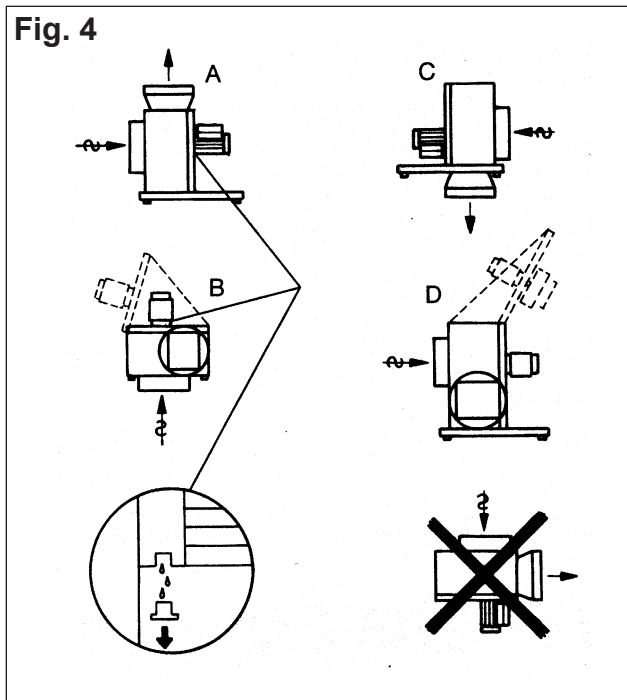
Model		BESB 250	BESB 315	BESB 400	BESB 500
Fan Type		Centrifugal Impeller (B-Wheel)			
Motor Type		TEFC			
Voltage	V AC	1x120	3 x 200-240/3x460-480		
Amperage	Amps	5.8	3.6/1.7	6.5/2.9	9.0/4.0
Motor Output	HP	0.5	1	2	3
	kW	0.35	0.75	1.5	2.2
RPM		1600	1720		
Weight	lbs	110	126	167	227
	kg	50	57	76	103
Duct Connection	E in	10	12	16	20
	mm	250	315	400	500
Dimensions	A in	30.91	30.91	35.24	38.98
	mm	785	785	895	990
	B in	24.61	26.57	30.51	33.86
	mm	625	675	775	860
	C in	12.80	13.98	15.35	16.73
	mm	325	355	390	425
	D in	7.68	7.68	10.24	12.20
	mm	195	195	260	310
	G in	31.50	31.50	31.50	33.46
	mm	800	800	800	800
	H in	13.78	15.16	17.32	19.09
	mm	350	385	440	485
	J in	18.90	17.91	20.67	22.83
	mm	480	455	525	580
	K in	7.28	8.08	9.84	11.81
	mm	185	205	250	300
	L in	4.92	4.92	4.92	6.69
	mm	125	125	125	170
	M in	2.36	3.15	3.15	2.36
	mm	60	80	80	60



3. Installation

3.1 Positioning

The ventilator can be installed in many different positions. However, it should always be possible to open the access door at least 80 degrees, and the locking bolts should always be accessible. Acceptable ventilator positions are shown below in Fig. 4. Note that the ventilator motor can never point straight down as this could cause condensation build-up around the shaft, which can shorten the product life.



Never install the ventilator so the motor points down. This will shorten the life.

If mounted according to Fig. B and D, a special locking hinge to keep the access door in an open position should be installed. It is available from EXHAUSTO.

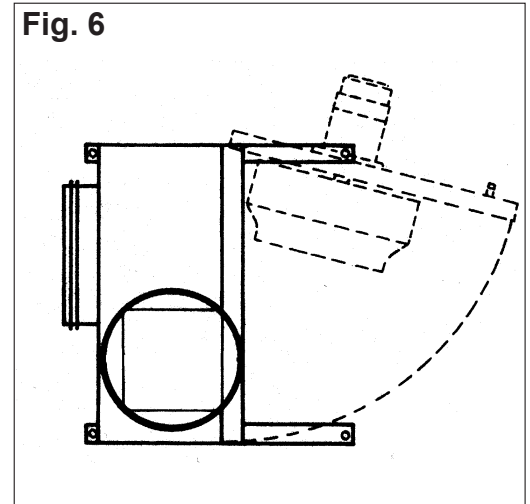
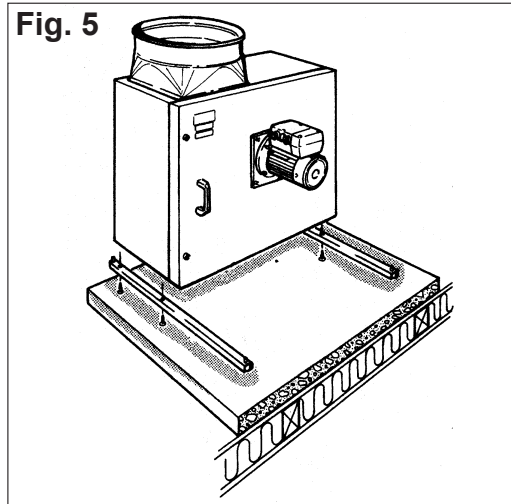
3.2 Floor or Roof Mounting

To minimize the transfer of noise and vibration the ventilator should be placed on a surface that is level, stable and vibration-free. If placed on a wooden surface, a cement tile should be placed on the floor prior to the placement of the ventilator. The ventilator does not need to be secured by any means. See Fig. 5 on page 7.

Once the installation location has been selected the support legs must be installed. If at all practical the ventilator should remain on the pallet while the support legs are installed.

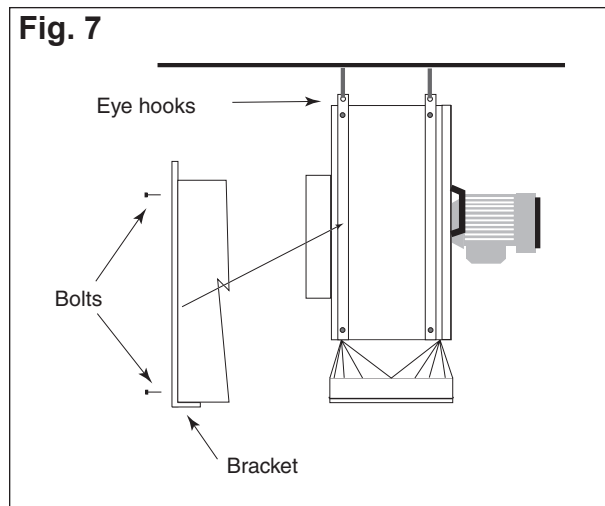
For the standard position bolt holes are pre-drilled so the legs should just be aligned and secured with the enclosed sheet metal screws.

For all other positions, the legs should be placed in a proper position and holes should be drilled prior to securing the legs to the ventilator by means of the enclosed sheet metal screws. When placing the ventilator, make sure the access door can open approximately 80°. See Fig. 6.



3.3 Ceiling Mounting

If hung from the ceiling, brackets with eye hooks (not included) must be installed as shown below in Fig. 7.



Ceiling bolts must be properly sized to be able to safely carry the weight of the ventilator. Please see Sec. 2.1 Dimensions and Capacities on page 5.



Never install the ventilator so the motor points down. This will shorten the life as condensate will enter the bearings.

4. Wiring

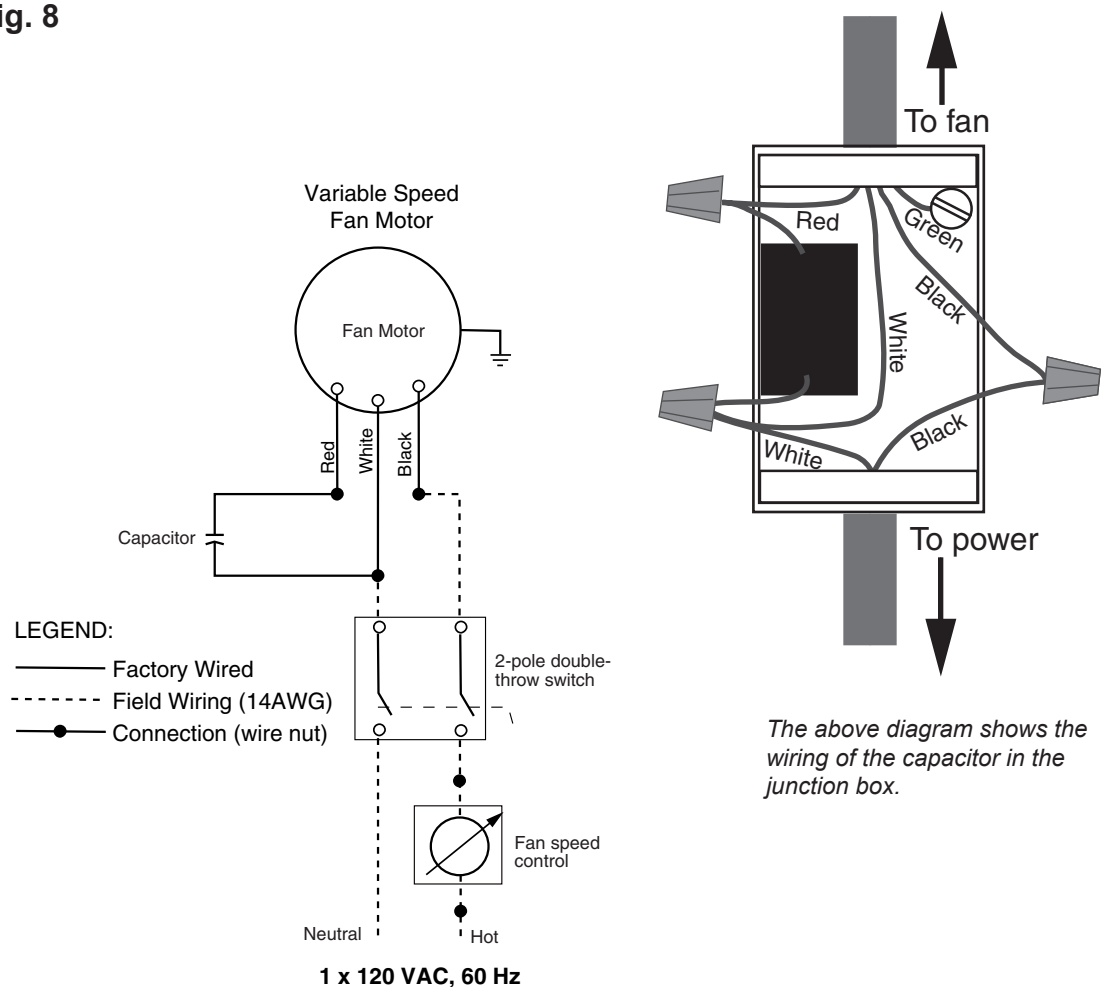
4.1 Electrical Requirements

All electrical wiring must be in accordance with the requirements of the authority having jurisdiction, or, in the absence of such requirements, with the National Electrical Code-NFPA 70.

4.2 Wiring Diagram - BESB 250

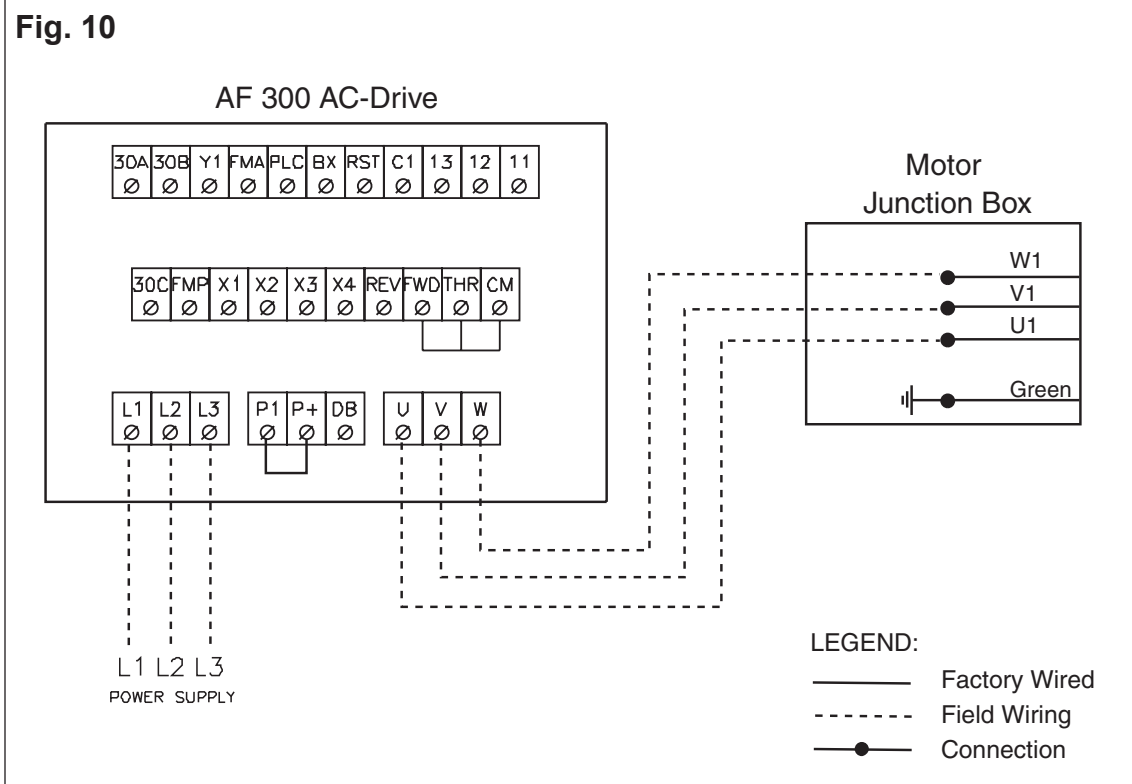
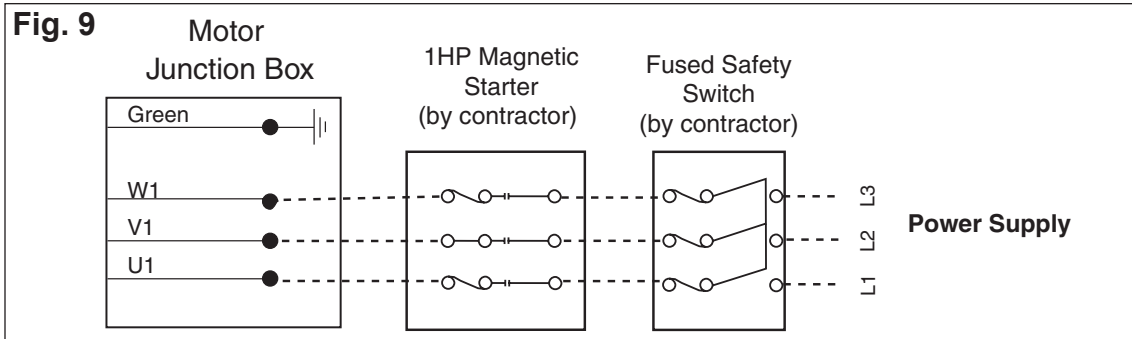
Ventilator and motor specifications can be found under "Sec. 2.1 Dimensions and Capacities". The ventilator is equipped with a variable speed motor. Fig. 8 shows a typical wiring diagram for a BESB 250 utilizing a Fan Speed Control.

Fig. 8



4.3 Wiring Diagram - BESB 315-500

Ventilator and motor specifications can be found under “Sec. 2.1 Dimensions and Capacities”. The ventilator is equipped with a variable speed motor. Fig. 9 and 10 show typical wiring diagrams for a BESB connected directly to a line voltage (adjusting the speed is not possible). Fig. 10 shows a typical wiring diagram utilizing a Variable Frequency Drive (adjusting the speed is possible).



4.4 Start-up

Prior to bringing the ventilator into service, make sure the motor is rotating in the proper direction. This is marked on the ventilator housing. It is also shown in Fig. 11 below. If the rotation is incorrect, swap the two wires going to the motor terminals, U_1 and W_1 . (This does not apply to the BESB 250.) Also make sure the power consumption does not exceed the value on the motor plate. The maximum RPM is 1700 RPM or 60 Hz. The location of the motor plate is shown in Fig. 12.

Fig. 11

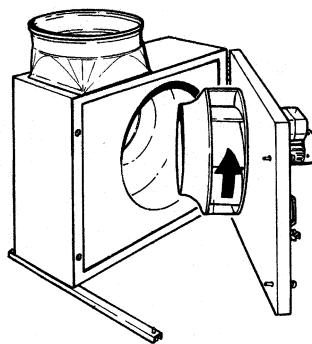
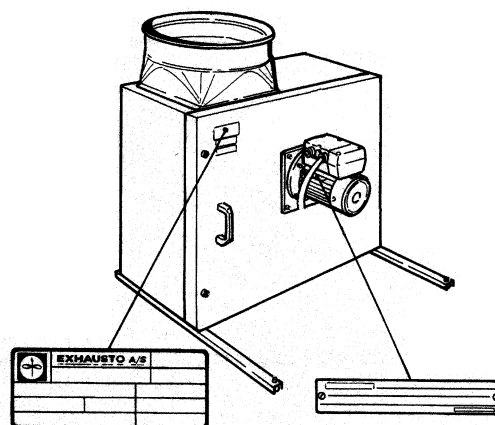


Fig. 12



5. Connection to Duct

5.1 Connection to Duct

In order to achieve optimal performance and energy consumption, the duct must be installed as shown in Fig. 13 and the distances observed. If transfer of vibrations is a major concern special vibration dampening connectors (FLF) should be installed. These are available from EXHAUSTO.

If a duct is not connected, a safety screen (accessory), as shown in Fig. 14, must be installed. Make sure the sizing of the ventilator takes the resulting static pressure loss into account.

Fig. 13

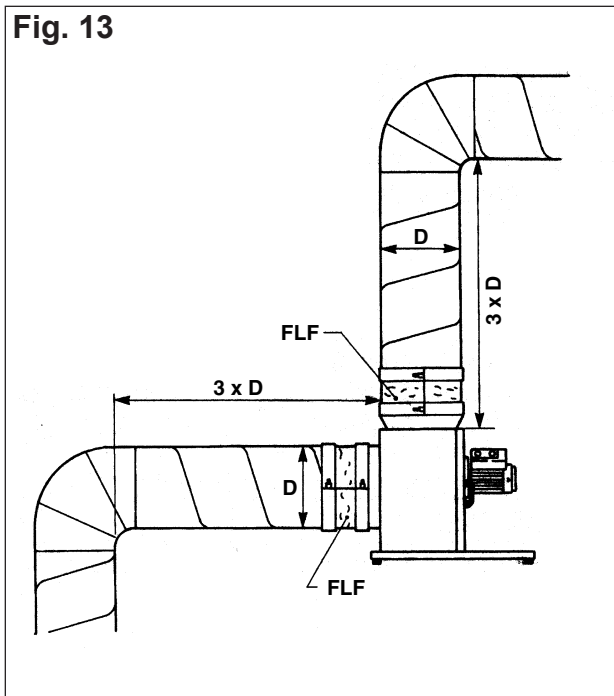
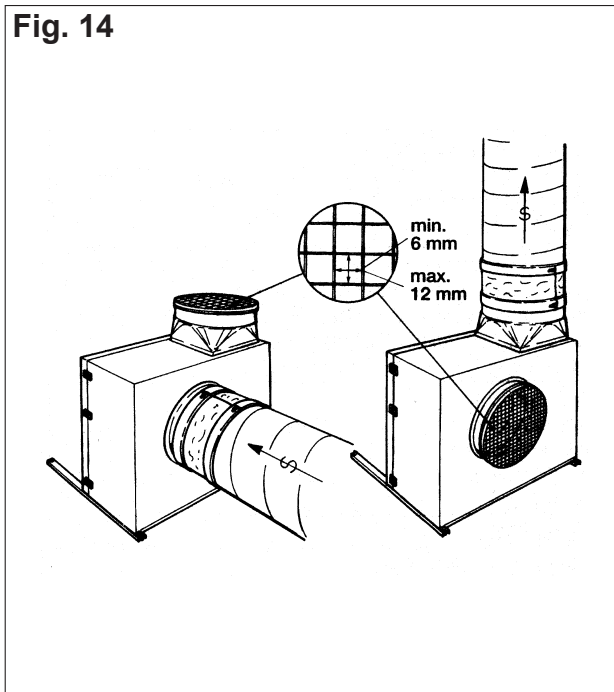


Fig. 14



6. Service & Maintenance

6.1 Cleaning Intervals

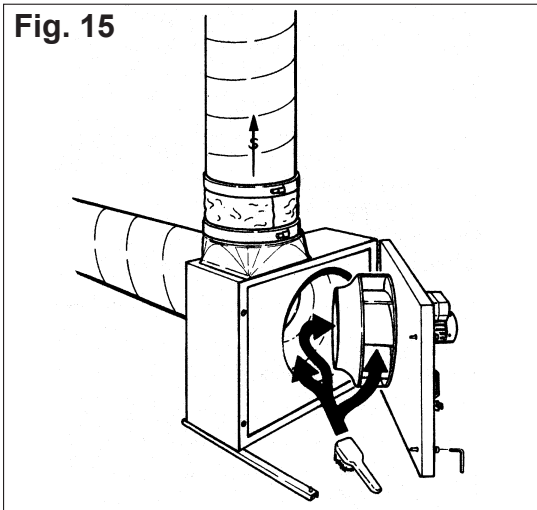
The ventilator is designed for prolonged use. It must be inspected and cleaned at least every 12 months. The need for cleaning is dependent on the type of application and how the ventilator is operated.

When used in dryer applications periodic cleaning is required and during the first couple months the ventilator should be inspected every two weeks or so to determine at what rate lint builds up. If lint is accumulating it must be removed to prevent a lint fire and to assure efficient operation of the dryers.

6.2 Cleaning

Deposits should be removed from the impellers and the bottom of the ventilator:

1. Turn the fan off at the repair switch.
2. When the blower wheel no longer rotates, open the access door.
3. Clean the inside housing and the wheel with water containing a detergent.
4. Dry all parts with a cloth.
5. Close and secure the access door.
6. Turn the fan on.



If necessary, the blower wheel can be removed. Prior to removal, mark the position on the shaft. The placement of the wheel is also shown on a label placed on the inside of the access door.

Do not remove the balancing weights on the impellers.

Vibration in the ventilator can be caused by a dirty impeller.

No other maintenance is required.

6.3 Service

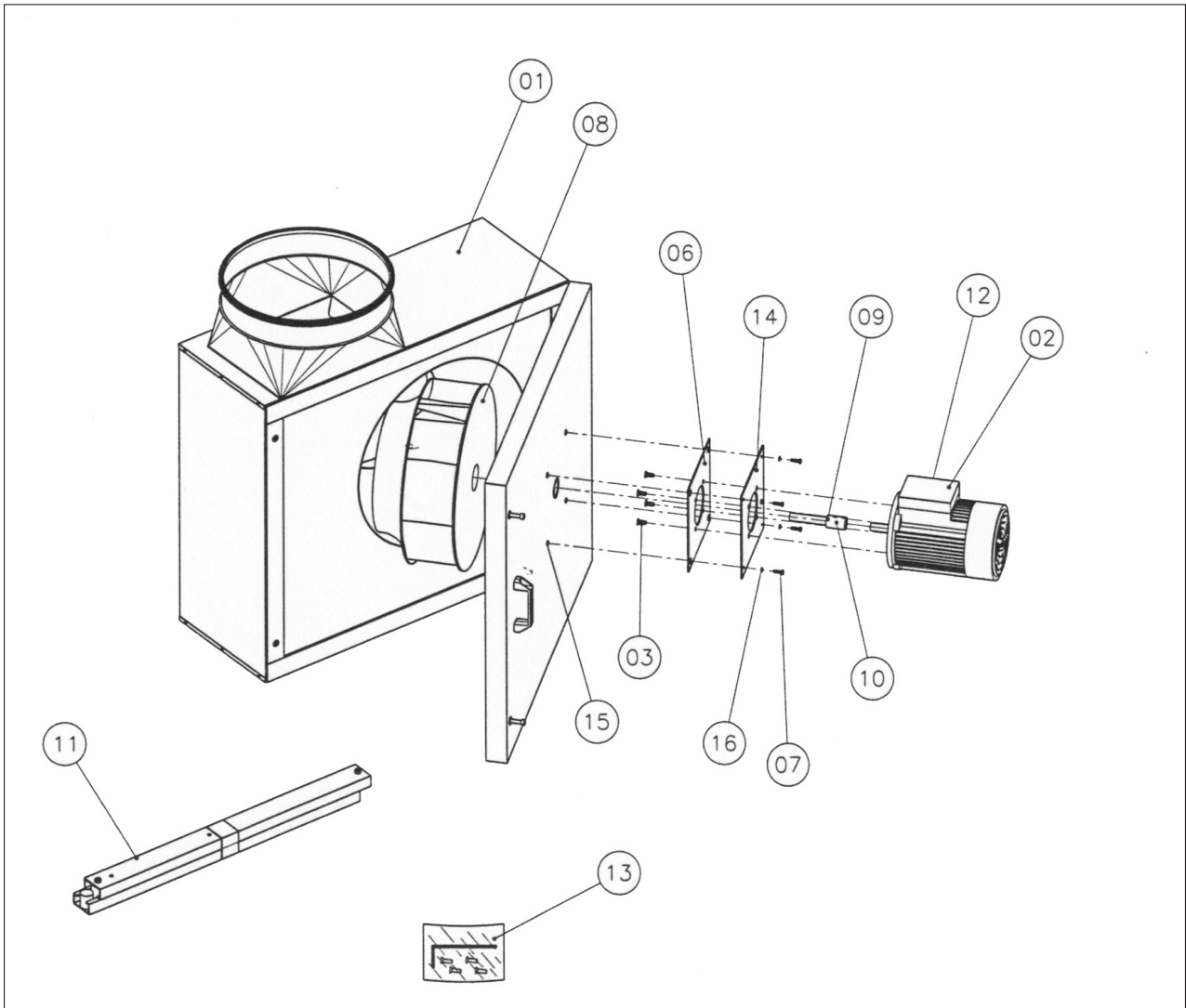
Available spare parts are shown in Section 7.1 Parts Ordering, Page 13.

The motor has sealed and permanently lubricated bearings. In case bearings need to be replaced, this should be done by EXHAUSTO or an authorized motor repair shop.

7. Spare Parts

7.1 Parts Ordering

When ordering spare parts, please have the model number and part position number available.



- | | | | |
|----|---------------------------------------|----|--|
| 01 | Fan Housing | 11 | Support legs with vibration dampers (2) |
| 02 | Motor | 12 | Motor junction box with cable fitting |
| 03 | Screw M8x20 (4) | 13 | Kit with Allen key for door locking screws and (4) sheet metal screws for support legs |
| 06 | Motor mounting plate (inside housing) | 14 | Motor mounting plate (outside housing) |
| 07 | Screw M6x20 (4) | 15 | Rivet M6 (4) |
| 08 | Impeller | 16 | Washer (4) |
| 09 | Shaft extension | | |
| 10 | Allen screw | | |



Notes



Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



DK: EU-OVERENSSTEMMELSESESKLÆRING GB: DECLARATION OF CONFORMITY D: EU-KONFORMITÄTSESKLÄRUNG F: Déclaration de conformité de l'Union Européenne	N: EU-OVERENSSTEMMELSESESKLÆRING NL: EU-KONFORMITEITS VERKLARING S: EU-ÖVERENSSTÄMMELSEDEKLARATION SF: EU-VAATIMUSTENMUKAISUUSVAKUUTUS IS: ESS-Samræmisstaðfesting
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erklærer på eget ansvar, at følgende produkter: declare on own responsibility that the following products: Verantwortet, daß folgende Produkte: déclare sous sa propre responsabilité que le produit suivant:	erklærer på eget ansvar, at følgende produkter: veklaard dat onderstaande produkten:deklarerar på eget ansvar, att följande produkter: vastaa siitä, että seuraava tuote: Staðfesti à eigin ábyrgð, að eftirfarandi vörur:
BESB250, BESB315, BESB400, BESB500	
som er omfattet af denne erklæring, er i overensstem- melse med følgende standarder: covered by this declaration, are in conformity with the following standards: mit den folgenden Standardbezeichnungen: auquel s'applique cette déclaration est en conformité des normes mentionnées ci-dessous:	som er omfattet av denne erklæring, er i overensstem- melse med følgende standarder: met de onderstaande standard koderingen: som omfattas av denna deklaration, överensstämmer med följande standarder: joka koostuu tästä selvityksestä, on seuraavien standardien mukainen: sem eru meðtalin í staðfestingu Pessari, eru í fullu sam- ræmi við eftirtalda staðla:
IEC 335-1, IEC 342-1, DS/EN 292-1, DS/EN 292-2	
i.h.t. bestemmelser i direktiv: according to conformity in directive: gemäß folgenden EU-Richtlinien übereinstimmen: suivant les dispositions prévues aux directives:	i.h.t. bestemmelser i direktiv: voldoen aan de heironder gestelde eisen: enligt bestämmelserna i följande direktiv: seuraavien direktiivin määräysten mukaan: með tilvísun til ákvarðana eftirlits:
Maskindirektivet: Machinery Directive: für Maschinen: La directive des machines:	Maskindirektivet: voor machines: Maskindirektivet: Konedirektiivi: Velaftirlitið:
89/392, 91/368, 93/44, 93/68	
Lavspændingsdirektivet Low voltage Directive: für Niederspannung: La directive de la basse tension:	Lavspenningsdirektivet laagspanning: Lågspänningsdirektivet: Matalajännitedirektiivi: Smáspennueftirlitið:
73/23	
EMC-direktivet: EMC Directive: für EMC La directive de la compatibilité électromagnétique:	EMC-direktivet: voor EMC: EMC-direktivet: EMC-direktiivi: EMC-efitirlitið:
89/336, 92/31	
Langeskov, 1. 12. 1994 Adm. direktør Managing Director Geschäftsführer, Inhaber Président-directeur général Peter Hermansen 	