



Lubricator standard white Series

# L1000/L3000/L4000/L8000-W Series

Supply fine mist oil.

Port size: 1/8 to 1

JIS symbol



## Specifications

Descriptions	L1000-W	L3000-W	L4000-W	L8000-W
Appearance				
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Withstanding pressure MPa	1.5			
Working temperature °C	5 to 60			
Minimum drip flow Note 1 m <sup>3</sup> /min. (ANR)	0.015	0.03	0.065	0.065
Oil capacity cm <sup>3</sup>	20	85	170	170 (MAX360)
Use oil	Turbine oil Class 1 ISO VG32 (spindle oil can not be used)			
Port size Rc, NPT, G	1/8, 1/4 (3/8 uses an adapter)	1/4, 3/8 (1/2 uses an adapter)	1/4, 3/8, 1/2 (3/4 uses an adapter)	3/4, 1 (1 1/4 uses an adapter)
Product weight kg	0.1	0.28	0.45	1.4
Standard accessories	Bowl guard			

Note 1: The minimum drip flow is the rate at which five drops of turbine oil drip per minute at the primary pressure 0.5 MPa and inlet air temperature 20°C. (This cannot be used for dry fog.)

## Float switch electric specifications

Descriptions	
Control point	1 point
Operation	Switch turns off when float rises (oil level detected), and turns on when float lowers (no oil level detected)
Max. use voltage	240 VAC, 200 VDC
Max. contact capacitance	50 VA or 50 W, whichever is smaller
Max. open and close current	0.5A
Withstanding pressure between contacts	400 VDC for one minute, leak current 1mA or less
Contact resistance	220mΩ or less (between terminal sections)
Insulation resistance	100MΩ and over (between terminal and cases, 500 VDC megger)
Withstand voltage	1500 VAC for one minute (between terminal and cases)
Electric service life	10 <sup>6</sup> time (200 VAC, 200mA and resistance load)

### How to order

**L1000** - **6** - **W** - **C** - **A6W**

\* Refer to page 9 for explanation of an option.

A Model no.			
L	L	L	L
1	3	4	8
0	0	0	0
0	0	0	0
0	0	0	0

A Model no.

E Port size

C Port thread type

D Option

E Display unit

F Piping adapter set (attached)

G Bracket (attached)

Symbol	Descriptions				
<b>B Port size</b>					
6	1/8	●			
8	1/4	●	●	●	
10	3/8		●	●	
15	1/2			●	
20	3/4				●
25	1				●

C Port thread type		Note 1			
Blank	Rc thread	●	●	●	●
N	NPT thread	●	●	●	●
G	G thread	●	●	●	●

D Option		Note 2				
Drainage	Blank	Without manual cock	●	●	●	●
	C	With manual cock	●	●	●	●
	LL	With float switch		●	●	●
Bowl material	Blank	Polycarbonate bowl	●	●	●	●
	Z	Nylon bowl	●	●	●	●
	M	Metal bowl		●	●	●
Flow direction	Blank	Standard flow (left → right)	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●

E Display unit					
Blank	MPa display, Rc thread	●	●	●	●
J1	MPa display, NPT, G thread	●	●	●	●

F Piping adapter set (attached)		Note 4 Pages 151 to 153			
Blank	Not attached	●	●	●	●
A6*W	1/8 piping adapter set	●			
A8*W	1/4 piping adapter set	●	●	●	
A10*W	3/8 piping adapter set	●	●	●	
A15*W	1/2 piping adapter set		●	●	
A20*W	3/4 piping adapter set			●	●
A25*W	1 piping adapter set				●
A32*W	1 1/4 piping adapter set				●

* Adaptor screw type					
Blank	Rc thred	●	●	●	●
N	NPT thread	●	●	●	●
G	G thread	●	●	●	●

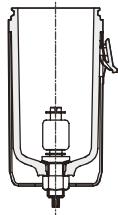
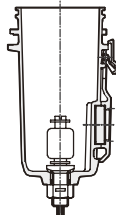
G Bracket (attached)					
Blank	Not attached	●	●	●	●
BW	C type bracket	●	●	●	●

### ⚠ Note on model no. selection

- Note 1: When G threads or NPT threads are selected, the IN and OUT are available.
- Note 2: When selecting options for several items, list options in order from the top.
- Note 3: The adjusting dome is made of polycarbonate for a nylon bowl or metal bowl. Consult with CKD if different material is required.
- Note 4: The piping adapter set and C type bracket cannot be used together.

### Drainage and bowl material combination (Item D in How to Order)

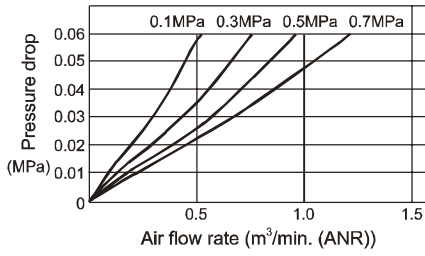
Option ● With float switch

3000/4000/8000 Series			
Shape			
Material	Plastic bowl		Metal bowl
	Polycarbonate	Nylon	Aluminum
Lubricator L*000-W	LL	LLZ	LLM

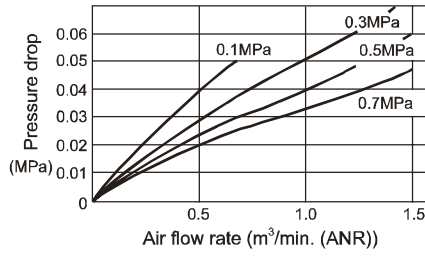
# Lubricator Series

## Flow characteristics

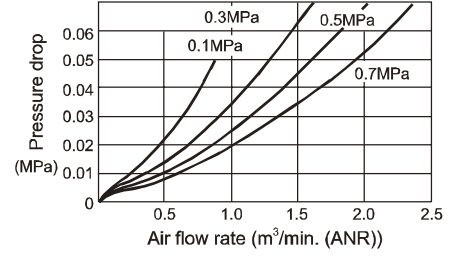
● L1000-6-W



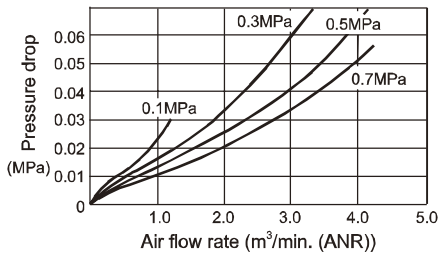
● L1000-8-W



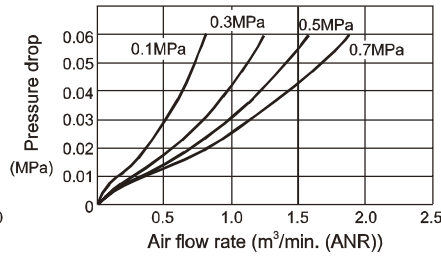
● L3000-8-W



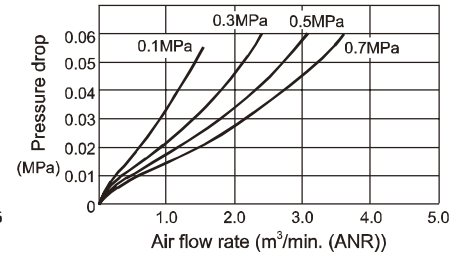
● L3000-10-W



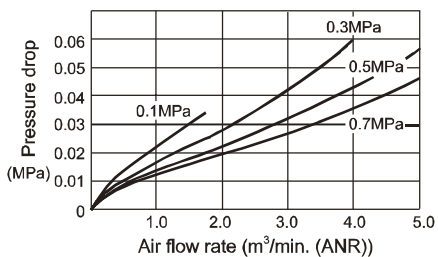
● L4000-8-W



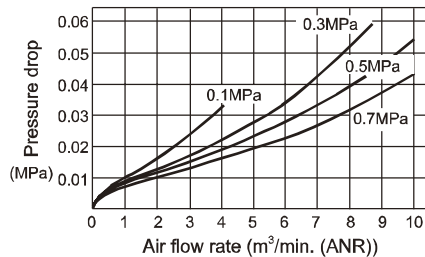
● L4000-10-W



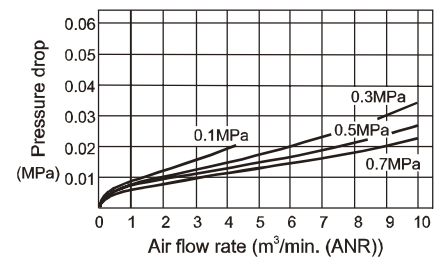
● L4000-15-W



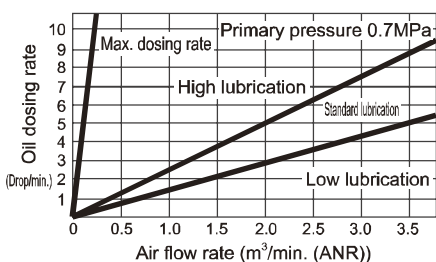
● L8000-20-W



● L8000-25-W

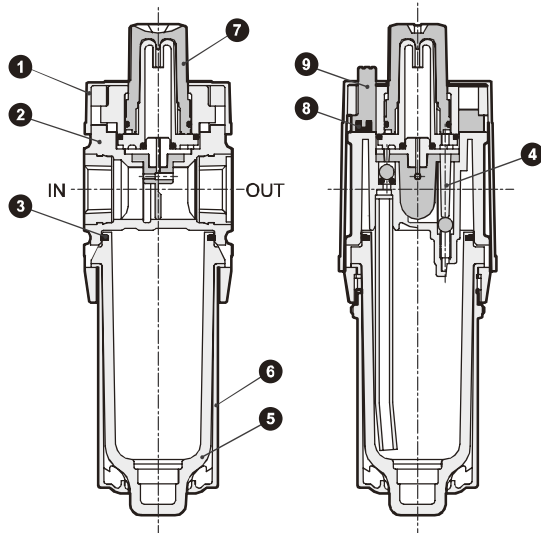


## Oil dosing rate

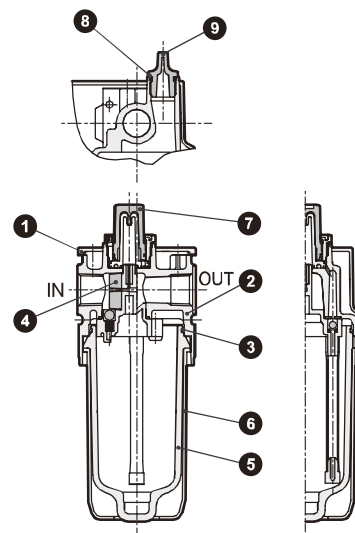


## Internal structure and parts list

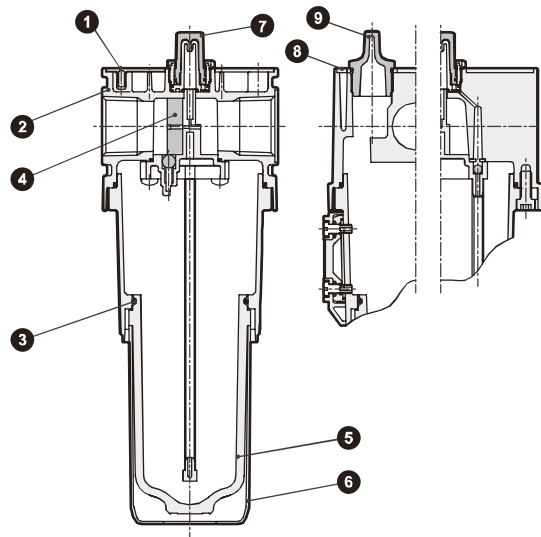
### ● L1000-W



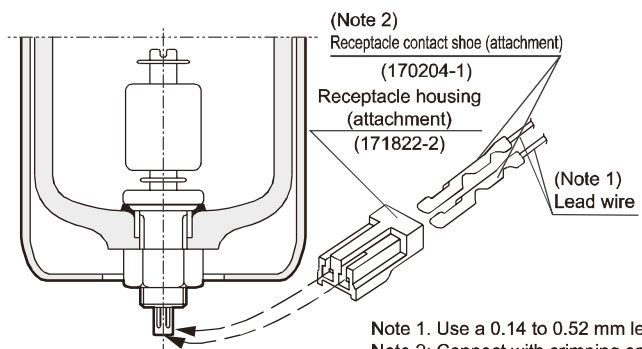
### ● L3000-W/L4000-W



### ● L8000-W



### ● Option float switch



Note 1. Use a 0.14 to 0.52 mm lead.  
 Note 2: Connect with crimping or soldering.

A Japan AMP post header (part No. AMP171825-2) is used for the terminal.  
 Use an AMP171822-2 (standard) or AMP172142-2 (rope file) for the connector.

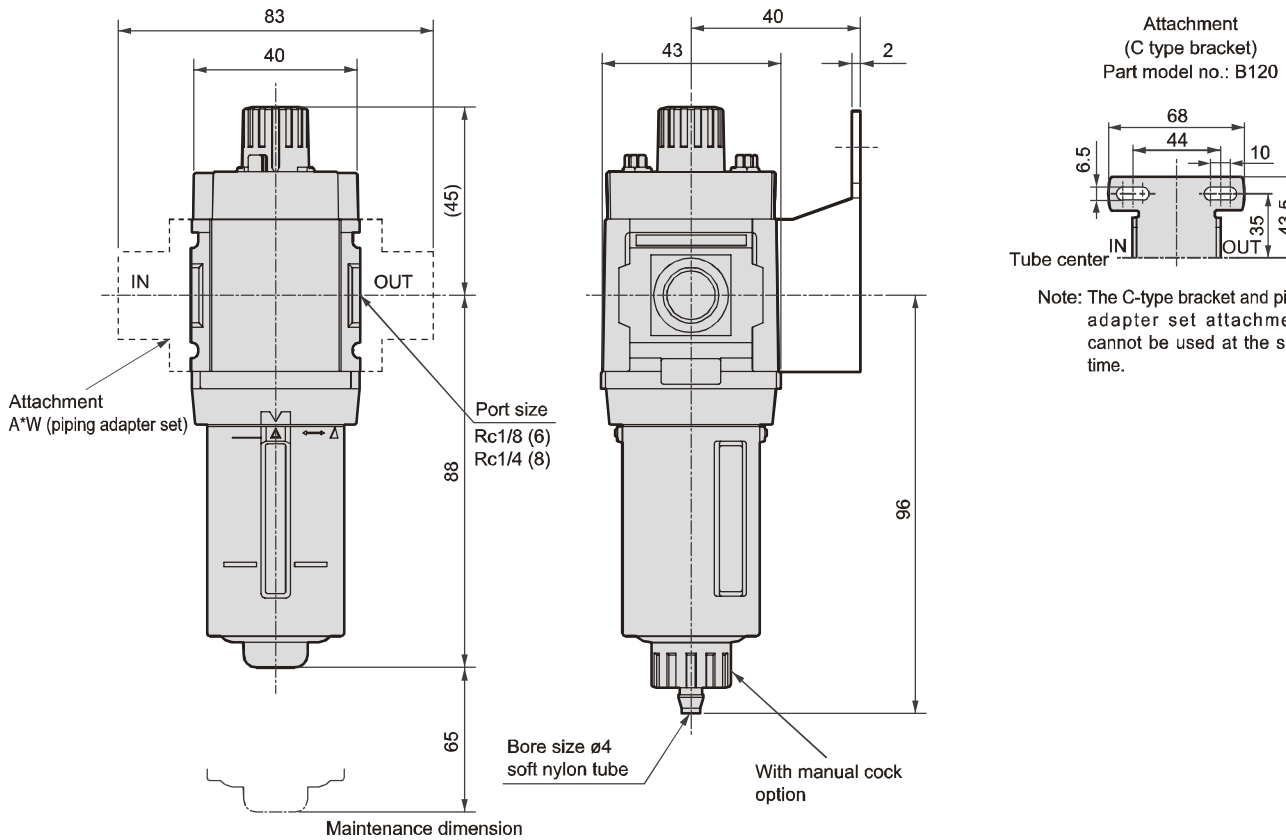
No.	Part name	Material			
		L1000-W	L3000-W	L4000-W	L8000-W
1	Plate cover	ABS resin			
2	Body	Polyamide resin, steel	Aluminum alloy die-casting		
3	O ring	Note 1	Special nitrile rubber		
4	Flow guide	Urethane rubber resin		Nitrile rubber	
5	Bowl	Polycarbonate resin			
6	Bowl guard	Polyamide resin	Polyamide resin, steel		
7	Adjusting dome	Transparent nylon			
8	O ring	Nitrile rubber			
9	Filling plug	Polyacetal resin			

Note 1: The L1000-W O ring has a special shape.

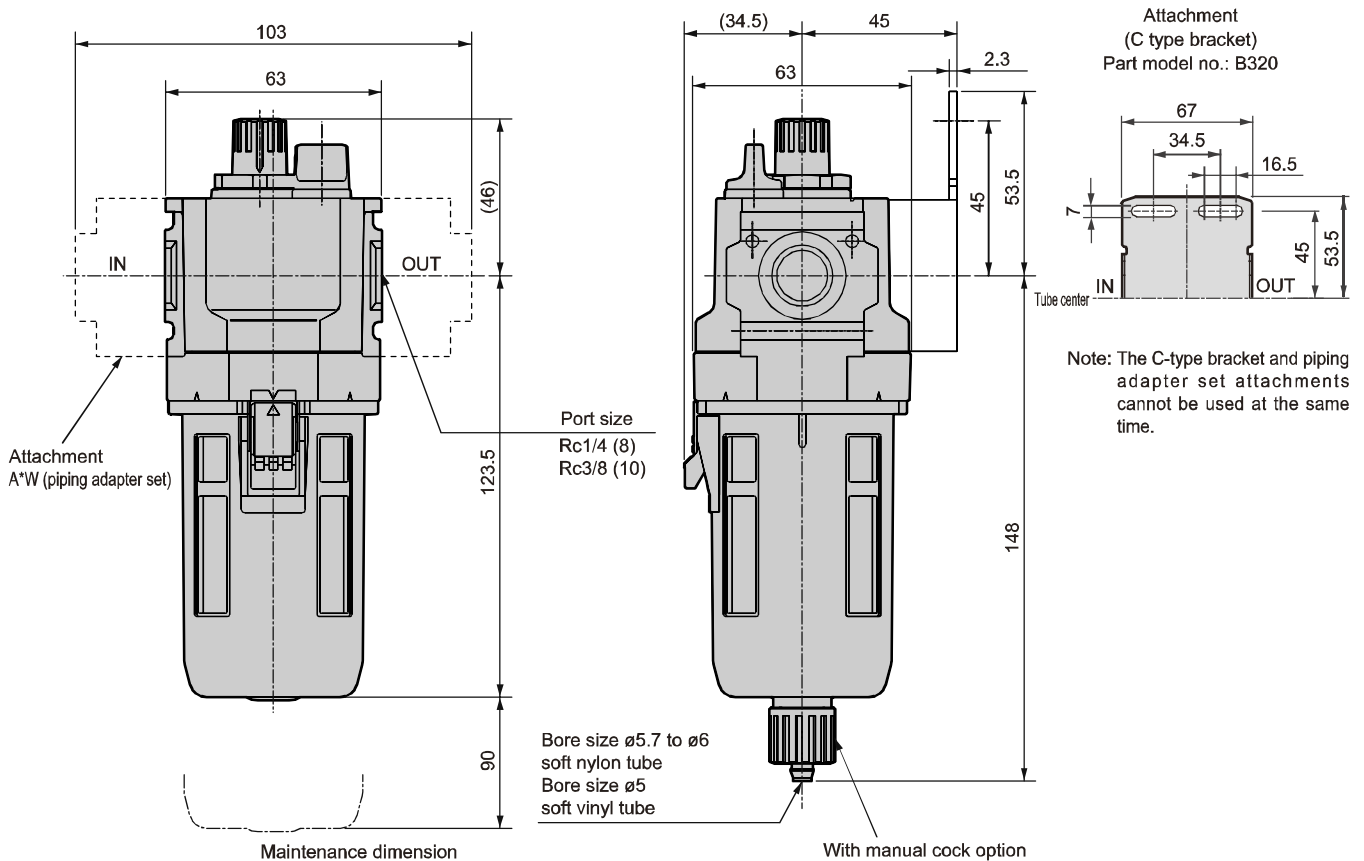
# Lubricator Series

## Dimensions

### ● L1000-W

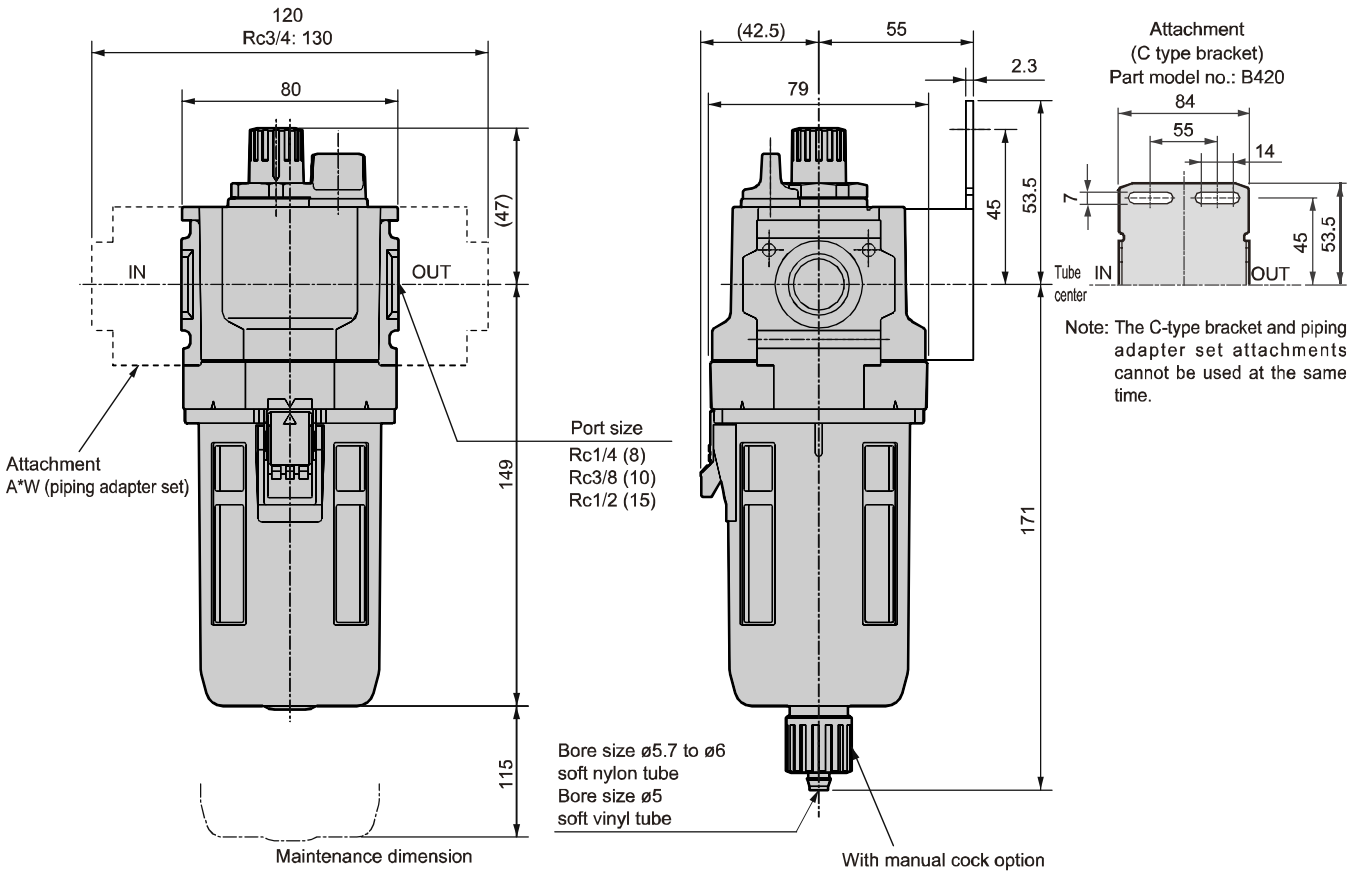


### ● L3000-W



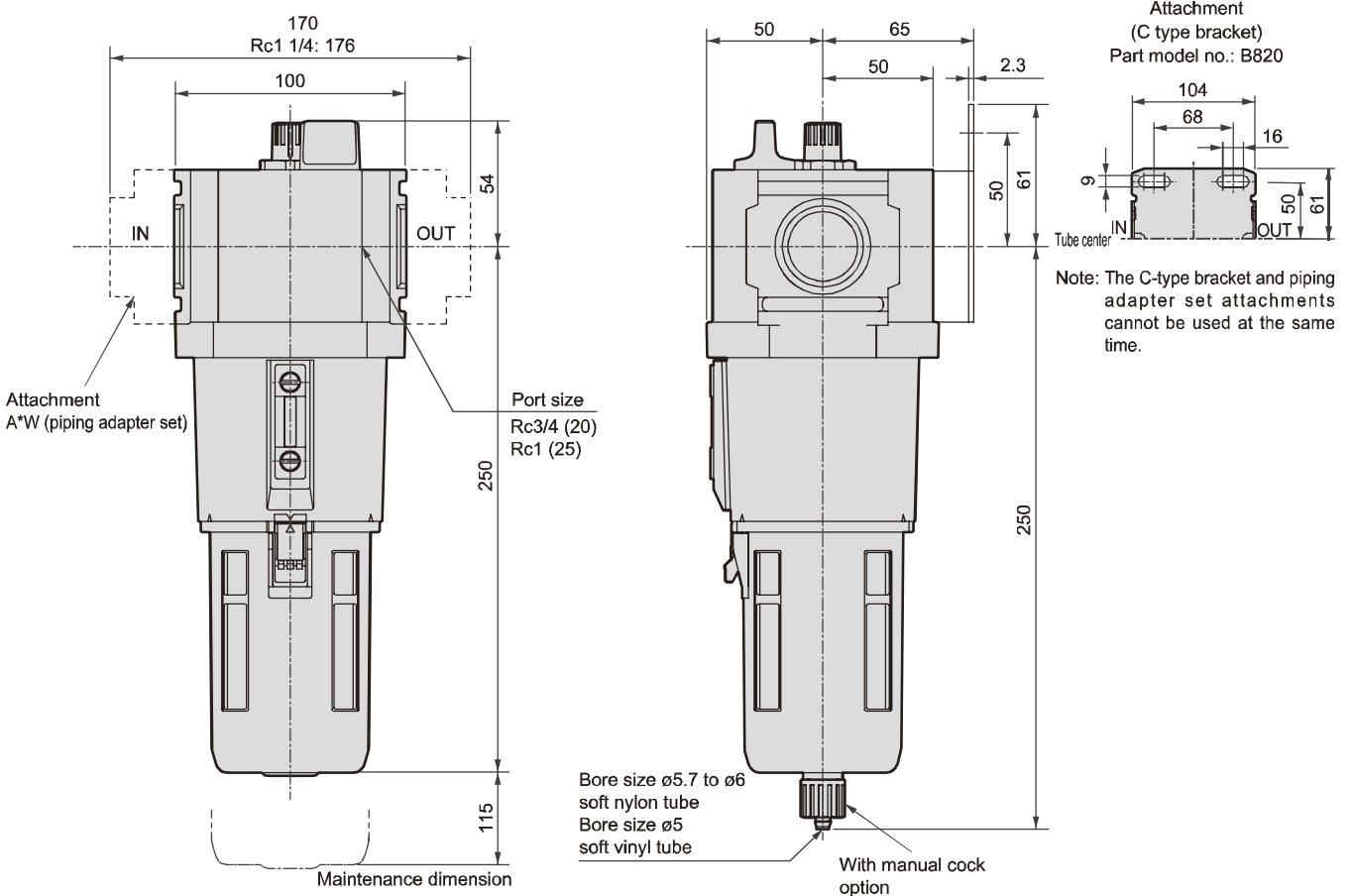
### Dimensions

#### ● L4000-W



Note: The C-type bracket and piping adapter set attachments cannot be used at the same time.

#### ● L8000-W

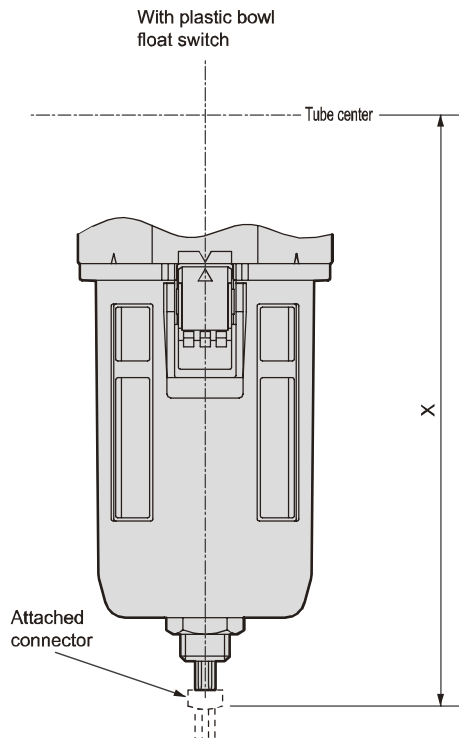


# Lubricator Series

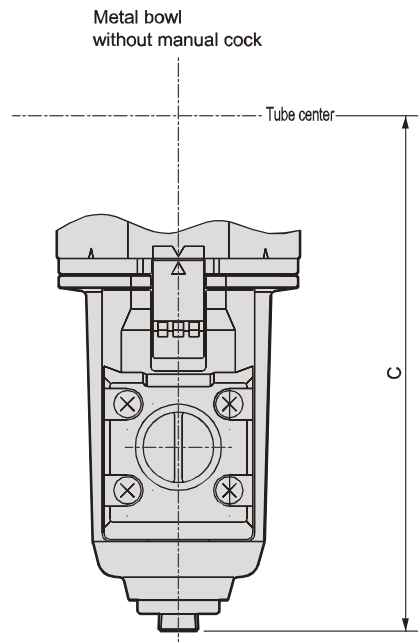
## Optional dimensions

Other options (L3000-W, 4000-W, 8000-W)

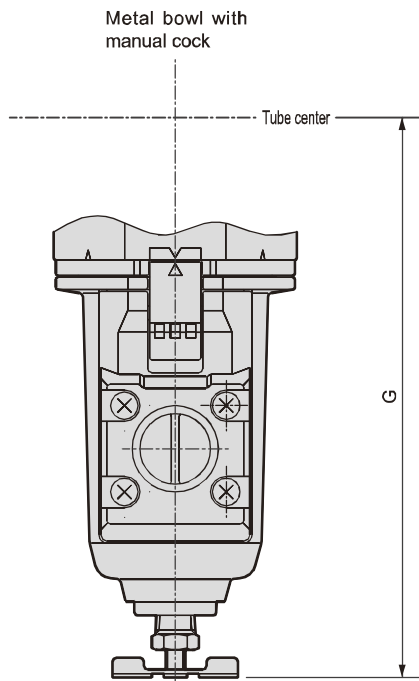
● Plastic bowl



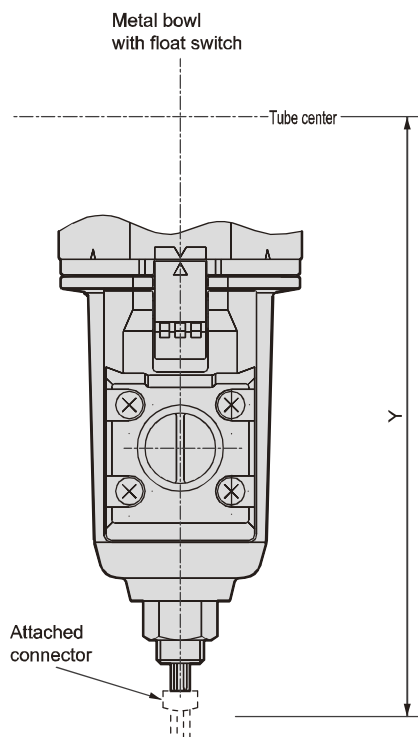
● Metal bowl without manual cock



● Metal bowl with manual cock

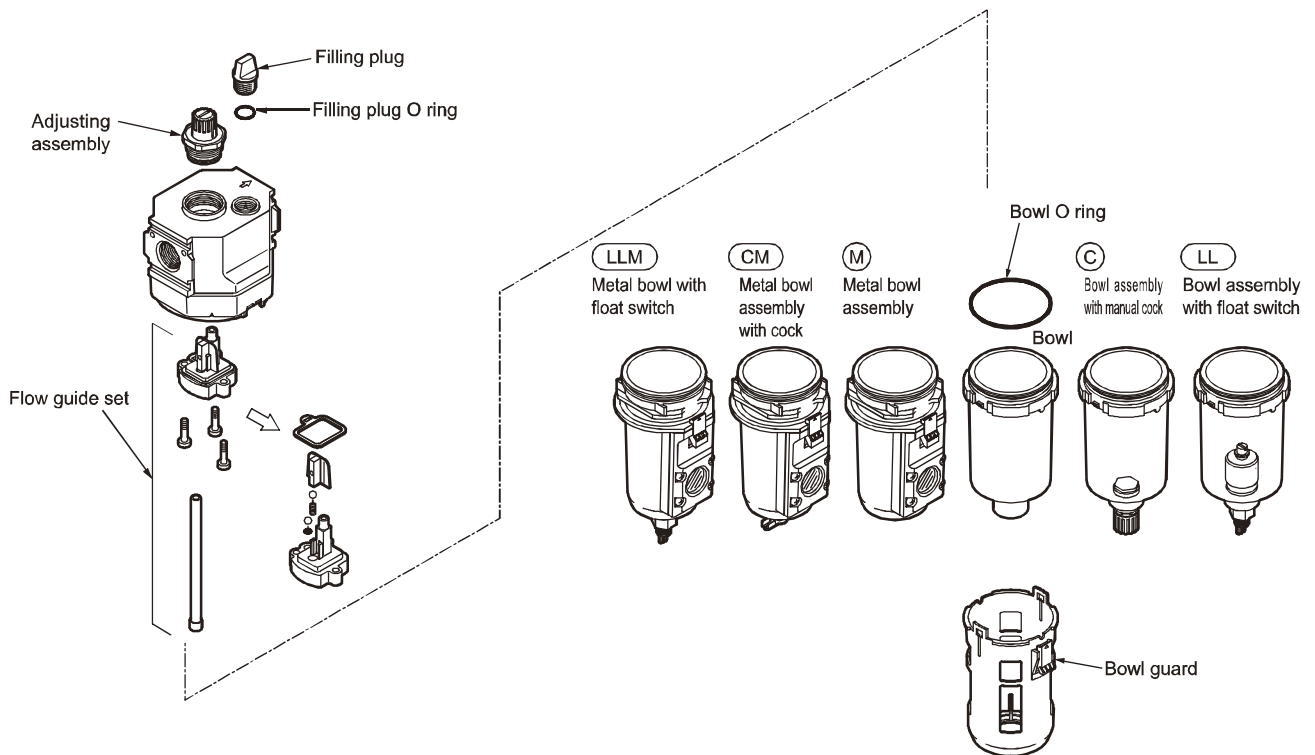


● Metal bowl with float switch



Model no.	C	G	X	Y
L3000-W	129	143.5	147	153.5
L4000-W	152	166.5	170	177
L8000-W	231.5	245.5	249	256

## Optional dimensions



### Consumable parts kit (Set consisting of fill plug O ring, adjustment assembly, flow guide set, bowl O ring)

Model no.	Repair kits model no. (for polycarbonate bowl)	Repair kits model no. (for nylon bowl and metal bowl)
L3000-W	L3000-W-KIT	L3000-W-KIT-Z
L4000-W	L4000-W-KIT	L4000-W-KIT-Z
L8000-W	L8000-W-KIT	L8000-W-KIT-Z

### Bowl assembly (Set consisting of bowl assembly and bowl O ring)

Bowl assembly model no.	Polycarbonate bowl without cock (Blank)	Nylon bowl without cock (Z)	Metal bowl without cock (M)	Polycarbonate bowl with cock (C)	Nylon bowl with cock (CZ)	Metal bowl with cock (CM)	Polycarbonate bowl with float switch (LL)	Nylon bowl with float switch (LLZ)	Metal bowl with float switch (LLM)
L1000-W	L1000-BOWL	L1000-BOWL-Z	-	F1000-W-BOWL	F1000-W-BOWL-Z	-	-	-	-
L3000-W	L3000-BOWL	L3000-BOWL-Z	L3000-W-BOWL-M	F3000-W-BOWL	F3000-W-BOWL-Z	F3000-W-BOWL-M	L3000-BOWL-LL	L3000-BOWL-LLZ	L3000-W-BOWL-LLM
L4000-W, L8000-W	L4000-BOWL	L4000-BOWL-Z	L4000-W-BOWL-M	F4000-W-BOWL	F4000-W-BOWL-Z	F4000-W-BOWL-M	L4000-BOWL-LL	L4000-BOWL-LLZ	L4000-W-BOWL-LLM

\* Refer to the air filter options and parts table for details on the bowl guard.

### Adjusting assembly

Model no.	Adjusting assembly model no. (for polycarbonate bowl)	Adjusting assembly model no. (for nylon bowl and metal bowl)
L3000-W, L4000-W, L8000-W	L3000-W-AJ-KIT	L3000-W-AJ-KIT-Z

### Flow guide set

Model no.	Flow guide set model no.
L3000-W	L3000-FLOW-GUIDE
L4000-W	L4000-FLOW-GUIDE
L8000-W	L8000-FLOW-GUIDE

### Filling plug set (Set consisting of filling plug, filling plug O ring)

Model no.	Filling plug set model no.
L3000-W, L4000-W	L3000-W-PLUG
L8000-W	L8000-W-PLUG



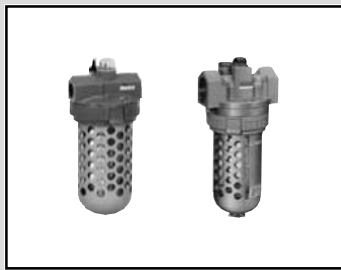
Lubricator/econo-mist

# 3003E/3004E/3005E Series

Supplying fine oil mist (oil fog).

● Port size: Rc 3/4 to Rc2

JIS symbol

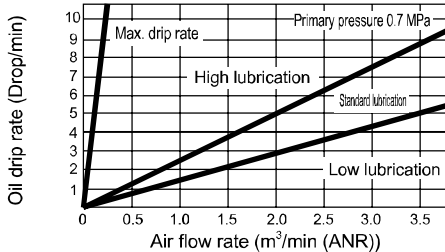


## Specifications

Descriptions	3003E-6C/8C	3004E-10C/12C	3005E-16C
Appearance			
Working fluid	Compressed air		
Max. working pressure	1.0 (≈150 psi, 10 bar)		
Proof pressure	1.5 (≈220 psi, 15 bar)		
Ambient / fluid temperatures	5 (41°F) to 65 (149°F)		
Oil used	Turbine oil Class 1, ISO VG32 (spindle oil cannot be used)		
Oil storage capacity	660	660	660
Port size	Rc 3/4, 1	1 1/4, 1 1/2	2
Weight	2.4	3.5	4.5
Bowl guard	Standard equipment		
Min. drip flow rate	60	200	200

\*1: The min. drip flow rate is the value at which five drops of oil drip per minute when the primary pressure is 0.5 MPa.

## Oil drip rate



## Option weight

\* Add to the weight of the standard accessories.

Unit: kg

Code	Drain disch		Bowl material				
	C	Z	M	MG	MG2	MG8	MG20
3003E	0	-0.025	0	0.17	8	18	28
3004E	0	-0.025	0	0.17	7	17	27
3005E	0	-0.025	0	0.17	7	17	27

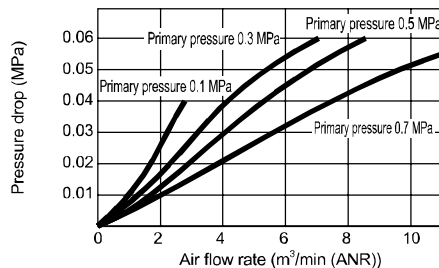
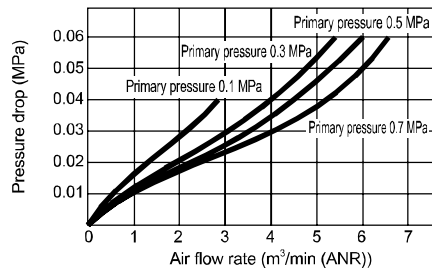
## Flow characteristics

● 3003E-6C

Rc3/4

● 3003E-8C

Rc1



● 3004E-10C

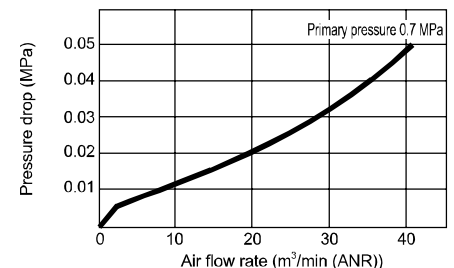
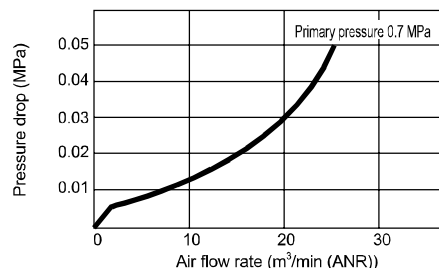
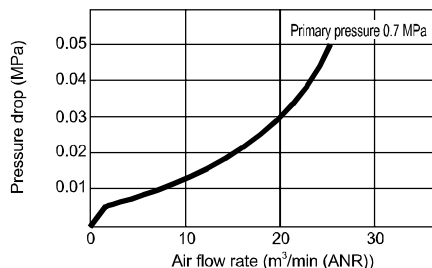
Rc1 1/4

● 3004E-12C

Rc1 1/2

● 3005E-16C

Rc2



### How to order



**A** Model No.

**B** Port size  
\*1

**C** Option  
\*2  
\*3  
\*4

Code		Content		A Model No.		
				Large	Large bore	Large bore
		3003E	3004E	3005E		
B Port size						
6C	Rc <sup>3</sup> / <sub>4</sub>	●				
8C	Rc1	●				
10C	Rc1 <sup>1</sup> / <sub>4</sub>		●			
12C	Rc1 <sup>1</sup> / <sub>2</sub>		●			
16C	Rc2			●		
C Option						
Drain discharge	Blank	Blank bowl	●	●	●	
	C	Manual cock (M/MG: Cock)	●	●	●	
Bowl material	Blank	Polycarbonate	●	●	●	
	Z	Nylon bowl	●	●	●	
	M	Metal bowl	●	●	●	
	MG	Metal bowl with gauge	●	●	●	
	MG2	Metal bowl for 2 ℓ	●	●	●	
	MG8	Metal bowl for 8 ℓ	●	●	●	
	MG20	Metal bowl for 20 ℓ	●	●	●	

[Example of model No.]

**3003E-6C-CZ**

Model: Lubricator/econo-mist

**A** Model No.: Large

**B** Port size: Rc <sup>3</sup>/<sub>4</sub>

**C** Option: Manual cock, nylon bowl

### ⚠ Precautions for model No. selection

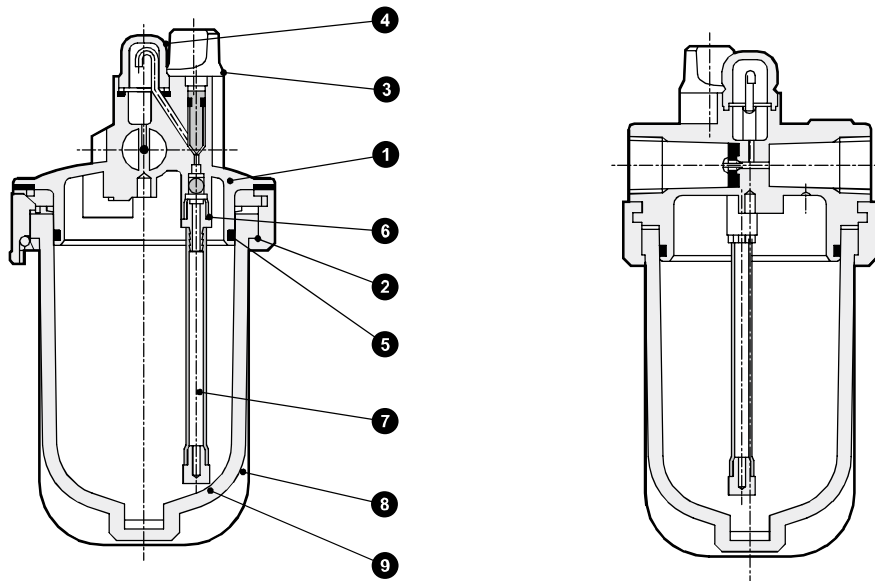
- \*1: If port size NPT thread is required, do not indicate nominal size C.  
(Example) 3003E-6
- \*2: Quart bowl for 2ℓ to 20ℓ is a custom order product. Combination with a bracket is not possible.
- \*3: Consult with CKD when using the air motor with a uniform flow rate (minimal differential pressure).
- \*4: The observation dome material is polyamide resin (nylon) even when a metal bowl is selected.

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
PrescCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

# 3003E/3004E/3005E Series

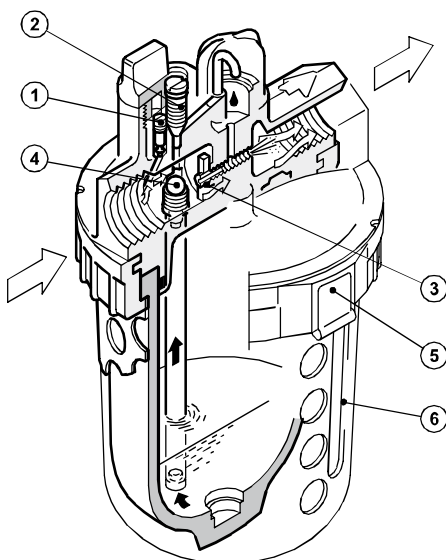
## F.R.L Internal structure and parts list

- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FlmResistFR
- Oil-ProhR
- MedPresFR
- No Cu/PTFE FRL
- Outdrs FR
- F.R.L (Related)
- CompFRL
- LgFRL
- PrecsR
- VacFR
- 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



No.	Part name	Material		
		3003E	3004E	3005E
1	Body	Zinc alloy die-casting		
2	Clamp ring	Zinc alloy die-casting		
3	Filling plug	Polyacetal resin	Copper alloy	
4	Observation dome	Polycarbonate resin		
5	O-ring	Special nitrile rubber		
6	Adaptor	Copper alloy		
7	Siphon tube assembly	Polyamide resin, polypropylene		
8	Bowl guard	Steel		
9	Bowl	Polycarbonate resin		

## Functions



- (1) Pressure valve: Compressed air is supplied in a bowl. If filling plug is loosened, the pressure valve is closed to allow re-filling lubricant without stopping the pneumatic circuit.
- \* Caution: Loosen the filling plug first and remove the plug after the pressure in the bowl is released. Then refill the lubricant.
- (2) Oil rate adjustment needle: Adjust oil rate supplied to compressed air. Needle with a special shape is used to adjust the oil rate accurately. One drop of oil is approx. 0.02 cm<sup>3</sup>.
- (3) Flow guide: Constant proportion of compressed air vs. oil rate is maintained in both large and small flow rates to supply oil fog to pneumatic components.
- (4) Check valve: Lubricant in the bowl flows into the drip tube passing through the siphon tube. Check valve inside prevents oil from flowing backward.
- (5) Clamp ring: Push-in clamp ring is used to achieve easy bowl washing and lubrication from bowl.
- (6) Bowl guard: Lubricant volume can be checked through the oval hole, enabling maintenance to be performed easily. Even if the bowl breaks, its shards will not scatter.

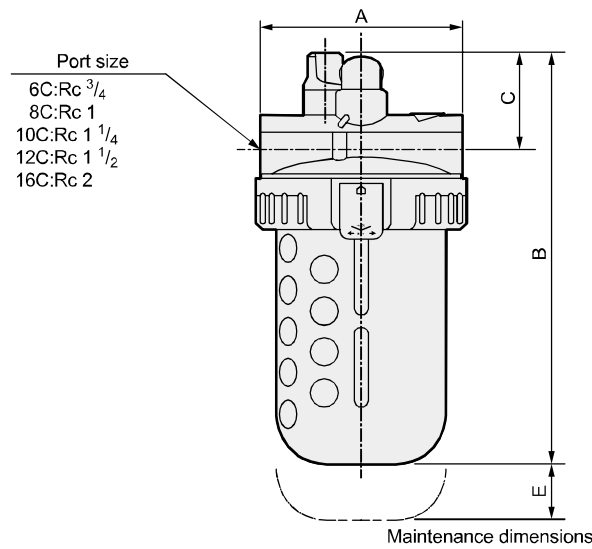
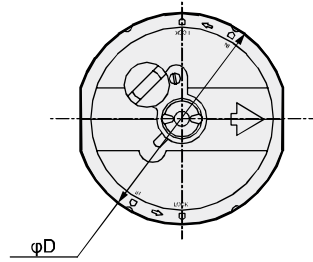
# 3003E/3004E/3005E Series

Dimensions

## Dimensions



- 3003E
- 3004E
- 3005E

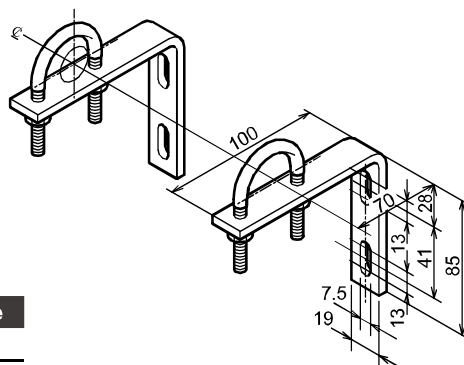


Model No.		3003E	3004E	3005E
A		118	140	140
B	Combination option	Blank	259	291
		C	289	322
		M/MG	261	294
		CM/CMG	275	308
C		50	58	67
D		118	114	127
E		200	200	200

- Pipe bracket: 6132

- Material: Steel  
Zinc plated

Bracket - Pipe bracket thickness 4.5 mm



Model No.	Port size
6132-6C	3/4B
6132-8C	1B

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FlnResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
<b>LgFRL</b>
PrecsR
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



3003E Series

# Lubricator/auto-fill

Only installing oil tank enables automatic lubrication to multiple lubricators.

● Port size: Rc 1/4 to Rc1

JIS symbol



## Specifications

Descriptions	3003E-6C/8C-V	
Working fluid	Compressed air	
Max. working pressure	MPa	1.0 (≈150 psi, 10 bar)
Proof pressure	MPa	1.5 (≈220 psi, 15 bar)
Ambient / fluid temperatures	°C	5 (41°F) to 65 (149°F)
Lubrication pressure	MPa	Working pressure plus 0.035 (≈5.1 psi, 0.35 bar) to 0.35 (≈51 psi, 3.5 bar)
Oil used	Turbine oil Class 1, ISO VG32 (spindle oil cannot be used)	
Port size	Rc	<sup>3</sup> / <sub>4</sub> , 1
Weight	kg	2.5
Bowl guard	Standard equipment	

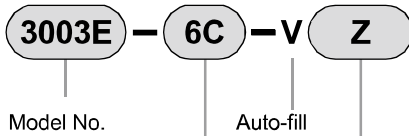
## Option weight

\* Add to the weight of the standard accessories.

Unit: kg

Code	Bowl material		
	Z	M	MG
3003E-V	-0.025	0	0.17

## How to order



Code	Content	
<b>Ⓐ Port size</b>		
6C	Rc <sup>3</sup> / <sub>4</sub>	
8C	Rc1	
<b>Ⓑ Option</b>		
Bowl material	Blank	Polycarbonate
	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) 3003E-6-V

[Example of model No.]

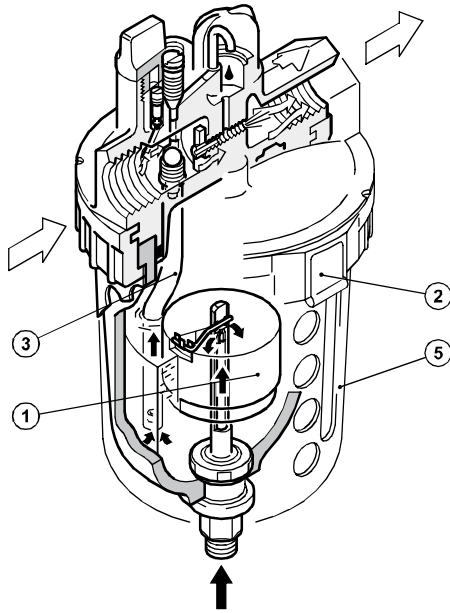
**3003E-6C-Z**

Model: Lubricator/auto-fill

Ⓐ Port size: Rc <sup>3</sup>/<sub>4</sub>

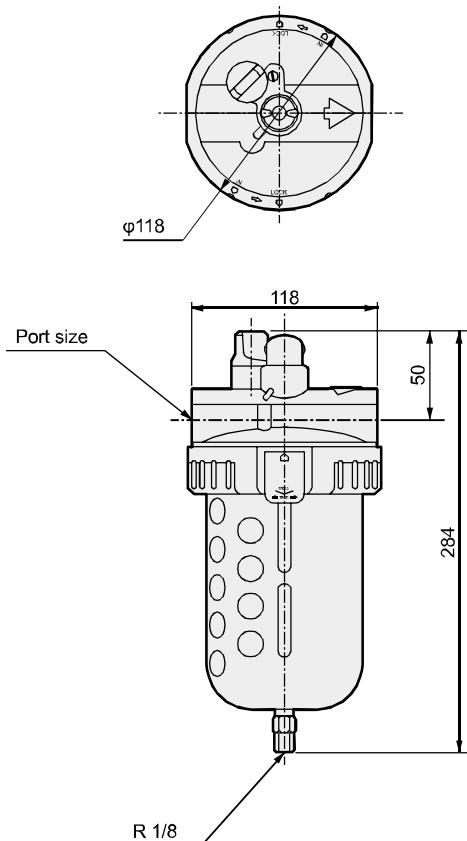
Ⓑ Option: Nylon bowl

## Functions

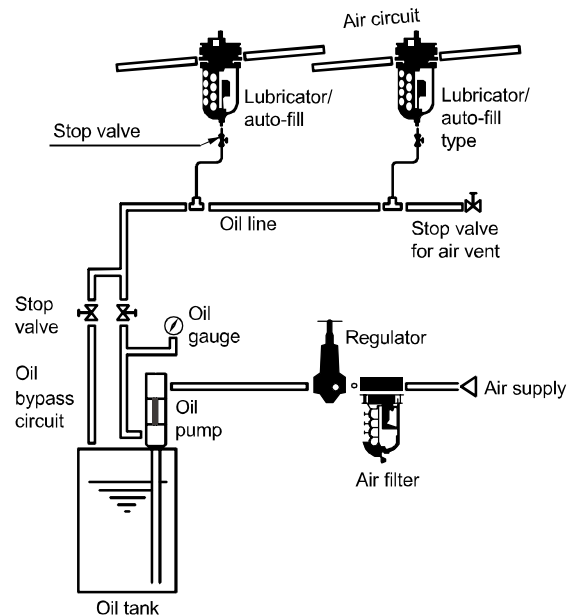


- (1) Float: The float using rubber foam detects a decrease of lubricant by its buoyancy and opens the orifice seat by the level arm to supply lubricant.
- (2) Clamp ring: A push-in clamp ring is used to achieve easy washing, maintenance and inspection of bowl.
- (3) Siphon tube: Uniquely shaped siphon tube is designed not to make contact with the float. Re-assemble the tube not to contact to the float after washing.
- (4) Stop valve: Always use the stop valve for bowl washing or maintenance to avoid jetting lubricant. No stop valve is installed to the product.
- (5) Bowl guard: Even if the bowl breaks, operator safety will be maintained. Drainage remaining and the internal state can be checked through the oval hole.

## Dimensions



## Standard piping



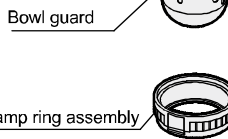
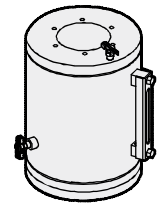
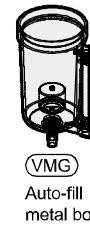
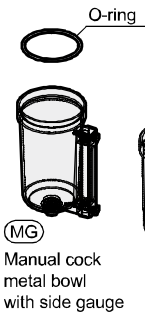
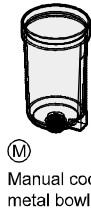
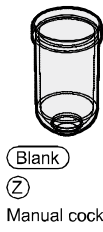
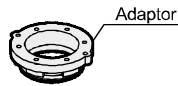
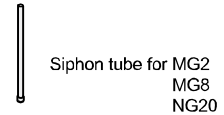
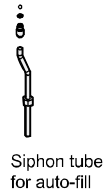
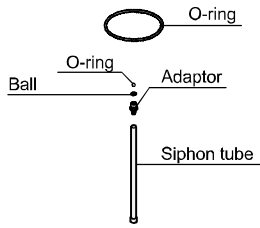
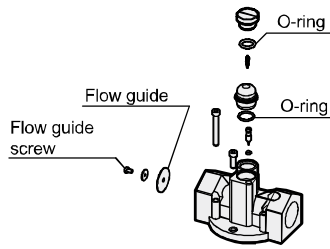
- (1) Always use zinc plating steel tube for an oil line.
- (2) Install an oil line as near as possible to the auto-fill lubricator.
- (3) Connect auto-fill lubricator with flexible tube (1m or below).
- (4) Always install a stop valve for the air vent to the end of the oil line.
- (5) Oil supply pressure to auto-fill lubricator is to be 0.035 to 0.35 MPa higher than air pressure of lubricator.

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FlnResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
<b>LgFRL</b>
PrecsR
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

## For lubricator

Many options are available for CKD lubricator. When selecting the model No. of lubricator, carefully consider the type of lubricant and working environment.

If an option is required, order with an option code added at the end of the model No. (Example) If a metal bowl is installed onto the 3003E-6C, 3003E-6C-M shall be specified.



### Nylon bowl

A nylon resin transparent green bowl can be used with some solvents or synthetic oils. Auto-fill for automatic lubrication is also available.

### Polycarbonate bowl

Do not use this product where the ambient temperature is high, or where organic solvents such as thinner or trichlene or synthetic oils such as chemicals or spindle oil are used. Auto-fill for automatic lubrication is also available.

### Metal bowl

Use a metal bowl where the ambient temperature is high, or where organic solvents such as thinner or trichlene or chemicals are present in the atmosphere.

### Large volume metal bowl

Lubricant for 2 1/8 1/20 l is stored. A large volume metal bowl can be quickly installed to the main body, so handling and maintenance are easy.

Bowl material: Carbon steel  
tube for piping  
Bowl weight : MG2 10 kg  
MG8 20kg  
MG20 30kg

MG2 Quart bowl for 2 l  
MG8 Quart bowl for 8 l  
MG20 Quart bowl for 20 l

## Bowl assembly and model No. table (set of bowl assembly and O-ring for sealing)

Compatible model	Polycarbonate resin bowl			Transparent nylon resin bowl			Metal bowl		
	Blank	Manual cock	Auto-fill	Blank	Manual cock	Auto-fill	Blank	Manual cock	Auto-fill
A3019	A3019-BOWL	A1019-BOWL	—	A3019-BOWL-Z	A1019-BOWL-Z	—	—	A1019-BOWL-M	—
3003E/3503E	3003E-BOWL	1138-BOWL	3003E-BOWL-V	3003E-BOWL-Z	1138-BOWL-Z	3003E-BOWL-VZ	3003E-BOWL-M	1138-BOWL-M	3003E-BOWL-VM
Compatible model	Metal bowl with side gauge								
	Blank	Manual cock	Auto-fill	2l	8l	20l			
A3019	—	—	—	—	—	—			
3003E/3503E	3003E-BOWL-MG	1138-BOWL-MG	3003E-BOWL-VMG	3003E-BOWL-MG2	3003E-BOWL-MG8	3003E-BOWL-MG20			
				3004E-BOWL-MG2	3004E-BOWL-MG8	3004E-BOWL-MG20			
				3005E-BOWL-MG2	3005E-BOWL-MG8	3005E-BOWL-MG20			

\*1: The quart bowl number for 2 l to 20 l contains an adaptor, screws, a gasket and a siphon tube assembly, etc., for installation.  
 \*2: Quart bowl for 2l to 20l is a custom order product.  
 \*3: Indicate "blank" for a bowl without cock. Blanking plug assembly applies to a metal bowl without cock "M".  
 \*4: Siphon tube assembly is attached for MG2/MG8/MG20.

- 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
- PresSW Cool
- AirFloSens/ Contr
- WaterRtSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending