



Operation Manual

Original Instructions

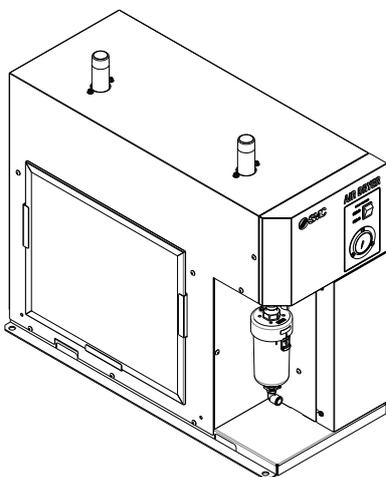
PRODUCT NAME

Refrigerated Air Dryer

MODEL / Series / Product Number

[Low GWP Refrigerant Air Dryer]

IDFA60-23-*F* , IDFA70-23-*F*
IDFA80-23-*F* , IDFA90-23-*F*



This manual is intended to explain the installation and operation of the product. Only those who have thorough understanding of the fundamental operating procedure or have basic knowledge and skills of handling industrial products are qualified to perform installation and operation.

Please read this manual prior of using the air dryer.
Keep the manual readily available for reference.

SMC Corporation

Foreword

Thank you for purchasing SMC's refrigerated air dryer (hereinafter referred to as the "product").

For safety and long life of the product, be sure to read this Operation Manual (hereinafter referred to as the "manual") and clearly understand the contents.

- For safe operation of the Refrigerated Air Dryer, thoroughly read and follow the safety instructions, as well as regulations stated within ISO 4414*1) & JIS B 8370*2).

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components.

*2) JIS B 8370: Pneumatic fluid power - General rules and safety requirements for systems and their components.

- This manual is intended to explain the installation and operation of the product. Only people who understand the basic operation of the product through this manual or who install and operate industrial machinery and have basic knowledge and ability to handle such equipment, are allowed to work on the product.
- This manual and other document attached to the product do not constitute a contract, and will not affect any existing agreements or commitments.
- It is strictly prohibited to copy this manual partially or in its entirety for the use by a third party without prior permission from SMC.
- The Operation Manual can be downloaded from the SMC URL below. URL:<http://www.smcworld.com/>

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

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Chapter 1 Safety Instructions



Before using the product, be sure to read and understand all the important actions highlighted in this manual.

1.1 Before Using Air Dryer

- This chapter is intended to specifically describe the safety related issues for handling the product. Read this before handling the product.
- This product is for dehumidification of compressed air. We, as the manufacturer, cannot take any responsibility if used for any other purpose.
- The product operates with high voltage and has some parts that get hot or rotates during operation. If a component needs to be replaced or repaired, contact a specialized vendor for parts and service.
- All personnel who work with or around the product should read and understand the safety related information in this manual carefully before starting work.
- This operation manual is not a general safety manual which is practiced by safety training representatives.
- People who handle this product or work around it need to take training to understand the inherent risks and master safety measures.
- The safety manager is responsible for strictly observing safety standards, but responsibility in respect to safety standards during daily work resides with each individual operator and maintenance personnel.
- Operators and maintenance representatives should take the safety of all personnel in the work environment into account.
- It is necessary to think of the safety of the work place environment for each task.
- This manual must be kept available to operators whenever necessary.
- This product uses a flammable refrigerant. Do not use near fire.

1.1.1 Danger, Warning and Caution

The instructions given in this manual aim to ensure that the product is operated in a safe and correct way. This will prevent injury to operators and damage to the product. These instructions are grouped into three categories, "Danger", "Warning" and "Caution", which indicate the level of hazard, damage and also the degree of emergency. Contents with these signs are important instructions concerning safety. Confirm where those signs are and read and comprehend notices and cautionary notices fully before handling. "DANGER", "WARNING" and "CAUTION" signs are in order according to severity (DANGER> WARNING> CAUTION). The meanings of these signs are as follows. They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), and other safety regulations.



DANGER

"DANGER": Hazard that **WILL** cause serious personal injury or death during operation, maintenance or inspection due to incorrect handling or negligence of compliance to avoid the danger.



WARNING

"WARNING": Hazard that **MAY** cause serious personal injury or death during operation, maintenance or inspection due to the negligence of required procedure or warning to avoid the danger.



CAUTION

"CAUTION": Hazard that **WILL** cause minor personal injury or damage to the device or equipment during operation, maintenance or inspection due to the negligence of required procedure or warning to avoid the danger.

1.2 Hazard classifications/ Hazard Warning Labels

To ensure the safety of the operators, potential hazards are classified and marked with warning labels. Confirm the potential hazards and positions of the labels before operation.

 WARNING
<ul style="list-style-type: none">- Transportation, installation, and maintenance involve risks and should only be carried out by people who have sufficient knowledge and experience about the product and its incidental device.- If there is an abnormality, take actions below according to the operation manual.- Read carefully Chapter 6 Troubleshooting before taking action.- Do not start the product in any trouble. If failure occurs, immediately stop the product, and contact maintenance personnel or a person who has sufficient knowledge and experience about the product and its incidental device.

Specific danger classifications of this product are as follows.

1.2.1 Hazard of Electricity

 WARNING
Inside of this product, there is a power-supplying section with high voltage separated by the cover panel. Do not operate the product without the cover panel.

1.2.2 Hazard of Hot Surface

 WARNING
The product has surfaces that can reach high temperatures during operation. What is more, there is also the danger of burn injury due to remaining heat after the power supply is cut. Therefore, wait until the temperature of hot parts become 50°C and below.

1.2.3 Hazard of Rotating Fan Motor

 WARNING
Since this product has parts that rotate during operation, there is the danger of injury resulting from direct contact. The fan and rotor will start/stop automatically. Thus, do not work on them when power is on.

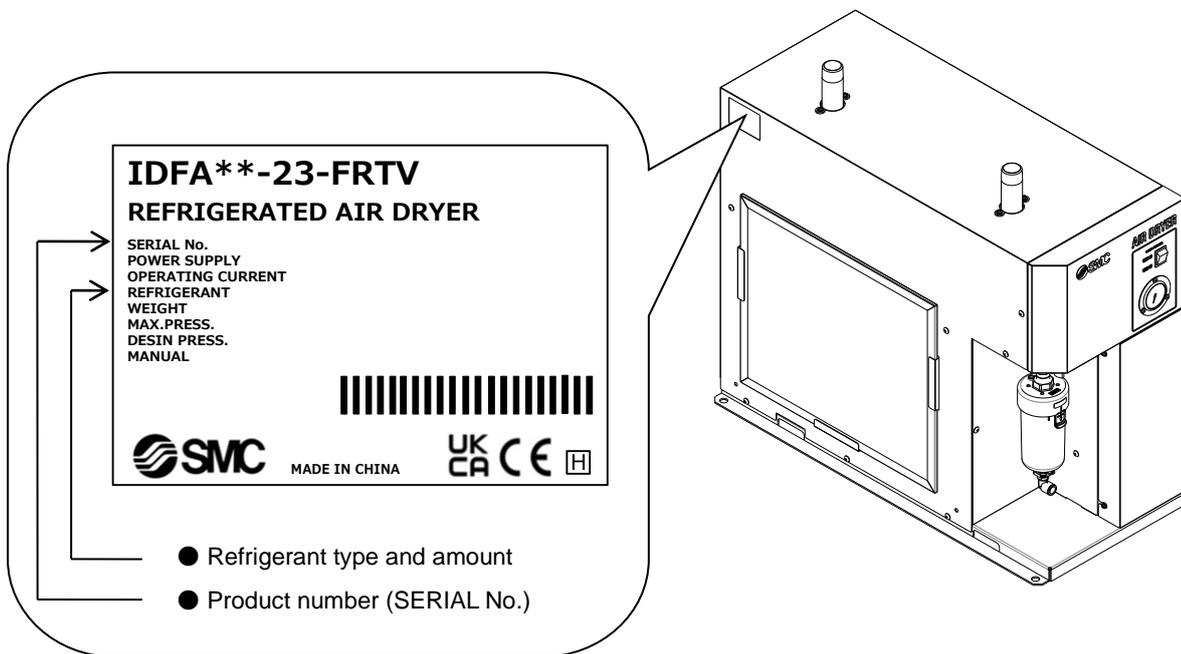
1.2.4 Danger of Compressed Air Circuit

 WARNING
Before replacing or cleaning parts, be sure to bleed compressed air remaining inside of the product until the gauge indicates "0". If there is no relief to the pressure, high pressure can propel objects at high velocity when unscrewing parts and cause injury.

1.2.5 Hazard of Fire

 WARNING
This product uses a flammable refrigerant (R454C). Follow the contents of this combustible warning label and safety precautions and handling instructions.

1.2.7 Product label



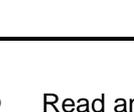
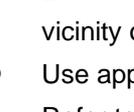
Detail of the serial number **D S 0001 (MAY.01.2025)**

D			S			0001
Year	Symbol	Note	Month	Symbol	Note	Serial No.
2025	D	Repeated from A to Z in alphabetical order	1	o	Repeated from o to Z in alphabetical order, with o assigned for January and Z for December.	-
2026	E		2	P		
2027	F		3	Q		
2028	G		4	R		
↓	↓		↓	↓		

1.3 Safety Measures

1.3.1 Safety Precautions

While this system is protected by various safety measures including the safety interlocks, the following basic safety precautions should be observed to assure further safe operations.

 WARNING	
- Follow the following instructions upon operation of this system. Failure to follow the instructions can lead to personal injury or hazardous accidents.	
 WARNING	
	- Flammable refrigerant (R454C) is used. Refer to the Repair Manual/Owner's Guide before servicing this product. Follow all safety precautions.
	- Do not use mechanical devices or other means to accelerate the defrosting process other than those recommended by the manufacturer.
	- Do not handle this product by any means other than specified in this Operation Manual; this can result in damage to the product or fire.
	- This product uses a slightly flammable refrigerant. In case of refrigerant leak, provide sufficient ventilation. Also, please keep away from fire. Be aware that refrigerants may not contain an odour.
	- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
	- Do not pierce or burn.

- Read and understand this manual thoroughly before operation of this system.
- Before operating the system during maintenance, inform all personnel who are working in the vicinity of the system to alert them of your action.
- Use appropriate tools and follow proper procedures.
- Refer to “1.3.2 Protective Equipment” wear protective equipment properly.
- Refer to your safety manual for emergency evacuation.
- Use assistance to carry object over 20 kg.
- Check that all parts and screws are returned to the pre-work conditions at the end of work.
- Do not work when intoxicated or feeling ill. Accidents may occur if disregarded.
- Do not remove a panel unless permitted in this manual.
- Do not handle this product by any means other than specified in this Operation Manual.
- The component parts shall be replaced with like components so as to minimize the risk of possible ignition due to incorrect parts.

1.3.2 Protective Equipment

This manual defines protective equipment according to work type.
Wear proper protective equipment as shown below, according to work type.



WARNING

Read and understand the relevant operation manual thoroughly prior to use of protective equipment.

■ **For system transportation, installation and removal**

- Protective footwear
- Protective gloves
- Hard hat

■ **For use when cleaning auto drain**

- Protective footwear
- Protective gloves
- Protective mask
- Protective apron
- Protective goggles

■ **For system operation**

- Protective footwear
- Protective gloves

1.4 Waste Disposal

This product contains flammable refrigerant and refrigeration oil. Please read and fully understand the following precautions before collecting the product. If you have any questions, please contact your dealer.



WARNING

Only service personnel or those who are qualified are allowed to open the panel of this system.
Do not dispose of the compressor oil as domestic garbage.
Incineration is permitted only at an authorized incinerator.



WARNING



Disposal of compressor oil must be in accordance with local regulations and rules.

Recovery and disposal of refrigerants should be properly handled in accordance with the laws or regulations of your country.



Handling of refrigerant and compressor oil may only be performed by properly licensed personnel with sufficient knowledge and experience not only with this system but also with related equipment.

The use of flammable refrigerants poses a fire hazard.



1.4.1 Disposal of product

As to the disposal of this system, consign the specialized industrial waste disposal agency in accordance with local laws and regulations.

1.5 Limited Warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.
Read and accept them before using the product.

Limited Warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered. Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period, which is clearly SMC's responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of an SMC product to another country, assure that all local rules governing that export are known and followed.

 **CAUTION**

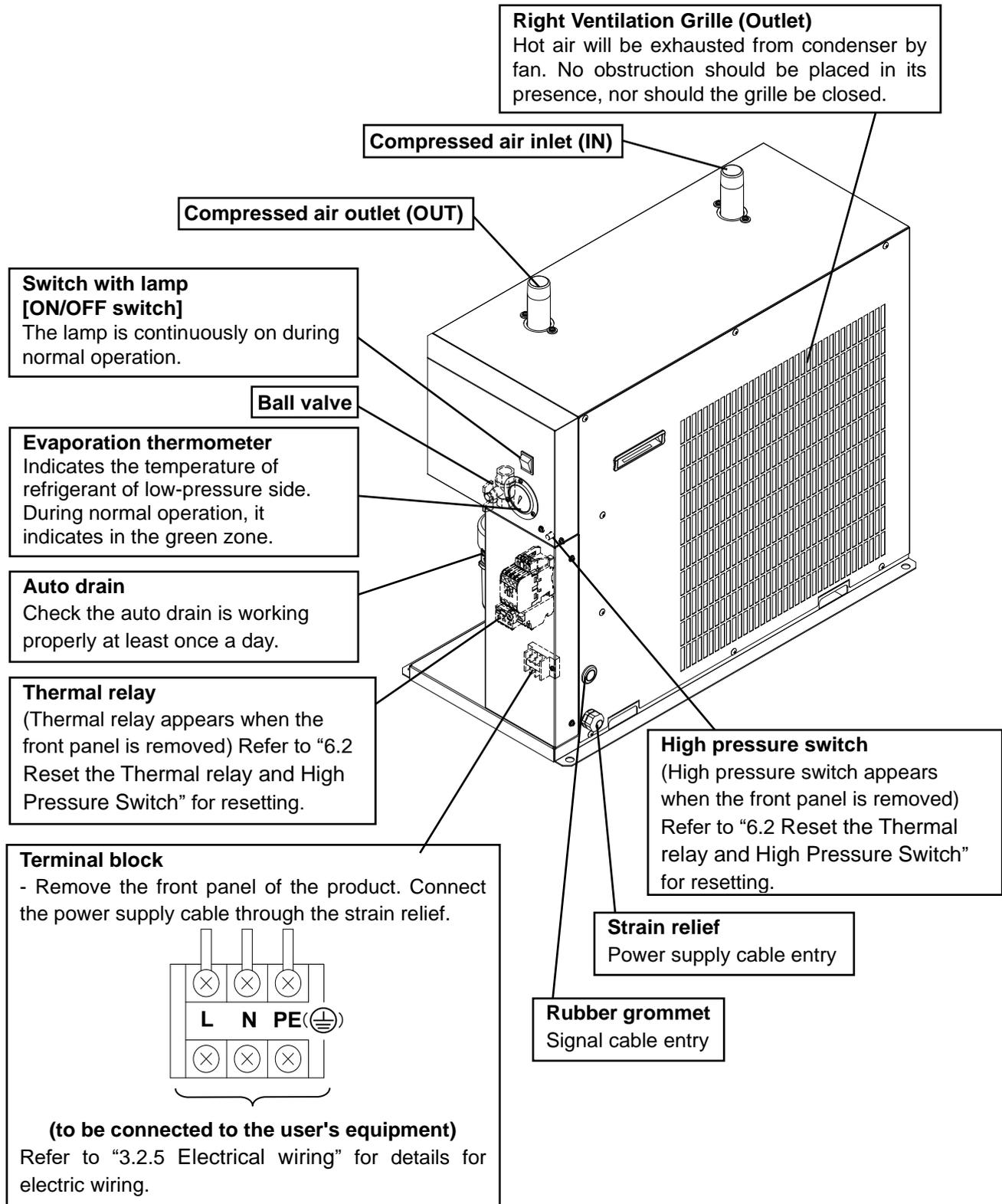
We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not covered.

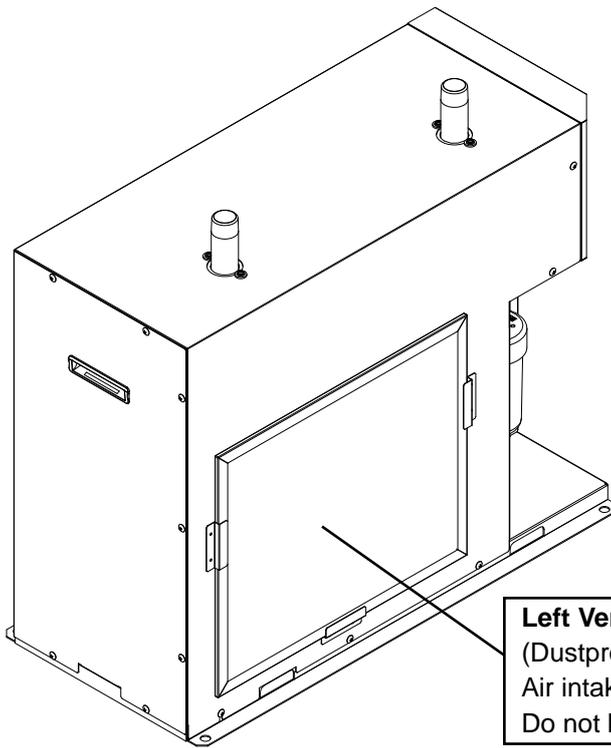
 **CAUTION**

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Chapter 2 Name and Function of Parts

2.1 Name and Function of Parts





Left Ventilation Grille (Inlet)

(Dustproof filter)

Air intake for cooling.

Do not block vents.

Chapter 3 Transportation and installation



WARNING

- Use the product in an appropriate manner, and pay attention to safety, particularly physical safety of operators, during the installation, operation, maintenance and checks of the product.



CAUTION

- Transportation, installation, and maintenance including dangerous work must be done by personnel who have require knowledge and experience about the product and system.
- This product uses a slightly flammable refrigerant. Install in the following locations.
Floor area of 15 m² or more.

3.1 Transportation

Follow the instructions below when transporting the product.

- When moving the product, lift with care from the base so that the product is not on its side with careful attention to tipping.
- Do not transport the product lying down on its side, or the product will be damaged.
- Do not suspend the product.
- Do not mount the air filter, etc. to the fitting for air inlet and outlet when transporting. If they have to be mounted, support the part with a bracket to avoid vibration during transportation.



WARNING

- This product is heavy. Follow the above cautions to avoid risk during transportation.
- As the product weighs more than 50kg incl package, move the product by a forklift. Moving by forklift should be done by personnel who have the licenses.

3.2 Installation

3.2.1 Environment

Do not use it in the following environments, as it may lead to a breakdown. Potential malfunction or damage to the product may occur if these instructions are disregarded.

- Avoid locations where the air dryer will be in direct contact with wind or rain. (Avoid locations where relative humidity is 85% or more)
- Avoid locations where water, water vapor, salt water, or oil may splash on the product.
- Avoid locations where dust or other particles are present.
- Avoid locations where flammable or explosive gases are present.
- Avoid locations where corrosive gases, solvents or combustible gases present.
- Avoid locations which receive direct sunlight or radiated heat.
- Avoid locations where the ambient temperature exceeds the limits as mentioned below.
 - During operation: 2 to 45°C
 - During storage: 0 to 50°C (when there is no drain water inside of the piping)
- Avoid locations where temperature substantially changes.
- Avoid locations where strong magnetic noise occurs. (Avoid locations where strong electric field, strong magnetic fields, or surge voltage occur).
- Avoid locations where static electricity occurs or conditions which make the product discharge static electricity.
- Avoid locations where high frequencies occur.
- Avoid locations where damage is likely to occur due to lightening.
- Avoid installation on machines used for transporting, such as vehicles, ships, etc.
- Avoid locations at altitudes of 2000 meters or higher.
- Avoid locations where strong impacts or vibrations occur.
- Avoid locations where a massive force strong enough to deform the product is applied or the weight from a heavy object is applied.
- Avoid locations with insufficient space for maintenance.
 - Necessary maintenance space
 - Front: 600 mm
 - Back: 600 mm
 - Top: 600 mm
 - Right side: 600 mm
 - Left side: 600 mm
- Avoid locations where the ventilation grille is obstructed.
- Avoid locations where the air dryer will draw in high-temperature air discharged from an air compressor or other dryer.
- Avoid pneumatic circuits where rapid pressure fluctuations or flow speed changes are generated.


WARNING

- **Do not use or store the product in conditions of compressed air or an environment containing substances below. Otherwise, malfunction or parts damage may occur.**
- **Corrosive gas, organic solvents or chemicals.**

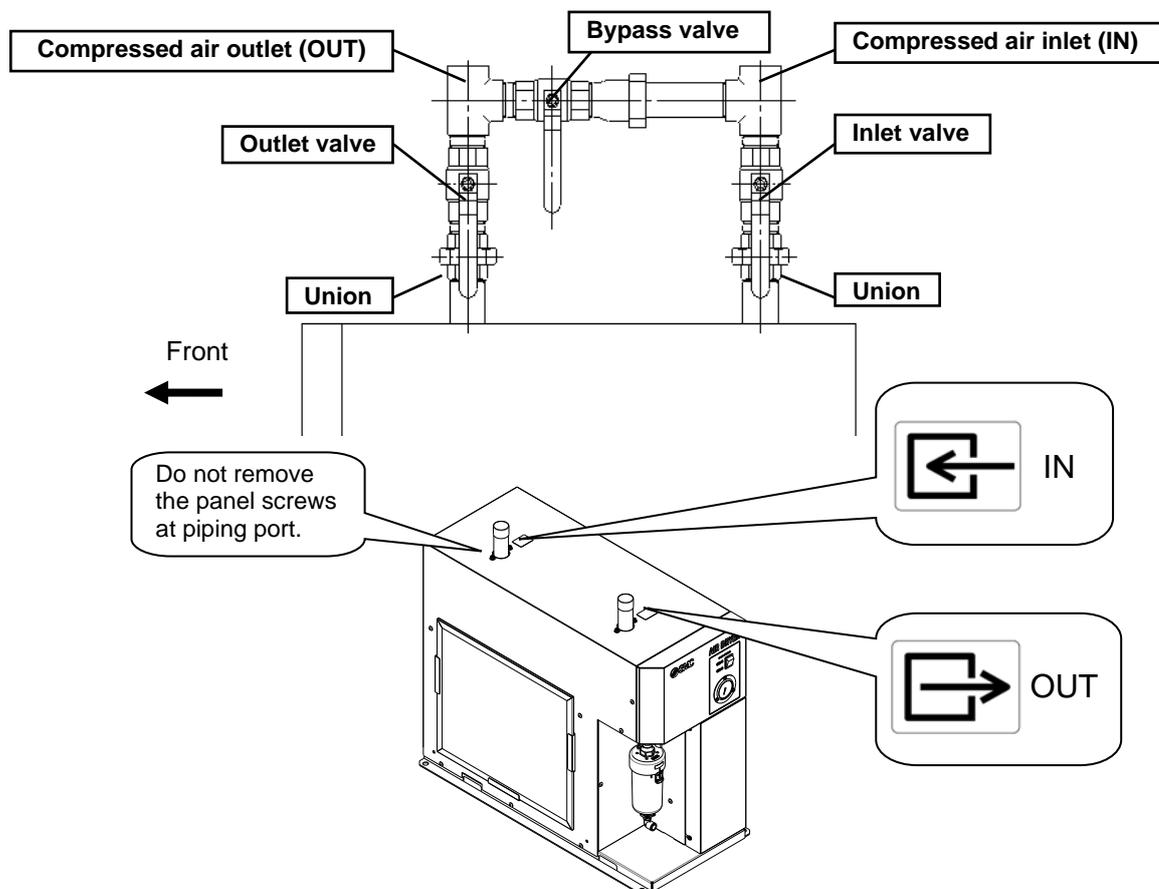
3.2.2 Anchorage

- The product should be installed on a vibration-free, stable, horizontal flat surface.
- Refer to "7.4 Dimensions"
- We recommend the anchor bolt sets that is sold separately as an accessory.

Product No.	Product name	QTY.
IDF-AB500	Set of foundation bolts	1 (4pcs./ set)

3.2.3 Air piping

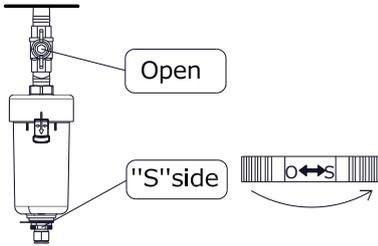
- Connection of the inlet and outlet of compressed air should be made removable by using union and so on.
- When an air fitting is connected with the body of the product, hold the pneumatic piping at the body with a pipe wrench and tighten.
- Avoid applying the piping weight directly to the dryer. When parts including air filter are mounted to the fitting of the inlet and outlet for compressed air, support the parts with the bracket to prevent force being applied to the product.
- Be careful not to let the vibration of the air compressor transmit.
- The piping surface temperature will be the same as the inlet temperature of the compressed air. Wrap the piping with insulator when the surface temperature exceeds 60°C.
- When the inlet temperature of the compressed air exceeds 65°C, install the aftercooler after the air compressor or decrease the temperature of the place to install the air compressor to keep the temperature at 65°C or lower.
- When the pressure of the air source fluctuates a lot, install an air tank.
- Before piping, flush the inside of piping to eliminate foreign matter such as particles, seal tape or liquid gasket. Entry of the foreign matter may cause cooling failure or drain discharge failure.
- Use pipes and fittings that have enough endurance against the operating pressure and temperature. And connect it firmly to prevent air leakage.
- Provide bypass-piping to made it possible to do maintenance without stopping the air compressor.
- Metal flexible tube for air inlet and outlet piping may make noise. Please change the piping to steel tube.
- If rapid pressure fluctuation or flow change occurs, install a filter on the dryer outlet to prevent drain from splashing.
- Depending on the operating conditions, condensation might occur around the outlet piping surface. Wrap insulator around the piping to avoid condensation.

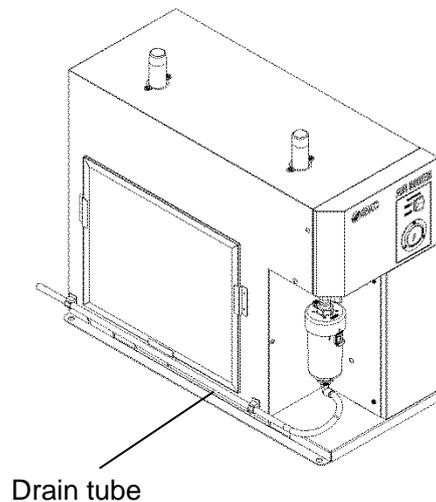
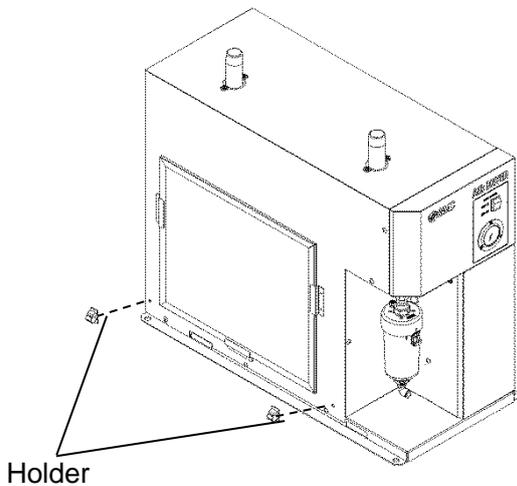


3.2.4 Drain tube

- A drain tube of 12mm O.D. is included as an accessory. The outlet end of the tube is released to atmosphere and lets the drain flow through the tube.
(When customers prepare the drain tube, keep its length at 5m or less and the I.D. at 8mm or larger for correct operation of the auto drain)
- Using the pressure of the compressed air, the drain will be discharged periodically. Fix the outlet end of the tube so as not to swing during discharge.
- Prevent the drain tube from having a rise in its piping.
- Do not bend or crush the drain tube. When installing the product, take care not to place the product on the drain tube.
- For piping the drain tube to the back of the dryer, use the holder included as an accessory.

 WARNING
<ul style="list-style-type: none">- For handling the condensate drain, follow the safety guide line and wear protective goggles, apron and gloves.- When oil is contained in the condensate drain, dangerous substances may be present. Handle it following the bylaw or regulation of local government.

 CAUTION
<ul style="list-style-type: none">- During the dryer operation, keep the ball valve open at all times. When the ball valve is closed, the condensate drain cannot be discharged.- Keep the drain cock at "S" side. If the drain cock is at "O" side, compressed air continues to bleed.




3.2.5 Electrical wiring



WARNING

- Only qualified personnel should do electrical wiring work.
- Cut off the power supply for safety before the wiring. Wiring with the product energized is strictly prohibited.
- Use a power supply suitable for the specifications of the product.
- Supply power from a stable place, which is free from the effects of any surge.
- Do not plug too many leads into a single socket. It can cause a fire.
- Supply power from a system with an emergency stop equipped.
- To avoid electric shock and burnout of the compressor motor, select the earth leakage breaker with the correct sensitivity of leakage current and load capacity and mount to the supply power side referring to the "7.1 Specifications".
- Install the breaker correctly, so that all power can be shut off and easy access to the operation panel is realized.
- Install a breaker compliant with applicable local safety regulations and standards.
- The equipment should be grounded for safety.
- Add an allowance to the length of the grounding cable so that external force is not applied to it.
- Connect the grounding cable first before connecting other cables, and remove it last when removing cables.
- Do not connect the earth to a water pipe, a gas pipe, or a lightning rod.
- Do not modify the internal electrical wiring of the product.
- For use in Europe, install a breaker compliant with applicable IEC standards to the power supply of the product.

Power supply cable specification

- Prepare the power supply cables below.
- Approx. 0.2m of cable is necessary for wiring in the product.

IDFA60-23-F	IDFA70-23-F	IDFA80-23-F	IDFA90-23-F
16AWG (1.25mm ²)		12AWG (3.5mm ²)	10AWG (5.5mm ²)
Cable O.D. Approx. 9 to 11mm		Cable O.D. Approx. 18 to 23mm	

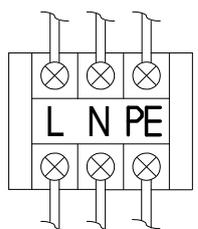
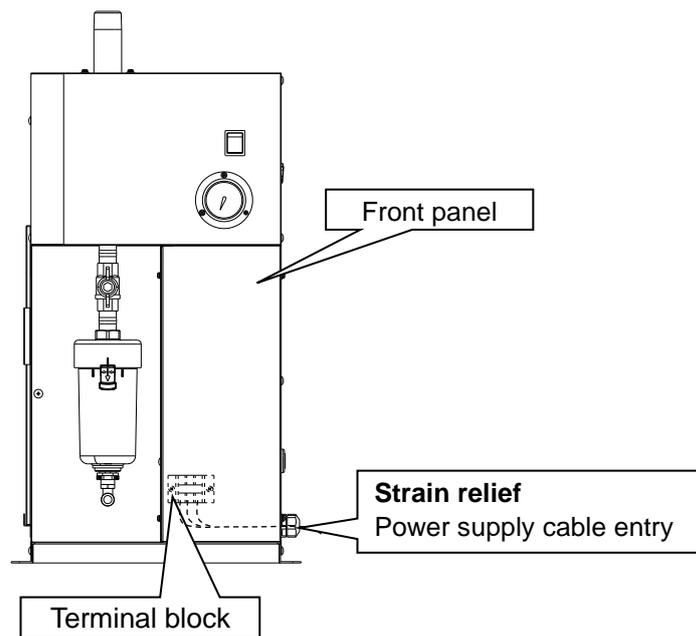
Power supply

- Connect the power cable and grounding cable to the terminal block. Use round crimp terminal for connection terminal.

	IDFA60-23-F	IDFA70-23-F	IDFA80-23-F	IDFA90-23-F
Terminal screws	M3.5		M4.0	
Applicable crimp terminal	1.25-3.5		3.5-4	5.5-4
	(Terminal width 6.6mm or less)		(Terminal width 9.5mm or less)	

Wiring procedure

- (1) Remove the front panel.
- (2) Pass the cable through the strain relief to connect to the terminal block. (refer to the label on the terminal block)
M3.5 Screw tightening torque : 1.0 to 1.3N·m
M4.0 Screw tightening torque : 1.4 to 1.8N·m
Do not touch any equipment other than the terminal block during wiring.
- (3) Mount the front panel back.



[Terminal block]

3.3 Cautions about Reinstallation



CAUTION

- Only someone who has enough knowledge about the product and incidental devices should reinstall it in another place.

If you move the product and reinstall it into another place after some operations (including trial running), all installation instructions in Chapter 2 should be followed as well as the following instructions.

Disassembly of the power cable

Cut off the power source before you disassemble the power cable.



WARNING

- Only qualified personnel should do the wiring work.
- Cut off the power supply for safety before the wiring. Wiring with the product energized is strictly prohibited.

Removal of air piping



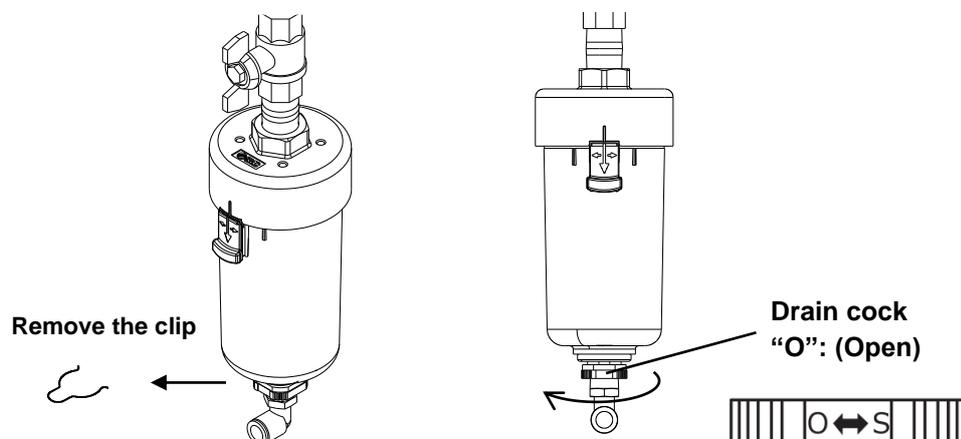
WARNING

- Only qualified personnel should do the wiring work.
- Separate the compressed air source from the product for safety before removing the piping.
- Do not remove any piping when there is remaining compressed air pressure inside of it.

Remove the seal tape completely after detaching the piping. Remaining tape could cause imperfect cooling or failure by entering into the product.

Procedure to release residual compressed air

- 1) Even while the dryer is removed, only open the bypass piping valve when compressed air is needed.
- 2) Close the compressed air inlet and outlet valves.
- 3) Ensure that the ball valve of the auto drain is opened.
- 4) Remove the drain cock holding clip.
- 5) Rotate the drain cock of the auto drain to "O" side, and exhaust the compressed air from the product.



Chapter 4 Operation/ Shutdown



CAUTION

- Only someone who has enough knowledge and experience about the product and incidental devices should operate or shut down the product.

4.1 Check points before operation

Before trial operation, check following points.

Installation state

- By visual inspection check that the product is on a level surface.
- Make sure the product is fixed properly with anchor bolts.
- Do not place heavy objects on the product or add unreasonable loading by piping and so on.

Connection of cables

- Check that the power cable and grounding cable are connected correctly.

Drain tube

- Drain tube should be connected correctly.

Air piping

- Confirm that the piping to the compressed air is correctly connected. Check that the IN and OUT side of the product and bypass piping valves are completely closed.

Ball valve

- Ensure that the ball valve of the auto drain is opened.

4.2 Operation

Start operation according to the procedure below.

- 1) Turn on the main power supply breaker. Turn on the switch with the lamp.
- 2) The operation lamp turns on. After a moment, the cooling fan will rotate, and hot air will be exhausted from the ventilation outlet.
- 3) Open the IN and OUT side valves slowly. Ensure the bypass valve is completely closed. Confirm that there is no air leakage.
- 4) The fan keeps starting and stopping depending on the compressed air and ambient temperature conditions, but the compressor keeps operating continuously, and the evaporation thermometer stays within the green area.
When the refrigerant pressure gauge indicator is in the area higher than the green area, refer to "Chapter 6 Troubleshooting".
- 5) After supplying compressed air for a while, the drain will be discharged from the drain tube automatically.
- 6) Continue the operation.



CAUTION

- Frequently switching ON and OFF leads to malfunction.
- The auto drain is normally open and the valve closes when the air pressure is 0.1MPa or more. When the IN side valve starts to open, air bleeds from the drain outlet until the pressure reaches 0.1MPa. The pressure may not reach 0.1MPa when the air compressor discharge flow rate is small.
- Dehumidified drain may flow into the secondary piping if there is a sudden change of pressure or flow speed. Do not use the product where these conditions are present.
- Do not remove any piping when there is remaining compressed air pressure inside of it.

4.3 Stop

- 1) Turn off the switch with lamp.
- 2) The lamp turns off and operation stops.

4.4 Cautions for re-start

Allow at least 3 minutes before restarting the product. If the product is restarted within 3 minutes after being stopped, the protection circuit will be activated, and the dryer will not start.

When operation does not start, restart it referring to "6.1 Troubleshooting".

4.5 Check points before restart

When starting operation, check the following points. Immediately stop operation if any abnormality occurs. Turn off the switch with lamp and shut off the breaker of the power supply.

- There should be no leakage of compressed air.
- Compressed air pressure, temperature, flow rate and ambient temperature are within the specifications of the product.
- Confirm that drain comes out of the drain tube.
- The evaporation thermometer is in the green area.
- Drain should not be exhausted from the compressed air outlet of the air dryer.
- There should be no abnormality with noise or vibration or odor from the product.

4.6 Cautions when the product is shut down for an extended period of time

- When the product is not used for longer than 24 hours, turn off the operation switch or power supply for safety and saving energy. It is recommended to discharge pressure from the compressed air piping.
- The residual drainage in the air dryer may splash over the outlet when the operation is re-started, so it is recommended to install a filter on the outlet of the air dryer.

Chapter 5 Checks and Maintenance



WARNING

- Only people who have sufficient knowledge and experience about the product and its incidental devices are allowed to perform maintenance.
- Before maintenance, read and understand the important cautionary notifications in this operation manual.



DANGER

- Cut off the power supply upstream when removing the panel.
- Before replacing or cleaning parts, be sure to bleed compressed air remaining inside of the product until the gauge indicates "0".
Do not remove the auto drain case assembly with any air pressure remaining internally. If there is residual pressure in the product, there would be great danger of an unexpected accident, such as shooting out of parts when they are being unscrewed.
- Power supply parts become hot and will be applied with high voltage during operation. Heat may cause burns, or electric shock can result due to high voltage. Even if the switch with lamp is turned off and the operation is stopped, electricity will be applied to the primary line. During the work for primary line, turn off the electrical leakage breaker of the user's equipment.
- Even if the device operation stops, there is a danger of burns due to residual heat. Do not start working on the parts inside the product until the temperature has decreased to 50°C or less.
Guideline: 10 to 15 minutes
- There is the possibility of contacting the condensate during the auto drain maintenance work. Follow the procedure that you define to keep the worker safe.
(When working with auto drain, please use "1.3.2 Protective Equipment" to avoid contact with the drainage liquid on the body.)
- Use an aqueous solution of neutral detergent for cleaning of the auto drain and do not use solvents.
- When removing the panels and auto drain case assembly, wear protective gloves to prevent injuries from sharp edges.

5.1 Daily inspection

Before daily operation, check the following points. When any abnormality is found, stop operation immediately and refer to "Chapter 6 Troubleshooting".

- There should be no leakage of compressed air.
- The lamp is on during operation.
- Confirm that condensate comes out of the drain tube.
- The evaporation thermometer is in the green area.
- There should be no abnormality with noise or vibration from the product.
- There should be no smell or smoke from the product.

5.2 Regular maintenance

5.2.1 Clean the dustproof filter of the ventilation grille

Vacuum or air-blow the filter every month to remove dust and particles of the ventilation grille.



CAUTION

- Wear protective goggles or mask during air blow.

5.2.2 Auto drain maintenance

Remove the dust accumulated in the auto drain element and bowl assembly every month. Use neutral detergent for cleaning.

When cleaning does not improve the operation, replace the element and bowl assembly. From the next time, clean them with intervals shorter than a month.

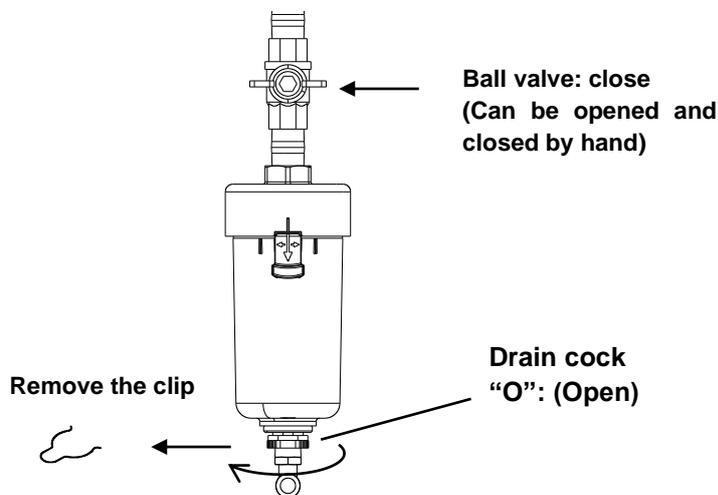


WARNING

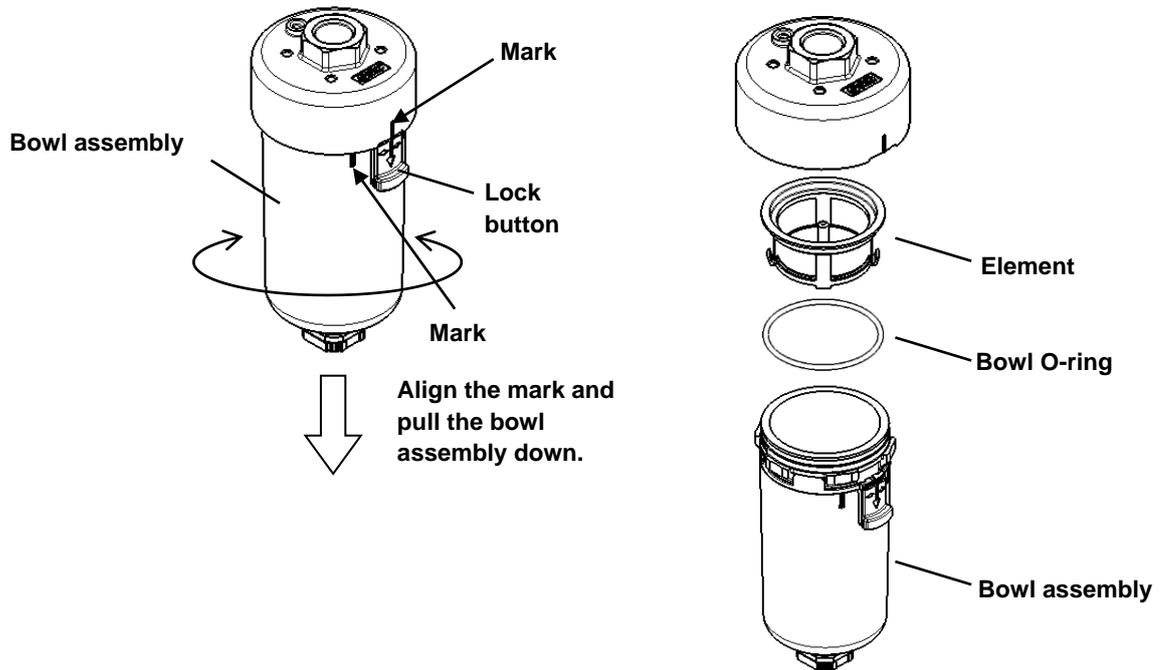
- Be sure to release the residual pressure of the auto drain before starting maintenance.
- When the bowl assembly is broken or very dirty, replace it with a new one.

(1) Removal of the bowl assembly

- 1) Turn off the switch with lamp.
- 2) Shut off the earth leakage breaker of the power supply or remove the power supply plug from the socket.
- 3) Fully close the valve at the compressed air IN and OUT piping. (Open the bypass valve, only when compressed air is required during maintenance.)
- 4) Close the ball valve on the top of the auto drain.
- 5) Remove the drain tube.
- 6) Remove the clip and rotate the auto drain cock to the "O" side to release the residual air pressure in the auto drain.



- 7) Pull down the lock button of the bowl assembly with your thumb and rotate the bowl assembly anticlockwise by 30 degrees to align the marks.
- 8) Remove the bowl assembly by pulling down on it.



(2) Mounting of the bowl assembly

- 1) Check that there are no scratches, twisting or adhesion of foreign matter on the bowl O-ring, then thinly apply grease and mount it to the groove of the bowl assembly.
(The grease used recommends Krytox GPL 207 of Du Pont.)
- 2) Return the cleaned element to the bowl assembly.
- 3) Mount the bowl assembly to the body of the auto drain. Rotate it until the lock button stops completely with a click. (Rotate the bowl assembly in the left and right direction lightly to ensure that it will not rotate. If it rotates, re-do this step.)
- 4) Rotate the drain cock to the "S" side and mount a clip.
(Check that the drain cock will not rotate to the "O" side.)
- 5) Mount the drain tube as it was.
- 6) Open the ball valve.

Table 5-1 Auto drain product number for replacement

Product No.	Product name	QTY.
AD52-A	Bowl assembly	1
KA00463	Bowl O-ring*	1
AD402P-040S	Element	1

* Bowl O-ring (KA00463) is included with AD52-A.

5.2.3 Service parts

It is recommended to replace the following parts regularly. The interval values shown in this operation manual depend on the operating conditions (ambient temperature, installation environment, etc.), so that they are for reference.

Table 5-2 List of parts to be replaced regularly

Description	Recommended replacement period
Pressure switch	Half a million times
Fan motor	20,000 hours
Electromagnetic switch, Magnetic contactor	One Million times.

Table 5-3 Service parts number

Description	Part no.	QTY	Applicable model
Dustproof filter	IDF-S0530	1	IDFA60-23-F
	IDF-S0531	1	IDFA70-23-F
	IDF-S0535	1	IDFA80/90-23-F

Chapter 6 Troubleshooting

6.1 Troubleshooting

Refer to the table below if any abnormality is found. If there is something that is not clear, please turn off the power supply and contact our service office.

Problems	Possible causes	Action
Air dryer does not operate and the running lamp does not turn on, even when the switch is ON.	Power cord is loose or not connected.	- Connect the cord correctly.
	The earth leakage breaker is OFF.	- Please check the earth leakage breaker capacity. - Turn on the earth leakage breaker. If the breaker keeps turning off, please shut off the power supply and contact our service office. Air dryer insulation failure is possible.
	Remote operation signal is OFF. (For option T)	- Check the condition of remote operation signal.
The lamp goes off and the operation stops. (Protection circuit is activated. Reset the protection circuit referring to 6.2 Reset the Thermal relay and High Pressure Switch).	Poor ventilation in installation location. Ambient temperature is too high	- Keep the ambient temperature low by ventilation.
	Ventilation grille is obstructed by a wall or blocked with dust.	- Install so that the ventilation grill is 600mm or more away from the wall. - Clean the ventilation grille every month.
	Compressed air temperature is too high.	- Improve the ventilation condition of the air compressor or lower the ambient temperature to decrease the discharge air temperature of the air compressor. - Install an aftercooler after the air compressor to reduce the temperature.
	Large voltage fluctuation.	- Install the power transformer or revise the power supply for correct voltage. (Temporarily allowable fluctuation of the power supply voltage is within +/-10% of rated voltage)
Operation stops after a while. Operation lamp is ON. (Overload relay of the compressor for refrigeration was activated. Turn of the switch with lamp and wait until the overload relay is automatically recovered).	Poor ventilation in installation location. Ambient temperature is too high.	- Keep the ambient temperature low by ventilation.
	Ventilation grille is obstructed by a wall or blocked with dust.	- Install so that the ventilation grill are 600mm or more away from the wall. - Clean the ventilation grille every month.
	Compressed air temperature is too high.	- Improve the ventilation condition of the air compressor or lower the ambient temperature to decrease the discharge air temperature of the air compressor. - Install an aftercooler after the air compressor to reduce the temperature.
	Large voltage fluctuation.	- Install the power transformer or revise the power supply for correct voltage. (Temporarily allowable fluctuation of the power supply voltage is within +/-10% of rated voltage)
	Restarted operation within 3 minutes after operation stopped.	- Restart operation after 3 minutes passed.

Problem	Possible causes	Action
Evaporation thermometer indicates higher than green zone.	Poor ventilation in installation location. Ambient temperature is too high.	- Keep the ambient temperature low by ventilation.
	Ventilation grille is obstructed by a wall or blocked with dust.	- Install so that the ventilation grill is 600mm or more away from the wall. - Clean the ventilation grill every month.
	Compressed air temperature is too high.	- Improve the ventilation condition of the air compressor or lower the ambient temperature to decrease the discharge air temperature of the air compressor. - Install an aftercooler after the air compressor to reduce the temperature.
Moisture is generated downstream of the compressed air line.	The bypass valve is open.	- Be sure to use the dryer with the bypass valve fully closed.
	Drain is not discharged from the auto drain.	- Check that the drain tube is not trapped or bent. - Check the auto drain. - Ensure that the ball valve is opened. - Keep the specified operating pressure range.
	Large pressure fluctuation.	- Install an air tank. - Avoid intermittent operation.
	Residual drainage in the air dryer splashes over when the unit is re-started.	- Install a filter on the outlet of the air dryer. - Blow the unit with air to eliminate the residual drain after stopping or re-starting the operation.
	The piping converges with piping from a separate air line that does not have an air dryer.	- Install an air dryer in the line that does not have one. - Separate the two lines so they do not converge.
Large pressure drops	The valve in the inlet/ outlet of dryer piping is not fully opened.	- The valve in the inlet/ outlet of the dryer has to be fully opened.
	The air filter in the compressed air piping is blocked.	- Replace the filter element. - Refer to the operation manual for used equipment.
Drain is not discharged even when rotating the drain cock to "O" side of the manual knob.	The drain cock exhaust outlet is clogged.	- Remove the clogging by cleaning the bowl assembly and blowing it with air. Or replace the bowl assembly.

Problem		Possible causes	Countermeasures
Air leakage from the auto drain	Air leaks out from the gap between the bowl and body.	O-ring of the bowl is damaged.	- Replace the bowl O-ring with a new one. When assembling the bowl O-ring, add grease. (Note)
	Air is leaking out of the bowl.	Bowl is damaged.	- Replace the bowl assembly. Or replace with a metal bowl assembly.
	Air leaks out from the gap between the bowl and internal assembly.	Chamber O-ring is damaged.	- Replace the bowl assembly.
	Air leaks out from the gap between the internal assembly and drain cock.	Drain cock O-ring is damaged.	- Replace the bowl assembly.
	Drainage or air continues blowing out of the drain exhaust.	Drain piping length is long or piping I.D. is small and restricting. (Back pressure is applied.)	- When connecting the drain piping, use the piping with I.D of \varnothing 8 mm or more and the length should be within 5 m. Riser pipework should be avoided.
Drain cock is loosened.		- Tighten the drain cock to "S" side of the manual knob.	
Drain does not enter.		Element is clogged.	- Remove the clogging by cleaning the element and blowing it with air. Or, replace the element.

Note) The grease used recommends Krytox GPL 207 of Du Pont.

6.2 Reset the Thermal relay and High Pressure Switch

When the lamp goes off and the compressor for refrigeration stops during operation, the thermal relay or high pressure switch is activated to protect the compressor for refrigeration. It is necessary to reset it manually. For the location of the thermal relay and high pressure switch, refer to “2.1 Name and Function of Parts”.

Refer to “6.1 Troubleshooting” to eliminate the cause of activation of the thermal relay or high pressure switch.



WARNING

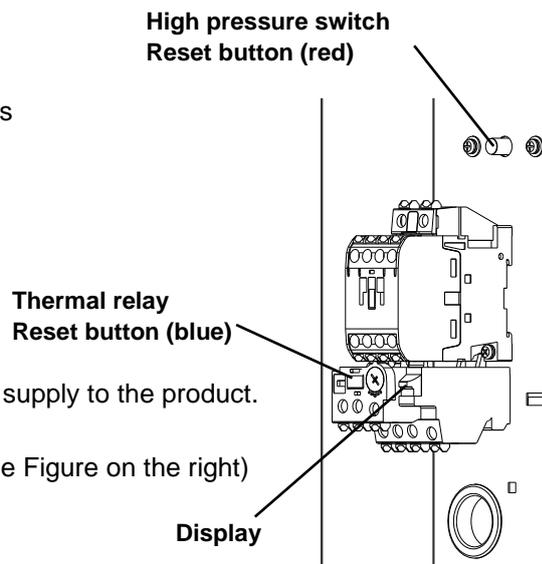
Turn off the switch with lamp and shut off the power supply to the product before removing the panel.

Reset the thermal relay

- (1) Turn off the switch with lamp and shut off the power supply to the product.
- (2) Remove the front panel.
There is a thermal relay (See Figure on the right)
- (3) Make sure that the green bar appears in the display of the thermal relay.
- (4) Press the blue reset button. Confirm that green bar is shown in the display window.
- (5) Mount the front panel.
- (6) Operation restarts when the power is supplied and the switch with lamp is turned on.

Reset the High Pressure Switch

- (1) Turn off the switch with lamp and shut off the power supply to the product.
- (2) Remove the front panel.
There is a red high pressure switch reset button (See Figure on the right)
- (3) Press the red reset button.
- (4) Mount the front panel.
- (5) Operation restarts when the power is supplied to the product and the switch with lamp is turned on.



※Option T does not restart even if it is reset with the power supply ON.
Turn on the switch with lamp after turning it OFF.

Chapter 7 Documents

7.1 Specifications

Specification		Models	IDFA60 -23-F	IDFA70 -23-F	IDFA80 -23-F	IDFA90 -23-F	
Operating range (Note 1)	Fluid		Compressed air				
	Inlet air temperature	°C	5 to 65				
	Inlet air pressure	MPa	0.15 to 1.0 (Note 7)				
	Ambient temperature (Humidity)	°C	2 to 45 (Relative humidity 85 % or less)				
Rated condition	Air flow capacity Standard condition (Note 2) m ³ /h(ANR)	Outlet air pressure dew point	3°C	204	312	552	810
		Outlet air pressure dew point	7°C	300	408	654	900
		Outlet air pressure dew point	10°C	360	480	720	960
	Air flow capacity Compressor intake condition (Note 3) m ³ /h	Outlet air pressure dew point	3°C	216	331	585	859
		Outlet air pressure dew point	7°C	318	432	693	954
		Outlet air pressure dew point	10°C	382	509	763	1,018
	Inlet air pressure	MPa	0.7				
	Inlet air temperature	°C	35				
	Ambient temperature	°C	25				
	Voltage		230 VAC 1PH (50Hz)				
Max. Air Flow Capacity			Air flow calculated with correction factor (Refer to Chapter 7-2)				
Electric spec	Power supply (Frequency)		230 VAC 1PH (50Hz) Allowable voltage fluctuation ±10%				
	Power consumption (Note 5)	W	1140	1740	2180	2950	
	Operating Current (Note 5)	A	7.1	10.0	10.6	13.5	
Applicable earth leakage breaker capacity (sensitivity current: 30mA)		A	15	15	20	30	
SCCR		kA	5				
Noise level		dB(A)	70	71	77	77	
Cooling method			Air-cooled refrigeration				
Refrigerant			R454C (HFC) GWP:146				
Amount of refrigerant to be filled		g	350±10	510±10	840±10	1090±10	
Auto drain			Float type (Normally open: Min. operating pressure 0.1 MPa)				
Drain Connection [mm] (Outside Diameter of Tubing)		mm	12				
Piping port size			R1	R1 1/2	R2		
Weight		kg	51	73	112	121	
Coating color			Panel: White 1 / Base: Gray 2				

- Note 1: The operating range does not guarantee use with normal air flow capacity.
- Note 2: ANR indicates the following set of conditions: a temperature of 20°C, atmospheric pressure, and a relative humidity of 65%.
- Note 3: Air flow capacity converted by the compressor intake condition [32°C, atmospheric pressure, and 75% relative humidity].
- Note 4: Do not use this product with continuous voltage fluctuations.
- Note 5: These values are reference values under rated conditions and are not guaranteed. Do not use these values for the thermal set values, etc.
- Note 6: Products other than Option R are not equipped with an earth leakage breaker. Purchase an appropriate earth leakage breaker separately. Use an earth leakage breaker with a leak current sensitivity of 30mA.
- Note 7: The maximum operating pressure is 1.0MPa as standard, but it is possible to achieve 1.6MP when selecting Option L or Option V.

7.2 Coefficient factors

Inlet air temperature (°C)

5 to 25	30	35	40	45	50	55	60	65
1.42	1.15	1.00	0.71	0.62	0.50	0.40	0.33	0.21

Inlet air pressure (MPa)

0.3	0.4	0.5	0.6	0.7 to 1.6
0.71	0.75	0.82	0.89	1.00

Ambient temperature (°C)

2 to 25	30	35	40	45
1.0	0.85	0.80	0.73	0.62

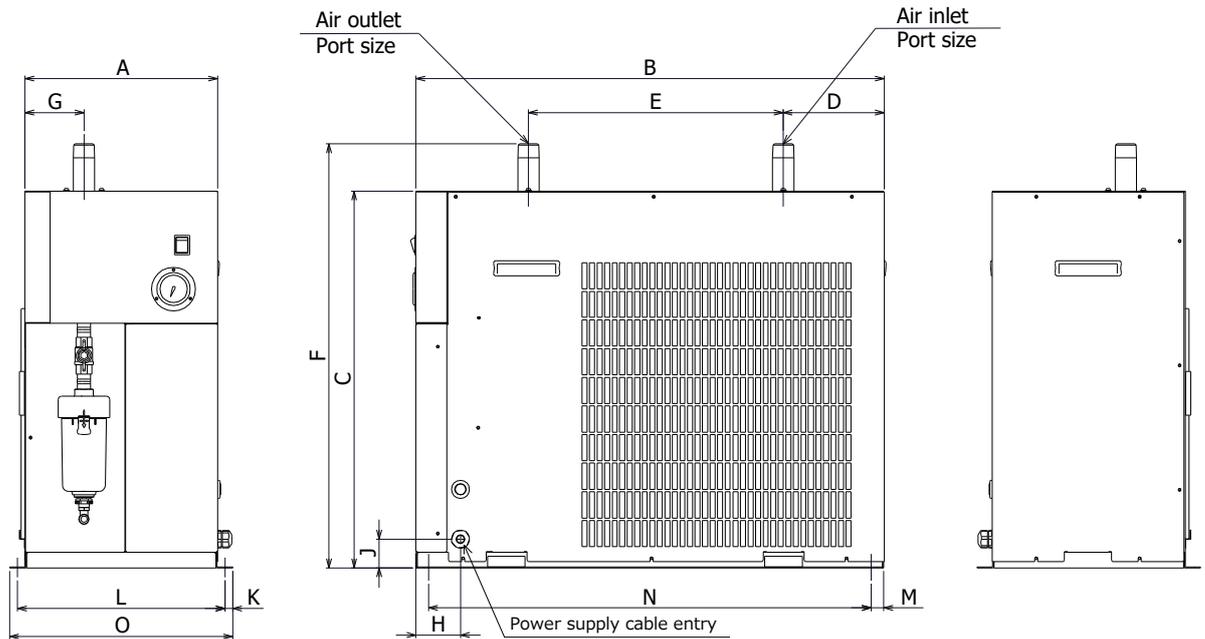
Calculation example: The air flow capacity when the dew point of IDFA60 is set to 10°C under the following conditions
 < Operating conditions: Inlet air temp: 35°C, Inlet air pressure: 0.6MPa, Ambient temp: 35°C >
 $360 \text{ m}^3/\text{h}(\text{ANR}) \times 1.00 \times 0.89 \times 0.80 = 256 \text{ m}^3/\text{h}(\text{ANR})$

7.3 Refrigerant and GWP value

Refrigerant	Global Warming Potential (GWP)	
	Regulation (EU)2024/573 (Based on the IPCC AR6)	AIM Act 40 CFR Part 84
R454C	146	

Note 1: This product is hermetically sealed and contains fluorinated greenhouse gases (HFC).

7.4 Dimensions



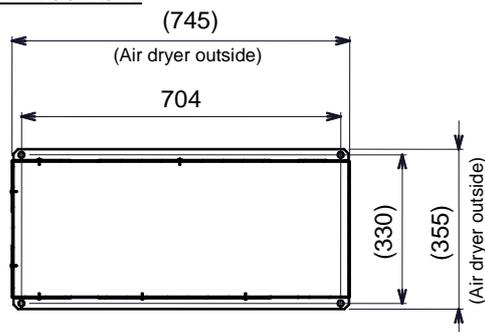
Unit: mm

Model	Port Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
IDFA60-23-F	R1	307	745	605	161	405	681	94	71	46	12.5	330	20	704	355	126
IDFA70-23-F	R1-1/2	342	890	825	176	480	905		68			365		849	390	81
IDFA80-23-F	R2	438	957	863	169	480	958	219	78	100	11.0	463		916	485	170
IDFA90-23-F																

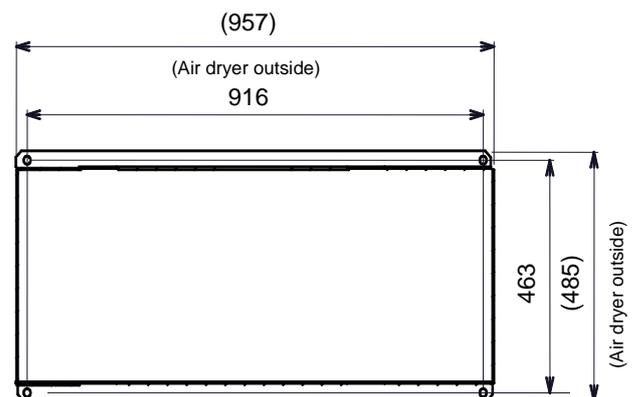
Anchor bolt location (Hole diameter:Ø13)

Unit: mm

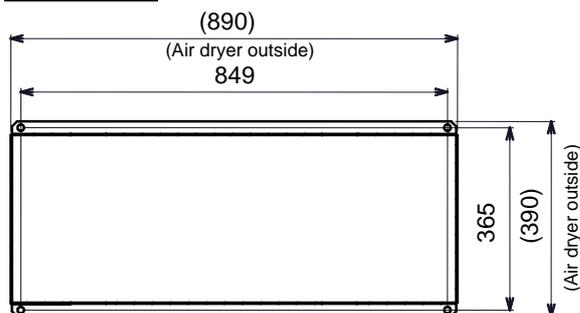
IDFA60-23-F



IDFA80-23-F IDFA90-23-F

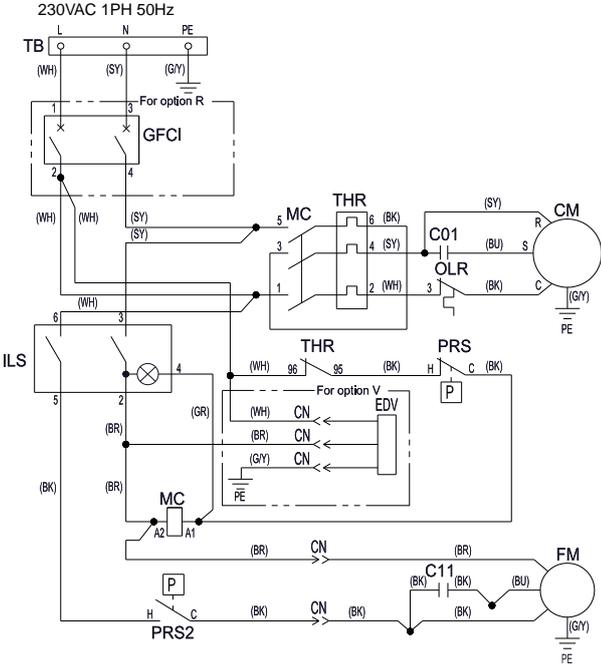


IDFA70-23-F



7.5 Electric circuit

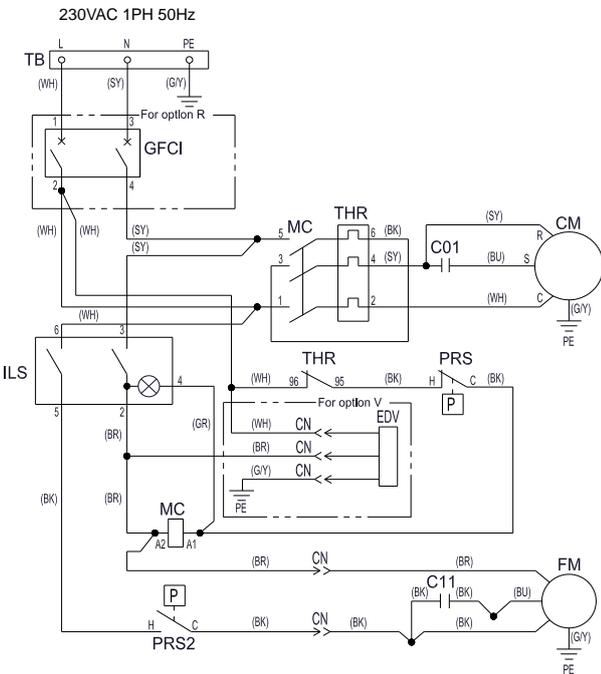
■IDFA60/70-23-F



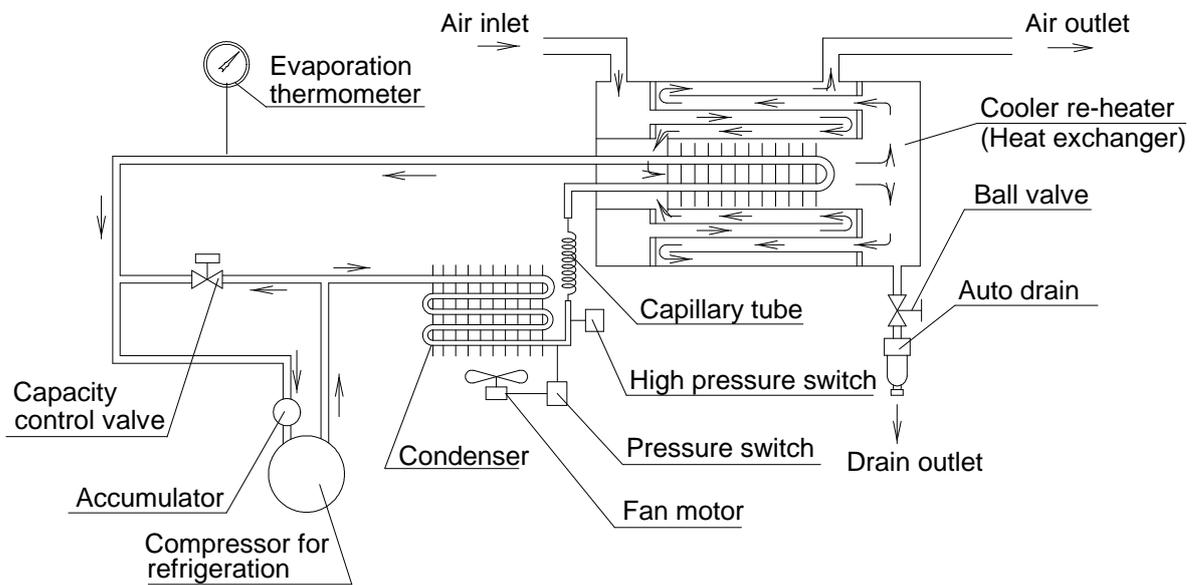
SYMBOL	DESCRIPTION
CM	Refrigerating compressor
OLR	Overload relay
FM	Fan motor
MC	Magnetic contactor
PRS	High pressure switch
PRS2	Pressure switch
ILS	Switch with lamp
THR	Thermal relay
C01	Capacitor for refrigerating compressor
C11	Capacitor for fan motor
TB	Terminal block
CN	Connector
GFCI	Ground fault circuit interrupter
EDV	Electronic drain valve
PE	Protective earth

SYMBOL	WIRE COLOR
(BK)	Black
(WH)	White
(GR)	Gray
(SY)	Sky blue
(BU)	Blue
(BR)	Brown
(G/Y)	Green/Yellow

■IDFA80/90-23-F



7.6 Air/ Refrigerant Circuit



Air circuit

The humid hot air that enters the air dryer first goes into the reheater, and exchanges its heat with dehumidified cold air to pre-cool it. Then, the air enters the evaporator, where it releases its heat to a cold HFC, and is dehumidified and cooled further to let moisture separate. Finally, the air exchanges heat with the hot air coming to the air dryer and its temperature increases higher, and it leaves the air dryer as warm, dry air.

Refrigerant circuit

The fluorocarbon gas (HFC) in the refrigerant circuit is compressed by the compressor and cooled by the condenser to become liquid. When passing through the capillary tube, the HFC gas is regulated and its temperature decreases. While passing through the cooler part, it evaporates rapidly, taking the heat from the compressed air, and is sucked in by the compressor. The volume control valve opens when the compressed air has been cooled sufficiently, and prevents condensed water from being frozen by excessive cooling.

Chapter 8 Option A

8.1 Safety instructions for use

Refer to the instructions below when handling the product.

	WARNING
<p>- Shut off the power supply when removing the panel for maintenance work, etc. The product has a fan(s) and could cause serious danger to operators.</p>	

8.2 Specifications

Cool outlet air (10°C) can be supplied. The air flow with this option is smaller than that of the standard dryer.

8.3 Air piping

Since cool air comes out from an outlet of air dryers, carefully attach thermal insulation to the piping at air outlet and keep the piping length as short as possible in order to prevent condensation on the outlet piping and temperature increase on the outlet due to ambient temperature.

8.4 Air flow capacity

Models	IDFA60-23-AF	IDFA70-23-AF	IDFA80-23-AF	IDFA90-23-AF
Item				
Outlet air pressure dew point °C	10			
Air flow capacity m ³ /h(ANR)	186	300	462	576
Outlet air temp. °C	10			

Note1) The data for ANR is referring to the conditions of 20°C, 1atm. pressure & relative humidity of 65%.

Note2) The conditions are the same as the ones for standard models other than air flow capacity.

8.5 Air/ Refrigerant Circuit

- Compressed Air Circuit

The heat of humid hot air entering the air drier enters to the cooler and is cooled and dehumidified by cold refrigerant gas, separating the moisture.

In option A, cold air is emitted from the air dryer.

- Refrigerant Circuit

The refrigerant gas in the refrigerant circuit is compressed by the compressor and cooled by the condenser to become liquid. Then, going through the capillary tube, it decreases the pressure to reach a low temperature. Passing through the cooler part, it draws heat from compressed air and intensely boils. Finally it is inhaled into the compressor again. The capacity control valve opens to prevent dew drops from freezing when compressed air is cooled enough.

Chapter 9 Option C

9.1 Specifications

Special epoxy resin is coated on the copper tube surface to improve the corrosion resistance the special epoxy resin is only applied where the copper tubes are not protected or insulated.

9.2 Precautions for installation and handling

- 1) The epoxy resin minimizes the corrosion of the coated copper tubes against corrosive gas. The corrosive cannot be completely prevented. Therefore avoid using the product in an environment where corrosive gases are present as much as possible.
- 2) Do not scratch the coated surface of the copper tube when removing the panels for maintenance. As the corrosion resistance can be deteriorated from scratch position.

Chapter 10 Option G

10.1 Specifications

Outside panel has Chinese name plate and Chinese operation manual

Chapter 11 Option L

Option L: Dryer with heavy duty auto drain.

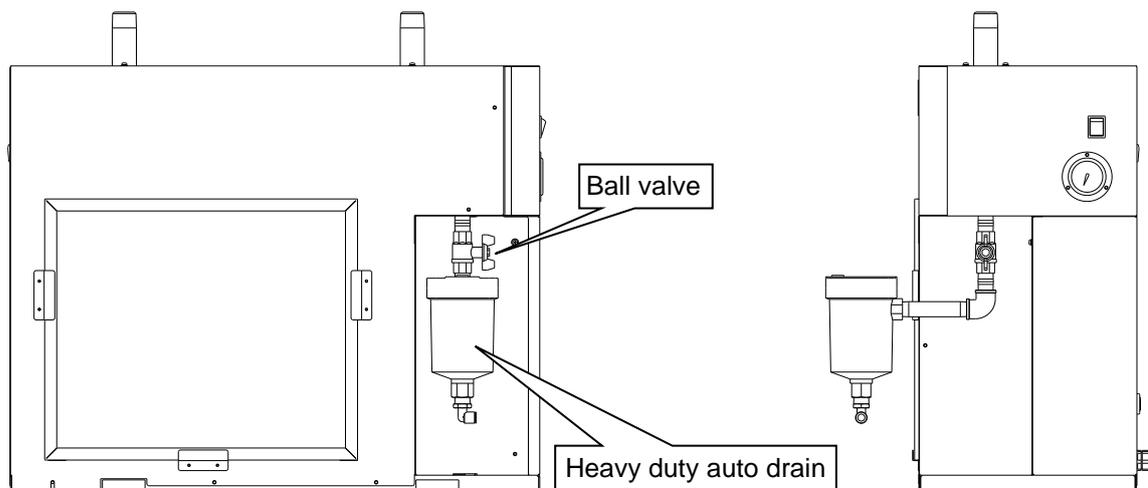
The heavy duty auto drain to be assembled by customer.

11.1 Safety instructions for use

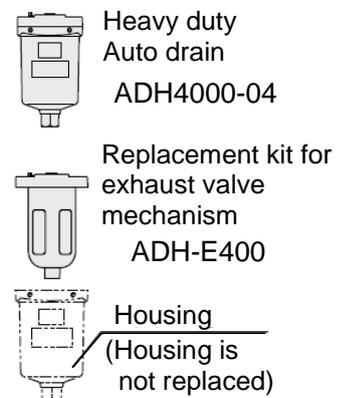
Refer to the instructions below when handling the product.

 WARNING
<ul style="list-style-type: none"> - Before replacing the auto drain on the compressed air side confirm that the pressure gauge indicates zero. Removing the auto drain with any air pressure remains could arise to unexpected accident, such as parts been expelled when being unscrewed. - There is the possibility of contacting the condensate during the auto drain maintenance work. Follow the procedure that you define to keep the worker safe. (example: Put on protective glass, apron, and gloves)

11.2 Specifications

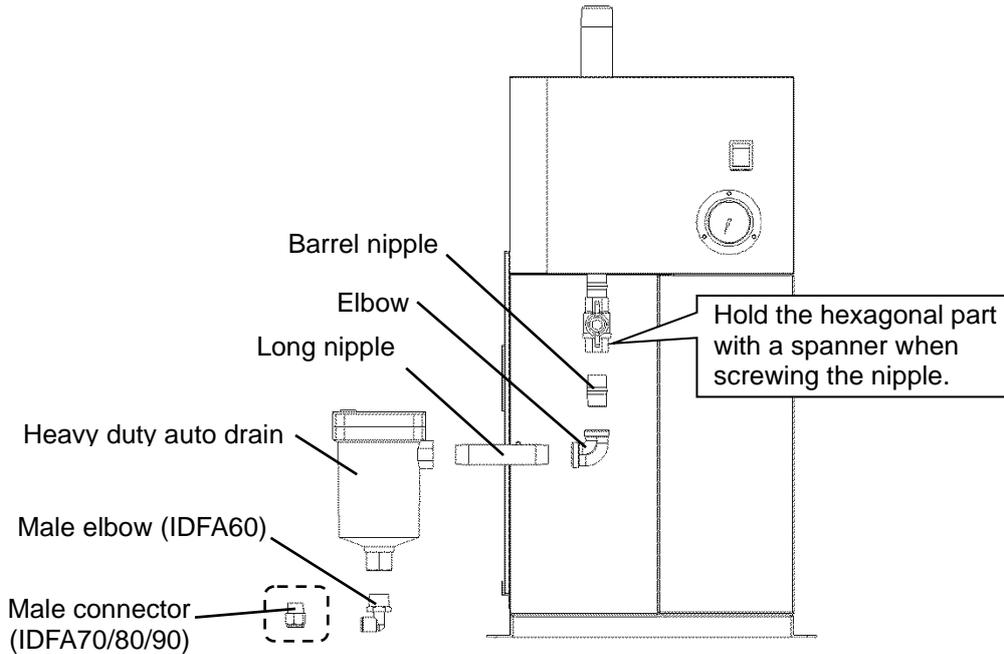


Part number (Service parts)	Heavy duty auto drain	ADH4000-04
	Replacement kit for exhaust valve mechanism	ADH-E400
Auto drain type	Float type	
Auto drain valve type	N.O. (Normally open)	
Maximum specification pressure	1.6MPa	
Operating pressure range	0.05 to 1.6 MPa	
Maximum condensate discharge	0.024m ³ /h (0.7 MPa, water)	



11.3 Mount the Heavy Duty Auto Drain

- 1) Hold the hexagonal part (width across flats: 25) at the connection port (ball valve Rc1/2) of the product with a spanner and screw-in the barrel nipple and elbow in order.
- 2) Screw-in the long nipple and heavy duty auto drain (width across flats of drain inlet port: 30) completely. Mount the heavy duty auto drain vertically while facing the drain port downwards. (Allowable inclination difference in the vertical direction is 5°)
- 3) For IDFA60, mount male elbow (width across flats: 22) to the drain outlet port (width across flats: 27). For IDFA70, IDFA80 and IDFA90, mount male connector (width across flats: 22) to the drain outlet port (width across flats: 22) and mount the drain tube.



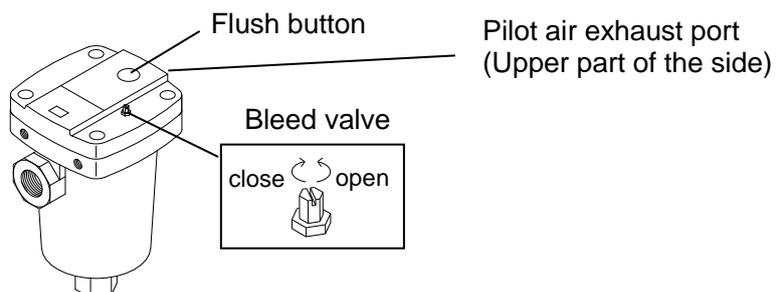
Note 1) Apply sealant tape or sealant to fit the nipple.

Tightening torque: 28 to 30N·m

Note 2) If the amount of drainage flowing into the heavy duty auto drain is small, open the bleed valve gradually to adjust so that the drainage can flow into the auto drain smoothly.

11.4 Maintenance

- 1) Check the auto drain condition at least once a day. Press the flush button to clean (flush) the exhaust valve.
- 2) The pilot air of the heavy duty auto drain is exhausted from the position in the drawing. Do not block the exhaust port. Do not obstruct the exhaust port with airborne particles, etc.
- 3) Before removing the heavy duty auto drain, close the ball valve, and open the bleed valve or press the flush button and confirm that there is no air pressure.



Chapter 12 Option R

Option R is equipped with an earth leakage breaker (GFCI). This is to shut off the power supply when over current or leakage current is applied to the air dryer.

12.1 Safety instructions for use

Refer to the instructions below when handling the product.

 WARNING	
All electrical work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.	
<ul style="list-style-type: none"> - Be sure to shut off the user's power supply. Wiring with the product energized is strictly prohibited. - Ensure a stable power supply with no surge. - Use a power supply suitable for the specifications of the product. - The equipment should be grounded for safety. 	
Earth leakage breaker does not operate correctly without grounding.	
<ul style="list-style-type: none"> - Do not connect the earth to a water pipe, a gas pipe, or a lightning rod. - Do not plug too many leads into a single socket. That causes exothermic heat or fire. - Do not modify the internal electrical wiring of the product. 	

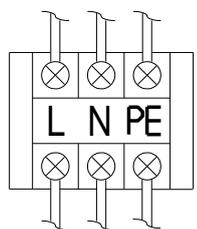
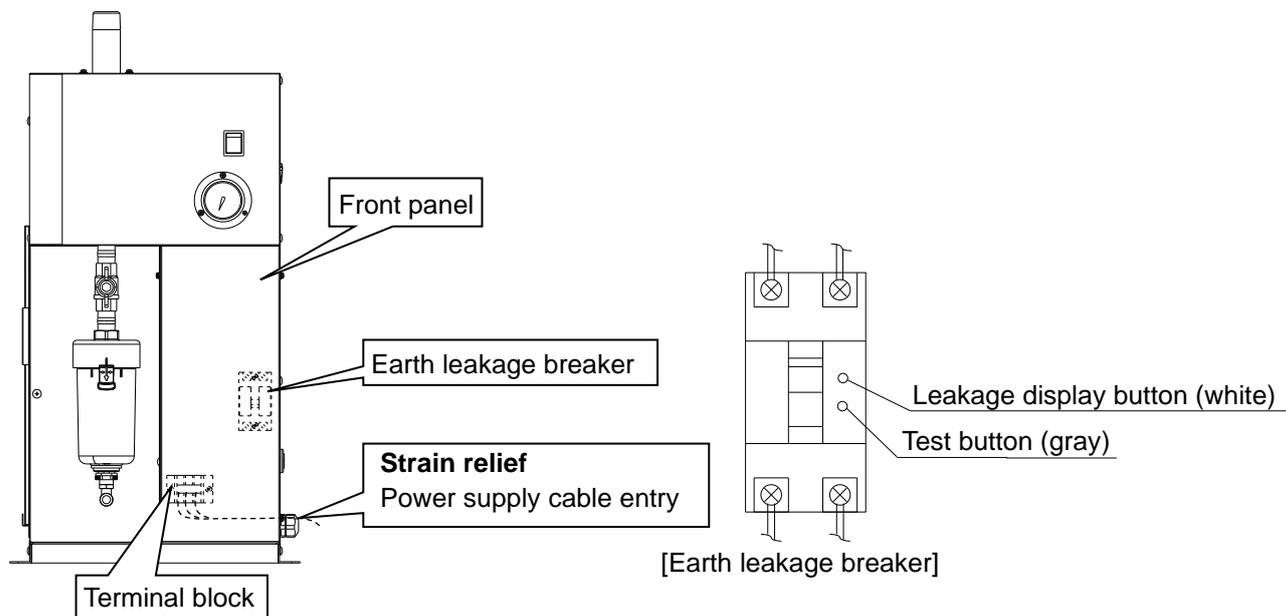
Item	Models			
	IDFA60-23-FR	IDFA70-23-FR	IDFA80-23-FR	IDFA90-23-FR
Rated current (A)	15	15	20	30
Sensitivity current (mA)	30			
SCCR (kA)	2.5			

See item "For option R" in "7.5 Electric circuit" and "13.5 below Electric circuit" for electrical circuit.

12.2 Connection of power supply

Connect the power cable according to the procedure below.

- 1) Remove the front panels.
- 2) Introduce the cable through the strain relief to connect to the terminal block. (Refer to label on the terminal block)
M3.5 Screw tightening torque : 1.0 to 1.3N·m
M4.0 Screw tightening torque : 1.4 to 1.8N·m
Do not touch any equipment other than the terminal block during wiring.
- 3) Mount the front panel back.



[Terminal block]

※Refer to “3.2.5 Electrical wiring” for power cable connection.

Chapter 13 Option T

Option T has terminal block for the output of operation and error signals and remote control.

13.1 Safety instructions for use

Refer to the instructions below when handling the product.



WARNING

All electrical work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

- **Be sure to shut off the user's power supply. Wiring with the product energized is strictly prohibited.**
- **Ensure a stable power supply with no surge.**
- **Mount the correct electric leakage breaker of the specified leakage capacity and load capacity to prevent electric shock and burning of the compressor motor.**
- **Use a power supply suitable for the specifications of the product.**
- **The equipment should be grounded for safety. Earth leakage breaker does not operate correctly without grounding.**
- **Do not modify the internal electrical wiring of the product.**

13.2 Operation / Error signal output

- Operation mode signal (Contact output)
 - Operation signal - - - During operation: contact "close"
 - Error signal - - - During error: contact "close"
- Contact capacity
 - Rated load voltage 240 VAC or less / 24 VDC or less
 - Maximum load current 5A (resistance load) / 2A (inductive load)
 - Minimum applicable load 20 VDC 3mA

13.3 Remote operation

230 VAC is applied to the terminal for remote operation. Select the appropriate switch.

- For remote operation, the customer operates the switch which is connected by customer with the switch with lamp ON.

- Position holding switch (alternate type switch).

Keep the jumper wire (terminal No. 4-5) connected for the remote terminal A.

Disconnect the jumper wire from the remote terminal B (terminal number 6-7) and connect the switch.

- Automatic return switch (momentary switch).

Disconnect the jumper wire from the remote terminal A (terminal number 4-5) and connect the switch (A contact: operation signal), and then disconnect the jumper wire from the remote terminal B (terminal number 6-7) and connect the switch (B contact: stop signal).

- Allow at least 3 minutes before restarting the dryer. If the air dryer is restarted within 3 minutes after been stopped, the protection circuit will be activated.

In order to avoid motor failure, start-stop frequency of the product must be 5 times/ hour or less.

【Restart the operation】

- Error signal output is released by turning off the switch with lamp or giving an operation stop signal remotely. Eliminate the cause of error. Restart operation after 3 minutes passed.

- When the error signal is not released even by turning off the switch with lamp, the thermal relay or high pressure switch is activated. Reset the thermal relay or high pressure switch referring to 6.2 Reset the Thermal relay and High Pressure Switch.

13.4 Connect the power cable and signal cable

Connect the power cable and signal cable according to the procedure below.

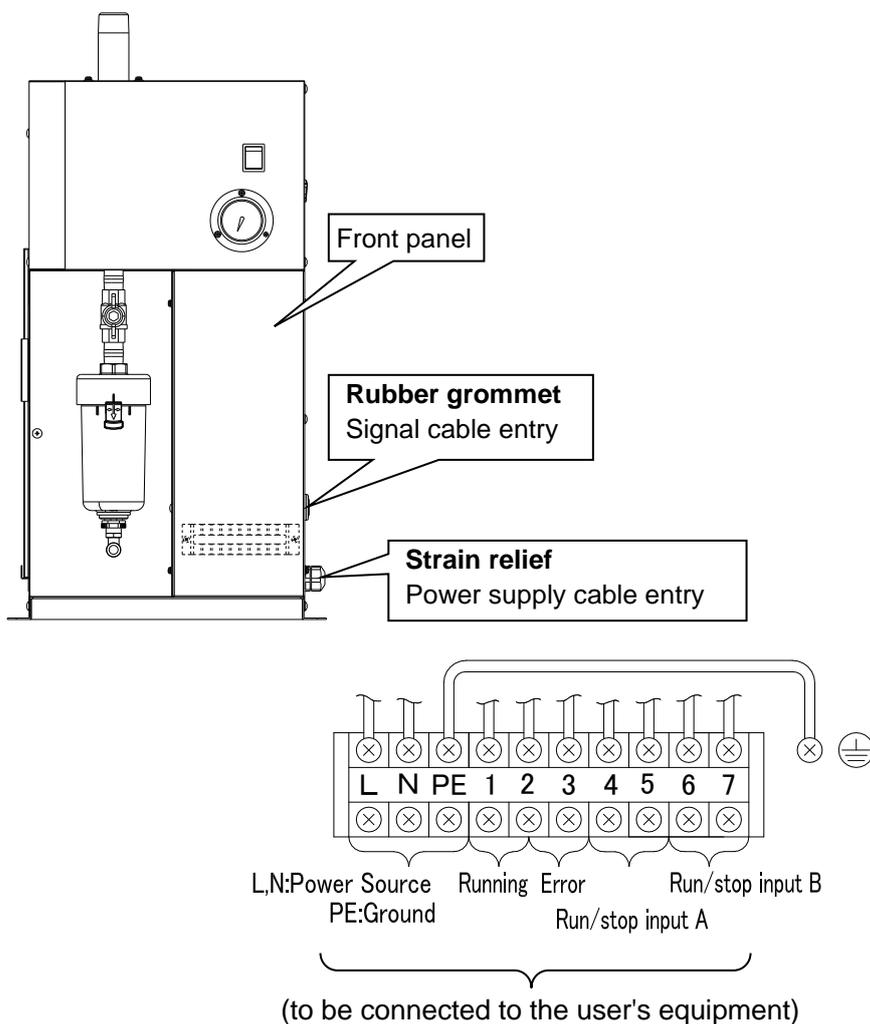
- 1) Remove the front panel.
- 2) Insert the power supply cable to the power supply cable entry and connect to the terminal block.
- 3) Insert the signal cable to the signal cable entry and connect to the terminal block.

M3.5 Screw tightening torque: 1.0 to 1.3N·m

M4.0 Screw tightening torque: 1.4 to 1.8N·m

Do not touch any equipment other than the terminal block during wiring.

- 4) Mount the front panel back.



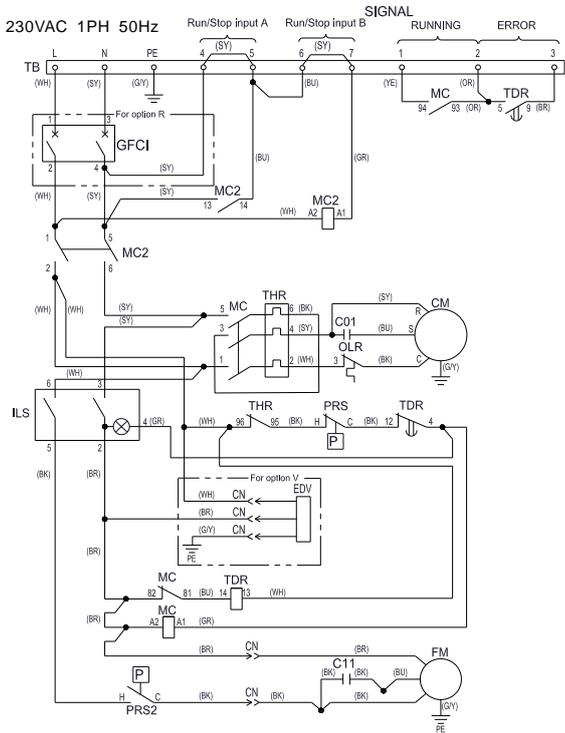
Signal cable terminal

IDFA60-23-FT, IDFA70-23-FT	IDFA80-23-FT, IDFA90-23-FT
Screws for connecting terminal block: M3.5	Screws for connecting terminal block: M4.0
Crimp terminal width: 6.6mm or less	Crimp terminal width: 9.5mm or less

*Refer to 3.2.5 Electrical wiring for power cable connection.

13.5 Electric circuit

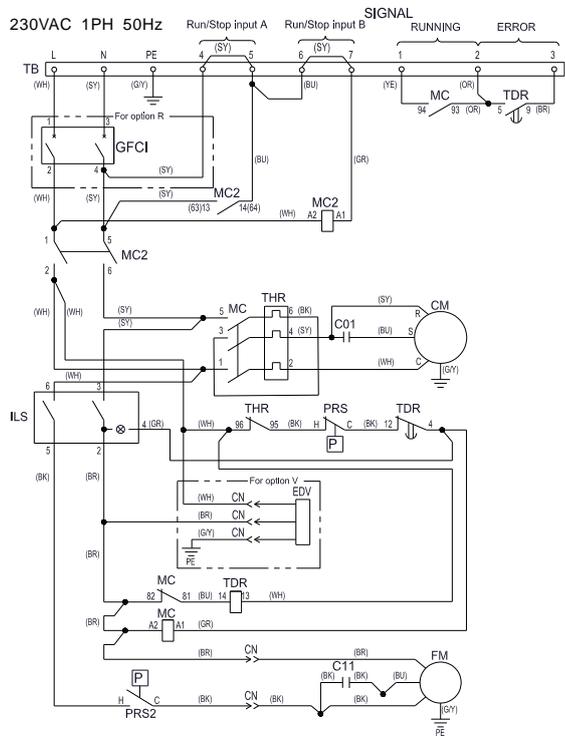
■IDFA60/70-23-FT



SYMBOL	DESCRIPTION
CM	Refrigerating compressor
OLR	Overload relay
FM	Fan motor
MC	Magnetic contactor
MC2	Magnetic contactor for remote switch
PRS	High pressure switch
PRS2	Pressure switch
ILS	Switch with lamp
THR	Thermal relay
C01	Capacitor for refrigerating compressor
C11	Capacitor for fan motor
TB	Terminal block
CN	Connector
TDR	Time delay relay
GFCI	Ground fault circuit interrupter
EDV	Electronic drain valve
PE	Protective earth

SYMBOL	WIRE COLOR
(BK)	Black
(WH)	White
(GR)	Gray
(SY)	Sky blue
(BU)	Blue
(BR)	Brown
(YE)	Yellow
(OR)	Orange
(G/Y)	Green/Yellow

■IDFA80/90-23-FT



Chapter 14 Option V

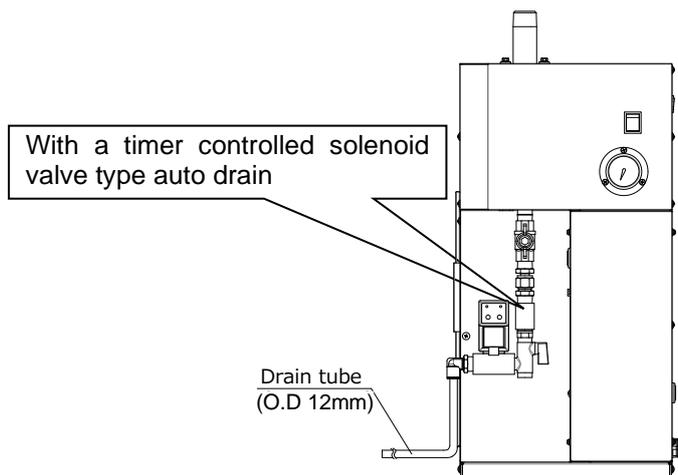
Option V is a dryer with a timer controlled solenoid valve type auto drain. The timer is adjusted by the customer according to the operating conditions.

14.1 Safety instructions for use

Refer to the instructions below when handling the product.

 WARNING
<ul style="list-style-type: none"> - Before replacing the auto drain on the compressed air side confirm that the pressure gauge indicates zero ”. Removing the auto drain with any air pressure remains could arise to unexpected accident, such as parts been expelled when being unscrewed. - There is the possibility of contacting the condensate during the auto drain maintenance work. Follow the procedure that you define to keep the worker safe. (example: Put on protective glass, apron, and gloves).

14.2 Specifications



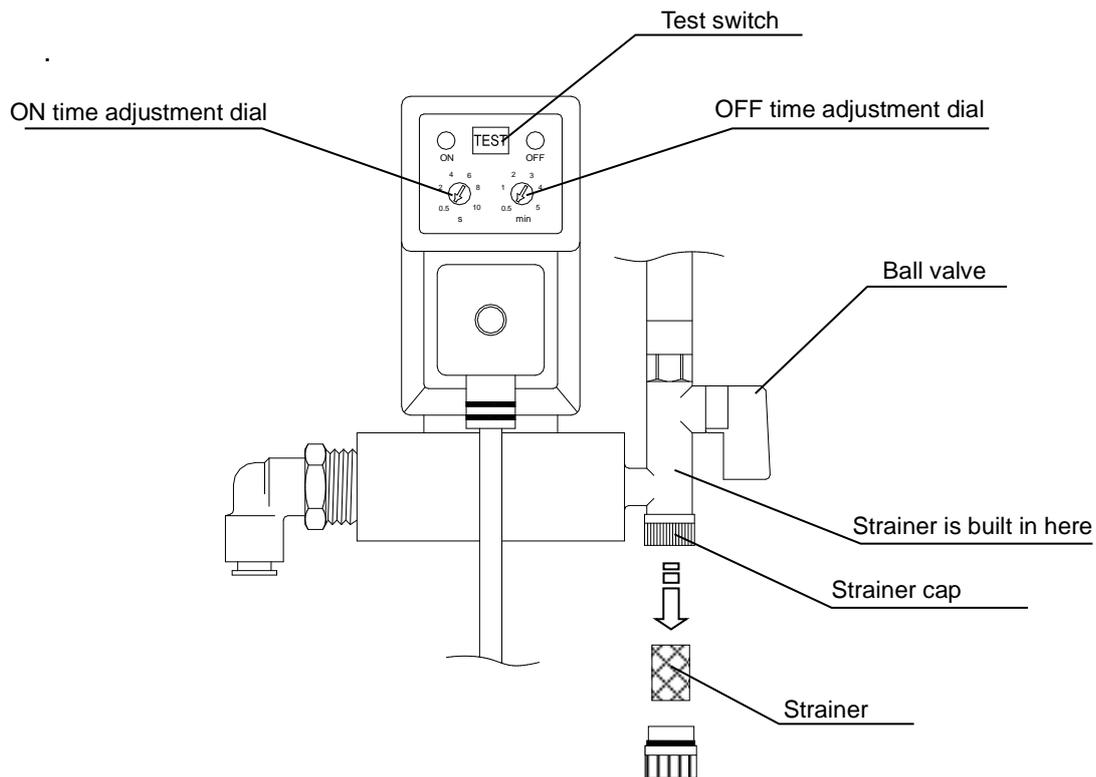
Part number (Service parts)		IDF-S0534
Max. operating pressure		1.6MPa
ON time	Setting range	Approx. 0.5 to 10sec.
OFF time	Setting range	Approx. 0.5 to 5 min.

See item “For option V” in “7.5 Electric circuit” and “13.5 above Electric circuit” for electrical circuit.

14.3 Maintenance

Be sure to perform regular maintenance of the strainer.
Follow the following steps to perform maintenance.

- 1) Close the ball valve.
- 2) Press the test switch to release the residual pressure.
- 3) Remove the strainer and clean it.
- 4) Mount the strainer and open the ball valve.



Chapter 15 Inspection record

15.1 Inspection record

We recommend keeping the inspection record for maintenance or service.

Product No.	Description	Contents of check	Date

Revision history
Rev.1: Apr.2025

SMC Corporation

URL <https://www.smcworld.com>

Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
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