

# Portable Ventilators for Hazardous Locations

Applicable Models:

UB20xx	EFi120xx
EFi75xx	EFi150xx

**CE**  
0539



**II 2 G Ex db eb IIB T6 Gb**  
**II 2 G Ex h IIB T6 Gb**  
0539 Demko 09 ATEX 0926969X  
IECEX UL 13.0062X

The Portable Ventilators described herein are intended for use in Explosive Atmospheres in accordance with the limitations of the rating. It is the user's responsibility to determine the suitability of equipment for the intended purpose.

## TECHNICAL INFORMATION AND ORIGINAL INSTALLATION INSTRUCTIONS



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SM-EFATEX REV F

**WARNING!**

These units are intended for Explosive Atmosphere use in accordance with ATEX Directive 2014/34/EU. It is the user's responsibility to determine the suitability of this equipment for the intended purpose.

**CAUTION! THESE FANS ARE NOT INTENDED FOR USE IN MINES SUSCEPTIBLE TO FIREDAMP.**

**Explosion Proof Fan Rated:**

**II 2 G Ex db eb IIB T6 Gb**

**II 2 G Ex h IIB T6 Gb**

Euramco Safety hereby declares that the equipment listed in this manual conforms to the relevant Essential Health and Safety Requirements of the European Machinery Directive and standards listed below.

**Council of European Communities Directive:** Directive 2014/34/EU.

**Standards to which conformity is declared:** See "Declaration of Conformity"

**Category, Group and Zone Classifications**

According to ATEX Directive (2014/34/EU)

**II 2 G Ex db eb IIB T6 Gb**

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**0539 Demko 09 ATEX 0926969X     IECEx**

**UL 13.0062X**

**Special Conditions for Safe Use:**



The letter "X" at the end of the ATEX, IECEx, and INMETRO certificate numbers indicate a special condition for safe use. This special condition of safe use refers to the fact that the Hazardous Location Fans referenced herein may be purchased with or without an AC power plug termination for the power cable.

If fans are purchased with unterminated power cables, (flying leads), then it becomes the responsibility, of the end user to select a compliant power plug in accordance with standard, IEC/EN/ABNT NBR IEC 60079-14 and to install the plug in accordance with the plug manufacturers instructions. Color code for flying lead power cables is brown "hot", blue "neutral", & yellow/green "ground" for plug connections.

**T6 Temperature Classification:**

85°C T6 - According to IEC 60079-0 / EN 60079-0 / ABNT NBR IEC 60079-0.

To ensure that there is no risk of ignition due to hot surfaces, the equipment is classified with regard to the maximum surface temperature of any part of the equipment while in operation based on the ambient temperature of 40°C. Equipment must be selected with a suitable temperature classification for the gases and vapors present where the equipment is to be installed. Ensure that the maximum surface temperature of any parts of the equipment are below the ignition temperature of the explosive atmosphere concerned.

This equipment is intended for use in ambient temperatures ranging between -20°C and +40°C.

**Classification: Ex de**

According to IEC 60079-1 / EN 60079-1 / ABNT NBR IEC 60079-1

Flame Proof Enclosures with Increased Safety Components

IEC 60079-7 / EN 60079-7 / ABNT NBR IEC 60079-7

RAMFAN SAFETY VENTILATORS ELECTRICAL RATING				
Model No.	Euramco Part No.	Input Voltage	Frequency	Current
UB20xx	EF7002	115 VAC	50/60 HZ	2.3 A
	EF8002	230 VAC	50/60 HZ	1.2 A
EFi75xx	EB7201XX	115 VAC	50/60 HZ	8.8 A
	EB7201XX-230	230 VAC	50/60 HZ	4.4 A
EFi120xx	EA8120XX-110	110 VAC	50 HZ	10.8 A
	EA8120XX	240 VAC	50 HZ	5.5 A
EFi150xx	EG8200XX	115 VAC	50/60 HZ	15 A
	EG8200XX-230	230 VAC	50/60 HZ	8.1 A

**Description of Apparatus**

The Portable Ventilator assemblies represented herein consist of an Approved Explosion Proof Electric Motor Rated: **Ex d IIB** as listed below.

RAMFAN SAFETY VENTILATORS				MOTOR
Model No.	Part No.	Input Voltage/ Frequency	Impeller	Motor part No.
UB20xx	EF7002	115 VAC, 50/60 HZ	Plastic	1933007415 1933007419
	EF8002	230 VAC, 50/60 HZ		
EFi75xx	EB7201XX	115 VAC, 50/60 HZ	Metal	1133007405
	EB7201XX-230	230 VAC, 50/60 HZ		
EFi120xx	EA8120XX-110	110 VAC, 50 HZ	Plastic	1223007401
	EA8120XX	240 VAC, 50 HZ		
EFi150xx	EG8200XX	115 VAC, 50/60 HZ	Plastic	1133007417
	EG8200XX-230	230 VAC, 50/60 HZ		

**The Flame Proof Electric Motor Power**

Requirements: See chart above.

**Ambient Temperature Range:** -20°C<Tamb<+40°C**Maximum Inlet Temperature:** 40°C**Maximum Temperature Conveyed to Atmosphere:** 2°C above air inlet temperature**Maximum Fan Casing Pressure:** 12" / 305mm w.g.**Ingress Protection to IEC 529:** IP55

Marked: Electric Motor for Hazardous Locations.

**Flame Proof Enclosure: Ex d IIB**

The electric motor consists of one flameproof enclosure, which contains less than 6% magnesium by weight. The on/off switch is housed within the motor enclosure, and is operated by a shaft, extending out from the rear end bell to a lever. The lever is accessible via an attached push rod.

Motor connections are made through a non-detachable cable, secured to the motor with an approved Flame Proof cable gland from the company Hawke, model 501/421/0/M20 and complies with International Standards EN 60079-0, EN 60079-1, and EN 60079-7. The electric motor drives an aluminum or plastic fan blade which is enclosed in a plastic, statically conductive housing with a conductivity rating of <1 giga ohms. Connection to the motor is facilitated by a Terminal Block mounted in an Increased Safety/Flame Proof Enclosure rated II 2 G Ex e II T6, from the company Rose Industries, Part Number 05080806, and covered under ATEX Certificate No. PTB 00ATEX1063. This box was designed to conform to International Standards EN 60079-0, EN 60079-1, EN 60079-7, IEC/EN 60079-31. The enclosure features stainless steel grounding lugs, with a high heat silicon gasket.

The Flame Proof enclosure has attached, approved, explosion proof cable glands, as described below.

**Rated:** II G Ex e II

**Type:** Polyamide Ex metric conforms to International Standards EN 60079-0, EN 60079-1, EN 60079-7, IEC/EN 60079-31.

**Material:** Polyamide

**Color:** Black/Blue

**Grommet:** NBR

**Protection Classification:** IP68

**Temperature Range:** -4°F to +212°F

**Approval:** PTB 00 ATEX 1063

If the fan power cables are not terminated with power plugs see Special Conditions for safe use.

## INSTRUCTIONS AND CARE

The fans are assembled with both Inlet and Outlet Safety Guards that conform to the safety standards to prevent danger zones being reached by upper limbs in the BS EN ISO 12100 Safety Machinery – Guards Standard.

### Installation and Start-Up

During the installation and start-up of the RAMFAN blowers in areas where there is a risk of explosion:

- Design of the electrical installations must be in accordance with EN/IEC/ABNT NBR IEC 60079-14.
- Ensure power source is providing an electrical ground.
- Blowers must be integrated into a system in a way to support accessibility for regular maintenance.
- Blowers are designed for portable, nonfixed installation. Blowers have no mounting features to support rigid duct or fix installations.
- Perform careful inspection of each blower system to ensure ducting is securely attached to blower. All components of the blower system are made of electrically conductive material. It is very important to properly and securely attach each component to maintain a ground path.
- Inspect fan power cable and plug for damage or wear that could render the cable unsafe for hazardous locations.
- Ensure set-up, installation, operation and maintenance are performed only by properly trained personnel.
- Operation after a faulty installation or maintenance shall be considered as

### Before STARTING the FIRST time

DO NOT start operation if there are any signs of shipping damage to the blade, guards or housing. STOP, call your dealer. USE Ex-Rated receptacles for this equipment. IT IS NOT recommended to use extension cords for high amperage load. (See power rating label on limit).

## **OPERATION**

Always ensure the switch is in the “Down/OFF” position prior to connecting the ventilator to a power source.

Completely uncoil fan power cable to the AC power source.

Route fan power cable to avoid contact with heavy machinery that could possible damage cable or possible be a trip hazard for workers.

Connect plug end of the fan power cable to the AC power source.

Verify AC power source is providing an electrical ground connection.

NOTE: For ATX connectors lift dust covers and insert plug into coupler until coupler dust cap latches snaps into position on plug. To break connection between coupler and plug lift dust cap to pull connectors apart.

NOTE: For CEAG connectors lift dust cover, insert plug into coupler, and rotate clockwise, to lock plug into coupler and to close power switch within the coupler. To break connection between coupler and plug lift dust cap and rotate plug counter-clockwise to pull connectors apart.

Note: For R.STAHL connectors insert plug into coupler and rotate outer ring clockwise to secure plug to coupler.

### **See Illustrations (Pg.6)**

Stop the blower if mechanical noise, vibration or other abnormal conditions occur. Any noise other than turbine-type pitch is not normal.

This unit is equipped with thermal overload protection with automatic reset. Motor will restart without warning after protector trips. To protect the user, disconnect unit and determine cause of protector trip.

Conductive RAMFAN Portable Ventilators are made with statically conductive materials. When ducting is required is required to remote the ventilator from the point of application in a potentially explosive environment, the ducting must be:

1. Statically Conductive, Surface resistance  $\leq 10^6$  ohms.
2. Flexible.

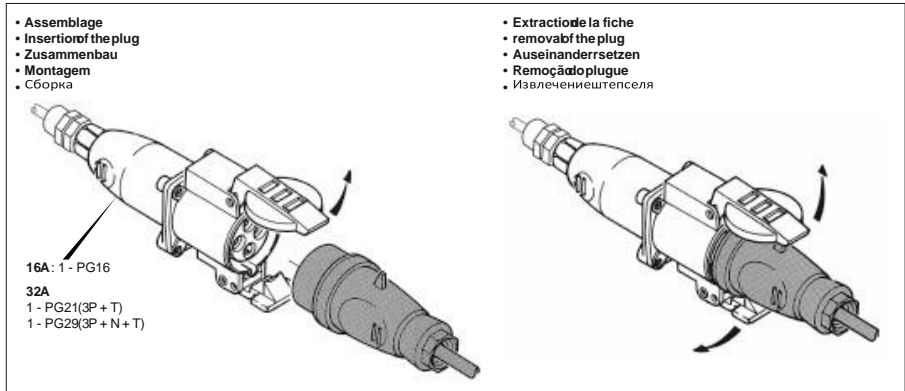
## **MAINTENANCE**

- Disconnect power before inspection, disassembly or cleaning.
- Never immerse or directly spray motor with liquids.
- Clean ventilator with commercially available biodegradable cleaning solutions. Do not use solvents containing hydrocarbons (i.e. MEK, Acetone).
- Inspect clearance between impeller tips and fan casing for minimum acceptable clearance with pin gauges as shown in picture below. Minimum acceptable impeller tip clearance is 0.079” / 2mm.



- Clean fan, impeller, & motor to remove accumulated dust or debris. Clean the impeller and motor with a damp cloth only, to avoid any possibility of a disruptive breakdown due to electrostatic charging.
- Inspect impeller & finger guards annually for damage. Replace as necessary.
- Inspect fan power cable and plug for damage or wear that could render the cable unsafe for hazardous locations.
- Disconnect fan power cable plug from the power source before cleaning. Never immerse or directly spray cable and plugs with fluids. Clean cables with commercially available biodegradable cleaning solutions. Do not use solvents containing hydrocarbons (i.e. MEK, Acetone).
- At a minimum, check power cables during maintenance work on the fans for:
  - Firm fit of the conductors.
  - Damage on the enclosure; seals or surface.
  - Dirt on the sleeves.
  - Cleaning
- To avoid electrostatic charging, the devices located in potentially explosive areas may only be cleaned using a damp cloth.
- When cleaning with a damp cloth, use water or mild, non-abrasive, non-scratching cleaning agents.
- Do not aggressive detergents or solvents.
- Prevent water and cleaning agents from penetrating the socket contacts.
- There are no user serviceable parts. Contact factory for replacement part applicability.
- Do not change make or model number of motors for any reason!

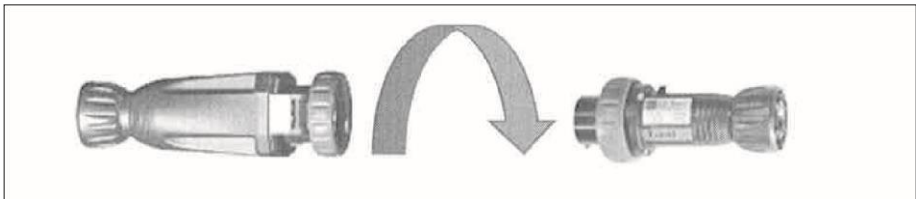
#### **A.T.X. Connector Installation and Removal**



### CEAG Connector Installation and Removal



### STAHL Connector Installation and Removal



#### CAUTIONS

Do not move ventilator while fan is in operation. Use good lifting practices when moving ventilator to prevent bodily injury.

Blower should be operated and repaired by trained personnel only.

Do not operate if there is any physical damage to cord, plug or receptacle.



Keep fingers and hands clear of fan blade. Keep fan guard securely in place. Do not operate with damaged or missing fan guards.

Use properly grounded power receptacle in potentially explosive atmospheres, and for operation safety. Ensure continuity to the earth.

Fatal electrical shock may result if motor frame and adjacent metal are not grounded in compliance with electrical code.

Keep area clear of rock and debris.

Keep away from children.

## **WARRANTY**

Positive Pressure Ventilators Turbo Ventilators and portable blowers, excluding motor and wear items, are warranted for one year from date of original purchase, to be free of defects in material and workmanship. Electric motors are warranted by their respective manufacturers. Wear items include feet, fasteners, handles, wheels, and paint are not covered under the warranty. Fan impellers and shrouds are warranted to be free of defects in material and workmanship for five years. Components exposed to salt water service are warranted for a period of one year from date of original purchase. Duct is not warranted due to its intended use.

**Authorization for warranty repairs must be obtained from the factory. There are no other warranties expressed or implied.**

## **Fan Performance Characteristics**

Fan performance is characterized as airflow as a function of backpressure. Backpressure is typically a function of the length of flexible duct attached to the fan.

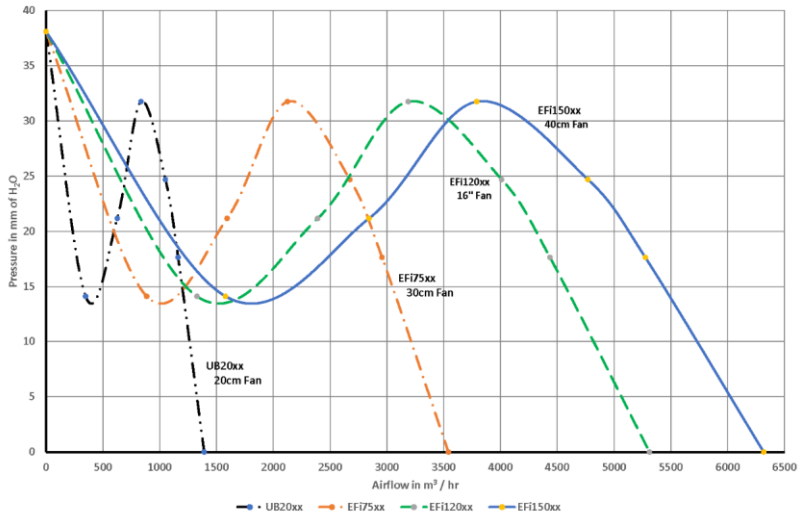
Maximum airflow also referred to as free air occurs at 0 mm/ 0" w.g.

The first chart shows 4 performance curves for all four ATEX fans running on 50Hz AC power. The second chart show 3 performance curves for three of the ATEX fans, running on 60Hz. Please note that the EFi120xx is not designed to run efficiently on 60Hz AC power and does not appear on the 60Hz chart for this reason.

## **Fan Performance Characteristic for Fans Running on 50Hz AC power**



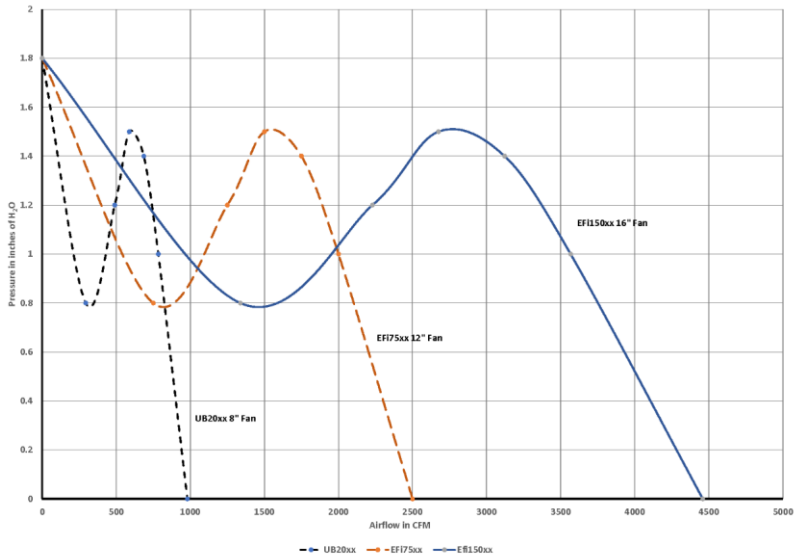
ATEX Fan Performance Characteristics  
Vane Axial Fans - 50 Hz AC Power  
UB20xx, EF175xx, EF120xx, EF150xx



### Fan Performance Characteristic for Fans Running on 60Hz AC power



ATEX Fan Performance Characteristics  
Vane Axial Fans - 60 Hz AC Power  
UB20xx, EF175xx, EF150xx



## TYPICAL VENTILATOR EXPLODED VIEW ACCESSORIES FOR ATEX, IECEx AND INMETRO HAZARDOUS LOCATION FANS

Euramco Group has several optional antistatic / conductive airflow duct accessories designed explicitly for use with our Hazardous Location Fans to support various end user applications as identified in the list below.

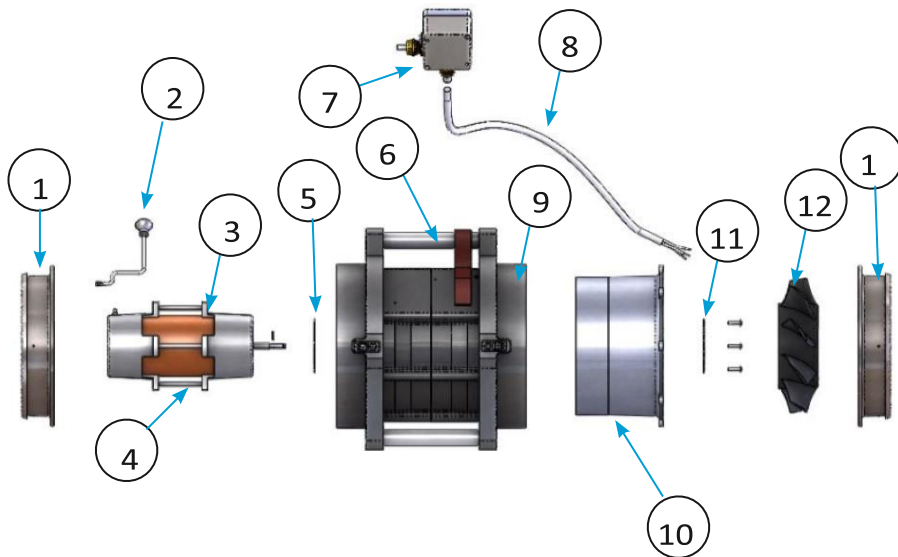
### ACCESSORY LIST

Fan Model	Accessory P/N	Description
<b>UB20xx</b>	EF7004CS	Quick-Couple Canister with 8" x 15' Duct, Antistatic
	EF7004CL/DS	Quick-Couple Canister with 8" x 5' & 8" x 15' Duct, Antistatic
	EF7004CL/DL	Quick-Couple Canister with 8" x 5' & 8" x 25' Duct, Antistatic
	EF7004CL	Quick-Couple Canister with 8" x 25' Duct, Antistatic
	FDT-0815CBB	Duct, 8" x 15', Antistatic with Belt and Belt
	FDT-0825CBB	Duct, 8" x 25', Antistatic with Belt and Belt
	EF0304X	Duct Adapter, 8" / 20cm
	DC8	Duct Coupler, 8", Stainless Steel
	MED189XX	Manhole Entry Device, Conductive
	MED90XX	MED 90° Elbow, Conductive
	MED5100XX	Manhole Entry Device (MED), Conductive, Assembly
MEDIUM	MED Universal Mount	
<b>EFi75xx</b>	FDT-1215CBB	Duct, 12" x 15', Antistatic with Belt and Belt
	FDT-1225CBB	Duct, 12" x 25', Antistatic with Belt and Belt
	EC0301	Duct Adapter, 12"/30cm to 8"/20cm
	DC12	Duct Coupler, Stainless Steel
<b>EFi120xx &amp; EFi150xx</b>	FDT-1615CBR	Duct, 16" x 15', Antistatic with Belt and Ring
	FDT-1625CBR	Duct, 16" x 25', Antistatic with Belt and Ring
	FDT-1625CBB	Duct, 16" x 25', Antistatic with Belt and Belt

EA7106 Duct Adapter, 16" / 40cm

DC16 Duct Coupler, Stainless Steel

**UB20XX EF7002 / EF8002**



1. E7205K – DUCT ADAPTER KIT

8. EZ-16/3-E POWER CABLE

2. EF7019 – PULL ROD

9. EF7105AC – HOUSING, CONDUCTIVE

3. EM-F.33-60XPEX – EF7002 ATEX MOTOR

10. ST010 - STATOR

4. EM-F.33-230VXP – EF8002 ATEX MOTOR

11. ED0170 – MOTOR MOUNTING RING

5. ED0170 – MOTOR MOUNTING RING

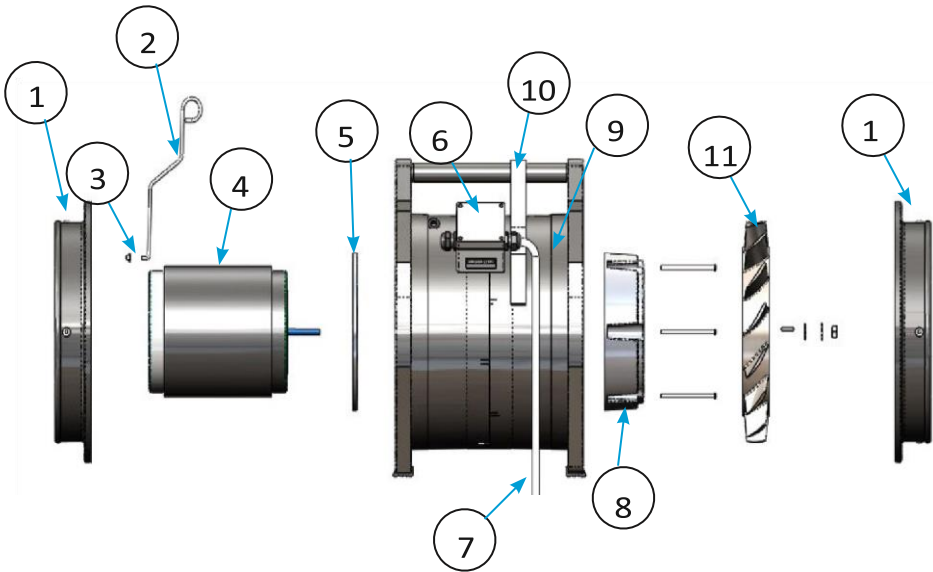
12. BL011 - IMPELLER

6. EX-312-RWB – CORD STRAP

7. EZ-080305003CE – JUNCTION BOX

## TYPICAL VENTILATOR EXPLODED VIEW

EFi75XX  
EB7201XX / EB7201XX-230

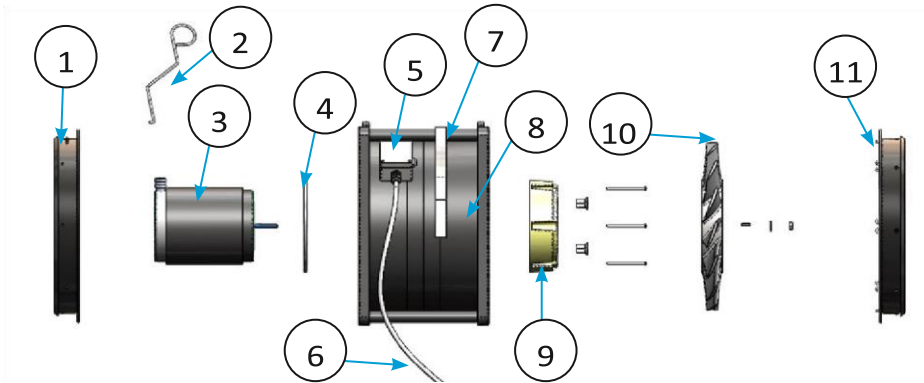


- |  |   |
|--|---|
| 1. EB7006K -12"/30 cm DUCT ADAPTER KIT | 7. EZ-14/3E – POWER CABLE               |
| 2. EB7018 - EFi75xx SWITCH ROD         | 8. EA7007 - ADAPTER CASTING, C-FACE     |
| 3. EZ-CAP-A027 – PUSH CAP              | 9. EB7201XXHA - 12" BLOWER HOUSING ASSY |
| 4. EM-F.75-60XPEX - MOTOR              | 10. EZ-312-RWB CORD STRAP               |
| 5. EA7004 – FLANGE                     | 11. BL008 – IMPELLER                    |

## TYPICAL VENTILATOR EXPLODED VIEW

### 6. EZ-080305002CE – JUNCTION BOX

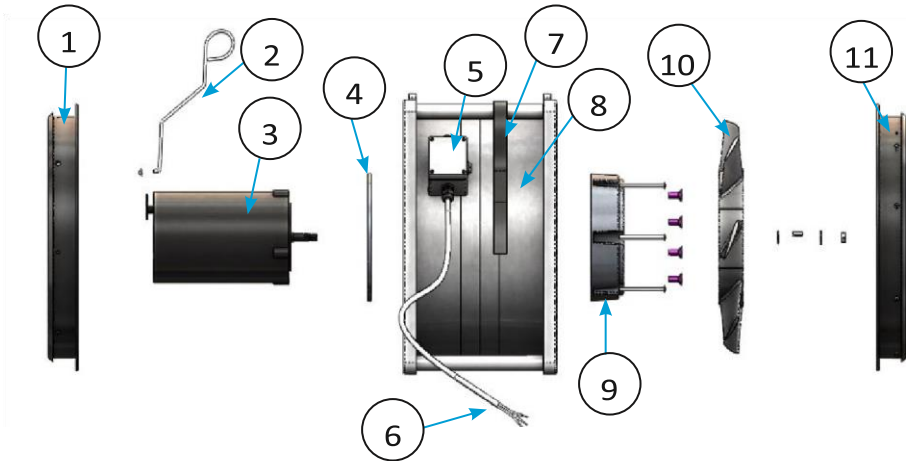
EFi120XX EA8120XX / EA8120XX-110



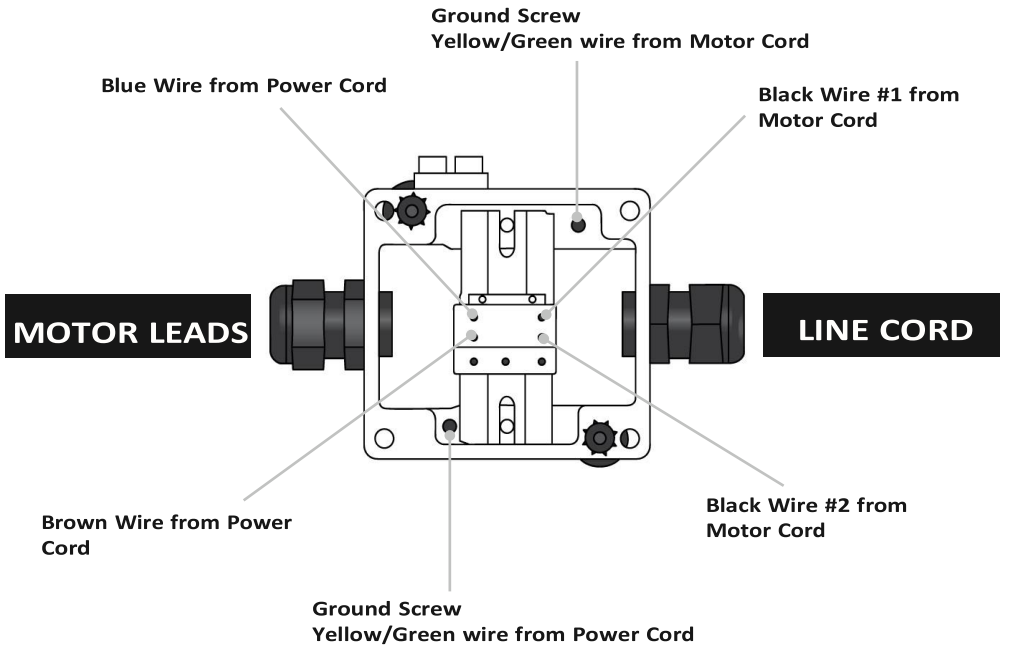
- |   |   |
|---|---|
| 1. EA7116 - 16"/40 cm DUCT ASSY (INLET) | 7. EZ-312-RWB - CORD STRAP                |
| 2. EC7018 - SWITCH ROD                  | 8. EG8200XXHA - HOUSING ASSY              |
| 3. EM-F1.5-60/50XPEX - MOTOR            | 9. EA7007 - ADAPTER CASTING, C-FACE       |
| 4. EA7004 - FLANGE                      | 10. BL914 - IMPELLER                      |
| 5. EZ-080305002CE - JUNCTION BOX        | 11. EA7117- 16"/40 cm DUCT ASSY (EXHAUST) |
| 6. EZ-14/3 AWG - POWER CABLE            |   |

## TYPICAL VENTILATOR EXPLODED VIEW

EFi150XX EG8200XX/ EG8200XX-230



- |   |   |
|---|---|
| 1. EA7116 - 16"/40 cm DUCT ASSY (INLET) | 7. EZ-312-RWB - CORD STRAP                |
| 2. EC7018 - SWITCH ROD                  | 8. EG8200XXHA - HOUSING ASSY              |
| 3. EM-F1.5-60/50XPEX - MOTOR            | 9. EA7007 - ADAPTER CASTING, C-FACE       |
| 4. EA7004 - FLANGE                      | 10. BL914 - IMPELLER                      |
| 5. EZ-080305002CE - JUNCTION BOX        | 11. EA7117- 16"/40 cm DUCT ASSY (EXHAUST) |
| 6. EZ-14/3 AWG - POWER CABLE            |   |





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