

Air Dryer Stainless Steel Heat Exchanger Type Series **IDUS/IDFS** (220/240VAC 50Hz)

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.

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 ℓ/min(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 ℓ/min(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



HA

AT

ID

AMG

AFF

AM

Misc.

- 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

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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 ℓ/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 ℓ/min (ANR)
- 4 Based on condition ⑥;
IDUS4E is selected as the model to process an air flow larger than 467 ℓ/min (ANR) with a 50Hz power supply, according to data D-1.

Note) ℓ/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 ℓ/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 ℓ/min (ANR)
- 4 Based on condition ⑥;
IDFS11E 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.

Data A: Correction Factor for Temperature (Series IDUS)

Ambient temp. (°C) \ Inlet air temp. (°C) \ Outlet air press. dew point (°C)	50			55			60			65			70			80		
	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) \ Outlet air press. dew point (°C)	30			35			40			45			50		
	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 (ℓ/min (ANR))	310	500	740

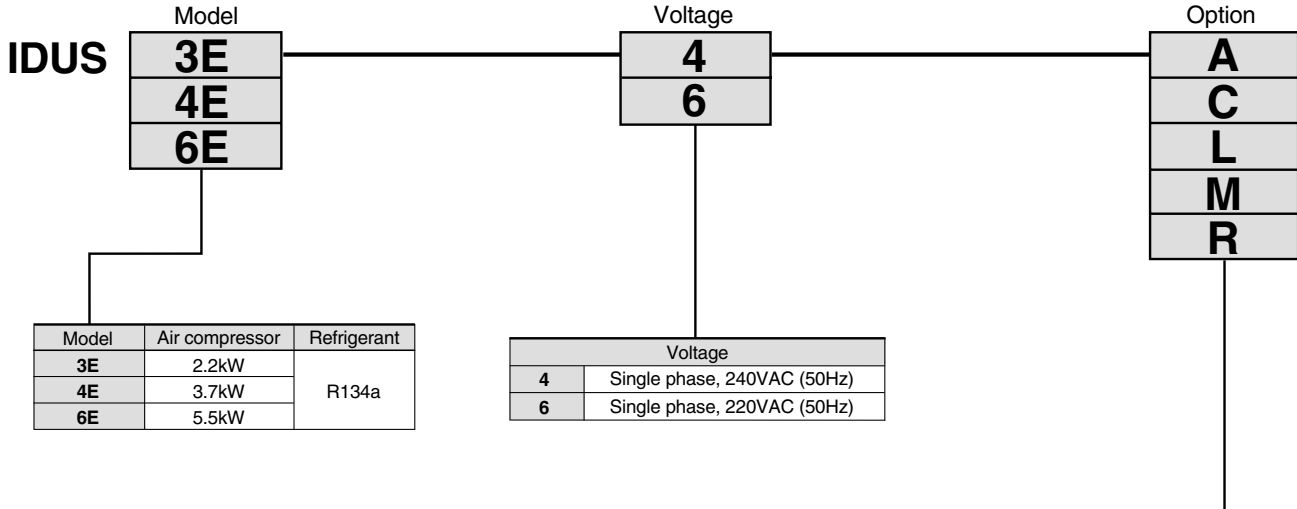
Data D-2: Air Flow Capacity (Series IDFS)

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

Air Dryer Stainless Steel Heat Exchanger Type Series *IDUS* 3E, 4E, 6E

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How to Order



Model \ 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
IDUS3E	●	●	●	●	●
IDUS4E	●	●	●	●	●
IDUS6E	●	●	●	●	●

Note 1) All the options are not currently available. Please contact SMC if necessary.
 Note 2) Refer to page 14-18-9 for further information of options.
 Note 3) Combination of "L" and "M" is not available.

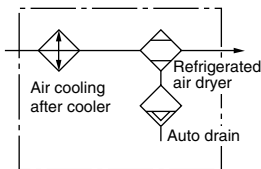
- HA
- AT
- ID
- AMG
- AFF
- AM
- Misc.

Series IDUS

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JIS Symbol



Model/Standard Specifications

Specifications		Model	IDUS3E	IDUS4E	IDUS6E
Rated conditions	Air flow rate ^{Note 2)}	ℓ/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 ℓ/min (ANR) refers to the conditions of 20nC, 1 atm. pressure and relative humidity of 65%.

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

Working Principle

