



Service Manual

Refrigerated air dryer

Applicable models



IDFB3E
IDFB4E
IDFB6E
IDFB8E
IDFB11E
IDFB15E



IDFB22E
IDFB37E
IDFB55E
IDFB75E

How to use this manual

This service manual has been written with the purpose of ensuring that the maintenance companies that co-operate with SMC provide sufficient service to our customers.

Please be sure to abide by all warnings and cautions given in this service manual, in addition to ISO4414^{*1)}, JIS B8370^{*2)}, JEAC 8001^{*3)}, and other regulations^{*4)}.

*1) ISO 4414-1998: Pneumatic fluid power - Recommendations application of equipment to transmission and control systems.

*2) Other laws and regulations: Relevant parts of EC Directive

This service manual explains the handling and maintenance of air dryers.

Work should only be carried out by qualified operatives with full understanding of the operation, setup, trial operation and maintenance of the air dryer.

Please note that any descriptions given in this service manual and the instruction manual do not constitute additional guarantees.

No part of this service manual may be reproduced for the use of a third party without prior permission from SMC.

Note: The contents of this service manual are subject to change without prior notice.

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1

Safety



Please be sure to carefully read and fully understand the important warnings in this manual before operating or carrying out maintenance on the air dryer.


1.1 Warning: Before handling air dryer


This chapter concerns safety when handling the air dryer.

- 1) Replacement of parts or repairing should only be carried out by an expert, or someone with appropriate qualifications, experience and knowledge of the air dryer, or under the guidance of such a person.
- 2) Everyone involved in maintenance work, not just those who operate the air dryer, should read and have a sufficient understanding of the points about safety in this service manual. Anyone working in proximity to the air dryer should also be informed of the safety issues before carrying out work.
- 3) This service manual is not a general safety/ hygiene manual for use in safety training.
- 4) People working with or around the air dryer must have awareness of the dangers of the air dryer and sufficient training in safety measures.
- 5) The manager has responsibility for complying to safety standards, but every operator and person in charge of maintenance must take responsibility for adhering to safety standards in day to day work.
- 6) Operators and people in charge of maintenance should consider the work place and the work environment with regard to safety for each task.
- 7) Please retain this service manual so that it can be referred to by operators at any time.

1.2 Dangers/ Warnings/ Cautions given in this manual

This service manual is intended to ensure safe and correct operation of the air dryer and prevent injury to operators or damage to equipment. Hazards are divided into three classes, "Caution", "Warning" and "Danger", according to the size of the risk. Please check, read and fully understand these before handling the equipment. "Danger" signifies the greatest risk, then "Warning", then "Caution".

 <h2 style="margin: 0; display: inline-block; vertical-align: middle;">Danger</h2>
<p>"Danger" indicates that if errors are made by the operator during operation, maintenance or inspection of the air dryer, or if precautions to avoid danger are ignored, there is a danger of serious injury or loss of life to the operator.</p>

 <h2 style="margin: 0; display: inline-block; vertical-align: middle;">Warning</h2>
<p>"Warning" indicates that if the operator does not follow the appropriate procedures during operation, maintenance or inspection of the air dryer, or if warnings to avoid danger are ignored, there might be a danger of serious injury or loss of life to the operator.</p>



Caution

“Caution” indicates that if the operator does not follow the appropriate procedures during operation, maintenance or inspection of the air dryer, or if warnings to avoid danger are ignored, there is a danger of slight injury to the operator or damage to equipment or system.

1.3 Warnings and cautions relating to air dryers

The Warnings and cautions relating to air dryers are as follows.

1.3.1 Risks relating to electricity



Warning

- 1) Inside the air dryer, there are high voltage power supply parts, separated by the cover panel.
Do not operate the air dryer with the cover panel removed.
Inspection inside the power supply part should only be carried out by a trained and qualified person.
- 2) If there is a short-term power cut in the air dryer’s power supply (including momentary power cuts), it may take time to return to normal operation. Even when the power returns it may not operate as normal due to the protection equipment.
In this case, switch off the illuminated switch, and then switch it on again after at least 3 minutes. It may start suddenly when the power returns, so please be sure to switch off the switch with lamp if opening the cover panel of the air dryer.
- 3) Simply switching off the illuminated switch on the main body does not cut off all the charged lines from the power supply. Before carrying out maintenance of charged parts, or carrying out work which may have a danger of touching charged parts, switch off the breaker or switch set up by the customer, and cut off power to all power lines connected to the air dryer.

1.3.2 Risks relating to high temperature



Warning

Some areas of the air dryer will become hot during operation so there is a risk of burns if touched.
There is also a risk of burns due to residual heat after the power is switched off, so do not carry out work until the temperature of these parts has fallen to 122°F (50°C) or less.


1.3.3 Risks relating to revolving parts




Warning

Some parts of the air dryer revolve during operation so there is a risk of injury if touched.
The rotating parts may stop momentarily during operation, but they may start rotating again, so do not carry out work while operating.


1.3.4 Risks relating to pneumatic circuit

	<h2>Warning</h2>
<ol style="list-style-type: none"> 1) Some parts of the air dryer are pressurised with compressed air. Do not apply pressure exceeding the maximum operating pressure stated on the specifications label shown on page 1-4. 2) When replacing or cleaning parts of the air dryer, be sure to remove the compressed air pressure inside the air dryer to "0". It is extremely dangerous if compressed air pressure remains inside the air dryer, as parts may come flying off at speed when loosened, or other unexpected accidents. 	


1.3.5 Risks relating to refrigerant circuit

	<h2>Warning</h2>
<ol style="list-style-type: none"> 1) The refrigerant piping of the air dryer contains fluorocarbons (HFC). 2) Please adhere to the type and quantity of fluorocarbon stated on the specifications label shown on page 1-4 and the specifications in this service manual. If an incorrect quantity or type of fluorocarbon is inserted, there is a risk of overheating, overcompression, or malfunction of the air dryer. 3) Maintenance involving the refrigerant circuits should only be carried out by a refrigeration and air conditioning engineer or someone with knowledge and experience of dryers and ancillary equipment. 4) Do not expose the fluorocarbon inside the refrigerant piping to a direct flame. The fluorocarbon will turn into a toxic gas that gives off a bad odour and is dangerous if inhaled. 5) The cover panel should only be opened by service engineers or qualified technicians. 	

1.3.6 Cautions for use

	<h2>Warning</h2>
<ol style="list-style-type: none"> 1) Read and take note of the warning labels. 2) Do not peel or scrub off the warning labels. 3) Pay attention to the position of the warning labels. 4) Please do not operate the air dryer if any malfunction occurs. 5) If there is a fault, stop operation immediately, and call a service engineer or qualified technician to deal with it. 	

1.3.7 Cautions for disposal/ waste processing

	<h2>Caution</h2>
<ol style="list-style-type: none"> 1) When disposing of the air dryer, please collect the refrigerant and refrigerating oil from inside the refrigerant circuit. 2) Fluorocarbon (HFC) is used as a refrigerant in the refrigeration circuit. This product comes under part 1 of the fluorocarbon recovery and destruction law (Japanese regulation). It is against the law to release fluorocarbons to the atmosphere. After recovering the coolant using "coolant recovery equipment", it must be passed on to a type 1 fluorocarbon recovery agency. 3) Please dispose of refrigerating oil according to the regulations and bylaws of the local authority. 4) Please read chapter 2.7 "Disposal" before undertaking disposal. 	

1.4 Position of labels

The following labels are attached to the air dryer. Please read and take note of the contents of these labels. Do not remove these labels when carrying out maintenance.

1.4.1 Warning/ Caution labels

CAUTION 注意

- 1 Read manual before operation
- 2 Ensure ventilation and maintenance space
- 3 Keep water away from the product.
- 4 Secure In / Out connector with spanner during piping.
- 5 Wait 3 minutes before restart.
- 6 Ensure Running Condition/Evaporating Temp. in green zone.

1 ご使用前に必ず取扱説明書を読んでください。
2 通風、メンテナンススペースを確保してください。
3 雨や水漬がつかないようにしてください。
4 I N / O U T ポートをスパナで固定して設置してください。
5 再起動は運転停止3分後に行ってください。
6 RUNNING CONDITION・蒸発温度計はグリーン帯で使用してください。

WARNING 警告

- 1 Remove panels for maintenance only
- 2 Never insert anything into product to ensure safety.
- 3 Cut power prior to maintenance to prevent electric shock
- 4 Settle product to room temp. before maintenance to prevent burn or frostbite.
- 5 Ensure zero air pressure before replacing parts

1 点検以外はパネルを取り外さないこと。
2 回転物があるので指、棒状の物を差し込まないこと。
3 感電の恐れがあるので、点検の前には電源を切ること。
4 火傷の恐れがあるので、点検の前には装置を常温にすること。
5 部品交換の前には必ず、空気圧力を“0”にすること。

**Fluorocarbon Collection and Destruction Law in Japan
フロン回収破壊法第一種特定製品**

This product uses Fluorocarbon (HFC) as a refrigerant.

- 1 It is strictly forbidden to emit Fluorocarbon to the atmosphere.
- 2 When disposing this product, Fluorocarbon must be collected in an appropriate manner in this product is printed on the name label
- 3 The kind of Fluorocarbon and the amount used in this product is printed on the name label

この製品には冷媒として、フロン類 (HFC) が使われています。
1 フロン類をみだりに大気中に放出することは禁じられています。
2 この製品を廃棄する場合には、フロン類の回収が必要です。
3 フロン類の種類及び数量は、仕様銘板に記載されています。

1.4.2 Specifications lab

SMC AIR DRYER.

MODEL IDFB11E - 11

VOLTAGE	1Phase AC115V 60Hz	
RATED CURRENT	8.5A	
MCA	20A	
MOP	15A	
CMP LRA	35A	
AIR FLOW RATE	598CFM	(100m ³ /h)
MAX.INLET PRESS.	150psig	(1.0MPa)
MAX.INLET TEMP.	122°F	(50°C)
MAX.AMBIENT TEMP	104°F	(40°C)
MIN.AMBIENT TEMP	38°F	(2°C)
REFRIGERANT	R134a(HFC) 10.2oz (290g)	
LO. SIDE PRESS.	150psig	(1.0MPa)
HI. SIDE PRESS.	250psig	(1.7MPa)
WEIGHT	73lbs (33kg)	
SERIAL NO.	KP 0001 (FEB '06)	
MAKER	SMC CORPORATION Akihabara UDX 15F.4 - 14 - 1. Sotokanda,Chiyoda - ku,Tokyo 101 - 0021,Japan	

UL LISTED AIR DRYER 26WZ

MADE IN JAPAN



- Item shown
- MODEL
 - VOLTAGE
 - RATED CURRENT
 - MCA
 - MOP
 - CMP LRA
 - AIR FLOW RATE
 - MAX. INLET PRESS.
 - MAX. INLET TEMP
 - MAX. AMBIENTTEMP
 - MIN. AMBIENTTEMP
 - REFRIGERANT
 - LO. SIDE PRESS
 - HI. SIDE PRESS
 - WEIGHT
 - SERIAL No.
 - MAKER
 - MADE IN

2

Precautions for handling

2.1 Applications of air dryers/ model selection

2.1.1 Application

Warning

When carrying out maintenance, check that the air dryer is not being used in the following applications.

- 1) This product cannot be used for breathing apparatus, caisson shield, medical applications or medical equipment inside the human body, or air blow onto food products.
The air dryer is for industrial compressed air only, and should not be used for any other purpose. In cases where it is unavoidable, please check whether sufficient safety measures are in place.
- 2) Do not install the air dryer onboard a vehicle or vessel. If installed on a vehicle or vessel it will not be useable due to damage from vibration. If this is unavoidable, please contact SMC in advance.
- 3) Please design the system bearing in mind stoppage of the compressed air supply. Trouble with the internal machinery of the air dryer may cause freezing so the compressed air does not flow.

2.1.2 Model selection

Caution

When carrying out maintenance, check that the selection and operating conditions of the air dryer are appropriate.

- 1) After checking the application, specifications and operating conditions (pressure, flow rate, temperature, environment, power supply), confirm that the specifications are within the range stated.
- 2) Do not operate at a flow rate higher than the rated flow, even for a short time. Momentarily exceeding the rated flow can cause drainage and oil to splash onto the secondary side, or malfunction.
- 3) This product cannot be used for low pressure air (blower). The air dryer is for compressed air only. If used below the minimum operating pressure, there may be deterioration in operation, or malfunction.
The drain separator will not work properly below the minimum operating pressure.

2.2 Transportation/ storage

Caution

If the air dryer needs to be moved or transported for maintenance, please read and follow the cautions below, or the product could break down.

- 1) Be careful not to expose to strong impact by dropping or bumping.
- 2) If moving with piping screwed in (e.g. bypass set in the input/output ports), do not hold the piping when moving the air dryer.
- 3) Do not lean the air dryer over or put it on its side when moving it. This can cause damage to the refrigerator and refrigerant piping.
- 4) When transporting and storing, be careful not to expose the unit to direct sunlight, rain etc. It should be stored between 0 and 50°C.
- 5) Discharge drainage from piping and drain separator when storing the unit.



2.3 Installation

2.3.1 Installation environment

Caution

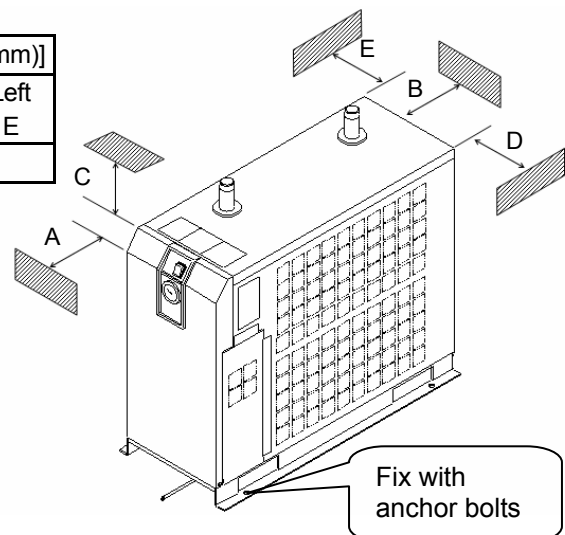
Check that it is not being used in the following environments, and make improvements if there are any problems. The following environments could cause the unit to malfunction.

- 1) Places with a lot of dust, or atmosphere of corrosive gases, organic solvents, chemical solutions or where these could build up. If use in a corrosive gas environment is unavoidable, we recommend Option C (Copper pipe rust prevention processing).
- 2) A location exposed to sea water spray, water, water vapour or oil.
- 3) Directly exposed to wind or rain, or in a location with high humidity (relative humidity 85% or above).
- 4) Directly exposed to sunlight. (Resin deteriorates in ultraviolet light, and to avoid temperature rise.)
- 5) A location with rapid variations in temperature, or a hot location with bad ventilation.
- 6) A badly ventilated location with a heat source nearby. (Heat sources should be blocked because radiant heat can cause softening.)
- 7) A location where it could take in hot air expelled by an air compressor or other air dryer.
- 8) A location with vibration or impact, or where there is a lot of dust or moisture.
- 9) A location where strong electromagnetic noise is generated (strong electrical field, strong magnetic field, or surge), where static electricity is generated or discharged to the air dryer, or where strong high frequency waves are generated.
- 10) A location with vibration or impact, or where there is a lot of dust or moisture.
- 11) On board a moving vehicle, ship etc.
- 12) With a fluid temperature or ambient temperature outside the allowable range shown below. Using outside this range may cause breakdown, malfunction or defective operation.

Air dryer model	Operating temperature [°F(°C)]	
	Inlet temp.	Ambient temp.
IDFB3E to IDFB75E	41 to 122 (5 to 50)	36 to 104 (2 to 40)

- 13) At an altitude of 2000m or above.
- 14) In order to allow enough space for maintenance, keep the unit away from walls etc. The table below shows the maintenance space for each model.

Air dryer model	Maintenance space needed [inch(mm)]				
	Front A	Back B	Top C	Right D	Left E
IDFB3E~IDFB75E	24 (600)				



2.3.2 Mounting method

- 1) Please install in a stable horizontal position with little
- 2) Fix with anchor bolts to prevent it falling over.
(Not including IDFB3E.)

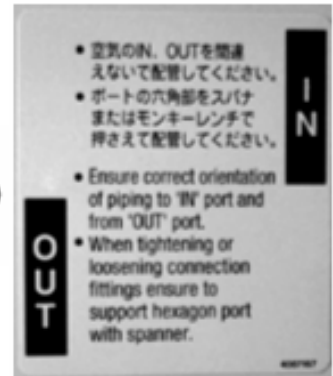
We can supply anchor bolts separately.

2.4 Piping

Caution

2.4.1 Air piping

- 1) Make sure inlet port (IN) and outlet (OUT) are the right way round.
- 2) When tightening connection fittings, ensure to support port with a pipe wrench.
- 3) Connect to the compressed air inlet port and compressed our outlet port with union, so that they can be removed.
- 4) Make sure excessive force is not applied to the dryer when piping or by the weight of the piping.
- 5) Take care that the air compressor vibration is not transmitted.
- 6) If the compressed air inlet temperature exceeds 122°F (50°C) use an after cooler after the air compressor or decrease the temperature of the air compressor location to reduce the temperature to 122°F (50°C).
- 7) Carry out flushing before connecting the piping to ensure no foreign matter enters the piping. Foreign particles or oil inside the piping can cause cooling failure or malfunction.
- 8) For the following models of dryer, we recommend installing a main line filter upstream of the air dryer to protect the heat exchanger from getting blocked by foreign matter or sludge.



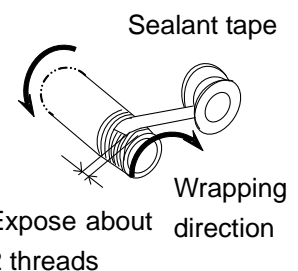
Air dryer model	Recommended main line filter model
IDFB3E	AFF4C-N03
IDFB4E	AFF4C-N04
IDFB6E	AFF8C-N04
IDFB8E	AFF8C-N04
IDFB11E	AFF11C-N06

Air dryer model	Recommended main line filter model
IDFB15E	AFF22C-N10
IDFB22E	AFF22C-N10
IDFB37E	AFF37B-N14
IDFB55E	AFF75B-N20
IDFB75E	AFF75B-N20

AFF Main line filter

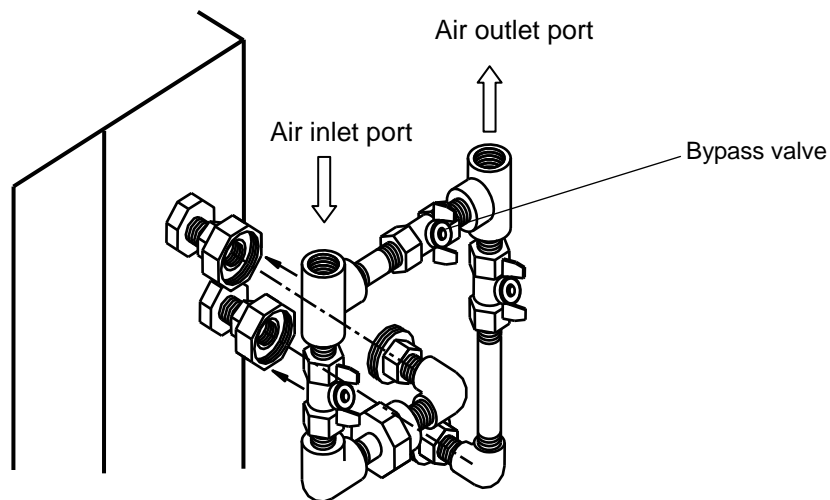
Note : Other models do not require a main line filter to be installed, as long as the air supplied to the heat exchanger is not especially dirty.

- 9) Do not allow drainage to build up in the upstream piping. There is a risk of drainage flowing into the dryer all at once, and carrying over to the secondary side or the air dryer.
- 10) Use piping that is sufficiently resistant to pressure and temperature, and mount correctly so that there is no leakage.
- 11) Wrapping of sealant tape
When connecting pipes and fittings, ensure that cutting chips and sealing material do not get inside the piping.
If using sealant tape, leave 1.5 to 2 thread ridges exposed at the end.



- 12) Be sure to install bypass piping so that maintenance checks can be done without stopping the air compressor.

Example of bypass piping



Example of IDFB4E to IDFB11E

2.4.2 Drainage piping

- 1) A 3/8inch diameter polyurethane tube is installed as a drainage tube. The discharge end exhausts to atmosphere. Ensure that drainage flows into an outlet etc.
- 2) The drain is discharged periodically using the compressed air pressure. Please fix the discharge end firmly so it does not swing around when the drain is discharged.
- 3) Please ensure that the drainage tube does not stand up.
Please ensure that the drainage tube does not fold or break. When installing the unit take care that it is not standing on the drainage tube.



Warning

- 1) When doing drainage work, please follow the safety procedures stipulated by the customer. (e.g. wear protective goggles, apron, gloves, to prevent drained fluid touching the body.)
- 2) If the drained liquid contains oil, the drained liquid will need to be processed. Please treat it in accordance with EU regulations. Please treat it in accordance with EU regulations.

2.5 Power source/ wiring



Warning

Wiring work must only be done by a qualified person.

- 1) For safety, please ensure power is off before carrying out wiring work. Never do wiring when it is live. Simply switching off the illuminated switch on the main body does not cut off all the charged lines from the power supply. When doing maintenance of charged parts, or work where there is a possibility of touching charged parts, switch off the air dryer power using the breaker or switch provided by the customer, and cut off power from all power lines connected to the air dryer before carrying out work.
- 2) Power must be supplied from a stable point (not affected by surge).
- 3) To prevent electric shock and fire damage to the refrigeration compressor motor, install an appropriate earth leakage breaker with the correct leak sensibility and load capacity – see 2.5.1.
- 4) The power supplied to this equipment must match the specifications.
- 5) For safety, ensure that there is an earth connection. The earth must not be connected to water pipes, gas pipes, or lightning rods.
- 6) Do not overload a socket by plugging in many components, as this can cause overheating or fire.
- 7) Do not modify the power source wiring.
- 8) In Europe, please install a breaker complying to IEC regulations to the power supply to this equipment.

2.5.1 Capacity of electrical leakage breaker

Ensure that the customer installs an electrical leakage breaker of the size shown in the table below.

Capacity of ground fault circuit interrupter

Power specification		Air dryer model IDFB										
Symbol	Power	3E	4E	6E	8E	11E	15E	22E	37E	55E	75E	
11	1phase 115V	15A						-				
23	1phase 230V	-						15A		-		
46	1phase 460V	-									10A	

Note: Please select one with sensitive current 30mA.

2.5.2 Allowable range of power supply voltage variation

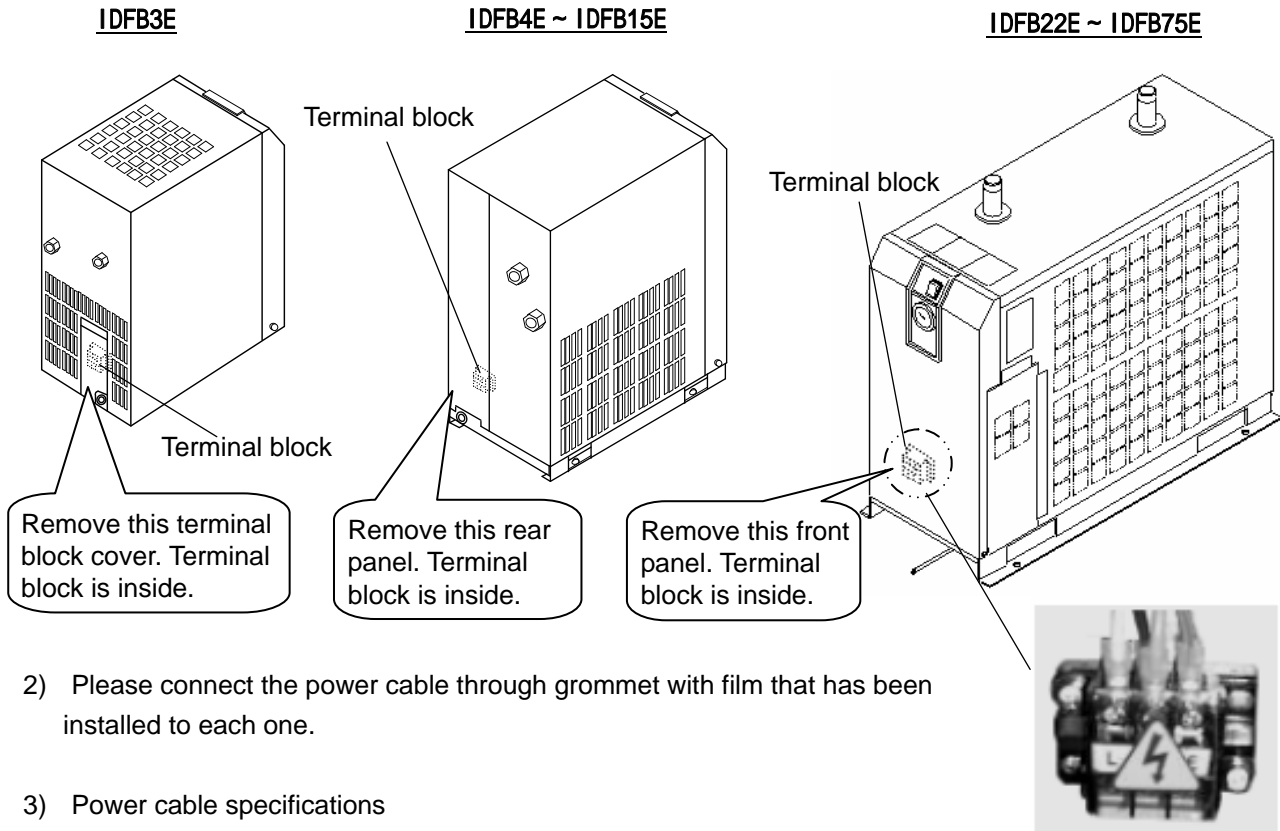
To maintain normal operation of the air dryer, it is important that the variation in supply voltage is within the range shown below. If the piping from the power source to the air dryer is too long or thin, it could go outside this range due to voltage drop in the wiring, causing failure of the refrigerator.

Allowable range of power supply voltage variation

Power specification		Allowable range of variation (V)
Symbol	Power	
11	1phase 115V 60Hz	104 to 126
23	1phase 230V 60Hz	207 to 253
46	1phase 460V 60Hz	414 to 506

2.5.3 Wiring procedure

- 1) Connect power source to the terminal block. Depending on the model, the terminal block is installed inside the cover, rear panel or front panel, as shown below.



- 2) Please connect the power cable through grommet with film that has been installed to each one.

- 3) Power cable specifications

please prepare the following cables

Cable: 16AWG (1.2 mm²), cable outside diameter 0.31 to 0.47inch (8 to 12mm) approx

For single-phase power supply specification: 3 cores (including earth)

For three-phase power supply specification: 4 cores (including earth)

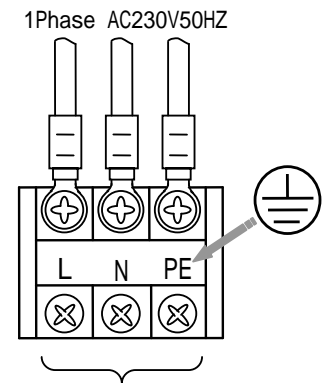
Approximately 3.94 to 7.87inch (0.1 to 0.2m) is needed for wiring inside this equipment.

- 4) Cable length

The cable length must be less than 1181inch (30m) from the air dryer. If the cable is too long, there may be a large voltage drop when starting up the air dryer, so that it cannot be operated correctly.

5) Terminal blocks

The terminal stand shown in right figure is built into.



Customer connection side

Terminal connection screws: M3

Crimp terminal width: 0.26inch (6.5mm)

Suitable wire: AWG16 (1.25mm²)

6) For safety, there must be an earth connection to the PE terminal.

7) Wiring procedure

- a. Remove the terminal cover or panel.
- b. Insert the cable through the grommet, and connect to the terminal block. Please refer to label on terminal block.

Please tighten M3 screws to torque: 0.63 to 1Nm

- c. When doing wiring, please do not touch equipment other than the terminal block.
- d. Replace front panel in its original position.

2.6 Removal of the air dryer

When removing the air dryer after it has been used (including trial operation), please take note of the points below. It should only be removed by someone who is qualified or has sufficient knowledge and experience of air dryers.

2.6.1 Removing cables

Be sure to cut off the power source before removing cables.



Warning

- 1) Only a qualified person should remove cables.
- 2) For safety, please be sure to turn off the leak breaker to cut off the power supply before carrying out wiring work. Never carry out work when it is live.

2.6.2 Removing air piping

When removing air piping, please be sure to shut the valve on the inlet side of the air dryer.

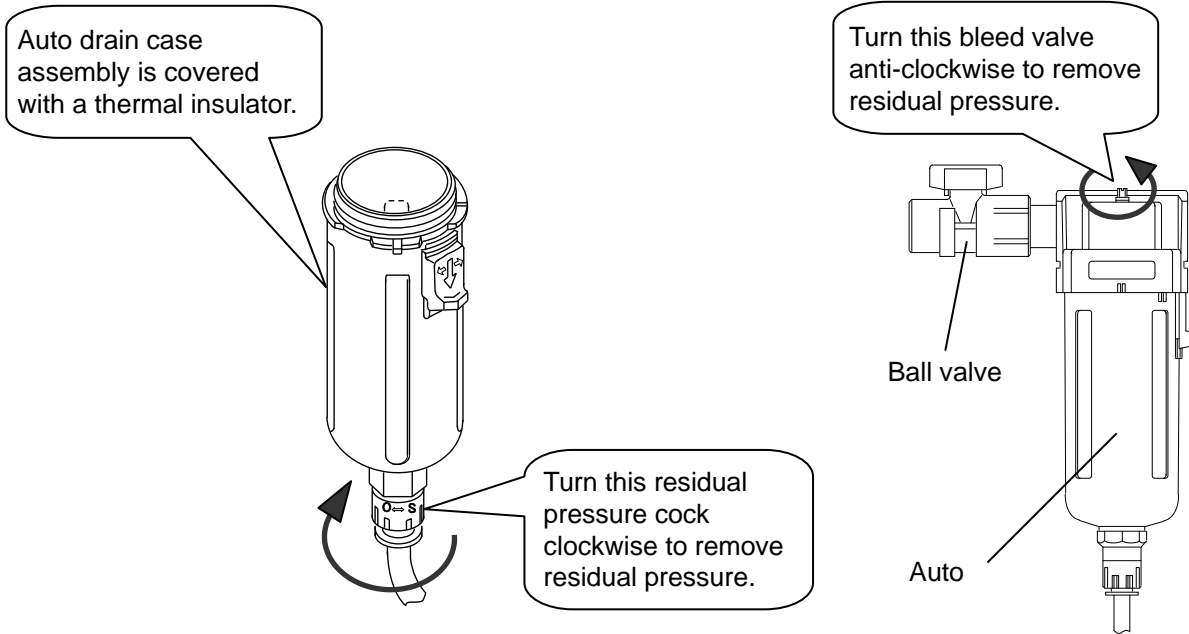


Warning

- 1) Please make sure the person removing the piping has sufficient knowledge and experience.
- 2) For safety, be sure to cut off from the compressed air supply before removing piping.
- 3) Do not remove piping when there is compressed air pressure remaining inside the equipment.
- 4) If re-using an air dryer that has been removed, please cleanly remove the remainder of the sealant after removing the piping. If leftover sealant gets inside the unit when it is re-started, it can cause cooling failure or malfunction.

2.6.3 Compressed air residual pressure removal procedure

- 1) If compressed air is needed during the removal of the air dryer, open the bypass piping valve.
- 2) Close the compressed air inlet valve and compressed air outlet valve.
- 3) Loosen the 2 front panel mounting screws and lift up the front panel slightly to remove it.
- 4) Open the auto drain tube connection port residual pressure removal cock to remove the compressed air pressure from inside the air dryer.
- 5) For models IDFB22E and IDFB75E, it is not necessary to remove the front panel. Turn the auto drain bleed valve to the left to remove residual pressure.
In this case, check that the ball valve is open.



Auto drain of other models (apart from IDFB22E to IDFB75E)

IDFB22E to IDFB75E auto drain

2.7 Disposal

2.7.1 Cautions relating to waste processing

When disposing of the air dryer, please collect the refrigerant and refrigerating oil from the refrigeration circuit.

	<h3>Caution</h3>
<ol style="list-style-type: none"> 1) Fluorocarbon (HFC) is used as a refrigerant in the refrigeration circuit. 2) This product comes under part 1 of the fluorocarbon recovery and destruction law (JAPANESE regulation). It is against the law to release fluorocarbons to the atmosphere. After recovering the coolant using "coolant recovery equipment", it must be passed on to a type 1 fluorocarbon recovery agency. 3) Recovery of refrigerants must be carried out by a refrigerant recovery engineer or someone with sufficient knowledge and experience of this device and its accompanying equipment.] 4) The type and quantity of fluorocarbon are shown on the specifications label explained in 1.4. 5) In Europe, please process it in accordance with EU regulations. 	

	<h3>Caution</h3>
<ol style="list-style-type: none"> 1) Dispose of the oil in the refrigerated compressor according to the laws and regulations in each country. 2) Refrigerator oil must not be disposed of with domestic waste. It must not be incinerated in an incinerator without special permission. 3) Recovery of refrigerator oil must be carried out by someone with sufficient knowledge and experience of this device and its accompanying equipment. 	

3

Operation/ shutdown



Caution

The air dryer should only be run and stopped by someone with sufficient knowledge and experience of the air dryer and its accessories.

3.1 Checks before running

Please check the following points before doing a trial run.

3.1.1 Installation conditions

- 1) Visually check that the air dryer is installed horizontally.
- 2) On models IDFB4E to IDFB75E , check that the air dryer is securely fixed using anchor bolts to prevent it falling over in an earthquake etc.
IDFB3E just need to be placed in a stable, flat position.
- 3) Do not put heavy objects on top of the air dryer or apply excessive force from the piping etc.

3.1.2 Cable connections

- 1) Check that the power cable and earth are correctly and firmly connected.

3.1.3 Piping

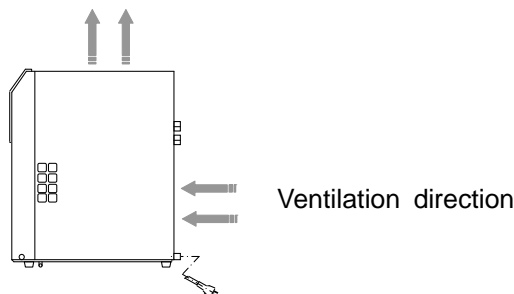
- 1) Check that the compressed air piping is correctly connected. Check that the air dryer air inlet and outlet side valves are completely closed.
- 2) Check that the drain tube is correctly connected.

3.2 Operation

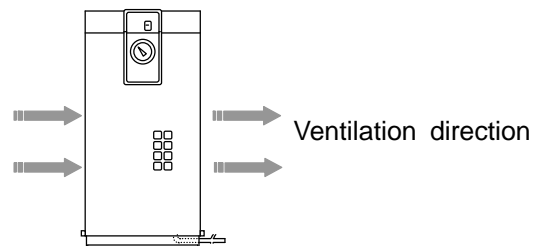
Please follow the procedure below when starting the air dryer.

- 1) Switch on the earth leakage breaker of the main power source. Have the illuminated switch ON continuously.
- 2) The light will come on, then shortly the condenser and aftercooler fan will start turning and warm air will come out of the exhaust port.

Please check the ventilation direction with reference to the diagrams below. If there is anything on the air dryer side that gets in the way of ventilation, please improve it so that it does not get in the way.




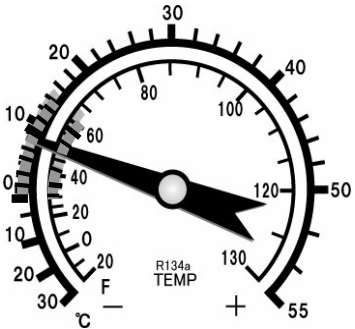
Ventilation direction for models IDFB3E




Ventilation direction for models IDFB4E to 75E

- 3) Slowly open the air dryer air inlet and outlet side valves. Check there is no air leakage.
- 4) The condenser cooling fan may repeatedly stop and start depending on the state of the compressed air and the ambient temperature, but the refrigeration compressor operates continuously, and the needle of the evaporating thermometer indicates the green zone. If the needle of the evaporating thermometer indicates a temperature higher than the green zone, please refer to "Troubleshooting" in Chapter 7.

Indication of evaporation thermometer

When air dryer is stopped	When air dryer is running	
		
<p>(Ambient temp 14°F (-10°C)) and above indication (Guideline)</p>	<p>Indication with no load 32 to 44.6°F (0 ~ 7°C)</p>	<p>Indication with load 32 to 59°F (0 ~ 15°C) (within green zone)</p>

- 5) Shortly after the compressed air starts flowing, drainage will automatically come out of the drain tube.
- 6) Please use it continuously as it is.

 <h2 style="margin: 0; display: inline-block;">Caution</h2>
<ol style="list-style-type: none"> 1) Do not repeatedly turn the switch on and off, as this can cause malfunction. 2) The air dryer auto drain has a 'normally open' construction whereby the valve shuts when the air pressure is 22psi (0.15MPa) or over, so when the air inlet side valve starts to open, air will come out from the drain outlet until the pressure rises. Therefore with an air compressor with small air discharge rate, the pressure may not rise. 3) Please use an air compressor with air discharge rate 3.53SCFM (6m³/hour) or more.

3.3 Shutdown

- 1) Switch off the illuminated switch.
- 2) The light will go off and operation will stop.

3.4 Restarting

3.4.1 Cautions when restarting

- 1) After stopping the air dryer, wait at least 3 minutes before restarting.
- 2) If it is restarted within 3 minutes, the protection circuit may operate and the light will go out, and it may not be able to operate.

3.4.2 Checks when starting operation

Check the following points when starting operation. If there is any abnormality, stop operation immediately. Switch the illuminated switch OFF and cut off the main power source earth leakage breaker.

- 1) There is no leakage of compressed air.
- 2) The pressure, temperature, and flow rate of compressed air and the ambient temperature are within the specifications of the air dryer.
- 3) Drainage is being discharged from the drain tube.
- 4) The needle of the evaporation thermometer is indicating inside the green zone.
- 5) The air dryer is not making any abnormal noise, vibration or smell.