Automatic drain DT Series

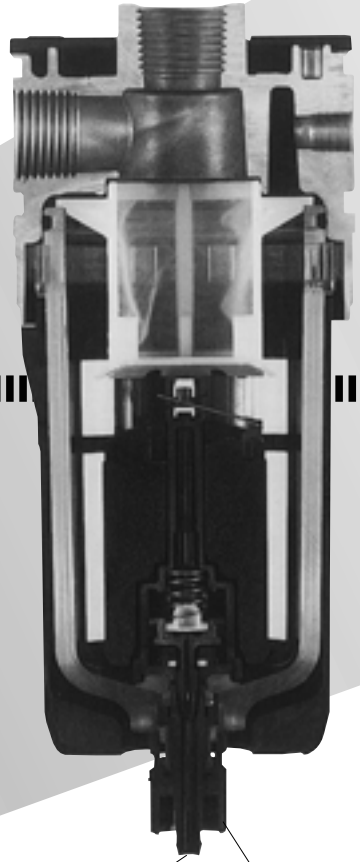
Read precautions on page 218 before starting use.

This lightweight, compact new drain separator has a long life and high reliability due to the newly incorporated mechanism.

Automatic drain DT3000-4000 SERIES

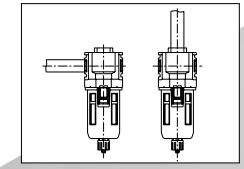
[Overview]

1. The automatic drain DT3000/4000 Series automatically and accurately drains drainage that forms in the pneumatic circuit.
2. The newly incorporated snap mechanism increases durability compared to the conventional (B5102).
3. In addition to automatic discharge, drainage can also be freely drained manually.



• Two connection ports

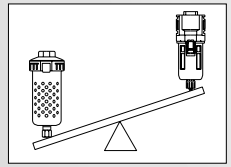
Either a top or side connection can be selected based on the applications.



* Attach the enclosed blank plug to the port not being used.

• Compact and light weight

The hybrid material (body: aluminum die cast, cover: resin) provides strength and lightens weight compared to the conventional.



• Integrated mounting and removal latch

The bowl and bowl guard can be integrally mounted and removed with quick latch operations.

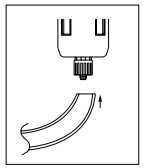
* Confirm that pressure has been released before mounting or removing the bowl and bowl guard.

• Either N.O or N.C

Normally open and normally closed are available to suit the application.

• Highly corrosion-resistant and safe bowl guard

A noncorrosive plastic bowl guard is used for safety.



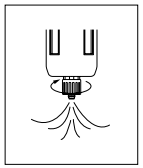
• Drain piping coupling

A ϕ5.7 to ϕ6 bore size nylon tube can be directly attached.

* Keep the piping length within 5 m, and avoid an upward slope.

• Standard manual cock

Drainage can be drained freely manually.
This cock can also be used to release residual pressure.



Main line component

Safety Precautions

Read this before starting use.
Please refer to Intro 43 for general precautions, and to "⚠Safety Precautions" in this section for details on each series.

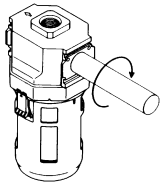
Automatic drain DT3000, DT4000 Series

CAUTION Installation & Adjustment

1 Piping screw-in torque

Do not apply excessive torque to the body and piping when connecting pipes.

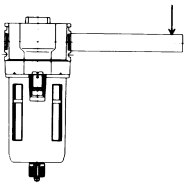
	3000/4000 Series
Max. torque N·m	75



2 Piping and load torque

Make sure that piping load or torque is not applied on the body or piping.

	3000/4000 Series
Max. torque N·m	50



CAUTION During use & Maintenance

1 Avoid installing this product where it is exposed to direct sunlight.

2 The bowl is made of polycarbonate, so avoid using this product with the following chemicals or in an atmosphere containing these chemicals. If unavoidable, use the metal bowl.

3 Use a household neutral detergent to wash the bowl, and then rinse with water.

4 Use a bore size ϕ5.7 to ϕ6.0 tube for the drain discharge piping, and keep the length within 5 m. Avoid upward sloping piping.

5 The applicable compressor capacity is 0.75 kW and over (discharge flow rate 90 ℓ/min and over). (Only when using a normally open automatic drain.)

6 Confirm that pressure has been released before mounting or removing the bowl and bowl guard.

7 Avoid hot air as the life of components will be shortened, and corrosion could occur.

Precautions for mounting and removing bowl and bowl guard

1 Releasing residual pressure

- Release residual pressure from the manual cock at the bottom. When using the metal bowl, release pressure from the petcock on the side.
  Release the pressure applied in the bowl, and confirm that there is no pressure.

2 Mounting and removing

- After confirming that the residual pressure has been released, press down the latch and turn it to lift up the bowl and bowl guard.

• Chemical resistance of plastic bowl

Use a metal bowl in the atmosphere containing following chemicals.

Types of chemicals	Classification of chemicals	Principal products of chemicals	General applications	Polycarbonate bowl	Nylon bowl
Inorganic compound	Acid	Hydrochloric acid / sulfuric acid / fluorine / phosphoric acid / chromic acid etc.	Acid cleaning liquid for metal / acid degreasing liquid / film treatment liquid etc.	×	×
	Alkaline	Caustic soda / caustic potash / calcium hydroxide / aqueous ammonia / sodium carbonate etc. alkaline substances	Alkaline degreasing liquid of metal	×	○
	Inorganic salt	Sodium sulfide / nitric acid potash / potassium bichromate / sodium sulfide etc.		×	○
Organic compound	Aromatic hydrocarbon	Benzene / toluene / xylene / ethyl benzen / stylene etc.	Contained in thinner in paint (benzene / toluene / xylene)	×	×
	Chlorine aliphatic hydrocarbon	Methyl chloride / ethylene chloride / methylene chloride / acethlene chloride / chloroform / trichlene / perchlene / carbon tetrachloride	Washing liquid of metal of organic solvent system (trichlene / bichlene / carbon tetrachloride etc.)	×	○
	Chlorine aromatic hydrocarbon	chloride	Agricultural chemicals	×	○
	Stone oil components	Black J benzene / dichloro benzene / benzene hexachloride (B / H / C), etc.		×	○
	Alcohol	Solvent / naphtha / gasoline	Use as freezing prevention agent	×	×
	Phenol	Methyl alcohol / ethyl alcohol / cyclohexanol / benzyl alcohol	Liquid disinfectant	×	×
	Ether	Carbolic acid / cresol / naphthol, etc.	Brake oil additive	×	○
	Ketone	Methyl ether / methyl ethyl ether / ethyl ether		×	×
	Carboxylic acid	Acetone / methyl ethyl keton / cyclohexanone / acetophenone, etc. Formic acid / acetic acid / butyl acid / acrylic acid / oxalic acid /	Use coloring agent / oxalic acid for base of treatment agent for aluminum, while phthalic acid for base of paint.	×	×
	Phosphate	cover J acid, etc. Dimethyl phthalate (DMP), diethyl phthalate (DEP),	Use for plasticizer to lubricant, composite hydraulic fluid, and rust proof oil additive synthetic resin	×	○
	Oxyacid	Dibutyl phthalate (DBP) and dioctyl phthalate (DOP)		×	×
	Nitro compound	Glycol acid / lactic acid / maltic acid / citric acid / tartaric acid		×	○
	Amine	Nitro methane / nitro ethane / nitro ethylene / nitro benzene, etc.	Brake oil additive	×	×
	Nitrile	Methyl amine / dimethyl amine / ethyl amine / aniline / acetanilide, etc.	Raw material of nitrile rubber	×	○

Automatic drain

DT3000 / DT4000 Series

Light weight / compact automatic drain separator

Applicable compressor: 0.75kW to 75kW

JIS symbol

Specifications

Descriptions	DT3000	DT4000	DT3010	DT4010
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			
Applicable air compressor kW	0.75 to 15	0.75 to 75	15 or less	75 or less
Port size Rc	3/8, 1/2			
Drain port	Barbed nipple (6 dia. nylon tube can be directly connected.)			
Product mass kg	0.3	0.45	0.3	0.45

Note 1. Use a normally closed type if the compressor is under 0.75kW (discharge flow rate 0.09m^3/min).

How to order

DT3000 — 10 — Z — B

Ⓐ Model no.

Ⓑ Port size

Ⓒ Option

Ⓓ Attachment Note 2

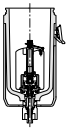
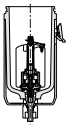
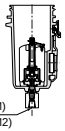
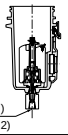
Symbol	Descriptions
Ⓐ Model no.	
DT3000	Normally open automatic drain
DT3010	Normally closed automatic drain
DT4000	Normally open automatic drain
DT4010	Normally closed automatic drain
Ⓑ Port size	
10	Rc3/8
15	Rc1/2
Ⓒ Option	
Blank	Polycarbonate bowl
Z	Nylon bowl
M Note 1	Metal bowl (with gauge) drain port Rc1/8
M2 Note 1	Metal bowl (with gauge) drain port Rc1/4
C Note 1	Petcock
Ⓓ Attachment	
B	C type bracket

⚠Note on model No. selection

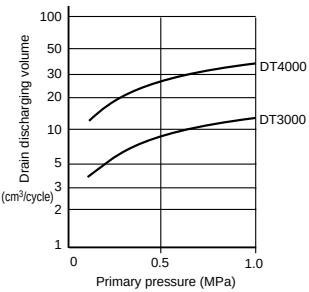
Note 1: A petcock is attached.

Note 2: C type bracket model no. DT3000: B320
DT4000: B420

Type and shape of bowl

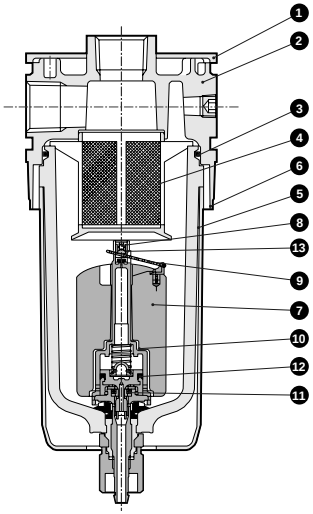
Type / Bowl material / Applicable series		Normally open (Open at no pressure) DT3000/DT4000	Normally closed (Closed at no pressure) DT3010/DT4010
DT3000 DT4000	Plastic	• With manual cock 	• With manual cock 
	Metal	• Without manual cock [M, M2]  Rc1/8(M) Rc1/4(M2)	• Without manual cock [M, M2]  Rc1/8(M) Rc1/4(M2)

Automatic drain performance diagram



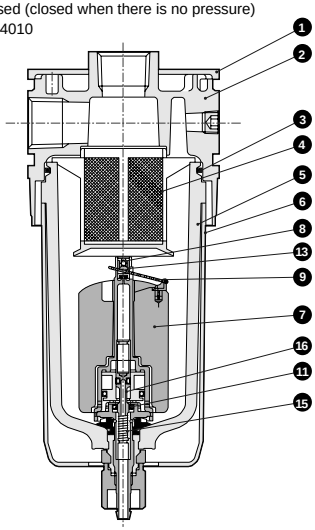
Internal structure and parts list

• Normally open (when there is no pressure)
DT3000 / DT4000



When pressure is not applied in the bowl, the valve (12) is pressed down by the spring (10), and is separated from the stem packing (11). When a pressure of 0.1 MPa and over is applied to the bowl, the pressure on the valve (12) increases to more than the force of the spring (10), the valve (12) is pressed up and is sealed by the stem packing (11).
When drainage accumulates in the bowl, the float (7) rises, and the orifice spring (13) is pressed up by the float level arm (9).
Then, the orifice seat assembly (8) is opened with a snap action by the orifice spring (13), and compressed air is led into the upper chamber of the valve (12) to pressurize it. When the valve (12) is pressed downward and separated from the stem packing (11), the drainage is released to the atmosphere. Once released, the float (7) lowers and the orifice seat assembly (8) is closed by the float level arm (9), and the compressed air pressurizing the upper chamber of the valve (12) is released to the atmosphere through the valve's (12) orifice. Pressure applied to the valve (12) from the bottom exceeds the force of the spring (10), causing the valve (12) to lift up and be sealed by the stem packing (11).

• Normally closed (closed when there is no pressure)
DT3010 / DT4010

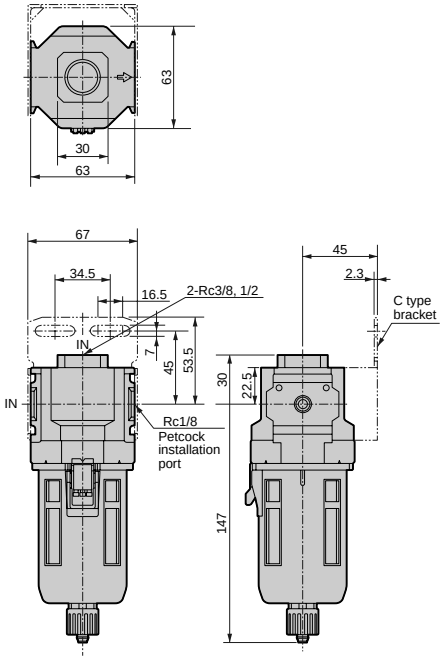


When pressure is not applied in the bowl, the valve (16) is pressed up by the spring (15), and is sealed by the stem packing (11).
When a pressure of 0.15 MPa and over is applied to the bowl and the drainage accumulates, the float (7) rises and the orifice spring (13) is pressed up by the float level arm (9).
Then, the orifice seat assembly (8) is opened with a snap action by the orifice spring (13), and compressed air is led into the upper chamber of the valve (16) to pressurize it. When the valve (16) is pressed downward and separated from the stem packing (11), the drainage is released to the atmosphere.
Once released, the float (7) lowers and the orifice seat assembly (8) is closed by the float level arm (9), and the compressed air pressurizing the upper chamber of the valve (16) is released to the atmosphere through the valve's (16) orifice. The valve (16) is pressed up by the force of the spring (15) from below, and is sealed by the stem packing (11).

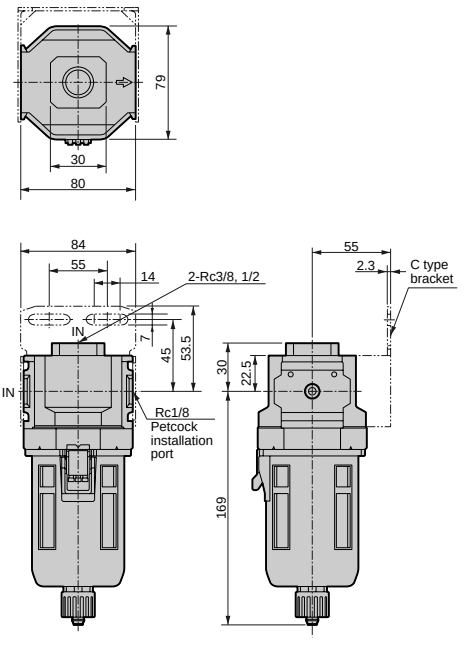
No.	Part name	Material	Model No.			
			DT3000	DT3010	DT4000	DT4010
1	Plate cover	ABS	—	—	—	—
2	Body	ADC12	—	—	—	—
3	O ring	Special NBR	F3000-ORING	F3000-ORING	F4000-ORING	F4000-ORING
4	Screen	POM, polyester	DT3000-SCREEN	DT3000-SCREEN	DT4000-SCREEN	DT4000-SCREEN
5	Bowl assembly (including O ring)	—	DT3000-BOWL	DT3010-BOWL	DT4000-BOWL	DT4010-BOWL
6	Bowl guard	PA	DT3000-BOWL-GUARD	DT3000-BOWL-GUARD	DT4000-BOWL-GUARD	DT4000-BOWL-GUARD

Dimensions

• DT3000/DT3010



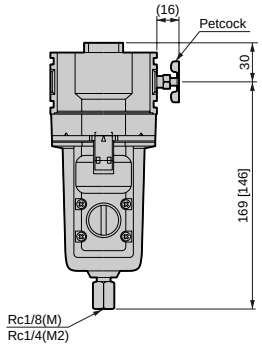
• DT4000/DT4010



Note: Nylon tube with 5.7 to 6mm inner diameter can be connected to drain port.
Note: For maintenance, keep space of 60mm and over under the bowl.

Metal bowl specifications

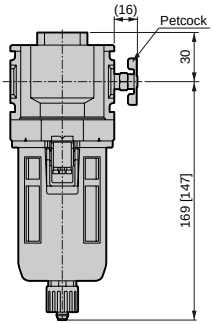
• Option [M, M2]



Note: Dimension in [ ] is for DT3000.

Petcock specifications

• Option [C]



Note: Dimension in [ ] is for DT3000.