

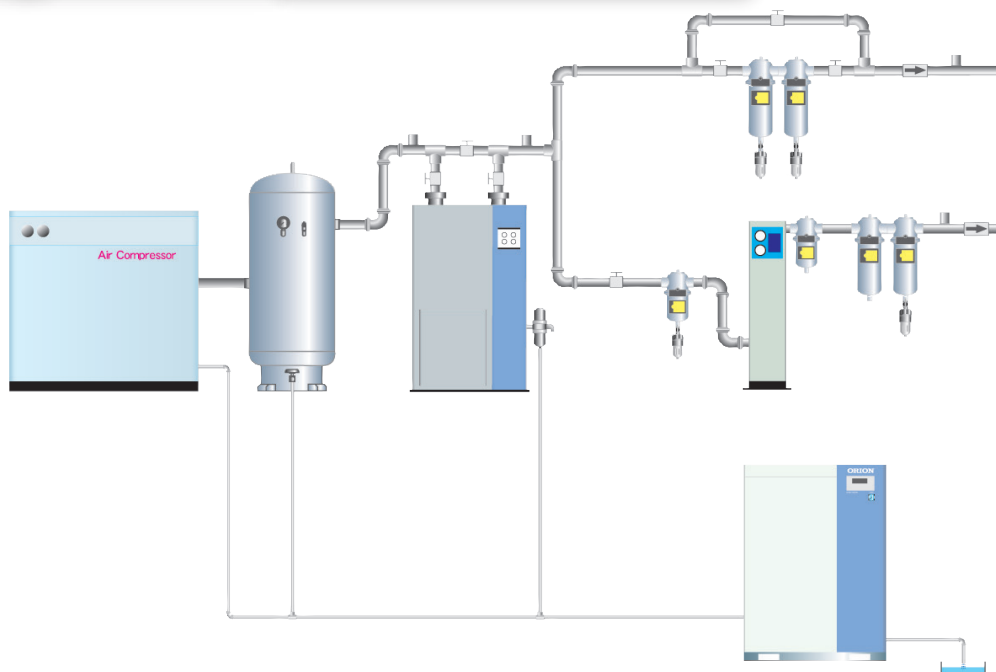
ORION

ISO Quality Policy
Orion strives to offer products that delight its customers.

Clean Air System



**Low Pressure Loss & Energy Saving
Eco-Friendly Refrigerant Applied
Powerful performance with
heavy duty specification**



Best Match For Inverter Compressor & Oil-Free Compressor

■ Air Quality Notes

Please install ORION genuine Clean Air Filters before and after TRX dryer for the best performance.

■ Safety Notes

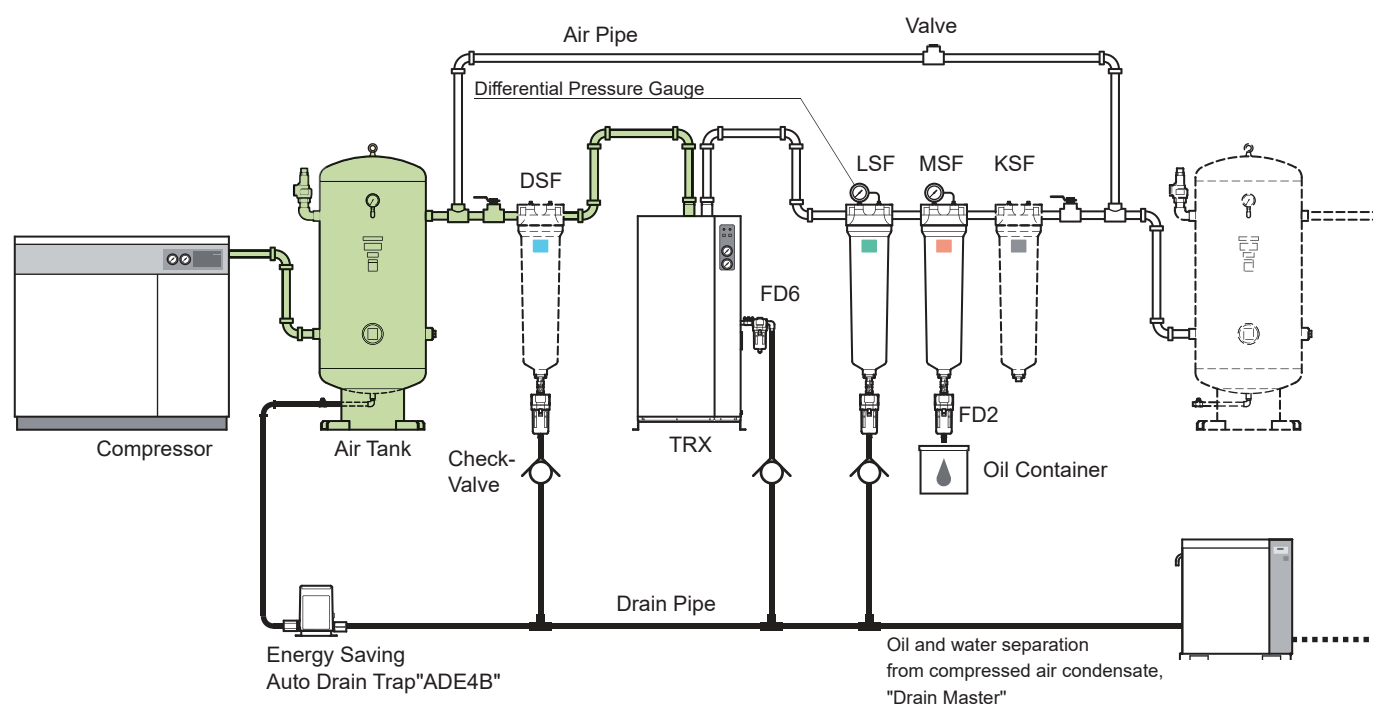
Before operating equipment, please read the operating manual carefully, and only use as indicated.

For installation of equipment and required wiring, engaged a qualified person or consult with your dealer.

Be sure to select equipment which suits your needs.

Do not use equipment for purposes other than specified.

Doing so can lead to accidents or equipment breakdown.



System	Applications
★ ☆ DSF TRX LSF MSF KSF	General Painting, Precision Machinery Industry, etc
☆ DSF TRX LSF MSF	Standard Pneumatic
TRX LSF MSF	Standard Pneumatic
⚠ LSF TRX MSF KSF	⚠ Not recommended

(1) Please consult with your dealer or ORION directly for further information when compressed air is supplied for medical, food, or clean room use.

(2) Please set up above ☆ system when Oil-Free compressor is installed.

(3) Please set up above ★ system when intake air of an air compressor includes large amount of oil droplets.

(4) ⚠ LSF is not recommended to be installed before TRX dryers because it will increase differential pressure and drain water will be accumulated in the differential pressure gauge.

(5) SUS pipe and SUS air tank are recommended when Oil-Free compressor is installed (as indicated in Green).

TRX Heat-Exchanger is made of SUS .

(6) Please install a check valve on exhaust pipe of filter.

(7) Please consult with your dealer or ORION directly when you are not certain of air tank location (before or after TRX).

ORION Refrigerated Air Dryer

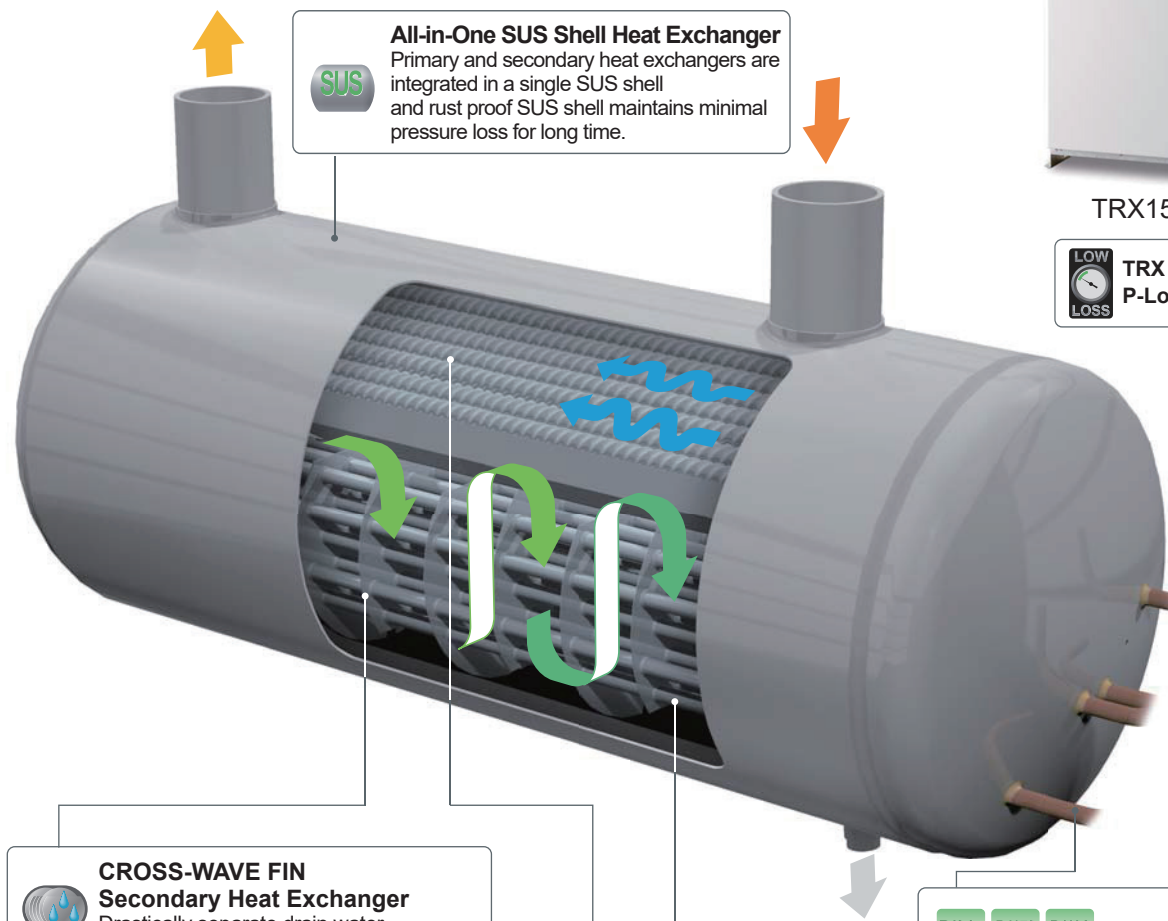
Feature-Packed Air Dryer for Energy Saving and Stable Productivity.

ORION TRX series



TRX150D2

TRX model
P-Loss under 0.015MPa



All-in-One SUS Shell Heat Exchanger
Primary and secondary heat exchangers are integrated in a single SUS shell and rust proof SUS shell maintains minimal pressure loss for long time.

CROSS-WAVE FIN Secondary Heat Exchanger
Drastically separate drain water from compressed air without pressure loss

TURBO TUBE Primary Heat Exchanger
Efficient pre-cooling and re-heating without pressure loss

R134a R407C R410A Eco-Friendly refrigerant applied

43°C Heavy Duty Refrigerant Circuit
Durable performance in severe condition at ambient temp. of 43°C

TRX Pressure Loss Advantage



	ORION TRX50HJ	Other Maker (Equivalent)	Difference
Pressure Loss	0.013MPa	0.032MPa	0.019MPa
Electricity Loss/year	\$446	\$1,097	\$651

Compressor	Air Pressure Source	Capacity	Electricity Charge	Running Hour
37kW(50HP)	0.69MPa	7m³/min	US\$0.15/kWh	8000h

Ni NICKEL-PLATED Copper Pipe
Anti-corrosion and prevention gas leakage
NICKEL-PLATED Copper Pipe



Copper pipe not plated



Condenser Filter
Protection against dust and easy maintenance



Refrigerated Air Dryer

TRX Series



TRX150D2



TRX75J



TRX10D



TRX5D

* Specifications

■ Standard inlet air temp. model

Descriptions		TRX	Air cooled								Water cooled			
			5D	10D	20D2	30J	50J	75J	100J	150D2	200D2	100J-W	150D2-W	200D2-W
Air Processing Capacity		m³/min	0.6	1.2	2.4	4.4	7.0	9.8	14.0	23.5	26.5	14.0	23.5	26.5
Inlet Air Temperature		℃	10~50											
Dew Point Temperature		℃	PDP : 2~15 (0.69 MPa)											
Ambient Temperature		℃	2~40									2~45		
Operating Pressure		MPa	0.2~0.98											
Dimensions	Depth	mm	490	758	832		979		973	1022	1291	973	1022	1291
	Width	mm	233	255	255		305		470	592	702	470	592	702
	Height	mm	445	515	627		922		1140	1169	1275	1140	1169	1275
Mass		kg	18	24	36	43	75	83	114	172	228	114	166	225
Pipe Connections		R	1/2	3/4	1		1 1/2		2	2 1/2	3	2	2 1/2	3
Power Source (60Hz)			1ph 220V 60Hz					3ph 220V 60Hz						
Power Consumption (60Hz)		kW	0.3	0.38	0.5	0.9	1.6	1.8	2.4	4.0	4.1	2.2	3.9	4.0
Refrigerant			R-134a		R-407C		R-410A			R-407C		R-410A	R-407C	

※ Air processing conditions: compressed air inlet pressure (gauge pressure): 0.69MPa, inlet air temperature: 35°C , outlet air dew point: -17°C , pressure dew point: 10°C , ambient temperature: 32°C .

■ High inlet air temp. model

Descriptions \ TRX			Air cooled							Water cooled	
			5HD	10HD	20HJ	30HJ	50HJ	75HJ	100HD2	100HD2-W	
Air Processing Capacity	m³/min		0.6	1.2	2.4	4.4	7.0	9.8	14.0	14.0	
Inlet Air Temperature	°C		10~80								
Dew Point Temperature	°C		PDP : 2~15 (0.69 MPa)								
Ambient Temperature	°C		2~40							2~45	
Operating Pressure	MPa		0.2~0.98								
Dimensions	Depth	mm	490	758	832	979		973	1022		
	Width	mm	233	255	255	305		470	592		
	Height	mm	445	515	627	922		1140	1169		
Mass	kg		19	28	43	75	83	114	172	166	
Pipe Connections	R		1/2	3/4	1	1 1/2		2	2 1/2		
Power Source (60Hz)			1ph 220V 60Hz			3ph 220V 60Hz					
Power Consumption (60Hz)	kW		0.38	0.5	0.9	1.6	1.8	2.4	4.0	4.0	
Refrigerant			R-134a		R-410A			R-407C			

※ Air processing conditions: compressed air inlet pressure (gauge pressure): 0.69MPa, inlet air temperature: (TRX5HD · TRX10HD · TRX100HD2 · TRX100HD2-W : 55°C ; TRX20HJ~TRX75HJ : 50°C) , outlet air dew point: -17°C , pressure dew point: 10°C , ambient temperature: 32°C .

Model Selection FOR TRX Series

Model Selection

1	Temperature conditions Table A : TRX-H Models Table B : TRX-Standard Models Table C : Air Pressure Coefficient
2	Calculate the necessary air capacity for the model selection. Air capacity required = $\text{Intake air volume} \div (\text{A or B} \times \text{C})$
3	Please select the suitable model from the specification which has bigger Air Processing Capacity than the air capacity required.

Model selection Example

Inlet Air Temp.	65°C	Ambient Temp.	35°C	Air Flow	6m³/min
PDP	10°C	Air Pressure	0.60MPa	Frequency	60Hz
1	From charts, Inlet temp. coefficient → 0.79 Air Pressure coefficient → 0.93				
2	Air capacity required for Orion Dryer, $6 \div (0.79 \times 0.93) = 8.2 \text{ m}^3/\text{min}$				
3	The suitable model to process 8.2 m³/min is TRX75HJ, as its capacity exceeds the required value.				

Standard air processing capacity: m³/min(ANR)

ANR is 20°C at atmospheric pressure, relative humidity of 65%.)

Processing capacities listed here are for 60Hz operation at ANR.

Standard inlet temperature	TRX5D	TRX10D	TRX20D2	TRX30J	TRX50J	TRX75J	TRX100J	TRX150D2	TRX200D2
High inlet temperature	TRX5HD	TRX10HD	TRX20HJ	TRX30HJ	TRX50HJ	TRX75HJ	TRX100HD2	-	-
Air processing capacity	0.6	1.2	2.4	4.4	7.0	9.8	14.0	23.5	26.5

A: Inlet Air Temperature Coefficient (TRX-H Models)

Inlet air temperature (°C)		55			65			75			80		
Outlet dew point (°C)		5	10	15	5	10	15	5	10	15	5	10	15
Ambient temperature (°C)	32	0.82	1.00	1.10	0.78	0.89	1.03	0.71	0.82	0.98	0.57	0.75	0.88
	35	0.74	0.89	1.06	0.67	0.79	1.00	0.61	0.73	0.92	0.49	0.64	0.82
	40	0.57	0.7	0.87	0.56	0.60	0.81	0.48	0.54	0.75	0.40	0.46	0.63

B: Inlet Air Temperature Coefficient (TRX Standard Models)

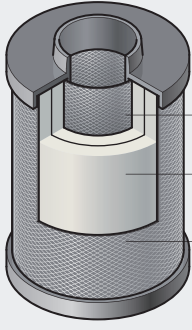
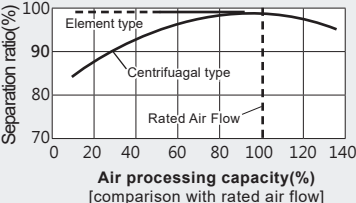
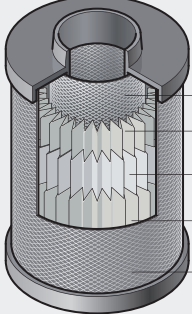
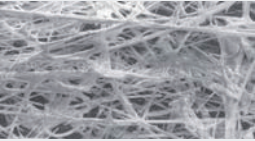
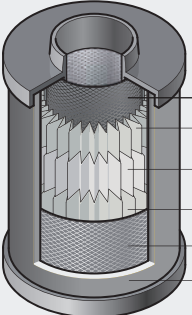
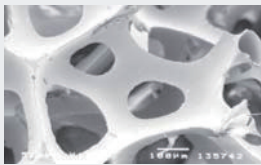
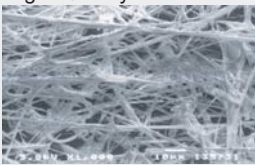
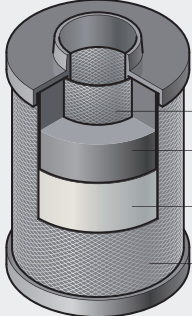
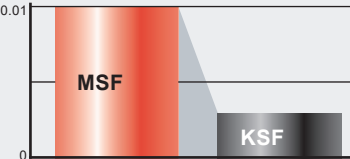
Inlet air temperature (°C)		35			40			45			50		
Outlet dew point (°C)		5	10	15	5	10	15	5	10	15	5	10	15
Ambient temperature (°C)	32	0.93	1.00	1.10	0.60	0.84	1.02	0.48	0.69	0.89	0.26	0.45	0.68
	35	0.68	0.97	1.10	0.53	0.80	0.97	0.42	0.65	0.81	0.19	0.43	0.60
	40	0.6	0.9	1.15	0.47	0.74	0.93	0.34	0.60	0.73	0.10	0.39	0.50

C: Air Pressure Coefficient

Air Pressure MPa	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Coefficient	0.67	0.73	0.80	0.87	0.93	1.00	1.07	1.13	1.20

ORION Clean Air Dryer

Advanced Technology Packed Clean Air Filter

Drain Filter DSF	Location ^{※1} Before TRX
 Element : EDS Inner Screen Nonwoven fabric Outer Screen	Water droplet and solid particulate(5μm) removal No water drop in filtration performance Low pressure loss (0.005MPa or less) as pre-Filter Float operated auto drain trap installed. Performance Curve  LOW LOSS P-loss 0.005MPa
Line Filter LSF	Location ^{※1} After TRX
 Element : ELS Inner Screen Nonwoven fabric Glass fiber filter Nonwoven fabric Outer Screen	Solid particulate(1μm,99.999%) removal High quality glass fiber element installed(ELS) Float operated auto drain trap installed Precision differential pressure gauge installed (LSF400-ALT and bigger model). High Quality Glass Fiber  LOW LOSS P-loss 0.005MPa (Initial)
Mist Filter MSF	Location ^{※1} After LSF
 Element : EMS-H Inner Screen Nonwoven fabric Glass fiber filter Nonwoven fabric Outer Screen Plastic foam	Oil mist (0.01wt ppm) and fine solid particulate (0.01μm,99.999%) removal Newly developed element installed(EMS-H) Float operated auto drain trap installed Precision differential pressure gauge installed (MSF400-ALT and bigger model). Oil-Resistant Plastic Form  High Quality Glass Fiber  LOW LOSS P-loss 0.01 ~ 0.02MPa
Carbon Filter KSF	Location ^{※1} After MSF
 Element : EKS Inner Screen Fibrous activated carbon Nonwoven fabric Outer Screen	Removes Odor (0.003wt ppm) . Newly developed element "Fibrous Activated Carbon" installed(EKS) Great reduction in amount of loose carbon as compared with previous filters. Output Oil Concentration(wt ppm)  LOW LOSS P-loss 0.009MPa

Location ^{※1} : Please refer to Basic System Examples catalog.

Clean Air Filter

DSF / LSF / MSF / KSF - T Series and - ALT Series

DSF / LSF / MSF / KSF - T Series

- 400-T~2000-T
- 400A-T~2000A-T
- Stainless steel vessel.

DSF / LSF / MSF / KSF - ALT Series

- 75B-ALT~2000-ALT
- Aluminum die-casting vessel with alumite-treated on the inside surface.



LSF2000A-T

LSF700-T

LSF700-ALT

* Specifications

DSF / LSF / MSF / KSF				75B-ALT ^{※1}	150B-ALT	200B-ALT	250B-ALT	400-T	700-T	1000-T	1300-T	2000-T	400A-T	700A-T	1000A-T	1300A-T	2000A-T
Descriptions				400-ALT	700-ALT	1000-ALT	1300-ALT	2000-ALT									
Air processing capacity ^{※2}		0.69MPa	m³/min	0.35	1.2	1.8	2.7	3.9	6.6	10.6	13.8	20.0	3.9	6.6	10.6	13.8	21.5
Casing Material				Aluminum Die Casting (All AL-Filter are alumite-treated on the inside surface.)									stainless steel construction				
Operating Range	Fluid			Compressed Air													
	Inlet Air Pressure		MPa	0.05~0.98(DSF / LSF / MSF 1300 -T / -ALT, 2000 -T / -ALT : 0.1~0.98)									0.1~0.98(DSF:0.29~0.98)				
	Inlet Air Temperature		℃	5~60													
	Ambient Temperature		℃	2~60													
Performance ^{※3}	Filtration			DSF : 5μm and Water Separation Efficiency 99% / LSF : 1μm (Filtration Efficiency 99.999%) MSF : 0.01μm (Filtration Efficiency 99.999%) / KSF : Adsorption													
	Outlet Oil Contamination		wt ppm	MSF : 0.01 / KSF : 0.003													
	Pressure Loss		MPa	DSF :Initial 0.005 / LSF :Initial 0.005 / MSF : Initial : 0.01 ・ Usual 0.02 / KSF : 0.009													
Filter Element Replacement	Usual			1 year										Whichever comes first.			
	Pressure Loss		MPa	DSF : 0.02 / LSF ・ MSF : 0.035													
Connections	Pipe Connections			Rc3/8	Rc3/4		Rc1		Rc1 1/2		Rc2		Rc1	Rc1 1/2		Rc2	
Mass			kg	1.0		2.0	2.1	2.6	5.0	6.0	6.5	9.0	3.0	3.3	3.7	4.3	6.0
Accessories	Filter Element	Type	EDS/ELS EMS-H / EKS	75	150	200	250	400	700	1000	1300	2000	400	700	1000	1300	2000
		Q'ty		1 each													
	Auto Drain Trap		T / A-T Series	-				FD2, none with KSF									
			ALT Series	NH-503MR built-in, none with KSF						FD2, none with KSF							
Differential Pressure Gauge				Option													

※1. KSF series filters are available from 150 to 2000.

※2. Processing air capacity is calculated based on compressor intake conditions (atmospheric pressure, 32°C , 75% humidity.)

Processed air conditions: Inlet air pressure: 0.69MPa, inlet air temp: 32°C , inlet dew point at atmospheric pressure: -17°C (PDP10°C) inlet oil concentration: 3wt ppm(LSF/MSF), 0.01wt ppm(KSF).

※3. Can be adapted for use with Rc1/4 using the included adapter.

■ Pressure correction coefficient (inlet pressure)

$$\text{Air processing capacity} \geq \frac{\text{Desired capacity}}{\text{Pressure correction coefficient}}$$

Pressure (MPa)	0.05	0.1	0.2	0.29	0.39	0.49	0.59	0.69	0.78	0.88	0.98
Pressure correction coefficient	0.19	0.25	0.38	0.49	0.62	0.75	0.87	1.0	1.06	1.12	1.17

Auto Dryer Trap



FD2



FD6



FD-10-A



ADE-3-B



AD-5

* Specifications

Item			Model	Motor valve operated		Float operated			Disk operated
				ADE-2-B	ADE-3-B	FD2	FD6	FD-10-A	AD-5
Performance specifications	Maximum drain	Drain (water only)	cm ³ /cycle	390		10	30	80	450L/h
		Air only	L/cycle	16		—			approx. 0.3
	Drain release cycle time		min.	60(fixed)	2 · 5 · 10 · 20 · 30(adjustable)	—			
	Minimum drain release time		sec.	3.6/3.0		—			
Compressed air pressure range (gauge pressure)			MPa	0.05~1.47	0.05~0.98	0.1~1.0		0.20~0.98	0.29~0.98
Operable temperature range			℃	2~40		2~60			
Processed fluid				Compressed air					
Drain release method				Motor valve timer, Water level detection control		Float operated			Disk operated
Power specifications	Power Source			Single phase 200V 50/60Hz		—			
	Power consumption		W	5 or lower		—			
Connections	Inlet			Includes 1/2, 3/8, 1/4 fittings	Rc1/2				
	Drain outlet			ϕ 10 hose nipple		Hose nipple		Rc3/8	Rc1/2
Mass			kg	1.0		0.3	0.45	1.0	1.7
Outside dimensions (H x D x W)			mm	105x126x170	105x126x175	178x63x63	201x80x80	193x ϕ 96	198x79x86

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- Product mechanisms, specifications, etc. listed in this catalog are subject to change without notice.