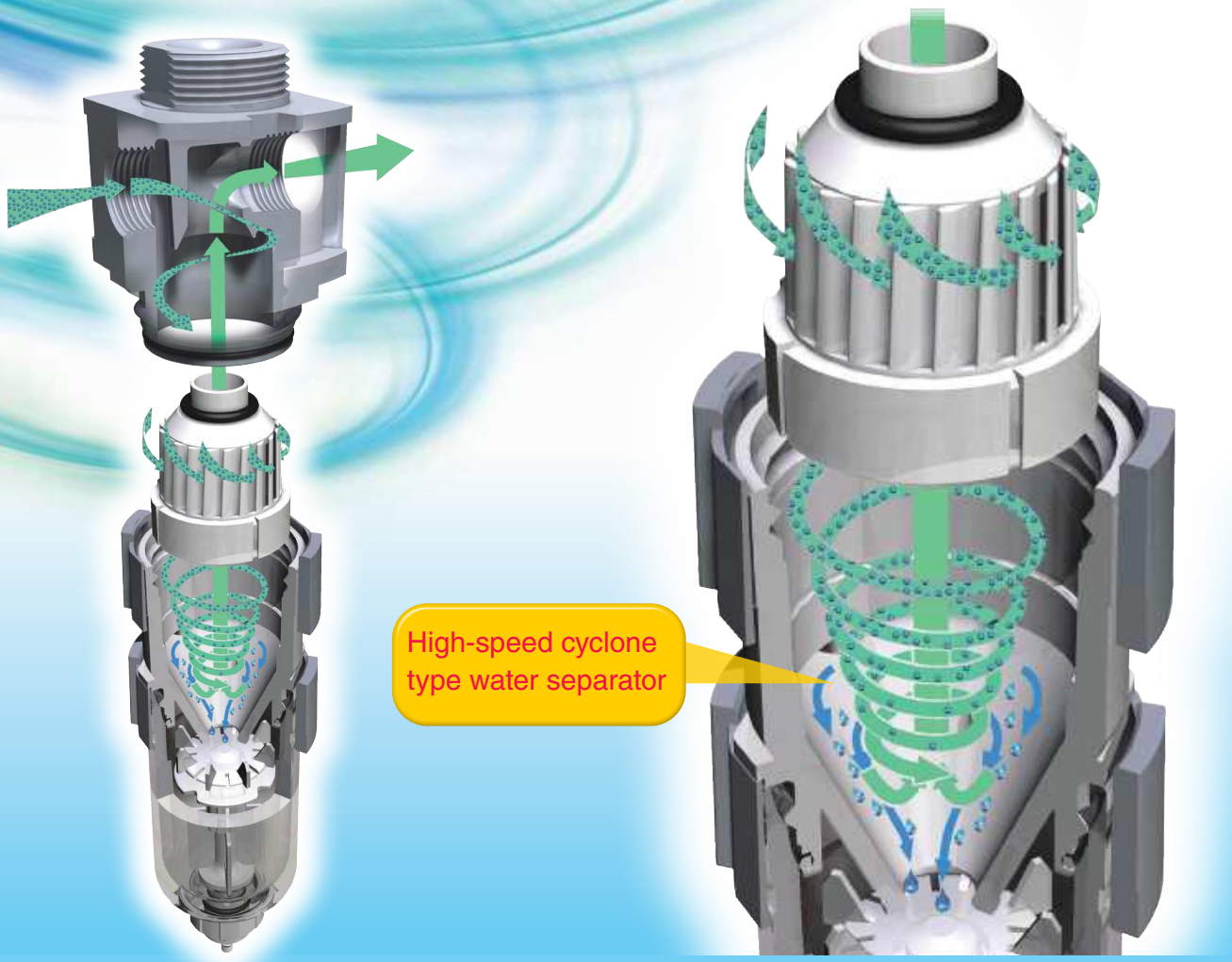
iB Series

Introducing the high-speed cyclone type water separator!

iB-Cyclone

iB Cyclone

PAT. PEND.



Superior water separation performance

Half the size of similar devices and over 99%[Note] water separation.

Note: According to Koganei measurement standards.

Cyclone system

Expertise in centrifugal separation optimizes our **high-speed cyclone system** water separator (patent pending).

Maintainability improved

Maintenance-free because no element is used.
Select NO type or NC type auto drain.

Wide flow rate range

Water separation performance demonstrated over a wide flow rate.

Compatible in a wide range of environments

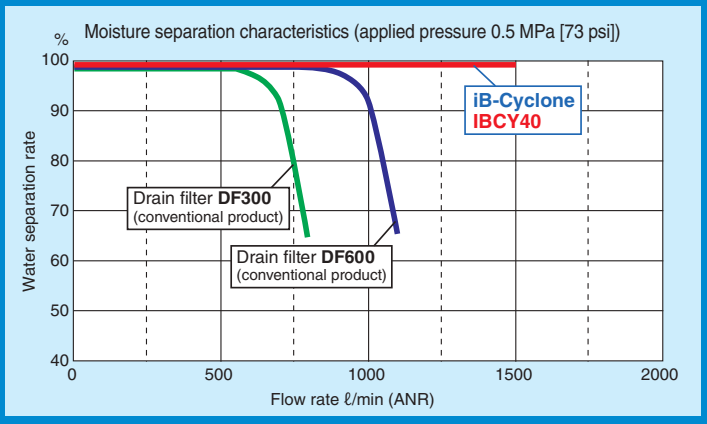
Specifications for ozone resistance, NCU specifications (copper free) compatible as standard.

User Issues

- I have trouble removing water from piping
- Difficult maintenance, such as replacing elements

Koganei solves user problems with **iB-Cyclone**, which delivers new value.

iB-Cyclone uses a high-speed cyclonic system to maintain water separation rates even if flow is increased. Separation performance is always steady from low to high flow rates.

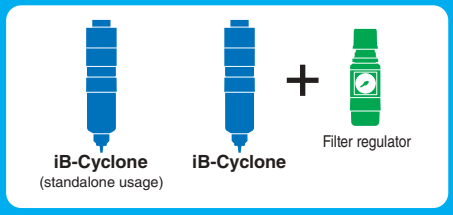


* Water separation compared with Koganei drain filter (reference).

iB-Cyclone application example

- Removing water in sub-lines and from various equipment
- Removing primary-side water from filters and regulators
- Pre-processing air supply going to membrane dryer
- Removing water from equipment extremities

* Air used must be free from oil and solids for iB-Cyclone use.



Variations and Options

IBCY30

IBCY40

IBCY50

When equipped with bowl guard

Auto drain type
NO (Normally open)
NC (Normally closed)

Drain cock with fitting

With bowl guard

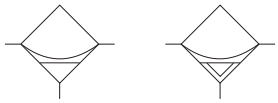
With metal cover
IBCY40-□-□-□-BG
IBCY50-□-□-□-BG

Note 1: Metal cover cannot be attached to the **IBCY30**.
Note 2: When **iB-Cyclone** are connected in series in modules, the metal cover can only be attached to one side.

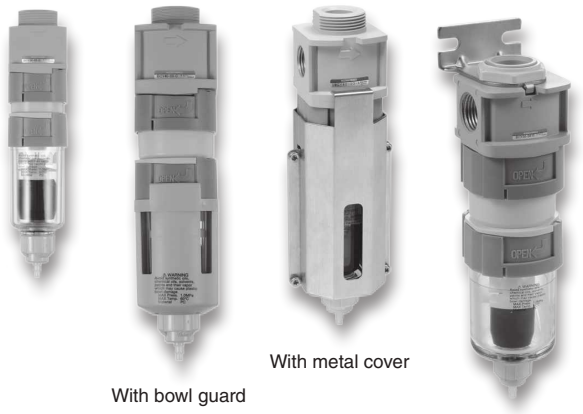
Bracket
8Z-CBK

iB-Cyclone

IBCY30·IBCY40·IBCY50



Auto drain type



With bowl guard

With metal cover

Item \ Model		IBCY30	IBCY40	IBCY50
Medium		Air (Air containing no oil or solids)		
Port size	Rc	1/8, 1/4	1/8, 1/4, 3/8	1/4, 3/8, 1/2
Maximum operating pressure	MPa [psi]	1.0 [145]		
Proof pressure	MPa [psi]	1.5 [218]		
Operating temperature range (atmospheric and medium)	°C [°F]	0 to 60 [32 to 140]		
Water separation rate[Note1]	%	99 or more		
Water collection volume (for **-N**)	mℓ [in³]	13 [0.793]	16 [0.976]	27 [1.648]
Maximum flow rate[Note2]	ℓ/min(ANR) [ft³/min(SCFM)]	850 [30.022]	1500 [52.980]	2800 [98.896]
Materials used in major pars	Main unit	Die cast aluminum alloy		
	Bowl	PC (polycarbonate)/PCT (Polycyclohexylene-dimethylene terephthalate)[Note 3]		
	Bracket	Steel plate (electroless nickel plated)		
Weight (for standard product, maximum port size)	kg [lb]	0.15 [0.331] (0.16 [0.353])[Note 4]	0.20 [0.441] (0.21 [0.463]) <0.33 [0.728]>[Note4]	0.30 [0.662] (0.31 [0.684]) <0.48 [1.058]>[Note4]
Options		Bracket		

Note 1: Under Koganei measurement conditions.

2: Maximum flow rate in an environment with 0.5 MPa [73 psi] and 0.1 MPa [15 psi] pressure drop (maximum port size piping). Check the graphs of characteristics on page 65 when making a decision.

3: Use a PCT resin bowl when using products in a location with a poor atmosphere (places with a risk of exposure to cutting oil, machine oil, etc.).

4: Weights in ( ) parentheses are the weights with a bowl and weights in < > angle brackets are the weights with a metal cover.

IBCY □ — □ — □ — □ — □ — □

Bracket
Blank — No bracket
B — With bracket

Bowl guard specifications
Blank — No bowl guard
PG — With bowl guard (resin)
BG — With metal cover (**IBCY40·50** only)[Note]
Note: The **IBCY30** does not come with a metal cover.
Also, when iB-Cyclones are connected in series in modules, the metal cover can only be attached to one side.

Drain cock specifications
A — NO type auto drain drain cock
C — NC type auto drain drain cock
N — Drain cock with fitting

Bowl specifications
Blank — Standard specifications (polycarbonate)
P — PCT resin bowl[Note]
Note: Use a PCT resin bowl when using products in a location with a poor atmosphere (places with a risk of exposure to cutting oil, machine oil, etc.).

Main unit Model	Port size Rc1/8	Rc1/4	Rc3/8	Rc1/2
30	**01**	**02**		
40	**01**	**02**	**03**	
50		**02**	**03**	**04**

iB-Cyclone

Order Codes

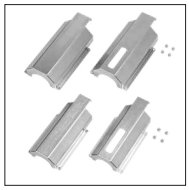
8Z-CBK

* Common to all body sizes

● Order Codes of Metal Covers Only

BG-IBCY□

Body size
40 — For **IBCY40**
50 — For **IBCY50**



Hexagon socket head screw
4 pcs.

● Maintenance parts

● Bowl assembly

BA-FRZB□-□-□-□

Body size
30 — For **IBCY30**
40 — For **IBCY40**
50 — For **IBCY50**

Bowl specifications
Blank — Standard specifications (polycarbonate)
P — PCT resin bowl

Drain cock specifications
A — NO type auto drain drain cock
C — NC type auto drain drain cock
N — Drain cock with fitting

Bowl guard specifications
Blank — No bowl guard
PG — With bowl guard

Auto drain type
NO type
NC type

With fitting
Drain cock

With bowl guard

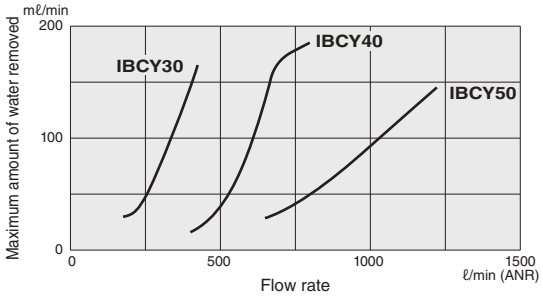
● Seal kit (O-ring (large) 2 pcs., O-ring (small) 1 pc.)

SRK-IBCY□

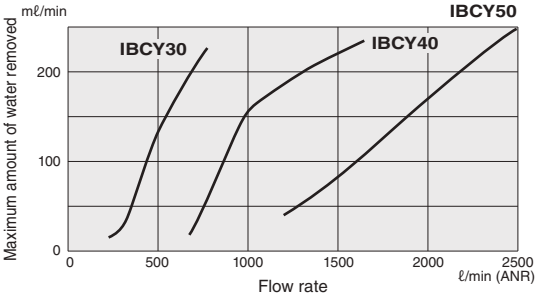
Body size
30 — For **IBCY30**
40 — For **IBCY40**
50 — For **IBCY50**

Separation characteristics

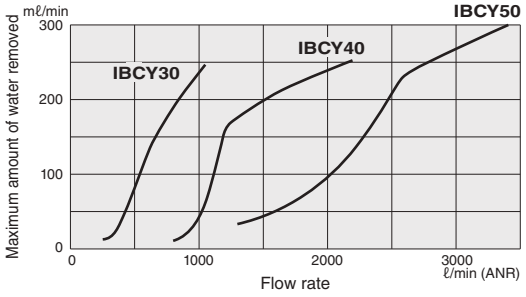
● 0.1 MPa [15 psi]



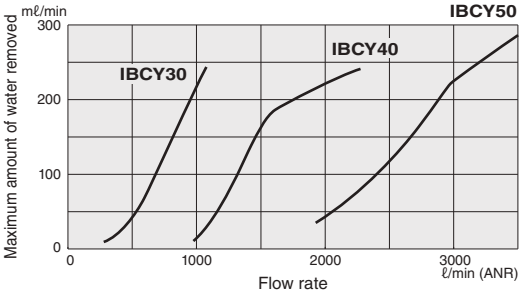
● 0.3 MPa [44 psi]



● 0.5 MPa [73 psi]



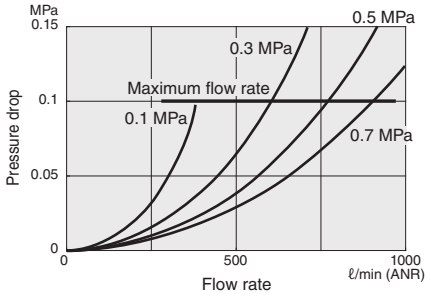
● 0.7 MPa [102 psi]



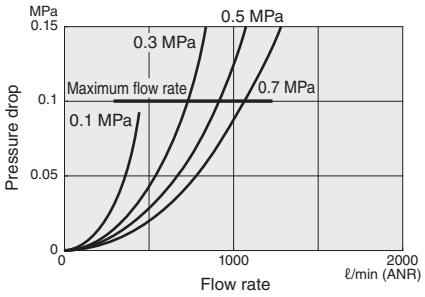
Note: The maximum amount of water removed from a volume of air in a process depends on the conditions of usage (this graph is not a guarantee). Use it as a guideline for your selection.

Flow rate characteristics

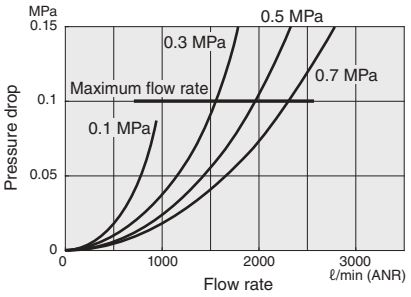
IBCY30-01



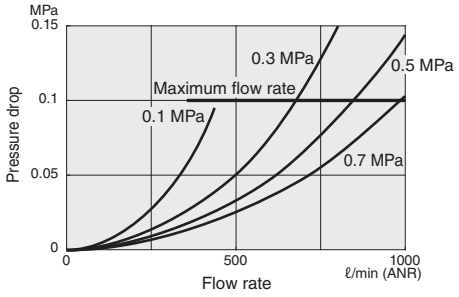
IBCY40-01



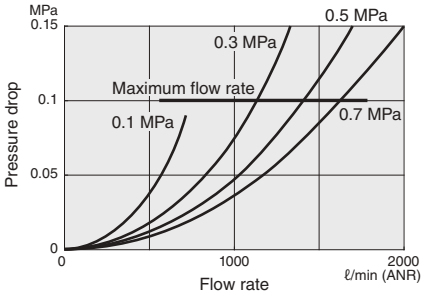
IBCY50-02



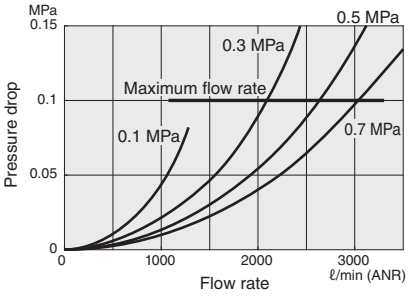
IBCY30-02



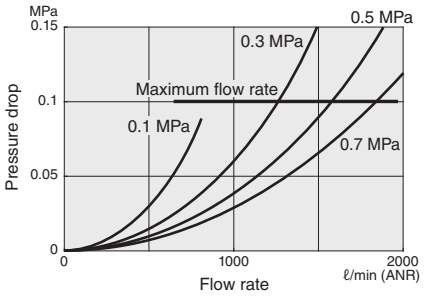
IBCY40-02



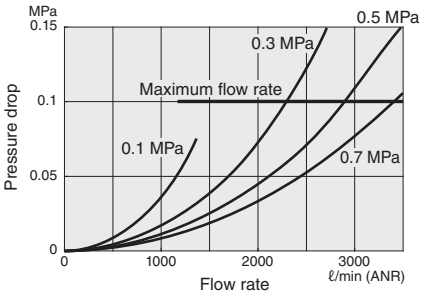
IBCY50-03



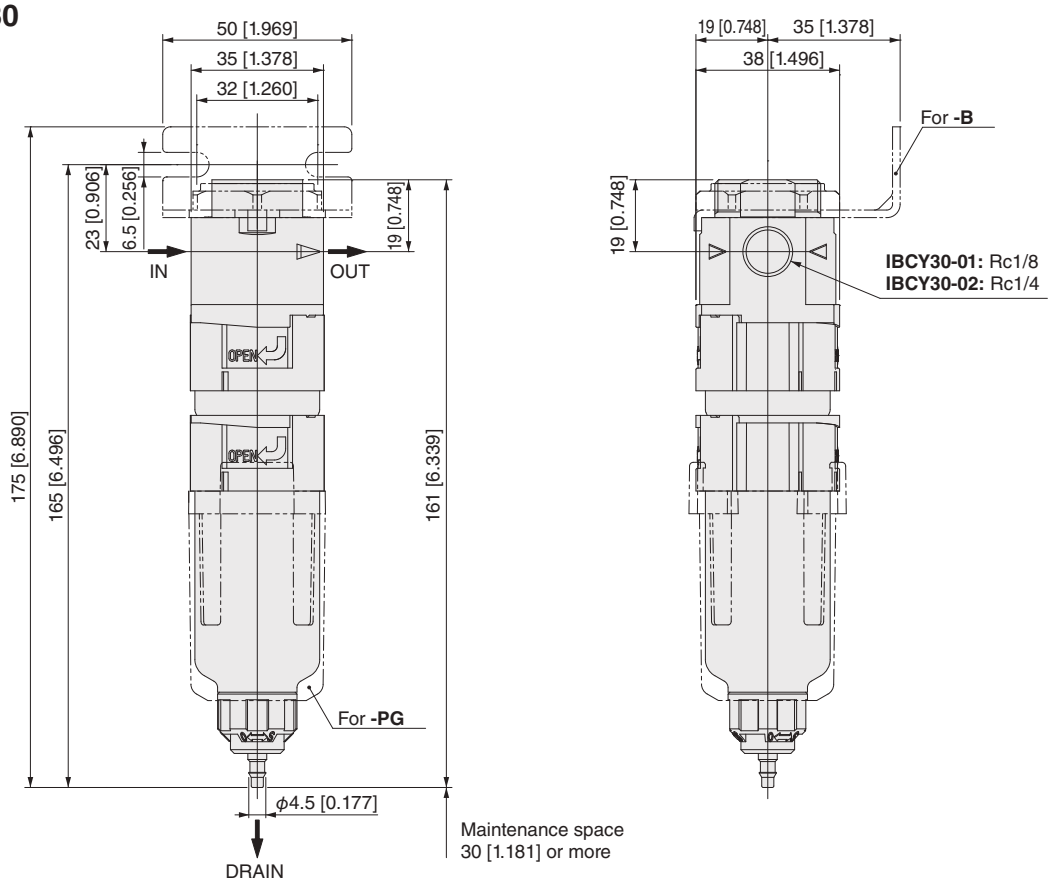
IBCY40-03



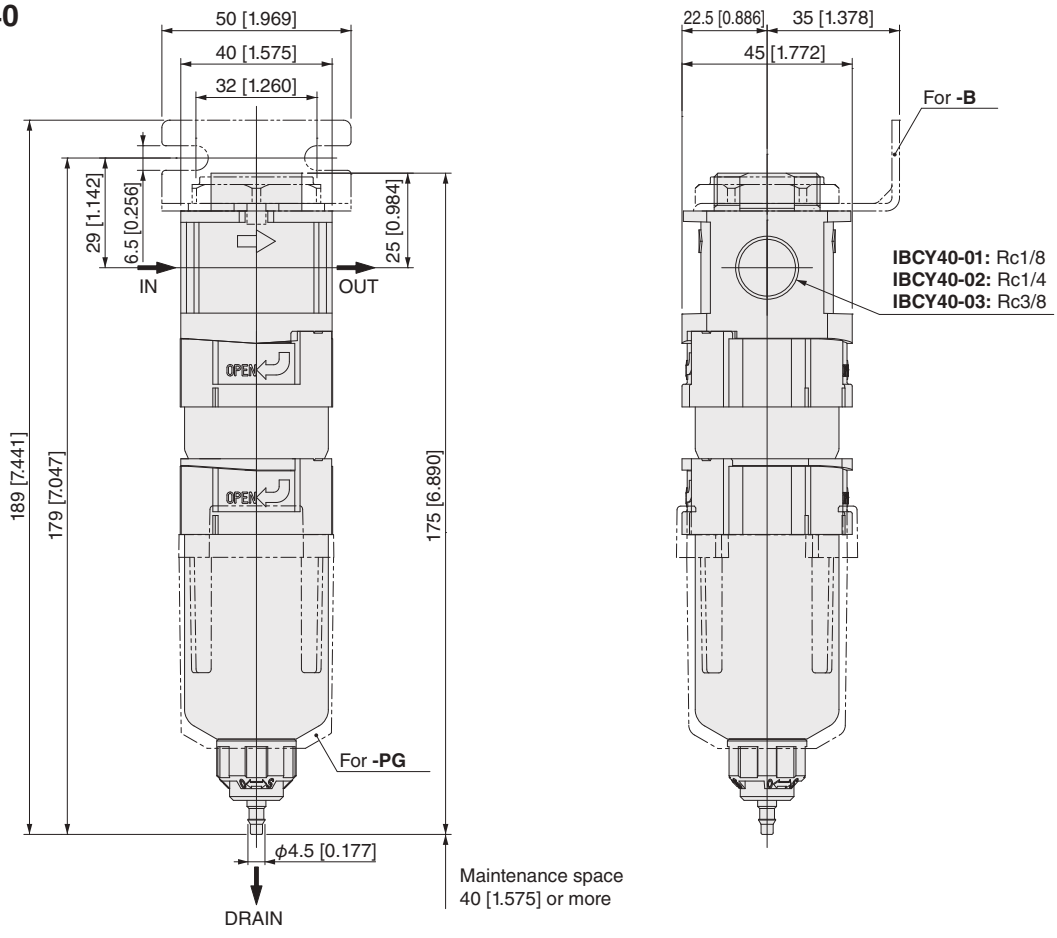
IBCY50-04



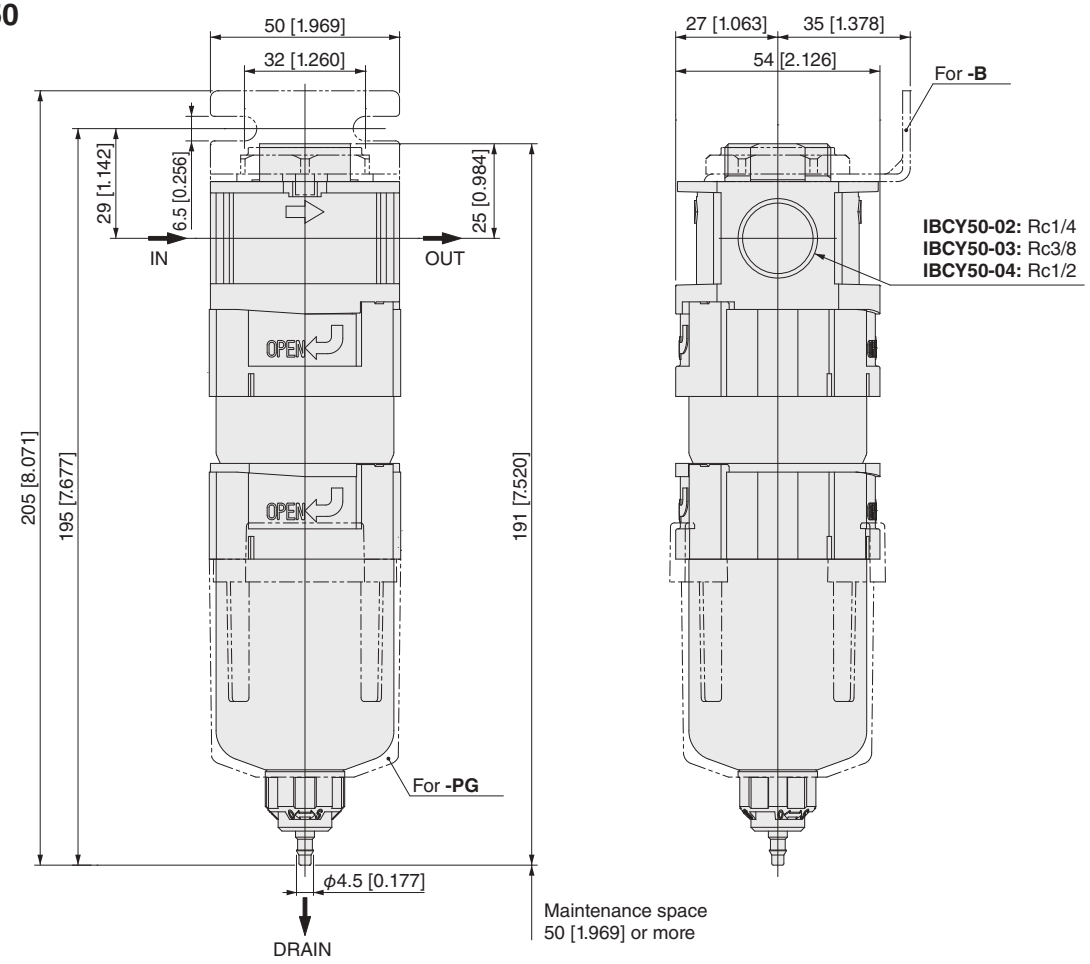
● IBCY30



● IBCY40

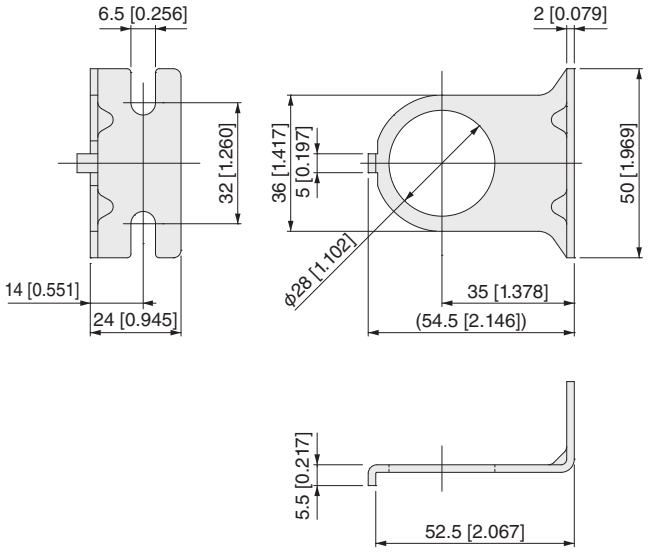


● IBCY50

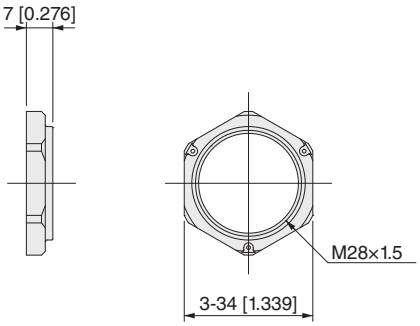


● 8Z-CBK

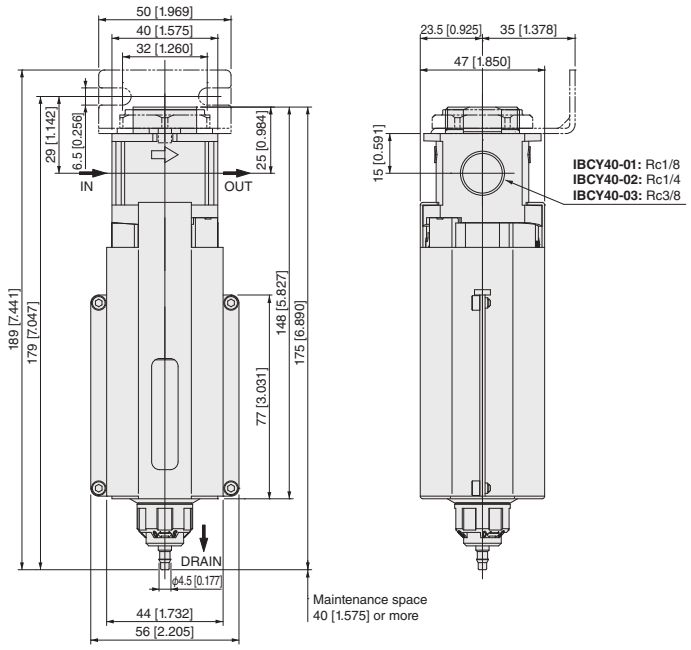
Bracket



Mounting ring



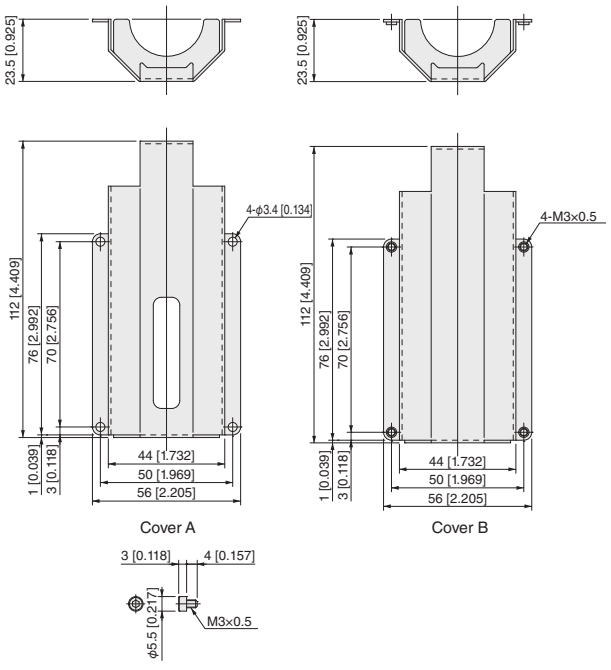
● IBCY40-□-□-BG



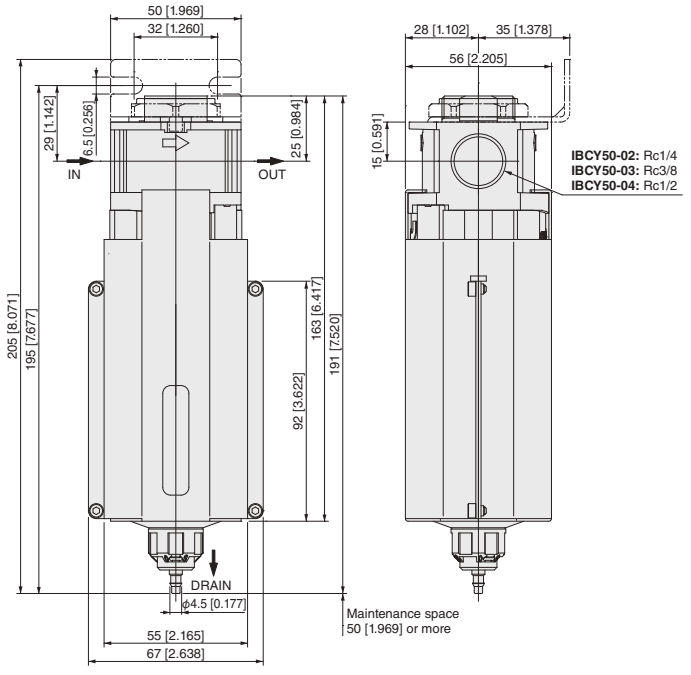
-BG: With metal cover

● BG-IBCY40

Metal cover



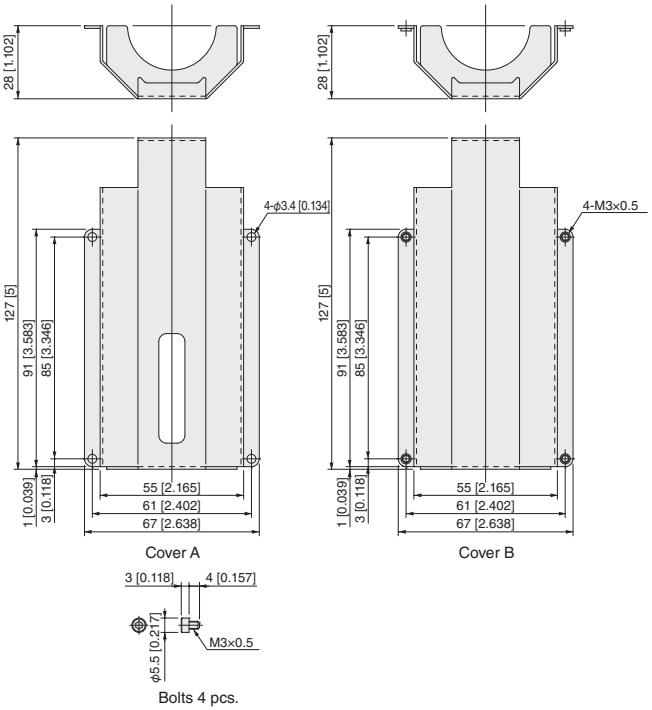
● IBCY50-□-□-BG



-BG: With metal cover

● BG-IBCY50

Metal cover



1. Before performing piping work, thoroughly flush the inside of the pipes (blow out with compressed air).
   Machining chips, sealing tape, rust and other debris remaining from the piping work may result in lowered performance and functionality or loss of functions.
2. This product cannot be used if the medium or ambient atmosphere includes any of the following substances:
   Organic solvents, phosphate ester type hydraulic oil, sulfur dioxide gas, chlorine gas, Freon gas, ozone, acids, or other corrosive gasses.
3. This product cannot be used in environments with the gases and fluids in described above, nor threadlocking adhesive, leak detection fluid, hot water or where it may be exposed to them. This product also cannot be used in direct ultra-violet light. See the reference materials on page 162 for details.
4. Cover the unit when using it in locations where it might be subject to excessive dust, dripping water, dripping oil, etc.
5. Do not allow moisture into the flow in excess of the amount in the product specifications. Water droplets may spread to the secondary side. See page 65 for details on the separation characteristics.
6. If condensation or frost forms in the product, the moisture (frost) may spread into the secondary side.

Medium and operating environment

1. Use cleaned air (using a filter of 40 µm or less) for the medium. Contact the nearest Koganei sales office or overseas department if you are considering using something other than cleaned air.

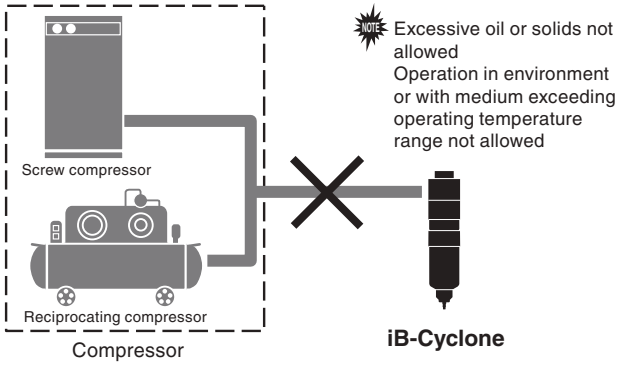
2. Do not use air that contains oil or solid matter.

NOTE Using air that contains oil or solids will cause the product's functions to stop after a short period and will reduce the product performance and service life.

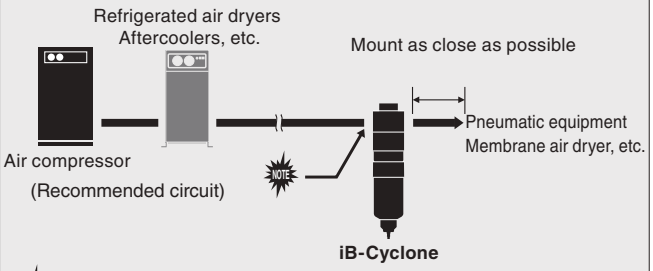
Mounting and Piping

Do not install the product directly on a compressor. Use sufficient countermeasures for temperature control, and removing oils and solids before use.

NOTE Not using countermeasures may cause the product's functions to stop after a short period and may reduce the product performance and service life.

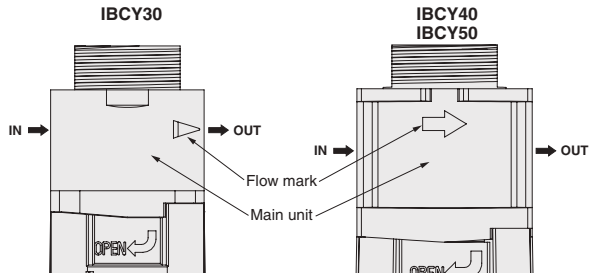


CAUTION The iB-Cyclone cannot be used for dehumidification.



NOTE
1. The iB-Cyclone is a product for removing moisture. It cannot remove (dehumidify) the water vapor contained in compressed air. Use a film air dryer or something on the secondary side if dehumidifying is needed.
2. Use a device, such as a freeze-type air dryer or aftercooler, to lower the temperature of the incoming air to below the ambient temperature so condensation does not occur in the pipes on the secondary side of the iB-Cyclone. Also, install it as close as possible to the pneumatic equipment that will be used.

1. Install the product in a location where the supplied air and ambient temperature are 60°C [140°F] or less.
2. Install the product vertically, with the piping connection on the top and the drain outlet on the bottom.
3. Leave enough space for various maintenance work, such as for the guard button to rotate and for removing the bowl.
4. When attaching the bracket, tighten the mounting ring to 5.0 N·m [3.688 ft·lbf] or less.
5. Install the piping so that the air flows in the direction of the arrow (flow mark) indicated on the product. If the air flows in the opposite direction, the moisture removal function cannot operate.



6. Do not apply piping load or excessive torque to the product. When tightening the piping, grip the main unit and tighten it to the torque recommended in the table below.

Recommended tightening torque N·m [ft·lbf]

Connecting thread	1/8	1/4	3/8	1/2
Torque	4.5 to 6.5 [3.319 to 4.794]	7 to 9 [5.163 to 6.638]	12.5 to 14.5 [9.220 to 10.695]	20 to 22 [14.752 to 16.227]

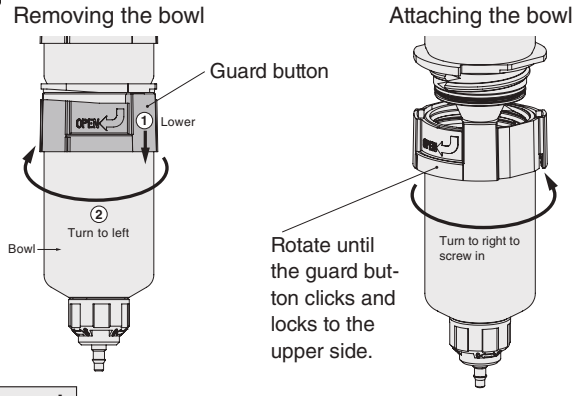
7. Piping that is not flexible, such as steel pipe, is easily affected by large moment loads and vibration transmitted from the piping side, so use flexible tubes or the like to prevent these effects.

● Periodic maintenance

Bowl

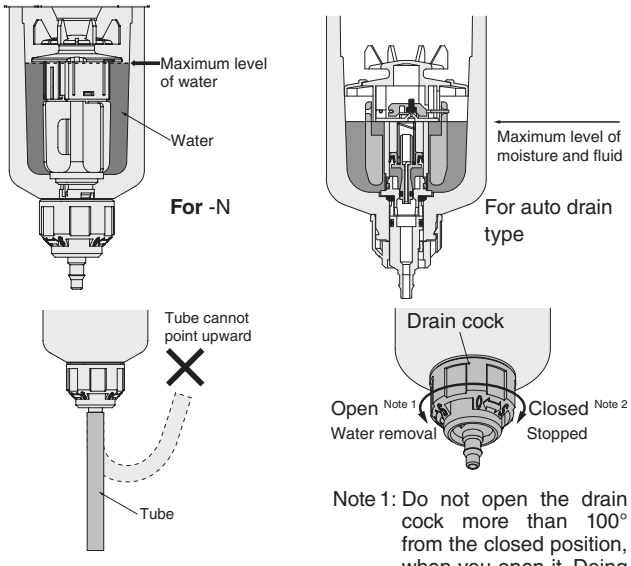
1. Do periodic inspections to look for cracks, scratches, or other deterioration in the bowl (clear plastic part).
2. If you notice any cracks, scratches, or other deterioration, which may cause a breakdown, replace the bowl with a new one. Refer to page 64 for information about order codes for bowls.
3. Replace the bowl with a new one if it becomes dirty or the transparency is reduced. To wash it, use diluted household cleaner to wash it and then rinse it off with water.
4. To remove or attach the bowl, follow the instructions in the diagram below (be sure to release the pressure inside the product before doing so).
5. Squeeze the guard button to attach or remove the bowl.

NOTE If there is a bowl guard, it may fall off when you squeeze it.



Drain cock

1. If the volume of water is greater than that shown in the left side diagram below, the moisture removal function will be greatly reduced. Be sure to drain the water before it increases beyond the level shown on the left side diagram below. Operate the drain cock with your hand.
2. A tube with an inner diameter of ϕ4 [0.157] can be attached to the fitting of the drain cock. Make sure the drain cock is closed (locked) before doing the connections. Do not allow tubing to become severely bent or twisted near the connection to a fitting. There is a risk of lateral force damaging the fittings. Also, avoid vertical piping, and keep the piping length to 5 m [16.400 ft] or less.
3. If you are using an auto drain, be careful that it does not exceed the upper limit level shown on the right in the figure below, as water accumulated in the primary side will flow in all at once and cause malfunctions if the upper limit level is exceeded.

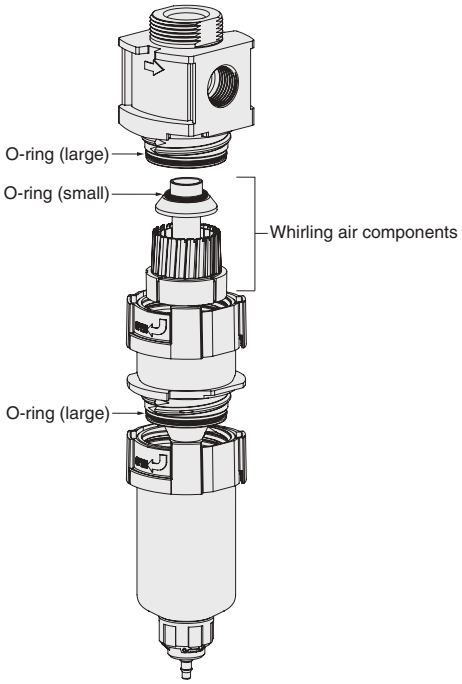


Note: The cut end of the tubing to be connected to the fitting must be at a right angle and must be inserted completely as shown in the diagram. Also, after installing it, lightly pull on it to check that it does not come off.

Note 1: Do not open the drain cock more than 100° from the closed position, when you open it. Doing so can damage the drain cock.
2: When closing the drain cock, turn it firmly until it locks with a click.

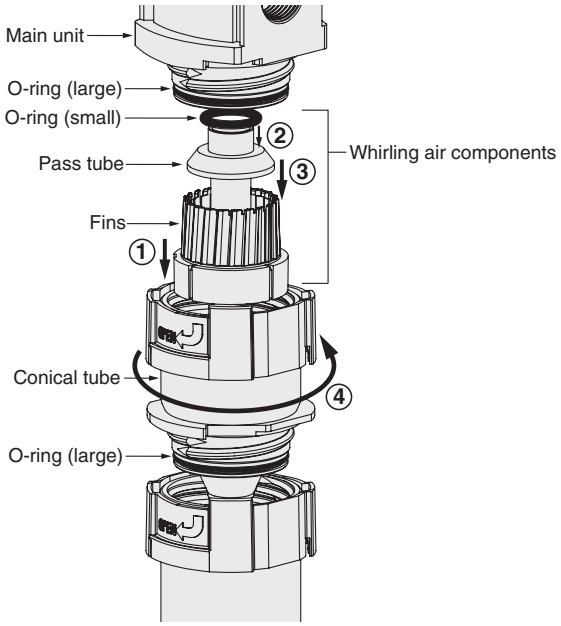
Whirling air components

1. If the whirling air components become clogged with dirt, the separation function will be impaired. If this happens, disassemble the product as shown in the diagram below, then wash it to remove the dirt (be sure to release the pressure inside the product before doing so).
2. When reassembling the whirling air components, prepare a "Seal kit" and use new O-rings. Refer to page 64 for information about order codes for seal kits.



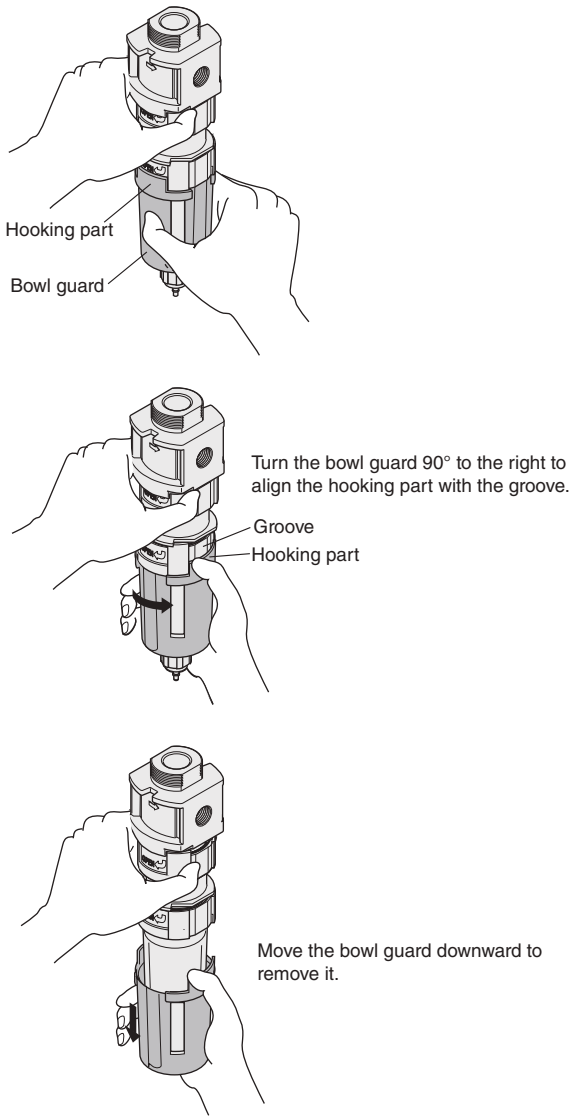
Assembly method

Reassemble according to the following procedure.
① Insert the fins into the conical tube and press them in with your hand.
② Attach a new O-ring (small) to the pass tube.
③ Fit the pass tube to the fins (fit it so it touches the seating of the fins).
④ Replace the two O-rings (large) and connect the conical tube to the main unit.



Removing and mounting the bowl guard

1. Be sure to release any pressure in the system before attaching or removing the bowl guard.
2. Use the procedure shown in the diagram below to attach (or remove) the bowl guard.

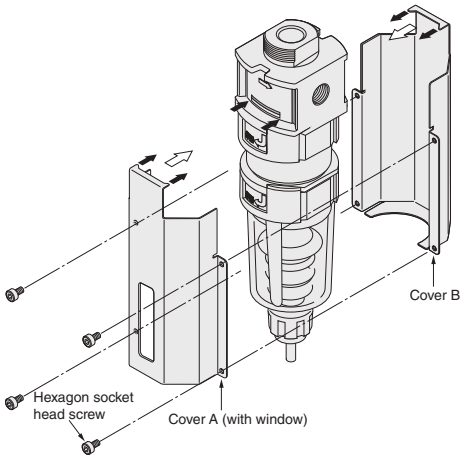


3. Use the reverse of the procedure shown in the diagram above to attach the bowl guard.

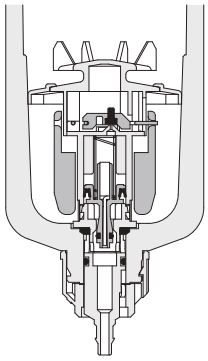
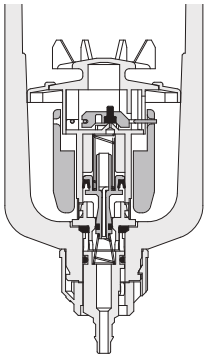
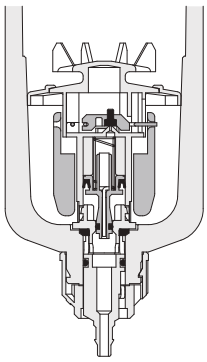
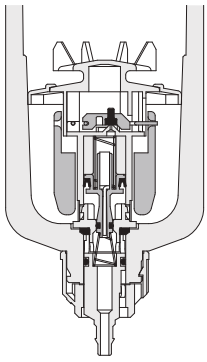
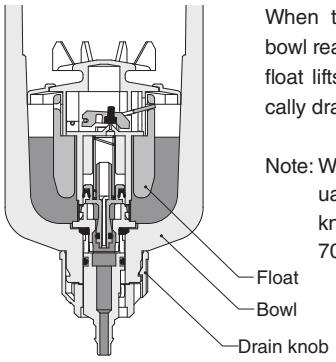
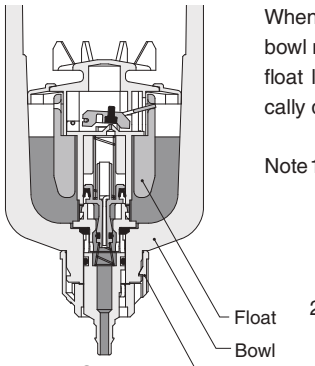
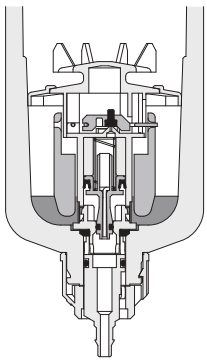
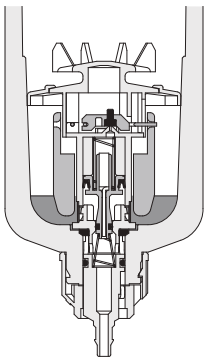
Mounting and removing the metal cover

Mount the metal cover according to the following procedure.
① Enclose the body of the iB-Cyclone between cover A and cover B as shown by the black arrows in the diagram below (window can be positioned 180° opposite).
② Tighten the hexagon socket bolts from the A cover side to 1.0 to 1.2 N·m [8.851 to 10.621 in·lbf].

To remove the metal cover, remove the hexagon socket bolts.



● Explanation of operation of auto drain system

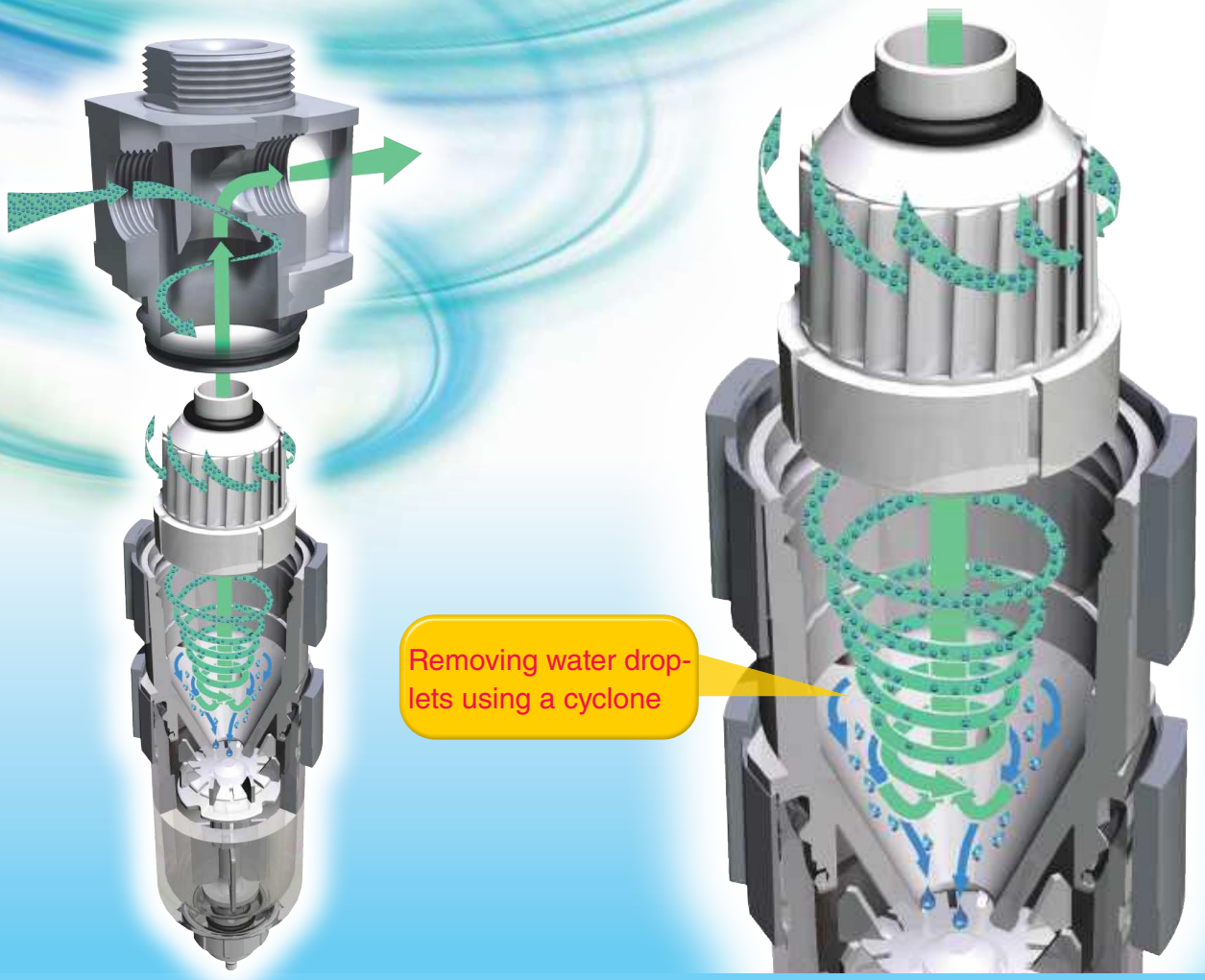
State \ Type	NO type	NC type
Not pressurized	 Open When unpressurized, the water outlet opens and the water drains naturally.	 Close When unpressurized, the water outlet closes and the water cannot drain. Note: Water does not drain when unpressurized, if there is a lot of water even in an unpressurized (low pressure) condition, it may be necessary to drain the water by hand.
Pressurized	 Close Air and water are periodically discharged from the water outlet until the minimum operating pressure (0.15 MPa [22 psi]) or higher is reached. The air and water will stop after the minimum operating pressure or more is reached. Note: A compressor with a small output may not reach full pressure, and there may be air output until the minimum operating pressure or higher is reached.	 Close In the same way, when unpressurized, the water outlet closes and the water cannot drain.
Draining water	 Open When the level of water in the bowl reaches a specified level, the float lifts and the water automatically drains. Note: Water can be drained manually by turning the drain knob to the left. See page 70 for details.	 Open When the level of water in the bowl reaches a specified level, the float lifts and the water automatically drains. Note 1: Supply pressure is needed to operate the auto drain. Ensure that the supply pressure is 0.15 MPa [22 psi] or more. 2: Water can be drained manually by turning the drain knob to the left. See page 70 for details.
Draining water completed	 Close When the water drains, the float lowers and the water outlet closes, and water stops draining.	 Close When the water drains, the float lowers and the water outlet closes, and water stops draining.

iB Series

Introducing the cyclone type water separator for NEGATIVE pressure!

iB-Cyclone PAT.

iB Cyclone



Superior water separation performance

Water separation rate over 90%[Note].

Note: According to Koganei measurement standards.

Cyclone system

Expertise in centrifugal separation optimizes our **high-speed cyclone system** water separator (patent pending).

Maintainability improved

Maintenance-free because no element is used.

Wide range of vacuum flow rates

Water separation performance demonstrated over a wide flow rate.

Compatible in a wide range of environments

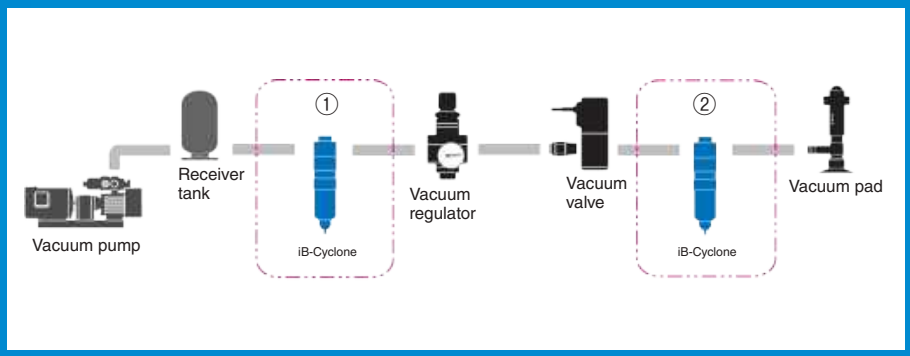
Specifications for ozone resistance, NCU specifications (copper free) compatible as standard.

User Issues

● When using a vacuum pump, users are worried that the moisture sucked in while suctioning workpieces can damage the pump

Koganei solves user problems with **iB-Cyclone**, which delivers new value.

iB-Cyclone uses a cyclonic system to maintain water separation rates even if flow is increased. Separation performance is always steady from low to high flow rates.



iB-Cyclone application example

- Installed directly after equipment to immediately stop suction of cleaning solutions and other droplets.
- Installed before the pump to immediately remove droplets that have accumulated inside the circuit.

Reduce frequency of maintenance and breakdowns of pump

Variations and Options


Drain cock with fitting


With bowl guard

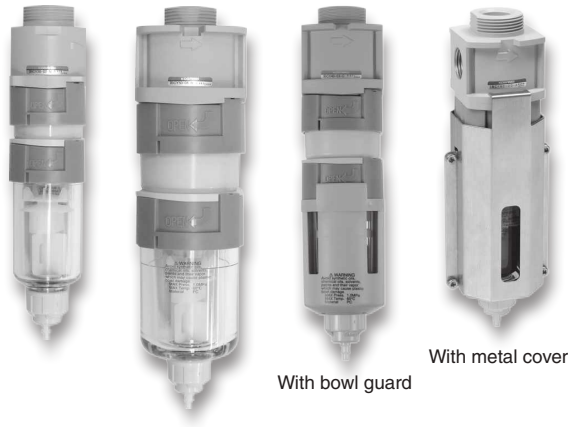
With metal cover
IBCY40-□-□-□-BG
IBCY50-□-□-□-BG

Note 1: Metal cover cannot be attached to the **IBCY30**.
Note 2: When **iB-Cyclone** are connected in series in modules, the metal cover can only be attached to one side.

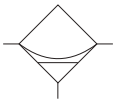
Bracket
8Z-CBK

iB-Cyclone

IBCY30·IBCY40·IBCY50



Symbols



Specifications (negative pressure)

Item \ Model		IBCY30		IBCY40			IBCY50		
Media		Air							
Port size	Rc	1/8	1/4	1/8	1/4	3/8	1/4	3/8	1/2
Operating pressure range	kPa [inHg]	−100 to 0 [−29.540 to 0]							
Vacuum break pressure	MPa [psi]	0.7 [102] or less[Note5]							
Proof pressure	MPa [psi]	1.5 [218]							
Operating temperature range (atmospheric and medium)	°C [°F]	0 to 60 [32 to 140]							
Water separation rate [Note1]	%	90 or more							
Water collection volume (for **-N**)	mℓ [in³]	13 [0.793]		16 [0.976]			27 [1.648]		
Recommended vacuum flow rate	ℓ/min(ANR) [ft³/min(SCFM)]	50 [1.766]	100 [3.532]	100 [3.532]	150 [5.298]	200 [7.064]	200 [7.064]	300 [10.596]	400 [14.128]
Materials used in major parts	Main unit	Die cast aluminum alloy							
	Bowl	PC (polycarbonate)/PCT (Polycyclohexylene-dimethylene terephthalate)[Note 2]							
	Bracket	Steel plate (electroless nickel plated)							
Weight (for standard product, maximum port size)	kg [lb]	0.15 [0.331] (0.16 [0.353])[Note 3]		0.20 [0.441] (0.21 [0.463]) <0.33 [0.728]>[Note3]			0.30 [0.662] (0.31 [0.684]) <0.48 [1.058]>[Note3]		
Option[Note 4]		Bowl guard (resin, pre-assembled), bracket (included parts)							

Note 1: Under Koganei measurement conditions.
2: Use a PCT resin bowl when using products in a location with a poor atmosphere (places with a risk of exposure to cutting oil, machine oil, etc.).
3: Weights in ( ) parentheses are the weights with a bowl and weights in < > angle brackets are the weights with a metal cover.
4: See the order code column for details about each option.
5: The application of vacuum-breaking air should be instantaneous pressurization.
6: To use the product under positive pressure, see page 63.

Order Codes (Negative Pressure)

IBCY □ – □ – □ – □ – □ – □

Bracket
Blank —— No bracket
B —— With bracket

Bowl guard specifications
Blank —— No bowl guard
PG —— With bowl guard (resin)
BG —— With metal cover (**IBCY40·50** only)[Note]
Note: The **IBCY30** does not come with a metal cover.
Also, when iB-Cyclones are connected in series in modules, the metal cover can only be attached to one side.

Drain cock specifications
N —— Drain cock with fitting
Note: The auto drain cock cannot be selected for negative pressure specifications.

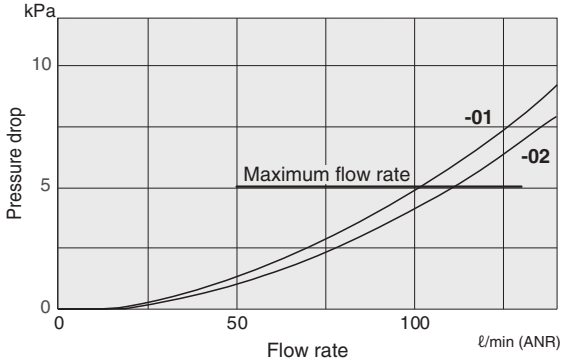
Bowl specifications
Blank —— Standard specifications (polycarbonate)
P —— PCT resin bowl[Note]
Note: Use a PCT resin bowl when using products in a location with a poor atmosphere (places with a risk of exposure to cutting oil, machine oil, etc.).

Main unit Model	Port size Rc1/8	Rc1/4	Rc3/8	Rc1/2
30	01	02		
40	01	02	03	
50		02	03	04

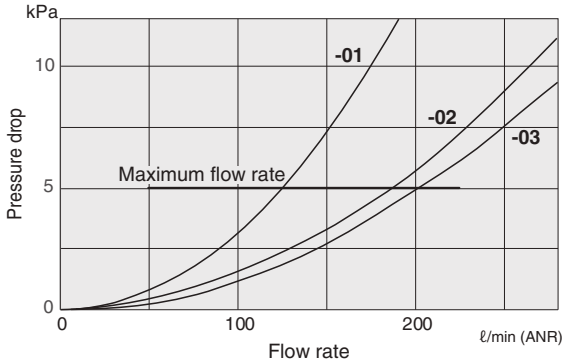
iB-Cyclone

Flow rate characteristics

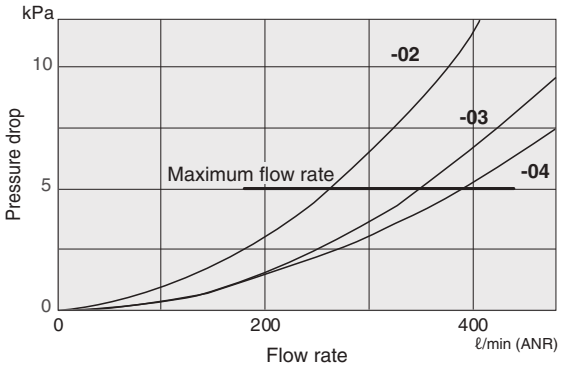
IBCY30



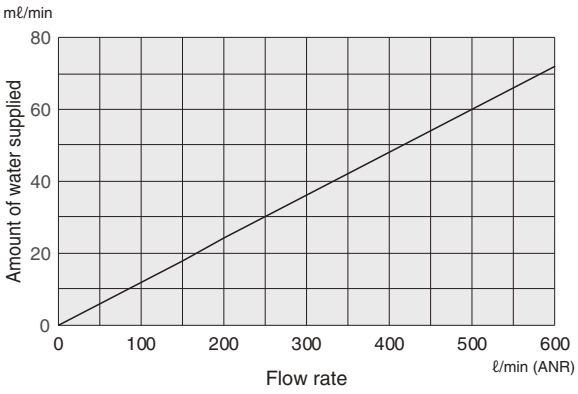
IBCY40



IBCY50



Water supply conditions for tests at Koganei



General precautions

1. Before performing piping work, thoroughly flush the inside of the pipes (blow out with compressed air).
   Machining chips, sealing tape, rust and other debris remaining from the piping work may result in lowered performance and functionality or loss of functions.
2. This product cannot be used if the medium or ambient atmosphere includes any of the following substances:
   Organic solvents, phosphate ester type hydraulic oil, sulfur dioxide gas, chlorine gas, Freon gas, ozone, acids, or other corrosive gasses.
3. This product cannot be used in environments with the gases and fluids in described above, nor threadlocking adhesive, leak detection fluid, hot water or where it may be exposed to them. This product also cannot be used in direct ultra-violet light. See the reference materials on page 162 for details.
4. Cover the unit when using it in locations where it might be subject to excessive dust, dripping water, dripping oil, etc.
5. Do not allow moisture into the flow in excess of the amount in the product specifications. Water droplets may spread to the secondary side. See page 76 for details about the water supply conditions for tests at Koganei.
6. If condensation or frost forms in the product, the moisture (frost) may spread into the secondary side.
7. Do not use this product for vacuum retention.
8. Drain the water periodically. If used at high vacuum pressure, the boiling point of the water accumulated in the bowl may drop, causing bubbles to form. There is also a risk that evaporated water may flow into the vacuum side.

Medium and operating environment

● Usable medium

1. Use cleaned air for the medium. Contact the nearest Koganei sales office or overseas department if you are considering using something other than cleaned air.
2. Do not use air that contains oil or solid matter.

NOTE Using air that contains oil or solids will cause the product's functions to stop after a short period and will reduce the product performance and service life.

● Dust

If explosive powders (aluminum powder, magnesium powder, coal powder, etc.), organic powders (epoxy resin, toner, paper powder, starch, etc.), or flammable organic solvents are mixed in with the dust, there is a risk of a dust explosion, so be especially careful.

● Static electricity

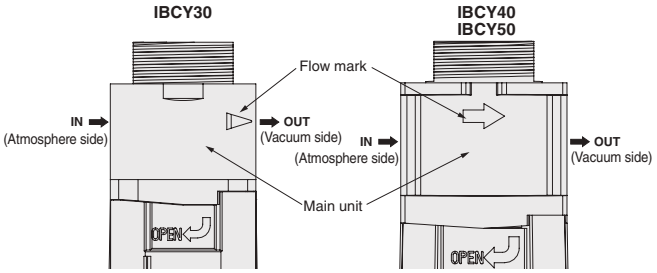
Be careful because static electricity may be generated if powders are mixed in with the cyclone flow.

Mounting and Piping

⚠ CAUTION The iB-Cyclone cannot be used for dehumidification.

NOTE The iB-Cyclone is a product for removing moisture. It cannot remove (dehumidify) the water vapor contained in air.

1. Install the product in a location where the ambient temperature is 60°C [140°F] or less.
2. Install the product vertically, with the piping connection on the top and the drain outlet on the bottom.
3. Leave enough space for various maintenance work, such as for the guard button to rotate and for removing the bowl.
4. When attaching the bracket, tighten the mounting ring to 5.0 N·m [3.688 ft·lbf] or less.
5. Install the piping so that the air flows in the direction of the arrow (flow mark) indicated on the product. If the air flows in the opposite direction, the moisture removal function cannot operate.



6. Do not apply piping load or excessive torque to the product. When tightening the piping, grip the main unit and tighten it to the torque recommended in the table below.

Recommended tightening torque N·m [ft·lbf]

Connecting thread	1/8	1/4	3/8	1/2
Torque	4.5 to 6.5 [3.319 to 4.794]	7 to 9 [5.163 to 6.638]	12.5 to 14.5 [9.220 to 10.695]	20 to 22 [14.752 to 16.227]

7. Piping that is not flexible, such as steel pipe, is easily affected by large moment loads and vibration transmitted from the piping side, so use flexible tubes or the like to prevent these effects.