


Modular Type Lubricator *AL Series*

| Lubricator AL Series | Model | Port size | Options |
|--|-----------|---------------|---------|
|  <p data-bbox="140 891 303 922">p. 106 to 111</p> | AL20-D | 1/8, 1/4 | Bracket |
| | AL30-D | 1/4, 3/8 | |
| | AL40-D | 1/4, 3/8, 1/2 | |
| | AL40-06-D | 3/4 | |
| | AL50-D | 3/4, 1 | |
| | AL60-D | 1 | |

Lubricator

AL20-D to AL60-D

Symbol



AL30-D

How to Order

AL **30** - **03** **B** - **—** -D

① ② ③ ④ ⑤

Semi-standard Symbol Selection

· Select one each for a to d.
 · When more than one specification is required, indicate in alphanumeric order.
 Example) AL30-F03B-3RW-D

| | Symbol | Description | ① | | | | | | |
|---------------------|------------------------|-------------------------|--------------------------------|------------------------------|-----|-----|-----|-----|-----|
| | | | Body size | | | | | | |
| | | | 20 | 30 | 40 | 50 | 60 | | |
| ② Pipe thread type | — | Rc | ● | ● | ● | ● | ● | | |
| | N | NPT | ● | ● | ● | ● | ● | | |
| | F | G | ● | ● | ● | ● | ● | | |
| + | | | | | | | | | |
| ③ Port size | 01 | 1/8 | ● | — | — | — | — | | |
| | 02 | 1/4 | ● | ● | ● | — | — | | |
| | 03 | 3/8 | — | ● | ● | — | — | | |
| | 04 | 1/2 | — | — | ● | — | — | | |
| | 06 | 3/4 | — | — | ● | ● | — | | |
| 10 | 1 | — | — | — | ● | ● | | | |
| + | | | | | | | | | |
| ④ Option (Mounting) | — | Without mounting option | ● | ● | ● | ● | ● | | |
| | B *1 | With bracket | ● | ● | ● | ● | ● | | |
| + | | | | | | | | | |
| ⑤ Semi-standard | a | Bowl*2 | — | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | | 2 | Metal bowl | ● | ● | ● | ● | ● |
| | | | 6 | Nylon bowl | ● | ● | ● | ● | ● |
| | | | 8 | Metal bowl with level gauge | — | ● | ● | ● | ● |
| | | | C | With bowl guard | ● | —*3 | —*3 | —*3 | —*3 |
| | | | 6C | With bowl guard (Nylon bowl) | ● | —*4 | —*4 | —*4 | —*4 |
| + | | | | | | | | | |
| b | Lubricant exhaust port | — | Without drain cock | ● | ● | ● | ● | ● | |
| | | 3 | With drain cock | ● | ● | ● | ● | ● | |
| | | 3W *5 | Drain cock with barb fitting | — | ● | ● | ● | ● | |
| + | | | | | | | | | |
| c | Flow direction | — | Flow direction: Left to right | ● | ● | ● | ● | ● | |
| | | R | Flow direction: Right to left | ● | ● | ● | ● | ● | |
| + | | | | | | | | | |
| d | Unit | — | Unit on product label: MPa, °C | ● | ● | ● | ● | ● | |
| | | Z *6 | Unit on product label: psi, °F | ○*7 | ○*7 | ○*7 | ○*7 | ○*7 | |

*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.

*2 Refer to chemical data on page 111 for chemical resistance of the bowl.

*3 A bowl guard is provided as standard equipment (polycarbonate).

*4 A bowl guard is provided as standard equipment (nylon).

*5 The combination of metal bowl 2 and 8 is not available.

*6 For the pipe thread type: NPT

This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

*7 ○: For the pipe thread type: NPT only

AL20-D to AL60-D Series

Standard Specifications

| Model | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
|--------------------------------|--------------------------------|--|--|----------------|-----------------|-----------------|
| Port size | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |
| Fluid | Air | | | | | |
| Ambient and fluid temperatures | -5 to 60 °C (No freezing) | | | | | |
| Proof pressure | 1.5 MPa | | | | | |
| Max. operating pressure | 1.0 MPa | | | | | |
| Min. dripping flow rate*1 | 15 l/min (ANR) | Port size 1/4: 30 l/min (ANR) Port size 3/8: 40 l/min (ANR) | Port size 1/4: 30 l/min (ANR) Port size 3/8: 40 l/min (ANR) Port size 1/2: 50 l/min (ANR) | 50 l/min (ANR) | 190 l/min (ANR) | 220 l/min (ANR) |
| Oil capacity | 25 cm ³ | 55 cm ³ | 135 cm ³ | | | |
| Recommended lubricant | Class 1 turbine oil (ISO VG32) | | | | | |
| Bowl material | Polycarbonate | | | | | |
| Bowl guard | Semi-standard (Steel) | | Standard (Polycarbonate) | | | |
| Weight | 0.10 kg | 0.18 kg | 0.37 kg | 0.41 kg | 0.92 kg | 0.99 kg |

*1 The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20 °C; Oil adjustment valve fully open. For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

Bowl Assembly/Part Nos.

| Bowl material | Lubricant exhaust port | Other | Model | | | | | |
|------------------------------|------------------------|------------------|------------|------------|-----------|-----------|--------|--------|
| | | | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
| Polycarbonate | Without drain cock | — | C2SL-D | — | — | | | |
| | | With bowl guard | C2SL-C-D | C3SL-D | C4SL-D | | | |
| | With drain cock | — | C2SL-3-D | — | — | | | |
| | | With bowl guard | C2SL-3C-D | C3SL-3-D | C4SL-3-D | | | |
| Drain cock with barb fitting | With bowl guard | — | C3SL-3W-D | C4SL-3W-D | | | | |
| Nylon | Without drain cock | — | C2SL-6-A | — | — | | | |
| | | With bowl guard | C2SL-6C-A | C3SL-6-A | C4SL-6-A | | | |
| | With drain cock | — | C2SL-36-A | — | — | | | |
| | | With bowl guard | C2SL-36C-A | C3SL-36-A | C4SL-36-A | | | |
| Drain cock with barb fitting | With bowl guard | — | C3SL-36W-A | C4SL-36W-A | | | | |
| Metal | Without drain cock | — | C2SL-2-A | C3SL-2-A | C4SL-2-A | | | |
| | | With level gauge | — | C3LL-8-A | C4LL-8-A | | | |
| | With drain cock | — | C2SL-23-A | C3SL-23-A | C4SL-23-A | | | |
| | | With level gauge | — | C3LL-38-A | C4LL-38-A | | | |

*1 The bowl assembly comes with a bowl seal. Please contact SMC separately for psi and °F unit display specifications.

Option/Part Nos.

| Optional specifications | Model | | | | | |
|-------------------------|-------------|-------------|-------------|-------------|-------------|--------|
| | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
| Bracket assembly*1 | AF24P-070AS | AF34P-070AS | AF44P-070AS | AF49P-070AS | AF54P-070AS | |

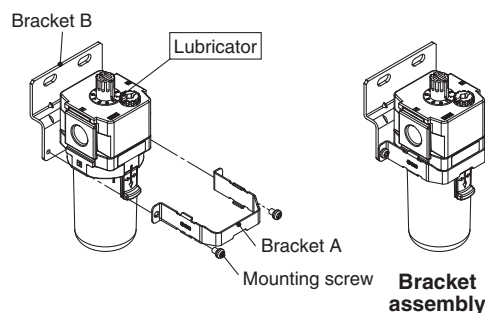
*1 The assembly consists of a bracket A/B and 2 mounting screws.

Replacement Parts

| Description | Part no. | | | | | |
|---------------------------|------------------------------------|-------------|-------------|-------------|-------------|--------|
| | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
| Sight dome assembly | AL20P-080AS | | | | | |
| Lubrication plug assembly | AL24P-060AS | AL34P-060AS | AL44P-060AS | | | |
| Damper retainer assembly | AL20P-030AS | AL30P-030AS | AL40P-030AS | AL54P-030AS | AL60P-030AS | |
| Damper assembly | AL20P-040S | AL30P-040S | AL44P-040S | AL60P-040AS | | |
| Bowl seal | C2SFP-260S | C32FP-260S | C42FP-260S | | | |
| Bowl assembly*1, *2 | Refer to "Bowl Assembly/Part Nos." | | | | | |

*1 The bowl assembly comes with a bowl seal.

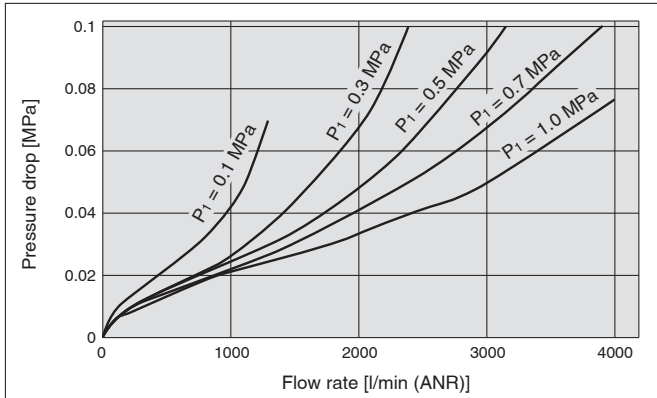
*2 Please contact SMC separately for psi and °F unit display specifications.



Flow Rate Characteristics (Representative values)

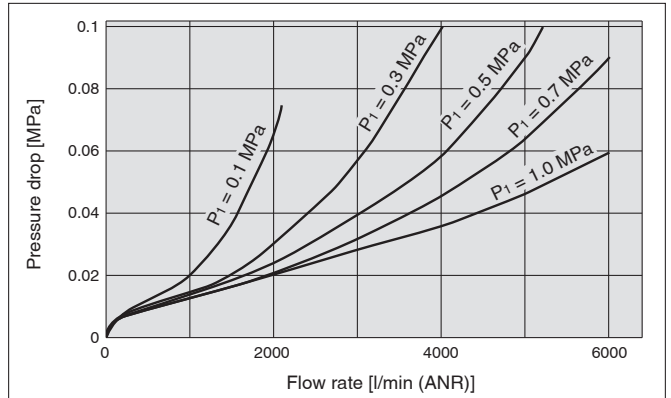
AL20-D

Rc1/4



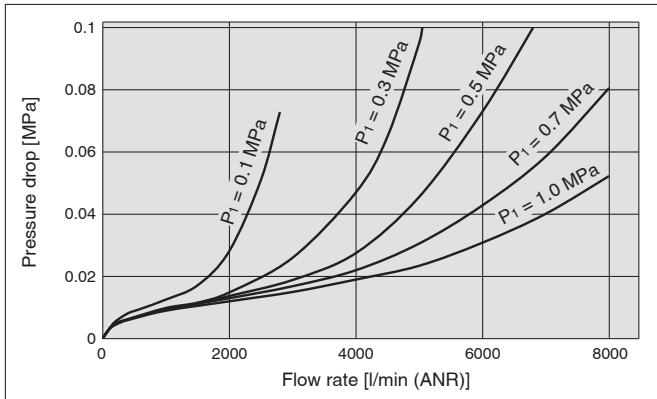
AL30-D

Rc3/8



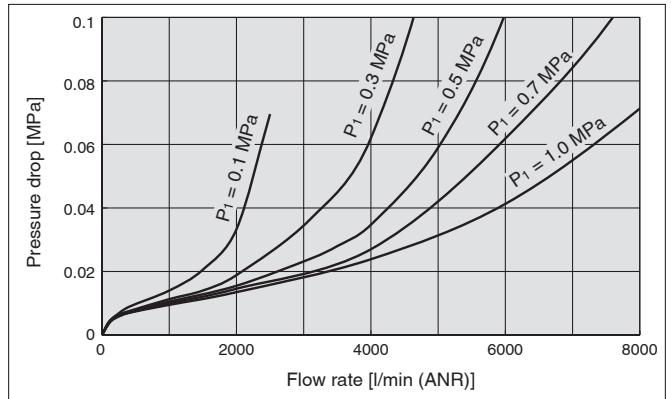
AL40-D

Rc1/2



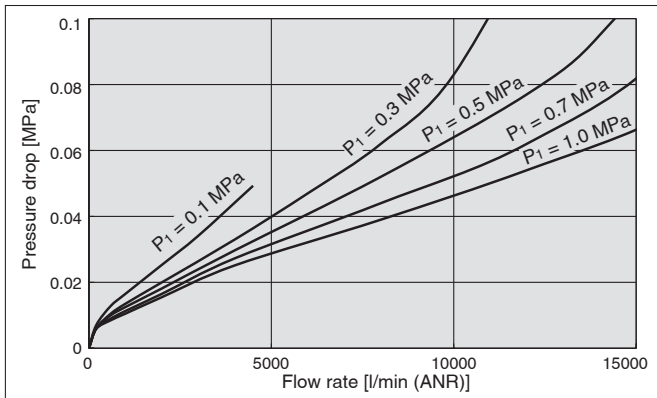
AL40-06-D

Rc3/4



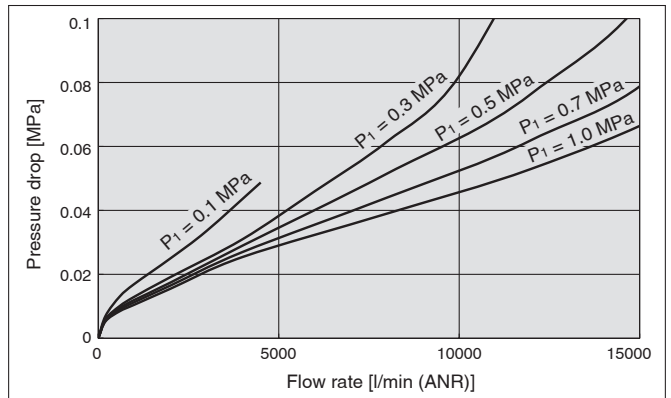
AL50-D

Rc1



AL60-D

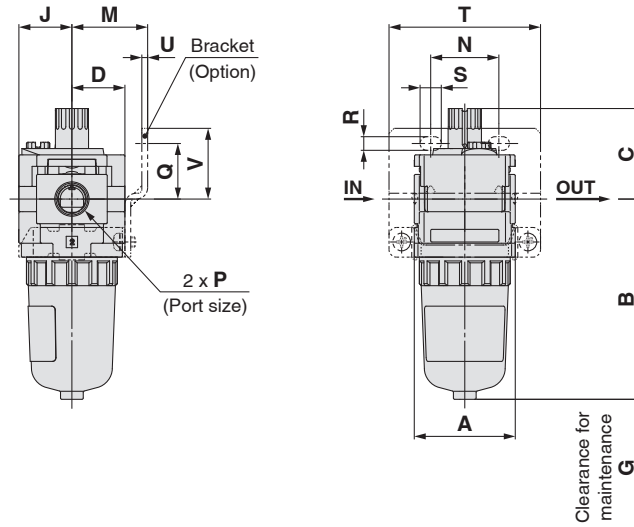
Rc1



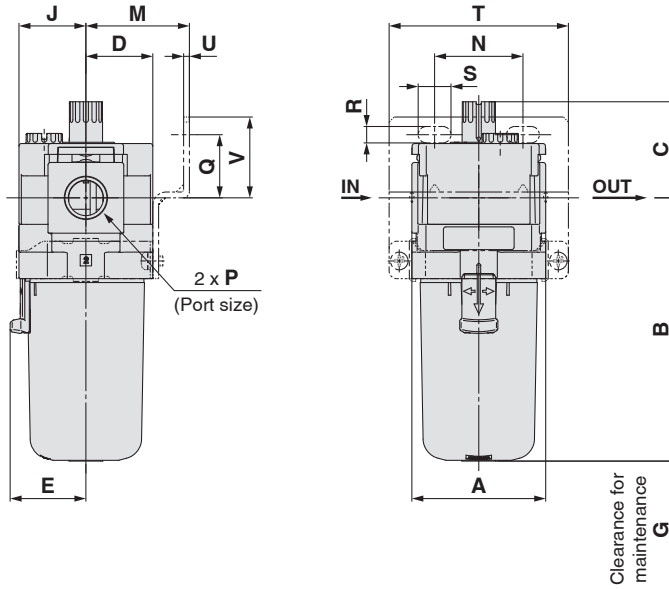
AL20-D to AL60-D Series

Dimensions

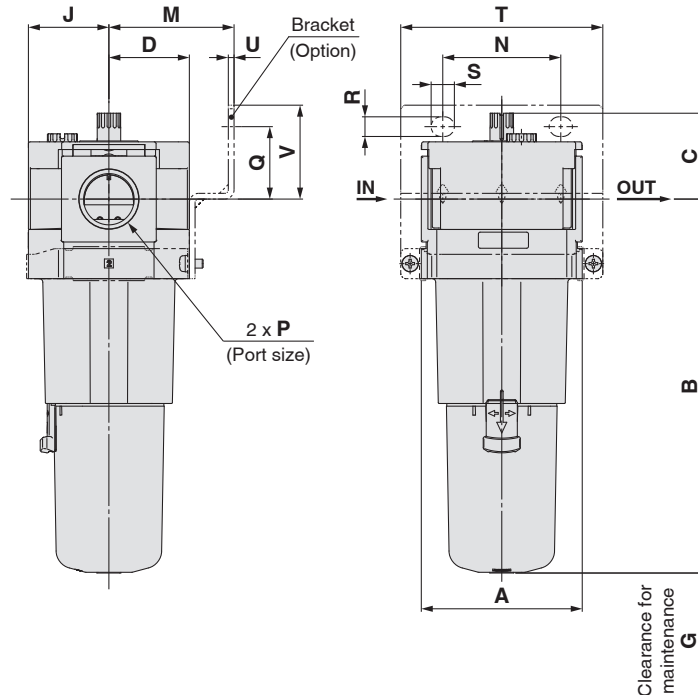
AL20-D



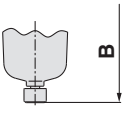
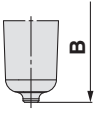
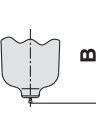
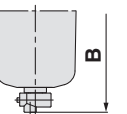
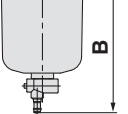

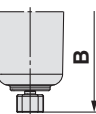

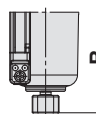
AL30-D to AL40-06-D



AL50-D to AL60-D



Lubricator *AL20-D to AL60-D Series*

| Applicable model | Semi-standard | | | | | |
|-------------------------|---|--|---|--|---|---|
| | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | With drain cock | Drain cock with barb fitting | Without drain cock | With drain cock | Without drain cock | With drain cock |
| AL20-D |  | |  |  | | |
| AL30-D to AL60-D |  |  Barb fitting applicable tubing: T0604 |  |  |  |  |

| Model | Standard specifications | | | | | | | | Optional specifications | | | | | | | |
|------------------|-------------------------|----|-------|------|------|------|-----|------|-------------------------|----|------|-----|------|-----|-----|------|
| | | | | | | | | | Bracket mount | | | | | | | |
| | P | A | B | C | D | E | G | J | M | N | Q | R | S | T | U | V |
| AL20-D | 1/8, 1/4 | 40 | 79.3 | 35.9 | 21 | — | 60 | 21 | 30 | 27 | 22 | 5.4 | 8.4 | 60 | 2.3 | 28 |
| AL30-D | 1/4, 3/8 | 53 | 104.3 | 38.1 | 26.5 | 30 | 80 | 26.5 | 41 | 35 | 25 | 6.5 | 13 | 71 | 2.3 | 32 |
| AL40-D | 1/4, 3/8, 1/2 | 70 | 136.1 | 44 | 35.5 | 38.4 | 110 | 35.5 | 50 | 52 | 30 | 8.5 | 12.5 | 88 | 2.3 | 39 |
| AL40-06-D | 3/4 | 75 | 138.1 | 44 | 35.5 | 38.4 | 110 | 35.5 | 50 | 52 | 34 | 8.5 | 12.5 | 88 | 2.3 | 43 |
| AL50-D | 3/4, 1 | 90 | 209.1 | 48 | 45 | — | 110 | 45 | 70 | 66 | 40.5 | 11 | 13 | 113 | 3.2 | 52.5 |
| AL60-D | 1 | 95 | 223.1 | 48 | 45 | — | 110 | 45 | 70 | 66 | 40.5 | 11 | 13 | 113 | 3.2 | 52.5 |

| Model | Semi-standard specifications | | | | | |
|------------------|------------------------------|-------------------|--------------------|-----------------|-----------------------------|-----------------|
| | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | With drain cock | With barb fitting | Without drain cock | With drain cock | Without drain cock | With drain cock |
| | B | B | B | B | B | B |
| AL20-D | 87.6 | — | 84.5 | 87.4 | — | — |
| AL30-D | 115.4 | 123.9 | 104.3 | 117.8 | 124.3 | 137.8 |
| AL40-D | 147.1 | 155.6 | 136 | 149.5 | 156.1 | 169.5 |
| AL40-06-D | 149.1 | 157.6 | 138 | 151.5 | 158.1 | 171.5 |
| AL50-D | 220.1 | 228.6 | 209 | 222.5 | 229 | 242.5 |
| AL60-D | 234.1 | 242.6 | 223 | 236.5 | 243 | 256.5 |



AL-D Series Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smc.eu>

Design / Selection

Warning

- Do not introduce air from the outlet side as this can damage the damper.
- The standard bowl and sight dome of the lubricator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

Chemical resistance of polycarbonate bowl with sight dome and nylon bowl with sight dome

| Type | Chemical name | Application examples | Material | |
|-------------------|--|---|---------------|-------|
| | | | Polycarbonate | Nylon |
| Acid | Hydrochloric acid Sulfuric acid Phosphoric acid Chromic acid | Acid washing liquid for metals | △ | × |
| Alkaline | Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Sodium carbonate | Degreasing of metals Industrial salts Water-soluble cutting oil | × | ○ |
| Inorganic salts | Sodium sulfide Potassium nitrate Sodium sulfate | — | × | △ |
| Chlorine solvents | Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride | Cleansing liquid for metals Printing ink Dilution | × | △ |
| Aromatic series | Benzene Toluene Paint thinner | Coatings Dry cleaning | × | △ |
| Ketone | Acetone Methyl ethyl ketone Cyclohexane | Photographic film Dry cleaning Textile industries | × | × |
| Alcohol | Ethyl alcohol IPA Methyl alcohol | Antifreeze Adhesives | △ | × |
| Oil | Gasoline Kerosene | — | × | ○ |
| Ester | Phthalic acid dimethyl Phthalic acid diethyl Acetic acid | Synthetic oil Anti-rust additives | × | ○ |
| Ether | Methyl ether Ethyl ether | Brake oil additives | × | ○ |
| Amino | Methyl amino | Cutting oil Brake oil additives Rubber accelerator | × | × |
| Others | Thread-lock fluid Seawater Leak tester | — | × | △ |

○: Essentially safe △: Some effects may occur. ×: Effects will occur.

When the above factors are present, or there is some doubt, use a metal bowl for safety.

Design / Selection

Caution

- When the piping is branched on the inlet side, install a check valve to prevent the lubricant from back flowing.

Maintenance

Warning

- For the AL20-D, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.
- Tighten the lubrication plug to the recommended tightening torque. Insufficient tightening torque may cause loosening or defective sealing. Excessive tightening torque may damage the thread, etc.

Recommended Torque

Unit: N·m

| Model | AL20-D | AL30-D | AL40-D AL40-06-D AL50-D AL60-D |
|--------|--------------|--------------|---|
| Torque | 0.25 to 0.35 | 0.35 to 0.45 | 0.5 to 0.6 |

- Adjustment of the oil regulating valve (sight dome assembly) for models from the AL20-D to AL60-D should be carried out manually. Turning it counterclockwise increases the dripping amount, and turning it clockwise reduces the dripping amount. The use of tools can result in damage to the unit. From the fully closed position, three rotations will bring it to the fully open position. Do not rotate it any further than this. Note that the numbered scale markings are guidelines for adjusting the position, and not indicators of the dripping amount.

Mounting / Adjustment

Caution

- When the lubricator bowl is installed on the AL30-D to AL60-D, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

