

# Refrigerated Air Dryer

Broad lineup of products for a variety of applications

Can be used in high-temperature environments

**Middle size series** **New IDF Series**

- Ambient temperature: Max. 45°C
- Inlet air temperature: Max. 65°C

**Air flow capacity** **16.4 m<sup>3</sup>/min**  
\* IDF90-20, Dew point of 10°C, 60 Hz (24% increase compared with the existing model)



**Small size series** **IDF/IDU□E Series**

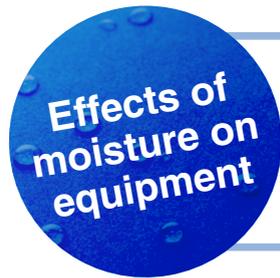


**Large size series** **IDF□F/FS Series**



# The importance of dryers

Air dryers remove the vapor from the moist compressed air delivered by the compressor and prevent it from causing the pneumatic equipment to fail.



- Malfunctioning of valves and actuators caused by dripping grease
- Generation of water droplets
- Decomposition of auto drain caused by rusting inside pipes

Moisture also affects the applications described below.

**Air blow**



- Contamination of workpieces
- Generation of water droplets

**Air motors** (Air drivers, Air turbines, etc.)



- Reduction in rotation
- Reduction in service life caused by rust

**Air spray**  
(Painting in general)



- Painting failure

**Powder transportation**



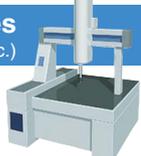
- Adherence of powder to walls containing moisture
- Contamination of powder
- Solidification of powder

**Stirring**  
(Cement, Food processing)

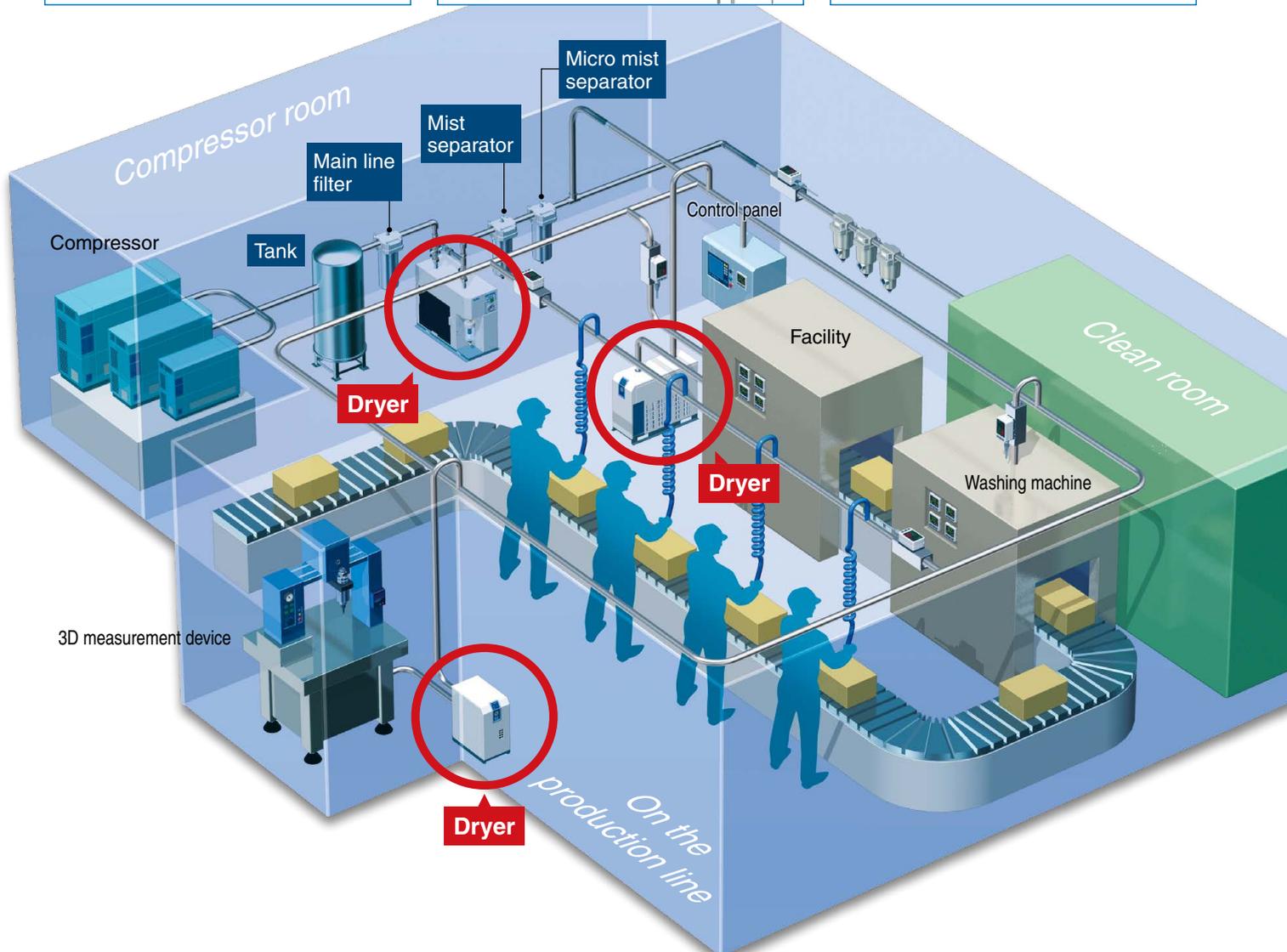


- Contamination
- Stirring failure

**Measuring machines**  
(3D measurement devices, etc.)



- Malfunction of air bearings



# Air Preparation System

Compressed air generally contains foreign matter, such as oil and solid particles, in addition to moisture (vapor, water droplets, etc.). The vapor is removed by the dryer.

Water droplets, oil, and solid particles need to be removed by the main line filter or the mist separator.



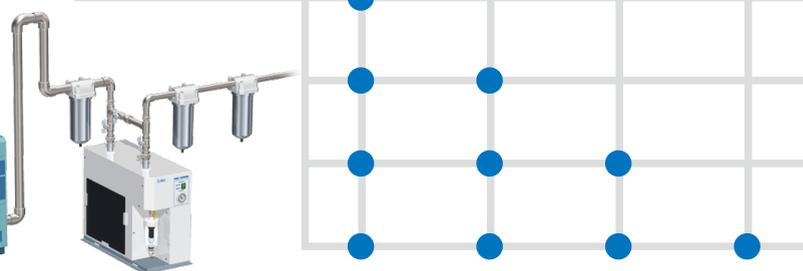
**Purity Class Designation Example**

**ISO 8573-1 : 2010 [ 4 : 6 : 2 ]**

**Particle class**  
 4 1.0 μm < d ≤ Particles of 5.0 μm ≤ 10000 particles/m<sup>3</sup>

**Humidity and liquid water class**  
 6 Pressure dew point ≤ +10°C

**Oil class**  
 2 Concentration of total oil ≤ 0.1 mg/m<sup>3</sup>



Air	Nominal filtration rating	Pressure dew point	Oil concentration	Purity class
Water droplet removal	1 μm	Water droplet removal		4 · 7 · -
Dry air	1 μm	Pressure dew point +10°C		4 · 6 · -
Dry air	0.1 μm	Pressure dew point +10°C	1.0 mg/m <sup>3</sup>	2 · 6 · 3
Dry clean air	0.01 μm	Pressure dew point +10°C	0.1 mg/m <sup>3</sup>	1 · 6 · 2

## Quick Reference Guide for Air Preparation Equipment

Figures in ( ) indicate the air capacity [m<sup>3</sup>/min (ANR)].

Air compressor			Air preparation system					
Output kW	Air capacity for reference m <sup>3</sup> /min		Port size	1 Main line filter AFF	2 Refrigerated air dryer IDF		3 Mist separator AM	4 Micro mist separator AMD
	Suction condition	ANR conversion			50 Hz	60 Hz		
1.5	0.16	0.15	3/8	AFF30 (0.75)*1 AFF4C (0.75)	IDF1E (0.1)	IDF1E (0.12)	AM30 (0.75) AM250C (0.75)	AMD30 (0.75) AMD250C (0.5) AMD350C (1.0)
2.2	0.245	0.24			IDF2E (0.20)	IDF2E (0.24)		
3.7	0.44	0.42			IDF3E (0.32)	IDF3E (0.37)		
1.5	0.16	0.15	1/2	AFF40 (1.5)*1 AFF8C (1.5)	IDF4E (0.52)	IDF4E (0.57)	AM40 (1.5) AM350C (1.5)	AMD40 (1.5) AMD350C (1.0)
2.2	0.245	0.24						
3.7	0.44	0.42						
5.5	0.72	0.69	3/4	AFF11C (2.2)	IDF6E (0.75)	IDF6E (0.82)	AM450C (2.2)	AMD450C (2.0) AMD550C (3.7)
7.5	1.2	1.15			IDF8E (1.22)	IDF8E (1.32)		
11	1.8	1.7			IDF11E (1.65)	IDF11E (1.82)		
15	2.6	2.5	1	AFF22C (3.7) AFF37B (6.0) AFF70D (7.0)	IDF15E1 (2.8)	IDF15E1 (3.1)	AM550C (3.7) AM650 (6.0) AM70D (7.0)	AMD550C (3.7) AMD650 (6.0) AMD70D (7.0)
22	4.05	3.82			IDF60 (5.3)	IDF60 (6.1)		
22	4.05	3.82						
37	6.65	6.27	1-1/2	AFF70D (7.0) AFF80D (11.0)	IDF70 (7.5)	IDF70 (8.6)	AM70D (7.0) AM80D (11.0)	AMD70D (7.0) AMD80D (11.0)
55	10.05	9.48						
75	13.25	12.5						
100	18.0	17.0	2	AFF90D (14.5)	IDF80 (10.9)	IDF80 (12.8)	AM90D (14.5)	AMD90D (14.5)
75	13.25	12.5			IDF90 (13.5)	IDF90 (15.5)		
100	18.0	17.0			IDF100F (16)	IDF100F (18.8)		
125	21.4	20.2	JIS Flange 65A	—	IDF125F (20.1)	IDF125F (23.7)	—	—
150	25.4	24.0						
100	18.0	17.0						
125	21.4	20.2	JIS Flange 80A	AFF125A (23.7)	IDF150F (25)	IDF150F (30)	—	AMD900 (24)
150	25.4	24.0			IDF190D (32)	IDF190D (38)		
200	38.1	35.9						
220	40.7	38.4	JIS Flange 100A	AFF150A (30) AFF220A (45)	IDF240D (43)	IDF240D (50)	—	AMD900 (24)
								AMD1000 (40)

★ The contents of this table are for reference only. The flow rate that can be treated by the dryer or filter varies depending on the conditions. Please select the appropriate equipment in accordance with the actual conditions.

\*1 The AFF30 and 40 are line filters.

**Can be used in high-temperature environments**

	<b>New IDF Series</b>	Existing model IDF Series
Ambient temperature	<b>Max. 45°C</b>	Max. 40°C
Inlet air temperature	<b>Max. 65°C</b>	Max. 50°C



**Air flow capacity: 16.4 m³/min**  
(24% increase compared with the existing model)

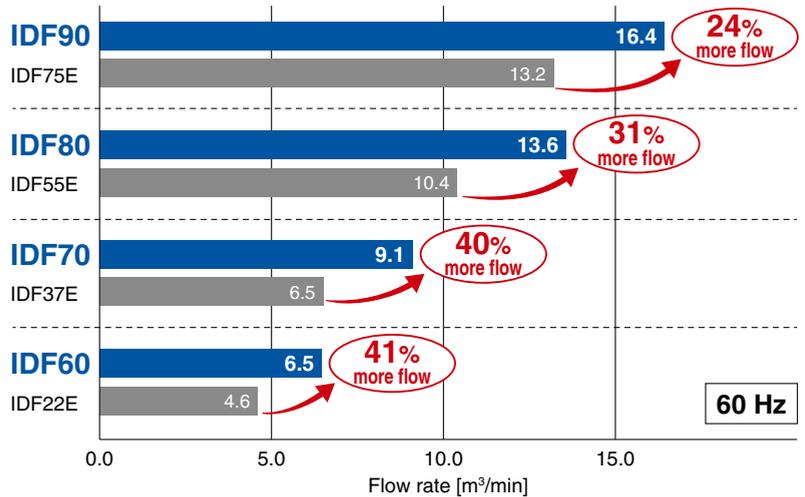
**For global applications**

For use in Europe, Asia, and Oceania  
**IDFA Series**

For use in North, Central, and South America  
**IDFB Series**

For use in Southeast Asia  
**IDFC Series**

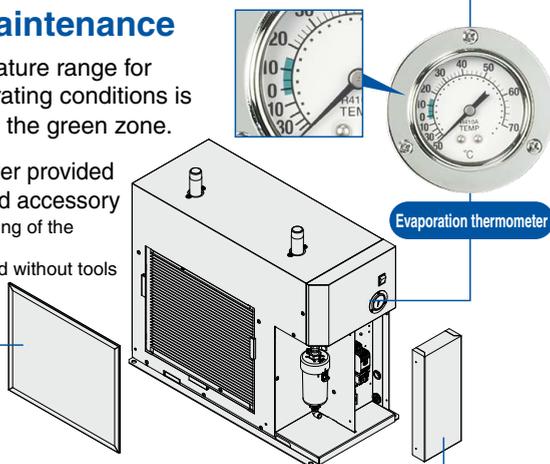
**Increased air flow capacity**



**New stainless steel heat exchanger helps reduce the load of the compressor**

**Easier maintenance**

- The temperature range for normal operating conditions is indicated by the green zone.
- Dustproof filter provided as a standard accessory  
Prevents clogging of the condenser  
Can be installed without tools
- All electrical components are located in the front of the product.  
The electrical components can be checked by removing the front panel.



## How to Order

IDF **60** - **30** -   

### Size

60
70
80
90

### Voltage

Symbol	Voltage
20	Single-phase 200 VAC (50 Hz) 200/220 VAC (60 Hz)
	Three-phase 200 VAC (50 Hz) 200/220 VAC (60 Hz)

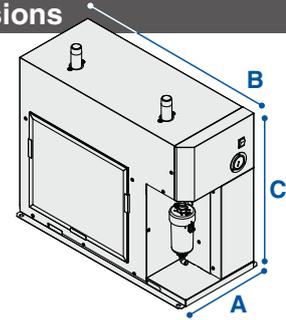
### Options

Symbol	Description
Nil	None
A	Cool compressed air output
C	Anti-corrosive treatment for copper tube
G	With Chinese labels and a Chinese operation manual
L	With a heavy-duty auto drain (The maximum operating pressure is 1.6 MPa.)
R	With an earth leakage breaker
T	With a terminal block for operating, error, and remote operation signals
V	With a timer controlled solenoid valve type auto drain (The maximum operating pressure is 1.6 MPa.)

\* When multiple options are combined, indicate symbols in alphabetical order.

\* The combination of L and V is not available.

## Dimensions



Model	Port size	A	B	C
IDF60	R1	307	745	605
IDF70	R1 1/2	342	890	825
IDF80	R2	438	957	863
IDF90				

## Standard Specifications

Specifications		Model	IDF60	IDF70	IDF80	IDF90	
Operating range*1	Fluid		Compressed air				
	Inlet air temperature	°C	5 to 65				
	Inlet air pressure	MPa	0.15 to 1.0*6				
	Ambient temperature (Humidity)	°C	2 to 45 (Relative humidity: 85% or less)				
Rated conditions*4	Air flow capacity [m <sup>3</sup> /min]	Standard condition (ANR)*2	50 Hz	5.3	7.5	10.9	13.5
		Compressor intake condition*3	50 Hz	6.1	8.6	12.8	15.5
			60 Hz	5.6	8.0	11.6	14.3
			60 Hz	6.5	9.1	13.6	16.4
	Inlet air pressure	MPa	0.7				
	Inlet air temperature	°C	35		40		
	Ambient temperature	°C	32				
Outlet air pressure dew point	°C	10					
Power supply voltage (Frequency)			Single-phase/Three-phase 200 VAC (50 Hz), Single-phase/Three-phase 200/220 VAC (60 Hz) Allowable voltage fluctuation ±10%*5				

\*1 The operating range does not guarantee use with normal air flow capacity.

\*2 Air flow capacity under standard conditions (ANR) [20°C, atmospheric pressure, and 65% relative humidity]

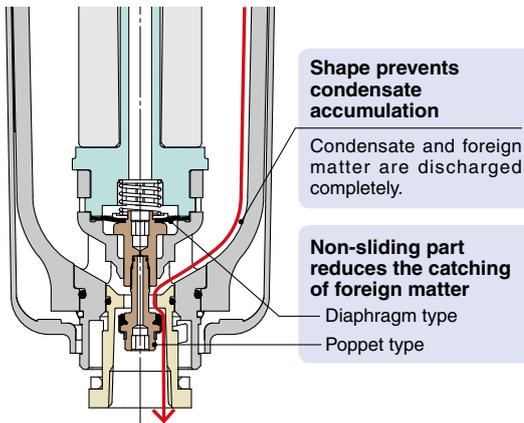
\*3 Air flow capacity converted by the compressor intake conditions [32°C, atmospheric pressure, and 75% relative humidity]

\*4 When the operating conditions are different from the rated values, calculate the air flow capacity suitable to the operating conditions based on the correction of air flow capacity.

\*5 Do not use this product with continuous voltage fluctuations.

\*6 The maximum operating pressure is 1.0 MPa as standard, but it is possible to achieve 1.6 MPa when selecting Option L or Option V.

## Auto Drain Valve: Longer life, Higher resistance to foreign matter



## Easier maintenance

- One-touch mounting and removal of the bowl is possible without using any tools.

Release the lock by sliding the lock button down while holding the body. Then, rotate the bowl guard and pull down for removal.

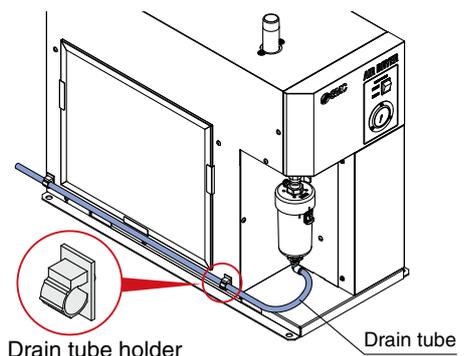


## Transparent bowl guard

- Allows you to visually check the condensate condition in the bowl
- Improved environmental durability due to 2-layer construction



## Drain tube holder (Accessory)



## Standard Inlet Air Temperature IDF□E Series

Inlet air temperature: Max. **50°C**

IDF1E, 2E, 3E, 4E, 6E, 8E, 11E, 15E1, 22E, 37E, 55E, 75E

## High Inlet Air Temperature IDU□E Series

Inlet air temperature: Max. **80°C**

IDU3E, 4E, 6E, 8E, 11E, 15E1, 22E, 37E, 55E, 75E



**For global applications**

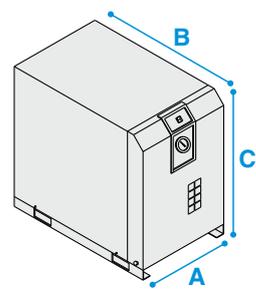
For use in Europe, Asia, and Oceania  
**IDFA□E Series**

For use in North, Central, and South America  
**IDFB□E Series**

## Dimensions

Model	Port size	A	B	C
<b>IDF1E</b>	Rc3/8	226	410	413
<b>IDF2E</b>				473
<b>IDF3E</b>				498
<b>IDF4E</b>	Rc1/2	270	453	498
<b>IDF6E</b>	Rc3/4		455	568
<b>IDF8E</b>			485	568
<b>IDF11E</b>	Rc1	300	603	578
<b>IDF22E</b>	R1	290	775	623
<b>IDF37E</b>	R1 1/2		855	623
<b>IDF55E</b>	R2	470	855	800
<b>IDF75E</b>				900

Model	Port size	A	B	C
<b>IDU3E</b>	Rc3/8	270	455	498
<b>IDU4E</b>	Rc1/2		483	568
<b>IDU6E</b>	Rc3/4		485	859
<b>IDU8E</b>		909		
<b>IDU11E</b>	Rc1	300	620	960
<b>IDU15E1</b>		325	775	1153
<b>IDU22E</b>	Rc1 1/2	360	855	1258
<b>IDU37E</b>		1345		
<b>IDU55E</b>	R2	470	855	1480
<b>IDU75E</b>				



## How to Order



Size	Air compressor size	Applicable size		Size	Air compressor size	Applicable size	
		IDF	IDU			IDF	IDU
<b>1E</b>	0.75 kW	●	—	<b>11E</b>	11 kW	●	●
<b>2E</b>	1.5 kW	●	—	<b>15E1</b>	15 kW	●	●
<b>3E</b>	2.2 kW	●	●	<b>22E</b>	22 kW	●	●
<b>4E</b>	3.7 kW	●	●	<b>37E</b>	37 kW	●	●
<b>6E</b>	5.5 kW	●	●	<b>55E</b>	55 kW	●	●
<b>8E</b>	7.5 kW	●	●	<b>75E</b>	75 kW	●	●

Symbol	Voltage	Applicable size											
		1E	2E	3E	4E	6E	8E	11E	15E1	22E	37E	55E	75E
<b>10</b>	Single-phase 100 VAC (50 Hz) 100/110 VAC (60 Hz)	●	●	●	●	●	●	●	●	—	—	—	—
<b>20</b>	Single-phase 200 VAC (50 Hz) 200/220 VAC (60 Hz)	—	—	●	●	●	●	●	●	*1	*1	—	—
<b>23</b>	Single-phase 230 VAC (50 Hz)	—	—	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
<b>30</b>	Three-phase 200 VAC (50 Hz) 200/220 VAC (60 Hz)	—	—	—	—	—	—	—	—	●	●	●	●

**Options\*1**

Symbol	Description
<b>Nil</b>	—
<b>A</b>	Cool compressed air output
<b>C</b>	Anti-corrosive treatment for copper tube
<b>K</b>	Moderate pressure specification (Metal bowl with level gauge)
<b>L</b>	With a heavy-duty auto drain
<b>M</b>	With a motor type auto drain
<b>R</b>	With an earth leakage breaker
<b>S</b>	Power supply terminal block connection
<b>T</b>	With a terminal block for power supply, operating, and error signals
<b>V*2</b>	With a timer controlled solenoid valve type (Voltage symbol 23 only)

\*1 Refer to the catalog for applicable models and combinations.  
\*2 Only voltage symbol 23 (Single-phase: 230 VAC (50 Hz)) of the IDU series is applicable.

\*1 Only the IDF is applicable. \*2 Only the IDU is applicable.

Large  
size  
series

# IDF100F/125F/150F Series

## Tolerant of high-temperature environments!

The large air-cooled type is the top of its class in the industry

**Ambient temperature: Max. 45°C**

[Existing large size type: 40°C]

**Inlet air temperature: Max. 60°C**

[Existing large size type: 50°C]

**Energy-saving design** (SMC's original new design) [Patent pending]

**Exhaust heat amount reduced by 25%**  
**Suppression of rises in ambient temperature**  
(Air-cooled type)

**Reduction in the required amount of facility water**  
(Water-cooled type)



Air-cooled type

Water-cooled type

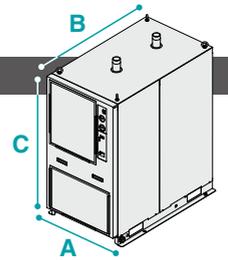
### For global applications

For use in Europe, Asia,  
and Oceania  
**IDFA□F Series**



### Dimensions (Air-cooled type)

Model	Port size	A	B	C
<b>IDF100F</b>	R2	670	1130	1276
<b>IDF125F</b>	JIS Flange 65A 10K	700	1130	1276
<b>IDF150F</b>	JIS Flange 80A 10K	950	1300	1332



Large  
size  
series

# IDF100FS/125FS/150FS Series

## Energy-saving effects of the double energy-saving function

### Energy-saving design

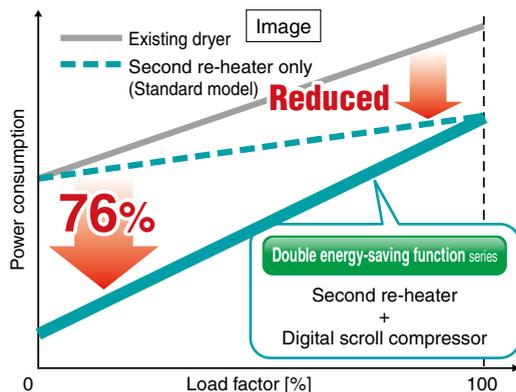
**Power consumption: Reduced by up to 76%** <sup>(1 kW)\*1</sup>

\*1 Operating conditions: The IDF125FS operated in the energy-saving operation mode

- Ambient temperature 32°C ● Inlet air temperature 40°C
- Inlet air pressure 0.7 MPa ● Air flow rate = Rated flow x 0.4
- Power supply frequency 60 Hz ● Power supply voltage 200 V ● Set dew point = 30°C

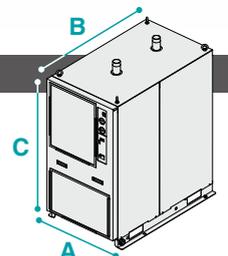
**Exhaust heat: Reduced by up to 25%** <sup>\*2</sup>

\*2 Under the rated conditions



### Dimensions

Model	Port size	A	B	C
<b>IDF100FS</b>	R2	670	1160	1276
<b>IDF125FS</b>	JIS Flange 65A 10K	700	1160	1276
<b>IDF150FS</b>	JIS Flange 80A 10K	950	1330	1332



## Compressed Air Preparation Filter Series

### Main Line Filter

#### AFF Series

1 μm Water droplet removal

### Mist Separator

#### AM Series

0.1 μm Oil mist separation and removal

### Micro Mist Separator

#### AMD Series

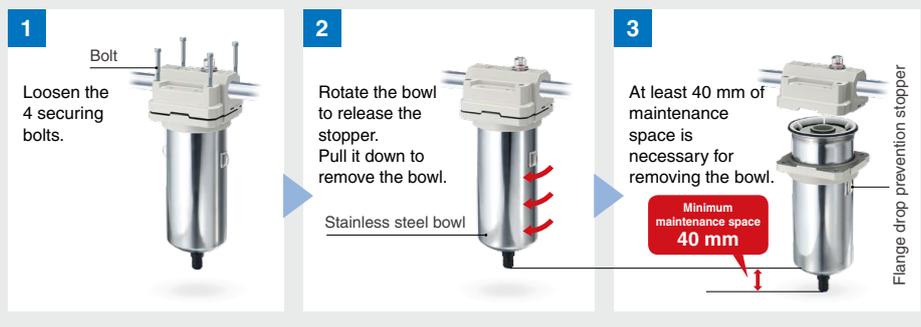
0.01 μm Oil mist separation and removal



- Compressed Air Purity Class: ISO 8573
- Increased air flow capacity due to lower pressure drop which contributes to energy saving  
Flow capacity: 14.5 m<sup>3</sup>/min (ANR) Improved by up to 20% compared with the existing model  
Pressure drop: 5 kPa or less
- Lightweight: Max. 52% lighter (10.5 kg → 5.0 kg)  
Lighter body weight due to thinner stainless steel bowl

- Space-saving design, Reduced piping labor  
The AFF series main line filter removes both water droplets and solid particles. It eliminates the need for a separate filter for removing water droplets (water separator, AMG series), reducing the required installation space and piping work.

The bowl will not fall even if the bolts are loosened. It is not necessary to hold the bowl when removing the bolts. Safe and secure mounting and removal of the bowl with both hands is possible. The lightweight stainless steel bowl with reduced thickness allows for easier element replacement.



## Thermo-dryer with Air Temperature Adjustment Function

### IDH Series



- Stable supply of temperature and pressure-controlled dry clean air  
It is possible to supply compressed air of the same condition and quality regardless of the season.
- Application example  
Supplying compressed air with constant conditions to air bearings mounted on a tool
- Built-in filter  
Filter nominal filtration rating: 0.01 μm (99.9% filtration efficiency)  
Outlet oil mist concentration: Max. 0.01 mg/m<sup>3</sup> (ANR)  
Outlet cleanliness: Particles of 0.3 μm or more: 3.5 particles/L (ANR) or less
- Compatible power supplies available for countries all over the world  
Single-phase 100 VAC, 200 VAC, 230 VAC (50/60 Hz)

## Membrane Air Dryer IDG/A/IDG Series



- Dry air can be easily supplied using the hollow fiber membrane.
- Non-fluorocarbon
- Power supply not required
- Compatible with low dew points (−60°C)
- No vibration or heat discharge
- With dew point indicator

## Separately installed power transformer for air dryer



- Power supply and voltage for those other than the standard
- Max. ambient temperature: 40°C (Relative humidity 85% or less)