Hydraulic Oil/Air/Coolant Auto Coupler

Coupler for Connecting Fluid Circuit
Compact / Applicable to a lot of fluid and flow.

What is Auto Coupler?
Auto coupler is designed to connect a variety of flow circuits, is suitable for automation and fits in small spaces. We can offer based on your requirement.

- Auto coupler doesn’t have non-leak mechanism.
- In case of you need non-leak function, please refer to P.1015.

Application Examples

Connecting from the Pallet Bottom
Connecting from Outside
<table>
<thead>
<tr>
<th>Model No.</th>
<th>Operating Pressure Range</th>
<th>Usable Fluid</th>
<th>Comparison of Auto Coupler Connected Condition Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>JVA/JVB</td>
<td>7MPa or less</td>
<td>General Hydraulic Oil</td>
<td>Min. Passage Area : 12.6mm²</td>
</tr>
<tr>
<td>JVC/JVD</td>
<td>7MPa or less</td>
<td>General Hydraulic Oil</td>
<td>Min. Passage Area : 12.6mm²</td>
</tr>
<tr>
<td>JVE/JVF</td>
<td>1MPa or less</td>
<td>Air</td>
<td>Min. Passage Area : 8.8mm² (At Eccentricity : 7.4mm²)</td>
</tr>
<tr>
<td>JNA/JNB</td>
<td>1MPa or less</td>
<td>Air</td>
<td>Min. Passage Area : 10.3mm²</td>
</tr>
<tr>
<td>JNC/JND</td>
<td>25MPa or less</td>
<td>General Hydraulic Oil</td>
<td>Min. Passage Area : 10.3mm²</td>
</tr>
<tr>
<td>JLP/JLS</td>
<td>3.5MPa or less, 25MPa or less</td>
<td>Coolant</td>
<td>Min. Passage Area : 29.0mm²</td>
</tr>
</tbody>
</table>

- Model JVA/JVB: → P.1047
- Model JVC/JVD: → P.1051
- Model JVE/JVF: → P.1055
- Model JNA/JNB: → P.1059
- Model JNC/JND: → P.1063
- Model JLP/JLS: → P.1067

1. Minimum passage of JLP/JLS area differs depending on size.
2. It shows the connecting dimension on multiple connection.
3. Please refer to each page for detail.
Auto Coupler

Model JVA/JVB

For Oil/Air/Coolant
(Operating Pressure Range: lower than 7MPa)

What is Auto Coupler?
Auto coupler, which is designed to connect a variety of flow circuits, is suitable for automation and fits in small spaces. We offer them based on your requirement.

- Auto coupler does not have non-leak mechanism.
- In case you need non-leak function, please refer to ‘Non-Leak Coupler’ on P.1015.

JVA/JVB Feature
It is suitable for connecting and disconnecting the hydraulic circuit on changeover of fixture pallets and tombstones. Threaded auto coupler can be used with “Screw Locator (VXF)”.

Action Description

Disconnected State  In the Process of Connecting (During Pallet Setting)  Connected State

1. Using without “Screw Locator”
Reaction force is not generated at the distance of 1mm or further than the connection setting dimensions (3.35mm).

2. Using with “Screw Locator”
Reaction force (spring force) is working when setting up the pallet because the stroke of “Screw Locator” is 0.2～0.3mm. Pallet may float if the weight of the pallet is light.

Example with “Screw Locator”

Screw Locator
model VXF

Connected State
The reaction force is created by both spring and the supply pressure.
**Model No. Indication**

\[ J V B \, 020 \, 0 - \, W \]

1 **Style**

- **A**: O-ring side of Connection Surface (Fixture Side)
- **B**: Metal Side of Connection Surface (Pressure Source Side)

2 **Design No.**

- **0**: Revision Number

3 **Material**

- **W**: Stainless Steel, Brass, NBR  
  (Recommended Fluid: General Hydraulic Oil / Air)
- **H**: Stainless Steel, Brass, Fluor Rubber  
  (Recommended Fluid: Coolant)

**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Fixture Side</th>
<th>JVA020-</th>
<th>JVB020-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max. Operating Pressure (MPa)</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Withstanding Pressure (MPa)</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min. Passage Area (mm²)</td>
<td>12.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Offset Tolerance (mm)</td>
<td>±0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Angular Deviation (Tolerance) (DEG)</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating Temperature (°C)</td>
<td>0 ~ 70</td>
<td></td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Material W</td>
<td>General Hydraulic Oil Equivalent to ISO-VG-32-Air</td>
<td></td>
</tr>
<tr>
<td>Reaction Force (kN)</td>
<td>Material H</td>
<td>Coolant</td>
<td></td>
</tr>
<tr>
<td>Operating Pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 7 MPa</td>
<td>1.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 1 MPa</td>
<td>0.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at P MPa</td>
<td>0.154 × P + 0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass</td>
<td>JVA</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JVB</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**Supply Pressure-Reaction Force Graph**

The graph shows the relationship between the reaction force and the supply pressure after the completion of connection of JVA/JVB.

**Flow Rate - Pressure Loss Characteristic Graph**

The fluid used on this data is general hydraulic oil equivalent to ISO-VG-32 (30~40°C).
**External Dimensions (JVA/JVB)**

- **M20×1.5 Screw**
  - φ 18.2
  - (Depth 1.5)

- **JVA0200-□** (O-ring Side of Connection Surface)
  - P.C.D. 18

- **JVB0200-□** (Metal Side of Connection Surface)
  - P.C.D. 18

- **ASS68-017/90° (Included)**
  - Material W: Nitrile Rubber
  - Material H: Fluor Rubber

**Machining Dimension for Mounting Hole (JVA0200-□)**

- φ 14 or less
- Length: 30
- φ 21

**Machining Dimension for Mounting Hole (JVB0200-□)**

- φ 13 or less
- Length: 30
- φ 21

**Connection Setting Dimension (33.5, □)**

- φ 20.5H7 +0.007/-0.028

**Notes:**

1. When □ 1 dimension is 19mm, clearance between base plate and pallet is 0mm.
   - When □ 1 dimension is 14mm, clearance between base plate and pallet is 5mm.
2. For the tolerance of □ 2, when using with the pallet clamp (Lift-Up Stroke 1mm) and it is required to prevent the force of spring in JV, the tolerance of each machining depth should be ±0.05mm.
   - (Connection Set Length: 33.5 ±0.10mm)
3. Mounting Jig (Model ZZJ0020) or equivalent is required when installing and removing JVA/JVB.
   - Mounting Jig (Model ZZJ0020) is not included with JVA/JVB. Please order separately.

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**Accessory: Mounting Jig for JVA/JVB**

JVA/JVB is mounted with this mounting jig.

Tightening Torque: 16N·m

**Model No. indication**

**ZZJ 0020**

- Design No.
  - (Revision Number)

**Note:**

1. Mounting Jig (Model ZZJ0020) or equivalent is required when installing and removing JVA/JVB. Please determine the number of jigs required when ordering.
Cautions (JVA/JVB)

1. Do not connect or disconnect when the auto coupler has received the pressure from the source. (Please refer to Circuit Reference.)
2. Drain out air within the circuit before use (When usable fluid is oil).
3. Do not connect in the condition that foreign substances such as chips adhered on the connecting surfaces. Completely remove the adhering chips or coolant by air blow etc.
4. Load applied on a fixture side actuator in the separate condition may result in oil flowing out from the end of auto coupler.
5. Exceeding allowable offset will cause damage on to the internal parts. It is recommended to install guide pins.
6. When pressing up to the connection limit, the force should be higher than the reaction force and lower than 3.0kN.
7. Use Mounting Jig (Model ZZ:0020) or equivalent for installation and removal.

Circuit Reference

Use a three position (center position, A/B connection) solenoid valve for controlling circuit, and stop supplying hydraulic (or air) pressure with the center position when connecting/ disconnecting JVA/JVB.

Do not connect or disconnect when the auto coupler has received the pressure from the source.
Auto Coupler

Model JVC/JVD

For Oil/Air/Coolant
(Operating Pressure Range: lower than 7MPa)

特征

它适合用于连接和断开液压系统，以便在更换工装板和墓碑时实现平滑过渡。它能够与工装钳（VS/WVS）配合使用，并且在设定工装时不会产生反作用力。

动作说明

断开状态

- JVC（工装板侧）
- JVD（压力源侧）

1. 不使用工装钳
   - 零反作用力，当它们与尺寸高1mm的连接件断开时。

2. 使用工装钳
   - 通过提升功能，工装钳提供1mm的提升力。
   - 无反应力，因为在断开状态下。
   - (当工装钳被锁定时，它们被连接并且产生反应力。)
Model No. Indication

J V D 020 0 - W - S B 10

1 Style

C : O-ring side of Connection Surface (Fixture Side)
D : Metal Side of Connection Surface (Pressure Source Side)

2 Design No.

0 : Revision Number

3 Material

W : Stainless Steel, Brass, NBR
(Recommended Fluid : General Hydraulic Oil / Air)

H : Stainless Steel, Brass, Fluor Rubber
(Recommended Fluid : Coolant)

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JVD0200-</th>
<th>JVC0200-</th>
<th>JVD0201-</th>
<th>JVD0202-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixture Side</td>
<td>JVD0200</td>
<td>JVD0200</td>
<td>JVD0200</td>
<td>JVD0200</td>
</tr>
<tr>
<td>Presur. Source</td>
<td>JVD0200</td>
<td>JVD0200</td>
<td>JVD0200</td>
<td>JVD0200</td>
</tr>
</tbody>
</table>

Max. Operating Pressure MPa 7.0
Withstanding Pressure MPa 10.5
Min. Passage Area mm² 12.6
Offset Tolerance mm ±0.5
Angular Deviation (Offset Tolerance) DEG. 0.3
Operating Temperature °C 0 ~ 70

Usable Fluid

Material W General Hydraulic Fluid Equivalent to ISO VS 32+Air
Material H Coolant

Reaction Force kN

Operating Fluid

at 7 MPa 1.12
at 1 MPa 0.19
at P MPa 0.154 × P + 0.04

Mass g 34

Accommodate V5 VS VS020 / VS0040 VS060 VS100
Clamp Model W5 – W50040 W50060 W50100
Pallet Clamp Block Model – VS020 VS020 VS060 VS060 VS100

Accommodate Clamp Model

Blank : C selected
S : D selected and used together with VS, W5 or without pallet clamps
T : D selected and used together with VT
Please contact us when you select T.

Pallet Clamp Block Model

Blank : C selected
B02 : VS020
B06 : VS060
B10 : VS100
J01 : –
J02 : VSJ020
J06 : VSJ060
J10 : VSJ100

D selected
In the case of not using together with pallet clamps, please select model from connection setting dimension.

Circuit Symbol

JVD (Outgoing Side / Fixture Side)
JVC (Incoming Side / Pressure Source Side)
Zero oil leak out of JVC in disconnected state.

Supply Pressure-Reaction Force Graph

The graph shows the relationship between the reaction force and the supply pressure after the completion of connection of JVD/JVC.

Flow Rate - Pressure Loss Characteristic Graph

The fluid used on this data is general hydraulic oil equivalent to ISO-VG-32 (30 ~ 40°C).
External Dimensions (JVC/JVD)

Dimensions (mm)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Pressure Source Side</th>
<th>JVC0200-</th>
<th>JVD0200-</th>
<th>JVD0200-</th>
<th>JVD0200-</th>
<th>JVD0200-</th>
<th>JVD0200-</th>
<th>JVD0200-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>SJ01</td>
<td>SJ02</td>
<td>SJ02</td>
<td>SJ02</td>
<td>SJ02</td>
<td>SJ02</td>
<td>SJ02</td>
<td>SJ02</td>
</tr>
<tr>
<td>A</td>
<td>21.5</td>
<td>16</td>
<td>24.5</td>
<td>17.5</td>
<td>28</td>
<td>20</td>
<td>30.5</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>1</td>
<td>1</td>
<td>3.5</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>9.5</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Connected Condition Dimension Using the Pallet Clamps (mm)

<table>
<thead>
<tr>
<th>A Combination Clamps Model</th>
<th>VS00100/WVS0100</th>
<th>VS0060/WVS0060</th>
<th>VS0040/WVS0040</th>
</tr>
</thead>
<tbody>
<tr>
<td>When VSJ Block is used</td>
<td>11.5</td>
<td>13</td>
<td>15.5</td>
</tr>
<tr>
<td>When VSJ Block is used</td>
<td>20</td>
<td>23.5</td>
<td>26</td>
</tr>
</tbody>
</table>

Machining Dimension for Mounting Hole (JVC/JVD)

Model No. | Thread Size | Tightening Torque (N·m)
-----------|-------------|----------------------|
JVC0200-  | M20×1.5     | 25                   |

The Connected Condition Dimension when Used in Combination with Pallet Clamps
Cautions (JVC/JVD)

1. Do not connect or disconnect when the auto coupler has received the pressure from the source.
   (Please refer to Circuit Reference.)
2. Drain out air within the circuit before use (When usable fluid is oil).
3. Do not connect in the condition that foreign substances such as chips adhered on the connecting surfaces.
   Completely remove the adhering chips or coolant by air blow etc.
4. Load applied on a fixture side actuator in the separate condition may result in oil flowing out from the end of auto coupler.
5. Exceeding allowable offset will cause damage on to the internal parts. It is recommended to install guide pins.
6. It is recommended to use VS/VVS series as pallet clamp to ensure stabilized setting with 1mm lift-up stroke.
   When using JVC/JVD with pallet clamps other than corresponding models, the connection dimensions are 1 of JVC/JVD should be D\(\leq 0.05\), or consider using JNA/JNB, JNC/JND.
7. The connection dimensions AB and BB are different when using the collar for level adjustment (VZ-VS1).
   The connection dimensions are I of JVC/JVD should be D\(\leq 0.05\).
8. When pressing up to the connection limit, the force should be higher than the reaction force and lower than 4.0kN.

For any other conditions, the connection setting dimension should be D\(\geq 0.24\).

Circuit Reference

Use a three position (center position, ABT connection) solenoid valve for controlling circuit, and stop supplying hydraulic (or air) pressure with the center position when connecting/disconnecting JVC/JVD.

Do not connect or disconnect when the auto coupler has received the pressure from the source.
Auto Coupler

Model JVE/JVF

For Air/Coolant
(Operating Pressure Range: lower than 1MPa)

Feature

It is suitable for connecting and disconnecting the flow circuit on changeover of fixture pallets and tombstones. It can be used easily together with pallet clamps (VS/WVS) and no reaction force is found when setting the pallet together with pallet clamp.

Action Description

Disconnected State (During Pallet Setting)

1. Using without Pallet Clamps
   Zero reaction force when they are disconnected with dimension higher by 1mm than the connected dimension.

2. Using with Pallet Clamps
   They get connected by the lift up function of 1mm provided by the pallet clamps.
   No Reaction force created during release action because it is in disconnected condition.
   (When pallet clamps are clamped, they get connected and the reaction force is created.)
Model No. Indication

JVF 0300 - H - S B10

1 Style

E : O-ring side of Connection Surface (Fixture Side)
F : Metal Side of Connection Surface (Pressure Source Side)

2 Design No.

0 : Revision Number

3 Material

H : Stainless Steel, Brass, Fluor Rubber

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Fixture side</th>
<th>JVE0300-H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pressure/Side</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JVF0300H</td>
<td>JVF0300H</td>
</tr>
<tr>
<td></td>
<td>-H-SJ01</td>
<td>-H-SJ02</td>
</tr>
<tr>
<td></td>
<td>-H-SB02</td>
<td>-H-SB06</td>
</tr>
<tr>
<td></td>
<td>-H-SJ06</td>
<td>-H-SB10</td>
</tr>
<tr>
<td></td>
<td>-H-SJ10</td>
<td></td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>MPa</td>
<td>1.0</td>
</tr>
<tr>
<td>Withstanding Pressure</td>
<td>MPa</td>
<td>1.5</td>
</tr>
<tr>
<td>Min. Passage Area</td>
<td>mm²</td>
<td>29.0</td>
</tr>
<tr>
<td>Offset Tolerance</td>
<td>mm</td>
<td>±0.5</td>
</tr>
<tr>
<td>Angular Deviation (Offset Tolerance)</td>
<td>DEG,°</td>
<td>0.3</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>°C</td>
<td>0 ~ 70</td>
</tr>
<tr>
<td>Usable Fluid</td>
<td></td>
<td>Coolant or Air</td>
</tr>
<tr>
<td>Reaction Force kN</td>
<td></td>
<td>at 1.0 MPa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at 0.4 MPa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at P MPa</td>
</tr>
<tr>
<td>Mass g</td>
<td></td>
<td>JVE</td>
</tr>
</tbody>
</table>

Accommodate Pallet Clamp Model

Blank : 1 F selected
S : 1 F selected and used together with VS, VS0 or without pallet clamps
T : 1 F selected and used together with VT

Please contact us when you select T.

5 Pallet Clamp Block Model

Blank : 1 F selected

B02 : VS0B20
B06 : VS0B06
B10 : VS1B10
J01 : —
J02 : VSJ020
J06 : VSJ060
J10 : VSJ100

( In the case of not using together with pallet clamps, please select model from connection setting dimension.)

Circuit Symbol

Supply Pressure - Reaction Force Graph

The graph shows the relationship between the reaction force and the supply pressure after the completion of connection of JVE/JVF.

Flow Rate - Pressure Loss Characteristic Graph

Fluid to be used on this data is water.

Air Sequence Valve

BWD

Hydraulic Non-Leak Coupler

BGA/RGB
BGC/RGD
BGP/BGS
BBP/BS
BNP/BN
BP/JBS
BP/IF

Auto Coupler

JNA/JVB
JVC/JVD
JVL/E/VE
JNA/JNB
JNC/JND
JLP/JLS

Rotary Joint

JR

Hydraulic Valve

BK
BEO
BT
BLS/GLG
BLB
JSS/JS
JKA/JKB
BMA/BMG
AU/AU
BU
BP/PJ
B
BEP/SEP
BH
BC

Air Hydraulic Unit

CV
CK
CP/CPB
CPC/CQC
CR
CC
AB/AB-V
AC/AC-V
**External Dimensions (JVE/JVF)**

![Diagram of external dimensions](image)

**Machining Dimension for Mounting Hole (JVE/JVF)**

![Diagram of machining dimension](image)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Thread Size</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JVE0300-H</td>
<td>M27 x 1.5</td>
<td>40</td>
</tr>
</tbody>
</table>

[2] This dimension is only for JVE side.

The Connected Condition Dimension when Used in Combination with Pallet Clamps

![Diagram of connected condition dimension](image)

**Dimensions (mm)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JVE0300-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>JVF0300-H</td>
</tr>
<tr>
<td>A</td>
<td>21.5</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>10.5</td>
</tr>
<tr>
<td>D</td>
<td>17</td>
</tr>
<tr>
<td>E</td>
<td>16.5</td>
</tr>
<tr>
<td>A</td>
<td>24.5</td>
</tr>
<tr>
<td>B</td>
<td>3.5</td>
</tr>
<tr>
<td>C</td>
<td>11</td>
</tr>
<tr>
<td>D</td>
<td>11.5</td>
</tr>
<tr>
<td>E</td>
<td>19.5</td>
</tr>
<tr>
<td>A</td>
<td>17.5</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>6.5</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
</tr>
<tr>
<td>E</td>
<td>12.5</td>
</tr>
<tr>
<td>A</td>
<td>28</td>
</tr>
<tr>
<td>B</td>
<td>7</td>
</tr>
<tr>
<td>C</td>
<td>11</td>
</tr>
<tr>
<td>D</td>
<td>13</td>
</tr>
<tr>
<td>E</td>
<td>23</td>
</tr>
<tr>
<td>A</td>
<td>20</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>19.5</td>
</tr>
<tr>
<td>D</td>
<td>13</td>
</tr>
<tr>
<td>E</td>
<td>12.5</td>
</tr>
<tr>
<td>A</td>
<td>30.5</td>
</tr>
<tr>
<td>B</td>
<td>9.5</td>
</tr>
<tr>
<td>C</td>
<td>11</td>
</tr>
<tr>
<td>D</td>
<td>15.5</td>
</tr>
<tr>
<td>E</td>
<td>25.5</td>
</tr>
</tbody>
</table>

The Connected Condition Dimension Using the Pallet Clamps (mm)

<table>
<thead>
<tr>
<th>A combination of clamp models</th>
<th>VS020/VS040</th>
<th>VS060</th>
<th>VS0100</th>
</tr>
</thead>
<tbody>
<tr>
<td>When VSB Block is used</td>
<td>11.5</td>
<td>13</td>
<td>15.5</td>
</tr>
<tr>
<td>When VSJ Block is used</td>
<td>20</td>
<td>23.5</td>
<td>26</td>
</tr>
</tbody>
</table>
Cautions (JVE/JVF)

1. Make sure to supply fluid after connection is completed.
2. Since each check valve is a metal seal, there will be slight fluid leak if pressurized while disconnected.
3. Do not connect in the condition that foreign substances such as chips adhere on the connecting surfaces.
   Completely remove the adhering chips or coolant by air blow etc.
4. Exceeding allowable offset will cause damage on to the internal parts.
   (It is recommended to install guide pins when not using pallet clamps.)
5. It is recommended to use VS/VVS series as pallet clamp to ensure stabilized setting with 1mm lift-up stroke.
   When using JVE/JVF with pallet clamps other than corresponding models, the connection dimensions 1 of JVE/JVF
   should be $D_{\text{max}}$, or consider using JNA/JNB, JNC/JND.
6. The connection dimensions BA and BB are different when using the collar for level adjustment (VZ-VS1).
   The connection dimensions $D_{1}$ of JVE/JVF should be $D_{\text{max}}$.
7. When pressing up to the connection limit, the force should be higher than the reaction force and lower than 4.0kN.

1. The connection setting dimension $D_{\text{max}}$ indicates the tolerance when using JVE/JVF with pallet clamps and
   reducing the reaction force of the auto coupler to zero during pallet setting (when releasing pallet clamps).
   For any other conditions, the connection setting dimension should be $D_{1/4}$. 
Auto Coupler

Model JNA/JNB

For Air
(Operating Pressure Range: lower than 1MPa)

Feature

It is designed to prevent cutting chips and coolant from entering check valve during separation. Compactly designed manifold model and BGC/BGD combination model are available.

Action Description (Manifold Model)

Disconnected State

Connected State

1. When JNA closely contacts with JNB, one check valve presses the other to make the valves open.
2. At this time, the O-ring on the end surface of the sleeve prevents external air leakage.

Action Description (BGC/BGD Combination Model)

Disconnected State

Connected State

1. When JNA closely contacts with JNB, one check valve presses the other to make the valves open.
2. At this time, the O-ring on the end surface of the sleeve prevents external air leakage.
Model No. Indication

J N B 01 0 - W -

1 Style

A: O-ring side of Connection Surface (Fixture Side)
B: Metal Side of Connection Surface (Pressure Source Side)

2 Design No.

0: Revision Number

3 Material

W: Stainless Steel, Brass, NBR

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Fixture Side</th>
<th>Pressure Source Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNA010-W</td>
<td>JNB010-W</td>
<td></td>
</tr>
</tbody>
</table>

Max. Operating Pressure: 1.0 MPa
Withstanding Pressure: 1.5 MPa
Min. Passage Area: 8.8 mm² (at eccentricity: 7.4)
Offset Tolerance: ±1 mm
Angular Deviation: 0.3°
Operating Temperature: 0 ~ 70°C
Usable Fluid: Air

Reaction Force: 0.12 kN (at 0.5 MPa)
0.07 kN (at 0.2 MPa)
0.154 × P + 0.04 kN (at P MPa)

Mass: 35 g JNA010-W
40 g JNB010-W
150 g JNA010-W-BGC
450 g JNB010-W-BGD

Circuit Symbol (Manifold Model)

JNA010-W / JNB010-W
JNA010-W (Outgoing Side / Fixture Side)
JNB010-W (Incoming Side / Pressure Source Side)

Circuit Symbol (BGC/BGD Combination Model)

JNA010-W-BGC / JNB010-W-BGD
JNA010-W-BGC (Outgoing Side / Fixture Side)
JNB010-W-BGD (Incoming Side / Pressure Source Side)

Flow Rate - Pressure Loss Characteristic Graph

Fluid to be used on this data is air (temperature is 25°C) with min. passage area 8.8 mm².

<table>
<thead>
<tr>
<th>Flow Rate (L/min [ANR])</th>
<th>Pressure Loss (MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>85</td>
<td>0.05</td>
</tr>
<tr>
<td>125</td>
<td>0.10</td>
</tr>
<tr>
<td>165</td>
<td>0.15</td>
</tr>
<tr>
<td>200</td>
<td>0.20</td>
</tr>
<tr>
<td>235</td>
<td>0.25</td>
</tr>
<tr>
<td>270</td>
<td>0.30</td>
</tr>
<tr>
<td>305</td>
<td>0.35</td>
</tr>
<tr>
<td>345</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Pressure Loss (MPa) vs. Flow Rate (L/min [ANR]) graph is shown.

Air Sequence Valve
- BWD

Hydraulic Non-Leak Coupler
- BGA/RGB
- BGC/BGD
- BGP/BSG
- BBP/BS5
- BNP/BN5
- BP/BJ5
- BFP/BB5

Auto Coupler
- JNA/ICI
- JVC/JQD
- JVE/IVER
- JNA/IIC

Rotary Joint
- JR

Hydraulic Valve
- BK
- BEQ
- BT
- BLS/BLG
- BLB
- JSS/J5
- JKA/JKB
- BM/A/BMG
- AU/AU-M
- BU
- BP/JPB
- BX
- BEP/BSP
- BH
- BC

Air Hydraulic Unit
- CV
- CK
- CP/CPB
- CPC/CQC
- CR
- CC
- AB/AB-V
- AC/AC-V
**Auto Coupler**  For Air (Operating Pressure Range: lower than 1MPa)  

**External Dimensions (JNA010-W/JNB010-W)**

- **JNA010-W**  
  - O-ring: AS668-017 (70°)  
  - M20 x 1.5 Screw  
  - Hexagon 22

- **JNB010-W**  
  - O-ring: AS668-017 (70°)  
  - M20 x 1.5 Screw  
  - Hexagon 22

**Machining Dimension for Mounting Hole (JNA010-W/JNB010-W)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Thread Size</th>
<th>Tightening Torque/N·m</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNA010-W</td>
<td>M20 x 1.5</td>
<td>25</td>
</tr>
</tbody>
</table>

**Mounting Surface**

- <Connection Setting Dimension Single Side>

- <Connection Setting Dimension Multiple Sets Side>

- Single Connection  
- Multiple Connection
## External Dimensions (JNA010-W-BGC/JNB010-W-BGD)

![Diagram of JNA010-W-BGC](image1)

- **O-ring**: 18P22A (Included)
- **2-M5 x 0.8 x 14 Bolt (Included)**
- **9.7 x 10.2 x 3.5 x 15.5**
- **2-M5 x 0.8 x 10 Depth 10**

![Diagram of JNB010-W-BGD](image2)

- **O-ring**: 18P6 (Included)
- **4-M5 x 0.8 x 35 Bolt (Included)**
- **4-M5 x 0.8 x 10 Depth 10**
- **Capable of Pressurizing by Hydraulic Pressure for BGD**

### Machining Dimension for Mounting Hole (JNA010-W-BGC)

- **A Port**
- **P Port**
- **φ4**

### Machining Dimension for Mounting Hole (JNB010-W-BGD)

- **P Port**
- **φ4**

### Cautions (JNA/JNB)

**<Cautions (common)>**

1. Since each check valve is a metal seal, there will be slight fluid leak if pressurized while disconnected.
2. When one side is pressurized in the separate condition and if connection work is attempted, air is discharged outside before the O-ring seal surface opening the check valve.
3. Do not connect in the condition that foreign substances such as chips adhere on the connecting surfaces.
4. When an additional connection limit stopper is present or multiple sets of the coupler are used, apply connection setting dimensions as shown in the drawing.
5. When pressing the coupler to the connection limit, the pressing force should be between the reaction force and 1.0 kN for JNA010-W/JNB010-W, and between the reaction force and 2.0 kN for JNA010-W-BGC/JNB010-W-BGD.

**<Caution only for JNA010-W/JNB010-W>**

1. When chips or coolant adhere on the connecting surface, perform connection after providing a cover or completely removing them by air blow etc.

**<Caution only for JNA010-W-BGC/JNB010-W-BGD>**

1. Do not attempt to connect in the condition that chips or coolant adhere on the connecting end surface.

### Model No. | Mounting Bolt | Tightening Torque (N-m) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>JNA010-W-BGC</td>
<td>M5 × 0.8</td>
<td>6.3</td>
</tr>
</tbody>
</table>
Auto Coupler
Model JNC/JND
For Oil/Air
(Operating Pressure Range: lower than 25MPa)

Feature
Hydraulic and air auto coupler suitable for attaching/detaching to fluid circuit when replacing fixture pallets or tombstones. Compactly designed manifold option and flange option commonly used with pallet clamp are available.

Action Description (Flange Option)
Disconnected State
Connected State

When JNC is closely in contact with JND, the body presses against the sleeve and the rod presses against check valve then the valve will open.

Action Description (Manifold Option)
Disconnected State
Connected State

When JNC is closely in contact with JND, the body presses against the sleeve and the rod presses against check valve then the valve will open.
Model No. Indication

**JND 02 0 - 0 F**

1 **Style**

C : O-ring side of Connection Surface (Fixture Side)
D : Metal Side of Connection Surface (Pressure Source Side)

2 **Design No.**

0 : Product Number

3 **Mounting Method**

F : Flange Option (Easy to use together with pallet clamps)
M : Manifold Option

4 **Spacer Thickness** ※ Specify only when selecting JND Flange Option.

Blank : No Spacer (Standard)
05 : T = 0.5mm
15 : T = 1.5mm
40 : T = 4.0mm
65 : T = 6.5mm
80 : T = 8.0mm
0D : Spacer Block (Refer to the external dimension) ※1

Notes:
※1. OD : please refer to external dimension about spacer thickness.
1. Spacer thickness varies depending on the pallet clamps used with this joint.

### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Fixture Side</th>
<th>JNC020-OF</th>
<th>JNC020-0M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pressur Source Side</td>
<td>JND020-0F</td>
<td>JND020-0M</td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>MPa</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Withstanding Pressure</td>
<td>MPa</td>
<td>37.5</td>
<td>37.5</td>
</tr>
<tr>
<td>Min. Passage Area</td>
<td>mm²</td>
<td>10.3</td>
<td>10.3</td>
</tr>
<tr>
<td>Offset Tolerance</td>
<td>mm</td>
<td>±0.5</td>
<td>±0.4</td>
</tr>
<tr>
<td>Angular Deviation (Offset Tolerance)</td>
<td>DEG.</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>°C</td>
<td>0 ~ 70</td>
<td>0 ~ 70</td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>General Hydraulic Oil Equivalent to ISO VG32 ※Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reaction Force</td>
<td>kN</td>
<td>at 25 MPa</td>
<td>2.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at 7 MPa</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at P MPa</td>
<td>0.113 × P + 0.03</td>
</tr>
<tr>
<td>Mass</td>
<td>kg</td>
<td>JNC</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JND</td>
<td>Refer to External Dimensions</td>
</tr>
</tbody>
</table>

### Circuit Symbol

JNC (Outgoing Side / Fixture Side)
JND (Incoming Side / Pressure Source Side)
※ Zero oil leak out of JNC in disconnected state

### Flow Rate - Pressure Loss Characteristic Graph

The fluid used on this data is general hydraulic oil equivalent to ISO-VG-32 (30 ~ 40°C).

<table>
<thead>
<tr>
<th>Pressure Loss (MPa)</th>
<th>Flow Rate (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNC020-0F</td>
<td>JNC020-0M</td>
</tr>
<tr>
<td>JNC020-0F</td>
<td>JNC020-0M</td>
</tr>
<tr>
<td>JNC020-0F</td>
<td>JNC020-0M</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0.5</td>
<td>8.5</td>
</tr>
<tr>
<td>1.0</td>
<td>12.6</td>
</tr>
<tr>
<td>1.5</td>
<td>15.8</td>
</tr>
<tr>
<td>2.0</td>
<td>19.2</td>
</tr>
<tr>
<td>2.5</td>
<td>21.5</td>
</tr>
<tr>
<td>3.0</td>
<td>24.0</td>
</tr>
</tbody>
</table>

Note: 1. Refer to the external dimensions for the position of the side surface port ※.
**External Dimensions (JNCO20-0F/JNDO20-0F□)**

- **O-ring**: AS568-015 (60°) (Included)
- **4-M4 x 0.7 x 10 Bolt (Included)** (Bolt Hole 2-5/8 x 0.8 Hole for Jack)

---

**Dimensions (Spacer Thickness Selection Table)**

<table>
<thead>
<tr>
<th>JND Model</th>
<th>JNCO20-0F</th>
<th>JNCO20-0F05</th>
<th>JNCO20-0F15</th>
<th>JNCO20-0F40</th>
<th>JNCO20-0F65</th>
<th>JNCO20-0F80</th>
<th>JNCO20-0F90</th>
<th>JNCO20-0F100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pallet Clamp Model</td>
<td>VS</td>
<td>VS0020/VS0040</td>
<td>VS0060</td>
<td>VS0100</td>
<td>VS0160</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VS</td>
<td>WVS</td>
<td>WVS0040</td>
<td>WVS0060</td>
<td>WVS0100</td>
<td>WVS0160</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WVS</td>
<td>Block Model</td>
<td>VSJ</td>
<td>VS020</td>
<td>VS060</td>
<td>VS100</td>
<td>VS160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSJ</td>
<td>T</td>
<td>0 (No spacer)</td>
<td>0.5</td>
<td>1.5</td>
<td>4</td>
<td>6.5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>13.5</td>
<td>13</td>
<td>12</td>
<td>9.5</td>
<td>7</td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>6.5</td>
<td>6</td>
<td>7</td>
<td>6.5</td>
<td>6</td>
<td>8.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>11.5</td>
<td>13</td>
<td>–</td>
<td>15.5</td>
<td>–</td>
<td>19.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>19.5</td>
<td>20</td>
<td>21</td>
<td>23.5</td>
<td>26</td>
<td>27.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>19</td>
<td>19.5</td>
<td>20.5</td>
<td>23</td>
<td>25.5</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>10</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>14.5</td>
<td>14</td>
<td>13</td>
<td>10.5</td>
<td>8</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass kg</td>
<td>0.08</td>
<td>0.08</td>
<td>0.09</td>
<td>0.11</td>
<td>0.12</td>
<td>0.13</td>
<td>0.17</td>
<td></td>
</tr>
</tbody>
</table>

Refer to the Drawing Above.
C External Dimensions (JNC020-0M/JND020-0M)

C Machining Dimension for Mounting Hole JNC020-0M/JND020-0M (Common)

C Cautions (JNC/JND)

C Cautions (Common)

1. Do not connect or disconnect in the pressurized (pressure remaining) condition.
2. Perform air bleeding of the circuit sufficiently prior to operation (when using hydraulic pressure).
3. Do not connect in the condition that foreign substances such as chips adhere on the connecting surfaces.
   (Completely remove the adhering chips or coolant by air blow etc.)
4. During the connection process, note that maximum 0.03 kN of spring force acts even if circuit pressure is zero.
5. Load applied on a Jig side actuator in the separate condition may result in oil flowing out from the end of JNC (when using hydraulic pressure).
6. When pressing up to the connection limit,
   the pressing force should be higher than reaction force and lower than 5.0kN for JNC020-0F,
   and higher than reaction force and lower than 4.0kN for JNC020-0M
7. When using the port with ★ mark, flow characteristics are deteriorated. (Please refer to the Flow rate – pressure loss characteristic graph.)

C Cautions for Flange Option

1. If using without pallet clamps, select the standard JNC020-0F/JND020-0F.
2. When supplying hydraulic/air pressure in the connected condition, keep the pallet clamps in the locked condition (when using VS/WVS together).
3. Contact us for the combination use of VS8 and VSJ.

C Cautions for Manifold Option

1. The area of hexagonal head for tightening is small because of compact design. Surely apply a tool to the hexagonal head.
**Auto Coupler**

**Model JLP/JLS**

For Oil/Air/Coolant
(Operating Pressure Range: lower than 3.5MPa/lower than 25MPa)

**Feature**

Auto joint with check valve is to be used in a hydraulic/air circuit or for coolant. Suitable for automation.

**Action Description**

When JLS is closely in contact with JLP, the body presses against the sleeve and the rod presses against check valve then the valve will open.
Model No. Indication

JLP020 - W - M0

1 Style

P : Plug Side
S : Socket Side

2 Body Size

2 : Min. Passage Area 29mm²
3 : Min. Passage Area 50mm²
4 : Min. Passage Area 102mm²

3 Design No.

0 : Revision Number

Notes:
※1. Please contact us in the case that it is combined with different body size.
However, it is recommended to use the same dimension from the point of view
the maintenance and management of the spare item.
※2. Different piping method, C and M can be combined for use.

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Plug Side</th>
<th>JLP020</th>
<th>JLP030</th>
<th>JLP040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Passage Area mm²</td>
<td>29</td>
<td>50</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>Offset Tolerance mm</td>
<td>±0.5</td>
<td>±0.5</td>
<td>±0.8</td>
<td></td>
</tr>
<tr>
<td>Angular Deviation Offset Tolerance DEG</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Operating Pressure MPa</td>
<td>Material W</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material H</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material O</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature ºC</td>
<td>Material W/O</td>
<td>0~80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material H</td>
<td>0~120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reaction Force KN (Operating Pressure)</td>
<td>at 3.5 MPa</td>
<td>0.64</td>
<td>0.84</td>
<td>1.47</td>
</tr>
<tr>
<td></td>
<td>at 25.0 MPa</td>
<td>3.95</td>
<td>5.16</td>
<td>9.64</td>
</tr>
<tr>
<td></td>
<td>at P MPa</td>
<td>0.154 × P + 0.10</td>
<td>0.201 × P + 0.13</td>
<td>0.380 × P + 0.14</td>
</tr>
<tr>
<td>Mass</td>
<td>Refer to External Dimensions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Circuit Symbol

Flow Rate — Pressure Loss Characteristic Graph

Fluid to be used on this data is water (temperature is 20ºC).

<table>
<thead>
<tr>
<th>Pressure Loss (MPa)</th>
<th>JLP020</th>
<th>JLP030</th>
<th>JLP040</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0.1</td>
<td>10.0</td>
<td>21.8</td>
<td>37.7</td>
</tr>
<tr>
<td>0.2</td>
<td>14.0</td>
<td>31.1</td>
<td>52.2</td>
</tr>
<tr>
<td>0.3</td>
<td>19.0</td>
<td>38.1</td>
<td>65.2</td>
</tr>
<tr>
<td>0.4</td>
<td>22.0</td>
<td>44.0</td>
<td>74.1</td>
</tr>
<tr>
<td>0.5</td>
<td>26.0</td>
<td>50.0</td>
<td>85.0</td>
</tr>
</tbody>
</table>
**External Dimensions (JLP/JLS)**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JLP</th>
<th>JLP020</th>
<th>JLP030</th>
<th>JLP040</th>
</tr>
</thead>
<tbody>
<tr>
<td>A×(Hexagon)</td>
<td>φ30×(27)</td>
<td>φ33×(30)</td>
<td>φ40×(36)</td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>83</td>
<td>92.5</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>BM</td>
<td>75</td>
<td>81.5</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>60</td>
<td>65.5</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>DC</td>
<td>42.5</td>
<td>48.5</td>
<td>57.5</td>
<td></td>
</tr>
<tr>
<td>DM</td>
<td>34.5</td>
<td>37.5</td>
<td>44.5</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>19.5</td>
<td>21.5</td>
<td>26.5</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>15</td>
<td>16</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>8</td>
<td>11</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>H×(Hexagon)</td>
<td>φ21.2×(16)</td>
<td>φ24.5×(22)</td>
<td>φ30×(27)</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>66.5</td>
<td>72</td>
<td>84.5</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>φ25H8</td>
<td>φ28H8</td>
<td>φ34H8</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>M24×1.5</td>
<td>M27×1.5</td>
<td>M33×1.5</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>12.5 or more</td>
<td>13.5 or more</td>
<td>15.5 or more</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>15.5 or more</td>
<td>16.5 or more</td>
<td>18.5 or more</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Rc Screw</td>
<td>Rc1/4</td>
<td>Rc3/8</td>
<td>Rc1/2</td>
<td></td>
</tr>
</tbody>
</table>

**Machining Dimension for Mounting Hole**

<table>
<thead>
<tr>
<th>JLP020×-C0</th>
<th>JLP030×-C0</th>
<th>JLP040×-C0</th>
</tr>
</thead>
<tbody>
<tr>
<td>φ × (Hexagon)</td>
<td>φ12.5</td>
<td>φ16</td>
</tr>
<tr>
<td>DC</td>
<td>42.5</td>
<td>48.5</td>
</tr>
<tr>
<td>DM</td>
<td>34.5</td>
<td>37.5</td>
</tr>
<tr>
<td>E</td>
<td>19.5</td>
<td>21.5</td>
</tr>
<tr>
<td>F</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>G</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>H × (Hexagon)</td>
<td>φ21.2×(16)</td>
<td>φ24.5×(22)</td>
</tr>
<tr>
<td>J</td>
<td>66.5</td>
<td>72</td>
</tr>
<tr>
<td>K</td>
<td>φ25H8</td>
<td>φ28H8</td>
</tr>
<tr>
<td>M</td>
<td>M24×1.5</td>
<td>M27×1.5</td>
</tr>
<tr>
<td>Q</td>
<td>12.5 or more</td>
<td>13.5 or more</td>
</tr>
<tr>
<td>R</td>
<td>15.5 or more</td>
<td>16.5 or more</td>
</tr>
<tr>
<td>S</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>T</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rc Screw</td>
<td>Rc1/4</td>
<td>Rc3/8</td>
</tr>
</tbody>
</table>

**Dimensions (mm)**

**Mass (kg)**

<table>
<thead>
<tr>
<th>Material</th>
<th>JLP020×-C0</th>
<th>JLP030×-C0</th>
<th>JLP040×-C0</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Piping Option C selected</th>
<th>When W / His chosen</th>
<th>When O is chosen</th>
</tr>
</thead>
<tbody>
<tr>
<td>JLP020×-C0</td>
<td>0.26</td>
<td>0.25</td>
</tr>
<tr>
<td>JLP030×-C0</td>
<td>0.36</td>
<td>0.35</td>
</tr>
<tr>
<td>JLP040×-C0</td>
<td>0.13</td>
<td>0.13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Piping Option M selected</th>
<th>When W / His chosen</th>
<th>When O is chosen</th>
</tr>
</thead>
<tbody>
<tr>
<td>JLP020×-M0</td>
<td>0.26</td>
<td>0.26</td>
</tr>
<tr>
<td>JLP030×-M0</td>
<td>0.34</td>
<td>0.33</td>
</tr>
<tr>
<td>JLP040×-M0</td>
<td>0.56</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Note:

- **1.** When using multiple number, provide a stopper for connection dimension to be within +0.5mm of single connection dimension.
**Combination Sample**

![Combination Sample Diagram]

**Cautions (JLP/JLS)**

<Cautions (common)>

1. Do not connect or disconnect in the pressurized (pressure remaining) condition.
2. Perform air bleeding of the circuit sufficiently prior to operation (when using hydraulic pressure).
3. Do not connect in the condition that foreign substances such as chips adhere on the connecting surfaces.
   (Completely remove the adhering chips or coolant by air blow etc.)
4. Prevent foreign substances (chips or seal tape) from entering the circuit.
5. When using water or air as fluid, consider rust prevention of manifold blocks and pipe fittings.
6. When reaching the connection limit, the holding pressure should be higher than reaction pressure and lower than 4.0kN for JLP020-W/H-□□0, higher than reaction force and lower than 6.0kN for JLP020-O-□□0.
   should be higher than reaction pressure and lower than 5.0kN for JLP030-W/H-□□0, higher than reaction force and lower than 9.0kN for JLP030-O-□□0.
   should be higher than reaction pressure and lower than 7.0kN for JLP040-W/H-□□0, higher than reaction force and lower than 12.0kN for JLP040-O-□□0.
7. Please contact us if a larger passage area is needed than the one demonstrated.

<table>
<thead>
<tr>
<th>Model/No.</th>
<th>JLP020-O-□□0</th>
<th>JLP030-O-□□0</th>
<th>(mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>27</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>5.5</td>
<td>3.5</td>
<td></td>
</tr>
</tbody>
</table>

Note

1. Additionally equip the air blow for J□□ (measure for cutting powder).
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.
   ● In order to prevent a foreign substance from going into the product during the piping work, it should be carefully cleaned before working.

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. Wiggle 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 bleed 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>JK 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: As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.
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-in Circuit] (LKE/TMA/TLA must be controlled with meter-in.)

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.

Flow Control Valve
(Any location is OK)
Cautions

Notes on Handling

1) It should be handled by qualified personnel.
   - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
2) Do not handle or remove the machine unless the safety protocols are ensured.
   ① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
   ② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
   ③ After stopping the machine, do not remove until the temperature cools down.
   ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
3) Do not touch clamp (cylinder) while clamp (cylinder) 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 the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
   - 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, fluid leakage and air leaks.

3) Please clean out the reference surface regularly (taper reference surface and seating surface) of locating machine. (VS/VT/VFL/VFM/VFJ/VFK/VWS/VWM/VWK/VX/VXF)
   - Location products, except VX/VXF model, can remove contaminants with cleaning functions. When installing pallets makes sure there is no thick sludge like substances on pallets.
   - Continuous use with dirt on components will lead to locating functions not work properly, leaking and malfunction.

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

5) Regularly tighten nuts, bolts, pins, cylinders and pipe line to ensure proper use.

6) Make sure the hydraulic fluid has not deteriorated.

7) Make sure there is smooth action and no abnormal 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 handled in 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>Overseas Sales</th>
<th>KOSMEK USA (USA) LTD.</th>
<th>Mexico</th>
<th>KOSMEK EUROPE GmbH</th>
<th>China</th>
<th>KOSMEK (CHINA) LTD.</th>
<th>India</th>
<th>KOSMEK LTD. - INDIA</th>
<th>Thailand</th>
<th>Thailand Representative Office</th>
<th>Taiwan</th>
<th>Full Life Trading Co., Ltd.</th>
<th>Philippines</th>
<th>G.E.T. Inc, Phil.</th>
<th>Indonesia</th>
<th>P.T. PANDU HYDRO PNEUMATICS</th>
</tr>
</thead>
</table>

## Sales Offices in Japan

<table>
<thead>
<tr>
<th>Head Office</th>
<th>Osaka Sales Office</th>
<th>Overseas Sales</th>
<th>Tokyo Sales Office</th>
<th>Nagoya Sales Office</th>
<th>Fukuoka Sales Office</th>
</tr>
</thead>
</table>

〒651-2241 兵庫県神戸市西区室谷2丁目1番5号
〒331-0815 埼玉県さいたま市北区大成4丁目8番地
〒446-0076 愛知県安城市梅田町2丁目10番地
〒812-0006 福岡県福岡市博多区上平田1丁目8-10-101
Global Network

Overseas Affiliates and Sales Offices
Distributors

Canada
U.S.A.
Europe
Asia
Brazil
Mexico
Japan
China
Taiwan
Philippines
Thailand
India
Singapore
Malaysia
Indonesia

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