

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FmResisFR
Oil-ProhR
MedPresFR
No Cu/
PTFE FRL
Outdrs FR
F.R.L
(Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneR
AirBoost
SpdContr
Silncr
CheckV/
other
Jnt/tube
AirUnt
PrecsCompn
Mech/
ElecPresSw
ContactSW
AirSens
PresSW
Cool
AirFloSens/
Contr
WaterRtSens
TotAirSys
(Total Air)
TotAirSys
(Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg
etc
Ending



Drain separator

FX Series

Lightweight compact drain separator
Compatible compressor 0.75 kW to 37 kW
JIS symbol



Specifications

Descriptions		FX1004	FX1011	FX1037
Working fluid		Compressed air		
Working pressure	MPa	0.1 (≈15 psi, 1 bar) to 1.0 (≈150 psi, 10 bar) *3		
Proof pressure	MPa	1.5 (≈220 psi, 15 bar)		
Ambient / fluid temperatures	°C	5 (41°F) to 60 (140°F)		
Separation efficiency	%	99 *2		
Max. processing flow rate	*1 l/min(ANR)	550	1800	6100
Port size	Rc,NPT,G	1/4,3/8	1/4,3/8,1/2	3/4,1
Product weight	kg	0.3	0.5	1.2

*1: At inlet pressure 0.7 MPa.
*2: Water separation efficiency during max. processing flow rate. (Evaporated water droplets (water vapor) cannot be separated)
*3: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15 MPa.

Option weight

* Add to the weight of the standard accessories. Unit: kg

Code	Drain discharge			Bowl material
	C	F	F1	M
FX1004	0	0.02	0.02	0.1
FX1011	0	0.02	0.02	0.1
FX1037	0	0.02	0.02	0.1

How to order

FX1004 - **8** - **W** - **F** - **BW**

A Model No.

B Port size

C Port thread

D Option

E Attachments

A Model No.

FX1004
FX1011
FX1037

Code	Content	FX1004	FX1011	FX1037
B Port size				
8	1/4	●	●	●
10	3/8	●	●	●
15	1/2	●	●	●
20	3/4	●	●	●
25	1	●	●	●
C Port thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●
D Option *1, *2				
Drain discharge	Blank	With manual drain cock (1/8 internal thread only for the metal bowl)	●	●
	C	With manual cock (can only be selected for the metal bowl)	●	●
	F	Auto-drain, man OVRD (NO: No press→Exhaust)	●	●
	F1	Auto-drain, man OVRD (NC: No press→No exhaust)	●	●
Bowl material	Blank	Polycarbonate bowl	●	●
	Z	Nylon bowl	●	●
	M	Metal bowl	●	●
	M1	Metal bowl with manual drain cock	●	●
Flow Direction	Blank	Standard flow (left → right)	●	●
	X1	Reverse flow (right → left)	●	●
E Attachments *3, *4				
Blank	Not attached	●	●	●
A8*W	1/4 pipe adaptor set	●	●	●
A10*W	3/8 pipe adaptor set	●	●	●
A15*W	1/2 pipe adaptor set	●	●	●
A20*W	3/4 pipe adaptor set	●	●	●
A25*W	1 pipe adaptor set	●	●	●
A32*W	1 1/4 pipe adaptor set	●	●	●
BW	C type bracket	●	●	●
* Adaptor thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●

⚠ Precautions for model No. selection

- *1 : Select options for the drainage, bowl material, and flow direction.
When selecting options for several items, list options in order from the top.
- *2: Refer to page 282 for the auto-drain usage conditions.
- *3 : The pipe adaptor set and C type bracket cannot be used together.
- *4 : The joiner set is enclosed with the pipe adaptor set.

Replacement parts list

Bowl guard

Bowl guard model No.	For polycarbonate bowl	For nylon bowl
Model		
FX1004	F3000-W-BOWL-GUARD	F3000-W-BOWL-GUARD-Z
FX1011,FX1037	F4000-W-BOWL-GUARD	F4000-W-BOWL-GUARD-Z

Bowl assembly (set of bowl assembly and bowl O-ring)

Bowl assembly model No.	PC bowl assembly with manual cock	PA bowl assembly with manual cock	Metal bowl assembly with manual cock	Metal bowl assembly with Rc1/8 internal thread	Metal bowl assembly with manual cock
Model					
FX1004	F3000-W-BOWL	F3000-W-BOWL-Z	F3000-W-BOWL-M	FX1004-W-BOWL-M	F3000-W-BOWL-M1
FX1011,FX1037	F4000-W-BOWL	F4000-W-BOWL-Z	F4000-W-BOWL-M	FX1011-W-BOWL-M	F4000-W-BOWL-M1

Bowl assembly model No.	PC bowl assembly with NO auto-drain	PA bowl assembly with NO auto-drain	Metal bowl assembly with NO auto-drain	Metal bowl assembly with NO auto-drain
Model				
FX1004	F3000-W-BOWL-F	F3000-W-BOWL-FZ	F3000-W-BOWL-FM	F3000-W-BOWL-FM1
FX1011	F4000-W-BOWL-F	F4000-W-BOWL-FZ	F4000-W-BOWL-FM	F4000-W-BOWL-FM1
FX1037	F8000-W-BOWL-FF	F8000-W-BOWL-FFZ	F8000-W-BOWL-FFM	F8000-W-BOWL-FFM1

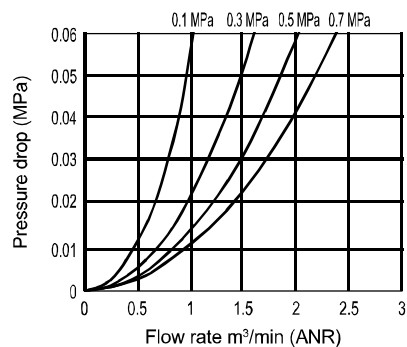
Bowl assembly model No.	PC bowl assembly with NC auto-drain	PA bowl assembly with NC auto-drain	Metal bowl assembly with NC auto-drain	Metal bowl assembly with NC auto-drain
Model				
FX1004	M3000-W-BOWL-F1	M3000-W-BOWL-F1Z	M3000-W-BOWL-F1M	M3000-W-BOWL-F1M1
FX1011	M4000-W-BOWL-F1	M4000-W-BOWL-F1Z	M4000-W-BOWL-F1M	M4000-W-BOWL-F1M1
FX1037	F8000-W-BOWL-FF1	F8000-W-BOWL-FF1Z	F8000-W-BOWL-FF1M	F8000-W-BOWL-FF1M1

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LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

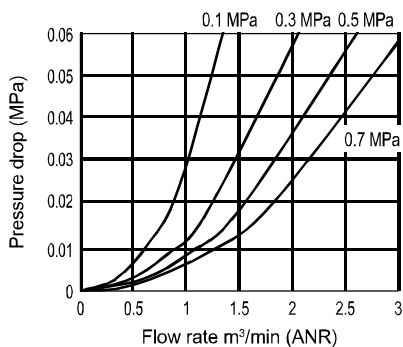
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Flow characteristics

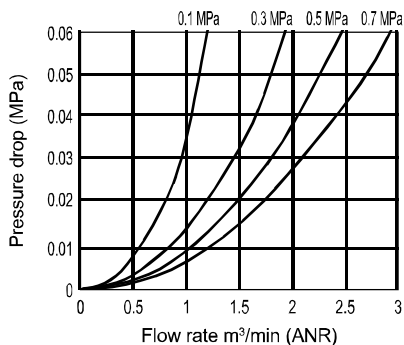
● FX1004-8-W



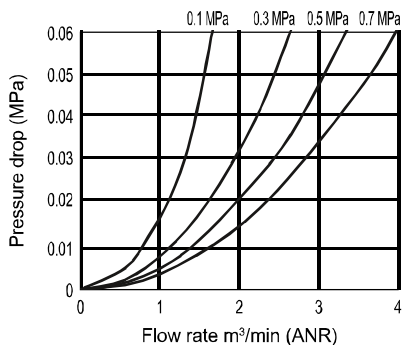
● FX1004-10-W



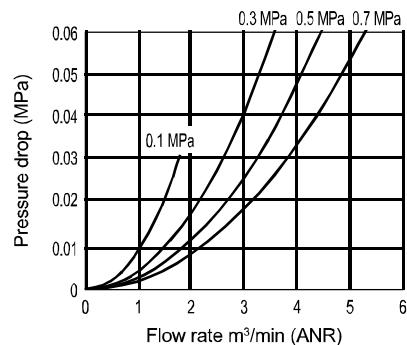
● FX1011-8-W



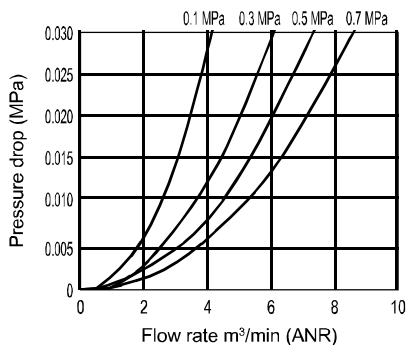
● FX1011-10-W



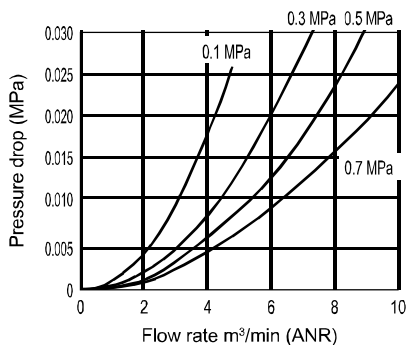
● FX1011-15-W



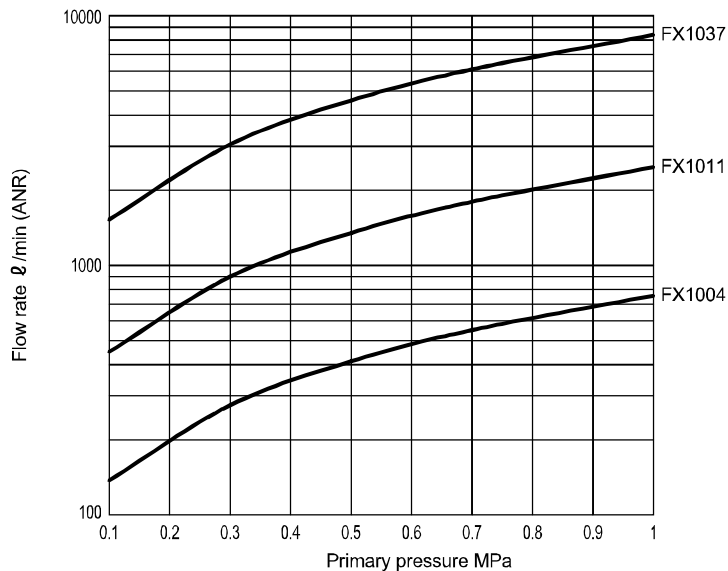
● FX1037-20-W



● FX1037-25-W

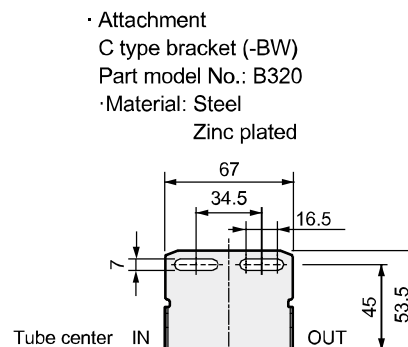
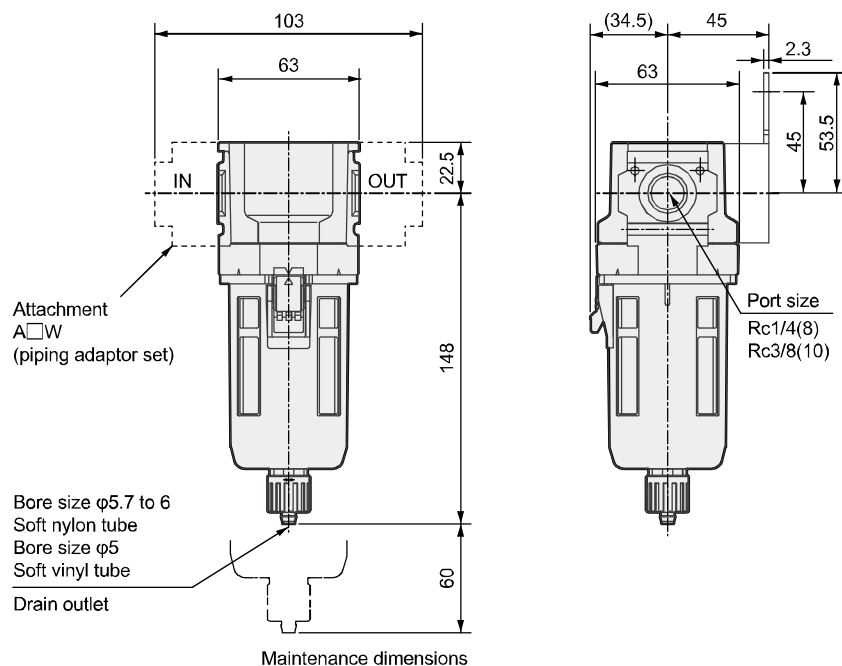


Max. processing flow rate



Dimensions

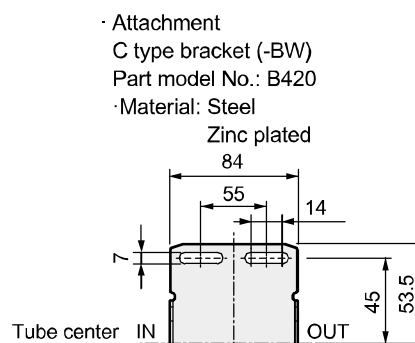
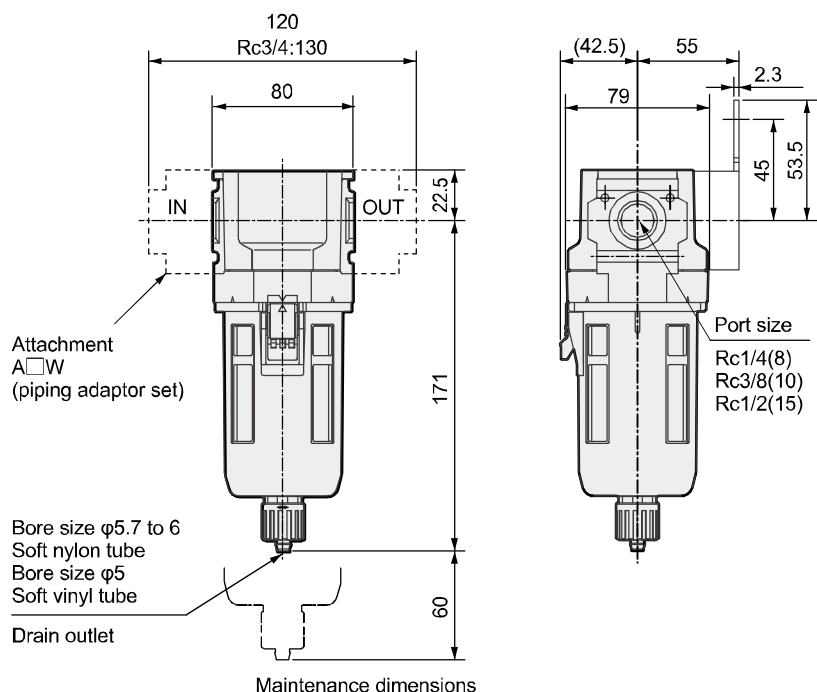
● FX1004-W



● For the plastic bowl, the dimensions of the manual cock and the auto-drain are the same.

Note: The C type bracket and pipe adaptor set attachments cannot be used together.

● FX1011-W



● For the plastic bowl, the dimensions of the manual cock and the auto-drain are the same.

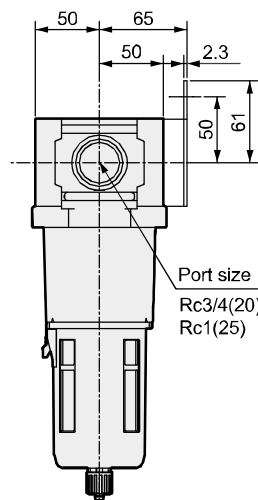
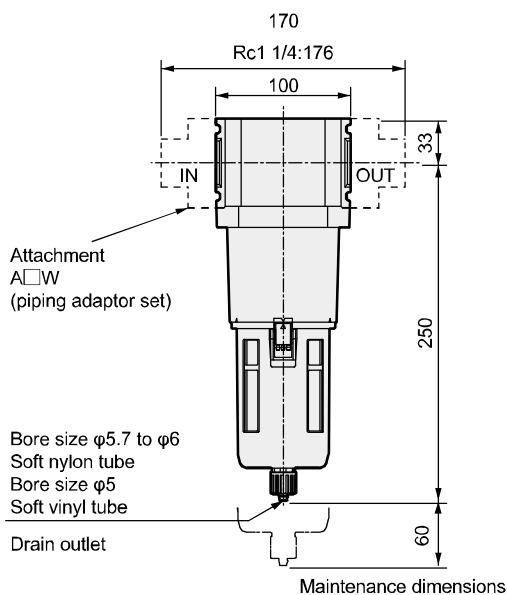
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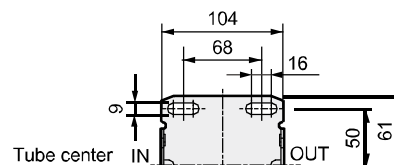
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Ending

Dimensions

● FX1037-W



· Attachment
C type bracket (-BW)
Part model No.: B820
· Material: Steel
Zinc plated



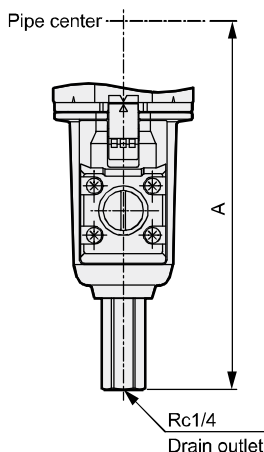
● For the plastic bowl, the dimensions of the manual cock and the auto-drain are the same.

Note: The C type bracket and pipe adaptor set attachments cannot be used together.

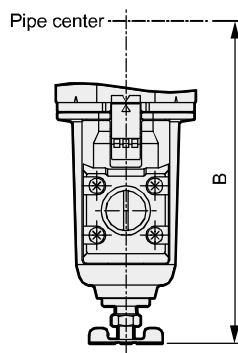
Optional dimensions

● Metal bowl FX1004-W/FX1011-W/FX1037-W (option)

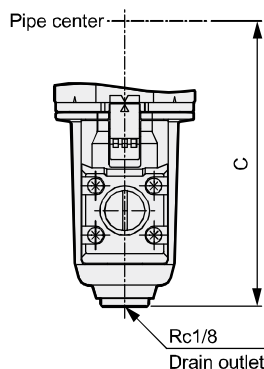
Metal bowl (FM, F1M)
with auto-drain



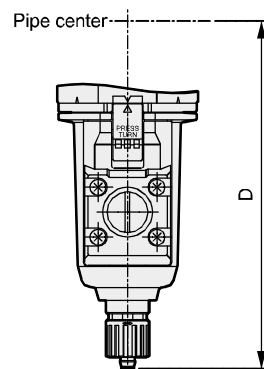
Metal bowl (CM)
with manual cock



Metal bowl (M)
without cock



Metal bowl (CM1, FM1, F1M1)
with manual cock



Dimensions table

Model No.	FM/F1M	CM	M	CM1/FM1/F1M1
	A	B	C	D
FX1004	164	143.5	127	154
FX1011	187	166.5	150	177
FX1037	266	245.5	229	256

Safety precautions

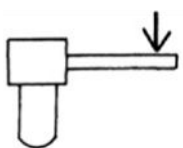
Be sure to read this section before use.

WARNING

Design/selection

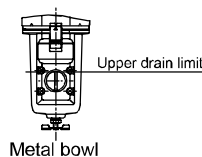
- This product is for industrial use. Do not use for medical purposes, or in any equipment or circuit that concerns human life.
- The plastic bowl is made of polycarbonate or nylon. It cannot be used in environments containing synthetic oil, organic solvents, chemicals, cutting oil, screw locking agent, leak detection solutions, or hot water, etc., or where these substances may come in contact with the product. Refer to the following page for details on plastic bowl chemical resistance.
- Piping load torque
Avoid applying piping load or torque to the body or pipes.

Series	FX1004	FX1011	FX1037
Max. torque N·m	50	50	100



Use/maintenance

- Perform a periodic inspection once every six months or less to check for any cracks, scratches, and other damage to the plastic bowl. Replace the bowl with a new plastic or metal one if you find any damage.
- Check the plastic bowl periodically for contamination.
 - If parts are heavily contaminated or if transparency has decreased, replace with a new bowl.
 - Use a diluted neutral household detergent to wash parts, and then rinse well with clean water. Use of other agents could result in breakage.
- Removing the bowl
Stop the compressed air supply. Release the pressure in the bowls completely and make sure that there is no residual pressure before removing the bowls.
- Drain so that the drain separator moisture does not accumulate beyond the upper limit.
Components could malfunction if moisture flows into the secondary side.

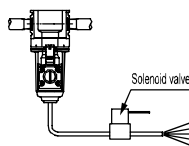


The resin bowl must not be filled above the "upper drain limit" or "MAX LEVEL" stamped on the bowl guard.

CAUTION

Design/selection

- Water-lubricated compressor circuit
Take measures to prevent chlorine-based substances from entering the compressed air.
- Use the auto-drain under the working conditions below.
Failure to observe this could result in operation faults.
NO auto-drain (exhaust when not pressurized): For "F"
 · Use a compressor with a capacity of 0.75 kW (90 l/min. [ANR]) or more.
 · Set the working pressure to 0.1 MPa or more. (Air is purged with initial drainage until pressure reaches 0.1 MPa.)
 NC auto-drain (no exhaust when not pressurized) For "F1"
 · A compressor with a capacity of 0.75 kW or less can also be used.
 · Set the working pressure to 0.15 MPa or more.

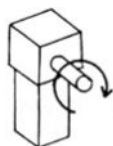


- The auto-drain may not work correctly if a large amount of drain enters. If there is a large amount of drain, select the bowl option "M" and perform regular drainage using a solenoid valve or the like from the drain pipe.

Mounting, installation and adjustment

- Avoid installing this product where it is subject to direct ultraviolet.
- Flush and clean the pipes.
Dirt or foreign matter remaining in the piping will deteriorate product performance.
- Make sure that no foreign matter enters the pipes when connecting the pipes and fittings.
When screwing in piping or fittings, check that swarf from port threads or sealant does not get inside. Dirt or foreign matter remaining in the piping will deteriorate product performance.
- Using the drain separator correctly
 1. Confirm the direction of the arrow indicating the flow direction before connecting, and make sure that the flow direction is correct when piping. If the flow direction is incorrect, the drain cannot be isolated. (It will cause the drain to flow out from the secondary side.)
 2. Install the case downward vertically. Drain discharge failure could result.
 3. Use of the auto-drain where vibration is present could cause faults and malfunctions.
- Pipe auto-drain piping as follows:
Otherwise, malfunctions may result.
Use a pipe with an inner diameter of $\phi 5.7$ or more and a piping of 5 m or more for the drain discharge section. Do not use vertical piping. Do not route it vertically. Pipe so that no lateral load is applied on the bowl. When you tighten a fitting into an Rc1/4 female thread, hold the hexagon part of the cock.
- Piping screw-in torque
Make sure that excessive torque is not applied on the body and piping when piping.

Series	FX1004	FX1011	FX1037
Max. torque N·m	30	30	70



Drain piping

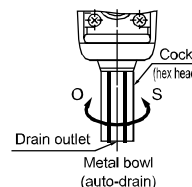
- The drain piping for the plastic bowl has a barbed nipple, and can be directly installed. However, confirm that the drain cock is closed before inserting the tube. Do not route it vertically. Pipe so that no lateral load is applied on the bowl. Do not fix the tube connected to the drain outlet with a lateral load applied. If drainage is performed with a lateral load applied, external leakage may occur. Contact CKD when attaching a separate valve to the tube tip that is inserted to the drain outlet to control drainage.

Tightening torque of drain cock

- The maximum tightening torque of the drain cock of the plastic bowl is 0.5 N·m.

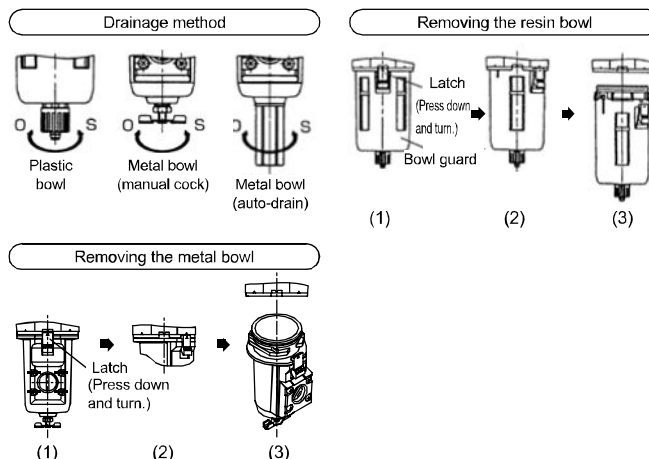
Drain piping of metal bowl with auto-drain

- When you tighten a fitting into the drain outlet female thread, hold the hexagon part of the cock. When using the metal bowl with auto-drain, if the drain is piped with a tightening fitting, manual operation is not possible.



Use/maintenance

- Do not disassemble or modify the product.
- Read instructions and precautions enclosed with the product before use or maintenance.
 - Drainage starts when the cock is turned in the O direction, and the discharge stops when the cock is turned in the S direction. Tighten by hand in the S direction.
 - When the auto-drain is provided, drainage is discharged automatically when it accumulates. Drainage can also be discharged manually.



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Chemical resistance of plastic

- ⚠ WARNING**
- The chemical resistance of plastic parts is shown below.
 - Avoid using products in an atmosphere where chemicals are contained in compressed air or atmosphere, or where they could adhere to parts.
 - Use in the above state could lead to bowl damage and accidents.
 - Avoid using with these types of chemicals or in an atmosphere containing these chemicals.
 - A metal bowl is available if these chemicals must be used.

Chemical resistance of plastic bowl Use a metal bowl in an atmosphere containing the following chemicals.
Check whether the testing solutions, sealants and adhesives contain the following chemicals.

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Polycarbonate bowl	Nylon bowl
Inorganic chemicals	Acids	Hydrochloric acid, sulfuric acid, hydrofluoric acid, phosphoric acid, chromic acid, etc.	Acid washing of metals, acidic degreasing solutions, coating treatment solutions, etc.	×	×
	Alkalines	Alkali substances such as caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate	Alkaline degreasing solution for metals Soluble cutting oil, leakage detection agent	×	○
	Inorganic salts	Sodium sulfide, sodium nitrate, potassium bichromate, sulfate of soda, etc.		×	○
Organic chemicals	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	×	×
	Chlorinated aliphatic hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	×	○
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	×	○
	Petroleum components	Solvent naphtha, gasoline, kerosene		×	○
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent Leakage detection agent	×	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	×	○
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×	×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid for aluminum processing, phthalic acid for paint base and leak-detection agents	×	×
	Esters	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic oil, rust preventing agent additives Used as plasticizer for synthetic resin	×	○
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×	×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		×	○
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Additive of brake oil	×	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	×	○

○: Resistant, ×: Non-resistant (plastic will become damaged.)



Automatic drain

DT3000-W/DT4000-W Series

Lightweight, compact automatic drain discharger.

Applicable compressor: 0.75kW to 75kW

JIS symbol



Specifications

Descriptions		DT3000-W	DT4000-W	DT3010-W	DT4010-W
Type		Normally open (Note 1)			Normally closed
Working fluid		Drain in compressed air (water or oil)			
Withstanding pressure	MPa	1.5			
Working pressure range	MPa	0.1 to 1		0.15 to 1	
Ambient temperature range °C		5 to 60			
Port size	Rc, NPT, G	3/8, 1/2			
Drain port		Barbed nipple (soft nylon tube bore size ø5.7 to ø6 can be installed directly)			
Product weight	kg	0.3	0.45	0.3	0.45

Note 1: If the working compressor is less than 0.75 kW (discharge flow 0.09 m³/min), select the normal close type.

How to order

DT3000-10 **-W-** **Z** **-BW**
(White type)

A Model no.

B Port size

C Port thread type

D Option

E Attachment
Note 2

⚠ Note on model no. selection

Note 1: The petcock is included.

Note 2: C type bracket model no. DT3000-W B320

DT4000-W B420

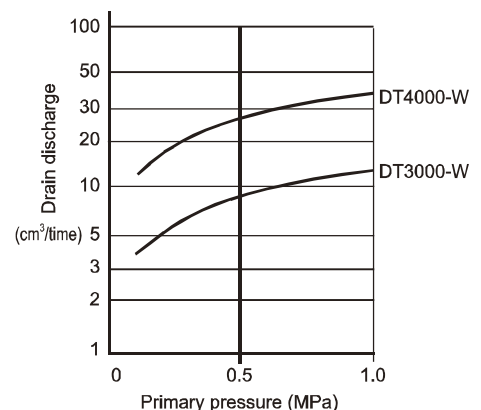
Note 3: A masking plug matching the port size is enclosed.

Symbol	Descriptions
A Model no.	
DT3000	Normally open automatic drain
DT3010	Normally closed automatic drain
DT4000	Normally open automatic drain
DT4010	Normally closed automatic drain
B Port size	
10	3/8
15	1/2
C Port thread type	
Blank	Rc thread
N	NPT thread
G	G thread
D Option	
Bowl material	Blank Polycarbonate bowl
	Z Nylon bowl
	M Note 1 Metal bowl (with gauge) drain port Rc1/8
	M2 Note 1 Metal bowl (with gauge) drain port Rc1/4
	Petcock attached
Petcock attached	Blank Pipe plug assembly
	C Note 1 Petcock attached (without pipe plug)
E Attachment	
Blank	Not attached
BW	C type bracket

Bowl types and shapes

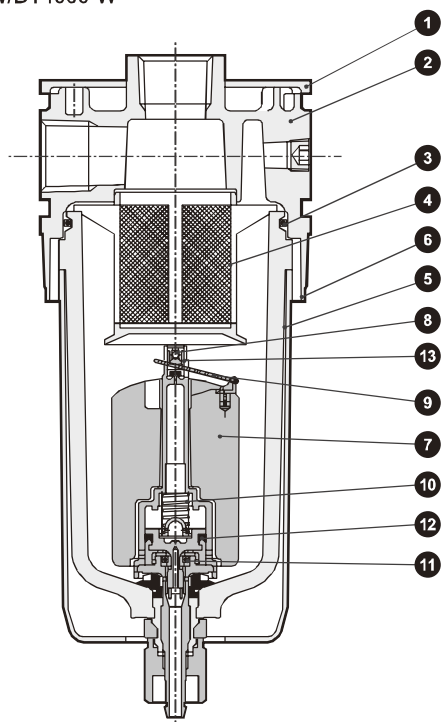
Type		Normally open (Open at no pressure) DT3000-W/DT4000-W	Normally closed (Closed at no pressure) DT3010-W/DT4010-W
Bowl material			
Applicable Series			
DT3000-W DT4000-W	Plastic	● With manual cock 	● With manual cock
		● Without manual cock (M, M2) 	● Without manual cock (M, M2)
	Metal	Rc1/8 (M) Rc1/4 (M2) 	Rc1/8 (M) Rc1/4 (M2)

Automatic drain performance diagram



Internal structure and parts list

- Normally open (open at no pressure)
DT3000-W/DT4000-W

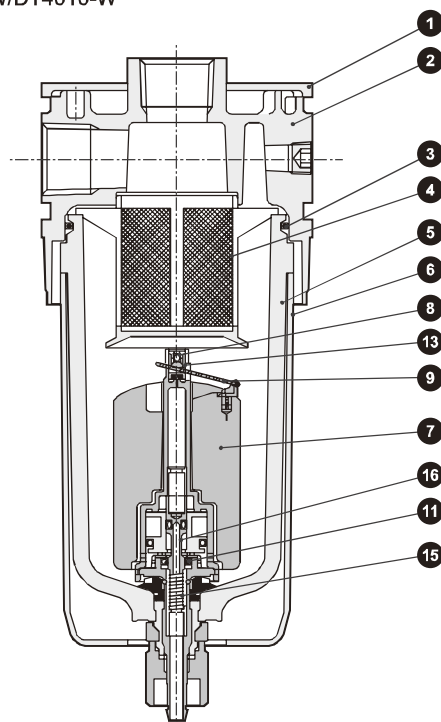


When pressure is not applied in the bowl, valve 12 is pressed down by spring 10, and is separated from stem packing 11. When a pressure of 0.1 MPa or more is applied to the bowl, pressure on valve 12 increases to more than the force of spring 10, valve 12 is pressed up and is sealed by the stem packing 11.

When drainage accumulates in the bowl, float 7 rises, and orifice spring 13 is pressed up by float level arm 9.

Orifice seat assembly 8 opens with a snap action by orifice spring 13, and compressed air is led into the upper chamber of valve 12 to pressurize it. When valve 12 is pressed downward and separated from the stem packing 11, drainage is released into the atmosphere. Once released, the float drops and orifice seat assembly 8 is closed by float level arm 9, and the compressed air pressurizing the upper chamber of valve 12 is released into the atmosphere through valve 12 orifice. The pressure applied to valve 12 from the bottom exceeds the force of spring 10, causing valve 12 to rise and be sealed by stem packing 11.

- Normally closed (closed at no pressure)
DT3010-W/DT4010-W



When pressure is not applied to the bowl, valve 16 is pressed up by spring 15 and sealed by stem packing 11.

When a pressure of 0.15 MPa or more is applied to the bowl and drainage accumulates, float 7 rises and orifice spring 13 is pressed up by float level arm 9.

Orifice seat assembly 8 opens with snap action by orifice spring 13, and compressed air is led into the upper chamber of valve 16 to pressurize it. When valve 16 is pressed downward and separated from stem packing 11, drainage is released into the atmosphere.

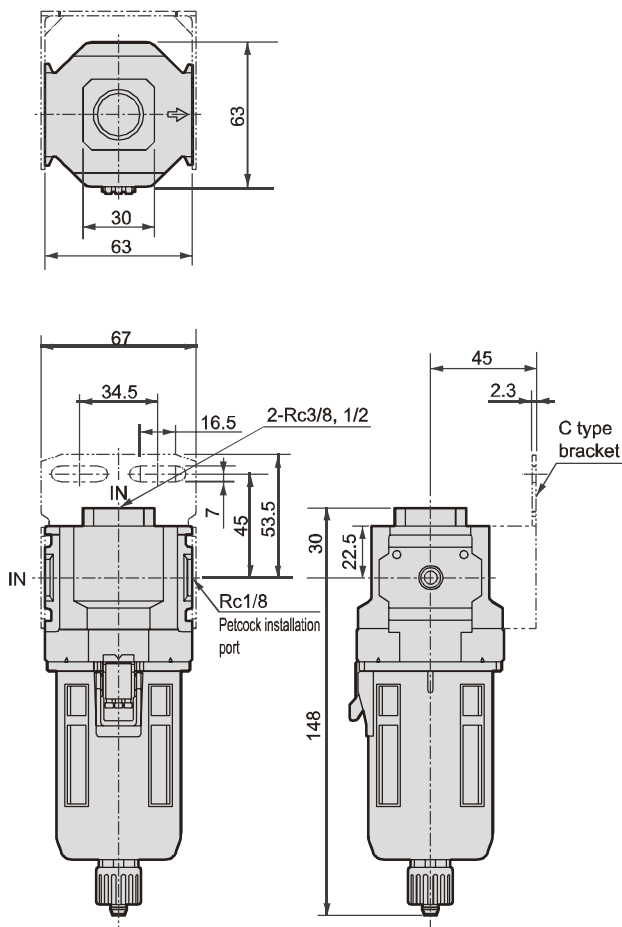
Once released, float 7 lowers and orifice seat assembly 8 is closed by float level arm 9, and the compressed air pressurizing the upper chamber of valve 16 is released into the atmosphere through the valve 16 orifice. Valve 16 is pressed up by the force of spring 15 from below, and is sealed by stem packing 11.

No.	Part name	Material	Model no.			
			DT3000-W	DT3010-W	DT4000-W	DT4010-W
1	Plate cover	ABS resin	-	-	-	-
2	Body	Aluminum alloy die-casting	-	-	-	-
3	O ring	Special nitrile rubber	F3000-ORING	F3000-ORING	F4000-ORING	F4000-ORING
4	Screen	Polycetal resin, polyester	DT3000-SCREEN	DT3000-SCREEN	DT4000-SCREEN	DT4000-SCREEN
5	Bowl assembly (including O ring)	-	DT3000-W-BOWL	DT3010-W-BOWL	DT4000-W-BOWL	DT4010-W-BOWL
6	Bowl guard	Polyamide resin, steel	DT3000-W-BOWL-GUARD	DT3000-W-BOWL-GUARD	DT4000-W-BOWL-GUARD	DT4000-W-BOWL-GUARD

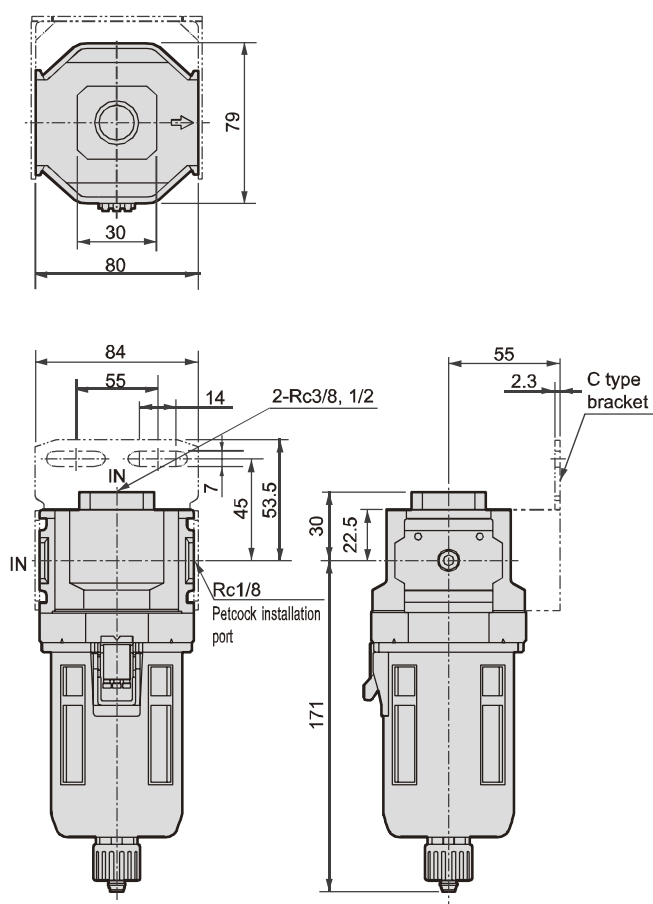
DT3000-W/DT4000-W Series

Dimensions

● DT3000-W/DT3010-W



● DT4000-W/DT4010-W

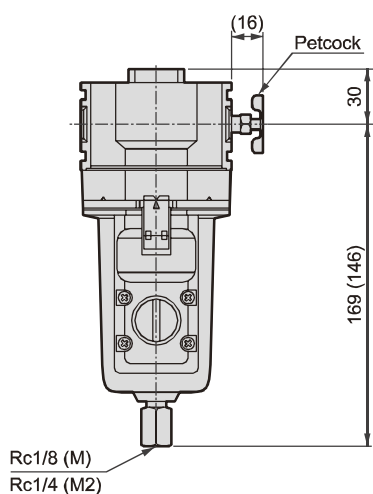


Note: A 5.7 to 6 bore size soft nylon tube is directly connected to the drainage discharge port.

Note: Provide a space of 60 mm or more under the bowl for maintenance.

Metal bowl specifications

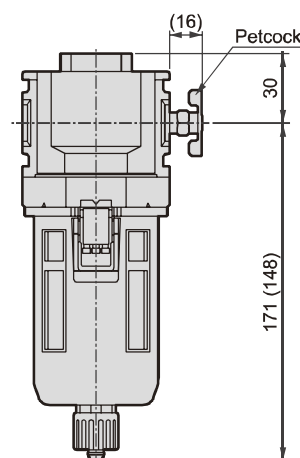
● Option (M, M2)



Note: The dimensions in () indicates DT3000-W.

Petcock specifications

● Option (C)



Note: The dimensions in () indicates DT3000-W.



Drain discharger
Heavy duty drain

5100-4C Series

Float drain (NC: no discharge when not pressurized).
Ideal for circuits generating a lot of moisture.

● Port size: Rc1/2

JIS symbol



RoHS

Specifications

1 MPa = 10 bar

Descriptions	5100-4C
Max. working pressure MPa	1.0 (≈150 psi)
Proof pressure MPa	1.5 (≈210 psi)
Fluid temperature (ambient) °C	5 (41°F) to 65 (149°F)
Min. working pressure MPa	0.069 (≈10 psi)
Drain discharge cm ³	170/time
Port size	Rc1/2
Weight kg	1.9
Bowl guard	Standard equipment

How to order

● Heavy duty drain

5100 - **4C** - **Z**

A Model No.

B Port size

C Option

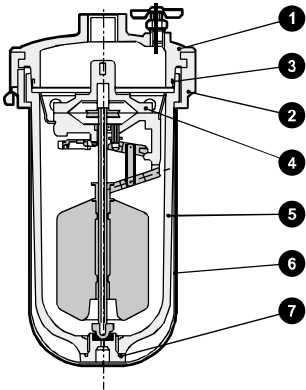
Code	Content	
B Port size		
4C	Rc1/2	
C Option		
Bowl material	Blank	Polycarbonate bowl
	Z	Nylon bowl
	M	Metal bowl
	MG	Metal bowl with gauge

⚠ Precautions for model No. selection

*1: If port size NPT thread is required, do not indicate nominal size C. (Example) 5100-4

Internal structure and parts list

● 5100-4C

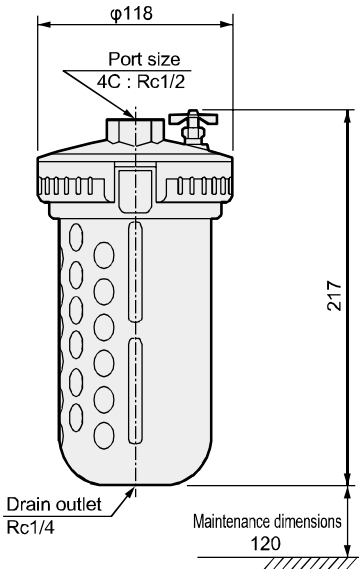


No.	Main part	Material	
1	Cover	Zinc die casting	
2	Clamp ring	Zinc die casting	
Parts list			
No.	Part name	Material	Model No.
3	O-ring	Special nitrile rubber	1138-ORING
4	Drain unit assembly	-	1326-DRAIN-UNIT
5	Bowl assembly	Polycarbonate	5100-BOWL
6	Bowl guard	Steel	1138-BOWL-GUARD
7	Drain seat assembly	Aluminum alloy, nitrile rubber	A1338-DRAIN-SEAT

Dimensions



● 5100-4C



⚠ Safety precautions

■ Use/maintenance

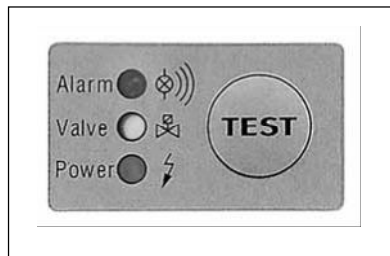
- Note that the bowl may be difficult to remove at times. When it is hard to remove, apply a strong force. (Before removing the bowl, check the looseness by applying force to the side of the lower part of the bowl.)

Automatic drain DB Series Energy saving & highly reliable

Two sensors prevent wasteful air consumption.

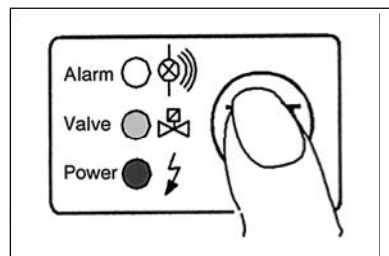
Control unit

- Electronic circuit with self-diagnosis function



The electronic circuit with self-diagnosis function constantly monitors the discharge status displaying it with LEDs. (excluding DB3003)

- Arbitrary discharge of drainage



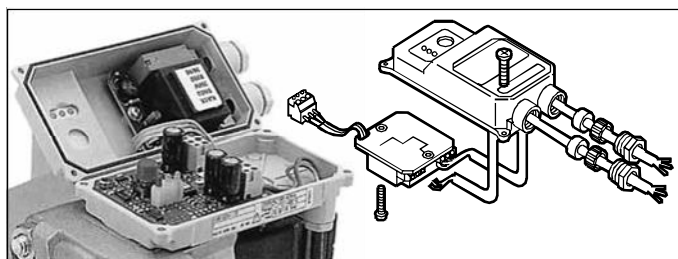
Drain can be discharged as desired by pressing the TEST button during operation check, etc.

- Self-avoidance operation simultaneous with alarm mode output.

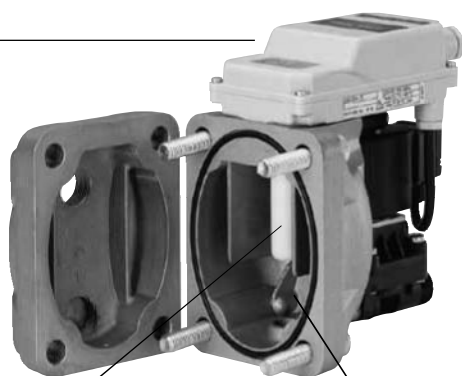


If drain discharge does not work normally, an alarm signal is output and self-recovery operation is repeated until the problem of the valve is removed. (excluding DB3003)

- Easy wiring



The power supply and control sections are compactly stored. The power supply section can be detached allowing you to connect the pipes easily. (excluding DB3003)



Level sensor

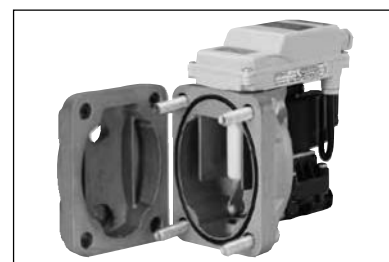
- Highly reliable level sensor



The sensor is protected by the resin cover. Stable performance is not affected by the drain quality.

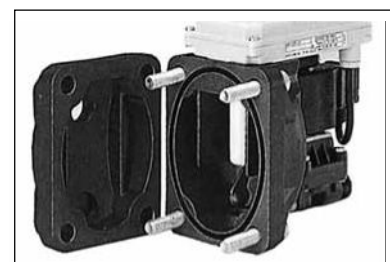
Tank

- Easy to clean inside the tank



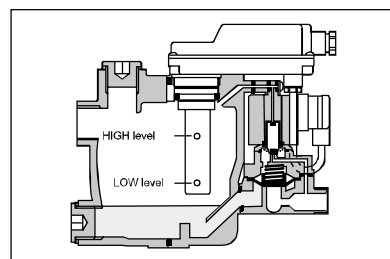
You can access inside the tank easily by simply removing four bolts without disconnecting the inlet pipe. (DB1024/3024/1090D/3090D)

- Oil free



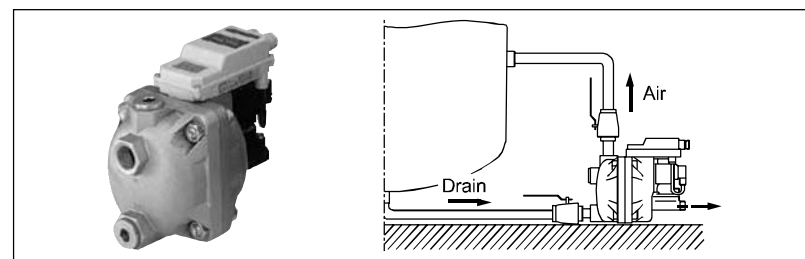
Rust proof treatment on the inner and outer surfaces of the housing. (DB3000 Series)

- Efficient use of compressed air



HIGH and LOW level sensors discharge drainage only, preventing wasteful air consumption. (DB1090D/3090D/3700)

- Port options that can be selected according to the installation condition

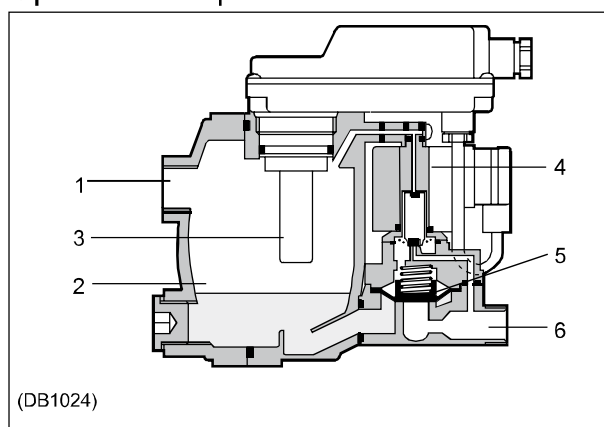


If the inlet pipe is connected to the bottom part and the amount of drain is large, the pipe at the top can be used as an air vent. (DB1024/3024/1090D/3090D/3700)

Automatic drain series map

Automatic drain DB Series													Drain sensor DBS1006	
Compressor RO (kW)		11 15 22 37 55 75 120 150 300 450 900												
Outlet flow rate m³/min (ANR)		1												

Operational explanation

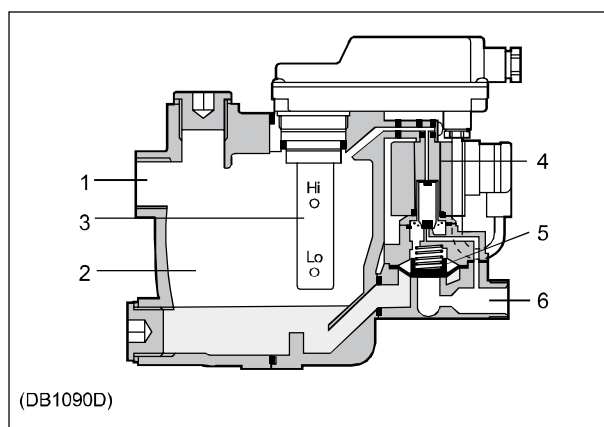


● DB Series single sensor (DB3003D, DB1006E/3006E, DB1024/3024)

Drain passing the inlet pipe (1) accumulates in the tank (2). The diaphragm valve (5) is closed by air pressure inside the tank. The level sensor (3) is constantly monitoring the drain level.

When the level sensor (3) detects that the tank (2) is full of drain, it activates the pilot valve (4). This opens the diaphragm valve (5) letting drain flow out of the outlet (6).

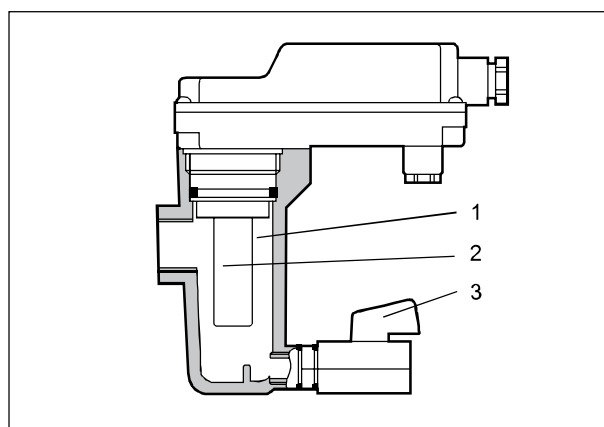
The valve open time is controlled by the timer and air leakage can be minimized in various conditions. When drain cannot be discharged, the automatic drain enters the alarm mode in approximately 60 seconds where the red LED flashes and an alarm signal is output. In the alarm mode, the automatic drain tries self-recovery by opening the valve once in approximately four minutes.



● DB Series double sensor (DB1090D/3090D, DB3700)

Drain passing the inlet pipe (1) accumulates in the tank (2). The diaphragm valve (5) is closed by air pressure inside the tank. The level sensor (3) is constantly monitoring the drain level.

When the level sensor (3) detects that the tank (2) is filled with drain up to the high level (Hi) of the level sensor (3), it activates the pilot valve (4). This opens the diaphragm valve (5) letting drain flow out of the outlet (6). The automatic drain system determines the accurate valve open time by calculating it from the drop rate of the drain level. The valve is closed completely to prevent leakage before the compressed air starts leaking. When drain cannot be discharged, the automatic drain enters the alarm mode in approximately 60 seconds where the red LED flashes and an alarm signal is output. In the alarm mode, the automatic drain tries self-recovery by opening the valve once in approximately four minutes.



● DBS1006

Drain accumulates in the tank (1).

The level sensor (2) is constantly monitoring the drain level.

When the level sensor (2) detects that the tank (1) is full of drain, an alarm is output, the red LED flashes and an alarm signal is output (alarm mode). The drain cock (3) is normally kept closed. In the alarm mode, accumulated drain can be manually discharged from the drain cock (3). After discharge, the alarm mode ends and the system returns to the normal status.

(Drain is not discharged automatically since this product is not a drain discharger.)

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FmResistFR
Oil-ProhR
MedPresFR
No Cu/PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/other
Jnt/tube
AirUnt
PresCompn
Mech/ElecPresSw
ContactSW
AirSens
PresSWCool
AirFloSens/Contr
WaterPtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FmResistFR
Oil-ProHR
MedPresFR
No Cu/
PTFE FRL
Outdrs FR
F.R.L
(Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneUR
AirBoost
SpdContr
Silncr
CheckV/
other
Jnt/tube
AirUnt
PrecsCompn
Mech/
ElecPresSw
ContactSW
AirSens
PresSW
Cool
AirFloSens/
Contr
WaterRtSens
TotAirSys
(Total Air)
TotAirSys
(Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg
etc
Ending



Automatic drain

DB1000/DB3000 Series

Drain discharger with highly reliable level sensor.

● Port size: G1/2" to G1"

(for 2.5 to 1000 m³/min (ANR) air compressor discharge flow rate)

JIS symbol



Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions		DB3003D-15	DB1006E-15 -AC200V	DB3006E-15 -AC200V	DB1024-15 -AC200V	DB3024-15 -AC200V	DB1090D-20 -AC200V	DB3090D-20 -AC200V	DB3700-20 -AC200V
Port size	Drain inlet	G1/2"	G1/2"		G1/2"		G3/4"		G3/4", G1"
	Drain outlet	8 mm hose fitting or G1/4"	10 mm hose fitting or G3/8"		13 mm hose fitting or G1/2"		13 mm hose fitting or G1/2"		G1/2"
Process air flow rate of applicable air compressor m³/min(ANR)		2.5	4.5		20		90		1000
Process air flow rate of applicable air dryer m³/min(ANR)		5	9		40		180		2000
[Ref] Compressor capacity of air dryer. (kW)		22	55		240		900		7000
Working conditions	Working fluid	Drain contained in compressed air							
	Ambient temperature °C	1 (33.8°F) to 60 (140°F)							
	Working pressure MPa	0.08 to 1.6		0.12 to 1.6	0.08 to 1.6	0.12 to 1.6	0.08 to 1.6	0.12 to 1.6	
Electro specs	Power supply	Single phase 95 VAC to 240 VAC 50/60 Hz	Single phase 200 VAC 50/60 Hz						
	Max. power consumption	3 VA	2.0 VA						
Alarm contact capacity		-	<250 VAC/<0.5 A, >12 VDC/>50 mA						
Degree of protection		IP67	IP65						
Weight kg		0.8	0.8		2.0		2.9		5.9
Applicable air compressor		No-lubrication	Lubrication	No-lubrication	Lubrication	No-lubrication	Lubrication	No-lubrication	No-lubrication

*1: G means a parallel female thread that can be connected with an R thread.

*2: Use a hose fitting or G1/4" for the drain outlet of DB3003D.

G1/4" is a parallel male thread.

*3: Use a hose fitting or G3/8" for the drain outlet of DB1006E/3006E.

G3/8" is a parallel male thread.

*4: Use a hose fitting or G1/2" for the drain outlet of DB1024/3024 and DB1090D/3090D.

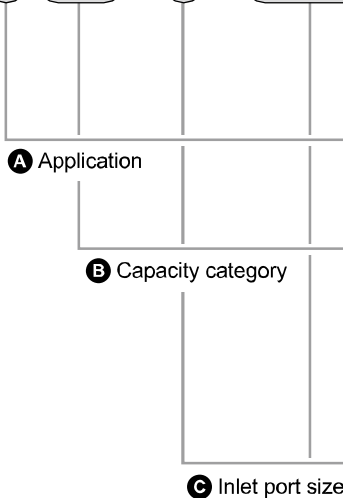
G1/2" is a parallel male thread.

*5: Use G3/4" or G1" for the drain inlet of DB3700.

*6: DB3000 Series can be used for lubrication compressor.

How to order

DB 1 090 - 20 - AC200V



Code	Content
A Application	
1	For lubrication compressor
3	For no-lubrication compressor
B Capacity category	
003D	22kW or less
006E	55kW or less
024	240kW or less
090D	900kW or less
700	7000kW or less
C Inlet port size	
15	G1/2"
20	G3/4"
D Voltage	
200 VAC	

⚠ Precautions for model No. selection

*1: Capacity code is the capacity of air compressor for the corresponding air dryer.

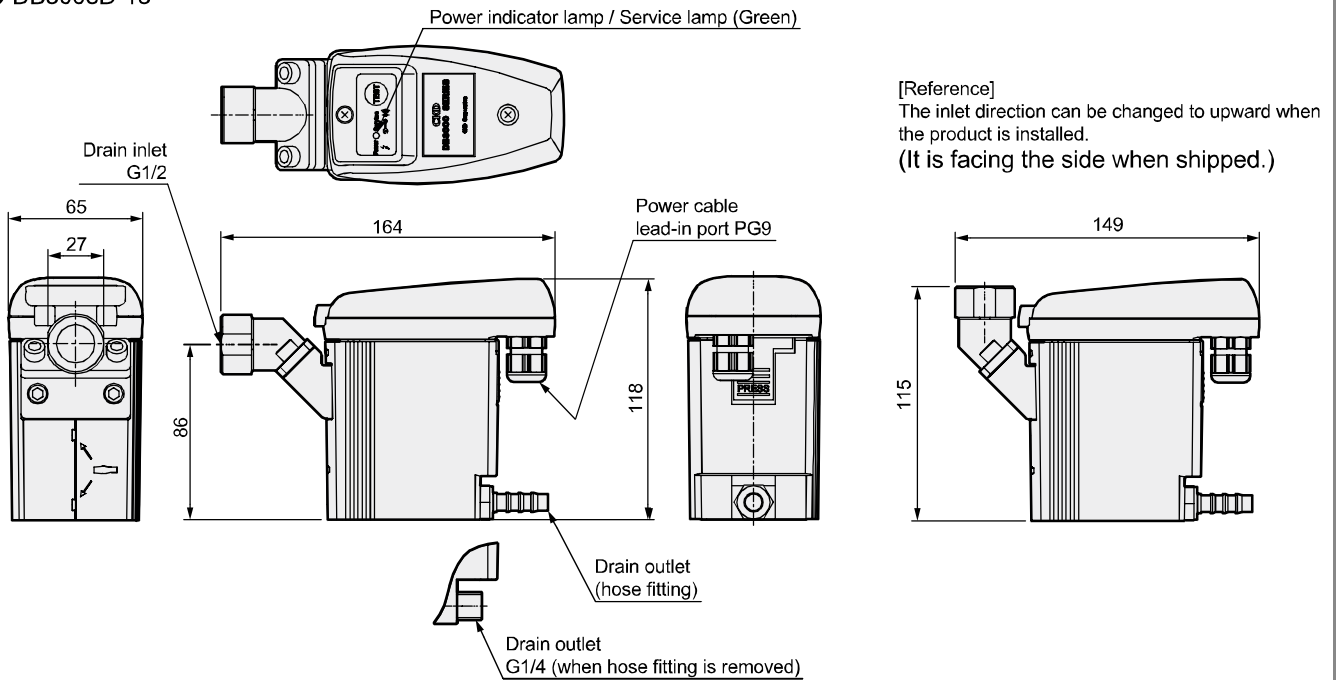
*2: Cannot be selected for the B Capacity category "003D".

D Voltage
*2

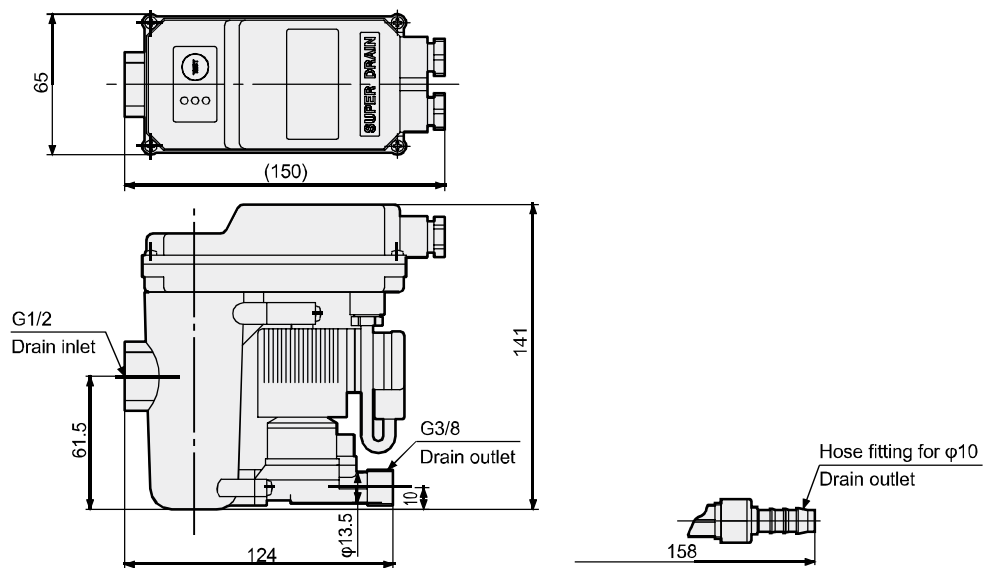
Dimensions



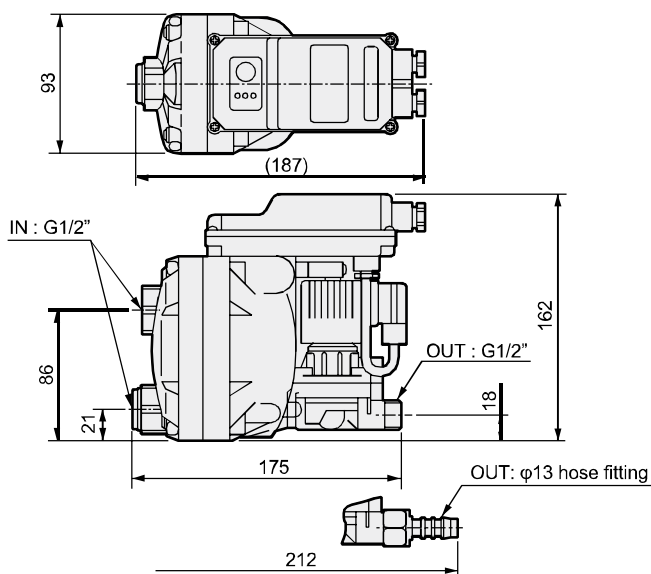
● DB3003D-15



● DB1006E-15/DB3006E-15



● DB1024-15/DB3024-15



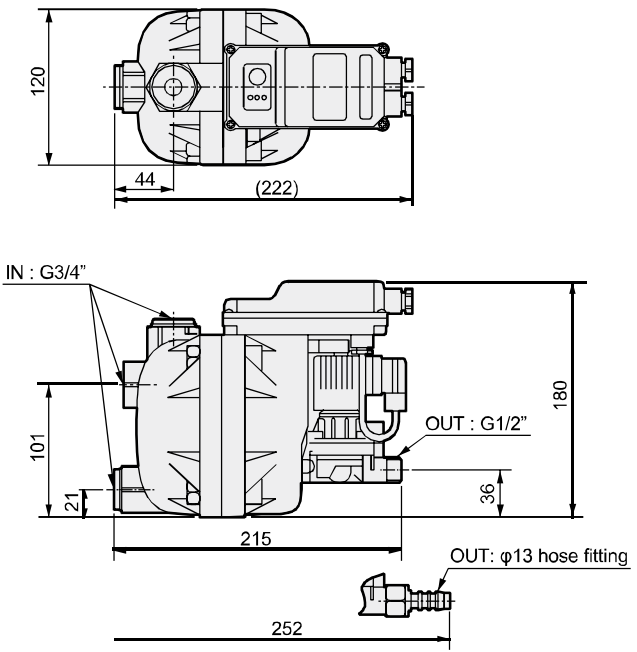
F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FmResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

DB1000/DB3000 Series

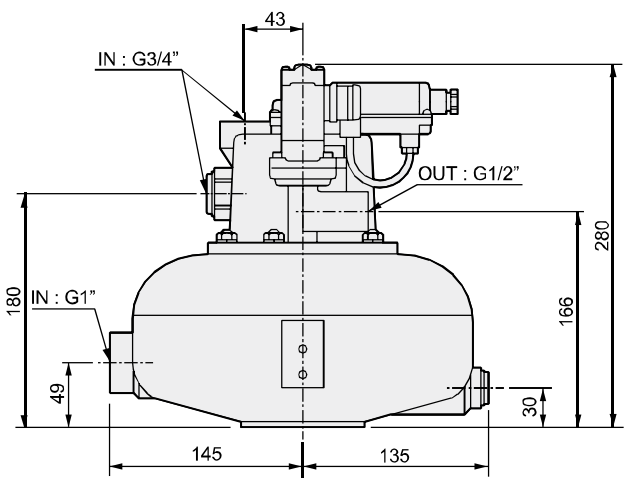
F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
AmResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
SiIncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Dimensions

● DB1090D-20/DB3090D-20



● DB3700-20





Drain sensor

DBS1006 Series

High-reliability level sensor detects the entry of drainage into the pneumatic circuit.

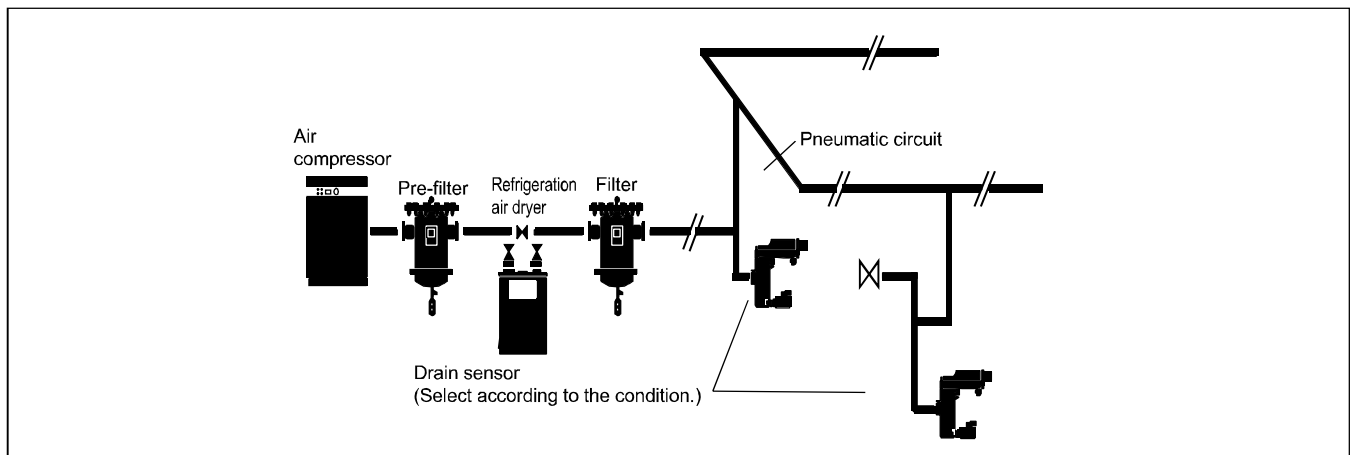
- Port size: G1/2"



Specifications

Descriptions		DBS1006-15-AC200V
Port size	Drain inlet	G1/2"
	Drain outlet	G1/4"
Working conditions	Working fluid	Drain contained in compressed air
	Ambient temperature °C	1 (33.8°F) to 60 (140°F)
	Working pressure MPa	0 (≈0 psi, 0 bar) to 1.6 (≈230 psi, 16 bar)
Electro specs	Power supply	Single phase 200 VAC 50/60 Hz
	Max. power consumption	2.0 VA
Alarm contact capacity		<250 VAC/<0.5A, >12 VDC/>50 mA
Degree of protection		IP65
Weight	kg	0.65

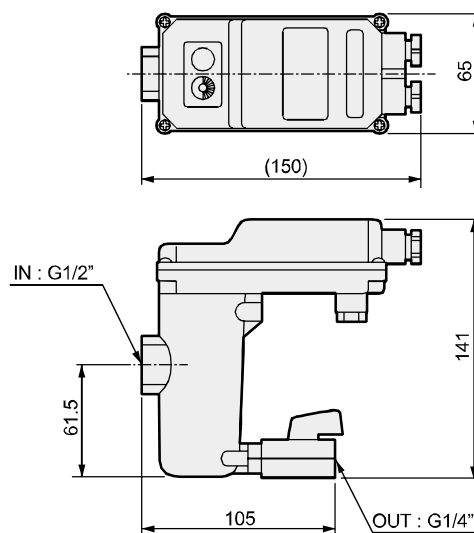
Applications



Dimensions



- DBS1006-15





Main line components

Safety Precautions

Be sure to read this section before use.
Refer to Intro Page 63 for general precautions.

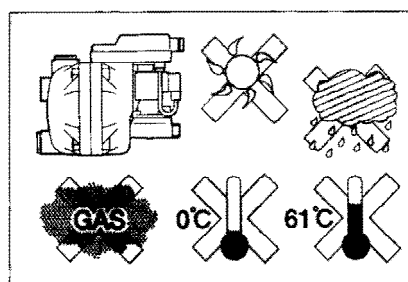
Product-specific cautions: Automatic drain DB Series

Design/selection

CAUTION

- Avoid direct sunlight and rainwater. The resin parts, etc., could deteriorate and break.
- Do not use in locations with corrosive gases.
- Use this product within the operating ambient temperature.
- Do not use in locations at risk of freezing. The accumulated drainage could freeze and damage the product.
- Do not use in hazardous locations (possibly explosive atmospheres, etc.).

- Do not use this product in an ozone generating environment.
- Do not use the product with a refrigeration air dryer, water cooling cooler or similar devices with rapid air cooling to below the ambient temperature.

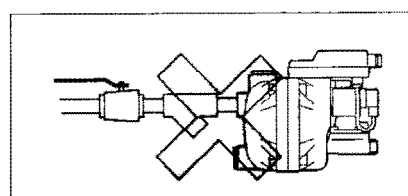
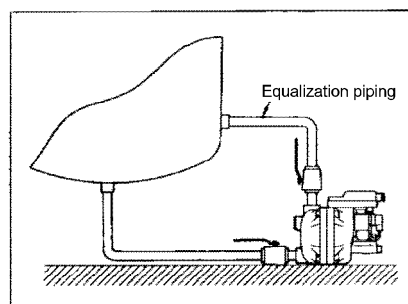
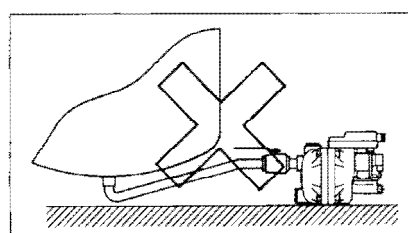


Mounting, installation and adjustment

CAUTION

- Do not step onto the body of this unit. Doing so may damage the upper resin cover.
- Use appropriate pipe material for the working pressure. Using inappropriate pipe material may cause damage of the pipe resulting in a blast of drain or air.
- Fix the inlet pipe with a wrench. Fixing any other part may result in damage of the part.
- The drain inlet pipe should be 1/2" and over and continuously slope downward. Note that riser piping must be avoided. Otherwise drainage will not enter to be discharged.
- To pass drain from the bottom inlet, provide an equalization piping on the top of the product. Otherwise drain will not enter to be discharged.
- Do not install a strainer to the drain inlet pipe. Doing so may cause a clogged strainer preventing drain from entering.
- Use a ball valve or gate valve as a stop valve. Do not use any other valves. The ball valve should be a full bore type. Using any other valves than those specified may block the drain path preventing drainage from entering.

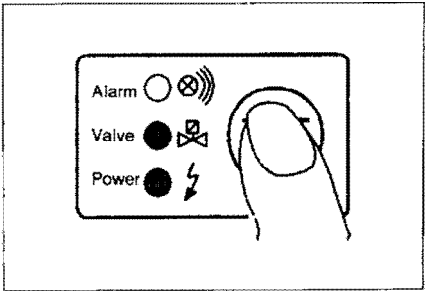
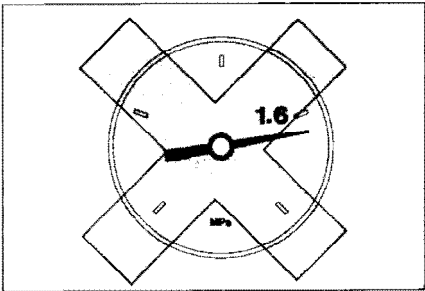
- As drainage is discharged with pressure, securely fix the piping at the drain port so that drainage does not splatter.
- If the drain outlet piping slopes upward, the min. working pressure will increase by 0.01 MPa per 1 m. Please be careful. Make sure that the rising piping does not exceed 5 m.



During use/maintenance

CAUTION

- Check the product nameplate and use within ±10% of the rated voltage.
- Use within the working pressure range.
- The drain outlet closes when the power is OFF, so drainage will not be discharged. Drainage will be discharged only when power is ON, so leave the power ON at all times during use.
- Do not use the test button to continuously discharge drain. Otherwise an alarm will be output.
- Check whether the power indicator lamp is ON.
- Check whether the alarm indicator lamp is OFF.
- Press the TEST button, and confirm that drainage is discharged.
- Maintenance and repairs must always be done in an unpressurized state with the power turned OFF.
- Use only genuine repair parts.



F.R.L
F (Filtr
R (Reg
L (Lub
PresSW
Shutoff
SlowStart
FmResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrescR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PresCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending