

No.1 Share in Japan

ORION[®]
冷熱と真空でイノベーション
Innovating with Thermal Control and Vacuumオリオンクリーンエアシステム
冷凍式圧縮空気除湿装置

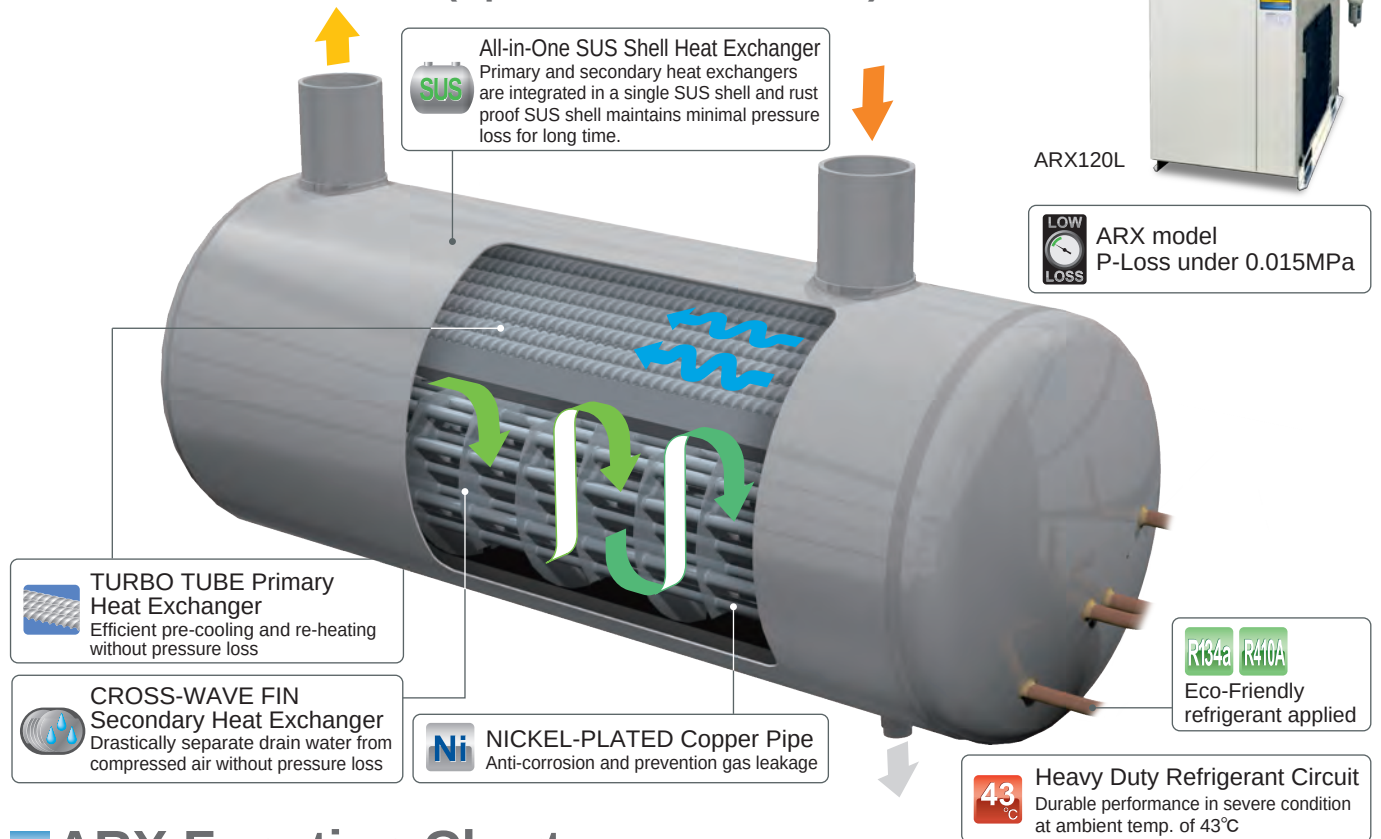
Clean Air System

Low Pressure Loss & Energy Saving**Eco-Friendly Refrigerant Applied****Powerful performance in Asia
with heavy duty specification****Best Match for Inverter Compressor & Oil-Free Compressor**

ORION Refrigerated Air Dryer

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

ORION ARX series (Up to ARX120HL / 180L)

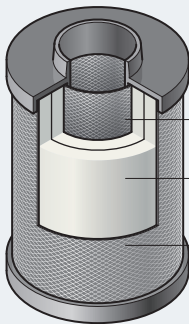
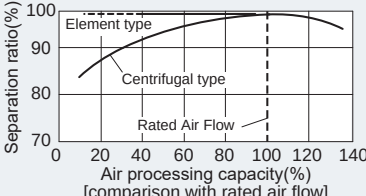
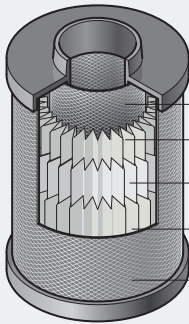
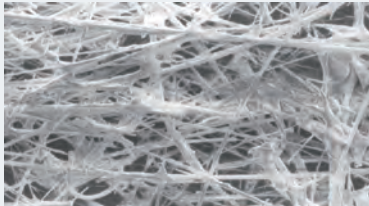
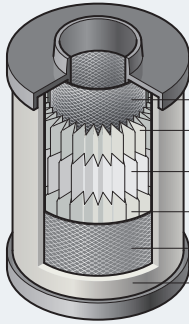
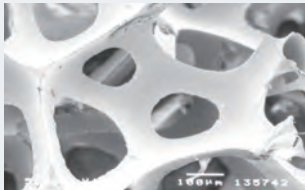
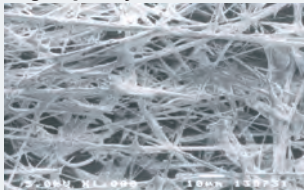
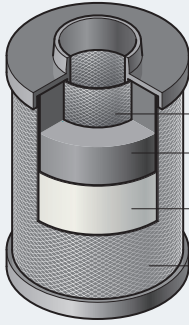
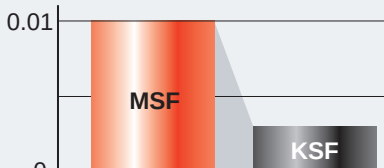


ARX Function Chart

Function	Model : ARX																			
	Standard inlet air temperature model										High inlet air temperature model									
	5J	10J	20J	30J	50J	75J	100J	110L	120L	180L	3HJ	5HJ	10HJ	20HJ	30HJ	50HJ	75HJ	90HL	100HL	120HL
All-in-One SUS Shell Heat Exchanger SUS Shell Heat Exchanger																				
TURBO TUBE Primary Heat Exchanger																				
CROSS-WAVE FIN Secondary Heat Exchanger																				
NICKEL-PLATED Copper Pipe																				
R134a / R410A Refrigerant																				
Heavy Duty Refrigerant Circuit																				
Condenser Filter																				
Wide Adjusting Range CCV (capacity control valve)																				
Operation Lamp																				
Alarm Lamp																				
Evaporating Pressure Gauge																				
Air Pressure Gauge																				
Long Life Fan-Control Switch																				
One Touch Open Front Cabinet																				
I/F (Remote ON/OFF, Operation Status, Alarm)	Option										Option									
Exhaust Duct																				
Float Operated Auto Drain Trap FD6 with Ball Valve																				
Float Operated Auto Drain Trap FD2 with Ball Valve																				
Float Operated Auto Drain Trap FD2																				
Disc Operated Auto Drain Trap AD-5 with Ball Valve																				

ORION Clean Air Filter

Advanced Technology Packed ORION Clean Air Filter

Drain Filter DSF			Location	Before ARX
	 Sectioned Drawing of Element	Element : EDS Inner Screen Water-Resistant Nonwoven Fabric Cloth 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 P-loss 0.005MPa	
		Performance Curve 		
Line Filter LSF			Location	After ARX
	 Sectioned Drawing of Element	Element : ELS Inner Screen Nonwoven Fabric Cloth High Quality Glass Fiber Nonwoven Fabric Cloth Outer Screen	Solid particulate (1μm, 99.999%) removal High quality glass fiber element installed(ELS) Float operated auto drain trap installed P-loss 0.005MPa (Initial)	
		High Quality Glass Fiber 		
Mist Filter MSF			Location	After LSF
	 Sectioned Drawing of Element	Element : EMS-H Inner Screen Nonwoven Fabric Cloth High Quality Glass Fiber Nonwoven Fabric Cloth Outer Screen Oil-Resistant Plastic Form	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 P-loss 0.01 ~ 0.02MPa	
		Oil-Resistant Plastic Form  High Quality Glass Fiber 		
Carbon Filter KSF			Location	After MSF
	 Sectioned Drawing of Element	Element : EKS Inner Screen Fibrous Activated Carbon (Orion Original) Nonwoven Fabric Cloth 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 P-loss 0.009MPa	
		Output Oil Concentration(wt ppm) 		

※All AL-Filter are alumite-treated on the inside surface.

ORION Refrigerated Air Dryer

ARX Series



Standard inlet air temp. model

Descriptions	Type	ARX									
		5J	10J	20J	30J	50J	75J	100J	110L	120L	180L
Air Processing Capacity	m³/min	0.54	1.0	2.3	4.0	6.4	9.0	12.0	13.0	19.0	26.0
Inlet Air Temperature	°C	10~50									
Dew Point Temperature	°C	3~15									
Ambient Temperature	°C	2~43									
Operating Pressure	MPa	0.2~1.0									
Dimensions	Height	mm	480	510	610	900	990	1050	1054	1229	1275
	Depth	mm	450	600	820	960	980	1010	1022	1023	1291
	Width	mm	180	240	240	300	380	470	592	702	702
Mass	kg	18	26	35	44	83	94	106	143	181	244
Pipe Connections	B	R1/2	R3/4	R1	R1	R1·1/2	R2	R2	R2	R2·1/2	R2·1/2
Power Source		1ph 220V 50Hz						3ph 380V 50Hz			
Power Consumption	kW	0.26	0.27	0.36	0.68	1.7	2.9	3.3	3.6		
Refrigerant		R134a					R410A				

※ Rated condition: Compressed air inlet pressure (gauge pressure): 0.7MPa, Pressure dew point: 10°C, Inlet air temperature: 35°C, Ambient temperature: 30°C
 ※ Air processing capacity is converted to the suction air condition (atmospheric, 32°C, 75%RH). ※ Please refer to the specifications sheet for further details.

High inlet air temp. model

Descriptions	Type	ARX									
		3HJ	5HJ	10HJ	20HJ	30HJ	50HJ	75HJ	90HL	100HL	120HL
Air Processing Capacity	m³/min	0.32	0.7	1.1	2.8	4.6	7.6	8.8	10.7	14.9	18.4
Inlet Air Temperature	°C	10~80									
Dew Point Temperature	°C	3~15									
Ambient Temperature	°C	2~43									
Operating Pressure	MPa	0.2~1.0									
Dimensions	Height	mm	480	510	610	900	990	1050	1054	1229	1275
	Depth	mm	450	600	820	960	980	1010	1022	1023	1291
	Width	mm	180	240	240	300	380	470	592	702	702
Mass	kg	18	26	35	44	83	94	106	143	181	244
Pipe Connections	B	R1/2	R3/4	R1	R1	R1·1/2	R2	R2	R2	R2·1/2	R2·1/2
Power Source		1ph 220V 50Hz						3ph 380V 50Hz			
Power Consumption	kW	0.27	0.28	0.37	0.74	1.9	2.0	3.4	3.7	4.0	
Refrigerant		R134a					R410A				

※ Rated condition: Compressed air inlet pressure (gauge pressure): 0.7MPa, Pressure dew point: 10°C, Inlet air temperature: 50°C, Ambient temperature: 35°C
 ※ Air processing capacity is converted to the suction air condition (atmospheric, 32°C, 75%RH). ※ Please refer to the specifications sheet for further details.

Heavy Duty model

Descriptions		Type	ARX							
			2300A	3100A-E	3500A-E	4500A-E	2900A-W	4100A-WE	5300A-WE	7400A-WE
			Air Cooled Models				Water Cooled Models			
Air Prossessing capacity	m³/min	23	31	35	45	29	41	53	74	
Inlet Air Temperature	℃	10~60				10~60				
Dew Point Temperature	℃	3~15				3~15				
Ambient Temperature	℃	2~45				2~45				
Operation Pressure	MPa	0.29~1.0				0.29~1.0				
Dimensions	Height	mm	1500			1500	1500	1500	1620	
	Depth	mm	1500			1996	1000	1000	1654	
	Width	mm	802			850	802	802	877	
Mass	kg	323	385	380	470	278	350	395	495	
Pipe Connections	FLG	2·1/2B (65A)	3B (80A)		4B (100A)	2·1/2B (65A)	3B (80A)	4B (100A)		
Dual-Drive Eco System		—	○			—	○			
Power Source		3ph 380V 50Hz				3ph 380V 50Hz				
Power Consumption	kW	5.6	10		12	4.2	6.8	9.5	12.5	
Recommended Pre-Filter (Option)		DSF2900A	DSF3500A		DSF5300A	DSF2900A	DSF4100A	DSF5300A	DSF8000A	
Refrigerant		R407C				R407C			R410A	

※ Rated condition: Compressed air inlet pressure (gauge pressure): 0.7MPa, Pressure dew point: 10°C, Inlet air temperature for air cooled model: 50°C, Ambient temperature for air cooled model: 35°C, Inlet air temperature for water cooled model: 45°C, Cooling water temperature for water cooled model: 32°C at specified water flow rate.
 ※ Air processing capacity is converted to the suction air condition (atmospheric, 32°C, 75%RH). ※ Please install Drain Filter (DSF) before air dryer to guarantee its performance. ※ Air connection flange: JIS 10K FF, No companion flange is attached. ※ Please refer to the specification sheet for further details.

ORION Clean Air Filter



AL Small-size Air Filter

Descriptions \ Type			DSF/LSF	75-AL	150-AL	200-AL	250-AL	400-AL	700-AL	1000-AL	1300-AL1	2000-AL1	
			MSF	75D-AL	150D-AL	200D-AL	250D-AL	400D-AL	700D-AL	1000D-AL	1300D-AL	2000D-AL	
			KSF	—	150-AL	200-AL	250-AL	400-AL	700-AL	1000-AL	1300-AL	2000-AL	
Air Processing Capacity			m³/min	0.35	1.2	1.8	2.7	3.9	6.6	10.6	13.8	20.0	
Material				Aluminum Die Casting (All AL-Filter are alumite-treated on the inside surface.)									
Operating Range	Fluid		Compressed Air										
	Inlet Air Pressure	MPa	0.05~1.0 (DSF / LSF / MSF 1300AL, 2000AL : 0.1~1.0)										
	Inlet Air Temperature	℃	5~60										
	Ambient Temperature	℃	2~60										
Performance	Filtration		DSF : 5μm (Liquid water separation efficiency: 99%) LSF : 1μm (Filtration efficiency: 99.999%) MSF : 0.01μm (Filtration efficiency: 99.999%) KSF : Adsorption by activated carbon fiber										
	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										
When to replace filter element				One year or pressure loss 0.02 MPa for DSF, 0.035 MPa for LSF/MSF, whichever comes first.									
Connections	Pipe Connections		Rc3/8	Rc1/2	Rc3/4	Rc1		Rc1 · 1/2		Rc2			
	Different Pressure Gauge Connection		Rc1/4										
Mass			kg	1.0		2.0	2.1	2.6	5.0	6.0	6.5	9.0	
Accessories	Filter Element	Type	EDS/ELS EMS-H/EKS	75	150	200	250	400	700	1000	1300	2000	
		Quantity		1									
	Auto Drain Trap			NH-503MR (built-in), None with KSF								FD2, None with KSF	
	Differential Pressure Gauge			DG-50(A) (Option)									

※Air processing capacity is converted to the suction air condition (atmospheric, 32°C, 75%RH). ※ All performances are tested at standard air processing capacity (0.7MPa), Inlet oil contamination 3wt ppm(LSF/MSF), 0.01wt ppm(KSF). ※ Oil concentration is measured in conformity with ISO8573-2 "Compressed air - Part 2 : Test methods for oil aerosol content", not including oil-vapor. ※ Please refer to the specification sheet for further details.

SUS Large-size Air Filter

Descriptions \ Type			DSF/LSF/KSF	2900A	3500A	4100A	5300A	6100A	8000A
			MSF	2900D	3500D	4100D	5300D	6100D	8000D
Air Processing Capacity			m³/min	29	35	41	53	61	80
Material				Stainless steel					
Operating Range	Fluid			Compressed Air					
	Inlet Air Pressure		MPa	LSF/MSF: 0.1~1.0, DSF: 0.2~1.0, KSF: 0.05~1.0					
	Inlet Air Temperature		℃	5~60					
	Ambient Temperature		℃	2~60					
Performance	Filtration			DSF : 5μm (Liquid water separation efficiency: 99%) LSF : 1μm (Filtration efficiency: 99.999%) MSF : 0.01μm (Filtration efficiency: 99.999%) KSF : Adsorption by activated carbon fiber					
	Outlet Oil Concentration		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					
When to replace filter element				One year or pressure loss 0.02 MPa for DSF, 0.035 MPa for LSF/MSF, whichever comes first.					
Connections	Pipe Connections		FLG	2・1/2B (65A), JIS 10K FF	3B (80A), JIS 10K FF		4B (100A), JIS 10K FF		
	Different Pressure Gauge Connection			Rc1/4					
Mass			kg	26	28		48		95
Accessories	Filter Element	Type	EDS/ELS EMS-H/EKS	1300	2000		2000		
		Quantity		2	2		3		4
	Auto Drain Trap			FD-10-A (DSF), FD2 (LSF/MSF), None with KSF					
	Differential Pressure Gauge			DG-50(A) (Option)					
	Stand			—					
				○					

※ Air processing capacity is converted to the suction air condition (atmospheric, 32°C, 75%RH). ※ All performances are tested at standard air processing capacity (0.7MPa), Inlet oil contamination 3wt ppm(LSF/MSF), 0.01wt ppm(KSF). ※ Oil concentration is measured in conformity with ISO8573-2 "Compressed air - Part 2 : Test methods for oil aerosol content", not including oil-vapor. ※ Air connection flange : JIS 10K FF, No companion flange is attached. ※ Please refer to the specification sheet for further details.

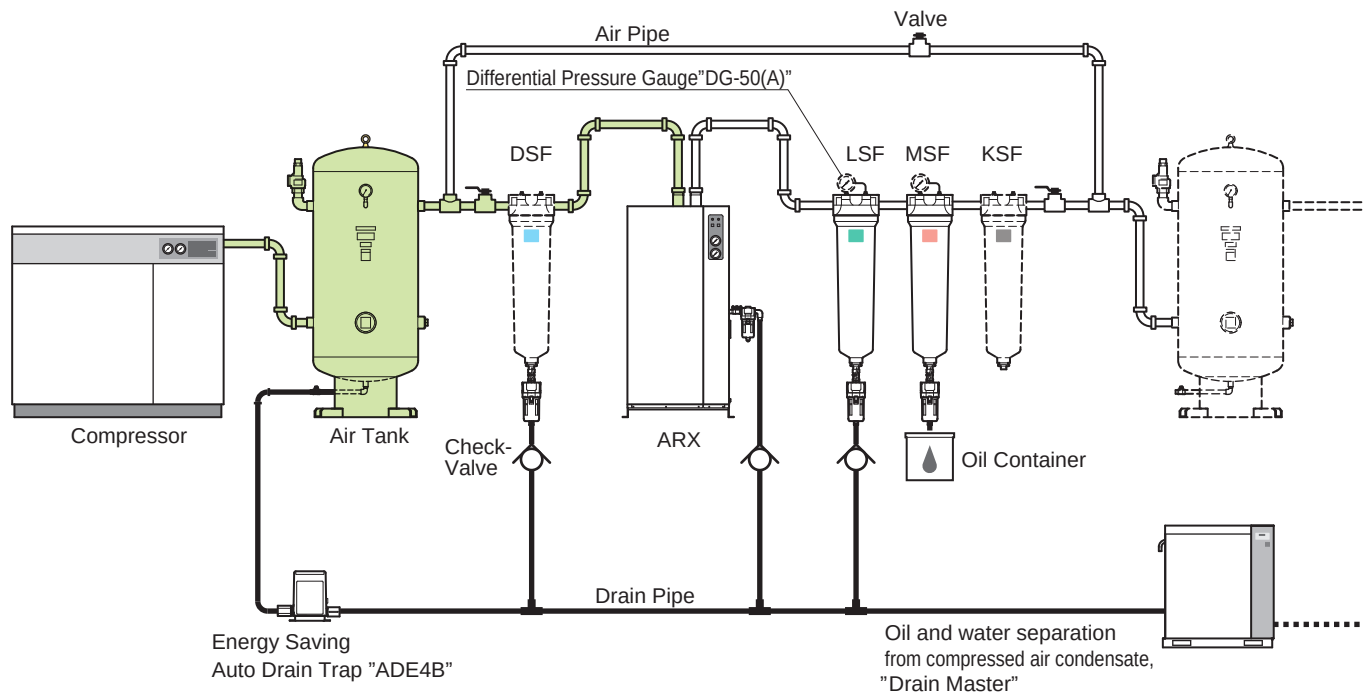
Basic System Examples

Air Quality Notes

Please install ORION genuine Clean Air Filters 'before and after ARX 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, employ 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 intended.
Doing so can lead to accidents or equipment breakdown.



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

- 1) In case no Drain Filter (DSF) before large ARX air dryer (Heavy duty model) does not cover its warranty.
- 2) Please consult with your dealer or ORION directly for further information when compressed air is supplied for medical, food, or clean room use.
- 3) Please set up above ☆ system when Oil-Free compressor is installed.
- 4) Please set up above ★ system when intake air of an air compressor includes large amount of oil droplets.
- 5) ▲ LSF-AL is not recommended to be installed before ARX dryers because it will increase differential pressure.
- 6) Please refer to "Compressed Clean Air catalog" (D-AG02 ) for details of "DRAIN MASTER" series.
- 7) SUS pipe and SUS air tank are recommended when Oil-Free compressor is installed (as indicated in Green).
ARX Heat-Exchanger is made of SUS .
- 8) Please install a check valve on exhaust pipe of filter.
- 9) Please consult with your dealer or ORION directly when you are not certain of air tank location (before or after ARX).

Model Selection

1. For Air Dryer

1	Temperature conditions
	Table A : High Inlet Air Temp. Models
	Table B : Standard Air Temp. Models
	Table C : Water Cooled Models
	Table D : Air Cooled Models
	Table E : Air Pressure Coefficient

Model selection Example

Inlet Air Temp.	60°C	Ambient Temp.	35°C	Air Flow	6m³/min
PDP	10°C	Air Pressure	0.6MPa	Frequency	50Hz

1	From charts, Inlet temp. coefficient → 0.70 Air Pressure coefficient → 0.93
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2	Calculate the necessary air capacity for the model selection. Air capacity required = Intake air volume / (A or B or C or D × E)
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2	Air capacity required for dryer. 6 / (0.70×0.93)=9.2m³/min
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3	Please select the suitable model from the specification which has bigger Air processing capacity (P3) than the air capacity required.
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3	The suitable model to process 9.2m³/min is ARX90HL, as its capacity exceeds the required value.
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A: Inlet Air Temperature Coefficient (High Inlet Air Temp. Models)

Inlet air temperature(°C)		50			60			70			80		
Outlet dew point (°C)		5	10	15	5	10	15	5	10	15	5	10	15
Ambient temperature(°C)	30	0.78	1.06	1.27	0.62	0.80	0.92	0.53	0.68	0.82	0.48	0.63	0.79
	35	0.73	1.00	1.21	0.57	0.70	0.86	0.47	0.60	0.74	0.41	0.57	0.71
	40	0.55	0.75	0.91	0.44	0.56	0.66	0.37	0.46	0.55	0.33	0.42	0.51

B: Inlet Air Temperature Coefficient (Standard Inlet Air Temp. 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)	25	0.87	1.10	1.31	0.72	0.86	1.05	0.60	0.72	0.86	0.55	0.69	0.76
	30	0.80	1.00	1.20	0.66	0.79	0.96	0.55	0.66	0.79	0.50	0.63	0.70
	35	0.78	0.94	1.15	0.63	0.74	0.92	0.51	0.62	0.74	0.46	0.57	0.65
	40	0.73	0.88	1.08	0.58	0.65	0.86	0.47	0.56	0.68	0.40	0.51	0.58

C: Inlet Air Temperature Coefficient (Heavy Duty / Water cooled Models)

Inlet air temperature (°C)		40			45			50			55			60		
Outlet dew point (°C)		5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
Coefficient		0.88	1.14	1.14	0.77	1.00	1.14	0.66	0.91	1.10	0.59	0.83	0.98	0.54	0.75	0.89

D: Inlet Air Temperature Coefficient (Heavy Duty / Air Cooled Models)

Inlet air temperature (°C)		40			45			50			55			60		
Outlet dew point (°C)		5	10	15	5	10	15	5	10	15	5	10	15	5	10	15
Ambient temperature (°C)	30	0.85	1.15	1.37	0.83	1.12	1.35	0.78	1.06	1.27	0.67	0.88	1.04	0.62	0.80	0.92
	32	0.82	1.12	1.34	0.80	1.09	1.31	0.76	1.03	1.24	0.64	0.85	1.01	0.60	0.75	0.89
	35	0.79	1.09	1.30	0.77	1.06	1.28	0.73	1.00	1.21	0.62	0.81	0.98	0.57	0.70	0.86
	40	0.60	0.81	0.98	0.58	0.80	0.96	0.55	0.75	0.91	0.47	0.62	0.75	0.44	0.56	0.66

E: Air Pressure Coefficient

Air Pressure (MPa)	0.20	0.30	0.40	0.50	0.60	0.70	0.75	0.80	0.90	0.95	1.00
Coefficient	0.67	0.73	0.80	0.87	0.93	1.00	1.04	1.07	1.13	1.16	1.20

*Please ask to ORION dealer about coefficient at dew point 3°C *The coefficient is only for reference, please ask ORION dealer about its guaranteed performance.

2. For Air Filter

Calculate the necessary air capacity for the model selection.

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

Pressure Correction Coefficient

Air Pressure (MPa)	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Coefficient	0.38	0.49	0.62	0.75	0.87	1.00	1.06	1.12	1.17

Accessories

Auto Drain Trap

		FD2-G3	FD6-G1	FD-10-A	AD-5-G7
					
Maximum drain flow capacity		10 cm ³ / cycle	30 cm ³ / cycle	80 cm ³ / cycle	450 L / h
Operable pressure range MPa		0.1 ~ 1.0		0.20 ~ 1.0	0.29 ~ 1.0
Operable temperature range °C		2 ~ 60			
Processed fluid		Compressed air drain			
Drain release method		Float operated			Disc operated
Connections	Inlet	Rc 1/2			Rc 1/2
	Drain outlet	ID ϕ 5.7 ~ 6.0 OD ϕ 8		Rc 3/8	Rc 1/2
Mass	kg	0.3	0.45	1	1.7
External dimensions (External diameter × Length) mm		ϕ 63×178	ϕ 80×201	ϕ 96×193	ϕ 86×198

※ Drain conditions: Air pressure (gauge pressure): 0.7MPa.

※ Please refer to the specification sheet for further details.

ORION MACHINERY ASIA PRODUCTS

Air Dryer & Air Filter



Chiller



Dairy Farm



ORION MACHINERY ASIA CO., LTD.

Differential Pressure Gauge

		DG-50(A)
		
Max. working pressure (Gauge pressure)	Mpa	1.0
Pressure difference indication range (Gauge pressure)	Mpa	0 ~ 0.15
Pipe connections		R1/4
External dimensions (External diameter × Length)	mm	ϕ 70×43
Mass	kg	0.5
Accessories	Nylon tube	External diameter ϕ 4mm × L1000mm
	Straight fitting	R1/4× ϕ 4mm (For tube)
	Elbow joint	R1/4× ϕ 4mm (For tube)

For inquiries, please contact the following representative:



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Important:

This catalog contains product specifications as of April, 2023.

- Images in this catalog are printed images and actual product colors may differ from the colors herein.
- Product mechanisms, specifications, etc. listed in this catalog are subject to change without notice.
- Designed by Orion Machinery Japan. Assembled in Thailand.