

Stainless Steel Heat Exchanger Type Air Dryer

Air Flow Capacity

Increased up to

40%

(Compared to the previous model)

Power Consumption

Reduced by up to

38%

(Compared to the previous model)

Series IDUS

Model	Inlet air temperature °C	IDUS3E	IDUS4E	IDUS6E
Air flow capacity /mim(ANR)	55	310	500	740
	60	295 (300)	475 (430)	703 (640)
Power consumption W	55	160	225	275
	60	165 (189)	230 (275)	280 (295)

() : Previous model IDU3D/4D/6D

Series IDFS

Model	Inlet air temperature °C	IDFS6E	IDFS8E	IDFS11E
Air flow capacity /mim(ANR)	35	740	1200	1650
	40	614 (640)	996 (850)	1370 (1300)
Power consumption W	35	160	230	285
	40	170 (259)	240 (292)	295 (337)

() : Previous model IDF6D/8D/11D

- Improved corrosion resistance with the use of stainless steel heat exchanger
- Standard evaporation thermometer facilitates daily inspection
- Compact heat exchanger reduces overall dimensions of the air dryer
- Environmentally friendly refrigerant R134a

Series IDUS/IDFS
(220/240VAC 50Hz)

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 IDUS: Data A
 Series IDFS: Data B
 Air pressure 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.

IDUS 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 /min (ANR)

① A = 0.75 based on conditions ①, ② and ③

② C = 1.00 based on condition ④

③ Based on condition ⑤, A and C
Corrected air flow = 350 (0.75 x 1.00) = 467 /min (ANR)

④ Based on condition ⑥;

IDUS4E is selected as the model to process an air flow larger than 467 /min (ANR) with a 50Hz power supply, according to data D-1.

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

IDFS selection example

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

- Condition
- ① Inlet air temperature 35 C
 - ② Outlet air pressure dew point 10 C
 - ③ Ambient temperature 35 C
 - ④ Inlet air pressure 0.5MPa
 - ⑤ Air flow 1200 /min (ANR)

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

② C = 0.90 based on condition ④

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

④ Based on condition ⑥;

IDFS11E is selected as the model to process an air flow larger than 1400 /min (ANR) with a 60Hz power supply, according to data D-2.

Data A Correction factor for temperature (Series IDUS)

Ambient temp. (C)	Inlet air temp. (C)			50			55			60			65			70			80		
	Outlet air press. dew point (C)			5	10	15	5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
30	0.88	1.26	1.64	0.74	1.05	1.37	0.70	1.00	1.30	0.66	0.95	1.23	0.62	0.89	1.16	0.59	0.84	1.09			
32	0.84	1.20	1.56	0.70	1.00	1.30	0.67	0.95	1.24	0.63	0.90	1.17	0.60	0.85	1.11	0.56	0.80	1.04			
35	0.81	1.15	1.50	0.67	0.96	1.25	0.64	0.91	1.19	0.60	0.86	1.12	0.57	0.82	1.06	0.54	0.77	1.00			
40	0.76	1.08	1.40	0.63	0.90	1.17	0.60	0.86	1.11	0.57	0.81	1.05	0.54	0.77	0.99	0.50	0.72	0.94			

Data B Correction factor for temperature (Series IDFS)

Ambient temp. (C)	Inlet air temp. (C)			30			35			40			45			50		
	Outlet air press. dew point (C)			5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
30	0.92	1.31	1.71	0.74	1.05	1.37	0.59	0.84	1.09	0.48	0.68	0.89	0.40	0.58	0.75			
32	0.88	1.25	1.63	0.70	1.00	1.30	0.46	0.83	1.04	0.46	0.65	0.85	0.39	0.55	0.72			
35	0.84	1.20	1.56	0.67	0.96	1.25	0.37	0.77	1.00	0.44	0.62	0.81	0.37	0.53	0.69			
40	0.79	1.13	1.46	0.63	0.90	1.17	0.28	0.72	0.94	0.41	0.59	0.76	0.35	0.50	0.64			

Data C Correction factor for air pressure (Series IDUS)

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 IDUS)

Model	IDUS3E	IDUS4E	IDUS6E
Air flow capacity (/min (ANR))	310	500	740

Data D-2 Air flow capacity (Series IDFS)

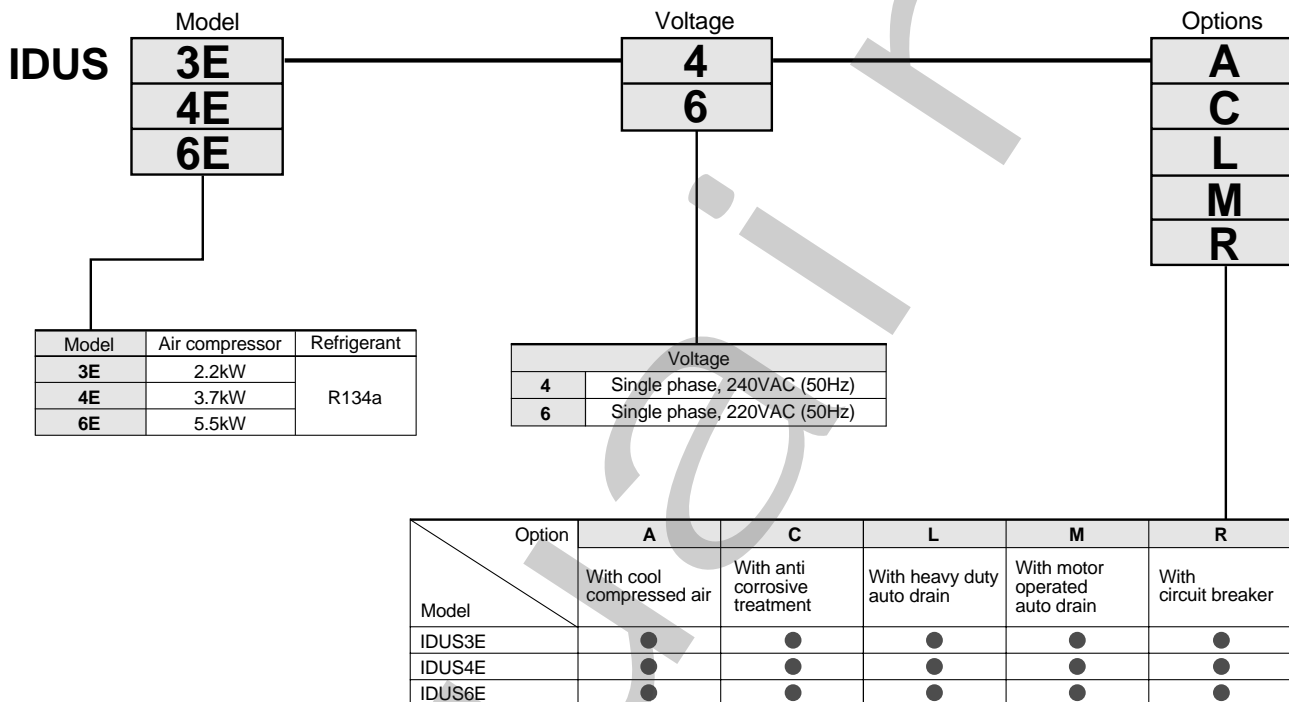
Model	IDFS6E	IDFS8E	IDFS11E
Air flow capacity (/min (ANR))	740	1200	1650

Stainless Steel Heat Exchanger Type

Series IDUS

3E, 4E, 6E

How to Order



Note 1) All the options are not currently available. Please contact P/A if necessary.

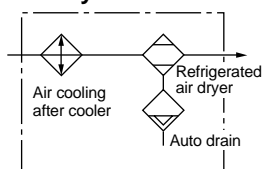
Note 2) Refer to page 7 for further information of options.

Note 3) Combination of L and M is not available.

Series IDUS



JIS Symbol



Standard Specifications/Models

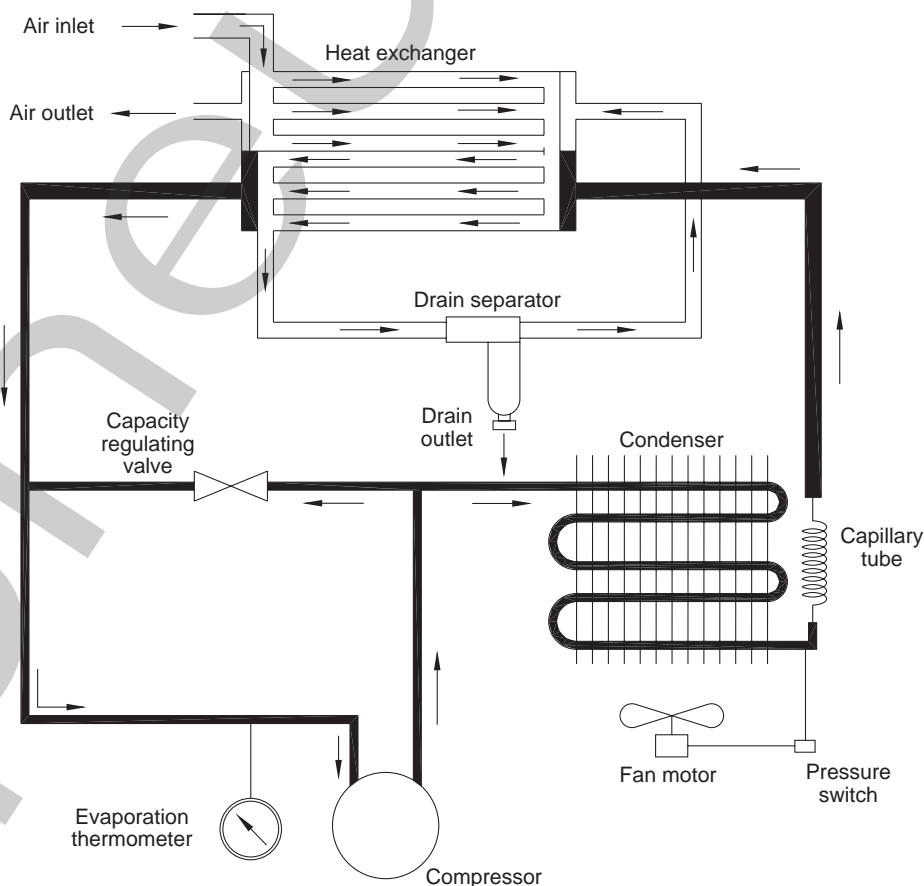
Specification		Model	IDUS3E	IDUS4E	IDUS6E
Rated conditions	Air flow rate ^{Note 2)}	/min (ANR)	310	500	740
	Operating pressure	MPa	0.7		
	Inlet air temperature	°C	55		
	Ambient temperature	°C	32		
	Pressure dew point	°C	10		
Operating ranges	Working fluid		Compressed air		
	Inlet air pressure	MPa	0.15 to 1.0		
	Inlet air temperature	°C	2 to 80		
	Ambient temperature	°C	2 to 40 (Relative humidity of 85% or less)		
Electrical specifications	Power source	V	Single phase, 220VAC (50Hz), 240VAC (50Hz)		
	Power consumption	W	160	225	275
	Circuit breaker ^{Note 3)}	A	5		
Condenser			Air cooled		
Refrigerant			R134a		
Air connection		Rc	1/2	3/4	
Drain connection			Outside diameter 10mm (One-touch fitting)		
Auto drain			AD44		
Weight		kg	27	33	35
Coating color			Munsell 10Y8/0.5 (White)		
Applicable compressor (screw type)		kW	2.2	3.7	5.5

Note 1) Select an air dryer according to the selection method and note the rated conditions.

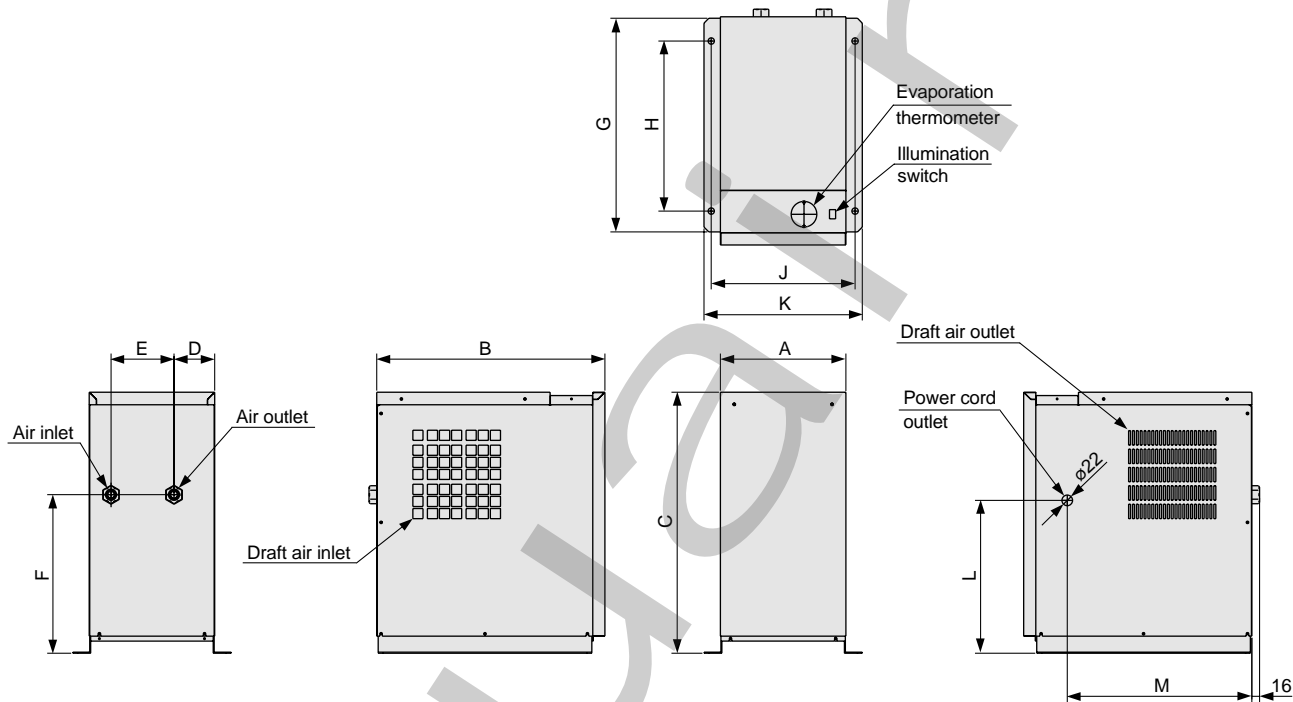
Note 2) The data for /min (ANR) refers to the conditions of 20°C, 1 atm. pressure and relative humidity of 65%.

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

Operation Principles



IDUS3E, 4E, 6E



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M
IDUS3E	Rc 1/2	260	470	540	85	130	325	440	350	297	330	315	380
IDUS4E	Rc 1/2	260	560	540	85	130	325	530	440	297	330	315	470
IDUS6E	Rc 3/4	285	605	540	110	130	325	575	485	325	355	315	515

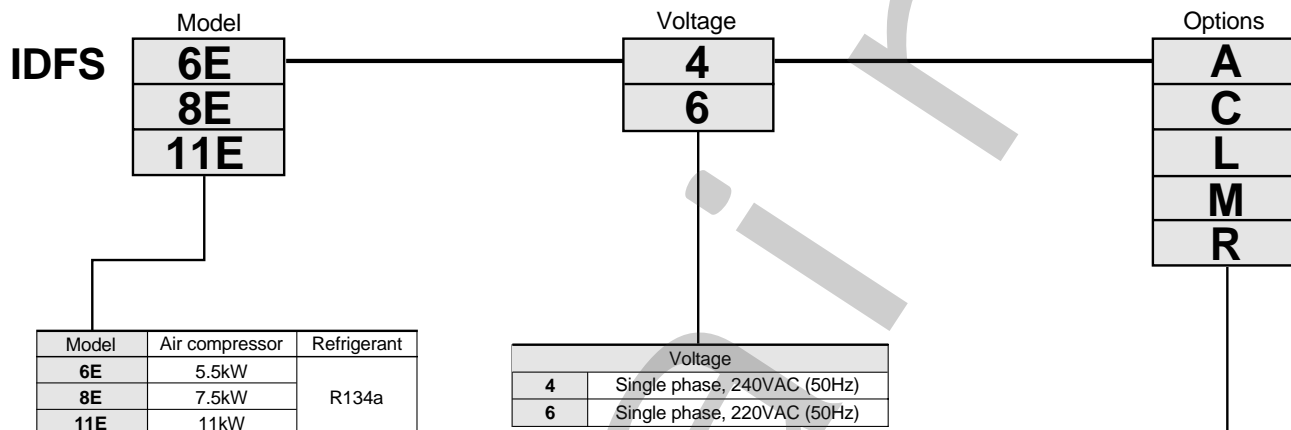
Note: The diagram above is drawn base on IDUS3E dimension with scale 1:6

Stainless Steel Heat Exchanger Type

Series *IDFS*

6E, 8E, 11E

How to Order



Option	A	C	L	M	R
	With cool compressed air	With anti corrosive treatment	With heavy duty auto drain	With motor operated auto drain	With circuit breaker
Model					
IDUF6E	●	●	●	●	●
IDUF8E	●	●	●	●	●
IDUF11E	●	●	●	●	●

Note 1) All the options are not currently available. Please contact P/A if necessary.

Note 2) Refer to page 7 for further information of options.

Note 3) Combination of L and M is not available.

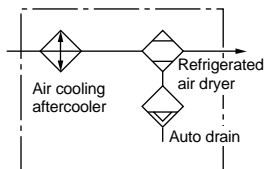
Stainless Steel Heat Exchanger Type Air Dryer Series IDFS

Standard Specifications/Models



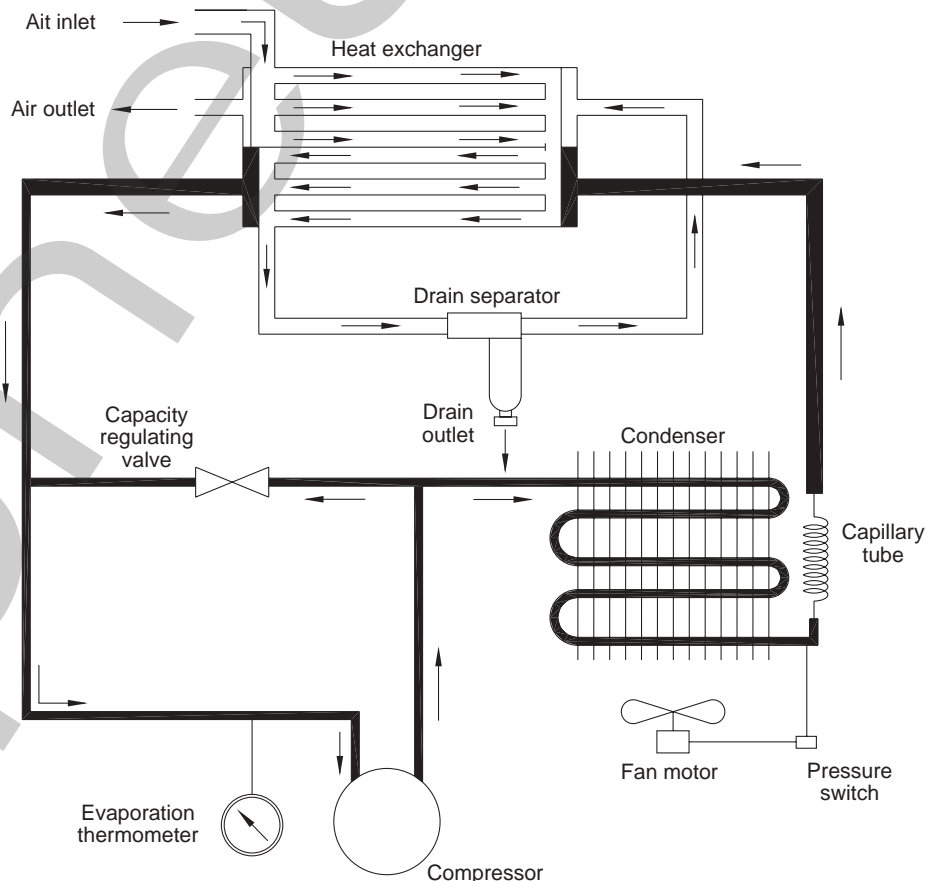
Specification		Model	IDFS6E	IDFS8E	IDFS11E
Rated conditions	Air flow rate ^{Note 2)}	/min (ANR)	740	1200	1650
	Operating pressure	MPa	0.7		
	Inlet air temperature	°C	35		
	Ambient temperature	°C	32		
	Pressure dew point	°C	10		
Operating conditions	Working fluid	Compressed air			
	Inlet air pressure	MPa	0.15 to 1.0		
	Inlet air temperature	°C	2 to 50		
	Ambient temperature	°C	2 to 40 (Relative humidity of 85% or less)		
Electrical specifications	Power source	V	Single phase, 220VAC (50Hz), 240VAC (50Hz)		
	Power consumption	W	160	230	285
	Circuit breaker	A	5		
Condenser ^{Note 3)}		Air cooled			
Refrigerant		R134a			
Air connection		Rc	3/4		
Drain connection		Diameter 10mm (One-touch fitting)			
Auto drain		AD44			
Weight		kg	27	33	35
Coating color		Munsell 10Y8/0.5 (White)			
Applicable compressor (screw type)		kW	5.5	7.5	11

JIS Symbol



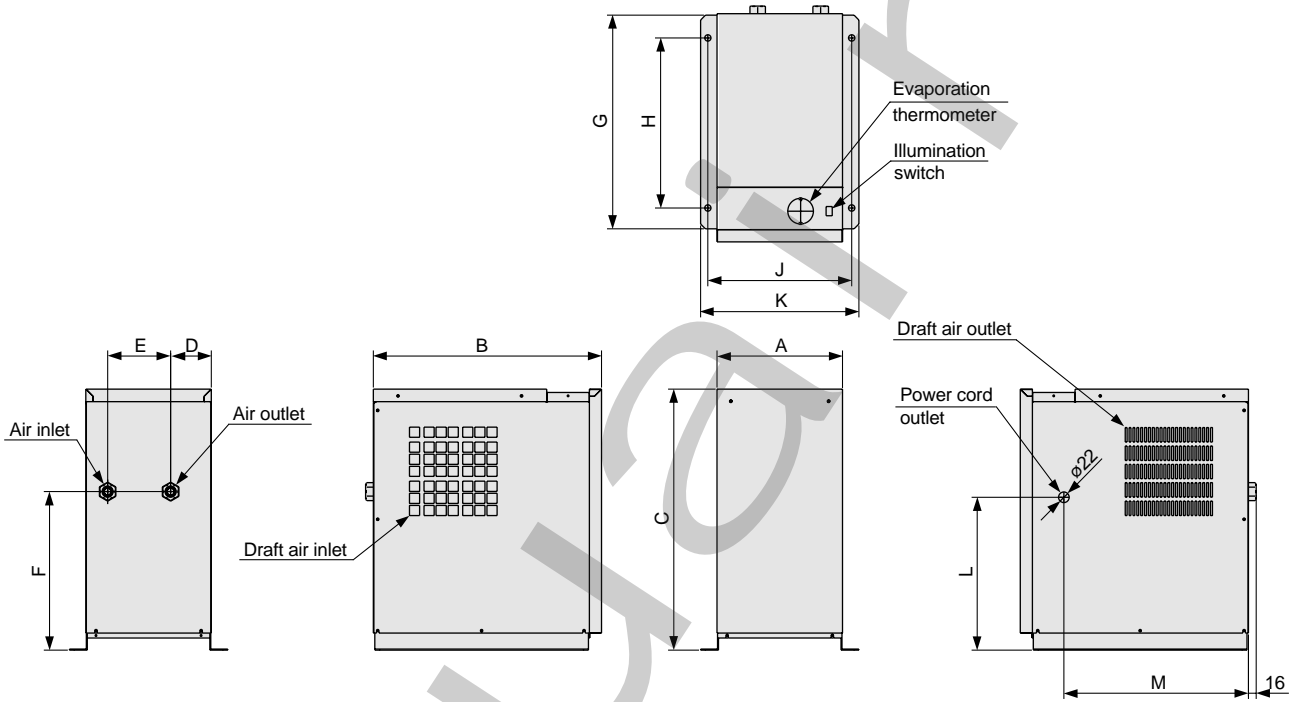
Note 1) Select an air dryer according to the selection method and note the rated conditions.
 Note 2) The data for /min (ANR) refers to the conditions of 20°C, 1 atm. pressure and relative humidity of 65%.
 Note 3) Install a circuit breaker with sensitivity of ≤ 30mA.

Operation Principles



Series IDFS

IDFS6E, 8E, 11E



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M
IDFS6E	Rc 3/4	260	470	540	85	130	325	440	350	297	330	315	380
IDFS8E	Rc 3/4	260	560	540	85	130	325	530	440	297	330	315	470
IDFS11E	Rc 3/4	285	605	540	110	130	325	575	485	325	355	315	515

Note: The diagram above is drawn base on IDFS6E dimension with scale 1:6

Series IDUS/IDFS Option Specification

Refer to pages 1 and 5 for "How to Order" of options.

A Option symbol With cool compressed air

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

Model	IDUS3E	IDUS4E	IDUS6E	IDFS6E	IDFS8E	IDFS11E
/min (ANR)	155	250	370	370	600	825

Condition
Inlet air pressure: 0.7MPa
Inlet air temperature: 35°C saturation
Ambient temperature: 32°C
Outlet air temperature: 10°C or less

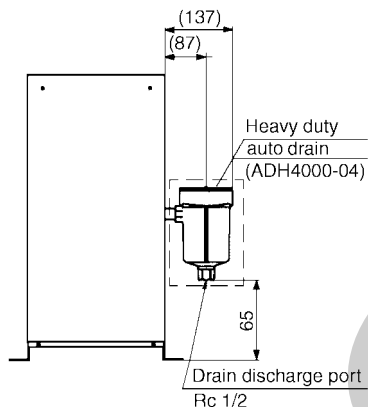
C Option symbol With anti corrosive treatment

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.

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 (AD44).

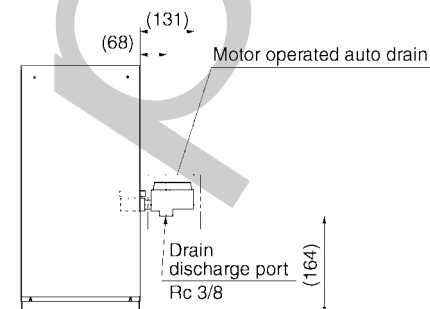


M Option symbol With motor operated auto drain

This option changes the float style auto drain (AD44) 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 / (ANR) each time
0.5MPa	10 / (ANR) each time
0.7MPa	14 / (ANR) each time

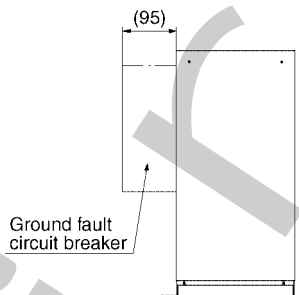
* Operation cycle: 1 cycle/min. Operation time: 2 sec./min.



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

R Option symbol With circuit breaker

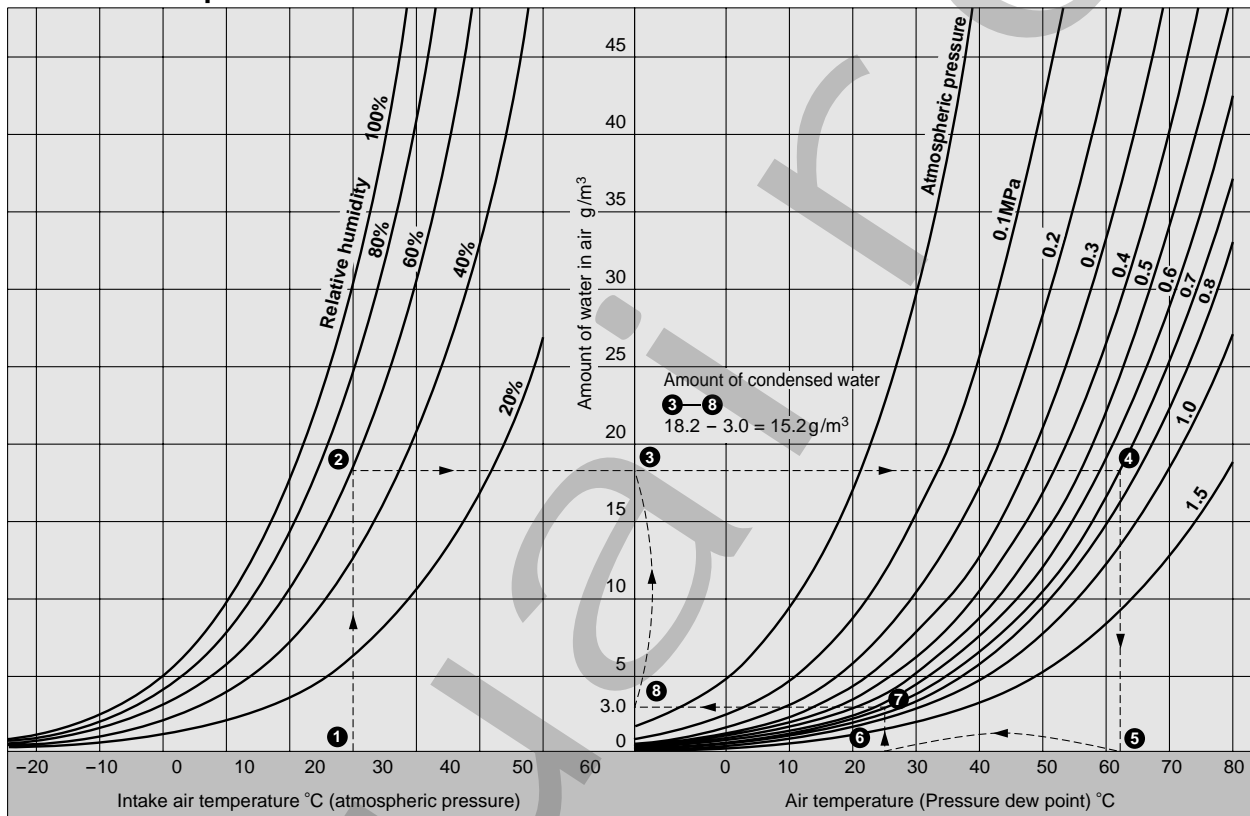
A circuit breaker is attached to the side of the air dryer. This saves additional electrical wiring at the time of installation.



Breaker capacity	Sensitivity current
5A	15 to 30mA

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. (1→2→3→4→5) If this is cooled to 25°C, the amount of condensed water generated will be 15.2g/m³. (6→7→8→3) Therefore, with an air flow rate of 3m³/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

