fantech®
a systemair company

Installation, Operation and Maintenance instruction EN

DBF 4XLT Duct Booster Fan

Table of contents

1 Introduction

1.1 Product Description

This product is a duct boosting fan that boosts air on applications such as extended duct systems, crawlspace ventilation, and dryer exhaust.

This fan has rotating parts and personnel must exercise safety precautions during installation, operations, and maintenance.

1.2 Intended Use

Use this product only in the manner intended by Fantech. If you have any questions, please contact a Fantech representative.

1.3 Document Description

This document contains instructions for installation, operation and maintenance of the product. The procedures must be done by approved personnel only.

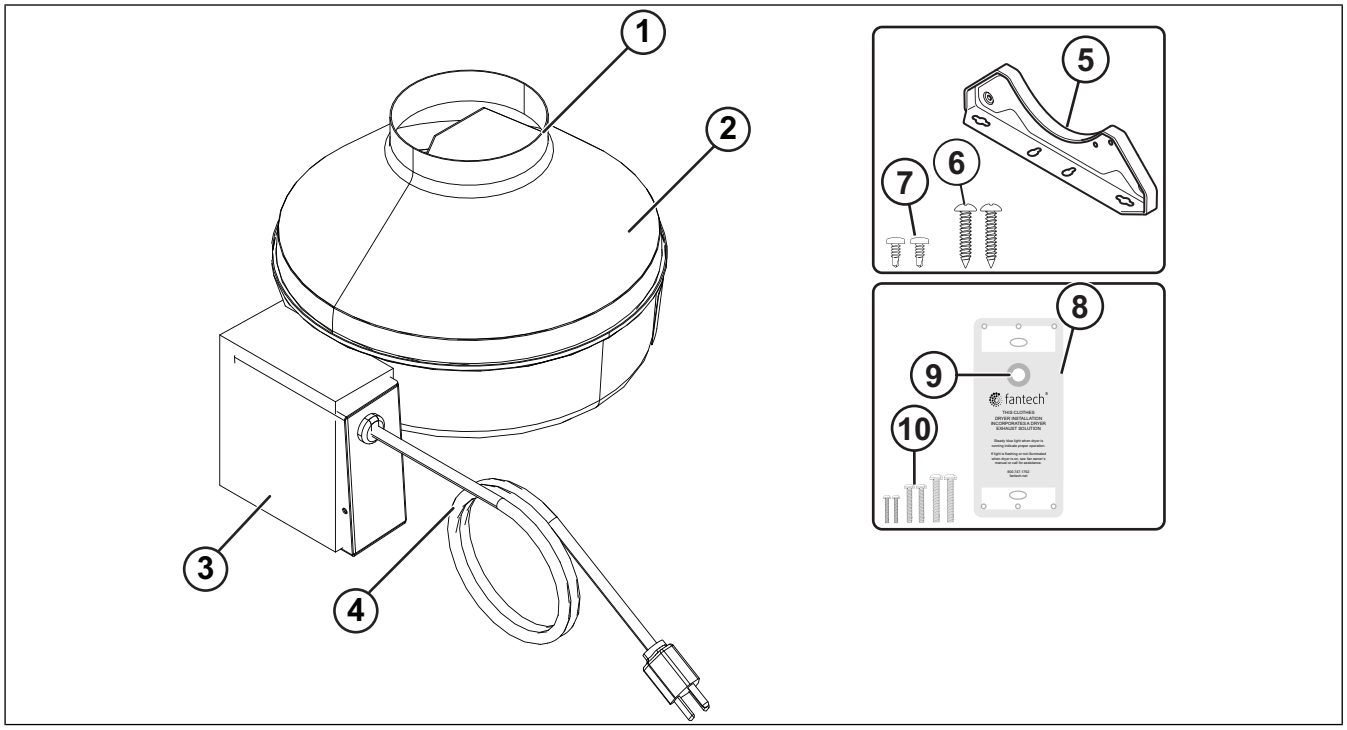
Speak to a Fantech representative for more information on how to install the product in different installation locations.

1.4 Fantech Warranty

Make a scan of the code above to access Fantech's warranty in English, French, or Spanish. This product has a 5 year warranty.

If additional support is needed to retrieve the warranty, visit fantech.net; call (800) 747–1762 (US), (800) 565–3548 (Canada), or +52 55 1328–7328 (Latin America); email support@-fantech.net; or mail us at 10048 Industrial Blvd, Lenexa, KS 66215 United States or at 50 Kanalfläkt Way, Bouctouche, NB E4S 3M5 Canada.

1.5 Product Overview



1. Fan Outlet, quantity 1
2. Casing, quantity 1
3. Electrical Box, quantity 1
4. 3–prong Power Cord, quantity 1 — 5 feet (1.5 meters)
5. Mounting Bracket, quantity 1
6. Wood Screws, quantity 2 — 3/4 inch (19mm)
7. Screws, quantity 2 — 1/2 inch (13mm)
8. Indicator Panel with 50 feet (15.4 meters) of cable (not shown), quantity 1
9. LED Indicator
10. Threaded Screws, quantity 6
11. Tubing and Grommet (not shown), quantity 1

1.6 Type Designation

Product Name	DBF 4XLT, #40275
Duct Collar Dimensions in inches (mm.)	4 (102)
Motor Type	AC: Alternating Current, 1–phase

2 Safety

2.1 Safety definitions

Warnings, cautions and notes are used to point out specially important parts of the manual.

Warning

If you do not obey these instructions, there is a risk of death or injury.

Caution

If you do not obey these instructions, there is a risk of damage to the product, other materials or the adjacent area.

Note:

Information that is necessary in a given situation.

2.2 Safety Instructions

Warning

This product is intended for general ventilation use only. If you have questions, speak with Fantech. To decrease the risk of fire, electric shock, or injury, read and obey these warning instructions before you do work on the product:

- It is the ventilation contractor's and the operator's responsibility to correctly install the product.
- When you install the product, obey all applicable local conditions and laws, and fire-rated construction codes and standards.
- Because the product has rotating parts, use safety precautions when you install, operate, and maintain the product.
- Before installing, servicing, or cleaning, set the product's electrical power supply source in the OFF position, and lock the service disconnecting means. If the service disconnecting means cannot be locked, tightly attach a large warning device to the service panel.
- To prevent the product from backdrafting, obey the heating equipment manufacturer's guidelines and safety standards such as those published by the National Fire Protection Association (NFPA), the American Society for Heating, Refrigeration & Air Conditioning Engineers (ASHRAE), and the local code authorities.
- If a continuous alarm sounds or a visual error indicator is present, do not operate the dryer. Contact your service personnel.

Caution

To decrease the risk of product malfunction or damage to the product or surrounding finishes and walls, read and obey the caution instructions that follow before you do work on the product:

- Do not install this product less than 5 linear feet (1.5 linear meters) or more than 40 linear feet (12.2 linear meters) from the dryer exhaust outlet.
- Do not install the product in the exhaust duct system of a dryer if it is not permitted to do so.
- Do not install insulated duct work upstream of the product.
- Do not use this product with high output dryers.
- When you cut or drill into walls or ceilings, watch for electrical wires and other hidden utilities to prevent damage.
- Make sure air from ducted exhaust fans is released to the outdoors
- Do not block the air intakes or exhaust.
- Do not mount this product in an outdoor location.
- Do not clean the product with chemicals that can cause corrosion or water hotter than 140° Fahrenheit (60° Celsius).
- Do not let unwanted objects enter the product.
- Do not use this product to remove hazardous or explosive material and vapours.
- Do not use this product to remove air hotter than 167° Fahrenheit (75° Celsius).
- Do not mount this product in kitchens.
- Do not release air into spaces within walls or into attics, crawl spaces, or garages.
- If the LED light on the indicator panel starts to flash, do not use the dryer. See section 8 Troubleshooting.
- Do not allow the product's airflow to be more than the dryer fan capacity.

2.3 Personal protective equipment

Use personal protective equipment during all work on the product.

- Approved eye protection
- Approved protective helmet
- Approved hearing protection
- Approved protective gloves
- Approved protective shoes
- Approved work clothing

3 Installation

3.1 To Do Before the Installation

Caution

This is a cord-connected product. Do not try to field wire the product. If you tamper with the electrical enclosure, it will void the UL mark and the manufacturer's warranty.

3.1.1 To Calculate the Duct Run

This product is able to overcome equivalent duct lengths up to 125 feet (38 meters) on duct systems with 4 in. (102 mm.) diameter galvanized, steel ducts. It is also able to hold an air velocity of 1200 fpm (6.10 m/s).

To calculate the length of your planned duct system, measure from the dryer to the external release point in the roof or the wall.

For each 45° elbow, add 2–1/2 feet (0.76 meters) to your total duct system calculations. Add 5 feet (1.5 meters) for every 90° elbow.

3.1.2 To Select the Product Location

Caution

To prevent damage to the dryer or to the product, do not install the DBF 4XLT, #40275 within 5 linear feet (1.5 linear meters) or further than 40 linear feet (12 linear meters) from the dryer outlet.

Note:

If the product is installed less than 15 feet (4.6 meters) from the dryer outlet, install a secondary lint trap between the dryer and the product.

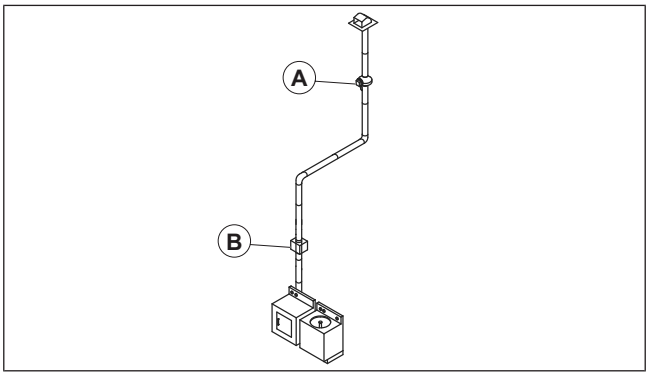
Note:

In order to do the recommended maintenance, make sure you allow sufficient space for the user so they can service the product. Refer to 9.1 Product Dimensions.

If allowed by building codes, stretch flex duct as smooth as possible.

Fantech recommends to use a Mounting Bracket (included) to install the product to a rafter or a joist. A vertical rigid duct can be used to hold the product if the duct is safely stabilized (refer to local codes before you support the product in the duct alone). Refer to section 7.1 To Maintain the Product for inspection recommendations.

Correctly seal all duct connections to prevent leakage and loss of product performance.



A. DBF 4XLT, #40275

B. Secondary Lint Trap

3.1.3 About the Indicator Panel

Caution

If you choose to mount the indicator panel in a single gang junction box (by others), do not install it in a box that has line voltage wires or devices.

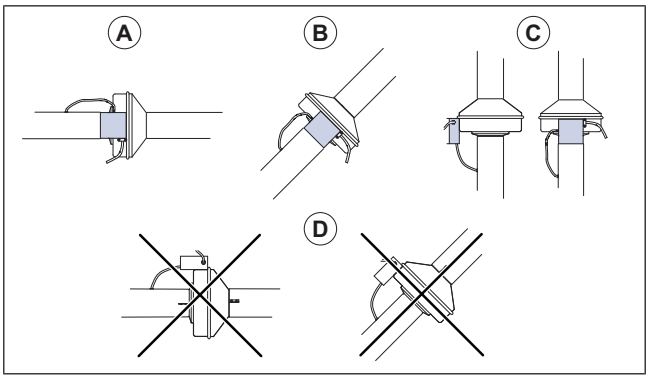
The product is equipped with a remote-mounted, low voltage operation indicator panel and a 50–foot cable. We recommend to mount this panel to a wall with applicable fasteners.

This wall-mounted indicator panel has a blue LED light that visually alerts the user of any malfunctions.

3.1.4 To Put the Pressure Switch in the Correct Position

Note:

The figure that follows shows how to correctly position the pressure switch on horizontal, angled, or vertical duct work.



A. Horizontal Duct Installation

B. Angled Duct Installation

C. Vertical Duct Installation

D. Incorrect Positions

3.2 To Install the Product/Switch

3.2.1 To Install the Indicator Panel

Caution

Install the indicator panel near the dryer so it can be clearly seen. If the panel cannot easily be seen, the user may miss an error notification that could cause damage to the product, the panel, or the dryer.

Note:

If the dryer is installed in an alcove with a door, install the panel within the alcove or adjacent to the door(s) of the alcove.

3.2.1.1 To Mount the Panel Location

Note:

The DBF 4XLT, #40275 comes prewired from the factory.

1 Put the indicator panel in a position so that the product and the panel's cable can connect.

2 Mount the indicator panel so that it can be seen during dryer operation.

3.3 To Install the Product

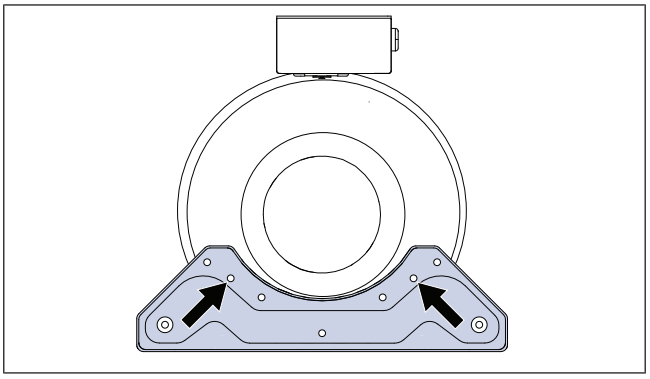
3.3.1 To Mount the Bracket in a Vertical or a Horizontal Position

1 For correct operation, put the electrical box (attached to the product) in a position so that you can easily make the indicator panel wire and tube connections.

2 On the opposite end of the electrical box, put the bracket onto the product.

3 Make a mark through the middle holes of the bracket onto the product.

4 Use the marks for guidance and drill two (2) 3/32 in. (2 mm.) pilot holes into the product.



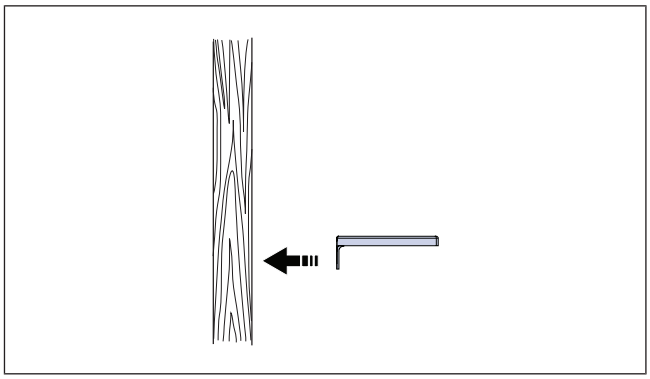
5 Set the product aside for now and get ready to mount the bracket by itself.

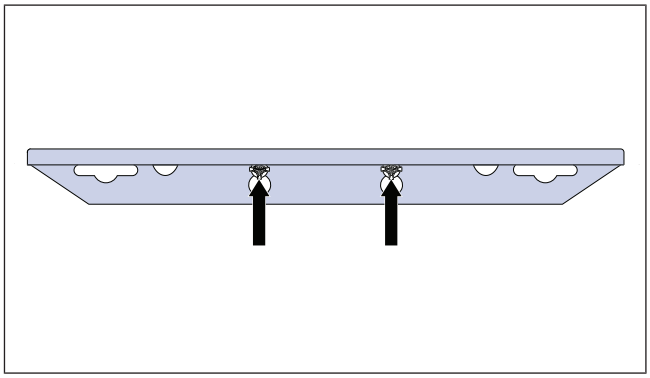
3.3.1.1 To Mount the Bracket in a Vertical Position

Note:

A vertical mount position is recommended to reduce condensation buildup in the product.

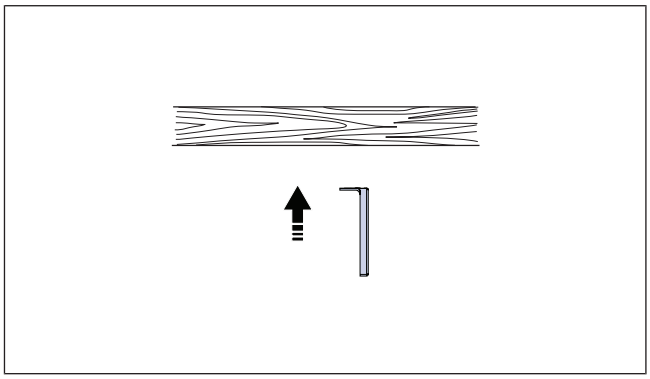
1 Use two (2) 3/4 in. (19 mm.) wood screws to attach the mounting bracket to a support beam at the selected location.

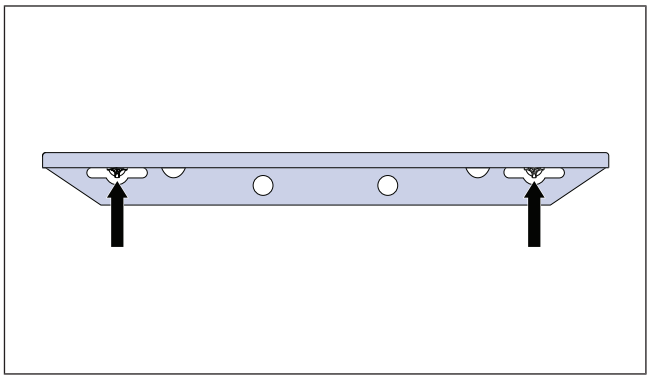




3.3.1.2 To Mount the Product in a Horizontal Position

1 Use two (2) 3/4 in. (19 mm.) wood screws to attach the mounting bracket to a support beam at the selected location.



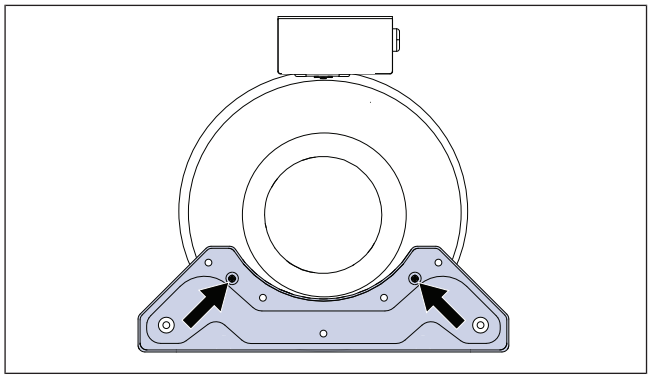


3.3.2 To Mount the Product to the Bracket

Caution

If you use the wrong length screws, it will damage the motor impeller.

1 Use two (2) 1/2 in. (13 mm.) screws to attach the product to the mounting bracket.



3.4 To Install the Grommet and Tubing

Warning

A drill that hits metal duct can make burrs. Be careful not to be cut by the burrs.

Caution

Do not connect the tubes in such a manner as to allow condensation from the duct to collect in the tubes.

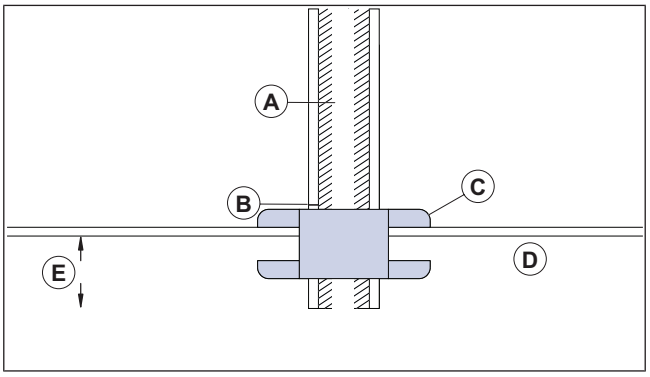
1 Drill a 7/16 in. (11 mm.) diameter hole in the duct wall.

2 Carefully put the grommet into the hole.

3 Push one end of the tube over the nipple on the control.

4 Make a mark a distance of 1/2 in. (13 mm.) from the other end of the tube.

5 Move this end of the tube through the center of the grommet up to the mark as shown in the figure from this section.



A. Tube

B. 1/2 in. (13 mm.)

C. Grommet

D. Duct Wall

E. 1/4 in. (6 mm.) maximum

3.5 To Connect the Indicator Panel Cable to the Product

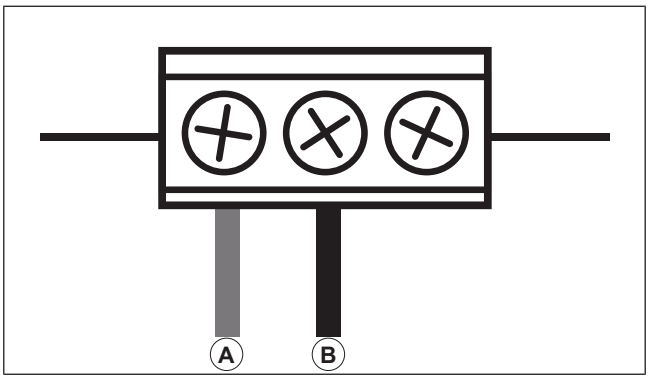
1 Connect the two (2) position connector at the end of the 50–foot (15 meter) indicator panel cable to the receptacle located on the product's control box.

4 Electrical connection

4.1 To Wire the Panel

1 On the end of the 50–foot (15.2 meter) cable with stripped wires, connect the red wire to the positive (+) position of the terminal block located on the indicator panel.

2 From that same end of the cable, connect the black wire to the negative (-) position of the terminal block located on the indicator panel as shown in the wiring diagrams.



A. Red wire

B. Black wire

4.2 Motor Protection

The product has integrated auto reset motor protection. If the product overheats, it will stop automatically. Once the temperature of the product cools down, the product will operate normally again.

5 Commissioning

5.1 To Commission and Test the Product

Note:

The procedure that follows will make sure that the product works correctly. Use this procedure at setup to make sure that the system operates correctly or as a system diagnostic when needed.

1 Make sure the product has power.

Note:

The indicator LED will illuminate only when the product operates.

2 Start the appliance to make positive pressure in the duct.

3 The product will start to operate five (5) seconds after the appliance starts.

Note:

The indicator LED will also illuminate during this time.

4 After five (5) minutes, the product will pause momentarily to do a pressure check.

- If the product senses positive pressure within the duct, the product will start again and will operate for another five (5) minutes.
- If the product does not sense positive pressure within the duct, the product will operate for a five (5) minute, post-purge, cooling cycle. Then, it will stop.

5 After the appliance stops, the indicator LED will remain illuminated for five (5) to ten (10) minutes.

6 If indicator LED does not illuminate, see section 8 Troubleshooting.

7 If the product operates correctly, no other action is needed.

Note:

Generally, if the indicator LED is not illuminated, it is OK to run the test. If you see any behavior other than that described above, set the appliance to the OFF position and wait at least five (5) minutes to allow the system to reset. Then, do the test again.

6 Operation

6.1 How the Pressure Sensor Switch Operates

The product uses a positive pressure sensing switch that recognizes air pressure and activates the product from an independent electrical circuit. This sequence prevents the need for more connections through the appliance's circuit which may void the manufacturers' warranty as well as manual systems.

Power to the product is connected in series through a normally open terminal on the switch; while a pressure tap is connected to a nipple on the side of the switch.

When the appliance starts to operate, positive pressure in the duct causes the switch diaphragm to expand that closes the circuit to the product.

The product will operate for a total of ten (10) minutes in five (5) minute intervals. At each interval, the product will do a pressure check to look for positive pressure in the duct.

If there is positive pressure, the product will operate for five (5) more minutes.

If there is not positive pressure, the product will operate for a five (5) minute, post-purge, cooling cycle.

The cycle will continue until the appliance has stopped and the pressure check has expired.

The product will not operate until it senses positive pressure in the duct again.

7 Maintenance

Warning

Set the service disconnect switch in the OFF position before you do maintenance unless the instructions tell you differently. Make sure that the switch is not accidentally set in the ON position.

7.1 To Maintain the Product

Note:

The product bearings are sealed and are supplied with an internal lubricating material. No additional lubrication is necessary.

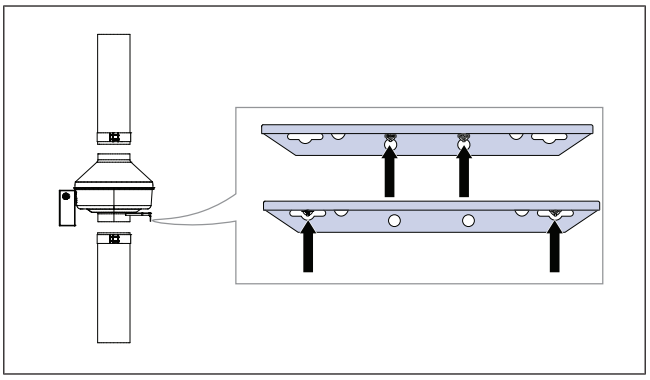
Note:

The product impeller may collect lint or debris. Inspect the product a minimum of every six (6) months.

Note:

Excessive product noise or vibration may be an indication of lint buildup on the impeller. To inspect and clean the impeller, obey the steps that follow:

1. Disconnect the power supply at the source.
2. Remove the ducts from the product inlet and the outlet.
3. Remove any lint buildup or debris on the impeller.
4. Connect the duct to the product again.
5. Connect the power supply at the source again.



8 Troubleshooting

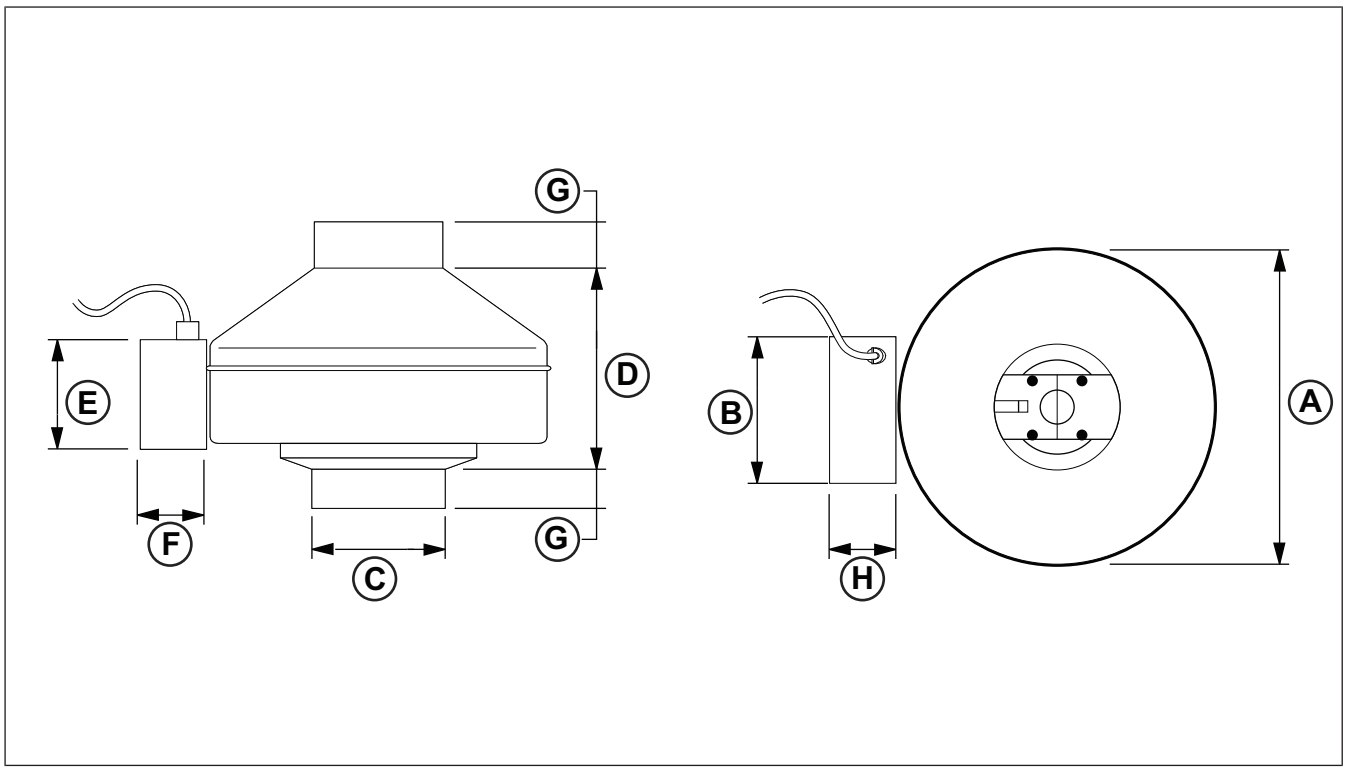
Note:

If the panel LED flashes or does not illuminate when the connected appliance is on, see the below table for error indication and likely sources of the problem. If the product shows an error other than what is listed, or if these help topics do not solve the problem, please speak with Fantech technical support for more assistance.

Problem	Cause	Solution
LED illuminates when the connected appliance is on and in a steady state.	Correct operation.	No other action is needed.
LED does not illuminate when the appliance is on and the product does not work.	The product is not connected to a power source.	Make sure that the product is correctly connected to a 120 VAC power source.
	There are blockages in the duct between the appliance and the product.	Remove the blockages.
	The clear plastic tube is damaged.	Make sure the tube is free of moisture and cracks. If you see damage, replace the tube.
	The tube is not connected between the nipple on the product and the duct.	Make sure the tube is correctly connected to the product and to the duct. Refer to section 3.4 To Install the Grommet and Tubing.
	The low voltage connection to the indicator panel is wired incorrectly.	Make sure the wire polarity is correct (red to positive, black to negative).
LED does not illuminate when the appliance is on and the product works.	The low voltage wire is not correctly connected to the product.	Correctly connect the wire to the product.
	The low voltage connection to the indicator panel is wired incorrectly.	Make sure the wire polarity is correct (red to positive, black to negative).
LED flashes intermittently when the appliance is on.	Locked rotor condition.	Make sure that there is no debris buildup or motor damage. If there is buildup, remove it. If there is motor damage, speak with Fantech technical support to replace the product.
LED flashes twice when the appliance is on followed by a brief pause.	Something has caused the product to operate at less than its standard speed.	Make sure that there is no debris buildup or motor damage. If there is buildup, remove it. If there is motor damage, speak with Fantech technical support to replace the product.
LED flashes three (3) times when the appliance is on followed by a brief pause.	Airflow has decreased through the duct system.	Speak to a professional and have the system inspected and cleaned.
	For new construction, the duct layout cannot supply sufficient airflow.	Examine the duct layout. Refer to sections 3.1.1 To Calculate the Duct Run and 3.1.2 To Select the Product Location
LED flashes three (3) times when the appliance is off followed by a brief pause.	Airflow has decreased through the duct system.	No other action is needed.
The connected appliance does not operate when it is supposed to.	The product's tube has a kink or blockage.	1. Remove the blockage or loosen the kink. 2. Make sure the tube has a tight seal where it enters the duct. Refer to section 3.4 To Install the Grommet and Tubing.

9 Technical data

9.1 Product Dimensions



Note:

Dimensions are given in inches (mm).

	A	B	C	D	E	F	G	H
DBF 4XLT, #40275	9–3/4 (248)	3–3/4 (95)	3–7/8 (98)	6–1/4 (159)	3–7/8 (98)	2 (51)	1 (25)	2 (51)

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