**Hydraulic Lever Clamp**

**Block-Fixed**

**Model GBP**

NEW (Conventional Model GP)

**Block-Fixed Lever Clamp. No T-slot is required.**

Fixed with bolts and easy to install on a press without T-slots.

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**Action Description**

Locked State

When hydraulic pressure is supplied, the piston lifts up, and the clamp lever pivots on the pin and locks the die.

Released State

When hydraulic pressure is released, the piston descends with built-in spring force, and the clamp lever returns to the released state with the lever return spring.

※ We provide GBP clamp according to the die clamping thickness. Please refer to the external dimensions for detail.
System Structure Example

The basic structure with GBP clamps which do not require T-slot by fixing with bolts. This system is able to control the upper die circuit, lower die circuit, and RA die lifter circuit individually by using a three-circuit hydraulic unit.

Upper Clamp : GBP Clamp
Lower Clamp : GBP Clamp
Loading / Unloading the Die : MR □ Pre-Roller + RA Die Lifter
Hydraulic Source : CP □ Unit / CQ □ Unit

We are able to provide different models of clamp for the upper die and lower die. Please contact us for further information.
### Model No. Indication

**GBP**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>040 0 - 30 - H</td>
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1. **Clamping Force**

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>010</td>
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<td>016</td>
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<td>040</td>
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<td>63kN</td>
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2. **Design No.**

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<tr>
<td>0</td>
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3. **Die Clamping Thickness**

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>Die Clamping Thickness $h = 25\text{mm}$</td>
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<tr>
<td>90</td>
<td>Die Clamping Thickness $h = 90\text{mm}$</td>
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</tbody>
</table>

* Selectable Die Clamping Thickness differs according to Clamping Force. The Die Clamping Thickness should be between min. $h$ and max. $h$ indicated in the external dimension list.

4. **Option**

* Please contact us for specifications / external dimensions.

- **Blank**
  - Standard
- **G**
  - Gasket Mounting
- **H**
  - Extra Height Body (When $h$ dimension is more than max. $h$ dimension shown in the external dimension.)
- **J**
  - Low Lever (When $h$ dimension is less than min. $h$ dimension shown in the external dimension.)
- **K**
  - Rear Port
- **L**
  - Wide Lever (For U-Cut of Die) \(^1\)
- **M**
  - For Die with Notch
- **N**
  - NPT Port \(^2\)
- **U**
  - With Grease Nipple (GBP0400 or more)
- **V**
  - High Temperature (0~120°C) \(^3\)
- **X**
  - With Cover

**Notes:**

- \(^1\) Please indicate the U-cut dimension of the die.
- \(^2\) Dimensions in the specification sheet and other documents are in inches. Only die clamping thickness is indicated by the symbol which is converted into millimeters.
- \(^3\) Select the hydraulic unit with pressure relief valve when using under high temperature since there may be pressure fluctuation caused by temperature change.

1. Please contact us for specifications and external dimensions for these options.
## Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>GBP0100</th>
<th>GBP0160</th>
<th>GBP0250</th>
<th>GBP0400</th>
<th>GBP0630</th>
<th>GBP1000</th>
<th>GBP1600</th>
<th>GBP2500</th>
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<tbody>
<tr>
<td>Clamping Force (kN)</td>
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<td>Full Stroke (mm)</td>
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<td>Pressurizing Agent</td>
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</table>

### Notes:
- Option V: High temperature (0~120°C) is for operating in temperatures of 70°C or more.
- Please contact us for more frequent use.
- Please contact us for fluids other than those mentioned on the list.
- If hydraulic viscosity is higher than specified, action time will be longer.
- If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.
**External Dimensions**

- This drawing shows standard model.
- Contact us for external dimensions for options.

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**Notes:**

1. Do not exceed the clamping force on the specification.
2. Specifications/Contents in this catalog are subject to change without prior notice. Ask for the approval drawing before deciding to purchase.
External Dimensions

<table>
<thead>
<tr>
<th>Model No.</th>
<th>GBP0100</th>
<th>GBP0160</th>
<th>GBP0250</th>
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<td>9</td>
<td>9.5</td>
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<td>41</td>
<td>47.5</td>
<td>60.5</td>
<td>61</td>
<td>71</td>
</tr>
</tbody>
</table>

\[X \text{ (Nominal Pitch x Depth)}\] (Designated Maker)

| Clearance | 1.5     | 1.5     | 2       | 2       | 2       | 2       | 2       |
| Rc        | Rct1/8  | Rct1/8  | Rct1/4  | Rct1/4  | Rct1/4  | Rct1/4  | Rct1/4  |
| min. h    | 25      | 25      | 30      | 30      | 35      | 45      | 50      | 50      |
| max. h    | 40      | 40      | 50      | 50      | 60      | 70      | 80      | 90      |

Notes:
1. P dimension (Clamping Point) indicates when h dimension (Die Clamping Thickness) is thick.
2. Clamp mounting surface should be smooth without any bumps. If the clamp mounting surface has bumps or is not smooth, excessive stress will be applied on the clamp lever leading to release error or deformation of the lever and lever pin.

GBP Clamp  The Allowable Protrusion Amount

Note:
1. The GBP clamp body should be within the bolster when mounting.
Cautions

- **Notes for Design**

1) **Check Specifications**
   - Please use each product according to its specifications.
   - Operating pressure is 25MPa.
   - Operating pressure of GN clamp: Hydraulic pressure for lock is 25MPa. Pneumatic pressure for release is 0.4–0.5MPa.
   - Do not use clamps with excessive operating pressure.
   - Falling down of the die due to the damage on clamps leads to injury accident. In order to reduce clamping force, use them with lower operating pressure.

2) **Check the Die Clamping Thickness**
   - Please check the die clamping thickness.
   - The die clamping thickness of GN clamp should be h±0.5mm.
   - If using dies other than prescribed, clamps cannot conduct locking action normally and it leads to accident or injury.

3) **Clamp surface and T-slot must be parallel to mounting surface of the die.**
   - If clamp surface is not even or parallel, excessive force is applied to the clamp and it deforms main body and lever of the clamp resulting in accident or injury.

4) **Make sure that advance/retraction of the clamp is smoothly conducted. (Model GD / GBE / GBF)**
   - Please control air cylinder for slide with two-position double solenoid (with detent).
   - Supply 0.4MPa or more air pressure to air cylinder.
   - Please adjust the moving speed of the clamp with speed controller to be fully stroked within 1 to 2 seconds.
   - Do not set the proximity switch to the die surface near the U-cut, since it is used as forward-end detection.
   - The clamp sliding surface must be smooth (without any bumps).

5) **Make sure that dust, sand, cutting chips or blank pieces do not enter the clamp.**
   - Clamp does not operate smoothly and may be damaged.

6) **When the clamp cylinder sticks out of U-cut or T-slot, please use it within the allowable protrusion amount.**
   - **U-Cut of the Die**
     - Model GA / GD
   - **T-Slot of the Slider / Bolster**
     - Model GBB / GBE / GBC / GBF

   **Model GA / GD**
   
   **Allowable Protrusion Amount**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Allowable Protrusion Amount (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA0100</td>
<td>13</td>
</tr>
<tr>
<td>GA0160</td>
<td>14</td>
</tr>
<tr>
<td>GA0250 / GDB0250</td>
<td>17</td>
</tr>
<tr>
<td>GA0400 / GDB0400</td>
<td>20</td>
</tr>
<tr>
<td>GA0630 / GDB0630</td>
<td>26</td>
</tr>
<tr>
<td>GA1000 / GDF1000</td>
<td>32</td>
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<tr>
<td>GA1600 / GDF1600</td>
<td>42</td>
</tr>
<tr>
<td>GA2500</td>
<td>50</td>
</tr>
</tbody>
</table>

   **Model GBB / GBE / GBC / GBF**

   **Allowable Protrusion Amount**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Allowable Protrusion Amount (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB0100 / GEB0100</td>
<td>17.5</td>
</tr>
<tr>
<td>GB0160 / GEB0160</td>
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</tr>
<tr>
<td>GB0250 / GEB0250 / GEB0250 / GEBF0250</td>
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<td>GB0400 / GEB0400 / GEB0400 / GEBF0400</td>
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<td>GB0630 / GEB0630 / GEB0630 / GEBF0630</td>
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<td>GBB1000 / GBE1000 / GBE1000 / GBBF1000</td>
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<td>GBB1600 / GBB1600 / GBB1600 / GBBF1600</td>
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<tr>
<td>GBB2500 / GBB2500 / GBB2500 / GBBF2500</td>
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</tr>
<tr>
<td>GB05000 / GEB05000 / GEB05000 / GEBF05000</td>
<td>0</td>
</tr>
</tbody>
</table>

7) **Be careful with mounting position of the clamp. (Model GBP/GBQ only)**
   - Make sure that main body of the clamp is not out of the mounting surface. Excessive force is applied to the clamp and it deforms the clamp or damages mounting bolt resulting in falling off of the die and accident or injury.

8) **Make sure that clamps do not enter the die cavity.**
   - If clamps enter the die cavity, they may be damaged due to collision with die surface.

9) **Check the clamping surface of the die.**
   - The die surface must be flat and smooth.
   - If there is a depression or an uneven surface, it may cause clamping force imbalance and lead to accident.
Installation Notes

1) Check the fluid to use.
   • Please use the appropriate fluid by referring to the Hydraulic Fluid List.
   • If using hydraulic oil having viscosity higher than viscosity grade ISO-VG-32, action time will be longer.
   • If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.

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 this product for prevention of contaminants in the hydraulic piping or hydraulic system.)

3) Applying Sealing Tape
   • Wrap with tape 1 to 2 times following the screwing direction.
   When piping, be careful that contaminants such as sealing tape do not enter in products.
   Pieces of the sealing tape can lead to oil leaks and malfunction.

4) Air Bleeding in 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 conduct air bleeding with the end of the piping.
   ① Reduce supply hydraulic pressure to less than 2MPa.
   ② Please loosen the cap nut of pipe fitting that is closest to clamps • RA Die Lifter by one full turn.
   ③ Wiggle the pipeline to loosen the outlet of pipeline fitting. The 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.

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

6) Mounting the clamp
   • After setting the clamp in the T-slot, use attached hex. socket bolts and tighten it with the torque shown below (Model GD / GBE / GFB).

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Thread Size</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GD0250</td>
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<td>GD0400</td>
<td>M6 x 1</td>
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<tr>
<td>GD0630</td>
<td>M6 x 1</td>
<td>10</td>
</tr>
<tr>
<td>GD1000</td>
<td>M8 x 1.25</td>
<td>25</td>
</tr>
<tr>
<td>GD1600</td>
<td>M8 x 1.25</td>
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<table>
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<th>Model No.</th>
<th>Thread Size</th>
<th>Tightening Torque (N·m)</th>
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<td>GBE1000 / GFB1000</td>
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<td>GBE1600 / GFB1600</td>
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<td>GBE2500 / GFB2500</td>
<td>M12 x 1.75</td>
<td>80</td>
</tr>
<tr>
<td>GBE4000 / GFB4000</td>
<td>M16 x 2</td>
<td>200</td>
</tr>
<tr>
<td>GBE5000 / GFB5000</td>
<td>M16 x 2</td>
<td>200</td>
</tr>
</tbody>
</table>

   Use attached hex. socket bolts and tighten it with the torque shown below (Model GBP / GBQ / GN).

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Thread Size</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBP0100 / GBR0100</td>
<td>M8 x 1.25</td>
<td>25</td>
</tr>
<tr>
<td>GBP0160 / GBR0160</td>
<td>M10 x 1.5</td>
<td>50</td>
</tr>
<tr>
<td>GBP0250 / GBR0250</td>
<td>M12 x 1.75</td>
<td>80</td>
</tr>
<tr>
<td>GBP0400 / GBR0400</td>
<td>M14 x 2</td>
<td>125</td>
</tr>
<tr>
<td>GBP0630 / GBR0630</td>
<td>M16 x 2</td>
<td>200</td>
</tr>
<tr>
<td>GBP1000 / GBR1000</td>
<td>M20 x 2.5</td>
<td>400</td>
</tr>
<tr>
<td>GBP1600 / GBR1600</td>
<td>M20 x 2.5</td>
<td>600</td>
</tr>
<tr>
<td>GBP2500 / GBR2500</td>
<td>M30 x 3.5</td>
<td>1250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Thread Size</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN0251</td>
<td>M6 x 1</td>
<td>12</td>
</tr>
<tr>
<td>GN0401</td>
<td>M8 x 1.25</td>
<td>30</td>
</tr>
<tr>
<td>GN0631</td>
<td>M8 x 1.25</td>
<td>30</td>
</tr>
<tr>
<td>GN1001</td>
<td>M8 x 1.25</td>
<td>30</td>
</tr>
</tbody>
</table>

7) Wiring of the Forward End Detection Switch
   • Make sure there is enough slack in the wire so that the clamp can complete the sliding action without putting tension on the wire.

Hydraulic Fluid List

<table>
<thead>
<tr>
<th>ISO Viscosity Grade ISO-VG-32</th>
<th>Multi-Purpose Hydraulic Oil</th>
<th>Anti-Wear Hydraulic Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showa Shell Sekiyu</td>
<td>Tellus S2 M 32</td>
<td>Morilina 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 Hyrdano 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 DTE 24</td>
<td>Mobil DTE 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.

※ Please refer to P.177 for common caution.

- Speed Control Circuit of Hydraulic Cylinder & Notes
- Maintenance / Inspection
- Warranty
Cautions

1) Shutting down of the machine should be done without load applied to the clamp.
   - This can result in the dropping of a die.
   - When using it with a press machine, make sure to stop the slide at bottom dead point.
2) It should be handled by qualified personnel.
   - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
3) 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 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.
4) Do not touch clamps while they are working.
   - Otherwise, your hands may be injured.
5) When changing the width of the die, make sure to check the allowable protrusion amount.
   - If using it with beyond allowable protrusion amount, excessive force is applied to the clamp which deforms or damages the clamp resulting in falling off of the die and accident or injury. Please refer to “Notes for Design (6)” on P.067 for the allowable protrusion amount.
6) Please hold the main body of the clamp when moving or removing it.
   - If pulling on hydraulic hose or air tube, the clamp will fall off leading to accident or injury. Also, rivet part of the hose will be loosened leading to fluid leakage.

7) Do not disassemble or modify it.
   - If the equipment is taken apart or modified, the warranty will be void even within the warranty period.
8) Please do not pour water / oil over the product.
   - It may lead to malfunction or deterioration of the product and cause an accident.

※ Please refer to P.177 for common caution.
Cautions

Installation Notes (Cautions for Hydraulic Series)

1) Check the fluid to use
   • Please use the appropriate fluid by referring to the Hydraulic Fluid List.
   • If hydraulic oil with viscosity grade higher than ISO-VG-32 is used, action time would be longer.
   • If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.

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.
   • Our products except some valves are not equipped with protective function to prevent dust and cutting chips going into the hydraulic system and pipeline.

3) Applying Sealing Tape
   • Wrap with tape 1 to 2 times following the screwing direction.
   • Pieces of the sealing tape can lead to air leaks and malfunction.
   • In order to prevent a foreign substance from going into the product during piping, it should be carefully cleaned.

4) Air Bleeding in the Hydraulic Circuit
   • If the hydraulic circuit has excessive air, the action time may become very long.
     After installing the hydraulic circuit, or if the pump run out of oil, be sure to bleed air by the following step.
     ① Reduce hydraulic supply pressure to less than 2MPa.
     ② Please loosen the cap nut of pipe fitting that is closest to clamps ・ RA die lifters by one full turn.
     ③ Wiggle the pipeline to loosen the outlet of pipeline fitting. The hydraulic fluid mixed with air comes out.

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

Hydraulic Fluid List

| ISO Viscosity Grade ISO-VG-32 |
| Maker                  | Anti-Wear Hydraulic Oil | Multi-Purpose Hydraulic Oil |
| Shown Shell Sekiyu    | Tellus S2 M 32          | Morlina S2 B 32             |
| Idemitsu Kosan        | Daphne Hydraulic Fluid 32 | Daphne Super Multi Oil 32 |
| JX Nippon Oil & Energy | Super Hyrando 32      | Super Mulpus DX 32          |
| Cosmo Oil             | Cosmo Hydro AW32        | Cosmo New Mighty Super 32   |
| ExxonMobil            | Mobil DTE 24            | Mobil DTE 24 Light          |
| Matsumura Oil         | Hydol AW-32             |                             |
| Castrol               | Hyspin AWS 32           |                             |

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.

Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow.

**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.

- **Meter-out Circuit**

- **Meter-in Circuit**

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.

2. 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.
Cautions

- **Notes on Handling**

  1. It should be handled by qualified personnel.
  2. Do not handle or remove the machine unless the safety protocols are ensured.
  3. Do not touch clamps (cylinders) while they are working. Otherwise, your hands may be injured.
  4. Do not disassemble or modify.

- **Maintenance • Inspection**

  1. Removal of the Machine and Shut-off of Pressure Source
  2. Regularly clean the area around the equipment.
  3. If disconnecting by couplers on a regular basis, air bleeding should be carried out daily to avoid air mixed in the circuit.
  4. Regularly tighten bolts and pipe line, mounting bolts, nuts, circlips and cylinders to ensure proper use.
  5. Make sure the hydraulic fluid has not deteriorated.
  6. Make sure there is smooth action and no abnormal noise.
  7. The products should be stored in the cool and dark place without direct sunshine or moisture.
  8. 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 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

Japan
KOSMEK LTD.
TEL. +81-78-991-5162
FAX. +81-78-991-8787

Overseas Sales
651-2241

USA
KOSMEK (USA) LTD.
TEL. +1-630-620-7650
FAX. +1-630-620-9015

Mexico
KOSMEK USA Mexico Office
TEL. +52-442-161-2347
Blvd Jurica la Campana 1040, B Colonia Punta Juriquilla Queretaro, QRO 76230 Mexico

EUROPE
KOSMEK EUROPE GmbH
TEL. +43-463-287587
FAX. +43-463-287587-20

China
KOSMEK (CHINA) LTD.
TEL. +86-21-54253000
FAX. +86-21-54253709
Room#01, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China

India
KOSMEK LTD. - INDIA
TEL. +91-9880561695
FAX. +91-9880561695

Thailand
Thailand Representative Office
TEL. +66-2-300-5132
FAX. +66-2-300-5133

Taiwan
(Taiwan Exclusive Distributor)
Full Life Trading Co., Ltd.
TEL. +886-2-82261860
FAX. +886-2-82261890
16F-4, No.2, Jian 8a Rd, Zhonghe District, New Taipei City Taiwan 23511

Philippines
(Philippines Exclusive Distributor)
G.E.T. Inc., Phil.
TEL. +63-2-310-7286
FAX. +63-2-310-7286
Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427

Indonesia
(Indonesia Exclusive Distributor)
PT. Yamata Machinery
TEL. +62-21-29628607
FAX. +62-21-29628608
Delta Commercial Park I, Jl. Kenari Raya B-08, Desa Jayamukti, Kec. Cikarang Pusat Kab. Bekasi 17530 Indonesia

Sales Offices in Japan

Head Office
Osaka Sales Office
Overseas Sales
TEL. 078-991-5162
FAX. 078-991-8787
〒651-2241

Tokyo Sales Office
TEL. 048-652-8839
FAX. 048-652-8828
〒331-0815

Nagoya Sales Office
TEL. 0566-74-8778
FAX. 0566-74-8808
〒446-0076

Fukuoka Sales Office
TEL. 092-433-0424
FAX. 092-433-0426
〒812-0006
Global Network

Asia Detailed Map

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Specifications in this catalog are subject to change without notice.