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Installation, Operation and Maintenance Instructions | EN |

USER'S MANUAL | **ENGLISH**
Inline Duct Fan with Metal Casing

MANUAL DEL USUARIO | **ESPAÑOL**
Ventilador de conducto en línea con carcasa metálica

MANUEL D'UTILISATION | **FRANÇAIS**
Ventilateur de conduit en ligne avec boîtier métallique



BDF AC & BDF EC Centrifugal Inline Fan

Inline Duct Fan with Metal Casing

To access the digital User Manual and step-by-step Installation Video, please scan the QR code

UL listed motor is used in BDF inline duct fans.[Certificate Number: UL-US-2353725-0; Report No:E535031]

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1 INTRODUCTION

1.1. Descriptions

This document contains instructions for the installation, operation and maintenance of the product. The operations should only be carried out by qualified personnel. Personnel who will perform the operations and the user should read the manual and perform their operations according to the warnings and recommendations.

This product is an inline ventilation fan. You can find all the detailed information in this document and the product's TDS document.

The package content of the product, excluding the purchased accessories; Inline Duct Fan and mounting foot. The terminal box is ready for connection in a closed box with a capacitor for energy connection up to the terminal block for connecting to the energy line. Connection can be made using the mounting foot if desired. You can look at the comprehensive product catalog for other models, accessories, recommended hardware and speed control devices belonging to this product series.

1.2. Intended Use

These BDF AC & BDF EC models are for general ventilation purposes only. They are circular in structure and are manufactured to be installed in circular duct systems.

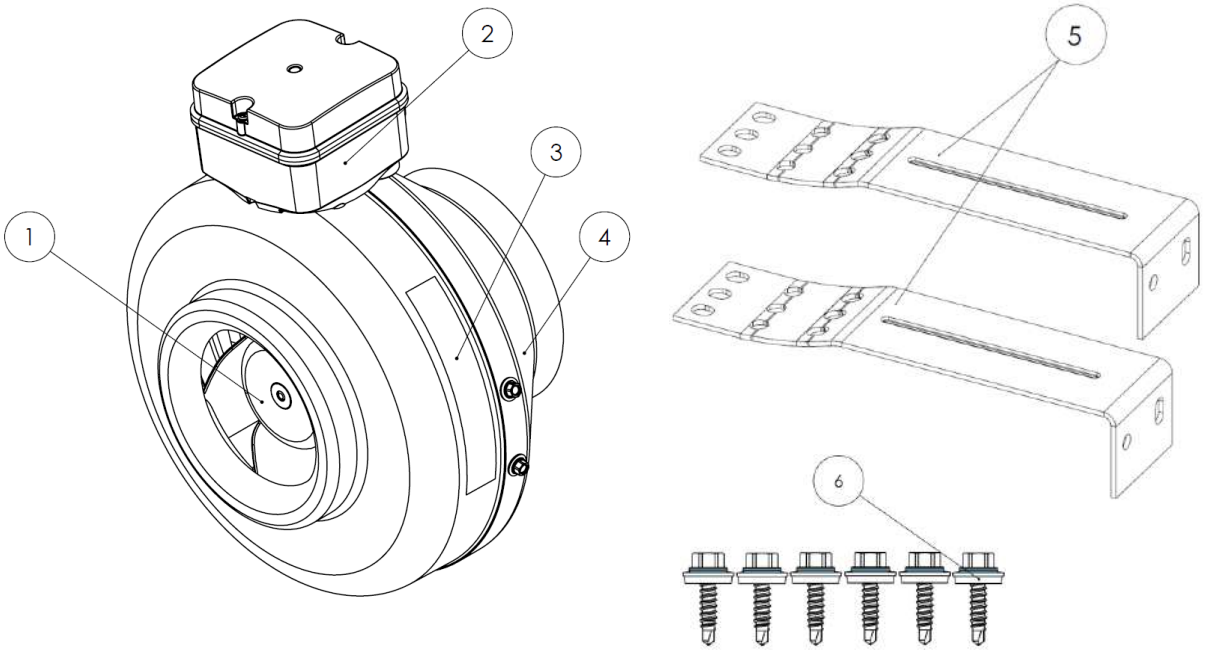
This product is used to transport clean or dirty air with a minimum temperature of -20°F and a maximum of 140°F and 95% air humidity. Clean or dirty air can be transported. It can be used for bathrooms and wet rooms without condensation. This fan series is designed for indoor use, position it indoors. When the device is positioned outdoors, it is affected by effects such as rainwater, snow, external mechanical effects, external atmospheric corrosive and extreme temperature differences. When the fan is positioned outdoors, the user is taking these effects into account. The fan must be protected outdoors, it is definitely possible to position it outdoors with sufficient protection. It is up to the user who plans the installation to make a risk assessment of these external factors and to provide sufficient protection for the long-term use of the device.

This machine is a fan. It sucks or blows air depending on the use by creating a pressure difference. It creates a vacuum effect or air pressure in the room or interior by making air movement in this used space. The user must be aware of this situation. This fan is powered by electricity. The responsibility of carrying the appropriate electricity and the electricity line to the fan belongs to the competent and conscious installation personnel or the company and institution that performs the design, installation and inspection duties during the building construction phase.

The product should not be used to transport air containing explosive, flammable or aggressive environments. The product is not designed for places with a risk of explosion.

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1.3. Product Overview



1. Impeller
2. Electrical Box
3. Name Plate
4. Casing
5. Mounting bracket for all sizes
6. Hex Head Self Drilling Sheet-metal&Wood Screws, with Rubber Washer, quantity 8 -- 3/4 inch(19mm) (5/16" Head)

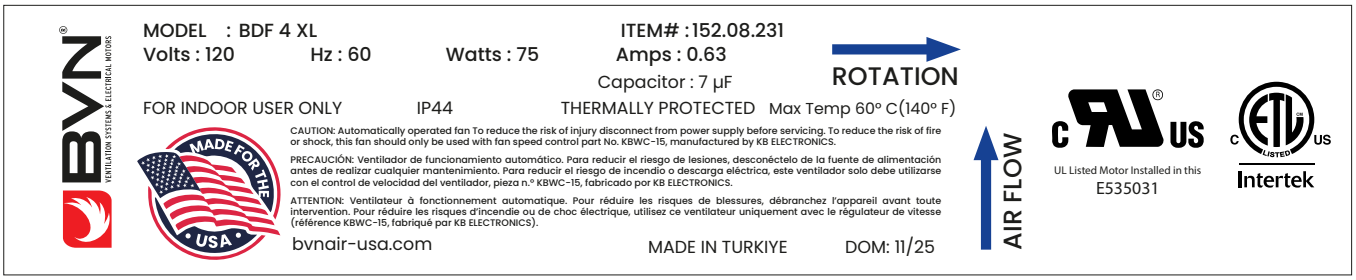
Figure 1

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1.4. Product Label Description and Type Key

Notice

This is the general nameplate used on all BVN products. Some elements might not be applicable to your specified product. Always refer to the nameplate for accurate product identification before installation or service.



1. Serial Number
2. Voltage, [Volt]
3. Type Designation: See below for details.
4. Frequency, [Hertz]
5. Input Power, [Watt]
6. Motor Protection
7. Item Number
8. Current, [Ampere]
9. UL Certification File Number
10. ETL Certification File Number
11. Disclaimer
12. Item Number for Nameplate
13. Direction of Airflow
14. Direction of Rotation
15. Cubic Feet per Miute at Inches of Water Column
16. Acceptable Uses & Alternate Names
17. Date of manufacture (MM/YY)
18. Country of Origin

Figure 2

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1.4. Warranty

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



BVNAIR warrants that the BDF series exhaust fan will be free from defective materials and workmanship for the period of (5) years from the date of original purchase. In the event that we find any part defective the product will be repaired or, in the Company's discretion, replaced without charge provided that the product has been installed in accordance with the enclosed instructions and all applicable EPA Standards and state and local building codes.

If You Request Under Warranty

Please return the product in full, freight prepaid, to your local authorized distributor. All returns must be accompanied by a valid Bill of Sale. All returns must be clearly marked "Warranty Claim" with a description of the nature of the defect.

The Following Warranties Do No Apply

Hidden or visible damages resulting from shipping. The claim must be reported to the carrier.
Damage resulting from improper wiring or installation.
Damage resulting from natural events or improper consumer procedures such as: Improper Maintenance; Abuse; Damage to the device due to Neglect of Care; Modification; Misuse; Abnormal Use; or Accident or Incorrect Electrical Voltage and Current.
Removal or alteration of the BVNAIR data plate label.
Fan disassembly and reassembly, removal of warranty security bands.

Warranty Validation
The end user must keep a copy of the Bill of Sale to verify purchase date.
The Above Five (5) Year Warranty Is Expressly In Lıeu Of All Other Warrantıes, Expressed, Wrıtten Or Implıed, Includıng The Warrantıes Of Merchantabılıty And Fıtness For Use. In No Event Shall Bvnaır Be Lıable For Any Specıal, Consequencıal, Or Incıdental Damages, Includıng Loss Of Property, Revenues, Lost Profıts, Costs Of Removal, Installatıon Or Reınstallatıon.

If additional support is needed to retrieve the warranty:
BVN AIR USA LLC
5900 BALCONES DR 24821
78731 AUSTIN
TEXAS, UNITED STATES OF AMERICA
T.+1 (512) 6472930
www.bvnair-usa.com
support@bvnair-usa.com

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2. SAFETY INSTRUCTIONS

2.1. Basic Safety Rules

Notice

Read these operating instructions carefully before starting work on the device.

	Notice
	Observe the following warnings to avoid malfunctions or danger to persons. These operating instructions are to be regarded as part of the device. The device may only be sold or transferred with the operating instructions. These operating instructions may be reproduced and distributed to provide information on possible hazards and their prevention.

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

	Notice
	It is the necessary information needed in a particular situation.

	**Warning ⚠**
	Indicates a potentially hazardous situation which can result in minor or moderate injury or damage to property if the specified actions are not taken.



DANGER

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

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2.2. Operator's Qualificiations

1. The safety hazards associated with the device must be reassessed after it has been installed in the end product.
2. Locally applicable industrial safety regulations must always be observed when working on the device.
3. Keep the work area clean and organized. Clutter in the work area increases the risk of accidents.
4. Observe the following when working on the device: Do not make any changes, additions or conversions to the device without the approval of BVN.

2.3. Operator's Obligation Of Diligence

1. The installer and the contractor or the owner must also ensure that the electrical systems and equipment are operated and maintained in accordance with the electrotechnical regulations.
2. The owner is responsible for ensuring that the fan is only operated in perfect working order.
3. The fan may only be used for its intended purpose.
4. In the event of component additions and modifications to the fan, the original integrity of the fan may be compromised and the fan may become vulnerable. In this case, it should be noted that the safety regulations change due to the modification made to the fan, and that this responsibility lies with the person who makes the modification to the fan.
5. You must periodically inspect the safety equipment for proper operation.
6. The assembly instructions and/or operating instructions are always available, complete and legible at the place where the appliance is used.
7. These persons are regularly instructed on all relevant questions regarding occupational safety and environmental protection and are familiar with the assembly instructions and/or operating instructions and, in particular, the safety instructions contained therein.
8. All safety and warning notices attached to the fan are never removed and must remain legible for operator.

2.4. Employment Of External Personnel

1. External personnel may be assigned for maintenance and service.
2. Make sure that external personnel have the necessary competence and are provided with all information regarding this device/fan/machine.
3. Maintenance and service work is often carried out by external employees who do not recognize certain situations and the resulting dangers.
4. These people must be thoroughly informed about the dangers in their area of activity.
5. You must follow the working methods in order to intervene in a timely manner when necessary.

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2.5. Work on Device



DANGER ⚠

• It is forbidden to work on fan parts when the fan is energized and it is not absolutely certain that the power is off. Potentially lethal voltages can be directly touched.
• Safe isolation from the supply must be checked using a two-pole voltage detector.
• When working on a motor, the protective conductor carries high leakage currents (depending on the switching frequency, connection voltage and motor capacity). Therefore, grounding in accordance with standards must be ensured, even under test or trial conditions. If grounding is not provided, dangerous voltages may be present on the motor housing.
• Maintenance work may only be carried out by



DANGER ⚠

The device may have been stopped due to abnormal usage or abnormal electrical voltage supply conditions. It may start automatically during maintenance and inspection. Attention.



DANGER ⚠

Do not wear loose or hanging clothing, jewellery, etc., tie together long hair and cover it.

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3. INSTALLATION

3.1. Preparations Before Installation

1. Completely determine the type of assembly and system assembly you will perform, prepare all your materials, read and understand the relevant section completely and begin the process.
2. Prior to product installation, ensure that the duct layout has been prepared and that the complete system installation has been thoroughly planned.
3. Check the compatibility of the components or accessories you want to add to the product with the system and layout.
4. If the product is to be connected to a mounting bracket or duct for installation, make sure the clamp is ready and ready for installation.
5. The installation of the product requires mechanical and electrical technical competence. As stated in the Chapter "Safety", unqualified personnel are at risk of death and injury due to their inability to recognize risks and inadequate or no work safety training. For this reason, have competent personnel perform the procedure.

Notice

For the assembly of the product with the mounting brackets; use the bolts that come as a set. In case of using different bolts, assembly from a different place than the recommended points, be careful not to let the fan components and especially the impeller bolts come into contact with the fan casing. The recommended assembly methods can provide the product to work horizontally and vectorally and at all 360 degrees. Apart from the recommended assembly methods; since the structure to be used is unknown and the effect of this structure is also unknown, the product will be out of warranty.

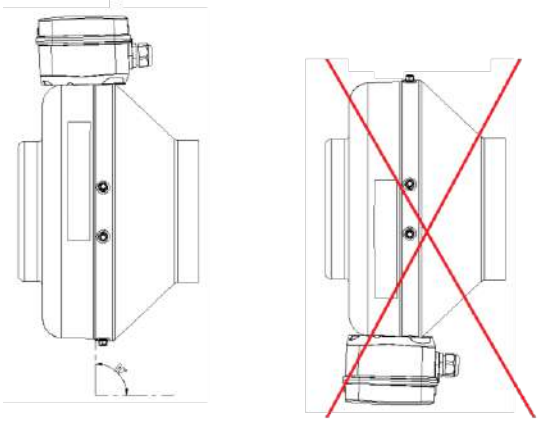


Figure 3

Note: Do not install the product with the electrical box down as moisture can collect in the electrical cover.

Note: Install the product correctly in relation to the airflow.

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3.2. Installation With Product Feet

	Notice If you use the wrong length screws you will damage the motor propeller.

You can assemble it by following the assembly instructions below, respectively.

1. In the type of mounting where the product is mounted with mounting brackets, first the brackets are attached to the product. Then, you will mount the product in this way with the feet attached. Visual x.
2. Remove the 4 screws in the product shown in the image. Attach the feet together with the screws according to the desired installation distance as shown in image x.
3. Measure the projection hole axis distance of the product brackets mounted on the product and mark the place where the brackets will be fixed. Drill the places corresponding to the bracket mounting hole axes and fix the product. Illustration 2:
4. In this way, you can connect the product at any angle and inclination. Just remember that the surfaces that the brackets touch must be flat. If you are sure that you can achieve sufficient mechanical strength; you can also connect the brackets to the body and ceiling in different ways.

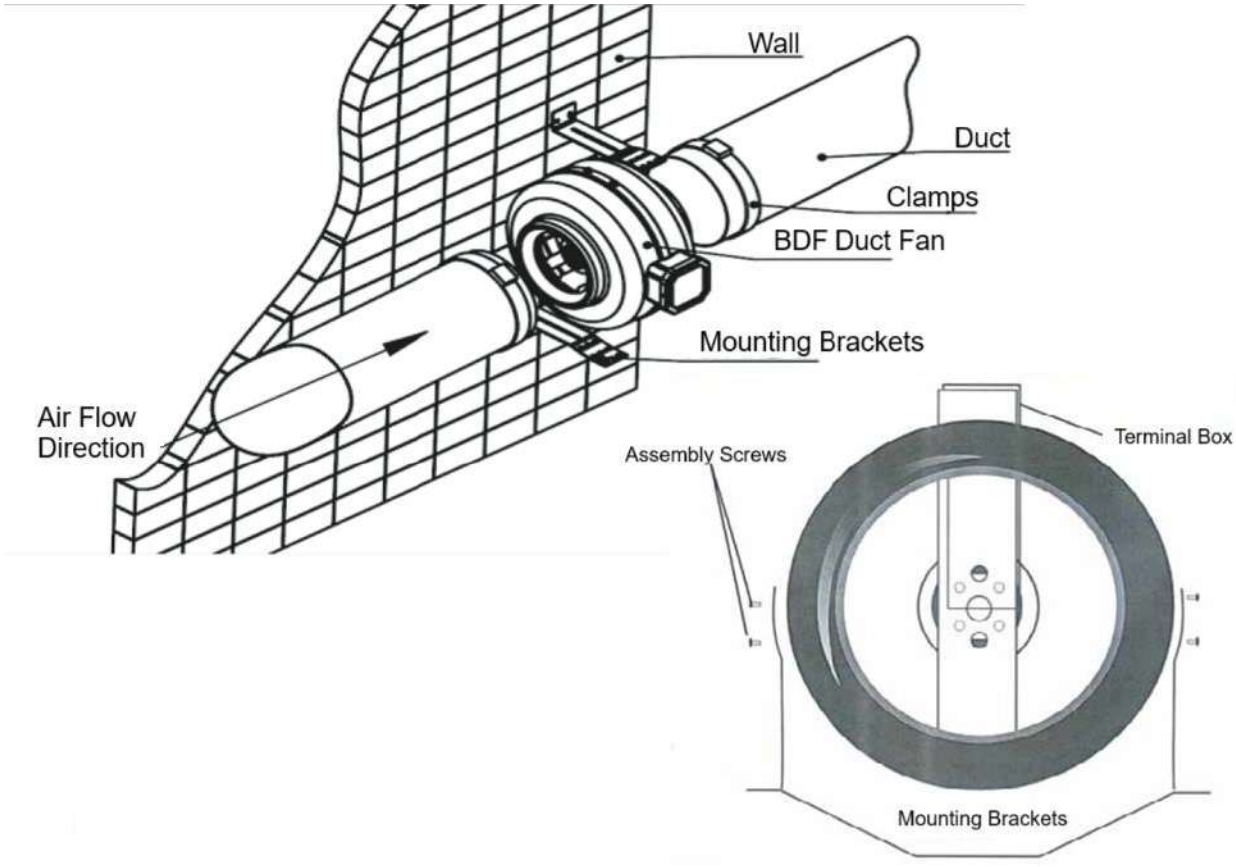


Figure 4

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3.3. Installation On The Duct Line Without Mounting Clamps

1. You can install your product without mounting brackets and mounting clamps. As seen in the picture, mount the duct on the BDF and tighten the clamps.

2. Use 1/4 inch (6 mm) sheet metal screws to attach the duct to the product. Secure the metal air duct and the straight pipe outlets at the product intake and outlet with a self-tapping screw.

3. Secure both the inlet and outlet with duct tape. This will provide airtightness and can be an additional safety measure against clamp connection errors and loosening over time.

4. In fan installation, the proximity of the elbows to the inlet and outlet should be as indicated in the picture. "B" is the fan diameter.

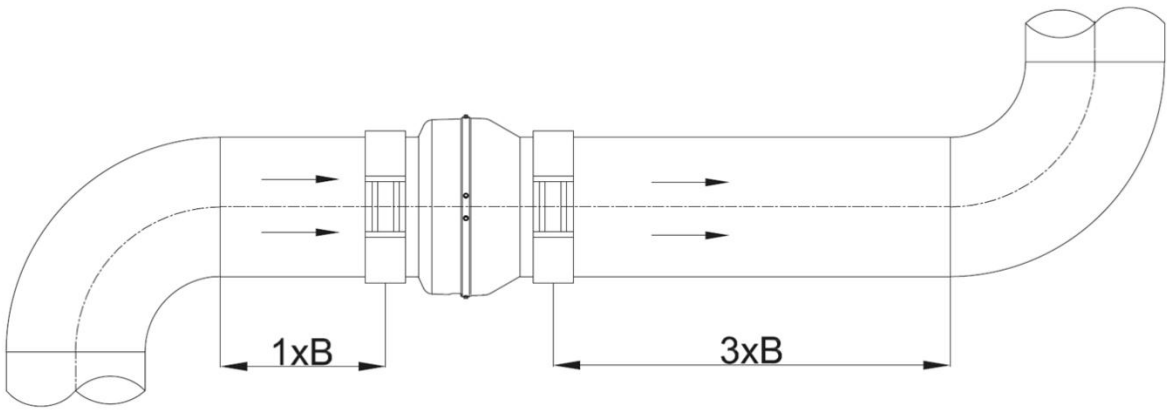


Figure 5

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3.4. Installation On The Duct Line With Mounting Clamps

1. Place the ducts on both sides of the product.

2. Attach the duct to the product using BDF Mounting Clamps.

5. Wrap the clamps (image A) around the duct and the product and tighten the clamp screws.
6. Make sure there is a distance between the duct and the product to reduce the vibrations transmitted from the product to the duct system. There is a protective sponge-like tape structure on the clamps that provides vibration isolation and air tightness.

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3.5. Post İnstallation Check

1. Make sure that the connections between the product and the channel are leak-proof and that the parts are mechanically fixed.

2. Make sure that the electrical connection and electrical insulation are proper.

3.6. Important Recommendations At The Place Of Use

1. To reduce the risk of fire in hooded installations, use only metal ducting.
2. Make sure that all auxiliary and main materials used during connection are UL certified with fireproof or flame retardant properties.
3. Your application area may be wide. To facilitate duct cleaning and device cleaning and to extend system life, make air filtration perfect. Dust, particles, lint and oil particles may be in the air. Filtering them at an optimal level will considerably extend system life and provide quality air flow.
4. In air intake systems where oil particles are absorbed; change and clean the filters at the intervals determined by the oil holding filter manufacturer depending on the amount of oil. Oil accumulation increases the risk of fire, take this issue seriously.
5. Do not allow oil residue to accumulate in channels and filters. If you clean the system frequently, use chemicals that you are sure of their effects.

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4. ELECTRICAL CONNECTION AND STARTUP

4.1. Preparation For Connection To Electric Power

Notice

The maximum torque that can be applied to the terminal block screws is 0.79 Nm (7 lb-in). Over tightening the terminal block screws may cause the motor to malfunction.

Notice

For outdoor applications a cable gland (1) must be used. BDFC product variant models come with a 5 ft. (1.5m) three-prong power cord.



Warning ⚠

Wire these installations according to the diagrams below. Failure to comply may cause the motor to malfunction.

1. The electrical connection is indicated on the motor nameplate ensure that it complies with the product specification.
2. Make sure that there is no energy in the electrical power line and that the speed setting on the speed control devices is "0" and the switches are in the off position.
3. Follow the safety instructions accordingly.
4. Make sure that the environment for electrical connection is clean and dry.
5. Make sure that the supplied wiring diagram matches the terminals in the junction box.
6. Complete the electrical connection of the motor. Refer to the motor wiring diagram supplied with the product.
7. To connect the power cable, use a power cable with a minimum thickness of the same or greater than the copper cross-sectional area in the existing motor cable of the fan
8. Do not connect more than one fan in series. L and N terminals must be connected parallel to the power line.

4.2. To Operation The Product With And AC Motor

AC motor models can be used with or without a speed switch. The speed control device allows you to increase and decrease the fan speed. The maximum capacity values of the fan are given in the nominal data table. With the speed switch set at the maximum setting, only the maximum performance values in the nominal data table can be achieved. With the speed switch, you can only adjust the flow rate by reducing it from maximum performance. The capacity values in the nominal data table and on the product TDS sheet cannot be increased to higher performance values by any means, this may damage the motor and will void the warranty.

-To operate with the speed control switch, follow these steps to operate the fan after making the connection as indicated;

1. Install the external speed controller. Refer to the user manual of the installed speed controller for connection.

2. Turn the switch(es) to ON position, the fan will start to run.

3. To turn off the fan from the speed control device or switch, turn the switch to the off position.

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Note: Unless an additional accessory such as a timer or a special feature is used in the products, the fan will turn off immediately when the switch is turned to the off position. The fan impeller does not stop suddenly after the power is cut off, it may take a few seconds for the rotational inertia to end and the impeller to stop.

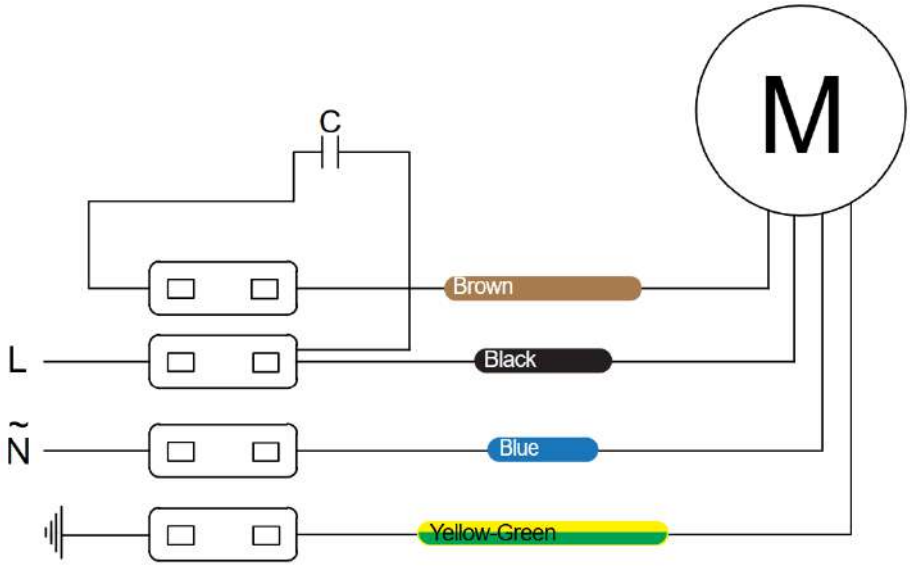
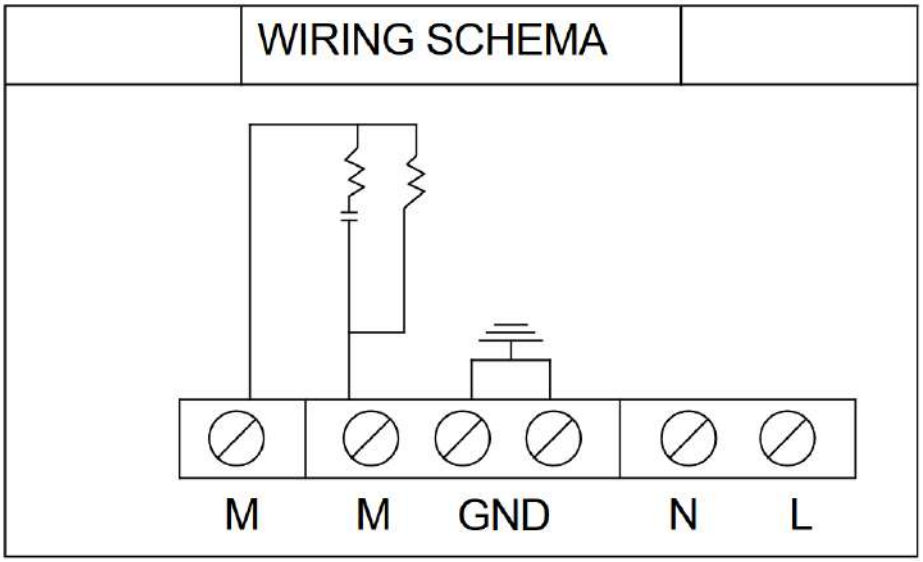


Figure 6 - To Connect without a Motor Speed Controller



“Always make the electrical connection taking into account the operating instructions of the speed controller.”

Figure 7 - To Connect witht a Motor Speed Controller

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4.3. To Operation The Product With And EC Motor

1. Make sure the 0–10 V signal is set to “0” with the external speed controller.

2. Apply line voltage to the product and wait 5 seconds.

3. Adjust the product speed with the 0–10 V DC signal speed controller. If an external speed controller is not installed, adjust the speed directly with the internal potentiometer. You can adjust the speed of EC fans with the 10k potentiometer accessory called BSC-E. If speed control is not desired and single speed-maximum speed operation is desired, the motor can be operated with a jumper connection. Follow the instructions on the Electrical Connection page.

4. To turn off the fan from the speed control device or switch, turn the switch to the off position.

Note: Unless an additional accessory such as a timer or a special feature is used in the products, the fan will turn off immediately when the switch is turned to the off position. The fan impeller does not stop suddenly after the power is cut off, it may take a few seconds for the rotational inertia to end and the impeller to stop.

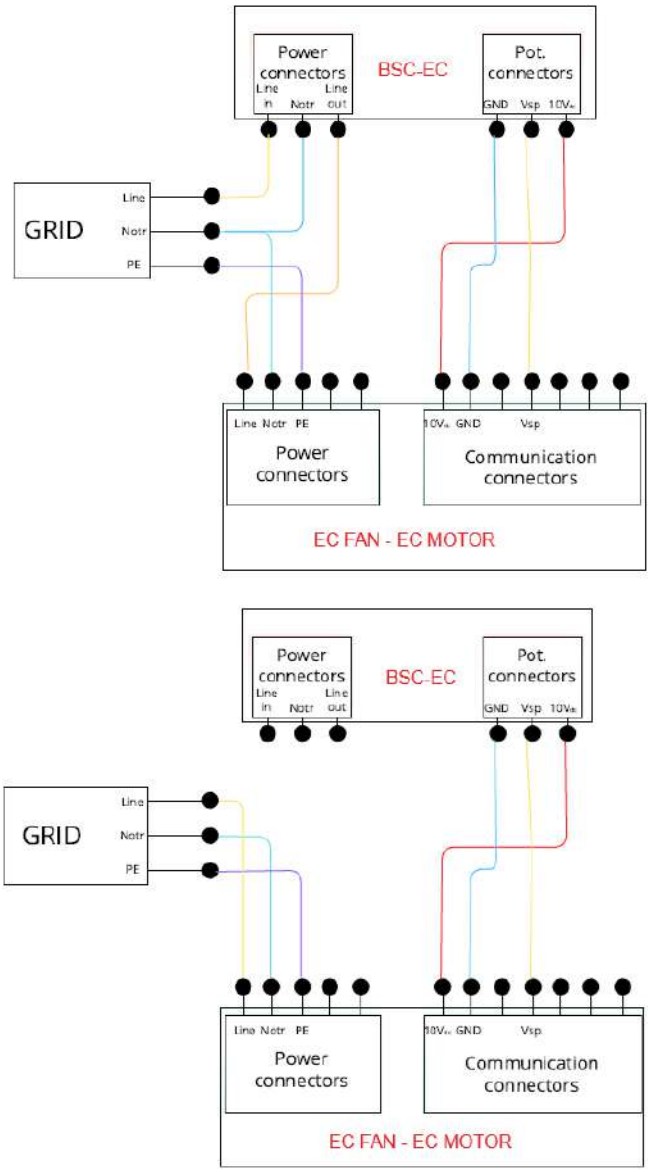


Figure 8

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4.4. Commissioning

1. Control
-Make sure that the installation and electrical connection is done correctly.
-Make sure that the electrical isolation is complete and appropriate.
- Make sure that there are no foreign objects, unattached flying objects and dust in the suction and exhaust of the fan.
- Make sure that the air inlet and air outlet are open.
- Visually inspect the product and accessories for damage.
-If the fan impeller is accessible, follow these steps:
a. Turn the fan impeller by hand and make sure that it turns easily.
b. Make sure that you turn the product in a direction that matches the corresponding arrow on the product.

2. Start the product with the speed controller.
-Make sure that the impellers start to rotate and take over slowly.
- Observe vibration and noise
-If strong vibrations occur during startup, immediately increase or decrease the fan speed until the vibrations subside. Continuous strong vibrations may damage components.
- Do not increase the fan speed to an rpm higher than the maximum value indicated on the nameplate.
-Drive and observe the product in all zones from the appropriate controller to the highest and lowest speed levels.
-Make sure that each speed level does not cause unwanted noise in the product.
-Stop the product.

3. Start the product without the speed controller.
-Make sure that the impellers start to rotate and take over gradually.
- Observe vibration and noise
-Stop the device if strong vibrations occur during commissioning. Continuous strong vibrations can damage components. Make sure that the impellers do not absorb foreign objects and that the impellers are not damaged by a blow from the casing area.
- If there is loud noise and vibration on restart. refer to the maintenance and troubleshooting chapter.
-Stop the product.

Note: The product has integrated automatic reset motor protection. If the product overheats, it will stop automatically. When the temperature of the product drops, the product will work normally again.

During commissioning, if there is a mechanical or electrical problem in the product, it will manifest itself with vibration and excessive noise (such as mechanical friction or electromagnetic noise). To make sure that the device is defective, measure the vibration values with vibration meter devices calibrated according to general machine standards and make sure that the values comply with general machine standards.

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5. TECHNICAL DATA

5.1. Nominal Data

Product	Voltage	Frequency	Power	Current	Capacitor	Speed	Air Flow	Thermal Protection	Operating Temperature	Insulation Class	Protection Class	
Type	**VAC**	**Hz**	**W**	**A**	**µf**	**rpm**	**m³/h**	**cfm**	**°C**	**°C**	**In. Cl.**	**Ip**
BDF-4S	120	60	30	0,27	3	2650	210	124	155	(-40) (+60)	F	44
BDF-4 XL-US	120	60	75	0,63	7	2600	285	168	155	(-40) (+60)	F	44
BDF-5 S-US	120	60	32	0,27	3	2500	250	147	155	(-40) (+60)	F	44
BDF-5 XL-US	120	60	80	0,64	7	2580	375	220	155	(-40) (+60)	F	44
BDF-6 S-US	120	60	80	0,63	7	2600	500	294	155	(-40) (+60)	F	44
BDF-6 M-US	120	60	110	1	10	2450	660	390	155	(-40) (+60)	F	44
BDF-6 XL-US	120	60	150	1,28	14	2950	825	485	155	(-40) (+60)	F	44
BDF-8 S-US	120	60	110	1	10	2450	740	435	155	(-40) (+60)	F	44
BDF-8 XL-US	120	60	145	1,3	14	3000	810	477	155	(-40) (+60)	F	44
BDF-10 S-US	120	60	150	1,28	12	3000	935	550	155	(-40) (+60)	F	44
BDF-10 XL-US	120	60	260	2,25	20	2900	1085	639	155	(-40) (+60)	F	44
BDF-12 XL-US	120	60	285	2,75	25	2800	1600	942	155	(-40) (+60)	F	44

Table 1 – Nominal Data Table

Notice

For motor label information, you can review the motor label and manufacturer information on the motor. BVNMOTOR brand motors are UL recognized and certified motors.

Surface and affected by the environment:

The surfaces of the components of the products generally comply with the applicable industrial standards. The surface quality may change over the life of the product. This has no effect on strength, dimensional stability and dimensional accuracy. The color pigments in the paints used react perceptibly to UV light over time. However, this does not affect the technical characteristics of the products in any way. The product must be protected against UV radiation to prevent stains and fading. Color changes are not a reason for complaint and are not covered by the warranty. The outer casing of the product is made of galvanized steel. The galvanized steel surface, due to the corrosive conditions of the atmosphere and the particles it contains, causes a chemical reaction of the galvanization over time, along with a change in color tone and wear of the galvanization. The speed of this change varies according to the atmospheric conditions in which the device is located and the air it draws. This color tone change of the galvanized surface and the decrease in the amount of protective surface thickness and chemical change; starts from the moment the galvanized coating is first produced and starts to come into contact with the atmosphere. During the warranty period and even longer periods under normal

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operating conditions of the device, this change does not have a negative effect on the operation and stability of the device.

Avoid using the device in acidic, corrosive chemical and ATEX atmospheres and air transfer environments, the fan is not suitable for these environments. Use fans suitable for these atmospheres.

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5.2. Dimensions

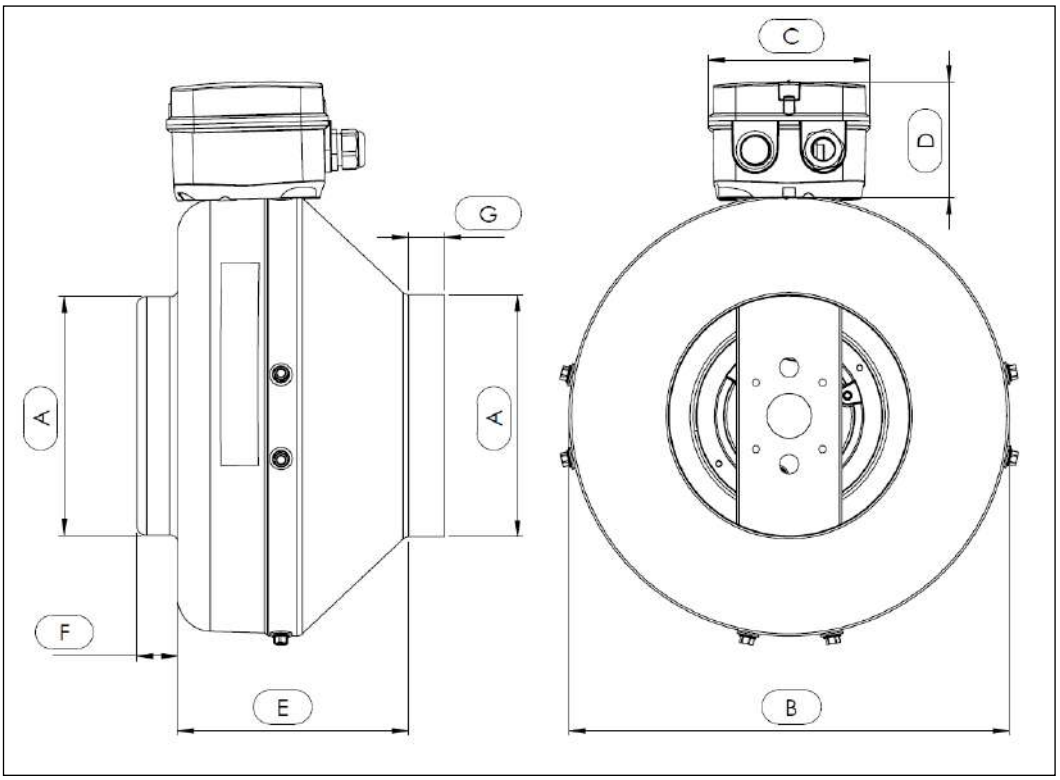


Figure 9 Dimensions Descriptions

MODEL	A	B	C	D	E	F	G
BDF 4 S	4	9 11/16	3 15/16	2 15/16	6 3/4	14/16	14/16
BDF 4 XL	4	9 11/16	3 15/16	2 15/16	6 3/4	14/16	14/16
BDF 5 S	5	9 11/16	3 15/16	2 15/16	6	14/16	12/16
BDF 5 XL	5	9 11/16	3 15/16	2 15/16	6	14/16	12/16
BDF 6 M	6	13 1/16	3 15/16	2 15/16	7 2/16	14/16	1
BDF 6 S	6	10 3/4	3 15/16	2 15/16	6 1/16	1	14/16
BDF 6 XL	6	10 3/4	3 15/16	2 15/16	6 1/16	1	14/16
BDF 8 S	8	13 1/16	3 15/16	2 15/16	7 2/16	1	1
BDF 8 XL	8	13 1/16	3 15/16	2 15/16	7 2/16	1	1
BDF 10 S	10	13 1/16	3 15/16	2 15/16	6 5/8	1 1/16	1 2/16
BDF 10 XL	10	13 1/16	3 15/16	2 15/16	6 5/8	1 1/16	1 2/16
BDF 12 XL	12 6/16	15 3/4	3 15/16	2 15/16	8 11/16	1 2/16	1 4/16

- Dimensions are given in inches (mm).

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5.3. Spare Part List

Spare part option varies according to the product. For detailed information, please check if there is a spare part option for this product in the database on our website.

5.4. Electrical Connection

Preparation for electrical connection:



DANGER ⚠

Make sure that the electrical power is cut off when connecting the product. Make sure that the energy is secured so that it cannot be accidentally turned on during the connection and lock the power line with the key in your hand. Before starting to connect, make sure that the necessary equipment and hardware are complete. Make sure that the people who will make the connection are authorized to make electrical connections. Any mistakes that may be made during the electrical connection action may cause fatal accidents and

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5.4.1. To Connect The Product To The Power Supply

1. Make sure that the electrical connection diagram, the product label and the full model number and parameters written on the motor label are exactly the same and compatible.

2. Make sure that the electrical network features and equipment to be connected are compatible with the fan motor.

3. Make sure that the outer casing, impeller and any part of the device are not damaged during transportation and are not broken or deformed.

4. Make sure that the environment for electrical connection is clean and dry.

5. Make sure that the environment where the device will be installed complies with the specified conditions.

6. Make sure that the wiring diagram provided with the product is compatible with the terminals in the connection box.

7. Complete the electrical connection of the motor. Use the motor connection diagram provided with the product for connection.

8. Make sure that the cross-section of the protective earthing is equal to or greater than the cross-section of the phase conductor.

5.4.2. Speed Controller For AC Motors

There are different alternative control methods for different types of motors. Check the Technical Document Sheet of the product.

5.4.3. Speed Controller For EC Motors

EC motors can be controlled with a stepless 0–10V signal, an external speed controller cannot be used. For correct connection and accessory information, please refer to the product's Technical Document Sheet.

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5.4.4 Motor Protection

In AC motor products, there is an integrated automatic reset motor protection; In EC motor products, there is a motor driver unit temperature and device protection system. If the product overheats, it stops automatically. When the product temperature cools down, the product works normally again.

5.5. Mechanical Connection

It is possible to fix the product to solid walls with product fixing feet or to the inline duct line with clamps. The safety requirements and conditions for these different types of connections are given in the relevant section “Connection and Startup”.

5.6. Transport And Storage Conditions

These temperature values are not operating temperature values. The product can be transported and stored between -40 F and +176 F. Vibration and mechanical impacts should be avoided during product transportation. Products weighing 3 times more than the weight of the box should not be placed on the product package box. A maximum of 4 product boxes of these products can be placed on top of each other.

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6. MAINTENANCE & TROUBLESHOOTING



DANGER ⚠

Even when the device is switched off, live terminals and connections can cause electric shock and injury. Before opening the device, wait five minutes after removing the voltage from all poles.



Warning ⚠

The motor restarts automatically when operating voltage
is applied, e.g. after a power failure.
Risk of injury
⚠Keep out of the device's danger zone.
⚠When working on the device, switch off the line voltage
and ensure that it cannot be switched back on.
Wait until the device comes to a stop.
Install the externally wired thermal overload protector in the control circuit so that following a malfunction the motor does not switch on again automatically after cooling off.

6.1 Maintenance



Warning ⚠

Please read the Safety instructions chapter before working on the fan!



Notice

Do not drop the device or subject it to strong impacts or high G-forces, as this may cause damage or affect its performance. Do not clean the device with wet and solvent-based cloths, use dry and slightly damp materials. Prevent the accumulation of cleaning fluid in the corners during wiping and cleaning. Avoid wet and damp areas close to electric current. Avoid damaging the device when using heavy, strong and sharp equipment.

• Before working on the fan, it must be disconnected from the power supply and secured against being switched on again.

• Do not perform maintenance work on the running fan; completely disconnect the fan from the electrical power and grounding lines.

• Only allow maintenance work to be carried out by trained specialists.

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• Any faults detected in the electrical system must be corrected immediately. If these faults are not corrected, the fan is potentially very dangerous. Therefore, the fan must not be operated while it is faulty.

• Wear safety clothing/shoes and cut-resistant safety gloves when performing the work.

• Please observe the safety regulations and worker protection rules for all maintenance and service work (NEC (NFPA 70), EN 50110, IEC 60364-1).

• Fuses must always be replaced only; they must never be repaired or bridged. The maximum series fuse specification must always be observed (see Technical data). Only fuses specified in the electrical circuit diagram may be used.

• Generator operation may generate dangerous voltages and damage the fan (see the generator's safety instructions).
• Keep the fan airways open - the fan can be damaged by sucking in objects and can injure people in the throw range by throwing objects sucked in by the fan.
• The impeller is subject to natural wear depending on the application area and the transport medium. Deposits on the impeller can lead to imbalance and damage (danger of permanent breakage). The impeller can burst.
• Clean the impeller at the specified intervals to keep it clean and ensure that the air being sucked in is filtered.
• If extremely aggressive ambient air for which the product is not suitable is transported, severe corrosion can lead to impeller breakage. All impellers that are worn in this way must be replaced immediately, in the case of unchanged model impellers, replace the motorized impeller or the fan itself.
• Deposits in the motor, especially on the cooling fins and in the recesses in the rotor, can lead to a decrease in cooling performance and premature motor shutdown. Therefore, remove the deposits quickly.
• Check the fan for mechanical vibrations at regular intervals (recommendation: every 6 months). Observe the limits specified in ISO 14694 and take corrective measures if these are exceeded (e.g. rebalancing by specialized firms and personnel).

• For welded impellers, check the weld seams in particular for possible cracks.

• Do not repair the impeller.

• Bolted or pressed impellers and/or blades may only be replaced by authorized BVNAIR personnel. The manufacturer cannot be held responsible for damages resulting from improper repair work.

• If the motor is opened for maintenance or troubleshooting, the product warranty is void. The reason for this is as follows: The BVN brand external rotor motor has an unusually special structure, the outer rotor of the motor is the rotor and the rotor rotates. Due to this mechanical difference, the bearing housings in the shaft, rotor and stator are very precisely machined and aligned very precisely. Sometimes, personnel dismantling the motor for troubleshooting may damage these structures. Due to this damage and effect; Even if the motor is successfully reassembled, the motor-fan will cause failure and problems much sooner than expected because the rotating surfaces are damaged. Please see the troubleshooting section for comprehensive and routine troubleshooting and solutions.

• For troubleshooting and repair of products that have expired or are out of warranty, contact expert personnel.

• Regular inspection and possibly cleaning is necessary to prevent imbalance and blockage of the drain holes, if any, due to dirt ingress.

Maintenance intervals cover the product's uptime periods.

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Maintenance task	Operation Conditions	
	Each 6 months	Each year
Visually examine the product and its components for damage, corrosion and dirt.		x
Examine the fan impeller for damage and imbalance.		x
Clean the product and the ventilation system.	x	
Do a check of all fasteners and make sure that they are fully tightened.		x
Make sure that the product and its components are correctly operated.	x	
Measure the power consumption and compare the result with the information on the name plate.		x
If vibration dampers are installed, make sure that they operate correctly and examine them for damage and corrosion.		x
Make sure that the electrical protective equipment and the mechanical protective equipment operates correctly.		x
Make sure that you can read the name plates of the product.		x
Examine all cable connections for damage. Make sure that the cable glands are tight against the cables.		x
If flexible connections are installed, examine them for damage.	x	

Tablo 2

The unusual operation conditions are classified as follows: If a stable ambient temperature is higher than 80°F or lower than 14°F, if the temperature changes are large, or if very contaminated air is transported.

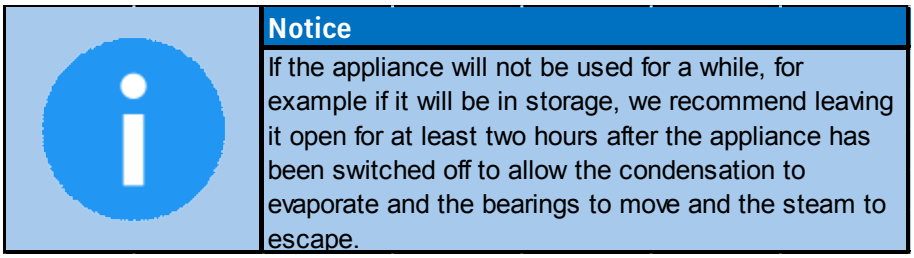
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6.2 Troubleshooting

Problem:	The product is not working properly.
Probable Cause:	The fan impeller may be unbalanced or have accumulated dirt.
Solution:	Check the impeller and clean it if necessary.
Problem:	The fan is rotating in the reverse direction.
Probable Cause:	The electrical connection may be incorrect.
Solution:	Correct the connections.
Problem:	The impeller is damaged or deformed due to high temperatures.
Probable Cause:	Aggressive ambient air or high temperatures.
Solution:	Replace the impeller/product.
Problem:	Excessive vibration in the product or duct system.
Probable Cause:	Incorrect installation or resonant frequency.
Solution:	Check the installation and ductwork. Change the fan speed.
Problem:	Insufficient air flow.
Probable Cause:	Improper duct installation, closed shutters, blockage, or product incompatibility.
Solution:	Correct the duct system, open the shutters, and remove any blockages. Use the correct product.
Problem:	Motor power is decreasing.
Probable Cause:	The motor's ambient temperature is too high.
Solution:	Check the ambient temperature.
Problem:	Unusual noise during operation.
Probable Cause:	The duct connections may be strained or there may be dust/blockage on the motor parts.
Solution:	Align and tighten the connections correctly. Clean the motor and impeller.
Problem:	The motor will not run.
Probable Cause:	The capacitor is not connected or is connected incorrectly (applies to AC motors only).
Solution:	Connect the capacitor correctly according to the wiring diagram.
Problem:	The fan speed does not reach the rated value.
Probable Cause:	The motor winding may be faulty, the speed control may be set incorrectly, or the impeller may be mechanically stuck.
Solution:	Check the motor and replace the fan if necessary. Correctly adjust the speed control and clean the mechanical obstruction.
Problem:	The motor does not rotate.
Probable Cause:	A faulty component in the power supply, a faulty electrical connection, or the motor protection has tripped due to overheating.
Solution:	Check the power supply and replace any faulty components. Check the electrical connection according to the diagram. Restart the motor after it has cooled.
Problem:	The motor or electronic components are overheating.
Probable Cause:	The motor is overloaded or the ambient temperature is too high.
Solution:	Ensure the product is suitable for the operating conditions. Check the ambient temperature. Replace the fan if necessary.

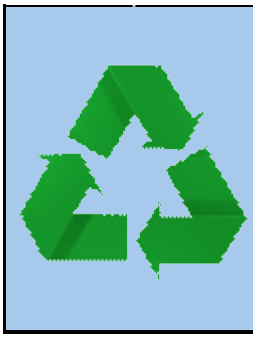
Tablo 3

If you cannot find a solution to your problem in this section, speak to BVN technical support.



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7.DISPOSAL



RECYCLING

Disposal must be done professionally and in an environmentally friendly manner in accordance with the relevant national legal regulations.
“Sort materials according to type and in an environmentally friendly manner.
“ If necessary, hire a specialized company for waste disposal.

For BVN, environmental protection and resource preservation are top priority corporate goals.
BVN operates an environmental management system which is certified in accordance with ISO 14001 and rigorously implemented around the world on the basis of German standards.
Right from the development stage, ecological design, technical safety and health protection are fixed criteria.
The following section contains recommendations for ecological disposal of the product and its components.

7.1 Country-specific legal requirements



Notice

Country-specific legal requirements:
Always observe the applicable country-specific legal regulations with regard to the disposal of products or waste
occurring in the various phases of the life cycle. The corresponding disposal standards are also to be heeded.

7.2 Disassembly



Warning ⚠

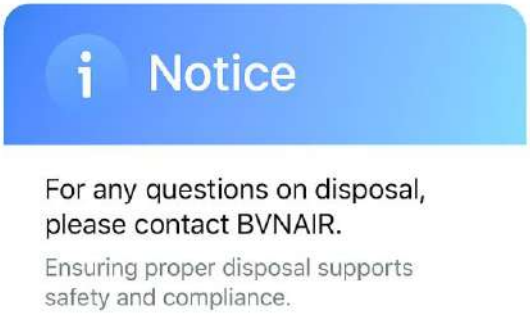
Please read the Safety instructions chapter before working on the fan!

Disassembly of the product must be performed or supervised by qualified personnel with the appropriate technical knowledge.
The product is to be disassembled into suitable components for disposal employing standard procedures for motors.

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7.3 Component Disposal

The products are mostly made of steel, copper, aluminum and plastic.
Metallic materials are generally considered to be fully recyclable.
Separate the components for recycling into the following categories:
● Steel and iron
● Aluminum
● Non-ferrous metal, e.g. motor windings
● Plastics, all of them with flame retardants
with marking
● Insulating materials
● Power Cables and wires
● Electronic scrap, e.g. circuit boards
● Only ferrite magnets and not rare earth magnets are used in external rotor motors from BVNAIR.
; Ferrite magnets can be disposed of in the same way as normal iron and steel.
● Electrical insulating materials on the product, in cables and wires are made of similar materials and are therefore to be treated in the same manner.
The materials concerned are as follows:
● Miscellaneous insulators used in the terminal box
● Power cables
● Cables for internal wiring
● Electrolytic capacitors
Dispose of electronic components employing the proper procedures for electronic scrap.



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For a comfortable breath; we work harder for more efficiency, more comfort and the future

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