Air Hydraulic Unit

Model CV  Model AB
Model CK  Model AC
Model CP/CPB
Model CPC/CQC
Model CB
Model CC

Hydraulic pressure can be easily generated by using factory air pressure
Wide variety from simple single circuit to multiple circuits unit with non-leak valve.

- Easy to generate low to high hydraulic pressure
  Hydraulic pressure can be generated easily by using factory air pressure. Compact and easy to set up.

- Safety
  If a blackout occurs and the air supply is cut off, the air hydraulic unit with a non-leak valve can hold the hydraulic pressure at the current actuator state.

- Energy-Saving
  Pump activates when the hydraulic pressure is rising. After the hydraulic pressure reaches as specified, air pressure and hydraulic pressure are balanced then pump is stopped.

- Wide Variations
  Air driven hydraulic pump unit has a wide pressure range from low to high and discharge pressure range.
Air Hydraulic Unit Digest

**Discharge Pressure**

<table>
<thead>
<tr>
<th>Hydraulic Unit (For Single Action)</th>
<th>Model CV</th>
<th>P.1281</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge Pressure</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td>2.4 ~ 43.5 MPa (AB Pump)</td>
<td>With Solenoid Valve for Electrical Control</td>
</tr>
<tr>
<td></td>
<td>2.3 ~ 64.7 MPa (AC Pump)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic Unit (For Double/Single Action)</th>
<th>Model CK</th>
<th>P.1283</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge Pressure</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td>3.9 ~ 7.0 MPa (AB4000 Pump)</td>
<td>With Solenoid Valve for Manual Control (Standard)</td>
</tr>
<tr>
<td></td>
<td>15.5 ~ 27.0 MPa (AB7000 Pump)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic Unit</th>
<th>Model CP/CPB</th>
<th>P.1287</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge Pressure</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td>2.5 ~ 30.0 MPa (AB Pump)</td>
<td>With Non-Leak Valve</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic Unit</th>
<th>Model CPC/CQC</th>
<th>P.1295</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge Pressure</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td>2.5 ~ 30.0 MPa (AC Pump)</td>
<td>With Solenoid Valve for Electrical Control (Standard)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pump Unit</th>
<th>Model CB</th>
<th>P.1299</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge Pressure</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td>2.4 ~ 43.5 MPa (AB Pump)</td>
<td>Pump &amp; valve is assembled separately</td>
</tr>
<tr>
<td></td>
<td>2.5 ~ 30.0 MPa (At BC, 8H connected)</td>
<td>Used in conjunction with the Model BC/8H Unit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pump Unit</th>
<th>Model CC</th>
<th>P.1301</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge Pressure</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td>2.3 ~ 64.7 MPa (AC Pump)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 ~ 30.0 MPa (At BC, 8H connected)</td>
<td></td>
</tr>
</tbody>
</table>

**AB/AC Pump**

Discharge pressure and discharge amount of oil is different depending on pump. Please refer to AB pump/AC pump specification for details on operating pneumatic pressure, discharge pressure and discharge flow rate.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Discharge Pressure</th>
<th>Air Consumption Nm³/min</th>
<th>Lift</th>
<th>Noise</th>
<th>Usable Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB Pump</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB3000</td>
<td>2.4 ~ 4.3</td>
<td>0.4 Nm³/min</td>
<td>below 0.6m</td>
<td>82 ~ 85dB</td>
<td>General Hydraulic Oil</td>
</tr>
<tr>
<td>AB4000</td>
<td>3.9 ~ 7.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB5000</td>
<td>6.0 ~ 11.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB6000</td>
<td>10.0 ~ 17.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB7000</td>
<td>15.5 ~ 27.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB8000</td>
<td>25.0 ~ 43.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC Pump</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC3001</td>
<td>2.3 ~ 4.2</td>
<td>1.0 Nm³/min</td>
<td>below 1.0m</td>
<td></td>
<td>Water-Glycol Silicon Oil</td>
</tr>
<tr>
<td>AC4001</td>
<td>3.6 ~ 6.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC5001</td>
<td>5.8 ~ 10.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC6001</td>
<td>8.9 ~ 16.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC7001</td>
<td>14.4 ~ 26.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC8001</td>
<td>22.6 ~ 41.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC9001</td>
<td>35.3 ~ 64.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: 1. Discharge pressure is set when air pressure range is between 0.3 ~ 0.5MPa.
Hydraulic Unit (For Single Action)

Model CV

Features
- Manual Control for Single Action (Solenoid valve option is also available.)
- Without Non-Leak Valve
- One Circuit Control Unit

Model No. Indication

CV 2 B 4 0 - 0 - HH R - 8

1 Tank Capacity
- 2 : 2 l (Actual Amount for Use 1.1 l) ※1
- 5 : 5 l (Actual Amount for Use 3.1 l)

※1 Only 5 : 5.0 l tank is selectable for AC pump.

2 Pump Part Number (Pump Pressure Code)

| B3 | AB3000-V | C3 | AC3001-V |
| B4 | AB4000-V | C4 | AC4001-V |
| B5 | AB5000-V | C5 | AC5001-V |
| B6 | AB6000-V | C6 | AC6001-V |
| B7 | AB7000-V | C7 | AC7001-V |
| B8 | AB8000-V | C8 | AC8001-V |
| C9 | AC9001-V |

3 Design No.

0 : Revision Number

4 Fluid Code
- 0 : General Hydraulic Oil (See Hydraulic Fluid List P.1355)
- S : Silicon Oil
- G : Water-Glycol (except AB8000/AC8001/AC9001) (Tank is made of steel)

※ Contact us for fluids other than those described in the fluid code.

5 Control Method
- HH : Mechanical Selector Valve Option (Standard)
- SA : Solenoid Valve Option (DC24V)
- TA : Solenoid Valve Option (AC100V)
- F : Foot Switch

6 Component Directly Mounted on the Air Supply Side
- R : Air Regulator (Standard)
- D : With a Filter Regulator (Automatic Drain Option)

7 Unit of Pressure Gauge

- Blank : MPa (Standard)
- P : PSI
### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>CV: B30</th>
<th>CV: B40</th>
<th>CV: B50</th>
<th>CV: B60</th>
<th>CV: B70</th>
<th>CV: B80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>AB3000-V</td>
<td>AB4000-V</td>
<td>AB5000-V</td>
<td>AB6000-V</td>
<td>AB7000-V</td>
<td>AB8000-V</td>
</tr>
<tr>
<td>Discharge/Operating Pressure (MPa)</td>
<td>2.4 ~ 4.3</td>
<td>3.9 ~ 7.0</td>
<td>6.0 ~ 11.0</td>
<td>10.0 ~ 17.5</td>
<td>15.5 ~ 27.0</td>
<td>25.0 ~ 43.5</td>
</tr>
<tr>
<td>Air Consumption (Nm³/min)</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank Capacity (l)</td>
<td>2.2 l</td>
<td>(Actual Amount for Use 1.1 l)</td>
<td>5 l</td>
<td>(Actual Amount for Use 3.1 l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature (°C)</td>
<td>0 ~ 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 ~ 0.5MPa.
2. Please refer to the AB/AC pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P:1305).

### External Dimensions / Circuit Symbol

**CV28□0□□□□HHR**

**CV28□0□□□□HHR : Circuit Symbol**

1. 2 Tank

**CV5□□□□□□□□HHR**

**CV5□□□□□□□□HHR : Circuit Symbol**

1. Contact us for further specifications.

---

Air Hydraulic Unit

Model No. Indication Specifications Circuit Symbol External Dimensions

High-Power Series
Pneumatic Series
Hydraulic Series
Valve / Coupler
Hydraulic Unit
Manual Operation
Accessories
Cautions / Others

Air Sequence Valve
BWD
Hydraulic Non-Leak Coupler
BG1/RGB
BGC/RGBD
BG1/RGBS
BGP/RGBS
BNS/RGBS
BJP/RGBS
BFP/RGBS

Auto Coupler
JT1A/1TB
JT1C/1TD
JVA/JVB
JVC/JVD
JVE/JVF
JNA/JNB
JNC/JND
JLP/1LS

Rotary Joint
JR

Hydraulic Valve
BK
BEQ
BT
BLS/BLG
BLB
JSS/JS
JKA/JKB
BMA/BLM
AU/AU-M
BU
BP/JPB
BX
BEP/ISP
BH
BC

Air Hydraulic Unit

CV
CK
CP/CPB
CPC/CQC
CB
CC
AB/AB-V
AC/AC-V

---

1282
Hydraulic Unit (For Double/Single Action)

Model CK

Features

- Manual Control for Double Action/Single Action
- With Non-Leak Valve (Hydraulic pressure is held, even after air supply is cut off.)
- Portable

Model No. Indication

CK 3B4 1 – NN – 0

<table>
<thead>
<tr>
<th>1</th>
<th>Tank Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3 l (Actual Amount for Use 1.4 l)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Pump Part Number (Pump Pressure Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4</td>
<td>AB4000</td>
</tr>
<tr>
<td>B7</td>
<td>AB7000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Design No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Revision Number</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Circuit Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>NN</td>
<td>Double Action 1 Circuit (Mechanical Valve at the Position of 3, 1 Piece)</td>
</tr>
<tr>
<td>A</td>
<td>Single Action 1 Circuit (Mechanical Valve at the Position of 2, 1 Piece)</td>
</tr>
<tr>
<td>AA</td>
<td>Single Action 2 Circuit (Mechanical Valve at the Position of 2, 2 Pieces)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Usable Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>General Hydraulic Oil (See Hydraulic Fluid List P.1355)</td>
</tr>
<tr>
<td>S</td>
<td>Silicon Oil</td>
</tr>
<tr>
<td>G</td>
<td>Water-Glycol</td>
</tr>
</tbody>
</table>

※ For fluids other than those described in the fluid code, please contact us.

Note:

1. Offering options with handle or with air filter.
   Please contact us for further information. Please note that the handle and air filter as option are not available together.
Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>CK3B41-□□-□</th>
<th>CK3B71-□□-□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>A84000-□</td>
<td>A87000-□</td>
</tr>
<tr>
<td>Non-Leak Valve Part Number</td>
<td>BA2011-0</td>
<td>BA5011-0</td>
</tr>
<tr>
<td>Discharge Hydraulic Pressure (MPa)</td>
<td>3.9 ~ 7.0</td>
<td>15.5 ~ 27.0</td>
</tr>
<tr>
<td>Air Consumption (Nm³/min)</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Tank Capacity (liters)</td>
<td>3.2 (Actual Amount for Use 1.4 l)</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature (°C)</td>
<td>0 ~ 70</td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 ~ 0.5 MPa.
2. Please refer to the AB pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P.1305).

External Dimensions / Circuit Symbol: Double Action 1 Circuit CK3□1-NN□

Circuit Symbol

Mechanical Valve Detail (3 Positions)
**External Dimensions / Circuit Symbol : Single Action 1 Circuit CK3□1-A□**

![Diagram of Air Hydraulic Unit](image)

**Circuit Symbol**

- **Mechanical Valve**
- **Oil Supply Port**
- **4-M8 × 1.25 Bolt Hole (Floor Mounting)**
- **PA Port**
- **A Port (Rc1/4)**
- **Air Regulator**
- **Pressure Gauge**
- **Air Bleed Valve**
- **H 2.8 ㎜**
- **L 1.4 ㎜**
- **3 ㎡ Tank**
- **Drain Port (Rc1/4)**
- **4-M8 × 1.25 Bolt Hole (For Wall Mounting)**

---

**Mechanical Valve Detail**

(2 Positions)
External Dimensions / Circuit Symbol: Single Action 2 Circuits CK3-1-AA-□

Circuit Symbol

Mechanical Valve

Oil Supply Port

Pressure Gauge (For Incoming Pressure)

Air Bleed Valve

Air Regulator

Air Pressure Gauge

Drain Port (Rc1/4)

4-M8 x 1.25 Bolt Hole (For Wall Mounting)

3 liters Tank

4-M8 x 1.25 Bolt Hole (Floor Mounting)

A1 Port

A2 Port

Rc1/4

A1 Port

A2 Port

Rc1/4

Mechanical Valve Detail (2 Positions)

Mechanical Valve

SMC (VM132-M5-34BA)

BA Valve

A1 Port

Pressure Gauge

Air Pump

A2 Port

Drain Port

PA Port

Rc1/4

Hydraulic Non-Leak Coupler

BGA/RGB
BGC/RGD
BGP/BGS
BBP/BB5
BNP/BN5
BJP/BJ5
BEP/BE5

Auto Coupler

JTA/JSB
JTC/JSF
JVA/JV6
JVC/JVD
JVE/JVF
JMA/JNB
JNC/JND
JLP/JLS

Rotary Joint

JR

Hydraulic Valve

BK
BEO
BT
BLS/BLG
BLB
JSS/J5
JKA/JKB
BMA/BMG
AU/AU-M
BU
BP/JPB
BX
BEP/ESP
BH
BC

Air / Hydraulic Unit

CV

CK

CP/CPB
CPC/CQC
CB
CC
AB/AB-V
AC/AC-V

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler

Hydraulic Unit

Manual Operation

Accessories

Cautions / Others

Air

Sequence Valve

BWD

1286
Hydraulic Unit (For Double/Single Action)

Model CP

**Features**
- Electrical Control for Double Action/Single Action
- With Non-Leak Valve (Hydraulic pressure is held, even after air supply is cut off.)
- Compact with AB Pump Installed • Tank Capacity 2 l

**Model No. Indication**

```
CP 2041 - YYYY - 50 - (7.0MPa)
```

1. **Tank Capacity**
   - 2 l (Actual Amount for Use 1.1 l)
   - Please refer to Model CPB for 5 l Tank.

2. **Pump Model (Pump Pressure Code)**
   - 03 : AB3000-
   - 06 : AB6000-
   - 04 : AB4000-
   - 07 : AB7000-
   - 05 : AB5000-
   - 08 : AB8000-

3. **Design No.**
   - 1 : Revision Number

4. **Circuit Symbol**
   - NN : Double Solenoid Valve Control for Double Acting Circuit
   - YY : Double Solenoid Valve Control for Double Acting Circuit (With JBA Pressure Switch)
   - A : Single Solenoid Valve Control for Single Acting Circuit
   - C : Single Solenoid Valve Control for Single Acting Circuit (With JBA Pressure Switch)
   - U : Double Solenoid Valve Control for Single Acting Circuit (With JBA Pressure Switch)

   **Entry Examples**
   - Double Acting Circuit (with JBA)×2 → YYYY
   - Single Solenoid Valve Single Acting Circuit×2 → AA

   Please contact us for other circuits.

5. **Control Voltage**
   - 1 : AC100V
   - 2 : AC200V
   - 3 : AC110V
   - 4 : AC220V
   - 5 : DC 24V

6. **Fluid Code**
   - 0 : General Hydraulic Oil (See Hydraulic Fluid List on P.1355)
   - S : Silicon Oil
   - G : Water-Glycol (Iron Tank)

   Please contact us for fluids other than those described above.

7. **Option**
   - Blank : Standard
   - C : (+) Plus Common
   - D : Auto-Drain Filter Regulator
   - F : Manual-Drain Filter Regulator
   - G : With Primary Pressure Gauge
   - H : With Piping Block on the Left
   - K : With Pressure Gauge for Each Circuit (with Primary Pressure Gauge)
   - KK : With Pressure Gauge for Each Circuit (without Primary Pressure Gauge)
   - L : With Pressure Switch Light
   - N : Piping Port NPT Thread, Pressure Gauge in both PSI / MPa
   - Specification sheet and other documents are also in inches.
   - P : Pressure Gauge in both PSI / MPa
   - Q : With Oil Level Switch (ON when oil level drops.)
   - Q1 : With Oil Level Switch (OFF when oil level drops.)
   - T : Iron Tank

   Please contact us for non-standard specifications and dimensions of options.

8. **Unit of Pressure Gauge**
   - Blank : MPa (Standard)
   - P : PSI (Used only in the US)

9. **Operating Pressure**
   - Please indicate operating pressure with a proper unit symbol.

   **Entry Examples**
   - At 5.5MPa → (5.5MPa)
   - At 25MPa → (25.0MPa)
   - At 700PSI → (700PSI)
Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>CP2031</th>
<th>CP2041</th>
<th>CP2051</th>
<th>CP2061</th>
<th>CP2071</th>
<th>CP2081</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>A83000-⑤</td>
<td>A84000-⑤</td>
<td>A85000-⑤</td>
<td>A86000-⑤</td>
<td>A87000-⑤</td>
<td>A88000-⑤</td>
</tr>
<tr>
<td>Non-Leak Valve Part Number</td>
<td>BA2011-0</td>
<td>BA2011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
</tr>
<tr>
<td>Discharge Hydraulic Pressure MPa</td>
<td>2.5 ~ 4.3</td>
<td>3.9 ~ 7.0</td>
<td>6.0 ~ 11.0</td>
<td>10.0 ~ 17.5</td>
<td>15.5 ~ 27.0</td>
<td>25.0 ~ 30.0</td>
</tr>
<tr>
<td>Air Consumption Nm³/min</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank Capacity ℓ</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Voltage</td>
<td>Depends on the Control Voltage (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature °C</td>
<td>0 ~ 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operation Frequency

- Pump Operation Time: less than 500 hours/year (2 hours/day) ① Actual Discharge Time

Pressure Switch Part Number (Pressure Increase Detection) ② JBA0700-0G JBA0700-0G JBA0700-0G JBA2700-0G JBA2700-0G

Air Solenoid Valve
Single Solenoid Valve: VO307-⑤ G1 / Double Solenoid Valve: SYJS240-⑤ G

Suction Filter
JF1030: 174 μm (100 mesh)

Notes:
① Discharge hydraulic pressure indicates when air pressure range is between 0.3 and 0.5MPa. The air pressure range of A88000-⑤ is between 0.3MPa and 0.36MPa due to the max. operating pressure of BA5011-0 valve.
② Standard setting value of pressure switch should be 70% of the operating pressure.
1. Please refer to the AB pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P.1305).
2. If hydraulic oil has viscosity higher than the shown, activating time increases.
3. In case of a low ambient temperature, action time increases because of high viscosity of hydraulic oil.
4. When air contains a large amount of moisture, or air piping is located at the end, always install an automatic drain air filter.
5. When installing a pressure gauge to a hydraulic circuit, install a damper or use an oil filled (glycerin) pressure gauge to prevent damage to the pressure gauge caused by pressure surging.
6. Provide an enough space at the bottom of the unit to compensate for hydraulic oil change. (Tank cleaning and suction strainer tightening become easier.)

Circuit Symbol/Circuit Reference

※ Please contact us for other circuits.

<table>
<thead>
<tr>
<th>Circuit Symbol</th>
<th>Circuit (Reference)</th>
<th>Number of Circuits</th>
<th>BA Valve Number of Connection</th>
<th>Air Solenoid Valve</th>
<th>Pressure Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Single-Acting</td>
<td>1</td>
<td>1</td>
<td>Single Solenoid Valve</td>
<td>—</td>
</tr>
<tr>
<td>C</td>
<td>Actuator Circuit</td>
<td>1</td>
<td>1</td>
<td>Single Solenoid Valve</td>
<td>O</td>
</tr>
<tr>
<td>CC</td>
<td></td>
<td>2</td>
<td>2</td>
<td>Single Solenoid Valve</td>
<td>O</td>
</tr>
<tr>
<td>U</td>
<td></td>
<td>1</td>
<td>1</td>
<td>Double Solenoid Valve</td>
<td>O</td>
</tr>
<tr>
<td>UU</td>
<td>Double-Acting</td>
<td>2</td>
<td>2</td>
<td>Double Solenoid Valve</td>
<td>O</td>
</tr>
<tr>
<td>NN</td>
<td></td>
<td>1</td>
<td>2</td>
<td>Double Solenoid Valve</td>
<td>—</td>
</tr>
<tr>
<td>YY</td>
<td></td>
<td>1</td>
<td>2</td>
<td>Double Solenoid Valve</td>
<td>O</td>
</tr>
<tr>
<td>YYYY</td>
<td></td>
<td>2</td>
<td>4</td>
<td>Double Solenoid Valve</td>
<td>O</td>
</tr>
</tbody>
</table>

※ A solenoid valve is connected to a terminal with minus common as standard. In case of ⑦ Option C, it is connected with plus common.
### External Dimensions

![Diagram of Air Hydraulic Unit](image)

<table>
<thead>
<tr>
<th>BA Valve Number of Connection</th>
<th>1 Connection</th>
<th>2 Connections</th>
<th>3 Connections</th>
<th>4 Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>295</td>
<td>345</td>
<td>395</td>
<td>445</td>
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<tr>
<td>B</td>
<td>90</td>
<td>140</td>
<td>190</td>
<td>240</td>
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<tr>
<td>C</td>
<td>359</td>
<td>409</td>
<td>459</td>
<td>510</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Notes:
1. Contact us for external dimensions in case of **6** Fluid Code: G (Water — Glycol).
2. Contact us for external dimensions in case of options other than **7**: Standard.
Hydraulic Unit
(For Double/Single Action)
Model CPB

Features
- Electrical Control for Double Action/Single Action
- With Non-Leak Valve (Hydraulic pressure is held, even after air supply is cut off.)
- Compact with AB Pump Installed
- Tank Capacity 5 l

Model No. Indication

1 Tank Capacity
P : 5 l (Actual Amount for Use 3.7 l )
* Please refer to model CP for 2 l Tank.

2 Pump Model (Pump Pressure Code)
3 : AB3000
4 : AB4000
5 : AB5000
6 : AB6000
7 : AB7000
8 : AB8000

3 Fluid Code
0 : General Hydraulic Oil (See Hydraulic Fluid List on P.1355)
S : Silicon Oil
G : Water+Glycol (Iron Tank)
F : Fatty Acid Ester
* Contact us for fluids other than those described above.

4 Design No.
0 : Revision Number

5 Circuit Symbol (Indicate with the number of circuits and circuit symbol)
NN : Double Solenoid Valve Control for Double Acting Circuit
YY : Double Solenoid Valve Control for Double Acting Circuit (With JBA Pressure Switch)
E : Single Solenoid Valve Control for Single Acting Circuit
G : Single Solenoid Valve Control for Single Acting Circuit (With JBA Pressure Switch)
U : Double Solenoid Valve Control for Single Acting Circuit (With JBA Pressure Switch)

Entry Examples
1 Double Acting Circuit (with JBA) × 2 → 2YY
1 Single Solenoid Valve Single Acting Circuit × 2 → 2E
* Please contact us for other circuits.

6 Control Voltage
1 : AC100V
2 : AC200V
3 : AC110V
4 : AC220V
5 : DC 24V

7 Option
Blank : Standard
C : (+) Plus Common
D : Digital Pressure Sensor
E : Without Filter Regulator
F : Manual-Drain Filter Regulator
G : With Primary Pressure Gauge
H : With Piping Block on the Left
J : With Air Regulator
K0 : With Pressure Gauge for Each Circuit (without Primary Pressure Gauge)
K1 : With Color Displayed Pressure Gauge for Each Circuit (without Primary Pressure Gauge)
KG0 : With Pressure Gauge for Each Circuit (with Primary Pressure Gauge)
KG1 : With Color Displayed Pressure Gauge for Each Circuit (with Primary Pressure Gauge)
L : With Pressure Switch Light
N : Piping Port NPT Thread, Pressure Gauge in both PSI / MPa
* Specification sheet and other documents are also in inches.
P : Pressure Gauge in both PSI / MPa
Q0 : With Oil Level Switch (ON when oil level drops.)
Q1 : With Oil Level Switch (OFF when oil level drops.)
T : Iron Tank
* Contact us for non-standard specifications and dimensions of options.

8 Operating Pressure
Please indicate operating pressure with a proper unit symbol.
Entry Examples
At 5.5MPa → (5.5MPa)
At 25MPa → (25.0MPa)
At 700PSI → (700PSI)
**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>CPB30-0</th>
<th>CPB40-0</th>
<th>CPB50-0</th>
<th>CPB60-0</th>
<th>CPB70-0</th>
<th>CPB80-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>AB3000-0</td>
<td>AB4000-0</td>
<td>AB5000-0</td>
<td>AB6000-0</td>
<td>AB7000-0</td>
<td>AB8000-0</td>
</tr>
<tr>
<td>Non-Leak Valve Part Number</td>
<td>BA2011-0</td>
<td>BA2011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
</tr>
<tr>
<td>Discharge Hydraulic Pressure (1) MPa</td>
<td>2.5 – 4.3</td>
<td>3.9 – 7.0</td>
<td>6.0 – 11.0</td>
<td>10.0 – 17.5</td>
<td>15.5 – 27.0</td>
<td>25.0 – 30.0</td>
</tr>
<tr>
<td>Air Consumption Nm³/min</td>
<td>Tank Capacity ℓ</td>
<td>0.4</td>
<td>4 ℓ (Actual Amount for Use 3.7 ℓ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Voltage</td>
<td>Depends on the Control Voltage (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature °C</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>0 – 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation Frequency</td>
<td>Pump Operation Time: less than 500 hours/year (2 hrs/day)</td>
<td>Actual Discharge Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure Switch Part Number (Pressure Increase Detection)</td>
<td>JBA0700-0G</td>
<td>JBA0700-0G</td>
<td>JBA0700-0G</td>
<td>JBA2700-0G</td>
<td>JBA2700-0G</td>
<td>JBA2700-0G</td>
</tr>
<tr>
<td>Air Solenoid Valve</td>
<td>Single Solenoid Valve: SYJ3140-0G / Double Solenoid Valve: SYJ3240-0G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suction Filter</td>
<td>JF1030:174μm (100 mesh)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 and 0.5MPa.
2. The air pressure range of AB8000-0 is between 0.3MPa and 0.36MPa due to the max. operating pressure of 5A5011-0 valve.
3. Standard setting value of pressure switch should be 70% of the operating pressure.
4. Please refer to the AB pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P.1305).
5. If hydraulic oil has viscosity higher than the shown, activating time increases.
6. In case of a low ambient temperature, action time increases because of high viscosity of hydraulic oil.
7. When installing a pressure gauge to a hydraulic circuit, install a damper or use an oil filled (glycerin) pressure gauge to prevent damage to the pressure gauge caused by pressure surging.
8. Provide an enough space at the bottom of the unit to compensate for hydraulic oil change.
9. (Tank cleaning and suction strainer tightening becomes easier.)

**Circuit Symbol/Circuit Reference**

- Please contact us for other circuits.

<table>
<thead>
<tr>
<th>Circuit Symbol</th>
<th>Circuit (Reference)</th>
<th>Number of Circuits</th>
<th>BA Valve Number of Connection</th>
<th>Air Solenoid Valve</th>
<th>Pressure Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Single-Acting</td>
<td>1</td>
<td>1</td>
<td>Single Solenoid Valve</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Actuator Circuit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| G              | Single-Acting       | 1                  | 1                             | Single Solenoid Valve | —              |
|                | Actuator Circuit    |                    |                               |                   |                |

| 2G             |                      | 2                  | 2                             | Single Solenoid Valve | —              |

| U              |                      | 2                  | 2                             | Single Solenoid Valve | —              |

| 2U             | Double-Acting        | 1                  | 2                             | Double Solenoid Valve | —              |
|                | Actuator Circuit     |                    |                               |                   |                |

| NN             | Double-Acting        | 1                  | 2                             | Double Solenoid Valve | —              |
|                | Actuator Circuit     |                    |                               |                   |                |

| YY             | Double-Acting        | 2                  | 4                             | Double Solenoid Valve | —              |
|                | Actuator Circuit     |                    |                               |                   |                |

- A solenoid valve is connected to a terminal with minus common as standard. In case of 7 Option C, it is connected with plus common.
**External Dimensions**

<table>
<thead>
<tr>
<th>BA Valve Number of Connection</th>
<th>1 Connection</th>
<th>2 Connections</th>
<th>3 Connections</th>
<th>4 Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>259</td>
<td>209</td>
<td>159</td>
<td>109</td>
</tr>
</tbody>
</table>

**Notes:**

1. Contact us for external dimensions in case of **Fluid Code : G** (Water — Glycol).
2. Contact us for external dimensions in case of options other than **Standard**.
3. External dimensions for five or more circuits are different. Please contact us for further information.
<table>
<thead>
<tr>
<th>High-Power Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Series</td>
</tr>
<tr>
<td>Hydraulic Series</td>
</tr>
</tbody>
</table>

**Valve / Coupler**

<table>
<thead>
<tr>
<th>Hydraulic Unit</th>
</tr>
</thead>
</table>

**Manual Operation Accessories**

**Cautions / Others**

### Air Sequence Valve
- BWD

### Hydraulic Non-Leak Coupler
- BGA/RGB
- BGC/RGD
- BGP/BGS
- BBP/BBS
- BNP/BN5
- BP/JB5
- BFP/BFS

### Auto Coupler
- JTA/1TB
- JTC/1TD
- JVA/JVB
- JVC/JVD
- JVE/JVF
- JNA/NB
- JNC/NND
- JLP/ILS

### Rotary Joint
- JR

### Hydraulic Valve
- BK
- BEQ
- BT
- BLS/BLG
- BLB
- JSS/JS
- JKA/JKB
- BMA/BMG
- AU/AU-M
- BU
- BP/JPB
- BK
- BEP/BSP
- BH
- BC

<table>
<thead>
<tr>
<th>Air Hydraulic Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV</td>
</tr>
<tr>
<td>CK</td>
</tr>
<tr>
<td>CP/CFB</td>
</tr>
<tr>
<td>CPC/CQC</td>
</tr>
<tr>
<td>CB</td>
</tr>
<tr>
<td>CC</td>
</tr>
<tr>
<td>AB/ABV</td>
</tr>
<tr>
<td>AC/AC-V</td>
</tr>
</tbody>
</table>
Hydraulic Unit
(For Double/Single Action)
Model CPC/CQC

Features

- Electrical Control for Double Action/Single Action
- With Non-Leak Valve (Hydraulic pressure is held, even after air supply is cut off.)
- Equipped with AC pump. Higher flow rate than CP/CPB unit.

Model No. Indication

```
C  P  C  4  0  0  0  -  2YY  -  5  -  (7.0MPa)
```

1 Tank Capacity

- P : 5 l (Actual Amount for Use 3.7 l)
- Q : 10 l (Actual Amount for Use 7 l) (Iron Tank)

2 Pump Model (Pump Pressure Code)

- 3 : AB3000-□
- 4 : AB4000-□
- 5 : AB5000-□
- 6 : AB6000-□
- 7 : AB7000-□
- 8 : AB8000-□

3 Fluid Code

- 0 : General Hydraulic Oil (See Hydraulic Fluid List on P.1355)
- S : Silicon Oil
- G : Water+Glycol (Iron Tank)
- F : Fatty Acid Ester

Contact us for fluids other than those described above.

4 Design No.

- 0 : Revision Number

5 Circuit Symbol (Indicate with the number of circuits and circuit symbol)

- NN : Double Solenoid Valve Control for Double Acting Circuit
- YY : Double Solenoid Valve Control for Double Acting Circuit (With JBA Pressure Switch)
- E : Single Solenoid Valve Control for Single Acting Circuit
- G : Single Solenoid Valve Control for Single Acting Circuit (With JBA Pressure Switch)
- U : Double Solenoid Valve Control for Single Acting Circuit (With JBA Pressure Switch)

Entry Examples

- 1 Double Acting Circuit (with JBA) × 2 → 2YY
- 1 Single Solenoid Valve Single Acting Circuit × 2 → 2E

Contact us for other circuits.

6 Control Voltage

- 1 : AC100V
- 2 : AC200V
- 3 : AC110V
- 4 : AC220V
- 5 : DC 24V

7 Option

- Blank : Standard
- C : (+) Plus Common
- D : Digital Pressure Sensor
- E : Without Filter Regulator
- F : Manual-Drain Filter Regulator
- G : With Primary Pressure Gauge
- H : With Piping Block on the Left
- J : With Air Regulator
- K0 : With Pressure Gauge for Each Circuit (without Primary Pressure Gauge)
- K1 : With Color Displayed Pressure Gauge for Each Circuit (without Primary Pressure Gauge)
- KG0 : With Pressure Gauge for Each Circuit (with Primary Pressure Gauge)
- KG1 : With Color Displayed Pressure Gauge for Each Circuit (with Primary Pressure Gauge)
- L : With Pressure Switch Light
- N : Piping Port NPT Thread, Pressure Gauge in both PSI / MPa
- P : Pressure Gauge in both PSI / MPa
- Q0 : With Oil Level Switch (ON when oil level drops.)
- Q1 : With Oil Level Switch (OFF when oil level drops.)
- T : Iron Tank

Contact us for non-standard specifications and dimensions of options.

8 Operating Pressure

Please indicate operating pressure with a proper unit symbol.

Entry Examples

- At 5.5MPa → (5.5MPa)
- At 25MPa → (25.0MPa)
- At 700PSI → (700PSI)
Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>C: C30:0</th>
<th>C: C40:0</th>
<th>C: C50:0</th>
<th>C: C60:0</th>
<th>C: C70:0</th>
<th>C: C80:0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>AC3001-0</td>
<td>AC4001-0</td>
<td>AC5001-0</td>
<td>AC6001-0</td>
<td>AC7001-0</td>
<td>AC8001-0</td>
</tr>
<tr>
<td>Non-Leak Valve Part Number</td>
<td>BA2011-0</td>
<td>BA2011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
<td>BA5011-0</td>
</tr>
<tr>
<td>Discharge Hydraulic Pressure</td>
<td>2.5 – 4.2 MPa</td>
<td>3.6 – 6.6 MPa</td>
<td>5.8 – 10.6 MPa</td>
<td>8.9 – 16.3 MPa</td>
<td>14.4 – 26.4 MPa</td>
<td>22.6 – 30.0 MPa</td>
</tr>
<tr>
<td>Air Consumption Nm³/min</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank Capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Voltage</td>
<td>Depends on the Control Voltage (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 – 70°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation Frequency</td>
<td>Pump Operation Time: less than 500 hours/year (2 hrs/day) Actual Discharge Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure Switch Part Number (Pressure Increase Detection)</td>
<td>JBA0700-0G</td>
<td>JBA0700-0G</td>
<td>JBA0700-0G</td>
<td>JBA2700-0G</td>
<td>JBA2700-0G</td>
<td>JBA2700-0G</td>
</tr>
<tr>
<td>Air Solenoid Valve</td>
<td>Single Solenoid Valve: SY33140-0G, Double Solenoid Valve: SY32420-0G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suction Filter</td>
<td>JF1030:174μm (100 mesh)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 and 0.5MPa.
2. Standard setting value of pressure switch should be 70% of the operating pressure.
3. Please refer to the AB pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P.1305).
4. If hydraulic oil having viscosity higher than the shown, activating time increases.
5. In case of a low ambient temperature, action time increases because of high viscosity of hydraulic oil.
6. When installing a pressure gauge to a hydraulic circuit, install a damper or use an oil filled (glycerine) pressure gauge to prevent damage to the pressure gauge caused by pressure surging.
7. Provide an enough space at the bottom of the unit to compensate for hydraulic oil change.
8. Tank cleaning and suction strainer tightening become easier.

Circuit Symbol/Circuit Reference

<table>
<thead>
<tr>
<th>Circuit Symbol</th>
<th>Circuit (Reference)</th>
<th>Number of Circuits</th>
<th>BA Valve Number of Connection</th>
<th>Air Solenoid Valve</th>
<th>Pressure Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Single-Acting Actuator Circuit</td>
<td>1</td>
<td>1</td>
<td>Single Solenoid Valve</td>
<td>—</td>
</tr>
<tr>
<td>G</td>
<td></td>
<td>1</td>
<td>1</td>
<td>Single Solenoid Valve</td>
<td>○</td>
</tr>
<tr>
<td>2G</td>
<td></td>
<td>2</td>
<td>2</td>
<td>Single Solenoid Valve</td>
<td>○</td>
</tr>
<tr>
<td>U</td>
<td></td>
<td>1</td>
<td>1</td>
<td>Double Solenoid Valve</td>
<td>○</td>
</tr>
<tr>
<td>2U</td>
<td></td>
<td>2</td>
<td>2</td>
<td>Double Solenoid Valve</td>
<td>○</td>
</tr>
<tr>
<td>NN</td>
<td>Double-Acting Actuator Circuit</td>
<td>1</td>
<td>2</td>
<td>Double Solenoid Valve</td>
<td>—</td>
</tr>
<tr>
<td>YY</td>
<td></td>
<td>1</td>
<td>2</td>
<td>Double Solenoid Valve</td>
<td>○</td>
</tr>
</tbody>
</table>

* A solenoid valve is connected to a terminal with minus common as standard. In case of Option C, it is connected with plus common.
**External Dimensions: CPC**

<table>
<thead>
<tr>
<th>BA Valve Number of Connection</th>
<th>1 Connection</th>
<th>2 Connections</th>
<th>3 Connections</th>
<th>4 Connections</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>259</td>
<td>209</td>
<td>159</td>
<td>109</td>
</tr>
</tbody>
</table>

Notes:

1. Contact us for external dimensions in case of Fluid Code G (Water — Glycol).
2. Contact us for external dimensions in case of options other than Standard.
3. External dimensions for five or more circuits are different. Please contact us for further information.
**External Dimensions : CQC**

![Diagram of CQC Unit]

<table>
<thead>
<tr>
<th>BA Valve Number of Connection</th>
<th>1 Connection</th>
<th>2 Connections</th>
<th>3 Connections</th>
<th>4 Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>345.5</td>
<td>295.5</td>
<td>245.5</td>
<td>195.5</td>
</tr>
</tbody>
</table>

**Notes:**

2. External dimensions for five or more circuits are different. Please contact us for further information.
Pump Unit
(For Double/Single Action)
Model CB

Features
- Pump Unit to use in conjunction with BC / BH Non-Leak Valve Unit
- Compact with AB Pump Installed

Model No. Indication

1 Tank Capacity
2 : 2 l (Actual Amount for Use 1.1 l)
5 : 5 l (Actual Amount for Use 3.1 l)

2 Pump Model (Pump Pressure Code)
03 : AB3000
04 : AB4000
05 : AB5000
06 : AB6000
07 : AB7000
08 : AB8000

3 Design No.
0 : Revision Number

4 Fluid Code
0 : General Hydraulic Oil (See Hydraulic Fluid List on P.1355)
S : Silicon Oil
G : Water-Glycol (except AB8000) (Iron Tank)

5 Option
Blank : Standard (Air Regulator)
D : Auto-Drain Filter Regulator
Q : With Oil Level Switch

6 Unit of Pressure Gauge
Blank : MPa (Standard)
P : PSI (Used only in the US)

* Please refer to P.1275, P.1277 for BC/BH non-leak valve unit.

Contact us for fluids other than those described above.
Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>AB3000-###</td>
<td>AB4000-###</td>
<td>AB5000-###</td>
<td>AB6000-###</td>
<td>AB7000-###</td>
<td>AB8000-###</td>
</tr>
<tr>
<td>Discharge Hydraulic Pressure (1)</td>
<td>2.4 – 4.3</td>
<td>3.9 – 7.0</td>
<td>6.0 – 11.0</td>
<td>10.0 – 17.5</td>
<td>15.5 – 27.0</td>
<td>25.0 – 43.5</td>
</tr>
<tr>
<td>Air Consumption Nm³/min</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank Capacity ℓ</td>
<td>2.2 ℓ (Actual Amount for Use 1.1 ℓ) / 5 ℓ (Actual Amount for Use 3.1 ℓ)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature °C</td>
<td>0 – 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation Frequency</td>
<td>Pump Operation Time: less than 500 hours/year (2 hrs/day) ※Actual Discharge Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight kg</td>
<td>CB30C:0 (2 ℓ Tank)</td>
<td>6.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CB30C:5 (5 ℓ Tank)</td>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 and 0.5MPa.
2. Please be careful of the operating pressure range of BH / BC unit to be used in combination.
   Example: In case of using CB:080 and BH0071 together, actual operating pressure range is 25 to 30MPa.
   (CB:080 range = 25 to 43.5MPa, BH0071 range = 6 to 30MPa).
3. Please refer to the AB pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P.1305).

Circuit Symbol

Application Example

Manually control double-acting cylinder with BH (NN circuit).

External Dimensions

CB2□XO-

※ This drawing shows the specifications in case of:
   Tank = 2 ℓ, Fluid = General Hydraulic Oil or Silicone Oil, Option = Standard.

Note:
1. Please contact us for the specification (5.0 ℓ tank, water-glycol, with filter regulator, level switch etc.) other than the drawing above.
Pump Unit (For Double/Single Action)
Model CC

**Features**
- Pump Unit to use in conjunction with BC / BH Non-Leak Valve Unit
- Equipped with AC pump. Higher flow rate than CB unit.

*Please refer to P.1275, P.1277 for BC/BH non-leak valve unit.

**Model No. Indication**

```
CC 5040 - 0 - 
```

1. **Tank Capacity**
   - 5 : 5 ℓ (Actual Amount for Use 3.1 ℓ)

2. **Pump Model (Pump Pressure Code)**
   - 03 : AC3001-□
   - 04 : AC4001-□
   - 05 : AC5001-□
   - 06 : AC6001-□
   - 07 : AC7001-□
   - 08 : AC8001-□
   - 09 : AC9001-□

3. **Design No.**
   - 0 : Revision Number

4. **Fluid Code**
   - 0 : General Hydraulic Oil (See Hydraulic Fluid List on P.1355)
   - S : Silicon Oil
   - G : Water-Glycol (except AC8001/AC9001) (Iron Tank)

* Contact us for fluids other than those described above.

5. **Option**
   - Blank : Standard (Air Regulator)
   - D : Auto-Drain Filter Regulator
   - Q : With Oil Level Switch

6. **Unit of Pressure Gauge**
   - Blank : MPa (Standard)
   - P : PSI (Used only in the US)
**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>CC5030</th>
<th>CC5040</th>
<th>CC5050</th>
<th>CC5060</th>
<th>CC5070</th>
<th>CC5080</th>
<th>CC5090</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Part Number</td>
<td>AC3001</td>
<td>AC4001</td>
<td>AC5001</td>
<td>AC6001</td>
<td>AC7001</td>
<td>AC8001</td>
<td>AC9001</td>
</tr>
<tr>
<td>Discharge Hydraulic Pressure MPa</td>
<td>2.3 ~ 4.2</td>
<td>3.6 ~ 6.6</td>
<td>5.8 ~ 10.6</td>
<td>8.9 ~ 16.3</td>
<td>14.4 ~ 26.4</td>
<td>22.6 ~ 41.4</td>
<td>35.3 ~ 64.7</td>
</tr>
<tr>
<td>Air Consumption Nm³/min</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank Capacity l</td>
<td>5 : 5 l (Actual Amount for Use 3.1 l)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature °C</td>
<td>0 ~ 70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Depends on the Fluid Code (Model No. Indication)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 and 0.5MPa.
2. Please be careful of the operating pressure range of BH / BC unit to be used in combination.

Example: In case of using CC5080 and BH0071 together, actual operating pressure range is 22.6 to 30MPa.

1. Please refer to the AC pump performance curve for the calculation formula and the volume of discharge hydraulic pressure (P.1305).

**Circuit Symbol**

![Circuit Symbol Diagram]

**Application Example**

Manual control of double-acting cylinder with BH (NN circuit).

![Application Example Diagram]

**External Dimensions**

![External Dimensions Diagram]

*This drawing shows the specifications in case of:
Tank = 5 l, Fluid = General Hydraulic Oil or Silicon Oil, Option = Standard.

**Pump Code**

<table>
<thead>
<tr>
<th>Pump Code</th>
<th>AC3001/AC4001</th>
<th>AC5001~AC9001</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Rc3/8</td>
<td>Rc1/4</td>
</tr>
</tbody>
</table>

**Note:**
1. Please contact us for the specification (water-glycol, with filter regulator, level switch etc.) other than the drawing above.
AB Pump / AC Pump
(Air Driven Hydraulic Pump)
Model AB/AC

Features
- Air-driven hydraulic pump to generate high-pressure hydraulic-low pressure simply by supplying compressed air.
- Variation of total 13 different sizes and flow rates.
- Applicable to explosion proof specification because no electric motor is used.

Model No. Indication

```
| AB  | 700 | 0   | 0 |
```

1. Pump Size
   - AB : AB Pump (Compact Design, Air Consumption 0.4 Nm³/min)
   - AC : AC Pump (High Volume of Flow, Air Consumption 1.0 Nm³/min)

2. Pressure Range
   - Discharge hydraulic pressure indicates when air pressure range is between 0.3 ~ 0.5MPa.
   - 300: Discharge Hydraulic Pressure With AB Pump: 2.4 ~ 4.3MPa
   - 400: Discharge Hydraulic Pressure With AB Pump: 3.9 ~ 7.0MPa
   - 500: Discharge Hydraulic Pressure With AB Pump: 6.0 ~ 11.0MPa
   - 600: Discharge Hydraulic Pressure With AB Pump: 10.0 ~ 17.5MPa
   - 700: Discharge Hydraulic Pressure With AB Pump: 15.5 ~ 27.0MPa
   - 800: Discharge Hydraulic Pressure With AB Pump: 25.0 ~ 43.5MPa
   - 900: Discharge Hydraulic Pressure No AB Pump at this range.
   With AC Pump:
   - 2.3 ~ 4.2MPa
   - 3.6 ~ 6.6MPa
   - 5.8 ~ 10.6MPa
   - 8.9 ~ 16.3MPa
   - 14.4 ~ 26.4MPa
   - 22.6 ~ 41.4MPa
   - 35.3 ~ 64.7MPa

3. Design No. Revision Number
   - 0 : In case of AB pump
   - 1 : In case of AC pump

4. Circuit Symbol
   - Blank : Standard
   - V : Valve Built-In Option

5. Usable Fluid
   - 0 : General Hydraulic Oil (See Hydraulic Fluid List on P.1355)
   - S : Silicon Oil
   - G : Water-Glycol
   ※ Contact us for fluids other than those described above.
### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>AB3000-□</th>
<th>AB4000-□</th>
<th>AB5000-□</th>
<th>AB6000-□</th>
<th>AB7000-□</th>
<th>AB8000-□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge Hydraulic Pressure[^1] MPa</td>
<td>2.4 – 4.3</td>
<td>3.9 – 7.0</td>
<td>6.0 – 11.0</td>
<td>10.0 – 17.5</td>
<td>15.5 – 27.0</td>
<td>25.0 – 43.5</td>
</tr>
<tr>
<td>Air Consumption Nm³/min</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Operating Air Pressure Range MPa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.15 – 0.7</td>
<td></td>
</tr>
<tr>
<td>Lift m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>below 0.6</td>
<td></td>
</tr>
<tr>
<td>Noise dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>82 – 85</td>
<td></td>
</tr>
<tr>
<td>Applicable Suction Filter[^3]</td>
<td>JF1030</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight kg</td>
<td>2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model No.**
- **AC3001-□**
- **AC4001-□**
- **AC5001-□**
- **AC6001-□**
- **AC7001-□**
- **AC8001-□**
- **AC9001-□**

**Discharge Hydraulic Pressure[^1] MPa**
- 2.3 – 4.2
- 3.6 – 6.6
- 5.8 – 10.6
- 8.9 – 16.3
- 14.4 – 26.4
- 22.6 – 41.4
- 35.3 – 64.7

**Air Consumption Nm³/min**
- 1.0

**Operating Air Pressure Range MPa**
- 0.15 – 0.7

**Lift m**
- below 1.0

**Noise dB**
- 82 – 85

**Usable Fluid[^2]**
- Depends on the Fluid Code (Model No. Indication)

**Applicable Suction Filter[^3]**
- JF1040
- JF1030

**Weight kg**
- 8.8

**Notes:**
1. Discharge hydraulic pressure indicates when air pressure range is between 0.3 – 0.5 MPa.
2. For fluids other than those described in the fluid code, please contact us.
3. Suction filter and suction pipe is not attached. If it is needed, please prepare separately.

### Circuit Symbol

![Circuit Symbol](image)

**Blank**: Standard

**V**: Valve Built-In Option

### Action Description

Actions ① through ④ are repeated to discharge oil.

When “Air Pressure × Piston Area” balances with “Hydraulic Pressure × Plunger Area”, the piston stops automatically.

<1> Initial Position  
<2> Discharge Process  
<3> Air Supply Switching  
<4> Suction Process (Air Vent)
### Performance Curve

#### AB3000
- **Condition formula**: $\text{PH} = 9.4(\text{PA} - 0.04)$
- **Air Pressure PA (MPa)**: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7
- **Discharge Pressure PH (MPa)**: 0.3, 0.4, 0.5, 0.6, 0.7
- **Amount of Discharge Oil (L/min)**: 0.33, 0.67, 1.0, 1.37, 1.6, 2.0, 2.33

#### AB4000
- **Condition formula**: $\text{PH} = 15(\text{PA} - 0.04)$
- **Air Pressure PA (MPa)**: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7
- **Discharge Pressure PH (MPa)**: 0.3, 0.4, 0.5, 0.6, 0.7
- **Amount of Discharge Oil (L/min)**: 0.23, 0.46, 0.69, 0.92, 1.15, 1.38, 1.61

#### AB5000
- **Condition formula**: $\text{PH} = 24(\text{PA} - 0.04)$
- **Air Pressure PA (MPa)**: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7
- **Discharge Pressure PH (MPa)**: 0.3, 0.4, 0.5, 0.6, 0.7
- **Amount of Discharge Oil (L/min)**: 0.14, 0.28, 0.42, 0.56, 0.7, 0.84, 0.98

#### AB6000
- **Condition formula**: $\text{PH} = 38(\text{PA} - 0.04)$
- **Air Pressure PA (MPa)**: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7
- **Discharge Pressure PH (MPa)**: 0.3, 0.4, 0.5, 0.6, 0.7
- **Amount of Discharge Oil (L/min)**: 0.19, 0.38, 0.57, 0.76, 0.95, 1.14, 1.33

#### AB7000
- **Condition formula**: $\text{PH} = 59(\text{PA} - 0.04)$
- **Air Pressure PA (MPa)**: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7
- **Discharge Pressure PH (MPa)**: 0.3, 0.4, 0.5, 0.6, 0.7
- **Amount of Discharge Oil (L/min)**: 0.08, 0.16, 0.24, 0.32, 0.4, 0.48, 0.56

#### AB8000
- **Condition formula**: $\text{PH} = 95(\text{PA} - 0.04)$
- **Air Pressure PA (MPa)**: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7
- **Discharge Pressure PH (MPa)**: 0.3, 0.4, 0.5, 0.6, 0.7
- **Amount of Discharge Oil (L/min)**: 0.33, 0.67, 1.0, 1.37, 1.6, 2.0, 2.33

### Pump Performance Curve

**[Diagram showing pump performance curve with PH and PA values]**

- **PH**: Discharge Pressure (MPa)
- **PA**: Air Pressure (MPa)

**Notes**:
- Refer to the Curve A for the amount of discharge oil.
- At 0.5MPa air pressure, discharge oil volume under no load is about 4.6 L/min. When the pump is operating under 3MPa load, the discharge oil volume is about 3.3 L/min.

---

**Air Hydraulic Unit AB/AC Pump**

*Model AB/AC*
### External Dimensions

<table>
<thead>
<tr>
<th>AB/AC</th>
<th>AB-V (Valve Built-In Option)</th>
<th>AC-V (Valve Built-In Option)</th>
</tr>
</thead>
</table>

※ Some parts of AC pump appearance are different from this drawing.

### Caution (AB/AC)

1. When using an air circuit on the incoming side of the pump, please make sure to install the air filter and regulator. It can cause a malfunction due to dust in the piping.
2. Always use a suction filter at the pump suction side. If you are not using Kosmek filter, we recommended using 100 or more mesh.
3. Use a pipe having no rust or scale internally as a suction pipe. Remove burrs from thread part sufficiently. When installing apply a seal material such as seal tape to prevent air from entering.
4. AB/AC pump is not suitable for continuous operation (circulation or open circuit). Always use in a closed circuit. Continuous operation results in packing wear, adversely affecting the pump life.
5. When installing a purchased hydraulic valve in the hydraulic circuit, the pump may not balance to stop due to internal leakage of the valve. Continuous operation reduces the pump life. Use a non-leak valve and control valve made by Kosmek.
6. The pump discharges oil in pulses. An accumulator can be installed to reduce pulsations.

### Accessory (Suction Filter)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JF1030</th>
<th>JF1040</th>
</tr>
</thead>
</table>

○ Accessory (Suction Filter)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JF1030</th>
<th>JF1040</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size (inch)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Model No. Indication / Specifications / Circuit Symbol / Action Description

| Performance Curve / External Dimensions / Cautions / Accessory |
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler |
| Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |
| Air Sequence Valve |
| BWD |
| Hydraulic Non-Leak Coupler |
| BGA/RGB |
| BGC/RGBD |
| BGP/BGS |
| BFP/BB5 |
| BNP/BNS |
| BPF/BJ5 |
| BPF/IBF5 |

### Air Hydraulic Unit

- CV
- CK
- CP/CPB
- CPC/CQC
- CB
- CC
- AB/AB-V
- AC/AC-V

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JF1030</th>
<th>JF1040</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC5001</td>
<td>AC8001</td>
<td></td>
</tr>
<tr>
<td>AC6001</td>
<td>AC9001</td>
<td></td>
</tr>
<tr>
<td>AC7001</td>
<td>AC4001</td>
<td></td>
</tr>
</tbody>
</table>

Model No. Indication / Specifications / Circuit Symbol / Action Description

| Performance Curve / External Dimensions / Cautions / Accessory |
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler |
| Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |
| Air Sequence Valve |
| BWD |
| Hydraulic Non-Leak Coupler |
| BGA/RGB |
| BGC/RGBD |
| BGP/BGS |
| BFP/BB5 |
| BNP/BNS |
| BPF/BJ5 |
| BPF/IBF5 |

### Air Hydraulic Unit

- CV
- CK
- CP/CPB
- CPC/CQC
- CB
- CC
- AB/AB-V
- AC/AC-V

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JF1030</th>
<th>JF1040</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC5001</td>
<td>AC8001</td>
<td></td>
</tr>
<tr>
<td>AC6001</td>
<td>AC9001</td>
<td></td>
</tr>
<tr>
<td>AC7001</td>
<td>AC4001</td>
<td></td>
</tr>
</tbody>
</table>

Model No. Indication / Specifications / Circuit Symbol / Action Description

| Performance Curve / External Dimensions / Cautions / Accessory |
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler |
| Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |
| Air Sequence Valve |
| BWD |
| Hydraulic Non-Leak Coupler |
| BGA/RGB |
| BGC/RGBD |
| BGP/BGS |
| BFP/BB5 |
| BNP/BNS |
| BPF/BJ5 |
| BPF/IBF5 |

### Air Hydraulic Unit

- CV
- CK
- CP/CPB
- CPC/CQC
- CB
- CC
- AB/AB-V
- AC/AC-V

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JF1030</th>
<th>JF1040</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC5001</td>
<td>AC8001</td>
<td></td>
</tr>
<tr>
<td>AC6001</td>
<td>AC9001</td>
<td></td>
</tr>
<tr>
<td>AC7001</td>
<td>AC4001</td>
<td></td>
</tr>
</tbody>
</table>

Model No. Indication / Specifications / Circuit Symbol / Action Description

| Performance Curve / External Dimensions / Cautions / Accessory |
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler |
| Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |
| Air Sequence Valve |
| BWD |
| Hydraulic Non-Leak Coupler |
| BGA/RGB |
| BGC/RGBD |
| BGP/BGS |
| BFP/BB5 |
| BNP/BNS |
| BPF/BJ5 |
| BPF/IBF5 |

### Air Hydraulic Unit

- CV
- CK
- CP/CPB
- CPC/CQC
- CB
- CC
- AB/AB-V
- AC/AC-V

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JF1030</th>
<th>JF1040</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC5001</td>
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Model No. Indication / Specifications / Circuit Symbol / Action Description

| Performance Curve / External Dimensions / Cautions / Accessory |
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler |
| Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |
| Air Sequence Valve |
| BWD |
| Hydraulic Non-Leak Coupler |
| BGA/RGB |
| BGC/RGBD |
| BGP/BGS |
| BFP/BB5 |
| BNP/BNS |
| BPF/BJ5 |
| BPF/IBF5 |

### Air Hydraulic Unit

- CV
- CK
- CP/CPB
- CPC/CQC
- CB
- CC
- AB/AB-V
- AC/AC-V

<table>
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<tr>
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Cautions

Installation Notes (For Hydraulic Series)

1) Check the Usable Fluid
   ● Please use the appropriate fluid by referring to the Hydraulic Fluid List.

2) Procedure before Piping
   ● The pipeline, piping connector and fixture circuits should be cleaned by thorough flushing.
   ● The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
   ● There is no filter provided with Kosmek’s product except for a part of valves which prevents foreign materials and contaminants from getting into the circuit.

3) Applying Sealing Tape
   ● Wrap with tape 1 to 2 times following the screw direction.
   ● Pieces of the sealing tape can lead to oil leakage and malfunction.
   ● Please implement piping construction in a clear environment to prevent anything getting in products.

4) Air Bleeding of the Hydraulic Circuit
   ● If the hydraulic circuit has excessive air, the action time may become very long. If air enters the circuit after connecting the hydraulic port or under the condition of no air in the oil tank, please perform the following steps.

   ① Reduce hydraulic pressure to less than 2MPa.
   ② Loosen the cap nut of pipe fitting closest to the clamp by one full turn.
   ③ Shake the pipeline to loosen the outlet of pipe fitting.
   Hydraulic fluid mixed with air comes out.

   ④ Tighten the cap nut after bleeding.
   ⑤ It is more effective to release air at the highest point inside the circuit or at the end of the circuit.
 (Set an air bleeding valve at the highest point inside the circuit.)

5) Checking Looseness and Retightening
   ● At the beginning of the machine installation, the bolt and nut may be tightened lightly. Check the looseness and re-tighten as required.

Hydraulic Fluid List

<table>
<thead>
<tr>
<th>Maker</th>
<th>Anti-Wear Hydraulic Oil</th>
<th>Multi-Purpose Hydraulic Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showa Shell Sekiyu</td>
<td>Tellus S2 M 32</td>
<td>Morina S2 B 32</td>
</tr>
<tr>
<td>Idemitsu Kosan</td>
<td>Daphne Hydraulic Fluid 32</td>
<td>Daphne Super Multi Oil 32</td>
</tr>
<tr>
<td>JX Nippon Oil &amp; Energy</td>
<td>Super Hyrando 32</td>
<td>Super Mulpus DX 32</td>
</tr>
<tr>
<td>Cosmo Oil</td>
<td>Cosmo Hydro AW32</td>
<td>Cosmo New Mighty Super 32</td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>Mobil DYE 24</td>
<td>Mobil DYE 24 Light</td>
</tr>
<tr>
<td>Matsumura Oil</td>
<td>Hydol AW-32</td>
<td></td>
</tr>
<tr>
<td>Castrol</td>
<td>Hyspin AWS 32</td>
<td></td>
</tr>
</tbody>
</table>

Note: Please contact manufacturers when customers require products in the list above.
- **Notes on Hydraulic Cylinder Speed Control Unit**

  Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

- **Flow Control Circuit for Single Acting Cylinder**
  For spring return single acting cylinders, restricting flow during release can extremely slow down or disrupt release action. The preferred method is to control the flow during the lock action using a valve that has free-flow in the release direction. It is also preferred to provide a flow control valve at each actuator.

  ![Flow Control at the Release Side](image)

  Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)

- **Flow Control Circuit for Double Acting Cylinder**
  Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system. However, in the case of controlling LKE, TMA, TLA, both lock side and release side should be meter-in circuit. Refer to P.75 for speed adjustment of LKE. For TMA and TLA, if meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.

  - **[Meter-out Circuit]** (Except LKE/TMA/TLA)
    ![Meter-out Circuit](image)

  - **[Meter-in Circuit]** (LKE/TMA/TLA must be controlled with meter-in.)
    ![Meter-in Circuit](image)

  - In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.
    ① Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.

  - Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.
    ○ Separate the control circuit.

  - Reduce the influence of double acting cylinder control unit. However, due to the back pressure in tank line, single action cylinder is activated after double action cylinder works.

  - In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve or pressure switches for clamping detection, if the back pressure is more than the set pressure then the system will not work as it is designed to.

  ![Sequence Valve](image)

  ![Flow Control Valve](image)

  (Any location is OK)
Cautions

- **Notes on Handling**

  1) It should be operated by qualified personnel.
     - The hydraulic machine and air compressor should be operated and maintained by qualified personnel.

  2) Do not operate or remove the product unless the safety protocols are ensured.
     1. The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
     2. Before the product is removed, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
     3. After stopping the product, do not remove until the temperature drops.
     4. Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

  3) Do not touch a clamp (cylinder) while it is working. Otherwise, your hands may be injured due to clinching.

  4) Do not disassemble or modify.
     - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

- **Maintenance and Inspection**

  1) Removal of the Machine and Shut-off of Pressure Source
     - Before the machine is removed, make sure that safety devices and preventive devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
     - Make sure there is no abnormality in the bolts and respective parts before restarting.

  2) Regularly clean the area around the piston rod and plunger.
     - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning and fluid leakage.

  3) Please clean out the reference surfaces on a regular basis (taper reference surface and seating surface) of the locating products. (VS/VT/VFL/VFM/VFJ/VFK/WVS/VWM/VX/VXE/VXF)
     - The locating products, except VX/VXE/VXF model, can remove contaminants with cleaning functions. However, hardened cutting chips, adhesive coolant and others may not be removed. Make sure there are no contaminants before installing a workpiece/pallet.
     - Continuous use with contaminant on components will lead to locating accuracy failure, malfunction and fluid leakage.

  4) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.

  5) Regularly tighten nut, bolt, pin, cylinder, pipe line and others to ensure proper use.

  6) Make sure the hydraulic fluid has not deteriorated.

  7) Make sure there is a smooth action without an irregular noise.
     - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.

  8) The products should be stored in the cool and dark place without direct sunshine or moisture.

  9) Please contact us for overhaul and repair.
● Warranty

1) Warranty Period
● The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope
● If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense. Defects or failures caused by the following are not covered.

1. If the stipulated maintenance and inspection are not carried out.
2. If the product is used while it is not suitable for use based on the operator’s judgment, resulting in defect.
3. If it is used or operated in an inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
4. If the defect is caused by reasons other than our responsibility.
5. If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
6. Other caused by natural disasters or calamities not attributable to our company.
7. Parts or replacement expenses due to parts consumption and deterioration. (Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.
# Sales Offices

## Sales Offices across the World

<table>
<thead>
<tr>
<th>Country</th>
<th>City/Office</th>
<th>TEL.</th>
<th>FAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td>KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan</td>
<td>+81-78-991-5162</td>
<td>+81-78-991-8787</td>
</tr>
<tr>
<td><strong>Overseas Sales</strong></td>
<td>〒651-2241</td>
<td></td>
<td></td>
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<tr>
<td><strong>United States of America</strong></td>
<td>650 Springer Drive, Lombard, IL, 60148 USA</td>
<td>+1-630-620-7650</td>
<td>+1-630-620-9015</td>
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<tr>
<td><strong>KOSMEK (USA) LTD.</strong></td>
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<tr>
<td><strong>Mexico</strong></td>
<td>Av. Santa Fe #103 int 59 Col. Santa Fe Juriquilla C.P. 76230 Queretaro, Qro Mexico</td>
<td>+52-442-161-2347</td>
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<tr>
<td><strong>KOSMEK USA Mexico Office</strong></td>
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<tr>
<td><strong>Europe</strong></td>
<td>Schleppenplatz 2 9020 Klagenfurt am Wörthersee Austria</td>
<td>+43-463-287587</td>
<td>+43-463-287587-20</td>
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<tr>
<td><strong>KOSMEK EUROPE GmbH</strong></td>
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<tr>
<td><strong>China</strong></td>
<td>Room 601, RIVERSIDE PYRAMID No.55, Lane 21, Pusan Rd, Pudong Shanghai 200125, China</td>
<td>+86-21-54253000</td>
<td>+86-21-54253709</td>
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<td><strong>KOSMEK (CHINA) LTD.</strong></td>
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<tr>
<td><strong>India</strong></td>
<td>F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore-560052 India</td>
<td>+91-9880561695</td>
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<td><strong>Thailand</strong></td>
<td>67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand</td>
<td>+66-2-300-5132</td>
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<tr>
<td><strong>KOSMEK Thailand Representation Office</strong></td>
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<tr>
<td><strong>Taiwan</strong></td>
<td>16F-4, No.2, Jian Ba Rd, Zhonghe District, New Taipei City Taiwan 23511</td>
<td>+886-2-82261860</td>
<td>+886-2-82261890</td>
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<tr>
<td><strong>Taiwan (Taiwan Exclusive Distributor)</strong></td>
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<td><strong>Full Life Trading Co., Ltd.</strong></td>
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<tr>
<td><strong>Philippines</strong></td>
<td>Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines</td>
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