Refrigerated Air Dryer
Series IDU/IDF

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

In compliance with the Montreal Protocol Regulations, SMC uses refrigerants R134a and R407C in its refrigerated air dryers to prevent any damage to the earth s ozone layer.

Large models IDF190D and 240D newly introduced
R134a used in small models (IDU3D to 8D, IDF1D to 8D)
R407C used in large models (IDF120D, 150D, 190D, 240D)

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Montreal Protocol Regulation Compliant

Refrigerated Air Dryer
Series IDU/IDF

Uses refrigerants (R134a, R407C) that are harmless to the ozone layer

IDU3D, 4D, 6D, 8D/IDF1D, 2D, 3D, 4D, 6D, 8D R134a
IDF120D, 150D, 190D, 240D R407C
In compliance with the Montreal Protocol Regulations, SMC uses refrigerants R134a and R407C to prevent any damage to the earth's ozone layer.
(Medium size series use R22, ODP = 0.055.)

Series IDU (built-in after-cooler) Can be operated directly connected to a screw compressor

Provides a stable supply of dry air even under high demand conditions with an inlet air temperature of 60°C.
IDU3D to 6D: 60°C
IDU8D to 37C1: 55°C
IDU55C, 75C: 50°C

IDU3D, 4D, IDF1D to 4D Rust-free heat exchanger

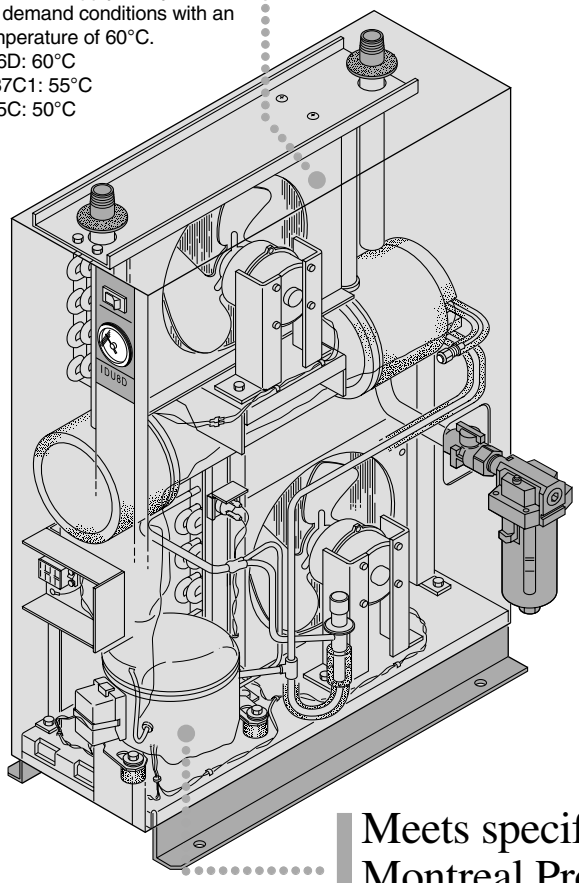
Coaxial copper piping design prevents rust formation.

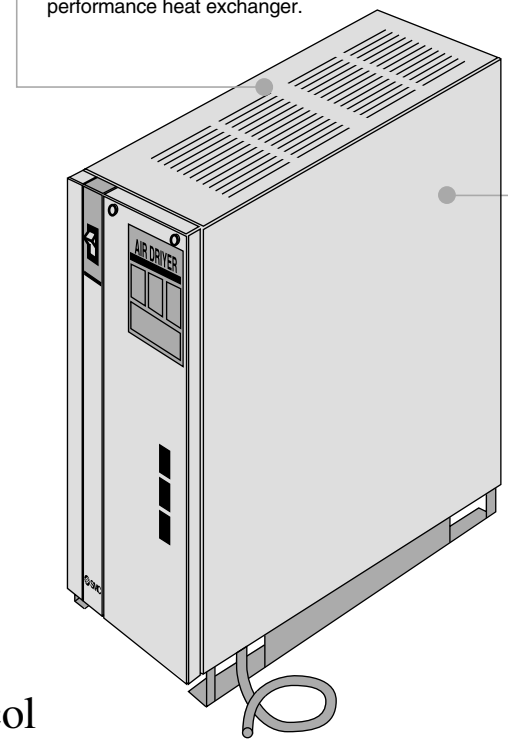
IDF1D, 2D, 3D Reduced noise 45dB(A)

Quiet operation allows indoor use in locations such as dental offices, etc.

Series IDF Can accommodate an inlet air temperature of 40°C

System efficiency is improved by using a high performance heat exchanger.





Series IDU

Series IDF

Meets specified Montreal Protocol Regulations

Small series: R134a
Medium series: R22
Large series: R407C

IDU3D to 15C, IDF3D to 15C Available in single phase 200VAC without transformer

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Series Variations

Series IDU

High inlet air temperature type
Rated temperature of 50 to 60°C

Series IDF

Standard inlet air temperature type
Rated temperature of 35 to 40°C

		Series	Air flow capacity (ℓ/min(ANR)) Note) 50 Hz	60Hz	Screw type air compressor power (kW)	Refrigerant	Rated inlet air temp.	Air connection	Page
Air cooled	Small	IDU3D	300	350	2.2	R134a	60°C	Rc 3/8	14-17-8 to 14-17-11
		IDU4D	430	500	3.7			R 1/2	
		IDU6D	640	750	5.5				
		IDU8D	850	1000	7.5		55°C	R 3/4	
	Medium	IDU11D	1300	—	11	R134a	55°C	R 3/4	14-17-12 to 14-17-15
		IDU11C	1300	1500		R22		R 1	
		IDU15C	2050	2400	15				
		IDU22C/22C1	3150	3700	22			R 1 1/2	
		IDU37C/37C1	5200	6100	37				
		IDU55C	7650	9000	55		50°C	R 2	
		IDU75C	10500	12400	75				
Air cooled	Small	IDF1D	100	120	0.75	R134a	35°C	Rc 3/8	14-17-16 to 14-17-19
		IDF2D	200	235	1.5		40°C		
		IDF3D	300	350	2.2				
		IDF4D	430	500	3.7			R 1/2	
		IDF6D	640	750	5.5				
		IDF8D	850	1000	7.5			R 3/4	
	Medium	IDF11D	1300	—	11	R134a	40°C	R 3/4	14-17-20 to 14-17-22
		IDF11C	1300	1500		R22		R 1	
		IDF15C/15C1	2050	2400	15				
		IDF22C/22C1	3150	3700	22			R 1 1/2	
		IDF37C/37C1	5200	6100	37				
		IDF55C	7650	9000	55			R 2	
		IDF75C	10500	12400	75				
	Large	IDF120D	20000	23000	120	R407C	40°C	2 1/2B flange	14-17-23 to 14-17-25
		IDF150D	25000	30000	150			3B flange	
		IDF190D	32000	38000	190				
		IDF240D	43000	50000	240			4B flange	
Water cooled	Medium	IDF75C	10500	12400	75	R22	40°C	R 2	14-17-20 to 14-17-22
	Large	IDF120D	20000	23000	120	R407C	40°C	2 1/2B flange	14-17-23 to 14-17-25
		IDF150D	25000	30000	150			3B flange	
		IDF190D	32000	38000	190				
		IDF240D	43000	50000	240			4B flange	
		IDF370B	54000	65000	370	R22	35°C	6B flange	

Options — 14-17-26 to 14-17-27

For medium air pressure
Max. operating pressure 1.5MPa

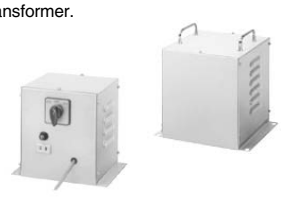
With terminal block for signal
With terminal block for run & alarm signals and remote operations

For cool compressed air output.
With anti-corrosive treatment of copper tube.
With evaporation thermometer

With motor operated auto drain.
With circuit breaker.
With power cord connection.
Water cooled condenser.

Accessories (Options) — 14-17-28 to 14-17-31

Transformer
This is for power supply other than specified.
Available base to integrate transformer.



Dust proof filter set
Avoids decrease of air dryer performance even in dirty environment.

Bypass piping set
Easy bypass piping (just connect this set to air dryer). Substantial reduction of installation labor.

Technical Data — Pressure dew point–Condensed water calculation chart, Pressure dew point temperature–Atmospheric pressure dew point temperature conversion cart — 14-17-32

Note) ℓ/min (ANR) is for reference conditions of 20°C, 1 ATM and 65% relative humidity.

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Model Selection

1 **Obtain the correction factor for the temperature from data A or B and the correction factor for the air pressure from data C.**

Temperature **Data A or B = ☐**
Series IDU: Data A
IDF1D to 240D: Data B-1
IDF 370B: Data B-2

Air pressure **Data C = ☐**
Series IDU and Series IDF: Data C

2 **Calculate corrected air flow by using A or B and C.**

Corrected air flow = (Air flow) ÷ (Data A x Data C)
Corrected air flow = (Air flow) ÷ (Data B x Data C)

3 **Select a model having an air flow capacity that is higher than the corrected air flow.**

IDU selection example

The procedure for selecting the optimum model under the following conditions is shown below.

Condition
① Inlet air temperature 55°C
② Outlet air pressure dew point 10°C
③ Ambient temperature 35°C
④ Inlet air pressure 0.7MPa
⑤ Air flow 350 ℓ/min (ANR)
⑥ Power supply frequency 50Hz

1 A = 0.85 based on conditions ①,② and ③

2 C = 1.00 based on condition ④

3 Based on condition ⑤, A and B
Corrected air flow = 350 ÷ (0.85 x 1.00) = 412 ℓ/min (ANR)

4 Based on condition ⑥;
IDU4D is selected as the model to process an air flow larger than 412 ℓ/min (ANR) with a 50Hz power supply, according to data D-1.

IDF selection example

The procedure for selecting the optimum model under the following conditions is shown below.

Condition
① Inlet air temperature 40°C
② Outlet air pressure dew point 10°C
③ Ambient temperature 35°C
④ Inlet air pressure 0.5MPa
⑤ Air flow 1200 ℓ/min (ANR)
⑥ Power supply frequency 60Hz

1 B-1 = 0.95 based on conditions ①, ② and ③

2 C = 0.90 based on condition ④

3 Based on condition ⑤, B-1 and C
Corrected air flow = 1200 ÷ (0.95 x 0.90) = 1400 ℓ/min (ANR)

4 Based on condition ⑥;
IDF11C is selected as the model to process an air flow larger than 1400 ℓ/min (ANR) with a 60Hz power supply, according to data D-2.

Note) ℓ/min (ANR) is for reference conditions of 20°C, 1 ATM and 65% relative humidity.

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Data A Correction factor for temperature/Series IDU

Inlet air temp. (°C)	IDU3D to 6D	50			55			60			70			80		
	IDU8D to 15C	45			50			55			65			75		
	IDU22C1, 37C1	45			50			55			65			70		
	IDU55C, 75C	40			45			50			55			60		
Ambient temperature (°C)	Outlet air pressure dew point (°C)	5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
25		0.60	1.35	1.35	0.60	1.35	1.35	0.60	1.35	1.35	0.60	1.35	1.35	0.60	1.35	1.35
30		0.60	1.25	1.35	0.55	1.20	1.35	0.50	1.10	1.35	0.50	1.05	1.35	0.50	1.05	1.35
32		0.60	1.25	1.35	0.55	1.15	1.35	0.50	1.00	1.30	0.45	0.95	1.25	0.45	0.95	1.25
35		0.50	0.95	1.25	0.45	0.85	1.15	0.35	0.75	1.05	0.30	0.70	1.00	0.30	0.70	1.00
40		0.25	0.70	1.00	0.20	0.65	0.90	0.15	0.55	0.80	0.10	0.50	0.80	0.10	0.50	0.80

Data B-1 Correction factor for temperature/Series IDF (IDF1D to 240D)

Inlet air temp. (°C)	IDF 1D	25			30			35			40			50		
	IDF2D to 240D	30			35			40			45			50		
Ambient temp. (°C)	Outlet air press. dew point (°C)	5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
25		0.60	1.35	1.35	0.60	1.35	1.35	0.50	1.10	1.35	0.35	0.90	1.20	0.20	0.65	1.00
30		0.60	1.35	1.35	0.60	1.30	1.35	0.50	1.05	1.35	0.35	0.80	1.15	0.20	0.60	0.95
32		0.60	1.35	1.35	0.60	1.25	1.35	0.50	1.00	1.30	0.35	0.80	1.10	0.20	0.60	0.90
35		0.55	1.35	1.35	0.55	1.20	1.35	0.50	0.95	1.25	0.35	0.75	1.05	0.15	0.60	0.90
40		0.40	1.35	1.35	0.40	1.15	1.50	0.35	0.90	1.15	0.25	0.70	1.00	0.15	0.55	0.80

Data B-2 Correction factor for temperature/Series IDF (IDF370B)

Inlet air temp. (°C)		30			35			40			45			50		
Ambient temp. (°C)	Outlet air pressure dew point (°C)	5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
25		0.90	1.50	2.10	0.72	1.20	1.68	0.60	1.00	1.39	0.50	0.84	1.18	0.43	0.72	1.01
30		0.80	1.34	1.87	0.64	1.07	1.50	0.53	0.89	1.24	0.45	0.75	1.05	0.39	0.64	0.90
32		0.75	1.25	1.75	0.60	1.00	1.40	0.50	0.83	1.16	0.42	0.70	0.98	0.36	0.60	0.84
35		0.68	1.13	1.58	0.54	0.90	1.26	0.45	0.75	1.05	0.38	0.63	0.88	0.32	0.54	0.76
43		0.45	0.75	1.05	0.36	0.60	0.84	0.30	0.50	0.69	0.25	0.42	0.59	0.21	0.36	0.51

Data C Correction factor for air pressure/Series IDU and IDF

Inlet air pressure (MPa)	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Correction factor	0.65	0.68	0.77	0.84	0.90	0.95	1.00	1.03	1.06	1.08

Data D-1 Air flow capacity/Series IDU

Model		IDU3D	IDU4D	IDU6D	IDU8D	IDU11C	IDU15C	IDU22C1	IDU37C1	IDU55C	IDU75C
Air flow capacity (ℓ/min (ANR))	50Hz	300	430	640	850	1300	2050	3150	5200	7650	10500
	60Hz	350	500	750	1000	1500	2400	3700	6100	9000	12400

Data D-2 Air flow capacity/Series IDF

Model		IDF1D	IDF2D	IDF3D	IDF4D	IDF6D	IDF8D	IDF11C	IDF15C	IDF22C1	IDF37C1	IDF55C	IDF75C	IDF120D	IDF150D	IDF190D	IDF240D	IDF370B
Air flow capacity (ℓ/min (ANR))	50Hz	100	200	300	430	640	850	1300	2050	3150	5200	7650	10500	20000	25000	32000	43000	54000
	60Hz	120	235	350	500	750	1000	1500	2400	3700	6100	9000	12400	23000	30000	38000	50000	65000

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Refrigerant R134a

Series IDU Small

3D, 4D, 6D, 8D

How to Order

IDU

Model	Voltage	Options (No options for standard specification models)
3D	1	C
4D	2	E
6D	4	H
8D	6	L
		M
		R
		S
		T

Voltage		
Single phase	100VAC (50Hz) 100 to 110VAC (60Hz)	1
	200VAC (50Hz) 200 to 220VAC (60Hz)	2
	240VAC (50Hz) 220 to 240VAC (50Hz)	4
	220VAC (50Hz)	6

Model	Air compressor	Refrigerant
3D	2.2kW	R134a
4D	3.7kW	
6D	5.5kW	
8D	7.5kW	

Model and voltage combinations

Voltage / Model	1 100VAC (50Hz) 100 to 110VAC (60Hz)	2 200VAC (50Hz) 200 to 220VAC (60Hz)	4 220 to 240VAC (50Hz)	4 240VAC (50Hz)	6 220VAC (50Hz)
3D	●	●		●	●
4D	●	●		●	●
6D	●	●		●	●
8D	●	●	●		

Note 1) Single phase 200 to 240VAC is "S" specification standard.

Note 2) Combinations of H and M, R and S, S and T, L and M are not available.

Note 3) Option "T" is not available for IDU6D, 8D-4 and -6.

Option / Optional specification / Model	C With anti-corrosive treatment	E With evaporation thermometer	H For medium air pressure	L With heavy duty auto drain	M With motor operated auto drain	R With circuit breaker	S With power cord connection	T With terminal block for run & alarm signal and remote operation
3D	●	●					●	
4D	●	●	●				●	
6D	●	Standard	●	●	●	●	●	● Note 3)
8D	●		●	●	●	●	●	● Note 3)

∗ Refer to pages 14-17-26 to 14-17-27 for further information on options.

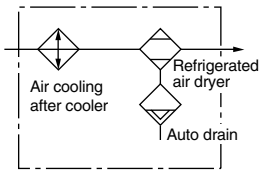
The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Standard Specifications/Models

Specification			Model	IDU3D	IDU4D	IDU6D	IDU8D
Rated Conditions	Air flow rate Note 2)		50Hz	300	430	640	850
	ℓ/min (ANR)		60Hz	350	500	750	1000
	Operating pressure (MPa)			0.7			
	Inlet air temperature (°C)			60			55
	Ambient temperature (°C)			32			
	Pressure dew point (°C)			10			
Operating Ranges	Working fluid			Compressed air			
	Inlet air temperature (°C)			5 to 80			5 to 75
	Inlet air pressure (MPa)			0.15 to 1.0			
	Ambient temperature (°C)			2 to 40 (Relative humidity of 85% or less)			
Electrical Specifications	Power source			Single phase, 100/100 to 110VAC (50/60Hz) Single phase, 200/200 to 220VAC (50/60Hz) Single phase, 220, 240/200 to 240VAC (50Hz)			
	Power consumption (W)	100 VAC	50Hz	225	250	305	340
			60Hz	275	350	380	415
		200 VAC	50Hz	205	220	300	325
			60Hz	240	280	350	375
		220 to 240VAC	50Hz	–	–	–	332
		220VAC	50Hz	182	265	280	–
		240VAC	50Hz	189	275	295	–
	Circuit breaker (A) Note 3)			10 (for 100VAC), 5 (for 200VAC)			
	Condenser			Air cooled			
	Refrigerant			R134a			
	Air connection			Rc 3/8		Rc 1/2	Rc 3/4
	Drain connection			Drain tube ø10 attached		Rc 1/4	
	Auto drain			AD43		INA-20-41-04 Note 5)	
	Weight (kg)	100 to 200VAC		23	31	43	47
		220 to 240VAC		24	31	46	53
	Coating color			Munsell 10Y8/0.5 (White)			
	Applicable compressor (screw type) kW			2.2	3.7	5.5	7.5

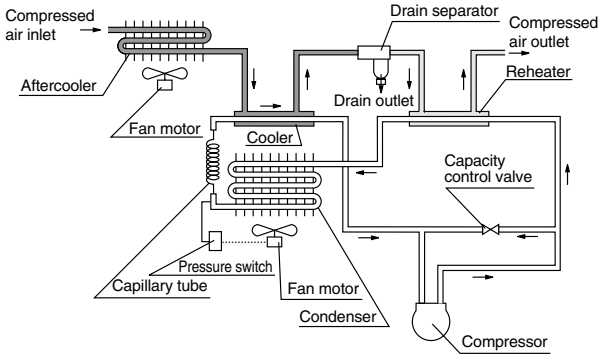
Note 1) Select an air dryer according to the selection method and not the rated conditions.
Note 2) The data for ℓ/min (ANR) refers to the conditions of 20°C, 1atm. pressure and relative humidity of 65%.
Note 3) Install a circuit breaker with sensitivity of ≤ 30mA.
Note 4) IDU3D to 8D-4/6 are only for frequency of 50Hz.
Note 5) Spare part for auto drain INA-20-41-04 is AD44-x445.

JIS Symbol



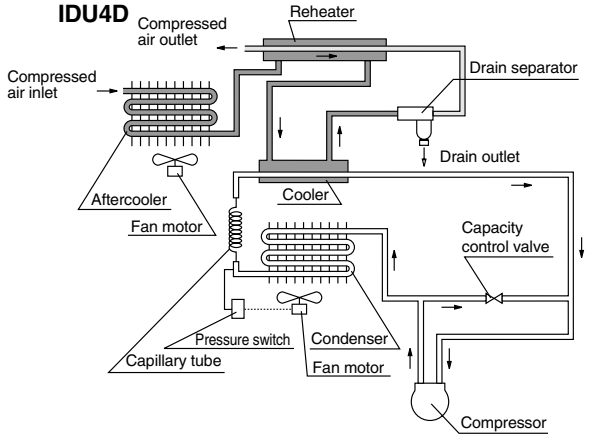
Operation Principles

IDU3D

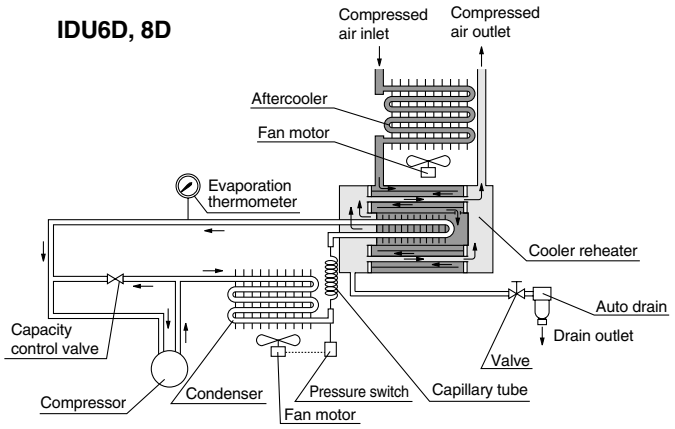


Humid hot air entering the air dryer is cooled in the aftercooler (air-cooling style) and then further cooled by the cooler.
At this time, the condensed moisture is separated from the air by the drain separator and automatically discharged. (IDU3D uses hot refrigerant vapor for reheating.)
The dried clean air is heated by the hot air that has entered the dryer. It is then discharged from air dryer outlet.

IDU4D



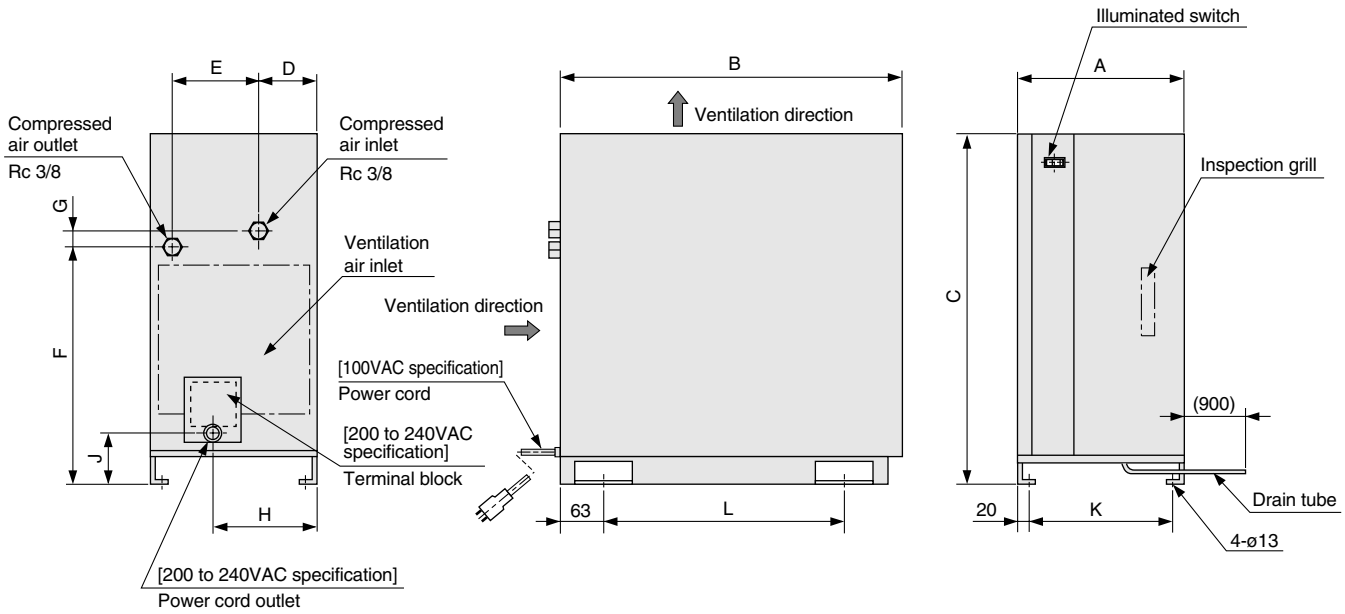
IDU6D, 8D



HA□
AT
ID□
AMG
AFF
AM□
Misc.

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

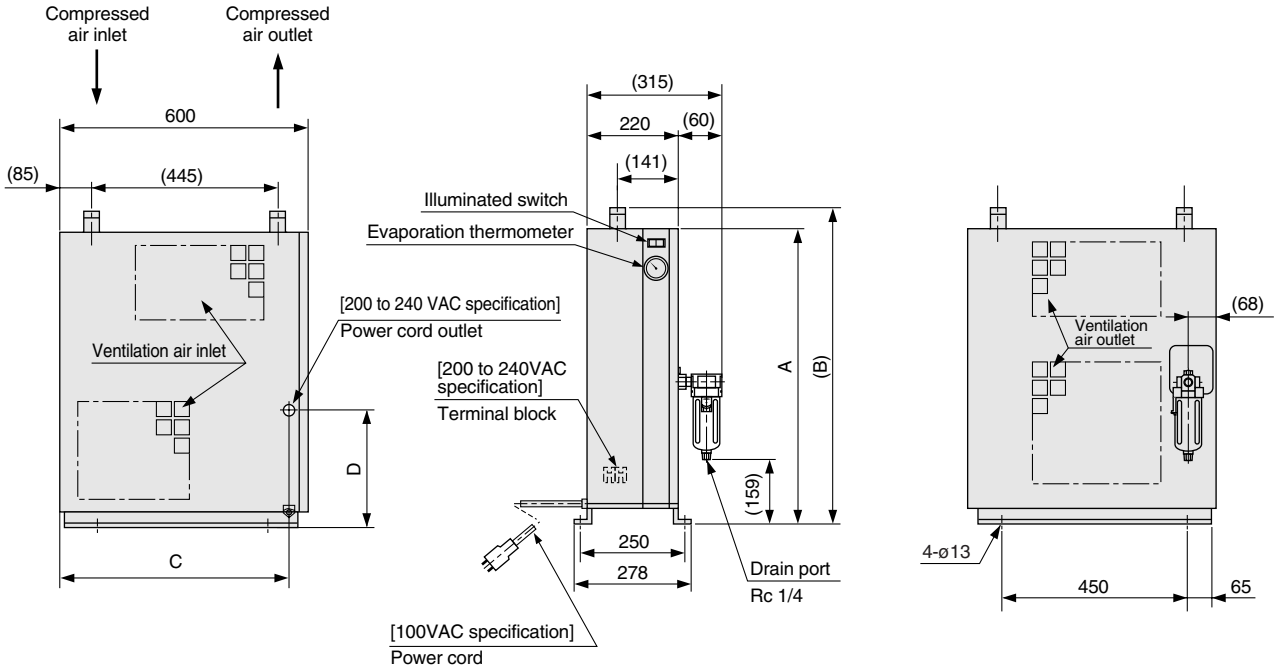
IDU3D, 4D



Model	Port size	A	B	C	D	E	F	G	H	J	K	L
IDU3D	Rc 3/8	246	496	509	87	125	344	23	175 [151]	44 [67]	206	356
IDU4D		242	591	606	31	170	469	13	171 [179]	44 [67]	202	446

[ ] : Power source 200 to 240VAC

IDU6D, 8D



∗ Auto drain is packed together with air dryer. (Some assembly is required.)

Model	Port size	A	B	C	D
IDU6D	R 1/2	710	760	560 [551]	240 [75]
IDU8D	R 3/4	810	860		

[ ]: Power source 220 to 240VAC

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Refrigerant R22, R134a

Series IDU Medium

11D, 11C, 15C, 15C1, 22C, 22C1, 37C, 37C1, 55C, 75C

How to Order

IDU

Model
11D
11C
15C
22C
22C1
37C
37C1
55C
75C

Voltage
1
2
3
4
6

Voltage	
Single phase 100VAC (50Hz) 100 to 110VAC (60Hz)	1
Single phase 200VAC (50Hz) 200 to 220VAC (60Hz)	2
Three phase 200VAC (50Hz) 200 to 220VAC (60Hz)	3
Single phase 240VAC (50Hz) 220 to 240VAC (50Hz)	4
Single phase 220VAC (50Hz)	6

Options (No options for standard specification models)

Options
C
E
H
L
M
R
S
T

Note 1) Options for "-4" and "-6" are not currently available. Please contact our subsidiaries if necessary.
Note 2) A combination of two options is standard. A combination of three or more optional items is handled as a special order product.
Note 3) 200 to 240VAC is "S" specification standard.
Note 4) Combinations of M and H, H and M, R and S, S and T, L and M are not available.
Note 5) Option "T" is not available for IDU55C and 75C-4/6.

Model	Air compressor	Refrigerant
11D	11kW	R134a
11C		R22
15C	15kW	
22C/22C1	22kW	
37C/37C1	37kW	
55C	55kW	
75C	75kW	

Option / Optional specification / Model	C	E	H	L	M	R	S	T
	With anti-corrosive treatment	With evaporation thermometer	For high air pressure	With heavy duty auto drain	With motor operated auto drain	With circuit breaker	With power cord connection	With terminal block for run & alarm signal
11C/11D	●	Standard	●	●	●	●	●	●
15C	●		●	●	●	●	●	●
22C1/22C	●		●	●	●	●	Standard	●
37C1/37C	●			●	●	●		●
55C	●			●	●	●		● Note 5)
75C	●			●	●	●		● Note 5)

* Refer to pages 14-17-26 to 14-17-27 for further information on options.

Model and voltage combinations

Voltage / Model	1	2	3	4		6
	Single phase		Three phase	Single phase		
	100VAC (50Hz) 100 to 110VAC (60Hz)	200VAC (50Hz) 200 to 220VAC (60Hz)	200VAC (50Hz) 200 to 220VAC (60Hz)	220 to 240VAC (50Hz)	240VAC (50Hz)	220VAC (50Hz)
11D				●		
11C	●	●				
15C	●	●			●	●
22C					●	●
22C1			●			
37C					●	●
37C1			●			
55C			●		●	●
75C			●		●	●

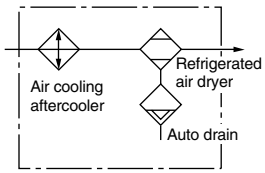
The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Standard Specifications/Models

Specification			Model	IDU11D	IDU11C	IDU15C	IDU22C	IDU22C1	IDU37C	IDU37C1	IDU55C	IDU75C
Rated Conditions	Air flow rate Note 2) ℓ/min (ANR)		50Hz	1300	1300	2050	3150		5200		7650	10500
			60Hz	—	1500	2400	—	3700	—	6100	9000	12400
	Operating pressure (MPa)			0.7								
	Inlet air temperature (°C)			55							50	
	Ambient temperature (°C)			32								
	Pressure dew point (°C)			10								
Operating Ranges	Working fluid			Compressed air								
	Inlet air temperature (°C)			5 to 75			5 to 70				5 to 60	
	Inlet air pressure (MPa)			0.15 to 1.0								
	Ambient temperature (°C)			2 to 40 (Relative humidity of 85% or less)								
Electrical Specifications	Power source			Single phase, 100/100 to 110VAC (50/60Hz) 220, 240VAC (50Hz) 220 to 240VAC (50Hz)			Three phase, 200/200 to 220VAC (50/60Hz) Single phase, 220, 240VAC (50Hz)					
	Power consumption (W)	100 VAC	50Hz	—	360	583	—	—	—	—	—	—
			60Hz	—	385	700						
		200 VAC	50Hz	—	348	597	—	750	—	870	1520	2290
			60Hz	—	384	690	—	880	—	1040	1910	2770
		220 to 240VAC	50Hz	377	—	—	—	—	—	—	—	—
		220VAC	50Hz	—	—	600	790	—	870	—	1650	2340
		240VAC	50Hz	—	—	620	815	—	900	—	1700	2390
	Circuit breaker (A) Note 3)			10 (for 100VAC), 5 (for 200VAC)			10			15		
	Condenser			Air cooled								
	Refrigerant			R134a	R22							
	Air connection			Rc 3/4		Rc 1			Rc 1 1/2		Rc 2	
	Drain connection			Rc 1/4								
	Auto drain			INA-20-41-04 Note 5)								
	Weight (kg)	100 to 200VAC		—	59	66	—	83	—	114	160	185
		220 to 240VAC		62	—	70	85	—	115	—	170	194
	Coating color			Munsell 10Y8/0.5 (White)								
	Applicable compressor (screw type) kW			11		15	22		37		55	75

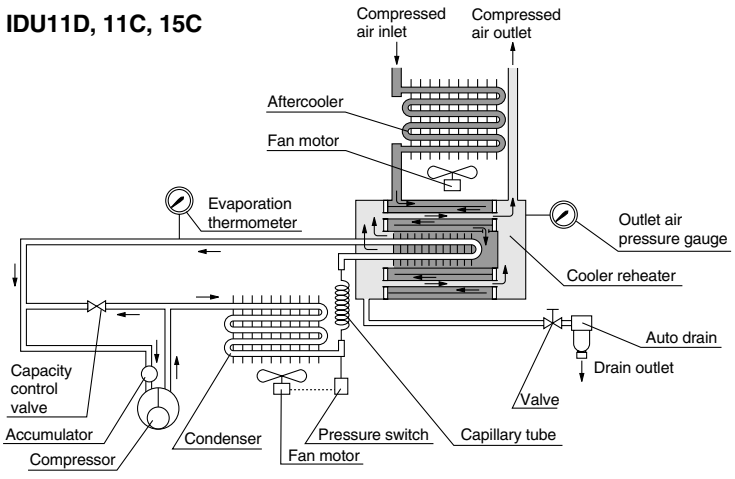
Note 1) Select an air dryer according to the selection method and not the rated conditions.
Note 2) The data for ℓ/min (ANR) refers to the conditions of 20°C, 1 atm. pressure and relative humidity of 65%.
Note 3) Install a circuit breaker with sensitivity of ≤ 30 mA.
Note 4) IDU11D to 75C-4/6 are only for frequency of 50Hz.
Note 5) Spare part for auto drain INA-20-41-04 is AD44-x445.

JIS Symbol



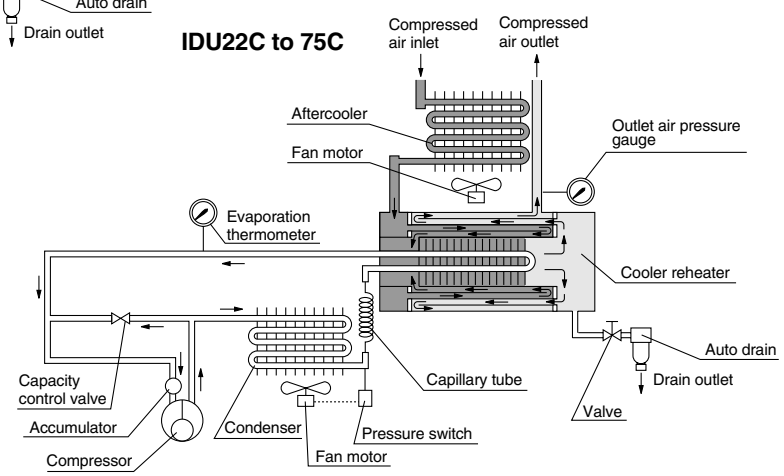
Operation Principles

IDU11D, 11C, 15C



Humid hot air entering the air dryer is cooled in the after-cooler. It then enters the reheater to creat an initial condensation with cooled and dehumidified air. The hot air is cooled further and dehumidified inside the cooler as heat is transferred to the refrigerant. The water vapor condensed by the cooling process is cooled and discharged automatically through the auto drain. Cool air is then heated again inside the reheater (heat is transferred from incoming hot air), before leaving the air dryer.

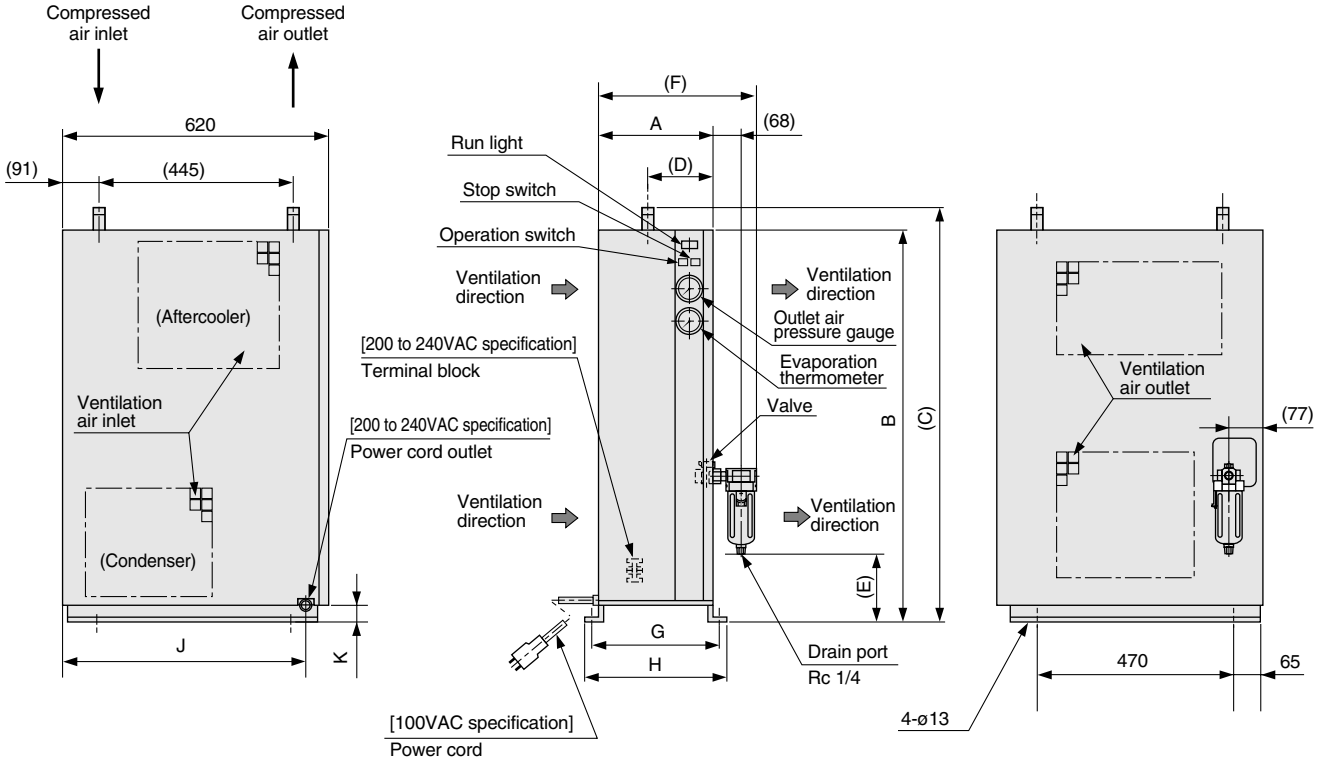
IDU22C to 75C



HA□
AT
ID□
AMG
AFF
AM□
Misc.

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

IDU11D, 11C, 15C

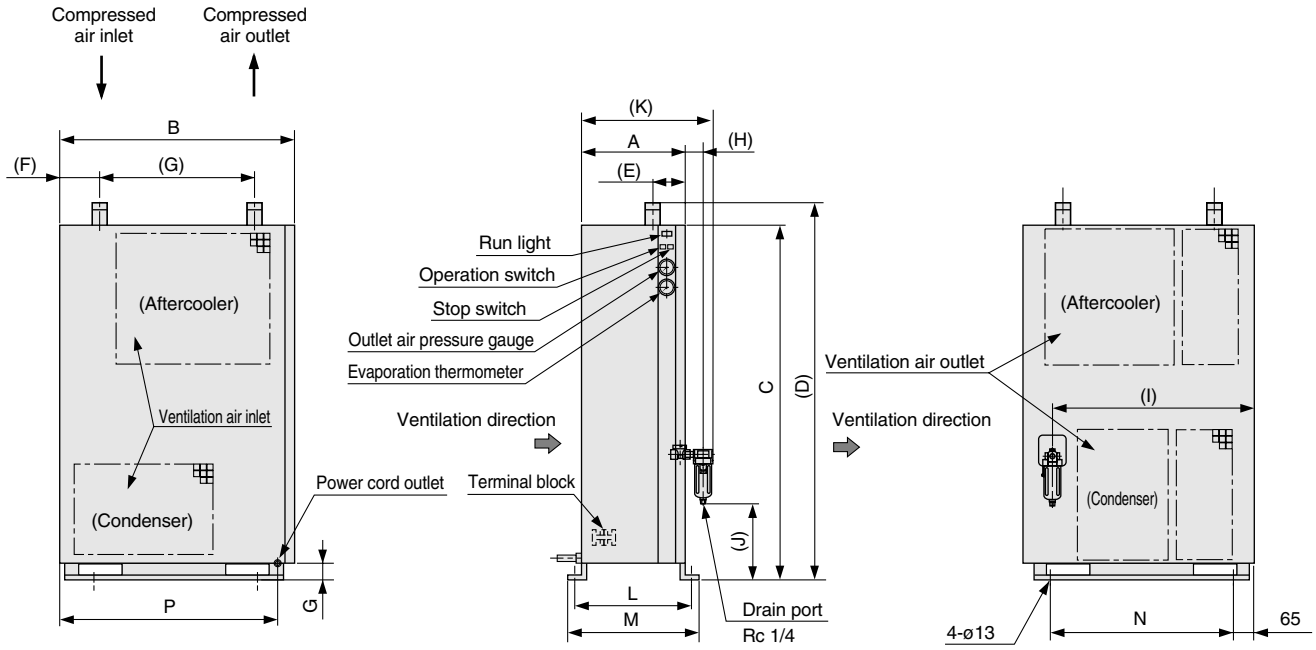


∗ Auto drain is packed together with air dryer. (Some assembly is required.)

Model	Port size	A	B	C	D	E	F	G	H	J	K
IDU11C/11D	R 3/4	260	910	959	152	157	363	289	317	571 [580]	30 [70]
IDU15C	R 1	280	960	1009	175	207	383	309	337		

[ ] : Power source 220 to 240VAC

IDU22C, 22C1, 37C, 37C1, 55C, 75C



∗ Auto drain is packed together with air dryer. (Some assembly is required.)

Model	Port size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q
IDU22C1/22C	R 1	300	750	1155	1235	71	70	445	63	642	219	398	328	356	600	700 [700]	50 [90]
IDU37C1/37C	R 1 1/2	360	830	1260	1350	112	136	550	68	722	269	463	388	416	680	780 [776]	50 [90]
IDU55C	R 2	405	850	1340	1440	87	155	530	68	722	267	508	433	461	700	800 [800]	50 [95]
IDU75C	R 2	425	850	1475	1575	87	220	530	68	722	317	528	453	481	700	800 [800]	50 [95]

[ ] : Power source 220 to 240VAC

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Refrigerant R134a

Series IDF Small

1D, 2D, 3D, 4D, 6D, 8D

How to Order

	Model	Voltage	Options (No options for standard specification models)
IDF	1D	1	A
	2D	2	C
	3D	4	E
	4D	6	H
	6D		L
	8D		M
			R
			S
			T

Voltage		
Single phase	100VAC (50Hz) 100 to 110VAC (60Hz)	1
	200VAC (50Hz) 200 to 220VAC (60Hz)	2
	240VAC (50Hz) 220 to 240VAC (50Hz)	4
	220VAC (50Hz)	6

Model	Air compressor	Refrigerant
1D	0.75kW	R134a
2D	1.5kW	
3D	2.2kW	
4D	3.7kW	
6D	5.5kW	
8D	7.5kW	

Note 1) A combination of three or more optional items is handled as a special order product.
Note 2) Single phase 220 to 240VAC is "S" specification standard.
Note 3) Combinations of H and M, R and S, S and T, A and H, L and M are not available.
Note 4) Option "T" is not available for IDF6D, 8D-4 and -6.

Model \ Option / Optional specification	A	C	E	H	L	M	R	S	T
	With cool compressed air output	With anti-corrosive treatment	With evaporation thermometer	For medium air pressure	With heavy duty auto drain	With motor operated auto drain	With circuit breaker	With power cord connection	With terminal block for run & alarm signal and remote operation
1D	●	●						●	
2D	●	●						●	
3D	●	●	●					●	
4D	●	●	●	●				●	
6D	●	●	Standard	●	●	●	●	●	● Note 4)
8D	●	●		●	●	●	●	●	● Note 4)

* Refer to pages 14-17-26 to 14-17-27 for further information on options.

Model and voltage combinations

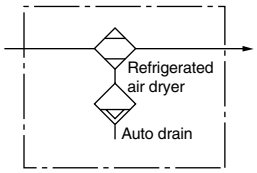
Voltage / Model	1 100VAC (50Hz) 100 to 110VAC (60Hz)	2 200VAC (50Hz) 200 to 220VAC (60Hz)	4 220 to 240VAC (50Hz)	4 240VAC (50Hz)	6 220VAC (50Hz)
1D	●				
2D	●				
3D	●	●		●	●
4D	●	●		●	●
6D	●	●	●		
8D	●	●	●		

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Standard Specifications/Models

Specification			Model	IDF1D	IDF2D	IDD3D	IDF4D	IDF6D	IDF8D
Rated Conditions	Air flow rate Note 2) ℓ/min (ANR)		50Hz	100	200	300	430	640	850
			60Hz	120	235	350	500	750	1000
	Operating pressure (MPa)			0.7					
	Inlet air temperature (°C)			35	40				
	Ambient temperature (°C)			32					
	Pressure dew point (°C)			10					
Operating Ranges	Working fluid			Compressed air					
	Inlet air temperature (°C)			5 to 50					
	Inlet air pressure (MPa)			0.15 to 1.0					
	Ambient temperature (°C)			2 to 40 (Relative humidity of 85% or less)					
Electrical Specifications	Power source			Single phase, 100/100 to 110VAC (50/60Hz)		Single phase, 100/100 to 110VAC (50/60Hz) Single phase, 200/200 to 220VAC (50/60Hz) Single phase, 220, 240/220 to 240VAC (50Hz)			
	Power consumption (W)	100 VAC	50Hz	184	187	210	207	283	283
			60Hz	213	210	260	250	330	330
		200 VAC	50Hz	—	—	195	202	280	280
			60Hz	—	—	240	245	328	328
		220 to 240VAC	50Hz	—	—	—	—	259	292
		220VAC	50Hz	—	—	172	247	—	—
		240VAC	50Hz	—	—	179	257	—	—
	Circuit breaker (A) Note 3)			10 (for 100VAC), 5 (for 200VAC)					
	Condenser			Air cooled					
	Refrigerant			R134a					
	Air connection			Rc 3/8				Rc 1/2	Rc 3/4
	Drain connection			Drain tube ø10 attached				Rc 1/4	
	Auto drain			AD53	AD43			INA-20-41-04 Note 5)	
	Weight (kg)	100 to 200VAC		15	16	18	26	32	32
		220 to 240VAC		—		19	26	35	38
	Coating color			Munsell 10Y8/0.5 (White)					
	Applicable compressor (screw type) kW			0.75	1.5	2.2	3.7	5.5	7.5

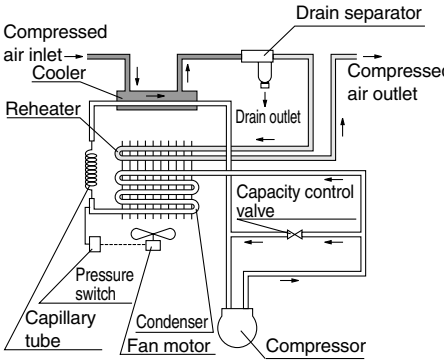
JIS Symbol



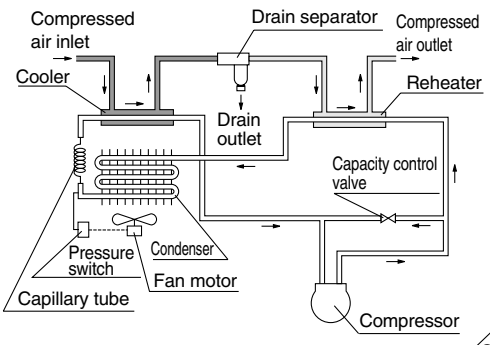
Note 1) Select an air dryer according to the selection method and not the rated conditions.
Note 2) The data for ℓ/min (ANR) refers to the conditions of 20°C, 1 atm. pressure and relative humidity of 65%.
Note 3) Install a circuit breaker with sensitivity of ≤30 mA.
Note 4) IDF3D to 8D-4/6 are only for frequency of 50Hz.
Note 5) Spare part for auto drain INA-20-41-04 is AD44- x445.

Operation Principles

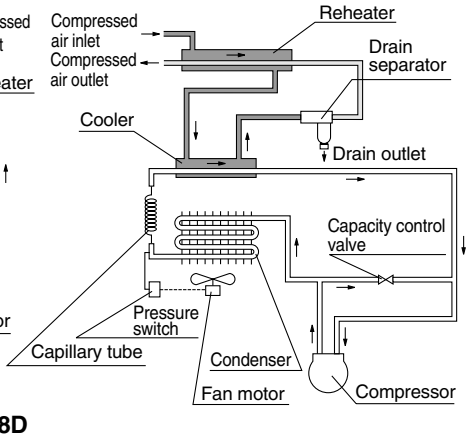
IDF1D



IDF2D, 3D

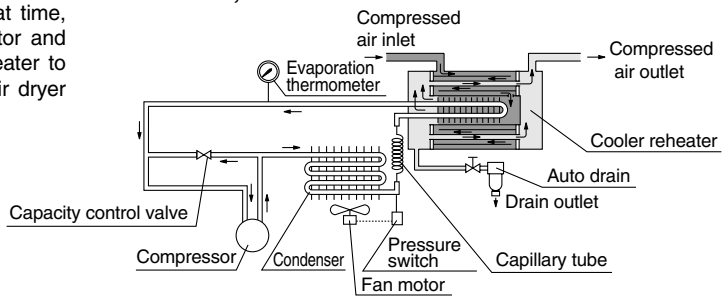


IDF4D



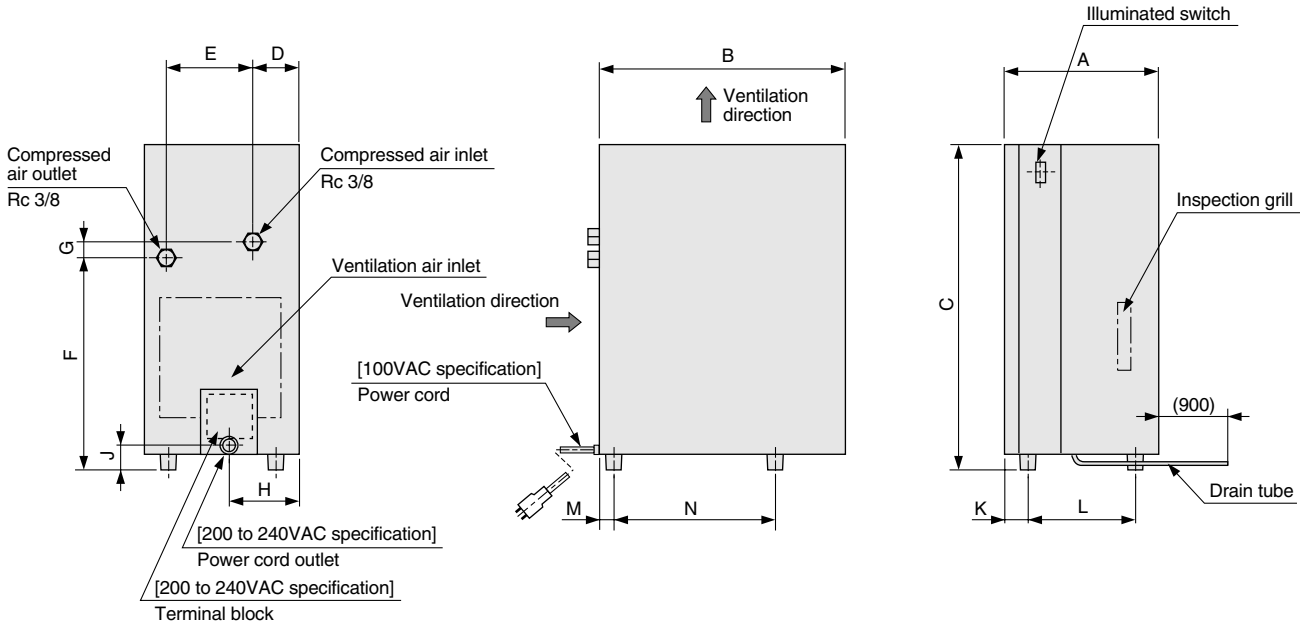
Hot humid air entering the air dryer is cooled by the cooler. At that time, condensed moisture is separated from the air by the drain separator and automatically discharged. The dried clean air is heated by the reheater to about the ambient temperature, and is then discharged from the air dryer outlet.

IDF6D, 8D



The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

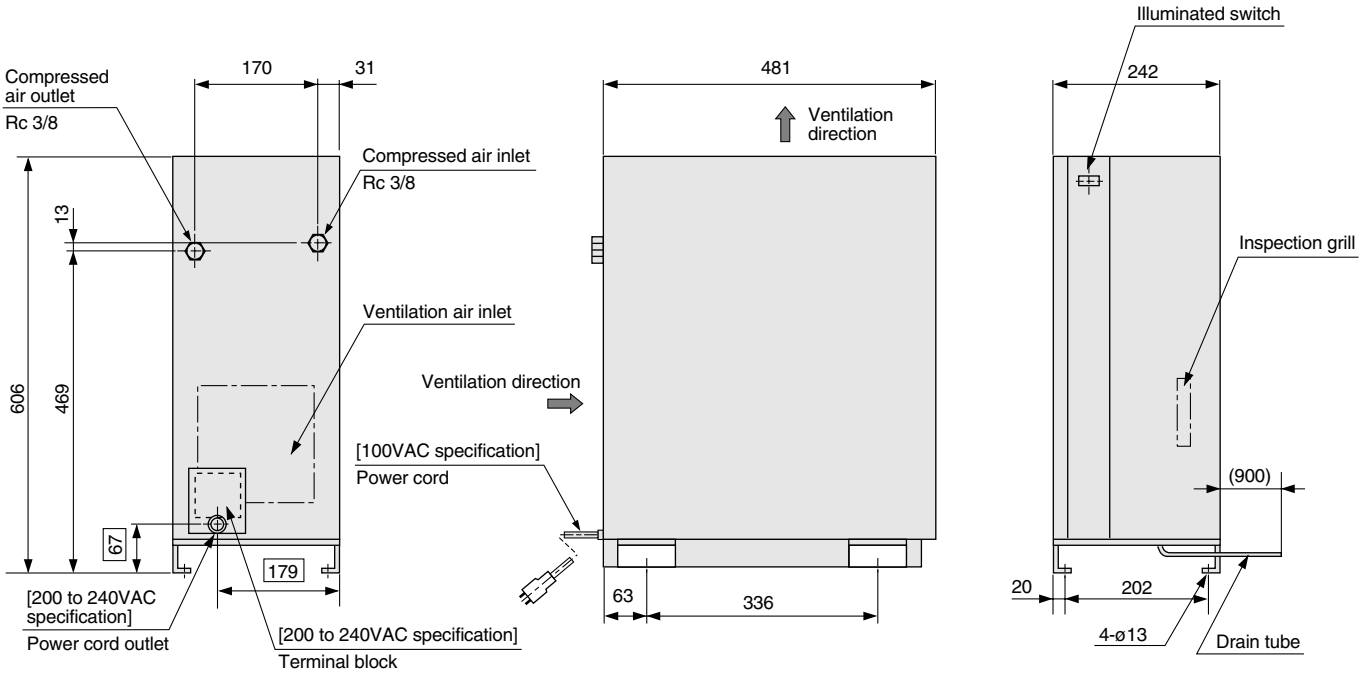
IDF1D, 2D, 3D



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N
IDF1D	Rc 3/8	200	328	395	59	74	247	36	—	—	34	132	38	198
IDF2D		226	328	410	51	125	232	138	—	—	38	150	24	217
IDF3D		226	358	470	67	125	304	33	103	28	36	154	21	236

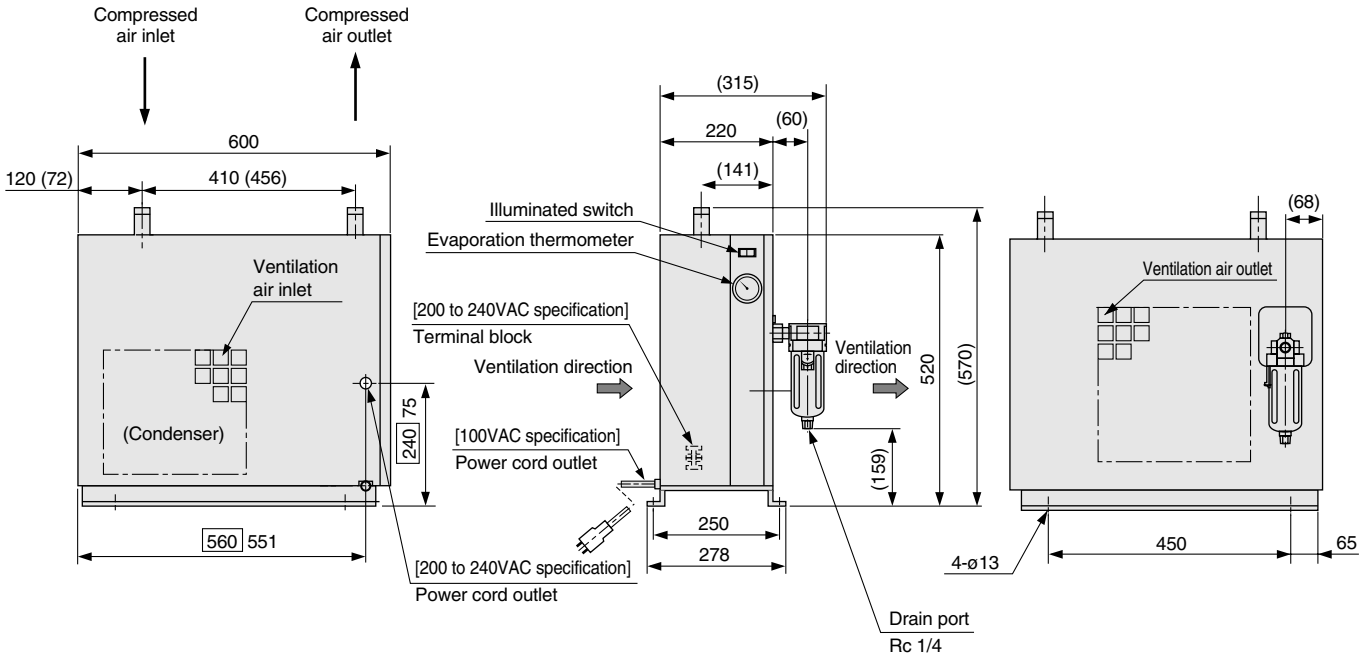
: Power source 200 to 240VAC

IDF4D



: Power source 200 to 240VAC

IDF6D, 8D



□: In case of 200VAC. Dimension shown on the right is for 220 to 240VAC.
( ): Dimension within bracket is for air dryer with option A, with cool compressed air output.
Air inlet and outlet are reversed for air dryer with option A, with cool compressed air output.

∗ Auto drain is packed together with the air dryer. (Some assembly is required.)

Model	Port size
IDF6D	R 1/2
IDF8D	R 3/4

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Refrigerant R22

Series IDF Medium

11D, 11C, 15C, 15C1, 22C, 22C1, 37C, 37C1, 55C, 75C

How to Order

IDF + Model + Voltage + Options (No options for standard specification models)

Model
11D
11C
15C
15C1
22C
22C1
37C
37C1
55C
75C

Voltage	
Single phase 100VAC (50Hz) 100 to 110VAC (60Hz)	1
Single phase 200VAC (50Hz) 200 to 220VAC (60Hz)	2
Three phase 200VAC (50Hz) 200 to 220VAC (60Hz)	3
Single phase 240VAC (50Hz) 220 to 240VAC (50Hz)	4
Single phase 220VAC (50Hz)	6

Options (No options for standard specification models)
A
C
E
H
L
M
R
S
T
W

Model	Air compressor	Refrigerant
11D	11kW	R134a
11C		R22
15C/15C1	15kW	
22C/22C1	22kW	
37C/37C1	37kW	
55C	55kW	
75C	75kW	

Note 1) A combination of two is standard. A combination of three or more optional items is handled as a special order product.

Note 2) 200 to 240VAC is "S" specification standard.

Note 3) Combinations of A and H, H and M, R and S, S and T are not available.

Note 4) Options "T" and "W" are not available for IDF37C, 55C and 75C-4/6.

Option / Optional specification / Model	A	C	E	H	L	M	R	S	T	W
	With cool compressed air output	With anti-corrosive treatment	With evaporation thermometer	For medium air pressure	With heavy duty auto drain	With motor operated auto drain	With circuit breaker	With power cord connection	With terminal block for run & alarm signal	Water cooled condenser
11C/11D	●	●	Standard	●	●	●	●	●	●	
15C/15C1	●	●		●	●	●	●	●	●	
22C/22C1	●	●		●	●	●	●	Standard	●	
37C/37C1	●	●		●	●	●	●		● Note 4)	● Note 4)
55C	●	●		●	●	●	●		● Note 4)	● Note 4)
75C	●	●		●	●	●	●		● Note 4)	● Note 4)

∗ Refer to pages 14-17-26 to 14-17-27 for further information on options.

Model and voltage combinations

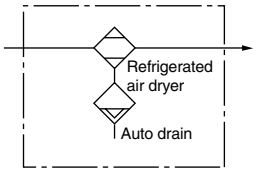
Voltage / Model	1	2	3	4		6
	Single phase		Three phase	Single phase		
	100VAC (50Hz) 100 to 110VAC (60Hz)	200VAC (50Hz) 200 to 220VAC (60Hz)	200VAC (50Hz) 200 to 220VAC (60Hz)	220 to 240VAC (50Hz)	240VAC (50Hz)	220VAC (50Hz)
11D				●		
11C	●	●				
15C	●	●				
15C1					●	●
22C					●	●
22C1			●			
37C					●	●
37C1			●			
55C			●		●	●
75C			●		●	●

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Standard Specifications/Models

Specification			Model	IDF11D	IDF11C	IDF15C	IDF15C1	IDF22C	IDF22C1	IDF37C	IDR37C1	IDF55C	IDF75C
Rated Conditions	Air flow rate Note 2) ℓ/min (ANR)		50Hz	1300		2050		3150		5200		7650	10500
			60Hz	—	1500	2400	—	—	3700	—	6100	9000	12400
	Operating pressure (MPa)			0.7									
	Inlet air temperature (°C)			40									
	Ambient temperature (°C)			32									
	Pressure dew point (°C)			10									
Operating Ranges	Working fluid			Compressed air									
	Inlet air temperature (°C)			5 to 50									
	Inlet air pressure (MPa)			0.15 to 1.0									
	Ambient temperature (°C)			2 to 40 (Relative humidity of 85% or less)									
Electrical Specifications	Power source			Single phase, 100/100 to 110VAC (50/60Hz) 220, 240VAC (50Hz) 220 to 240VAC (50Hz)				Three phase, 200/200 to 220VAC (50/60Hz) Single phase, 220, 240VAC (50Hz)					
	Power consumption (W)	100 VAC	50Hz	—	320	543	—	—	—	—	—	—	—
			60Hz	—	347	662	—	—	—	—	—	—	—
		200 VAC	50Hz	—	308	561	—	—	670	—	750	1400	2100
			60Hz	—	346	652	—	—	800	—	880	1750	2150
		220 to 240VAC	50Hz	337	—	—	—	—	—	—	—	—	—
		220VAC	50Hz	—	—	—	548	747	—	830	—	1530	2150
		240VAC	50Hz	—	—	—	570	777	—	860	—	1580	2200
	Circuit breaker (A) Note 3)			10 (for 100VAC), 5 (for 200VAC)				10				15	
	Condenser			Air cooled									
	Refrigerant			R134a	R22								
	Air connection			Rc 3/4		Rc 1				Rc 1 1/2		Rc 2	
	Drain connection			Rc 1/4									
	Auto drain			INA-20-41-04 Note 5)									
	Weight (kg)	100 to 200VAC		—	47	50	—	—	60	—	72	114	126
		220 to 240VAC		50	—	—	53	60	—	72	—	125	135
	Coating color			Munsell 10Y8/0.5 (White)									
	Applicable compressor (screw type) kW			11		15		22		37		55	75

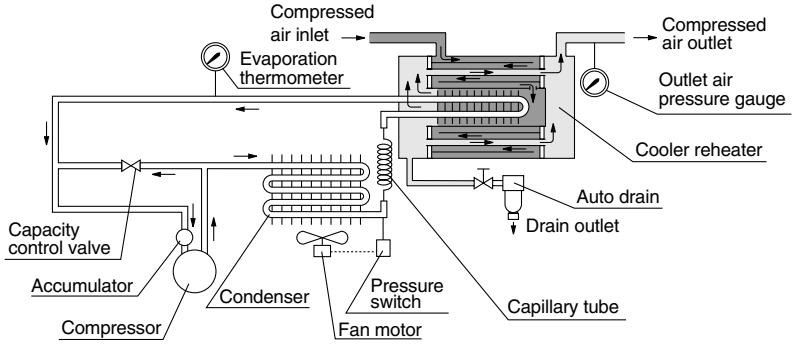
JIS Symbol



Note 1) Select an air dryer according to the selection method and not the rated conditions.
Note 2) The data for ℓ/min (ANR) refers to the conditions of 20°C, 1 atm. pressure and relative humidity of 65%.
Note 3) Install a circuit breaker with sensitivity of ≤30 mA.
Note 4) IDU11D to 75C-4/6 are only for frequency of 50Hz.
Note 5) Spare part for auto drain INA-20-41-04 is AD44- x445.

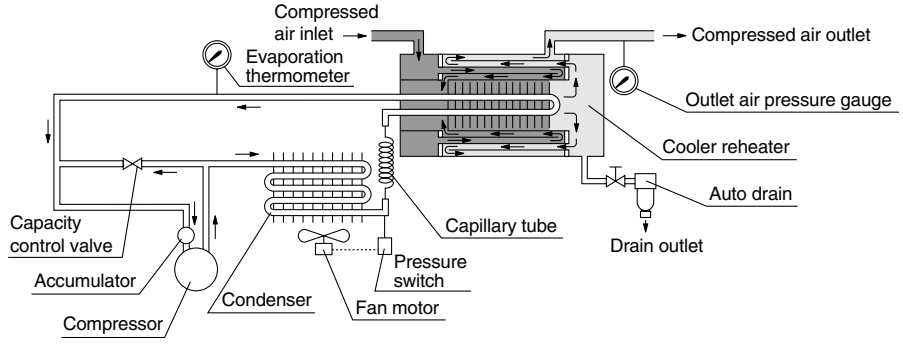
Operation Principles

IDF11D, 11C, 15C, 15C1



Hot humid air entering the reheater is precooled by dehumidified cool air. (The hot air is cooled further and dehumidified inside the cooler as heat is transferred to the refrigerant. The water condensed by the cooling process is collected and discharged automatically by the auto drain.) Finally, the cool dehumidified air is heated in the reheater by hot inlet air and discharged in a dry state.

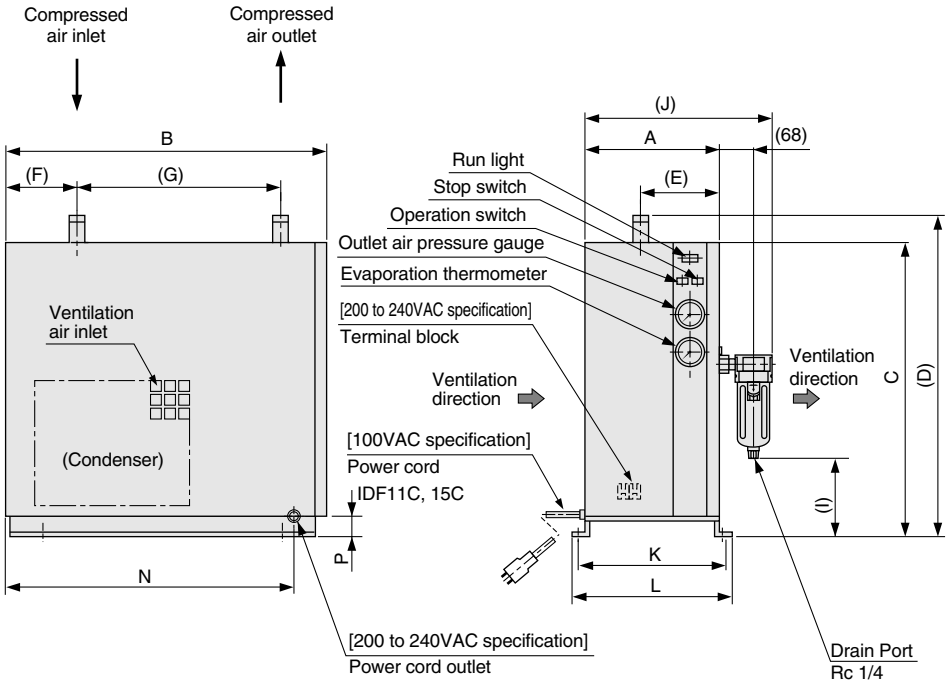
IDF22C, 22C1, 37C1, 55C, 75C

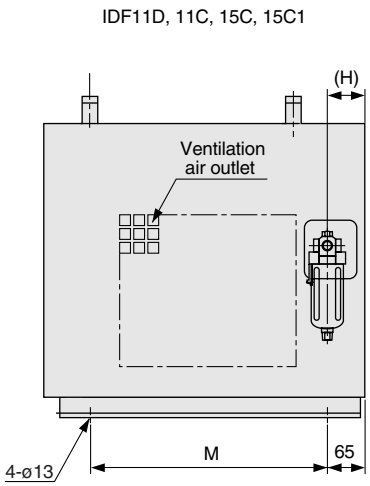


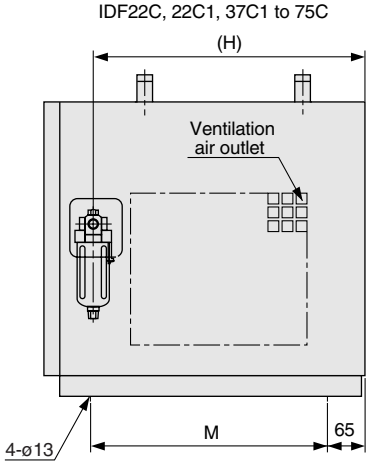
HA□
AT
ID□
AMG
AFF
AM□
Misc.

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

IDF11D, 11C, 15C, 15C1, 22C, 22C1, 37C1, 55C, 75C







∗ Auto drain is packed together with the air dryer. (Some assembly is required.)

Model	Port size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
IDF11C/11D	R 3/4	260	620	570	630	152	131 (85)	405 (450)	77	157	363	289	317	470	580 [580]	70 [65]
IDF15C/15C	R 1	280	620	620	680	175	131 (85)	405 (450)	77	207	383	309	337	470	580 [580]	70 [65]
IDF22C/22C1	R 1	295	750	680	760	183	98	405 (530)	642	199	398	323	351	600	700 [700]	70 [30]
IDF37C/37C1	R 1 1/2	320	830	730	810	208	98	405 (610)	722	249	423	348	376	680	776 [780]	70 [30]
IDF55C	R 2	405	850	850	930	85	98	405 (610)	722	247	508	433	461	700	800 [800]	75 [30]
IDF75C	R 2	425	850	900	980	85	98	405 (610)	722	297	528	453	481	700	802 [800]	75 [30]

[ ] : Power source 200VAC. Dimension shown on the right is for 220 to 240VAC.
( ): Dimension within bracket is for air dryer with option A, with cool compressed air output.
Air inlet and outlet are reversed for air dryer with option A, with cool compressed air output.

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Refrigerant R407C, R22

Series IDF Large

120D, 150D, 190D, 240D, 370B

How to Order

Refrigerant R407C

120D, 150D

IDF — Model: 120D / 150D / 190D / 240D — Voltage: 3 / 7 / 8 / 9 — Options (No options for standard specification models): C / M / R / W

9 → 220V / 240V / 400V / 440V

Note 1) Select one applicable voltage.

Symbol	Voltage	
3	Three phase	200/200 to 220VAC (50/60Hz)
7		380VAC (50Hz)
8		415VAC (50Hz)
9		Built-in transformer

Model	Air compressor	Refrigerant
120D	120kW	R407C
150D	150kW	
190D	190kW	
240D	240kW	

Model	3	7	8	9
120D	●	●	●	●
150D	●	●	●	●
190D	●			●
240D	●			●

Note 2) Possible to combine 2 options. When requiring 3 options or more, it is made to order.

Option / Voltage	C: With anti-corrosive treatment	M: With motor operated auto drain	R: With circuit breaker	W: Water-cooled condenser
3	●	●	●	●
7	●	●	●	
8	●	●	●	
9	●	●	●	●

Refrigerant R22

370B

IDF — Size: 370B — Port size: 60 — Voltage: 3 — Options (No options for standard specification models): X202 / X204 / X205

Model	Air compressor	Refrigerant
370B	370kW	R22

Model	Symbol	Port size
370B	**60**	6B flange

Model	Symbol	Voltage
370B	**3**	Three phase 200VAC (50/60Hz)

Symbol / Option / Size	X202: With circuit braker	X204: With anti-corrosive treatment	X205: Heavy duty auto drain
370B	●	●	●

Integrated with Transformer (Option)

IDF — Model: 370B — Port size: 60 — 9 — Primary side at transformer: 220V / 240V / 380V / 400V / 415V / 440V

Model	Air compressor	Refrigerant
370B	370kW	R22

Model	Symbol	Port size
370B	**60**	6B flange

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Standard Specifications/Models

Specification		Model		IDF120D	IDF150D	IDF190D	IDF240D	IDF370B Note 2)
Rated conditions	Air flow rate Note 1) (m^3/min (ANR))		50Hz	20	25	32	43	54
			60Hz	23	30	38	50	65
	Inlet air pressure (MPa)			0.7				
	Inlet air temperature (°C)			40				35
	Ambient temperature (°C)			32				
	Outlet air pressure dew point (°C)			10				
Operating ranges	Working fluid			Compressed air				
	Inlet air temperature (°C)			5 to 50				
	Inlet air pressure (MPa)			0.15 to 0.1				
	Ambient temperature (Humidity) (°C)			2 to 40 (Relative humidity of 85% or less)				2 to 43
Electrical specifications	Power source			Three phase 200/220VAC (50/60Hz) Three phase 380VAC (50Hz) Three phase 415VAC (50Hz)		Three phase 200/220VAC (50/60Hz) Three phase 380VAC (50Hz) Three phase 415VAC (50Hz)		Three phase 200/220VAC (50/60Hz)
	Power consumption (kw)	200AVC	50Hz	2.5	4.0	4.9	6.3	8.1
			60Hz	3.1	5.0	5.9	7.6	9.5
		380AVC	50Hz	2.1	3.3	–	–	–
		415AVC		2.2	3.4	–	–	–
	Circuit breaker (A)	200AVC		30	50	50	60	80
		380AVC		15	20	–	–	–
		451AVC						
	Condenser			Air cooled				Water cooled
	Refrigerant			R407C				R22
	Air connection			2 1/2B flange	3B flange		4B flange	6B flange
	Drain connection (Rc)			Rc 1/2				Rc 3/8
	Auto drain			ADH4000-04				ADM200-042-8
	Weight (kg)			330	350	450	660	1100
	Coating color			Body panel: Munsell 10Y8/0.5 (White) Base: Black				Front panel: Munsell 2.5PB5/8.5 (Blue) Other panels (Except base): Munsell N-8 (White)
	Applicable compressor (kw)			120	150	190	240	370

Note 1) The data for ℓ/min (ANR) refers to the conditions of 20°C, 1atm. pressure and relative humidity of 65%.
Note 2) This is made to order.

Water cooled condenser specifications (IDF370B)

Condenser	Shell and tube system
Cooling water flow Note 1)	100 ℓ/min
Cooling tower capacity Note 2)	10RT
Water flow regulator	Pressure style automatic water supply valve
Connection bore on water side	1 1/4B union

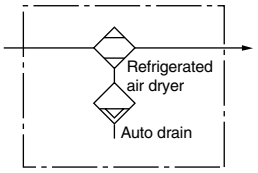
Note 1) Value for inlet water temperature of 32°C and rated load.
Note 2) Value calculated for 1RT = 3, 300kcal/h.

Auto drain

Model	Operation cycle	Operation time
IDF370B	4 cycles/min.	8 sec./min.

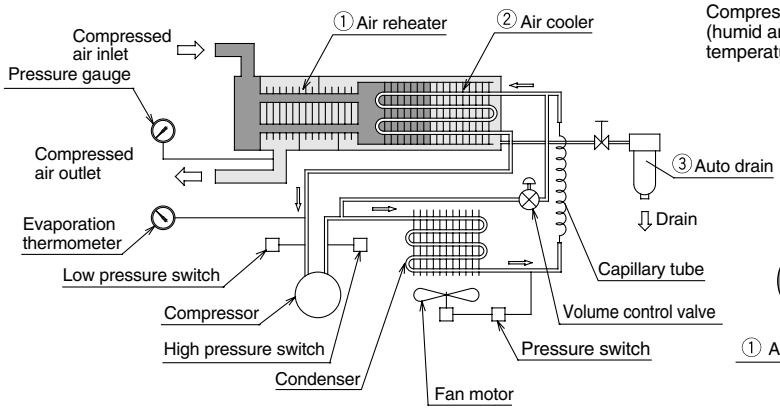
Power supply	200VAC 50/60Hz.
Power consumption	4W

JIS Symbol

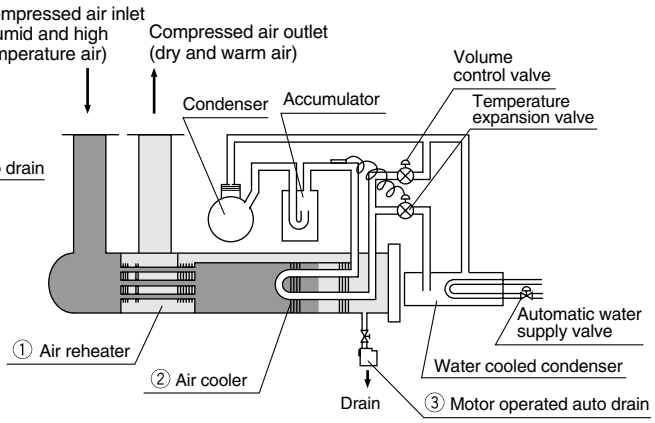


Operation Principles

IDF120D to 240D

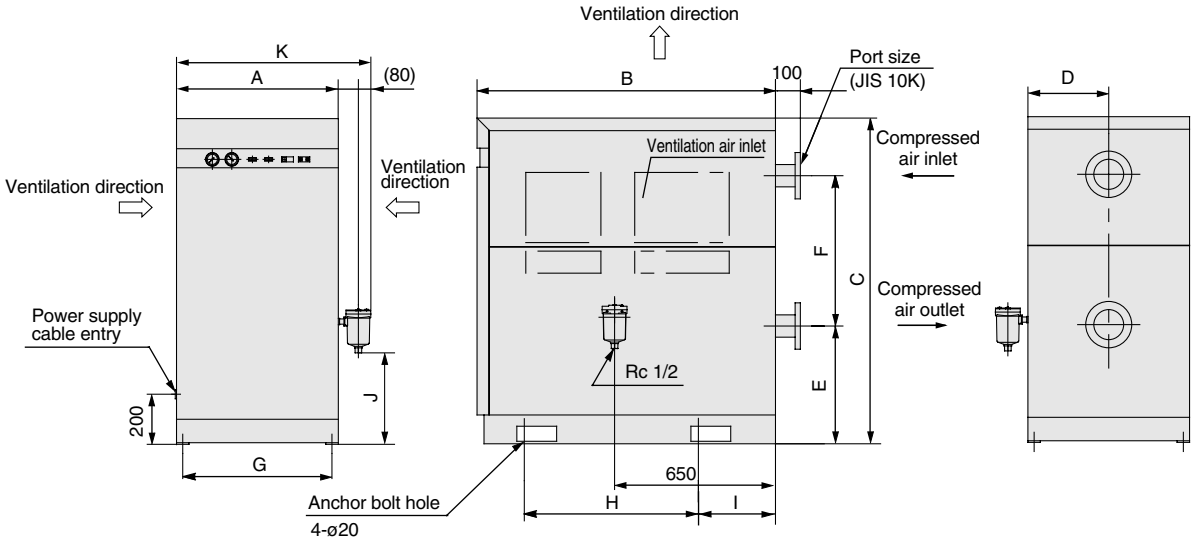


IDF370B



High temperature humid air is cooled in the reheater ①. Then it is further cooled to a specified temperature using the evaporation heat in the air cooler ②. The oil mist and moisture occurring due to condensation is exhausted through the auto drain ③. Cooled and dehumidified air is returned to the air reheater ① and heat is transferred from the incoming high temperature air. It is then exhausted out of the air dryer as dry air.

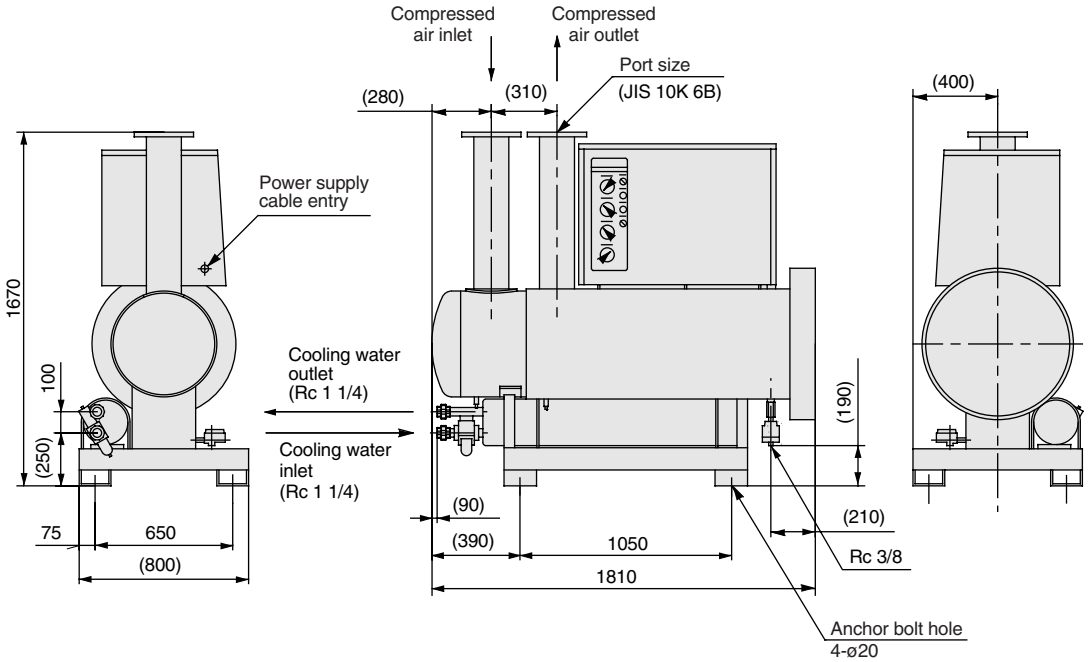
IDF120D, 150D, 190D, 240D



Model	Port size	A	B	C	D	E	F	G	H	I	J	K
IDF120D	JIS 10K 2B 1/2 Flange	650	1200	1300	325	470	600	600	660	330	365	780
IDF150D	JIS 10K 3B Flange											
IDF190D	JIS 10K 3B Flange	750	1510	1320	375	480	600	700	800	355	427	880
IDF240D	JIS 10K 4B Flange	770	1550	1640	385	703	730	700	800	355	592	900

∗ Auto drain is packed together with air dryer. (Some assembly is required.)

IDF370B



The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Series IDU/IDF
Option Specification

Refer to pages 14-17-8, 12,16,20 and 23 for "How to order" of options.

A Option symbol
Cool compressed air output at 10°C

The air flow with this option is lower than that of the standard dryer.

∗ On models IDF6D to 15C, the air inlet and outlet are reversed.

∗∗ Except for IDF1D to 4D, piping dimensions of the air inlet and outlet are different from standard. (Refer to pages 19, 22 and 25.)

Model		IDF1D	IDF2D	IDF3D	IDF4D
Air flow capacity	50Hz	85	120	180	215
(ℓ/min (ANR)) 50/60Hz	60Hz	100	140	210	250

Model		IDF6D	IDF8D	IDF11C	IDF15C
Air flow capacity	50Hz	320	425	650	1025
(ℓ/min (ANR)) 50/60Hz	60Hz	375	500	750	1200

Model		IDF22C1	IDF37C1	IDF55C	IDF75C
Air flow capacity	50Hz	1575	2600	3825	5250
(ℓ/min (ANR)) 50/60Hz	60Hz	1850	3050	4500	6200

[Condition IDF1D] Pressure: 0.7MPa, Saturation: 35°C
Ambient temperature: 32°C, Outlet air temperature: 10°C
[IDF2D to 75C] Pressure: 0.7MPa, Saturation: 40°C,
Ambient temperature: 32°C, Outlet air temperature: 10°C

C Option symbol
Anti-corrosive treatment

This minimizes 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. This option extends the service life.
Special epoxy coating of 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 coating.

Note) For IDF370B, option C is assigned as X204.

E Option symbol
With evaporation thermometer

A thermometer (pressure gauge) indicating the evaporating temperature of the refrigerant is attached to the operation panel, facilitating maintenance and daily checks. IDU6D to 75C, IDF6D to 370B standard.

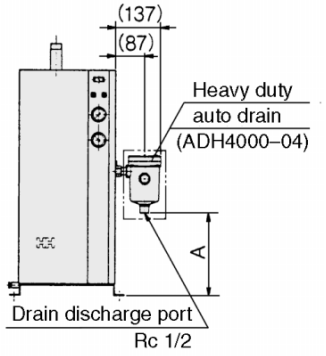
H Option symbol
For medium air pressure

This option provides a heat exchanger, auto drain, air pressure gauge and ball valve, etc., with a medium pressure capability. This is different from the standard specifications. Maximum operating pressure is 1.5MPa.

L Option symbol
With heavy duty auto drain

A dryer with heavy duty auto drain (ADH4000-04) is installed instead of the float type auto drain (INA20-41-04), which is used for standard models to discharge drainage. IDF120D, 150D,190D, 240D standard.

Note) For IDF370B, option L is assigned as X205.



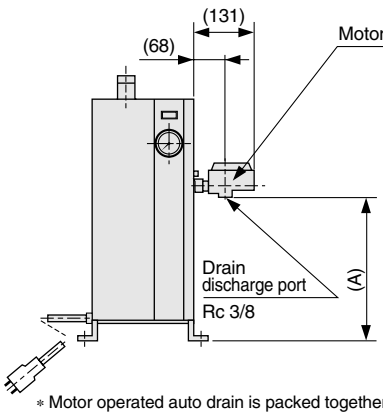
Model	A	Model	A
IDU6D	210	IDF6D	210
IDU8D	210	IDF8D	210
IDU11C	208	IDF11C	208
IDU15C	258	IDF15C	258
IDU22C1	270	IDF22C1	250
IDU37C1	320	IDF37C1	300
IDU55C	318	IDF55C	298
IDU75C	368	IDF75C	348
		IDF120D	365
		IDF150D	365
		IDF190D	427
		IDF240D	592

M Option symbol
With motor operated auto drain

This option changes the float style auto drain (INA-20-41-04) used by standard air dryers to a motor operated auto drain (ADM200-04) where by drainage is discharged more precisely.

Operating air pressure	Air discharge if no drainage
0.3MPa	6 ℓ (ANR) each time
0.5MPa	10 ℓ (ANR each time
0.7MPa	14 ℓ (ANR) each time

∗ Operation cycle: 1 cycle/min. Operation time: 2 sec./min.
IDF220B to 370B standard.



Model	A
IDU6D	309
IDU8D	309
IDU11C	307
IDU15C	357
IDU22C1	369
IDU37C1	419
IDU55C	417
IDU75C	463

Model	A
IDF6D	309
IDF8D	309
IDF11C	307
IDF15C	357
IDF22C1	349
IDF37C1	399
IDF55C	397
IDF75C	447
IDF120D	464
IDF150D	464
IDF190D	526
IDF240D	690

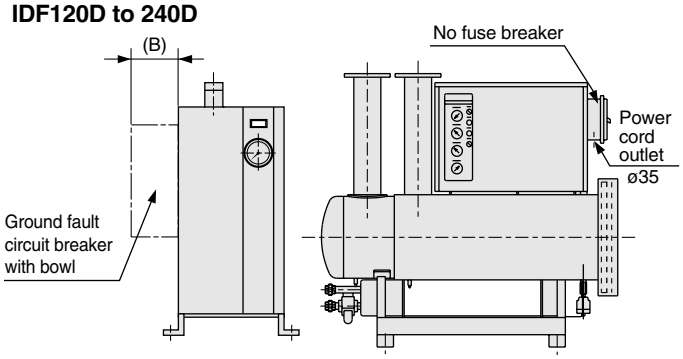
∗ Motor operated auto drain is packed together with main unit. Assembly is required.

R Option symbol
With circuit breaker X202 (IDF220B, 370B)

A circuit breaker with bowl is attached to the side of the air dryer. This saves additional electrical wiring at the time of installation. (IDF120D to 370B do not have an electric leakage detection function.)

IDU6D to 75C
IDF6D to 75C
IDF120D to 240D

IDF370B



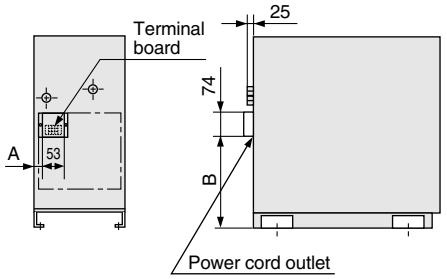
Model	B	Breaker capacity	Sensitivity current
IDU6D, IDF6D IDU8D, IDF8D IDU11C, IDF11C IDU15C, IDF15C	95	10A (100VAC) 5A (200VAC)	15 to 30mA
IDU22C1, IDF22C1 IDU37C1, IDF37C1		10A	
IDU55C, IDF55C IDU75C, IDF75C		15A	
IDF120D	69	30A	
IDF150D	94	45A	
IDF190D	95	50A	
IDF240D		60A	
IDF370B	156	80A	

SMC

S Option symbol
With power cord connection

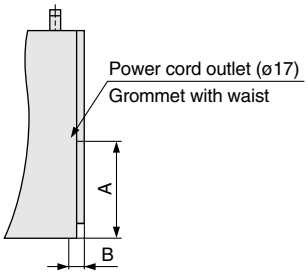
This option allows connection of the power supply to a terminal board (3P).

IDU3D, 4D, IDF1D to 4D



Model	A	B
IDU3D	24	247
IDU4D	20	298
IDF1D	47	123
IDF2D	55	123
IDF3D	37	173
IDF4D	45	197

IDU6D to 15C, IDF6D to 15C

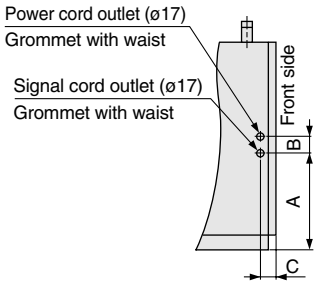


Model	A	B
IDU6D	240	40
IDU8D	240	40
IDU11C	30	49
IDU15C	30	49
IDF6D	240	40
IDF8D	240	40
IDF11C	65	40
IDF15C	65	40

T Option symbol
With terminal block for run & alarm signal and remote operation

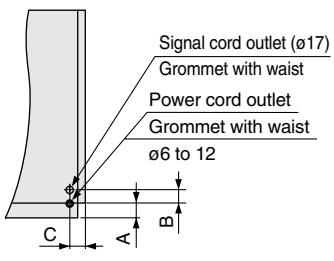
With the optional terminal, in addition to connection of the power supply, the air dryer can be started and stopped by remote control and an operation failure signal can be obtained. (If no voltage contact is made, an operation failure signal will register.) IDF120D to 370B standard.

IDU6D, 8D
IDF6D, 8D



Model	A	B	C
IDU6D	240	38	70
IDU8D	240	38	70
IDU11C	30	50	49
IDU15C	30	50	49
IDU22C1	50	45	50
IDU37C1	50	45	50
IDU55C	50	45	50
IDU75C	50	45	50

IDU11C to 75C
IDF11C to 75C



Model	A	B	C
IDF6D	240	38	70
IDF8D	240	38	70
IDF11C	65	32	40
IDF15C	65	32	40
IDF22C1	30	45	50
IDF37C1	30	45	50
IDF55C	30	45	50
IDF75C	30	45	50

W Option symbol
Water cooled condenser (IDF37C1 to 240D)

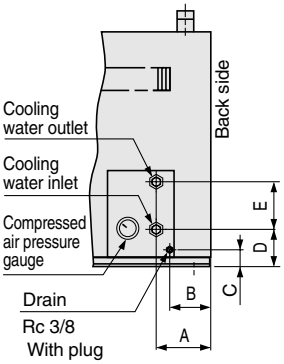
This option can be used where the ambient temperature is high (Max. 43°C), and does not reduce air flow capacity. It is also possible to use this option in an enclosed environment to prevent increasing of the surrounding temperature. IDF370B standard.

W: Water cooled condenser (IDF37C1 to 240D)

Model	IDF37C1	IDF55C	IDF75C	IDF120D	IDF150D	IDF190D	IDF240D
Condenser type	Shell & coil system						
Cooling water flow ℓ/min Note1)	6	8	20	50	65	80	90
Cooling tower capacity RT Note 2)	2	2	3	5	7.5	7.5	7.5
Water flow regulator	Pressure auto feed valve						
Connection bore on water side (union)	1/2B	1/2B	3/4B	1B	1B	1B	1B

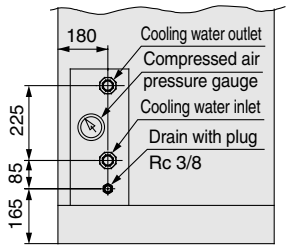
Note 1) Value for inlet water temperature of 32°C and rated load.
Note 2) Value calculated for 1RT = 3, 300kcal/h.

IDF75C



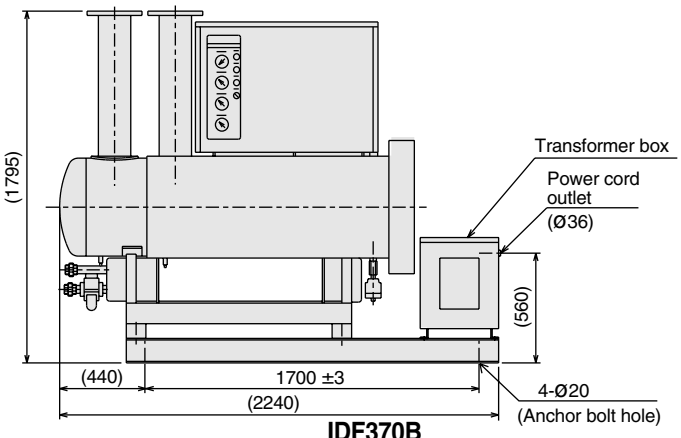
Model	A	B	C	D	E
IDF37C1	425	375	75	153	225
IDF55C	190	140	75	153	225
IDF75C	208	158	66	144	181

IDF120D to 240D



Transformer integrated

The power supply transformer can be integrated with an air dryer. It is used when a refrigerated air dryer is using a non-standard voltage specification. The power supply transformer for IDF120D to 240D is installed inside of the air dryer. Therefore, external dimensions are the same as the standard product.



IDF370B

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Accessories (Option)

Description	Features	Specifications	Applicable dryer	Dimensions
Transformer separately installed 	This is for power supply and voltage other than standard.	Max. ambient temperature 40°C (Relative humidity 85% or less)	All models	14-17-30
Base integrated with transformer 	This is the base for integrating the transformer and air dryer.	—	IDU3D to15C IDF4D to 75C	14-17-30
Dust proof filter set 	Avoids decreasing of air dryer performance even in dusty atmosphere.	Max. ambient temperature 40°C	IDU3D to 75C IDF1D to 75C	14-17-30
Bypass piping set 	Easy bypass piping (connect this set to the air dryer), realizing substantial reduction of man-hours at the site.	Max. operating pressure 1.0MPa Max. operating temperature 60°C	IDU3D to 75C IDF1D to 75C	14-17-31

How to Order

Transformer separately installed

IDF —TR [1500] —[5]

Volume

Symbol	Volume	Applicable dryer
500	500VA	IDU3D-1 to11C-1, IDF1D-1 to11C-1
1000	1kVA	IDU15C-1, IDF15C-1
1500	1.5kVA	IDU22C1-3, 37C1-3, IDF22C1-3, 37C1-3
4000	4kVA	IDU55C-3, 75C-3, IDF55C-3, 75C-3
7000	7kVA	IDF120D
9000	9kVA	IDF150D
11000	11kVA	IDF190D
13000	13kVA	IDF240D
18000	18kVA	IDF370B

Supply voltage

Symbol	Primary voltage	Secondary voltage	Model	
1	110VAC (50Hz), 110 to 120VAC (60Hz)	100VAC (50Hz) 100 to 110VAC (60Hz)	Single phase	Single turn
2	200, 220, 230, 240VAC (50Hz), 200 to 260VAC (60Hz)			
3	380, 400, 415VAC (50Hz), 380 to 420VAC (60Hz)			Compound
4	420, 440, 480VAC (50Hz), 420 to 520VAC (60Hz)			
5	220VAC (50Hz), 220 to 240VAC (60Hz)	200VAC (50Hz) 200 to 220VAC (60Hz)	Three phase	Single turn
6	380, 400, 415VAC (50Hz), 380 to 440VAC (60HZ)			
7	440, 460VAC (50Hz), 440 to 500VAC (60Hz)			
8	220, 240, 380, 400, 415, 440VAC (50/60Hz)	200VAC (50/60Hz)	Three phase	Compound

Refer to page 14-17-29 for dimensions.

Base integrated with transformer

IDF — TB [2]

Size order

Symbol	Applicable dryer
1	IDU3D, IDF4D
2	IDU4D to 15C, IDF6D to 15C
3	IDF22C1
4	IDF37C1 to 75C

Not available for IDF1D to 3D, IDU22C to 75C. Refer to page 14-17-30 for dimensions.

Dust proof filter set

IDU — FL [22] C

Applicable dryer

Symbol	Dryer
3	IDU3D
4	IDU4D

Symbol	Dryer
6	IDU6D
8	IDU8D
11	IDU11C
15	IDU15C

Symbol	Dryer
22	IDU22C1
37	IDU37C1
55	IDU55C
75	IDU75C

IDF — FL [22] C

Applicable dryer

Symbol	Dryer
1	IDF1D
2	IDF2D
3	IDF3D
4	IDF4D

Symbol	Dryer
6	IDF6D
8	IDF8D
11	IDF11C
15	IDF15C

Symbol	Dryer
22	IDF22C1
37	IDF37C1
55	IDF55C
75	IDF75C

IDF — FL [120] D

Applicable dryer

Symbol	Dryer
120	IDF120D
150	IDF150D
190	IDF190D
240	IDF240D

Bypass piping set

IDU —BP [22] C

Applicable dryer

Symbol	Dryer
3	IDU3D
4	IDU4D

Symbol	Dryer
6	IDU6D
8	IDU8D
11	IDU11C
15	IDU15C

Symbol	Dryer
22	IDU22C1
37	IDU37C1
55	IDU55C
75	IDU75C

IDF —BP [22] C

Applicable dryer

Symbol	Dryer
1	IDF1D
2	IDF2D
3	IDF3D
4	IDF4D

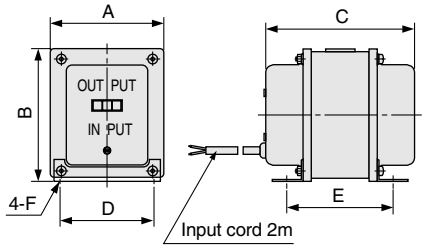
Symbol	Dryer
6	IDF6D
8	IDF8D
11	IDF11C
15	IDF15C

Symbol	Dryer
22	IDF22C1
37	IDF37C1
55	IDF55C
75	IDF75C

Cannot be mounted on models with option "A" (IDF6D to 75C). Available as Special Order Product.

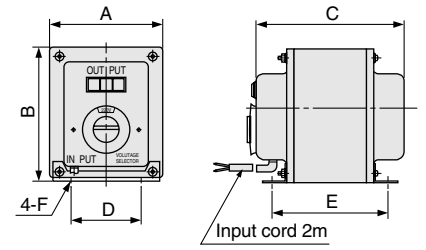
Transformers

IDF-TR□-1



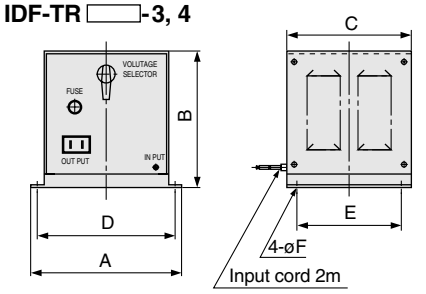
Part No.	Dryer	Capacity	Model	Primary voltage	Secondary voltage	A	B	C	D	E	F	Weight (kg)
IDF-TR500-1	IDF1D-1 to 11C-1 IDU3D-1 to 11C-1	500VA	Single phase Single turn	110VAC (50Hz) 110 to 120VAC (60Hz)	100VAC (50Hz) 100 to 110VAC (60Hz)	78	94	100	64	75	4.2 x 7 (Long hole)	1.5
IDF-TR1000-1	IDF15C-1 IDU15C-1	1kVA				104	122	134	75	114	4.2 x 9 (Long hole)	4

IDF-TR□-2



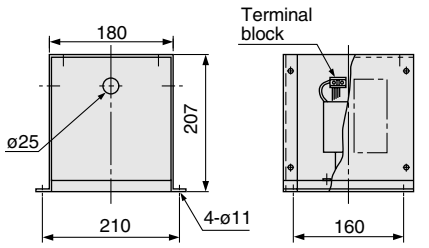
Part No.	Dryer	Capacity	Model	Primary voltage	Secondary voltage	A	B	C	D	E	F	Weight (kg)
IDF-TR500-2	IDF1D-1 to 11C-1 IDU3D-1 to 11C-1	500VA	Single phase Single turn	200, 220, 230, 240VAC (50Hz) 200 to 260VAC (60Hz)	100VAC (50Hz) 100 to 110VAC (60Hz)	118	140	163	70	112	5.5 x 10 (Long hole)	6
IDF-TR1000-2	IDF15C-1 IDU15C-1	1kVA				118	140	208	70	157		10

IDF-TR□-3, 4



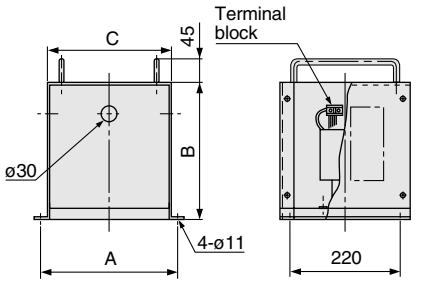
Part No.	Dryer	Capacity	Model	Primary voltage	Secondary voltage	A	B	C	D	E	F	Weight (kg)
IDF-TR500-3	IDF1D-1 to 11C-1 IDU3D-1 to 11C-1	500VA	Single phase Single turn	380, 400, 415VAC (50Hz) 380 to 420VAC (60Hz)	100VAC (50Hz) 110VAC (60Hz)	230	207	190	210	160	9	15
IDF-TR1000-3	IDF15C-1 IDU15C-1	1kVA										22
IDF-TR500-4	IDF1D to 11C-1 IDU3D to 11C-1	500VA		420, 440, 480VAC (50Hz) 420 to 520VAC (60Hz)								15
IDF-TR1000-4	IDF15C-1 IDU15C-1	1kVA										22

IDF-TR1500-5



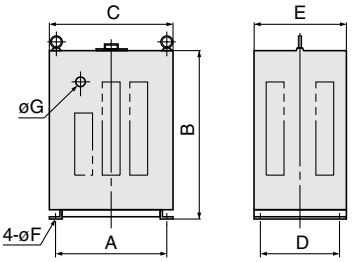
Part No.	Dryer	Capacity	Model	Primary voltage	Secondary voltage	Weight (kg)
IDF-TR1500-5	IDF22C1-3 IDF37C1-3 IDU22C1-3 IDU37C1-3	1.5kVA	Three phase Single turn	220V (50Hz) 220 to 240V (60Hz)	200V (50Hz) 200 to 220V (60Hz)	9

IDF-TR□-5, 6, 7



Part No.	Dryer	Capacity	Model	Primary voltage	Secondary voltage	A	B	C	Weight (kg)
IDF-TR1500-6	IDF22C1-3, 37C1-3 IDU22C1-3, 37C1-3	1.5kVA	Three phase Single turn	380, 400, 415V (50Hz) 380 to 400, 400 to 415, 415 to 440V (60Hz)	200V (50Hz) 200 to 220V (60Hz)	275	259	240	18
IDF-TR1500-7	IDF22C1-3, 37C1-3 IDU22C1-3, 37C1-3	1.5kVA		440, 460V (50Hz) 440 to 460, 460 to 500V (60Hz)	200V (50Hz) 200 to 220V (60Hz)	275	259	240	18
IDF-TR4000-5	IDF55C-3, 75C-3 IDU55C-3, 75C-3	4kVA		220V (50Hz) 220 to 240V (60Hz)	200V (50Hz) 200 to 220V (60Hz)	275	259	240	14
IDF-TR4000-6	IDF55C-3, 75C-3 IDU55C-3, 75C-3	4kVA		380, 400, 415V (50Hz) 380 to 400, 400 to 415, 415 to 440V (60Hz)	200V (50Hz) 200 to 220V (60Hz)	355	299	320	35
IDF-TR4000-7	IDF55C-3, 75C-3 IDU55C-3, 75C-3	4kVA		440, 460V (50Hz) 440 to 460, 460 to 500V (60Hz)	200V (50Hz) 200 to 220V (60Hz)	355	299	320	42

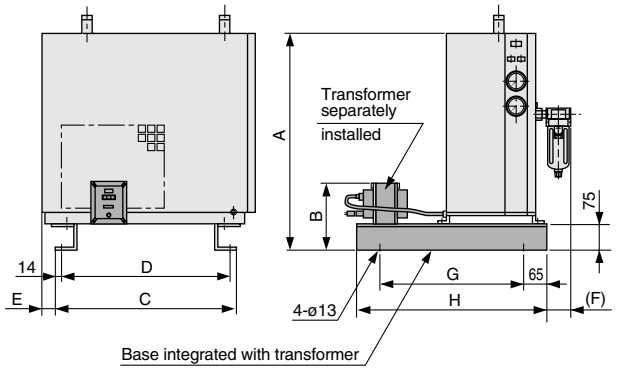
IDF-TR□-8



Part No.	Dryer	Capacity	Model	Primary voltage	Secondary voltage	A	B	C	D	E	F	G	Weight (kg)
IDF-TR7000-8	IDF120D	7kVA	Three phase compound	220, 240, 380, 400, 415, 440V (50/60Hz)	200V (50/60Hz)	360	540	400	260	300	11	30	94
IDF-TR9000-8	IDF150D	9kVA				400	650	450	300	350	13	40	109
IDF-TR11000-8	IDF190D	11kVA				550	450	600	350	400	13	60	131
IDF-TR13000-8	IDF240D	13kVA				400	600	450	300	350	13	60	138
IDF-TR18000-8	IDF370B	18kVA				400	650	450	300	350	13	40	179

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

Base Integrated with Transformer

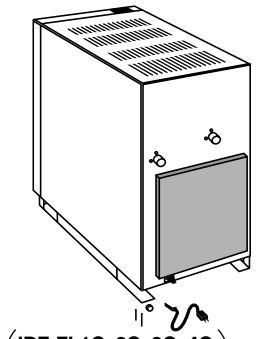


Part No.	Dryer	Transformer	A	B	C	D	E	F	G	H	Weight (kg)
IDF-TB3	IDF22C1	IDF-TR1500-5	755	327	628	600	51	69	675	805	83
		IDF-TR1500-6		379							92
		IDF-TR1500-7									
IDF-TB4	IDF37C1	IDF-TR1500-5	805	327	708	680					95
		IDF-TR1500-6		379							104
		IDF-TR1500-7									
	IDF55C	IDF-TR4000-5	925	379	728	700					142
		IDF-TR4000-6		419							163
		IDF-TR4000-7									170
	IDF75C	IDF-TR4000-5	975	379	728	700					154
		IDF-TR4000-6		419							175
		IDF-TR4000-7									182

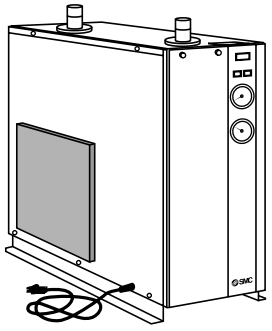
Part No.	Dryer	Transformer	A	B	C	D	E	F	G	H	Weight (kg)
IDF-TB1	IDF4D-1	IDF-TR500-1	681	171	356	328	53	–	427	557	33
		IDF-TR500-2		217				–			37
		IDF-TR500-3.4		284				–			46
	IDU3D-1	IDF-TR500-1	584	171	376	348		–			30
		IDF-TR500-2		217				–			34
		IDF-TR500-3.4		284				–			43
IDF-TB2	IDF6D-1	IDF-TR500-1	595	171	470	442	55	69			39
		IDF-TR500-2		217							44
		IDF-TR500-3.4		284							53
	IDF8D-1	IDF-TR500-1	595	171	470	442					39
		IDF-TR500-2		217							44
		IDF-TR500-3.4		284							53
	IDF11C-1	IDF-TR500-1	645	171	490	462					54
		IDF-TR500-2		217							59
		IDF-TR500-3.4		284							68
	IDF15C-1	IDF-TR1000-1	695	199	490	462					60
		IDF-TR1000-2		217							66
		IDF-TR1000-3.4		284							78
	IDU4D-1	IDF-TR500-1	681	171	466	438	53	–			38
		IDF-TR500-2		217				–			43
		IDF-TR500-3.4		284				–			52
	IDU6D-1	IDF-TR500-1	785	171	470	442	55	69			50
		IDF-TR500-2		217							55
		IDF-TR500-3.4		284							64
	IDU8D-1	IDF-TR500-1	885	171	470	442					54
		IDF-TR500-2		217							59
		IDF-TR500-3.4		284							68
	IDU11C-1	IDF-TR500-1	985	171	490	462					66
		IDF-TR500-2		217							71
		IDF-TR500-3.4		284							80
	IDU15C-1	IDF-TR1000-1	1035	199	490	462					76
		IDF-TR1000-2		217							82
		IDF-TR1000-3.4		284							94

Note) Weight includes air dryer and transformer.
Not available for IDF1D to 3D, IDU22C to 75C.

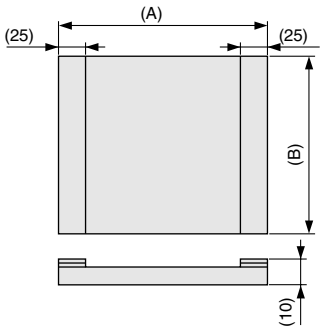
Dust proof filter set



(IDF-FL1C, 2C, 3C, 4C, IDU-FL3C, 4C



(IDF-FL6C, 8C, 11C, 15C)



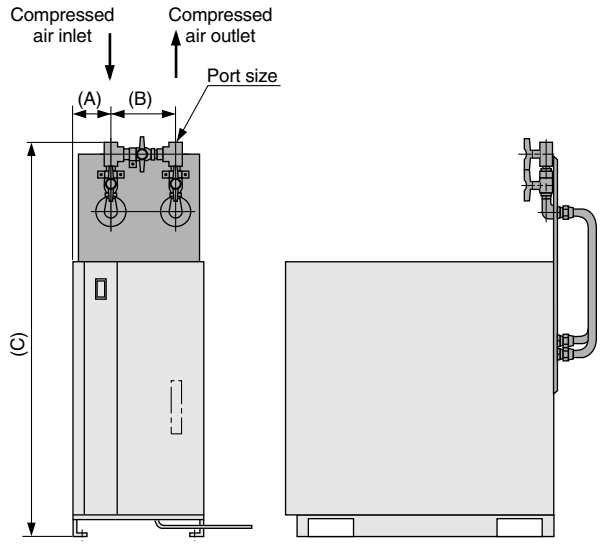
Part No.	Dryer	A	B
IDF-FL1C	IDF1D	180	145
IDF-FL2C	IDF2D	180	145
IDF-FL3C	IDF3D	225	180
IDF-FL4C	IDF4D	225	180
IDF-FL6C	IDF6D	345	270
IDF-FL8C	IDF8D	345	270
IDF-FL11C	IDF11C	365	270
IDF-FL15C	IDF15C	385	310
IDF-FL22C	IDF22C1	430	310
IDF-FL37C	IDF37C1	555	380
IDF-FL55C	IDF55C	600	410
IDF-FL75C	IDF75C	640	510
IDF-FL120D	IDF120D	360	420
		440	420
IDF-FL150D	IDF150D	360	420
		440	420
IDF-FL190D	IDF190D	250	480
		750	480
IDF-FL240D	IDF240D	440	670
		600	670

Part No.	Dryer	A	B
IDU-FL3C	IDU3D	245	265
IDU-FL4C	IDU4D	240	300
IDU-FL6C	IDU6D	400	170
		345	270
IDU-FL8C	IDU8D	405	270
		345	
IDU-FL11C	IDU11C	395	310
		365	270
IDU-FL15C	IDU15C	395	310
		385	
IDU-FL22C	IDU22C1	480	430
		430	310
IDU-FL37C	IDU37C1	605	475
		555	345
IDU-FL55C	IDU55C	605	475
		600	410
IDU-FL75C	IDU75C	625	550
		640	510

For IDU-FL6C to 75C, 2 pcs. are 1 set.
For IDF-FL120D to 240D, 2 pcs. are 1 set.

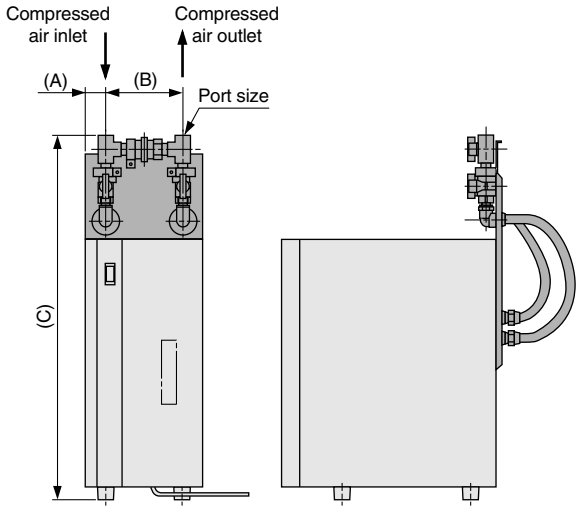
Bypass Piping Set

IDU3D, 4D



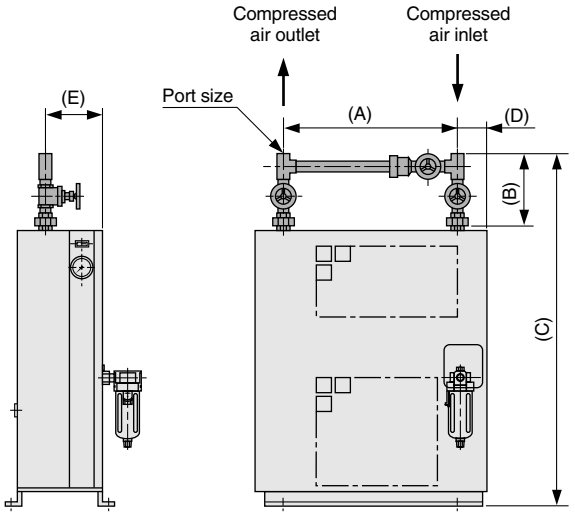
Part No.	Applicable dryer	Port size Rc	A	B	C
IDU-BP3C	IDU3D	3/8	77	112	706
IDU-BP4C	IDU4D		66	112	791

IDF1D, 2D, 3D, 4D



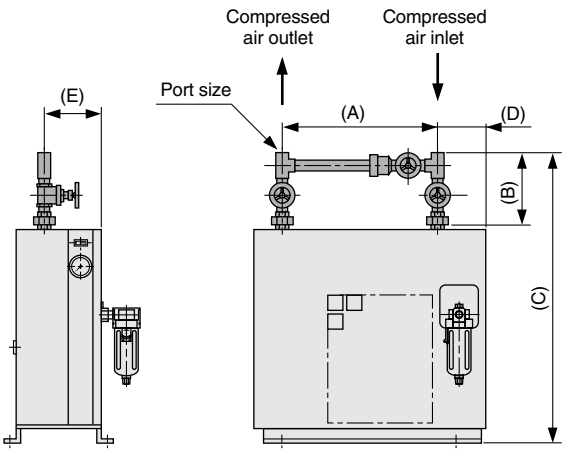
Part No.	Applicable dryer	Port size Rc	A	B	C
IDF-BP1C	IDF1D	3/8	34	112	563
IDF-BP2C	IDF2D		62	112	571
IDF-BP3C	IDF3D		57	112	632
IDF-BP4C	IDF4D		66	112	792

IDU6D, 8D, 11C, 15C, 22C1, 37C1, 55C, 75C



Part No.	Applicable dryer	Port size Rc	A	B	C	D	E
IDU-BP6C	IDU6D	1/2	445	165	915	85	141
IDU-BP8C	IDU8D	3/4	445	196	1045	85	141
IDU-BP11C	IDU11C	3/4	445	196	1155	91	152
IDU-BP15C	IDU15C	1	445	222	1230	91	175
IDU-BP22C	IDU22C1	1	445	222	1445	70	71
IDU-BP37C	IDU37C1	1 1/2	550	280	1615	136	112
IDU-BP55C	IDU55C	2	530	325	1750	155	87
IDU-BP75C	IDU75C	2	530	325	1885	220	87

IDF6D, 8D, 11C, 15C, 22C1, 37C1, 55C, 75C



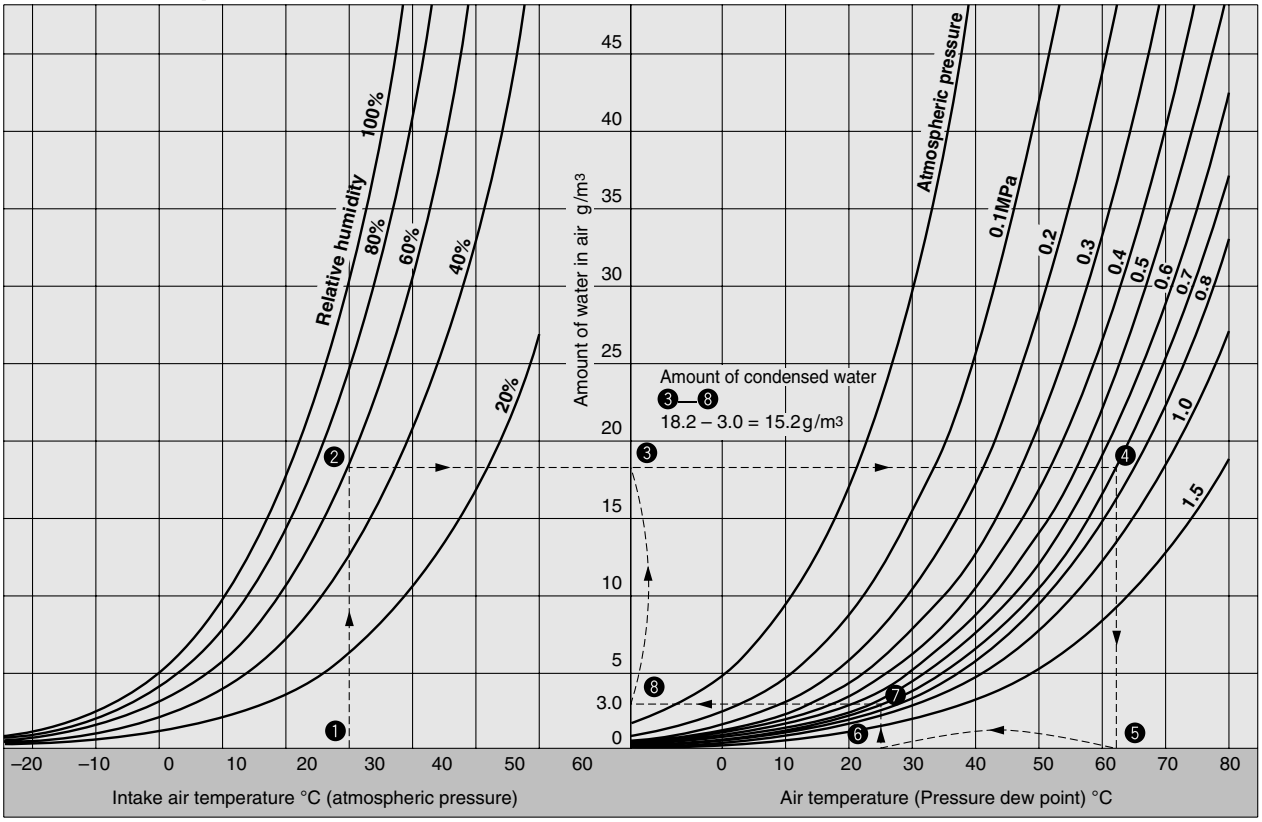
Part No.	Applicable dryer	Port size Rc	A	B	C	D	E
IDF-BP6C	IDF6D	1/2	410	165	725	120	141
IDF-BP8C	IDF8D	3/4	410	196	755	120	141
IDF-BP11C	IDF11C	3/4	405	196	815	131	152
IDF-BP15C	IDF15C	1	405	222	890	131	175
IDF-BP22C	IDF22C1	1	405	222	970	91	183
IDF-BP37C	IDF37C1	1 1/2	405	280	1075	98	208
IDF-BP55C	IDF55C	2	405	325	1240	98	85
IDF-BP75C	IDF75C	2	405	325	1290	98	85

Cannot be mounted on models with option "A".

The models IDF1E to 11E and IDU3E to 6E have been revised. For details, refer to catalog no. ES30-8A. Similar updating for other IDF/IDU models is scheduled to follow shortly.

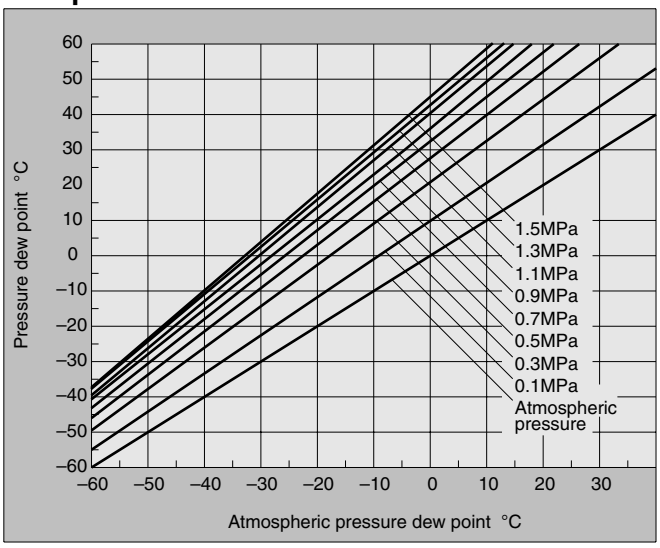
Technical Data

Pressure dew point — Condensed water calculation



[Example] If air at 30°C and 60% humidity is pressurized to 0.7MPa, the dew point of the air will be 62°C. (❶→❷→❸→❹→❺) If this is cooled to 25°C, the amount of condensed water generated will be 15.2g/m3. (❻→❼→❽→❸) Therefore, with an air flow rate of 3mC/min (22kW equivalent compressor), the amount of condensed water per unit of time is 15.2 x 3 x 60 = 2736g/h.

Dew point conversion chart



SMC

Series IDU/IDF Specific Product Precautions 1
Air Preparation Equipment Precautions

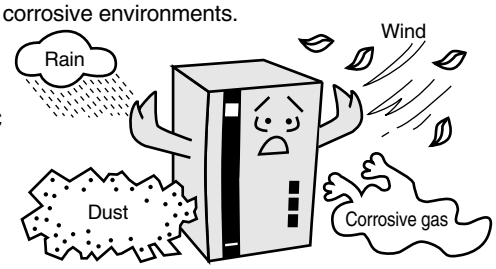
Be sure to read before handling.

Installation Location

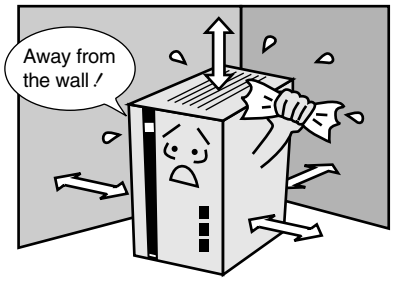
⚠ Caution

- Avoid locations where the air dryer will be in direct contact with wind and rain. (Places where relative humidity is more than 85%)
- Avoid exposure to direct sunlight.
- Avoid dusty or corrosive environments.

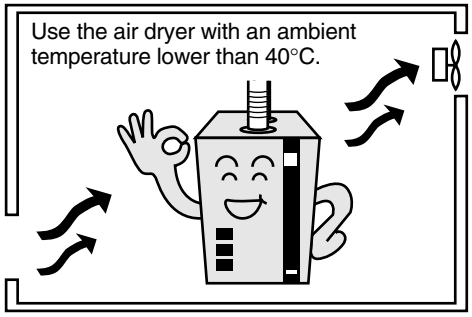
If it is used in the above environments, select option C (with anti-corrosive treatment).



- Avoid places with poor ventilation and high temperature.



- Allow ample space around the air dryer.
- Avoid locations subjected to vibrations.
- Avoid locations where drainage can freeze.

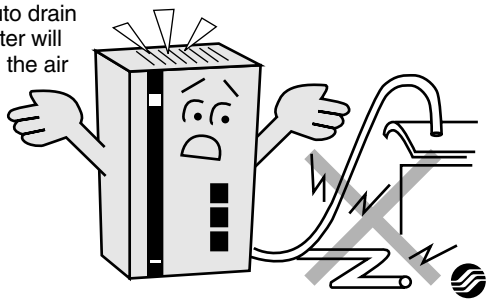


- Avoid installation on moving objects like trucks, ships, and so forth.

Drain Tube

⚠ Caution

- A polyurethane tube of 10mm outer diameter is attached as the drain tube for IDF1D to 4D and IDU3D, 4D. Use this tube to discharge drainage.
- Do not use the drain tube in an upward direction. Do not bend or crush the drain tube. (Operation of auto drain will stop and water will flow out through the air outlet.)



Power Supply

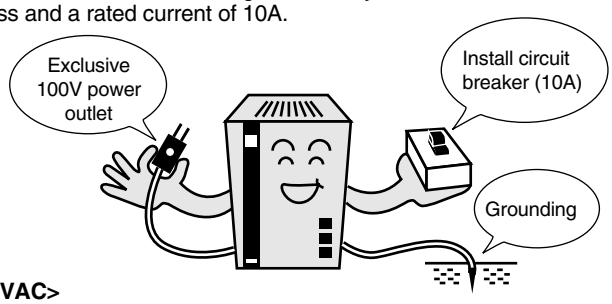
⚠ Caution

<100VAC>

- Insert the power supply plug into an exclusive 100VAC power outlet.
- Install a circuit breaker (10A)* at the power supply.
- Be sure to ground the power supply prior to use.
- Multiple-branch wiring is dangerous as it causes over-heating.
- Do not extend the power supply cord length using an extension cord.

  A voltage drop may cause the air dryer to stop operating.

  * Use a circuit breaker having a sensitivity current of 30mA or less and a rated current of 10A.



<200VAC>

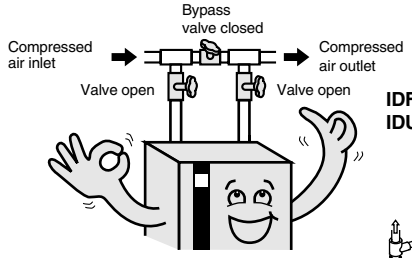
- Connect the power supply to the terminal block.
- Install a suitable circuit breaker applicable to each model.

When the voltage used is other than specified in the standard product specifications, use a transformer (page 14-17-28).

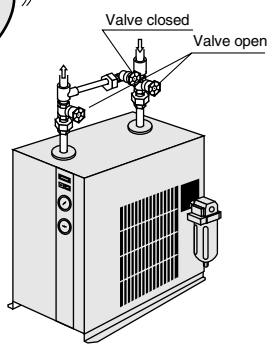
Air Piping

⚠ Caution

- Be careful to avoid errors in connecting the air piping to the compressed air inlet (IN) and outlet (OUT).
- Install bypass piping which it is needed for maintenance.



IDF1D to 4D
IDU3D, 4D



IDF6D to 75C
IDU6D to 75C

- When tightening piping at the air inlet/outlet tube, the nozzle should be held firmly with a pipe wrench. (IDF6D to 75C, IDU6D to 75C)
- Variation of operating conditions may cause condensate to form on the surface of the outlet piping. In the case of models larger than IDF6D and IDU6D, roll thermal insulation around piping to prevent condensate from forming.
- Vibration caused by the compressor should not be transmitted through air piping to the air dryer.
- Do not allow the weight of piping to be applied directly to the air dryer.

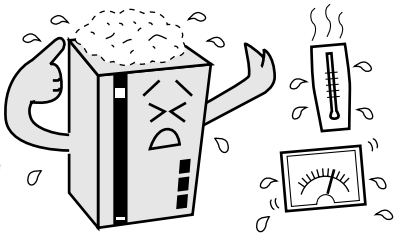
Series IDU/IDF Specific Product Precautions 2
Air Preparation Equipment Precautions

Be sure to read before handling.

Protection Circuit

⚠ Caution

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



- When compressed air temperature is too high
- When compressed air flow rate is too high
- When ambient temperature is too high (40°C or higher)
- When power supply is beyond rated voltage by ±10%
- When ventilation port is obstructed by a wall or clogged with dust

Compressor Air Delivery

⚠ Caution

Use an air compressor of 100 ℓ/min or greater air delivery with IDF2D to 4D/IDU3D, 4D, and 300 ℓ/min or greater air delivery with IDF6D to 75C/IDU6D to 75C.

Since the auto drain of IDF2D to 75C/IDU3D to 75C is designed in such a way that the valve remains open unless the air pressure rises to 0.15MPa or higher, air will blow out from the drain discharge port when the air compressor starts up until the pressure increases. Therefore, if an air compressor has a low air delivery, the pressure may not be sufficient.

Auto Drain

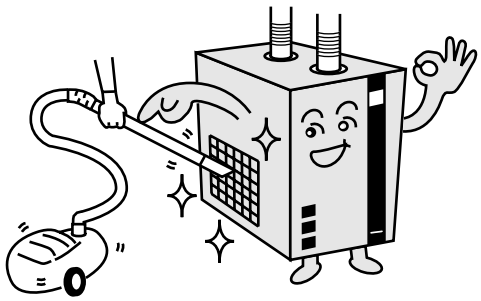
⚠ Caution

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

Cleaning of Ventilation Area

⚠ Caution

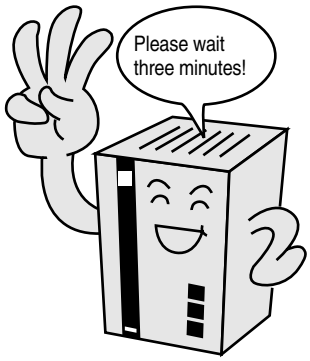
Remove dust from the ventilation area once a month using a vacuum cleaner or an air blow nozzle.



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, the operating light goes off and the dryer will not be activated.



Crank Case Heater

⚠ Caution

A crank case heater is installed on IDF370B. Energize the crank case heater 12 hours prior to operation of the dryer to prevent trouble occurring in the refrigerant compressor.