

Series 10-IDG Membrane air dryer

How to Order

Single unit (Standard dew point -20°C specifications)

10-IDG 10 03 B R

Clean series

Size

3
5
10
20
30
50
60
75
100

Thread type

Nil	Rc
N	NPT
F	G

Option

Nil	None (standard)
R	Flow direction: Right → Left

Accessory

Nil	None (standard)
B	With bracket

Note) When symbol B is indicated, a bracket assembly with a part number shown in the table below is supplied as an accessory.

Port size

Symbol	Bore	Body size								
		3	5	10	20	30	50	60	75	100
01	1/8	●	●	—	—	—	—	—	—	—
02	1/4	●	●	—	●	●	●	—	—	—
03	3/8	—	—	●	●	●	●	●	—	—
04	1/2	—	—	—	—	—	—	●	●	●

Bracket assembly (accessory) part number

Part number	Applicable model
10-BM59	10-IDG3, 10-IDG5
10-BM61	10-IDG10
10-BM63	10-IDG20
10-BM64	10-IDG30, 10-IDG50
10-BM65	10-IDG60, 10-IDG75, 10-IDG100

* With cap bolts and spring washers



Standard dew point and air flow rate

Standard dew point °C	Flow rate by size				Outlet air flow rate		ℓ/min(ANR)		
					Purge air flow rate				
	3	5	10	20	30	50	60	75	100
−20	25/6	50/12	100/25	200/50	300/75	500/125	600/125	750/150	1000/190

Standard specifications / Single unit (Standard dew point -20°C)

Model		Standard dew point −20°C								
		10-IDG3	10-IDG5	10-IDG10	10-IDG20	10-IDG30	10-IDG50	10-IDG60	10-IDG75	10-IDG100
Standard performance conditions (Standard range of operating conditions)	Fluid	Compressed air								
	Inlet air pressure (MPa)	0.3 to 0.85			0.3 to 1.0					
	Inlet air temperature °C	−5 to 55 ^{Note 1)}			−5 to 50 ^{Note 1)}					
	Ambient temperature °C	−5 to 55			−5 to 50					
	Outlet air atmospheric pressure dew point °C	−20								
	Inlet air flow rate ℓ/min (ANR) ^{Note 2)}	31	62	125	250	375	625	725	900	1190
	Outlet air flow rate ℓ/min (ANR)	25	50	100	200	300	500	600	750	1000
	Purge air flow rate ℓ/min (ANR) ^{Note 3)}	6	12	25	50	75	125	125	150	190
	Inlet air pressure Mpa	0.7								
	Inlet air temperature °C	25								
	Inlet air saturation temperature °C	25								
	Ambient temperature °C	25								
	Dew point indicator purge air flow rate		1 ℓ/min. (ANR) (inlet air pressure 0.7 MPa)							
Port size (nominal size B)		1/8, 1/4	1/4, 3/8				3/8, 1/2	1/2		
Weight (kg) (with bracket)		0.25(0.31)	0.43(0.51)	0.66(0.76)	0.74(0.87)	0.77(0.90)	1.50(1.65)	1.50(1.65)	1.55(1.70)	
Particle generation grade (Please refer to front matters 13 to 22 for details.)		Grade 1								

Note 1) No freezing.

Note 2) ANR indicates the flow rate converted to the value at 20°C under the atmospheric pressure.

Note 3) Includes 1 l/min (ANR) of purge air flow (at 0.7 MPa inlet air pressure) for the dew point indicator (except 10-IDG1, 3 and 5).

How to Order

Single unit (Standard dew point –15°C specifications)

10-IDG 10 H — 03 B — R

Clean series ●

Size ●

3
5
10
20
30
50
60
75
100

Thread type ●

Nil	Rc
N	NPT
F	G

Option

Nil	None (standard)
R	Flow direction: Right → Left

Accessory

Nil	None (standard)
B	With bracket

Note) When symbol B is indicated, a bracket assembly with a part number shown in the table below is supplied as an accessory.

Port size

Symbol	Bore	Body size								
		3	5	10	20	30	50	60	75	100
01	1/8	●	●	—	—	—	—	—	—	—
02	1/4	●	●	—	●	●	—	—	—	—
03	3/8	—	—	●	●	●	●	—	—	—
04	1/2	—	—	—	—	—	—	●	●	●

Bracket assembly (accessory) part number

Part number	Applicable model
10-BM59	10-IDG3H, 10-IDG5H
10-BM61	10-IDG10H
10-BM63	10-IDG20H
10-BM64	10-IDG30H, 10-IDG50H
10-BM65	10-IDG60H, 10-IDG75H, 10-IDG100H

* With cap bolts and spring washers

Standard dew point temperature and air flow rate ●

Symbol	Standard dew point °C	Flow rate by size				Outlet air flow rate		d/min(ANR)		
		3	5	10	20	Purge air flow rate	50	60	75	100
H	–15	25/3	50/6	100/11	200/22	300/35	500/60	600/65	750/80	1000/110

Standard specifications / Single unit (Standard dew point –15°C)

Model		Standard dew point −15°C								
		10-IDG3H	10-IDG5H	10-IDG10H	10-IDG20H	10-IDG30H	10-IDG50H	10-IDG60H	10-IDG75H	10-IDG100H
Basic performance conditions (Basic parameters)	Fluid	Compressed air								
	Inlet air pressure (MPa)	0.3 to 0.85					0.3 to 1.0			
	Inlet air temperature °C	−5 to 55 Note 1)					−5 to 55 Note 1)			
	Ambient temperature °C	−5 to 55					−5 to 50			
	Outlet air atmospheric pressure dew point °C	−15								
	Inlet air flow rate ℓ/min (ANR) Note 2)	28	56	111	222	335	560	665	830	1110
	Outlet air flow rate ℓ/min (ANR)	25	50	100	200	300	500	600	750	1000
	Purge air flow rate ℓ/min (ANR) Note 3)	3	6	11	22	35	60	65	80	110
	Inlet air pressure (MPa)	0.7								
	Inlet air temperature °C	25								
	Inlet air saturation temperature °C	25								
	Ambient temperature °C	25								
Dew point indicator purge air flow rate		1 ℓ/min. (ANR) (inlet air pressure 0.7 MPa)								
Port size (nominal size B)		1/8, 1/4	1/4, 3/8				3/8, 1/2		1/2	
Weight (kg) (with bracket)		0.25(0.31)	0.43(0.51)	0.66(0.76)	0.74(0.87)	0.77(0.90)	0.50(1.65)	1.50(1.65)	1.55(1.70)	
Particle generation grade (Please refer to front matters 13 to 22 for details.)		Grade 1								

Note 1) No freezing.

Note 2) ANR indicates the flow rate converted to the value at 20°C under the atmospheric pressure.

Note 3) Includes 1 d/min (ANR) of purge air flow (at 0.7 MPa inlet air pressure) for the dew point indicator (except 10-IDG3H and 5H).

How to Order

Single unit (Standard dew point -40°C specifications)

10-IDG 50 L

03 B R

● **Option**

Nil	None (standard)
R	Flow direction: Right → Left

● **Accessory**

Nil	None (standard)
B	With bracket

Note) When symbol B is indicated, a bracket assembly with a part number shown in the table below is supplied as an accessory.

● **Port size**

Symbol	Bore	Body size				
		30	50	60	75	100
02	1/4	●	●	—	—	—
03	3/8	●	●	●	●	●
04	1/2	—	—	●	●	●

Bracket assembly (accessory) part number

Part number	Applicable model
10-BM64	10-IDG30, 10-IDG30H, 10-IDG30L
	10-IDG50, 10-IDG50H, 10-IDG50L
10-BM65	10-IDG60, 10-IDG60H, 10-IDG60L
	10-IDG75, 10-IDG75H, 10-IDG75L
	10-IDG100, 10-IDG100H, 10-IDG100L

* With cap bolts and spring washers

● **Clean series**

● **Size**

30
50
60
75
100



● **Thread type**

Nil	Rc
N	NPT
F	G

● **Standard dew point and air flow rate**

Symbol	Standard dew point $^{\circ}\text{C}$	Flow rate by size		Outlet air flow rate		$\ell/\text{min}(\text{ANR})$	
		30	50	Purge air flow rate			
L	-40	75/25	110/40	170/57	240/80	300/100	

Standard specifications / Single unit (Standard dew point -40°C)

Model		Standard dew point -40°C				
		10-IDG30L	10-IDG50L	10-IDG60L	10-IDG75L	10-IDG100L
Standard / Range of operating conditions	Fluid	Compressed air				
	Inlet air pressure (MPa)	0.3 to 1.0				
	Inlet air temperature $^{\circ}\text{C}$	-5 to 50 ^{Note 1)}				
	Ambient temperature $^{\circ}\text{C}$	-5 to 50				
	Outlet air atmospheric pressure dew point $^{\circ}\text{C}$	-40				
	Inlet air flow rate ℓ/min (ANR) ^{Note 2)}	100	150	227	320	400
	Outlet air flow rate ℓ/min (ANR)	75	110	170	240	300
	Purge air flow rate ℓ/min (ANR) ^{Note 3)}	25	40	57	80	100
	Inlet air pressure (MPa)	0.7				
	Inlet air temperature $^{\circ}\text{C}$	25				
Basic performance conditions	Inlet air saturation temperature $^{\circ}\text{C}$	25				
	Ambient temperature $^{\circ}\text{C}$	25				
	Dew point indicator purge air flow rate	1 ℓ/min . (ANR) (inlet air pressure 0.7 MPa)				
	Port size (nominal size B)	1/4, 3/8		3/8, 1/2		
	Weight (kg) (with bracket)	0.74(0.87)	0.77(0.90)	0.50(1.65)	1.65(1.80)	1.80(1.95)
	Particle generation grade (Please refer to front matters 13 to 22 for details.)	Grade 1				

Note 1) No freezing.

Note 2) ANR indicates the flow rate converted to the value at 20°C under the atmospheric pressure.

Note 3) Includes 1 ℓ/min (ANR) of purge air flow (at 0.7 MPa inlet air pressure) for the dew point indicator.

How to Order

Single unit (Standard dew point -60°C specifications)

10-IDG 60 S — 03 B R

Clean series

Size

60
75
100



Thread type

Nil	Rc
N	NPT
F	G

Port size

Symbol	Bore	Body size		
		60	75	100
03	3/8	●	●	●
04	1/2	●	●	●

Options

Nil	None (standard)
R	Flow direction: Right → Left

Accessory

Nil	None (standard)
B	With bracket

Note) When symbol B is indicated, a bracket assembly with a part number shown in the table below is supplied as an accessory.

Bracket assembly (accessory) part number

Part number	Applicable model
10-BM65	10-IDG60S, 10-IDG75S, 10-IDG100S

* With cap bolts and spring washers

Standard dew point temperature and air flow rate

Symbol	Standard dew point °C	Flow rate by size	Outlet air flow rate Purge air flow rate	ℓ/min(ANR)
S	-60	60	75	100
		50/27	100/54	150/85

Standard specifications / Single unit (Standard dew point -60°C)

Model		Standard dew point -60°C		
		10-IDG60S	10-IDG75S	10-IDG100S
Standard operating conditions	Fluid	Compressed air		
	Inlet air pressure (MPa)	0.3 to 1.0		
	Inlet air temperature °C	-5 to 50 ^{Note 1)}		
	Ambient temperature °C	-5 to 50		
Standard performance conditions	Outlet air atmospheric pressure dew point °C	-60		
	Inlet air flow rate ℓ/min (ANR) ^{Note 2)}	77	154	235
	Outlet air flow rate ℓ/min (ANR)	50	100	150
	Purge air flow rate ℓ/min (ANR) ^{Note 3)}	27	54	85
	Inlet air pressure (MPa)	0.7		
	Inlet air temperature °C	25		
	Inlet air saturation temperature °C	25		
	Ambient temperature °C	25		
	Dew point indicator purge air flow rate	1 ℓ/min. (ANR) (inlet air pressure 0.7 MPa)		
	Port size (nominal size B)	3/8, 1/2		
Weight (kg) (with bracket)		1.50(1.65)	1.65 (1.80)	1.80(1.95)
Particle generation grade (Please refer to front matters 13 to 22 for details.)		Grade 1		

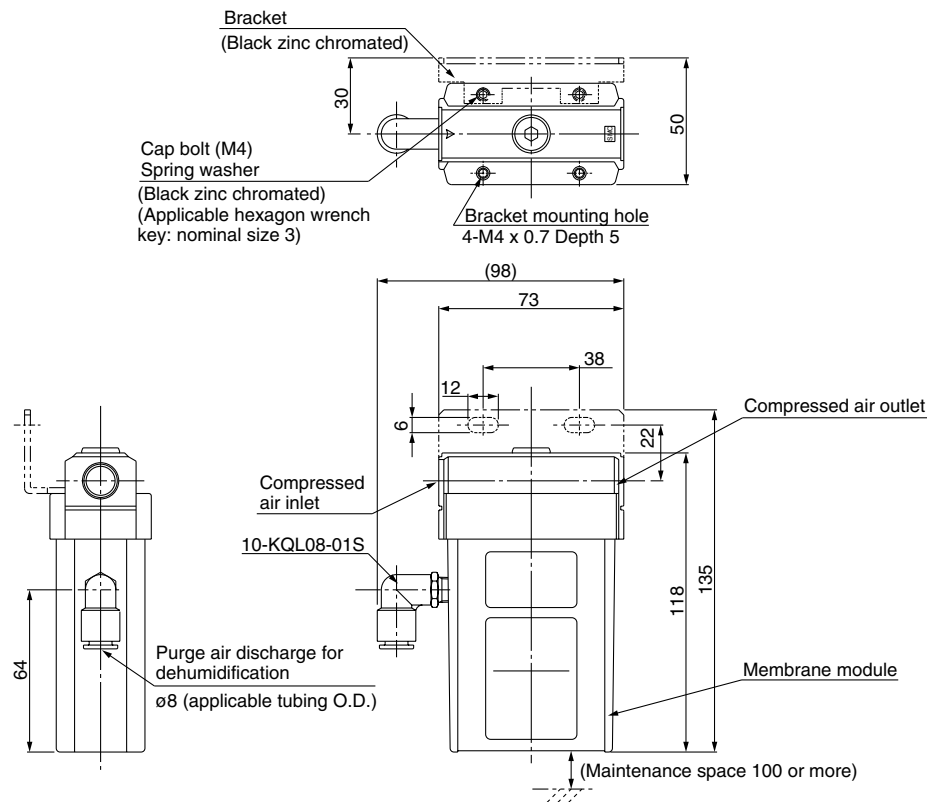
Note 1) No freezing.

Note 2) ANR indicates the flow rate converted to the value at 20°C under the atmospheric pressure.

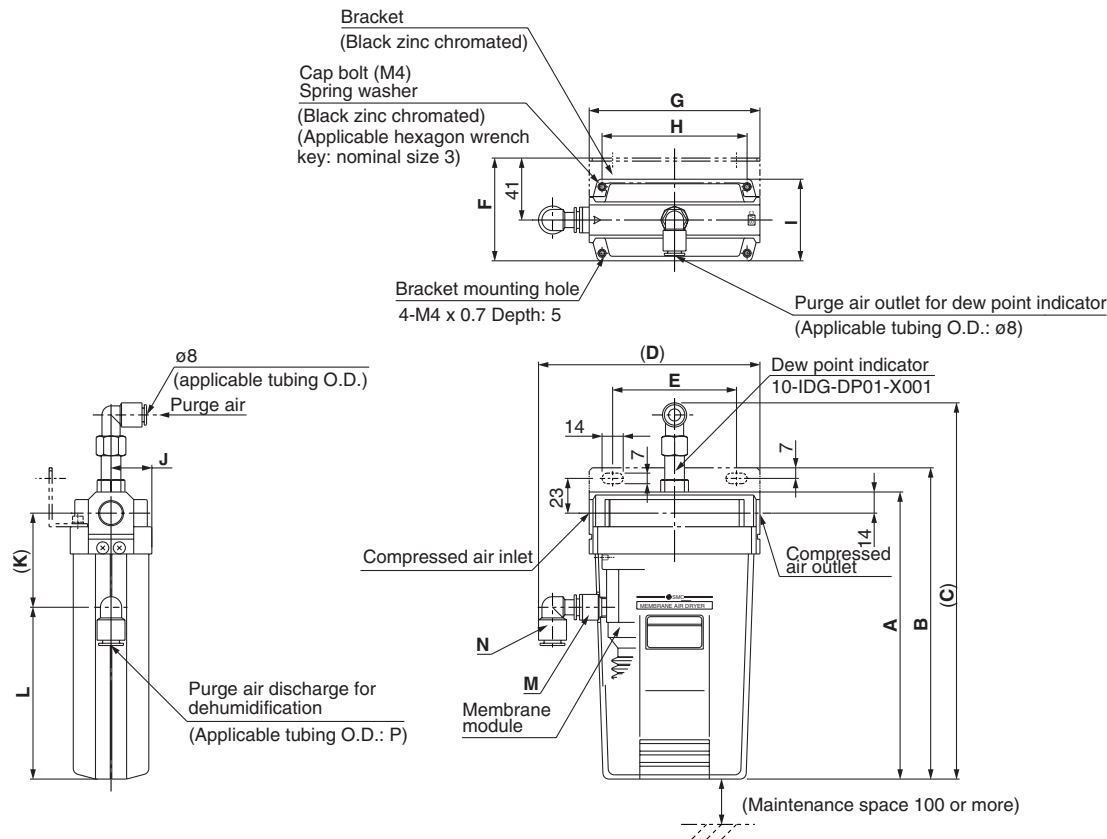
Note 3) Includes 1 ℓ/min (ANR) of purge air flow (at 0.7 MPa inlet air pressure) for the dew point indicator.

Dimensions

10-IDG3, 5
10-IDG3H, 5H



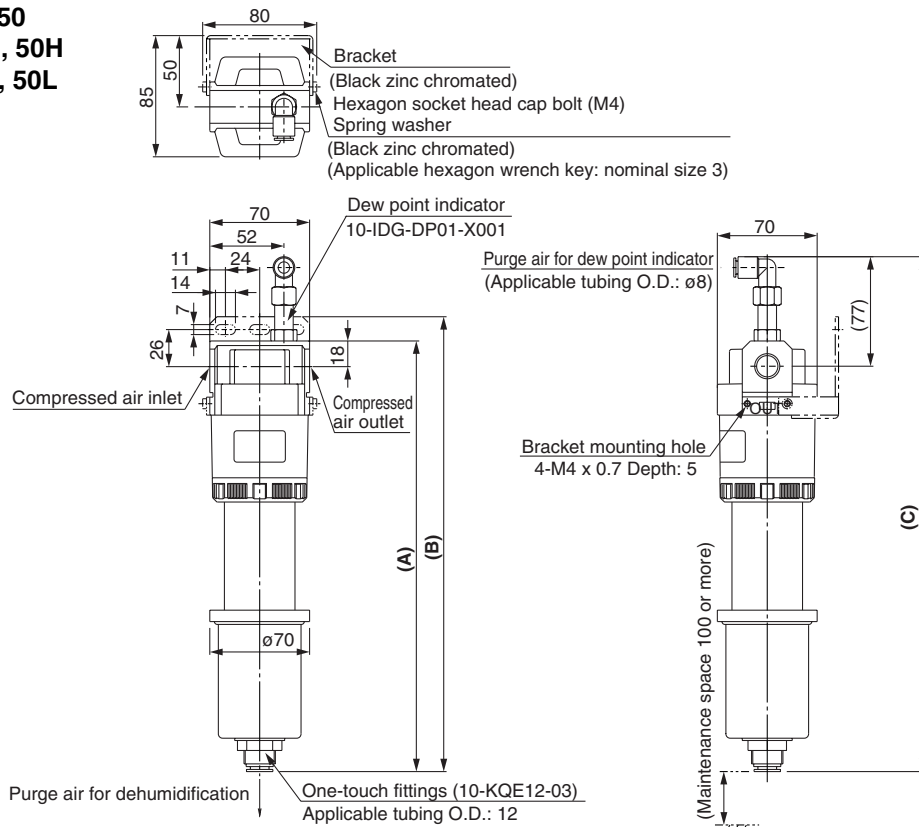
10-IDG10, 20
10-IDG10H, 20H



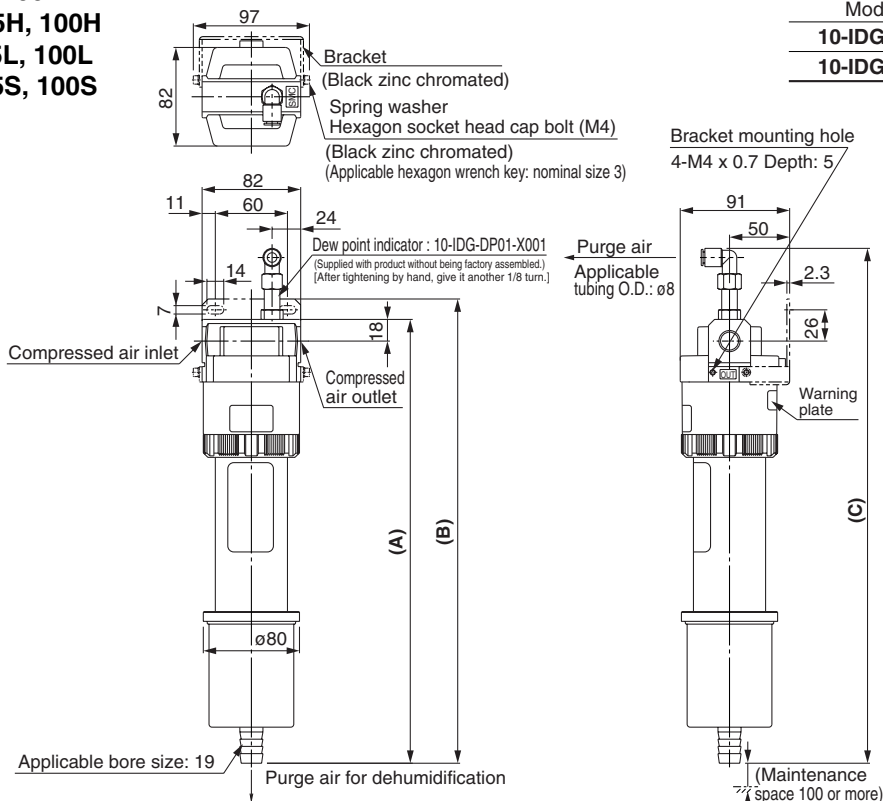
Model	Port size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
10-IDG10□	1/4, 3/8	165	181	224	119	62	68	83	65	53	27	53	98	10-KQS08-01S	10-KQL08-99	ø8
10-IDG20□		190	206	249	147	82	68	113	96	54	27	62	114	10-KQS10-02S	10-KQL10-99	ø10

Dimensions

10-IDG30, 50
10-IDG30H, 50H
10-IDG30L, 50L



10-IDG60, 75, 100
10-IDG60H, 75H, 100H
10-IDG60L, 75L, 100L
10-IDG60S, 75S, 100S



Model	Port size	A	B	C
10-IDG30 	1/4, 3/8	302	319	361
10-IDG50 		346	363	405

Model	Port size	A	B	C
10-IDG60,60H	3/8, 1/2	369	386	428
10-IDG75,75H,100,100H	1/2			
10-IDG60L,60S	3/8, 1/2	409	426	468
10-IDG75L,75S		489	506	548
10-IDG100L,100S		559	576	618



Specific Product Precautions

Be sure to read before handling.

Caution on Design

Warning

1. Depending on the model and operating conditions, the oxygen ratio of the outlet air may drop below the prescribed standard.

Do not use a standard dew point -40°C (symbol L) type, standard dew point -60°C (symbol S) type and 10-IDG30, 50, 30H, 50H for dehumidifying breathing air. Do not use outlet air (dried air) only in a closed room.

Caution

1. Devise a layout which considers the position of purge air discharge ports.

Purge air is humid air. Devise a layout in which purge air will not cause trouble such as corrosion or malfunction of peripheral equipment.

2. When very clean air is required

(Supply to air bearings, blowing of semiconductor parts, etc.)

Install a micro mist separator or super mist separator on the outlet side (end terminal) of the membrane air dryer (unit).

3. Time to reach the rated dew point

A certain amount of time is required to achieve the rated dew point after the air starts flowing into the membrane air dryer. Using the times below as a guide, start operating outlet side equipment after the rated dew point is achieved.

Standard dew point -20°C , -15°C : about 10 min.

Standard dew point -40°C : about 30 min. *

Standard dew point -60°C : about 120 min. *

* This time can be shortened as described below.

- 1) Provide a valve on the outlet side of the membrane air dryer.
- 2) Supply air with the valve closed. Only purge air flows into the membrane air dryer.
- 3) After 15 minutes or more, open the valve and flow air to the outlet side equipment.

4. Dehumidity performance when temperature at inlet side is changed.

Drying performance shows the case at an inlet air temperature of 25°C . In other cases, please refer to "How to Select a Model" (Best Pneumatics catalog) for proper selection.

Selection

Caution

1. Consider the purge air flow rate.

Read the purge air flow rate from the graph and calculate the "required outlet air flow rate + purge air flow rate". If the air supply capacity is over the calculated flow rate, the required outlet air flow rate cannot be obtained.

2. Selection for a compressed air line to which a mist separator or micro mist separator is already installed

Verify the operating air flow rate and air pressure, and select a membrane air dryer in accordance with the model selection method (Best Pneumatics catalog). If a membrane air dryer is selected based on the bore size of the equipment that is already installed, it could result in the selection of a model that is too small and has an insufficient dehumidification capacity.

3. Selection of unit style auto-drain

When the power of compressor in use is 2.2 kW {300 ℓ/min (ANR)} or less, use an N.C. auto drain (symbol: C). If an N.O. auto drain (symbol: D) is used for 2.2 kW or less, pressure inside the mist separator may not increase and remain in the blowing off state. Differential pressure type auto drain can be used for 2.2 kW or less.

Mounting

Caution

1. Do not obstruct the purge air discharge ports.

If purge air back pressure becomes too high or purge air stops flowing, dehumidification performance will decrease or may become impossible.

2. Be sure to install a mist separator and micro mist separator or a micro mist separator with prefilter on the inlet side of the membrane air dryer.

If the inlet air contains oil or water drops, etc., performance will be reduced.

3. Install a regulator on the outlet side of the membrane air dryer.

If it is installed on the inlet side, dehumidification performance will be reduced.

4. Take sufficient care in handling.

There is a danger of damage if dropped.



Specific Product Precautions

Be sure to read before handling.

Piping

⚠ Warning

1. Confirm tightening of the holder.

(for 10-IDG30 to 10-IDG100, 10-IDG30H to 10-IDG100H, 10-IDG30L to 10-IDG100L and 10-IDG60S to 10-IDG100S)

Before starting the flow of compressed air, turn the membrane air dryer's holder in its tightening direction, confirming that it is completely tightened and that the case will not come off.

2. Piping of purge air outlet for dehumidification

The piping of purge air for dehumidification and for the dew point indicator can be combined, but do not merge these with compressed air lines or drain piping, etc., as this can cause damage.

⚠ Caution

1. Use of tools

Hold the upper portion of the body (die-cast aluminum section) with a spanner or adjustable angle wrench. Do not turn it while holding the case section.

2. Piping materials for low dew point air

If air of a low dew point (−40°C or less) is required, do not use a nylon tube piping or resin fitting (except fluoropolymer) for the outlet side piping of the membrane air dryer. Due to the nature of the nylon tube, it could be affected by the ambient air, and it might not be possible to achieve the prescribed low dew point at the end of the tube. Therefore, for low dew point air, use a stainless steel or fluoropolymer piping.

3. Length of the tube connected to the purge air outlet for dehumidification

The dehumidification capacity decreases as the length of the tube for purge air outlet become long. Use a tube of the specified size and keep its length within 5 m. For the outlet air atmospheric pressure dew point in relation to the length of the tube for purge air outlet, refer to the table "Outlet Air at the Atmospheric Pressure Dew Point in Compliance with the Tube Length for Discharging the Purged Air" of Best Pneumatics catalog.

4. Connection of tube for purge air outlet

(for 10-IDG60 to 10-IDG100, 10-IDG60H to 10-IDG100H, 10-IDG60L to 10-IDG100L and 10-IDG60S to 10-IDG100S)

When a tube is connected to the purge air outlet for dehumidification, connect a tube of specified size and fix it with a tube band.

Air supply

⚠ Caution

1. Compressed air supply capacity

An air source that has a supply capacity that is larger than the "necessary outlet air flow rate (dry air flow rate) + purge air flow rate" is required. Verify the purge air flow rate in the Purge Air Flow Characteristics graph. (Best Pneumatics catalog).

Operating Environment

⚠ Caution

1. Do not use at temperatures (fluid or ambient temperatures) higher than the prescribed operating conditions.

Resin is used for the membrane module, which can be damaged by the operation at high temperatures. Especially when installed immediately after a reciprocating type air compressor, confirm that the fluid temperature does not exceed the range of operating conditions during use.

2. Keep the inlet air temperature lower than the ambient temperature.

If the membrane air dryer's body is cooled by the surrounding air, water drops may accumulate inside and reduce its dehumidification capacity.

Air cylinder

Rotary actuator

Air gripper

Directional control valve

Flow control equipment

Filter, Pressure control equipment

Fittings & Tubing

Air preparation equipment

Pressure switch

Clean gas filter



Specific Product Precautions

Be sure to read before handling.

Maintenance

Warning

1. Do not remove the orifice (plug) when in a pressurized state.

Never remove the orifice (plug) while under pressure, as it can fly out, causing a hazard.

Caution

1. Confirming the dehumidification function with the dew point indicator

Observe the color of the dew point indicator to confirm whether the membrane air dryer is functioning normally.
[When dew point indicator color is blue: Functioning normally]

[When the color of the dew point indicator is pink: Dew point temperature is high. (Outlet air is humid.) Note: Atmospheric pressure dew point approximately -10°C minimum.]

Even if humid air flows in and it turns the indicator color pink, when dry air enters after that, the color turns blue. It takes about 1 hour from the start of air flow to indicator color change.

2. Dew point indicator replacement period

The absorbent is used in the dew point indicator. It absorbs the gasified oil in the compressed air and/or the gaseous elements other than the air, and then may turn brown. When it turned brown, replace the dew point indicator.

A periodic replacement interval is two years as a guideline.

(For the part number of the dew point indicator, refer to dimensions.)

3. Membrane module replacement period

Replace the membrane module when the color of the dew point indicator turns white or pink.

As a guideline, unit should be replaced after approximately 10 years of use (10 hours/day operation). Replace it when the color of the dew point indicator turns white or pink, even if it is within the period.

4. Tightening torque for installing the membrane module and the case (for 10-IDG5/10/20/5H/10H/20H)

Use caution not to tighten excessively.

It may result in a breakdown of membrane module, case and mounting screws or insufficient sealing.

(Verify the tightening torque range in the instruction manual.)

Maintenance

Caution

5. Installing a pressure gauge

A pressure gauge should be installed on the inlet and outlet sides of the membrane air dryer (unit) for the maintenance and inspection purposes.