

# Refrigerated Air Dryer

## For use in Europe and South East Asia

EC directive compliant (with CE marking)

Power supply voltage:  
Single-phase 230 VAC (50 Hz)

Series **IDFA□E**

Refrigerant **R134a (HFC)**  
**R407C (HFC)**

Coefficient of ozone depletion is zero.

Improved corrosion resistance with the use of stainless steel, plate type heat exchanger (IDFA4E to 37E)



Series	Air flow capacity (m <sup>3</sup> /h [ANR])			Refrigerant	Rated inlet condition	Port size
	Outlet air pressure dew point					
	3°C	7°C	10°C			
<b>IDFA3E</b>	12	15	17	<b>R134a (HFC)</b>	35°C 0.7 MPa	Rc 3/8
<b>IDFA4E</b>	24	31	34			Rc 1/2
<b>IDFA6E</b>	36	46	50			Rc 3/4
<b>IDFA8E</b>	65	83	91			Rc 1
<b>IDFA11E</b>	80	101	112			R 1
<b>IDFA15E</b>	120	152	168			R 1 1/2
<b>IDFA22E</b>	182	231	254	<b>R407C (HFC)</b>		
<b>IDFA37E</b>	273	347	382			

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## 1. Standard Products

### Series IDFA

Standard inlet air type

Rated inlet air temperature: 35°C



Model	Rated inlet condition	Air flow capacity (m³/h [ANR])			Refrigerant	Port size	Page
		Outlet air pressure dew point					
		3°C	7°C	10°C			
<b>IDFA3E</b>	35°C 0.7 MPa	12	15	17	R134a (HFC)	Rc 3/8	3 to 5
<b>IDFA4E</b>		24	31	34		Rc 1/2	
<b>IDFA6E</b>		36	46	50		Rc 3/4	
<b>IDFA8E</b>		65	83	91			
<b>IDFA11E</b>		80	101	112	R407C (HFC)	Rc 1	
<b>IDFA15E</b>		120	152	168		R 1	
<b>IDFA22E</b>		182	231	254			
<b>IDFA37E</b>		273	347	382			

## 2. Options

Optional specifications	Applicable model	Model (Suffix: option symbol)	Page
Cool compressed air output	<b>IDFA3E to 11E</b>	<b>IDFA□E-23-A</b>	6
Anti-corrosive treatment	<b>IDFA3E to 37E</b>	<b>IDFA□E-23-C</b>	
For medium air pressure (Auto drain bowl type: Metal bowl with level guage)	<b>IDFA6E to 37E</b>	<b>IDFA□E-23-K</b>	
For medium air pressure (With heavy duty auto drain)	<b>IDFA4E to 37E</b>	<b>IDFA□E-23-L</b>	
With circuit breaker	<b>IDFA4E to 37E</b>	<b>IDFA□E-23-R</b>	7
With terminal block for power supply, run & alarm signal and remote operation	<b>IDFA4E to 37E</b>	<b>IDFA□E-23-T</b>	

## 3. Accessories (Option)

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By-pass piping set	

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# Series IDFA□E

## Model Selection

The corrected air flow capacity, which considers the user's operating conditions, is required for selecting the air dryer. Please select using the following procedures.

### 1 Read the correction factors.

Obtain the correction factors A to D suitable for your operating condition using the tables below.

### 2 Calculate the corrected air flow capacity.

Obtain the corrected air flow capacity from the following formula.  
Corrected air flow capacity = Air consumption ÷ (Correction factor A x B x C)

### 3 Select the model.

Select a model for which air flow capacity exceeds the corrected air flow capacity using the specification table. (For air flow capacity, refer to the data D table below.)

### 4 Option

### 5 Finalise the model number.

### 6 Select accessories sold separately.

### IDFA□E Selection Example

Condition	Data symbol	Correction factor <sup>Note)</sup>
Inlet air temperature	40°C	A
Ambient temperature	35°C	B
Inlet air pressure	0.5 MPa	C
Air consumption	31 m <sup>3</sup> /h	—

Note) Values obtained from the tables below.

$$\text{Corrected air flow capacity} = 31 \text{ m}^3/\text{h} \div (0.83 \times 0.83 \times 0.92) = 48.9 \text{ m}^3/\text{h}$$

According to the corrected air flow capacity of 48.9 m<sup>3</sup>/h, **IDFA8E** will be selected when the required output air pressure dew point is 3°C. **IDFA6E** will be selected when the required pressure dew point is 10°C.

Refer to page 2.

Refer to page 2.

Refer to page 7.

### Data A: Inlet Air Temperature

Inlet air temperature (°C)	Correction factor
5 to 25	1.30
30	1.25
35	1
40	0.83
45	0.7
50	0.6

### Data B: Ambient Temperature

Ambient temperature (°C)	Correction factor	
	IDFA3E to 11E	IDFA15E to 37E
20	1.1	1.1
25	1	1
30	0.91	0.97
35	0.83	0.89
40	0.79	0.77

### Data D: Inlet Air Pressure

Inlet air pressure (MPa)	Correction factor	
	IDFA3E to 11E	IDFA15E to 37E
0.3	0.80	0.72
0.4	0.87	0.81
0.5	0.92	0.88
0.6	0.96	0.95
0.7	1.00	1.00
0.8	1.04	1.06
0.9	1.07	1.11
1	1.1	1.16
1.2	1.16	1.21
1.4	1.21	1.25
1.6	1.25	1.27

### Data D: Air Flow Capacity

Model	Outlet air pressure dew point	Air flow capacity (m <sup>3</sup> /h [ANR])				
		IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E
3°C	3°C	12	24	36	65	80
	7°C	15	31	46	83	101
	10°C	17	34	50	91	112

Model	Outlet air pressure dew point	Air flow capacity (m <sup>3</sup> /h [ANR])		
		IDFA15E	IDFA22E	IDFA37E
3°C	3°C	120	182	273
	7°C	152	231	347
	10°C	168	254	382

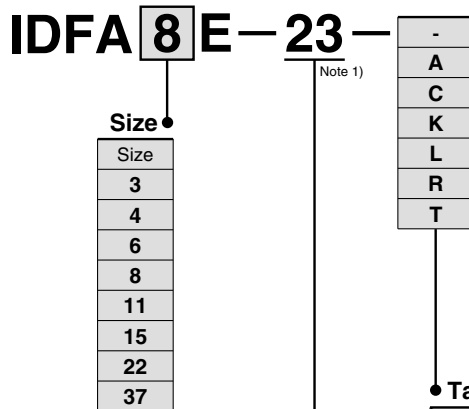
Note) In the case of "Option A (Cool compressed air output)", the air flow capacity is different. Refer to page 6 for details.

# Refrigerant R134a (HFC), R407C (HFC)

## Series **IDFA**   **E**

3E, 4E, 6E, 8E, 11E, 15E, 22E, 37E  
(Inlet air temperature: 35°C)

### How to Order



**Voltage**

Symbol	Voltage
<b>23</b>	Single-phase 230 VAC (50 Hz)

• **Table of Options and Available Combinations (Size/Option)**

Symbol <small>Note 2)</small>	-	A	C	K	L	R	T
Optional specifications	None	Cool compressed air output	Anti-corrosive treatment	For medium air pressure (Auto drain bowl type: Metal case with level gauge)	With heavy duty auto drain (For medium air pressure)	With circuit breaker	With terminal block for run & alarm signal
Size							
3	●	●	●	—	—	—	—
4	●	●	●	—	●	●	●
6	●	●	●	●	●	●	●
8	●	●	●	●	●	●	●
11	●	●	●	●	●	●	●
15	●	—	●	●	●	●	●
22	●	—	●	●	●	●	●
37	●	—	●	●	●	●	●

Note 1) The G thread (PF thread) can accept the R thread (PT male thread), this is why there is no "F" in the thread specification setting. Conversion adaptors for the R thread (PT male thread) are supplied with IDFA3E to 15E.

Note 2) Enter alphabetically when multiple options are combined.

However, the following combination cannot be ordered.

- Combination of K and L cannot be ordered because an auto drain can only be attached to a single option.

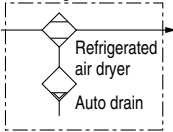
Note 3) Refer to page 6 for further information on options.

## Standard Specifications



Specifications		Model	Standard inlet air									
			IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E	IDFA15E	IDFA22E	IDFA37E		
Air flow capacity (m <sup>3</sup> /h) (ANR) <sup>Note 1)</sup>	Outlet air pressure dew point (3°C)		12	24	36	65	80	120	182	273		
	Outlet air pressure dew point (7°C)		15	31	46	83	101	152	231	347		
	Outlet air pressure dew point (10°C)		17	34	50	91	112	168	254	382		
Rated conditions		Inlet air pressure (MPa)	0.7									
		Inlet air temperature (°C)	35									
		Ambient temperature (°C)	25									
Operating range		Fluid	Compressed air									
		Inlet air temperature (°C)	5 to 50									
		Inlet air pressure (MPa)	0.15 to 1.0									
		Ambient temperature (humidity) (°C)	2 to 40 (Relative humidity of 85% or less)									
Electrical specifications	Power supply voltage		Single-phase 230 VAC [voltage fluctuation ±10%] 50 Hz									
	Power consumption (W)		180		208		385		470		760	
	Operating current (A)		1.2		1.4		2.7		3.0		4.3	
		Applicable circuit breaker capacity <sup>Note 3)</sup> (A)	5				10					
Condenser		Air-cooled type										
Refrigerant		R134a (HFC)						R407C (HFC)				
Auto drain		Float type (Normally closed)			Float type (Normally open)							
Port size		Rc 3/8		Rc 1/2		Rc 3/4		Rc 1		R 1		R 1 1/2
Accessory		Hexagon nipple										
Weight (kg)		18	22	23	27	28	46	54	62			
Coating colour		Body panel: White 1 Base: Gray 2										
Compliant standards		EU directive compliant (with CE marking)										

### JIS Symbol



Note 1) Air flow capacity under the standard condition (ANR) [atmospheric pressure at 20°C, relative humidity at 65%]

Note 2) Select an air dryer according to the model selection method (Pg. 2) for the models beyond the rated specifications.

Note 3) Install a circuit breaker with a sensitivity of 30 mA.

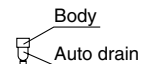
Note 4) When a short-term interruption of the power supply (including momentary interruption) occurs in this equipment, the restarting of normal operations may require some time or may be impossible due to the operation of protective devices even after the supply of power returns.

### Replacement Parts

Model	IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E	IDFA15E	IDFA22E to IDFA37E
Auto drain replacement part no. <sup>Note 5)</sup>	AD38			AD48			

Note 5) The part number for the auto drain components does not include the body part.

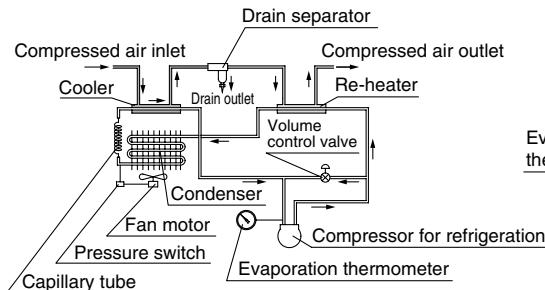
Body part replacement is impossible.



## Construction Principle (Circuit for Air / Refrigerant)

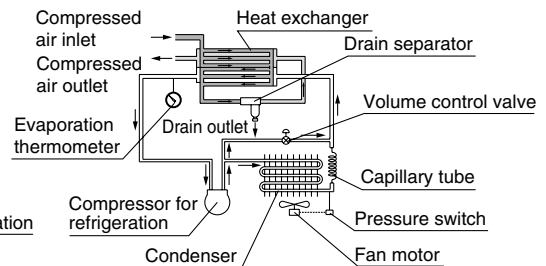
Humid, hot air coming into the air dryer will be cooled down by a cooler re-heater (heat exchanger). Water condensed at this time will be removed from the air by the auto drain and drained out automatically. Air separated from the water will be heated by a cooler re-heater (heat exchanger) to obtain the dried air, which goes through to the outlet side.

### IDFA3E

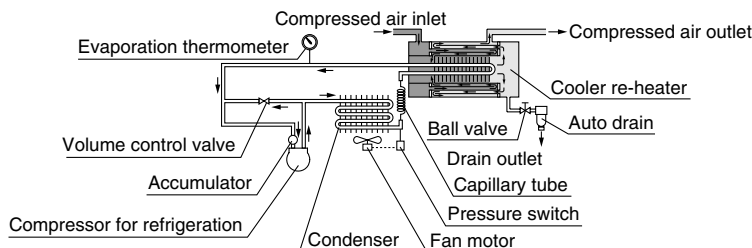


### IDFA4E, IDFA6E

### IDFA8E, IDFA11E, IDFA15E



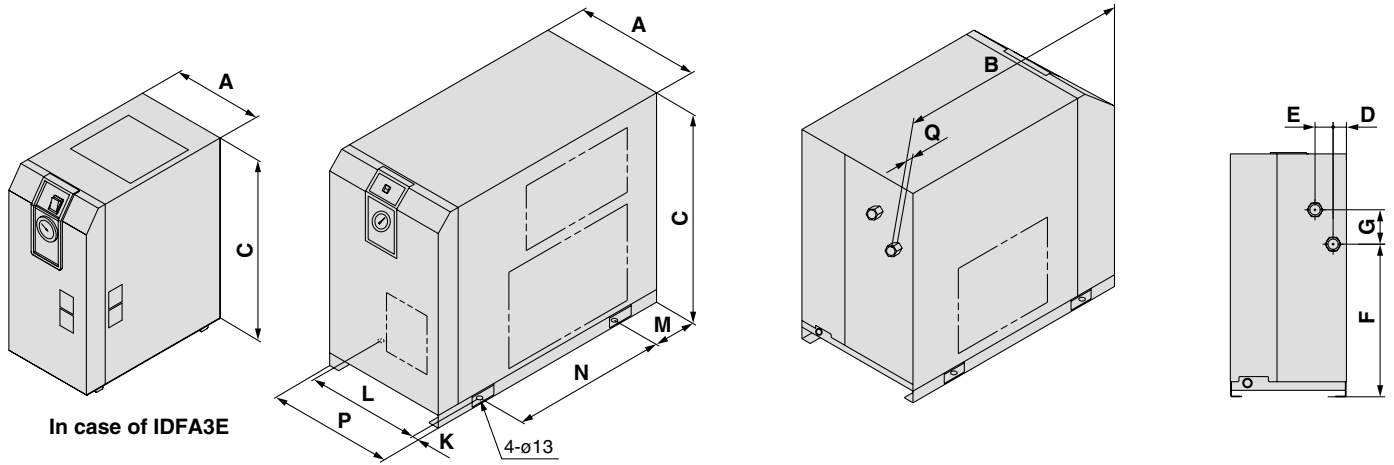
### IDFA22E, IDFA37E



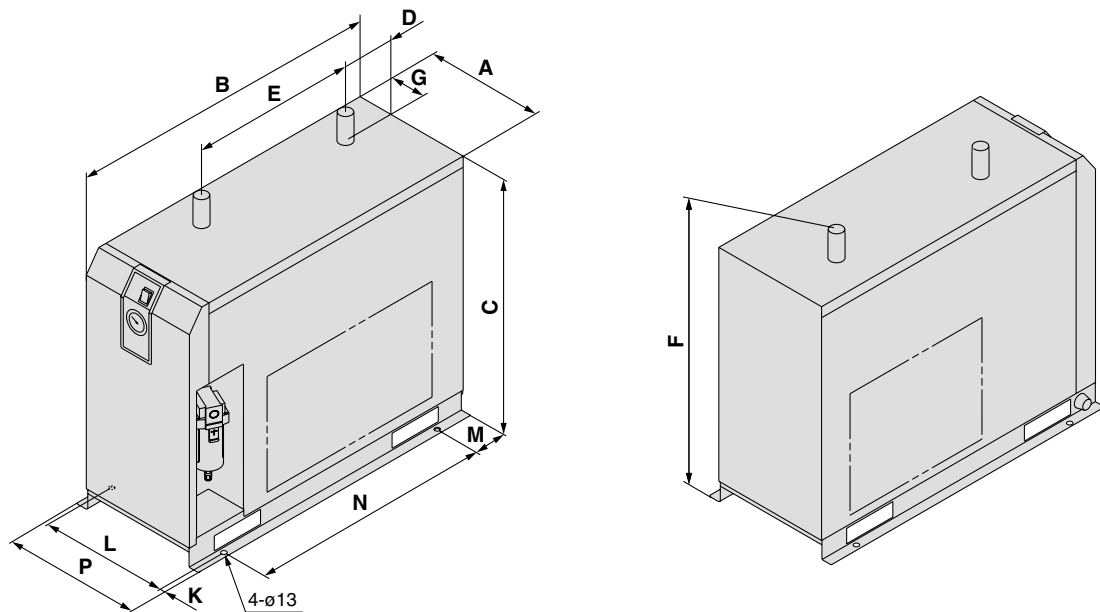
# Series IDFA□E

## Dimensions

### IDFA3E to 15E



### IDFA22E, IDFA37E



## Dimensions

(mm)

Model	Port size	A	B	C	D	E	F	G	K*	L*	M*	N*	P	Q
IDFA3E	Rc 3/8	226	410	473	67	125	304	33	36	154	21	330		15
IDFA4E	Rc 1/2	270	453	498			283					275		13
IDFA6E			455		31	42		80		240	80		—	
IDFA8E	Rc 3/4		485	568				355	15				300	
IDFA11E														
IDFA15E	Rc 1	300	603	578	41	54	396	87		43	101	380	314	16
IDFA22E	R 1	290	775	623	134	405	698	93	13	25	85	600	340	—
IDFA37E	R 1 1/2		855										680	

\* Refers to the foot dimensions for IDFA3.

# Series IDFA□E

# Optional Specifications 1

Refer to “How to Order” on page 3 for optional models.

## A Option symbol Cool compressed air output IDFA3E to 11E

There is no heating of cooled, dehumidified air as it leaves the air dryer. The air flow capacity with this option is smaller than that of the standard dryer. (The external dimensions are identical with the standard product.)  
 (Note) Perform thermal insulation treatment for pipings and equipment installed after the dryer to prevent the formation of condensation.

### Air Flow Capacity

Model	IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E
Air flow capacity m <sup>3</sup> /h (ANR)	18	23	29	32	39

Conditions: Inlet air pressure: 0.7 MPa, Inlet air temperature: 35°C,  
 Outlet air temperature: 10°C Ambient temperature: 25°C

## C Option symbol Anti-corrosive treatment IDFA all models

This minimises the corrosion of the copper and copper alloy parts when the air dryer is used in an atmosphere containing hydrogen sulfide or sulfurous acid gas. (Corrosion cannot be completely prevented.)  
 Special epoxy coating: Copper tube and copper alloy parts.  
 The coating is not applied on the heat exchanger or around electrical parts, where operation may be affected by the coating.  
 \* Corrosion is not covered under warranty.

## K Option symbol For medium air pressure (Auto drain bowl type: Metal bowl with level gauge) IDFA6E to 37E

The auto drain is changed from the standard one to one with a medium pressure specification.  
 A metal bowl with a level gauge which can confirm the water level is used for the auto drain.

### Specifications

1. Maximum operating pressure: 1.6 MPa
2. Dimensions ... same as standard products

### Replacement Parts

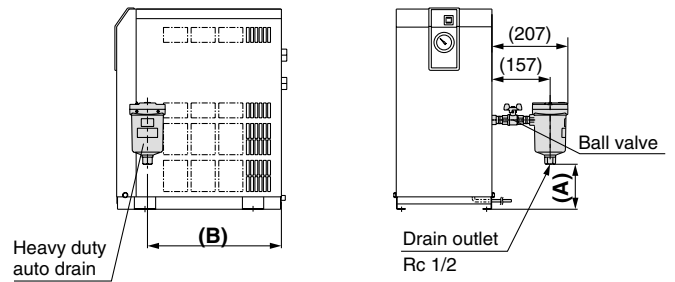
Model	Auto drain assembly part no.	Note
IDFA6E to 37E	IDF-S0086	The AD48-8-X2110 auto drain, insulator, and one-touch fitting are included.

## L Option symbol With heavy duty auto drain (For medium air pressure) IDFA4E to 37E

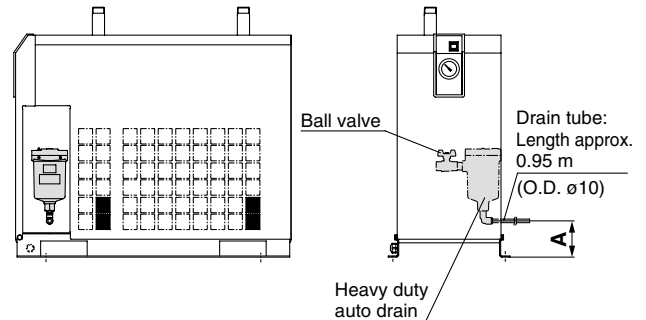
The float type auto drain used in the standard air dryer is replaced with a heavy duty auto drain (ADH4000-04), this enables the drainage to discharge more efficiently.

Model	Dimensions (mm)	
	A	B
IDFA4E	55	348
IDFA6E	67	
IDFA8E, 11E	139	378
IDFA15E	47	494

### IDFA4E to 15E



### IDFA22E, 37E



- Note 1) The heavy duty auto drain and the ball valve are both enclosed in the same shipping package as the main body of the air dryer. Customers are required to mount the parts to the air dryer. (Except for IDFA22E, 37E)  
 Note 2) Customers will need to supply the fitting and tubing for the drain piping. (Except for IDFA22E, 37E)

### Replacement Parts: Heavy Duty Auto Drain

Model	Replacement parts part no. (description)	Configuration
IDFA4E to 15E	ADH4000-04 (Heavy duty auto drain)	Heavy duty auto drain
IDFA22E, 37E	ADH-E400 (Replacement kit for exhaust mechanism)	Replacement kit for exhaust mechanism
		Housing (You don't need to purchase a new housing.)

# Series IDFA□E

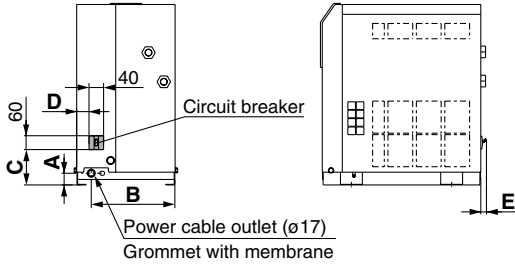
# Optional Specifications 2

Refer to “How to Order” on page 2 for optional models.

## R Option symbol With circuit breaker IDFA4E to 37E

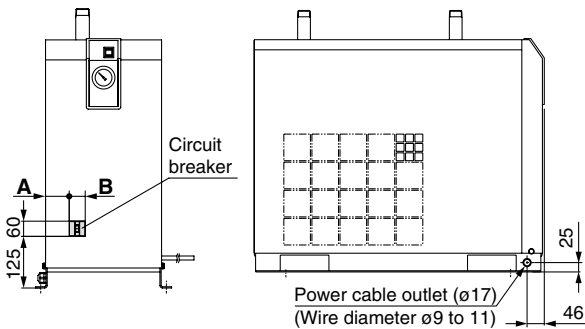
A circuit breaker with cover is attached to the side of the air dryer. This saves additional electrical wiring at the time of installation.

### IDFA4E to 15E



Dimensions (mm)					
Model	A	B	C	D	E
IDFA4E, 6E, 8E, 11E	32	230	97	34	15
IDFA15E	43	258	102	82	—

### IDFA22E, 37E



Dimensions (mm)		
Model	A	B
IDFA22E-23	59	40
IDFA37E-23		

### Breaker Capacity and Sensitivity Current

Voltage	Model	Breaker capacity	Sensitivity current
230 V type	IDFA4E-23, IDFA6E-23 IDFA8E-23, IDFA11E-23	5 A	30 mA
	IDFA15E-23, IDFA22E-23 IDFA37E-23	10 A	

## T Option symbol With terminal block for power supply, run & alarm signal and remote operation IDFA4E to 37E

In addition to the terminals for the power supply, terminals for the operating signal and the error signal are also available. (No-voltage contact)

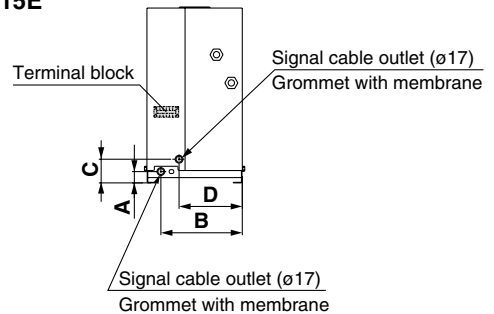
Also, in the case of remote control, it can be operated from the power supply side even while the air dryer switch remains ON.

Contact capacity: 230 VAC, 4 A 24 VDC, 5 A for operating and error signals.

Minimum current value: 20 V, 5 mA (AC/DC) for operating and error signals.

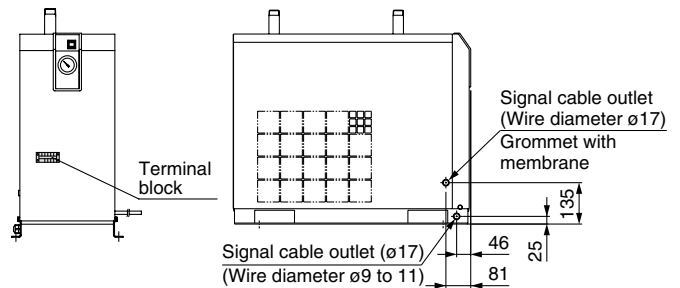
Note) Please be sure to confirm the electric circuits with the drawings or instruction manual before using the output signal.

### IDFA4E to 15E






Dimensions (mm)				
Model	A	B	C	D
IDFA4E, 6E, 8E, 11E	32	230	67	179
IDFA15E	43	258	77	158

### IDFA22E, 37E





# Accessories (Option)

		Features	Specifications	Applicable dryer
<b>Dust-protecting filter set</b>		Prevents a decline in the performance of the air dryer, even in a dusty atmosphere.	Max. ambient temperature 40°C	IDFA3E to 37E
<b>Foundations bolt set</b>		Bolts for fixing the air dryer to the foundations. Easy to secure by striking its axle.	Stainless steel	IDFA4E to 37E
<b>By-pass piping set</b>		Easy by-pass piping (connect this set to the air dryer), allowing substantial reduction in the installation time.	Max. operating pressure 1.0 MPa Max. operating temperature 60°C	IDFA3E to 37E

## How to Order

### Dust-protecting filter set

**IDF — FL 209**

#### Applicable dryer

Symbol	Applicable dryer
209	IDFA3E
202	IDFA4E
203	IDFA6E
204	IDFA8E
205	IDFA11E
206	IDFA15E
207	IDFA22E
208	IDFA37E

### Foundations bolt set

**IDF — AB 500**

#### Applicable dryer

Symbol	Applicable dryer
500	IDFA4E to 37E

### By-pass piping set (Rc, R thread)

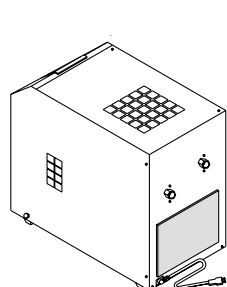
**IDF — BP 302**

#### Applicable dryer

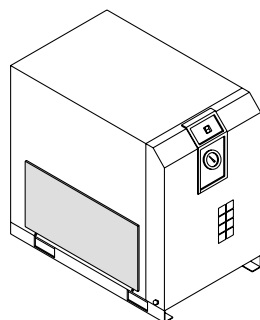
Symbol	Applicable dryer	Thread type
302	IDFA3E	Rc
303	IDFA4E	
304	IDFA6E to 11E	
316	IDFA15E	
317	IDFA22E	R
318	IDFA37E	

Note) Not applicable to the medium air pressure (max. operating pressure 1.6 MPa) spec.

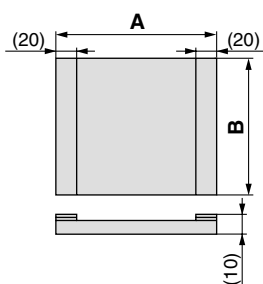
## Dust-protecting Filter Set / Dimensions



(IDF-FL209)



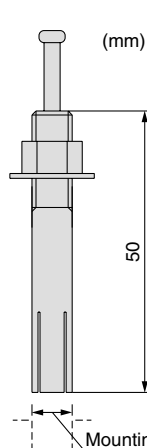
(IDF-FL202 to 208)



### Dimensions

Part no.	Applicable dryer	A	B	Weight (g)
<b>IDF-FL209</b>	IDFA3E	220	240	35
<b>IDF-FL202</b>	IDFA4E	310	195	45
<b>IDF-FL203</b>	IDFA6E	375	195	55
<b>IDF-FL204</b>	IDFA8E	340	265	70
<b>IDF-FL205</b>	IDFA11E	375	265	75
<b>IDF-FL206</b>	IDFA15E	310	270	70
<b>IDF-FL207</b>	IDFA22E	420	315	100
<b>IDF-FL208</b>	IDFA37E	550	365	140

## Foundations Bolt Set / Dimensions



Mounting hole diameter:  $\phi 10.5$

### Dimensions

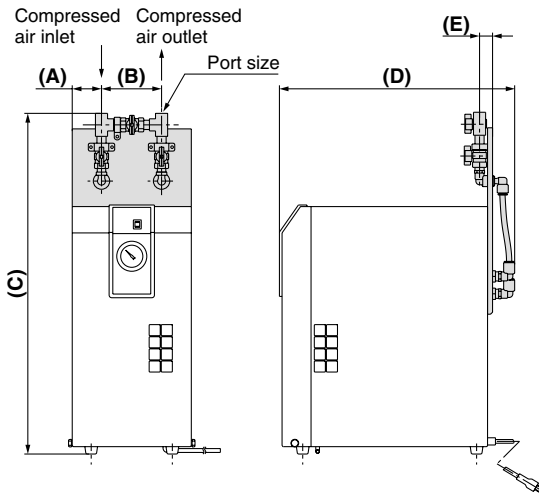
Part no.	Applicable dryer	Nominal thread size	Material	Pcs. of 1 set
<b>IDF-AB500</b>	IDFA4E to 37E	M10	Stainless steel	4

# Accessories (Option)

## By-Pass Piping Set/Dimensions

Max. operating pressure 1.0 MPa

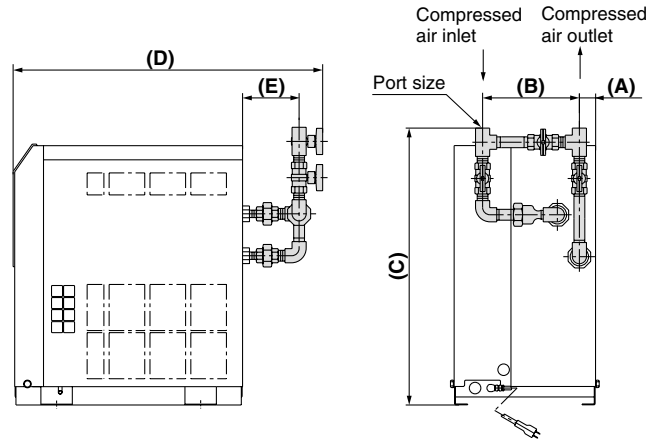
### IDFA3E



**Dimensions** (mm)

Part no.	Applicable dryer	Port size Rc	A	B	C	D	E	Weight (kg)
IDF-BP302	IDFA3E	3/8	56	114	642	445	21	1.6

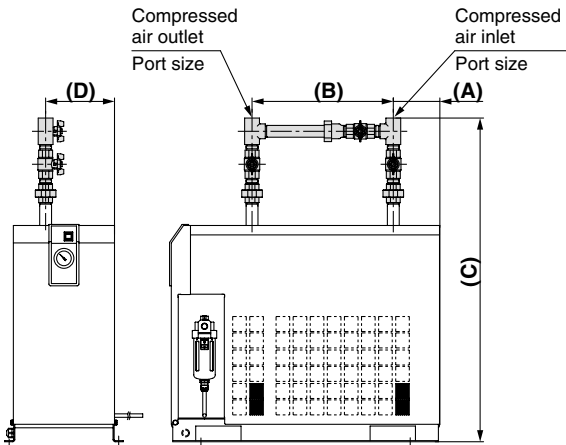
### IDFA4E to IDFA15E



**Dimensions** (mm)

Part no.	Applicable dryer	Port size Rc	A	B	C	D	E	Weight (kg)
IDF-BP303	IDFA4E	1/2	31	175	531	595	110	2.3
IDF-BP304	IDFA6E	3/4		187	555	617	129	3.3
	IDFA8E		627	647				
	IDFA11E		774	136	5.3			
IDF-BP316	IDFA15E	1	41	210	710	774	136	5.3

### IDFA22E, 37E

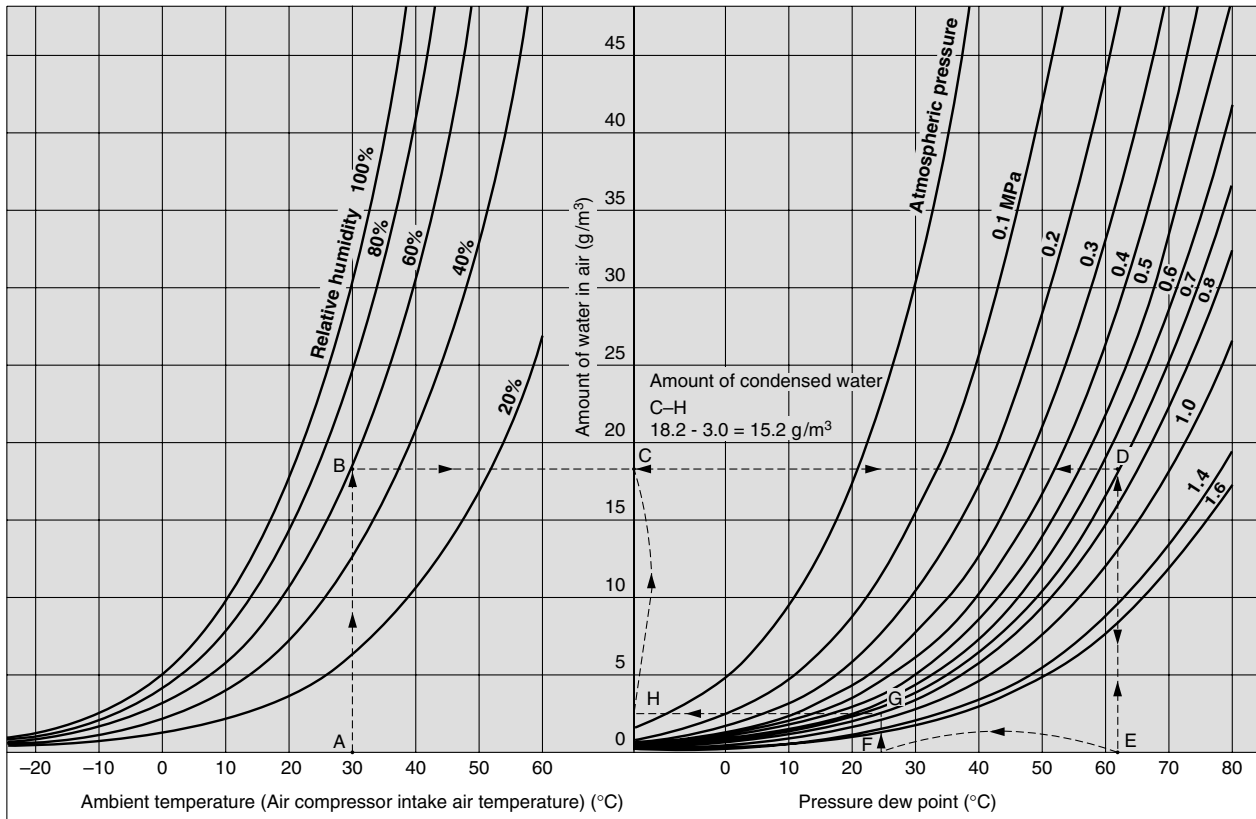


**Dimensions** (mm)

Part no.	Applicable dryer	Port size Rc	A	B	C	D	Weight (kg)
IDF-BP317	IDFA22E	1	134	405	928	198	4.4
IDF-BP318	IDFA37E	1 1/2			980		7.7

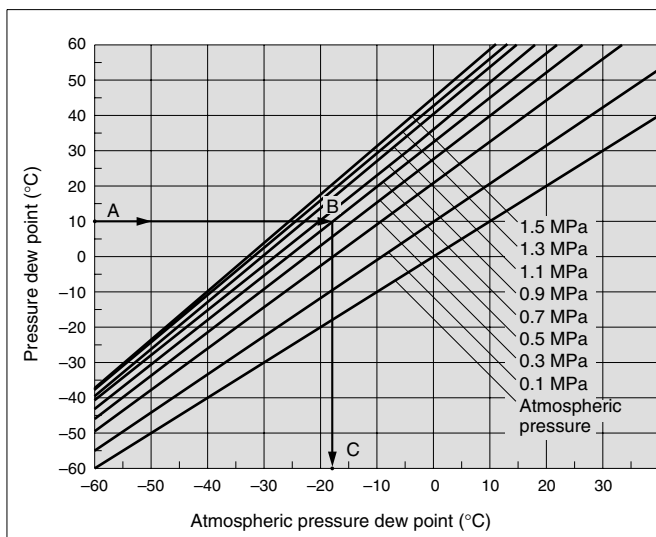
# Data

## Condensed Water Calculation



<How to calculate the amount of condensed water>  
 Example) To obtain the amount of condensed water when the inlet air of a compressor is pressurised to 0.7 MPa then cooled down to 25°C. Given an ambient temperature of 30°C and a relative humidity of 60%.

## Dew Point Conversion Chart



<How to read the dew point conversion chart>  
 Example) To obtain the atmospheric dew point at a pressure dew point of 10°C, and a pressure of 0.7 MPa.

1. Trace the arrow mark from point A at a pressure dew point of 10°C to obtain the intersection B on the pressure characteristic line for 0.7 MPa.
2. Trace the arrow mark from point B to obtain the intersection C on the atmospheric pressure dew point.
3. The intersection C is the conversion value -17°C under atmospheric pressure dew point.

1. Trace the arrow mark from point A of ambient temperature 30°C to obtain the intersection B on the curved line for the relative humidity of 60%.
2. Trace the arrow mark from the intersection B to obtain the intersection D on the curved line for the 0.7 MPa pressure characteristics.
3. Trace the intersection D to obtain the intersection E.
4. The intersection E is the pressure dew point at 0.7 MPa with an ambient temperature of 30°C and a relative humidity of 60%. The value for E is at 62°C.
5. Trace the intersection E upward to D and leftward to obtain the intersection C on the vertical line.
6. The intersection C is the amount of water which is included in the compressed air 1 m<sup>3</sup> at 0.7 MPa, a pressure dew point of 62°C. The amount of water is 18.2 g/m<sup>3</sup>.
7. Trace the arrow mark from F (cooling temperature 25°C (pressure dew point 25°C)) to obtain the intersection G on the pressure characteristic line for 0.7 MPa.
8. From the intersection G, trace the arrow mark to obtain the intersection H on the vertical line.
9. The intersection H is the amount of water which is included in the compressed air 1 m<sup>3</sup> at 0.7 MPa, pressure dew point of 25°C. The amount of water is 3.0 g/m<sup>3</sup>.
10. Therefore, the amount of condensed water is as following. (per 1 m<sup>3</sup>)  
 The amount of water at the intersection C  
 - the amount of water at the intersection H  
 = the amount of condensed water  
 18.2 - 3.0 = 15.2 g/m<sup>3</sup>






Series IDFA□E

# Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO 4414 <sup>Note 1)</sup>, JIS B 8370 <sup>Note 2)</sup> and other safety practices.

## ■ Explanation of the Labels

Labels	Explanation of the labels
 <b>Danger</b>	In extreme conditions, there is a possible result of serious injury or loss of life.
 <b>Warning</b>	Operator error could result in serious injury or loss of life.
 <b>Caution</b>	Operator error could result in injury <sup>Note 3)</sup> or equipment damage. <sup>Note 4)</sup>

Note 1) ISO 4414: Pneumatic fluid power – General rules relating to systems

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalisation or hospital visits for long-term medical treatment.

Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

## ■ Selection/Handling/Applications

### 1. The compatibility of the pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

### 2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of the systems using pneumatic equipment should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

### 3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
2. When equipment is removed, confirm the safety process as mentioned above. Turn off the supply pressure for this equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
3. Before machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

### 4. Contact SMC if the product will be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

## ■ Exemption from Liability

1. SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquakes or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.

2. SMC, its officers and employees shall be exempted from liability for any direct or indirect loss or damage, including consequential loss or damage, loss of profits, or loss of chance, claims, demands, proceedings, costs, expenses, awards, judgments and any other liability whatsoever including legal costs and expenses, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.

3. SMC is exempted from liability for any damages caused by operations not contained in the catalogues and/or instruction manuals, and operations outside of the specification range.

4. SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.



## Series IDFA□E

# Specific Product Precautions 1

Be sure to read this before handling. For Air Preparation Equipment Precautions, refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A).

### Installation

#### ⚠ Caution

- Avoid locations, where the air dryer will be in direct contact with wind and rain. (Avoid locations where relative humidity is greater than 85%.)
- Avoid exposure to direct sunlight.
- Avoid locations that contain too much dust, corrosive gases, or flammable gases. Failure due to corrosion is not covered under warranty. However, when the risk of corrosion is high, select Option C (copper tubing with anti-corrosive treatment).
- Avoid locations with poor ventilation and high temperature.
- Allow ample space around the air dryer.
- Avoid locations where a dryer could draw in high temperature air that is discharged from an air compressor or another dryer.
- Avoid locations subjected to vibration.
- Avoid possible locations where the drain can freeze.
- Use the air dryer with an ambient temperature lower than 40°C.
- Avoid installation on machines for transporting, such as trucks, ships, etc.

### Drain Tube

#### ⚠ Caution

- A polyurethane tube is attached as a drain tube for the IDFA3E to 37E. Use this tube to discharge drainage.
- Do not use the drain tube in an upward direction. Do not bend or crush the drain tube. (The auto drain will not be activated and water will try to escape via the air outlet.)

### Power Supply

#### ⚠ Caution

- <230 VAC>
- Connect the power supply to the terminal block.
- Install a suitable circuit breaker applicable for the specific model.
- The voltage fluctuation should be maintained within  $\pm 10\%$  of the rated voltage.

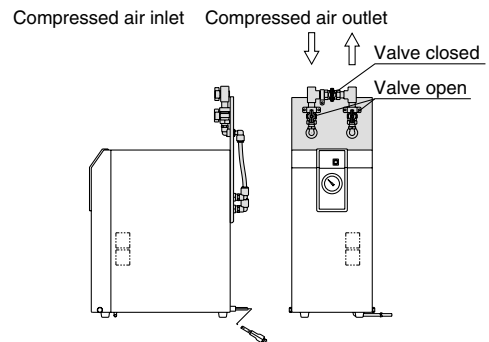
### Air Piping

#### ⚠ Caution

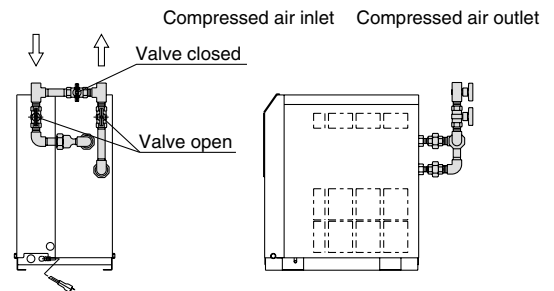
- Be careful to avoid an error in connecting the air piping at the compressed air inlet (IN) and outlet (OUT).
- Install by-pass piping since it is needed for maintenance.

Use the by-pass piping set on page 8 for when the maximum operating pressure is 1.0 MPa. If a higher pressure is to be applied, please contact your SMC sales representative.

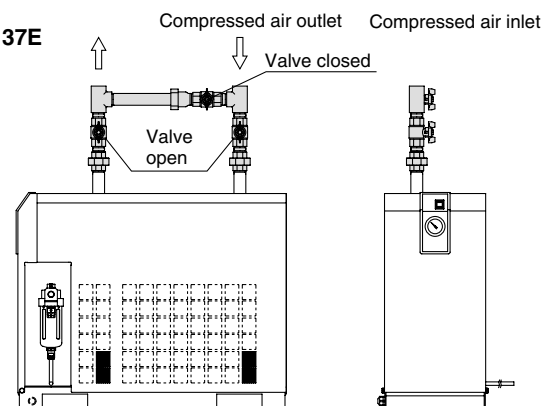
#### IDFA3E



#### IDFA4E to 15E



#### IDFA22E, 37E



- When tightening piping at the air inlet/outlet tube, the hexagonal parts of the port on the air dryer side or piping should be held firmly with a spanner or adjustable angle wrench.
- Variations in operating conditions may cause condensation to form at the surface of the outlet piping. Apply thermal insulation around the piping to prevent condensation from forming.
- Vibration resulting from the compressor should not be transmitted through air piping to the air dryer.
- Do not allow the weight of the piping to lie directly on the air dryer.



## Series IDFA□E

# Specific Product Precautions 2

Be sure to read this before handling. For Air Preparation Equipment Precautions, refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A).

### Protection Circuit

#### **Caution**

When the air dryer is operated under the following stated conditions, a protection circuit is activated, the light turns off and operation stops.

- When the compressed air temperature is too high.
- When the compressed air flow rate is too high.
- When the ambient temperature is too high. (40°C or higher)
- When the fluctuation of the power supply is beyond the rated voltage  $\pm 10\%$ .
- When the dryer is drawing in high temperature air that is discharged from an air compressor or other dryer.
- The ventilation port is obstructed by a wall or clogged with dust.

### Compressor Air Delivery

#### **Caution**

Use the air compressor with an air delivery of 100  $\ell$ /min or larger for the IDFA3E to 37E series.

Since the auto drain of the IDFA3E to 37E series is designed in such a way that the valve remains open unless the air pressure rises to 0.15 MPa or higher, air will blow out from the drain discharge port when the air compressor starts up until the pressure increases. Therefore, if the air compressor has a small air delivery, the pressure may not be sufficient.

### Auto Drain

#### **Caution**

The auto drain may not function properly, depending on the quality of the compressed air. Check the operation once a day.

### Cleaning of Ventilation Area

#### **Caution**

Remove dust from the ventilation area once a month using a vacuum cleaner or an air blow nozzle.

### Time Delay for Restarting

#### **Caution**

Allow at least three minutes before restarting the dryer. If the air dryer is restarted within three minutes after being stopped, the protection circuit will be activated, operating light turns off and the dryer will not be activated.

# SMC Air Preparation Equipment



## Membrane air dryer: Series IDG



Series	Atmospheric pressure dew point (°C)	Outlet flow rate ℓ/min (ANR)	Port size
<b>IDG</b>	-15, -20, -40, -60	10 to 1000	1/8 to 1/2



## Water separator: Series AMG



Series	Air flow rate ℓ/min (ANR)	Port size
<b>AMG</b>	300 to 12000	1/8 to 2



## Main line filter: Series AFF



Series	Nominal filtration degree (μm)	Rated flow ℓ/min (ANR)	Port size
<b>AFF</b>	3 (95% filtered particle size)	300 to 12000	1/8 to 2'



## Mist separator: Series AM



Series	Nominal filtration degree (μm)	Rated flow ℓ/min (ANR)	Port size
<b>AM</b>	0.3 (95% filtered particle size)	300 to 12000	1/8 to 2



## Micro mist separator: Series AMD



Series	Nominal filtration degree (μm)	Rated flow ℓ/min (ANR)	Port size
<b>AMD</b>	0.01 (95% filtered particle size)	200 to 12000	1/8 to 2



## Micro mist separator with pre-filter: Series AMH



Series	Nominal filtration degree (μm)	Rated flow ℓ/min (ANR)	Port size
<b>AMH</b>	0.01 (95% filtered particle size)	200 to 12000	1/8 to 2



## Super mist separator: Series AME



Series	Nominal filtration degree (μm)	Rated flow ℓ/min (ANR)	Port size
<b>AME</b>	0.01 (95% filtered particle size)	200 to 12000	1/8 to 2



## Odour removal filter: Series AMF



Series	Nominal filtration degree (μm)	Rated flow ℓ/min (ANR)	Port size
<b>AMF</b>	0.01 (95% filtered particle size)	200 to 12000	1/8 to 2'

\* Please contact SMC for details.

# Air Dryers Compliant to International Standards

\* Please contact SMC for details.

## Series *IDF/IDU E*

- **Air flow capacity: Increased by a maximum of 40%. (SMC comparison)**
- **Power consumption: Decreased by a maximum of 40%. (SMC comparison)**
- **Refrigerant: R134a (HFC), R407C (HFC)**
- **High temperature inlet type (Series IDU□E): Inlet air up to a maximum of 55°C.**
- **Power supply voltage:**  
Single-phase: 100 VAC (50 Hz), 100/110 VAC (60 Hz)  
Single-phase/Three-phase: 200 VAC (50 Hz), 200/220 VAC (60 Hz)



## Series *IDFB□E*

- **UL certified**
- **Power supply voltage:**  
Single-phase 115 VAC (60 Hz)



**⚠ Safety Instructions** Be sure to read "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.

## SMC Corporation

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