New

High-Power Automation Pallet Clamp PAT.

Model WVG

Permanent Holding Force
Low Profile
High-Power Automation Pallet Clamp

Model WVG

Permanent Holding Force
Low Profile

Locating Repeatability : 0.08mm  100% Stainless Steel

Available in three body sizes.

Clamping force is 4kN / 6kN / 10kN

Material of the product : Stainless Steel

[Diagram of the high-power automation pallet clamp]

Powerful holding with Mechanical Lock

※ Clamping force varies depending on operating pressure.
※ This is a simplified drawing. Actual components are different.
Setup Improvement Enhances Productivity

High-Power Automation Pallet Clamp locates and clamps simultaneously. Fixture changeover becomes faster and easier, and equal clamping force and locating accuracy are ensured.

- **High Power**
  Powerful clamping force with KOSMEK exclusive mechanical locking.

- **Safe : Fall Prevention**
  Mechanical locking is built in some steel ball parts. This enables powerful holding even when air pressure is at 0MPa. Powerful pulling capacity (holding force) prevents a pallet fall.
  ※ Please refer to “Clamping Force Curve” on P. 9 for pulling capacity (holding force).

- **Compact Body enables Smooth Loading**
  Fixture can be smaller with the compact clamp body. Also, the low clamping and locating part enables smooth loading/unloading.

- **100% Stainless Steel**
**Function Description**

* Refer to P.7 for detailed action description.

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**Locating Function**

Locating repeatability is 0.08mm.
The clamp locates with the locating part in the drawing below.

**Clamping Function**

Clamping force is 2.1kN ~ 9.5kN.
Powerful clamping with air pressure, mechanical locking and self-locking spring.

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**Self-Locking (Safety) Function (Maintains Clamping at 0MPa)**

Even if air supply is cut off, the clamp will stay locked with self-locking spring and mechanical lock function of steel ball parts.

**Air Blow Function and Seat Check Function**

Contaminants are removed by air blow.
Air vent hole is provided on the seating surface, and seating confirmation is available with a gap sensor.
**Products**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Model WVG Clamp</th>
<th>Model WVGB Block</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Lock / Air Release</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Pressure Range: 0.25 ~ 0.5MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple machining for mounting hole</td>
<td></td>
<td>Pallet can be directly placed on stocker.</td>
</tr>
<tr>
<td>Strong Clamping Force with Mechanical Lock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powerful Self-Locking with Mechanical Lock and Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessory</td>
<td></td>
<td>Level Adjustment Collar (only for WVGB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VZ-VGC</td>
</tr>
</tbody>
</table>

→ P.11 → P.13

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System References

When Using 4 Pallet Clamps

- Guide Block
- Pallet (Object for Locating)
- Datum Block
- Cut Block
- Base Plate
- Pallet Clamp

When Using 2 Pallet Clamps

- Guide Block
- Cut Block
- Pallet (Object for Locating)
- Datum Block
- Base Plate
- Pallet Clamp

Products and Functions

- Pallet Clamp
  - Locating Part
- Datum Block
  - For Reference Locating
  - Locating Part: 360°
- Cut Block
  - For One Direction Locating
  - Locating Part: Two Parts
  - Only cut block requires attention in mounting phase. Please refer to P. 6 for detail.
- Guide Block
  - Guide Part

Circuit Reference

- Air Sensor
- Air Sensor
- Air Sensor
- Air Sensor
- WVG Clamp
- Air Blow
- Lock Air Pressure
- Release Air Pressure
- Air for Seating Confirmation
- Air

Notes:
1. Air blow passage should be Ø 6 or more for an effective air blow. Please supply filtered clean dry air.
2. Please refer to the list on the right for recommended air sensors for seating confirmation.

<table>
<thead>
<tr>
<th>Maker</th>
<th>SMC</th>
<th>CKD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Air Catch Sensor</td>
<td>Gap Switch</td>
</tr>
<tr>
<td>Model No.</td>
<td>ISA3-G</td>
<td>GPS3-E</td>
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</table>
Configuration Sample of Pallets with Different Sizes

In case there are various sized pallets for one base plate, combine blocks for use.

**Combination of Clamp and Block**

<table>
<thead>
<tr>
<th>Installed to Base Plate</th>
<th>Installed to Pallet</th>
<th>Function(s) when Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>Clamping Function</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td>Locating Function (Reference)</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Pallet Clamp</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

※2. In case the clamp/block configuration is linear, it is recommended to provide additional supports for stability.

※3. The spring pin position is indicated. With the datum block as reference, unidirectional positioning is done via the cut block.

The cut block positioning plane must be tangent to the datum block.

(The spring pin is positioned on the line connecting the centers of the datum block and cut block.)
Action Description  ※ This is a simplified drawing. Actual components are different.

- When release air pressure is ON and lock air pressure is OFF, the piston rod advances and the clamp is released.
- Air blow prevents debris contamination.

- When release air pressure is OFF and lock air pressure is ON, the air pressure, the spring force, and the mechanical lock lower the piston rod and the steel balls engage the block bringing it to the seating surface. (Stay clamped with mechanical lock.)
- The seating surface includes an air vent for seating confirmation (via air catch sensor).

【Caution】
For the use under the environment with coolant and cutting chips, it is recommended to use model WVS / model SWT that are equipped with contamination-preventing dust seal. This product (model WVG) has no dust seal, but only air blow function that prevents contamination.
**Action Description during Loading/Unloading**

1. With air pressure released, load the pallet within the allowable offset. Air pressure must be continuously supplied to the air blow port.

![Diagram of pallet loading](image)

2. When lowering the pallet, roughly position it by using A part.

![Diagram of pallet positioning](image)

3. When release air pressure is OFF and lock air pressure is ON, the block is pressed onto the seating surface with air pressure, spring force and mechanical lock.

![Diagram of block pressing](image)

**Caution**
Do not apply an impact during loading/unloading. Failure to do so leads to damage of the product and decrease in locating accuracy.

![Caution symbol](image)
Model No. Indication (Pallet Clamp)

WVG 006 0 - M

1 Clamping Force

04 : Clamping Force 3.7kN (Air Pressure 0.5MPa)
06 : Clamping Force 5.8kN (Air Pressure 0.5MPa)
10 : Clamping Force 9.5kN (Air Pressure 0.5MPa)
※ Refer to the clamping force curve below for detail.

2 Design No.

0 : Revision Number

Combination of Clamp and Block

<table>
<thead>
<tr>
<th>Clamp model</th>
<th>Block model</th>
<th>Function</th>
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<tbody>
<tr>
<td>WVG-M</td>
<td>WVG-8 B (Datum Block)</td>
<td>Clamping + Reference Locating</td>
</tr>
<tr>
<td></td>
<td>WVG-8 C (Cut Block)</td>
<td>Clamping + One Direction Locating</td>
</tr>
<tr>
<td></td>
<td>WVG-8 G (Guide Block)</td>
<td>Clamping</td>
</tr>
</tbody>
</table>

Clamping Force Curve

(Ex.) In case of WVG0060-M
when supply air pressure is 0.4MPa,
clamping force becomes about 4.8kN.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>WVG0040-M</th>
<th>WVG0060-M</th>
<th>WVG0100-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping Force kN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Pressure 0.5 MPa</td>
<td>3.7</td>
<td>5.8</td>
<td>9.5</td>
</tr>
<tr>
<td>Air Pressure 0.45 MPa</td>
<td>3.4</td>
<td>5.3</td>
<td>8.6</td>
</tr>
<tr>
<td>Air Pressure 0.4 MPa</td>
<td>3.1</td>
<td>4.8</td>
<td>7.8</td>
</tr>
<tr>
<td>Air Pressure 0.35 MPa</td>
<td>2.7</td>
<td>4.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Air Pressure 0.3 MPa</td>
<td>2.4</td>
<td>3.8</td>
<td>6.0</td>
</tr>
<tr>
<td>Air Pressure 0.25 MPa</td>
<td>2.1</td>
<td>3.3</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Pulling Capacity (Holding Force) at 0 MPa※1 kN 4 6 10

Operating Pressure Range MPa 0.25 – 0.5

Notes:

1. This graph shows the value for single clamp.
2. It shows “Pulling Capacity (Holding Force)” at 0MPa air pressure and it is not a clamping force.
Model No. Indication (Block)

**WVGB 06 0 - D**

1 Applicable Clamp Model

- 04: WVG0040-M
- 06: WVG0060-M
- 10: WVG0100-M

2 Design No.

- 0: Revision Number

3 Functions

- D: Datum Block (for Reference Locating)
- C: Cut Block (for One Direction Locating)
- G: Guide Block (for Clamping)

Model No. Indication (Level Adjustment Collar)

- This product is required in case of embedded mounting method.
- Material: Equal to S45C

**VZ 0 06 0 - VGC**

1 Applicable WVGB Block Model

- 04: WVGB040-M
- 06: WVGB060-M
- 10: WVGB100-M

2 Design No.

- 0: Revision Number

Model No. Indication (Level Adjustment Collar)

Other Mounting Examples (Reference)

- Please contact us for bolt-down mounting methods as shown in the drawing below.
High-Power Automation Pallet Clamp

**External Dimensions**

- This drawing shows the released state of WVG (when supplying release air pressure).

![Diagram of External Dimensions]

**Machining Dimensions of Mounting Area**

- Lock Air Port
- Air Port for Seating Confirmation
- Air Blow Port
- 4-Thread for Jack Bolt

![Diagram of Machining Dimensions]

**Notes:**
1. Make sure no burrs are on or around the hole intersection.
2. Release air port should be machined within range.
3. The base thickness (AG) and remaining depth after boring (AJ) are reference values when the base material is S55C.
4. Mounting bolts are not provided. Please prepare them separately.

**Distance Accuracy of Each Clamp**

- 4-WVG-M

![Diagram of Distance Accuracy]

**Notes:**
5. Please make sure the distance accuracy of each datum clamp is better than ±0.03mm.
Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>WVG0040-M</th>
<th>WVG0060-M</th>
<th>WVG0100-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locating Repeatability</td>
<td>mm 0.08</td>
<td>mm 0.08</td>
<td>mm 0.08</td>
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<tr>
<td>Full Stroke</td>
<td>mm 3.8</td>
<td>mm 3.8</td>
<td>mm 4.4</td>
</tr>
<tr>
<td>Allowable Offset</td>
<td>mm 1.0</td>
<td>mm 1.0</td>
<td>mm 1.5</td>
</tr>
<tr>
<td>Cylinder Capacity</td>
<td>cm³ 8.8</td>
<td>cm³ 14.1</td>
<td>cm³ 26.8</td>
</tr>
<tr>
<td>Lock &amp; Release</td>
<td>cm³ 9.3</td>
<td>cm³ 14.7</td>
<td>cm³ 28.1</td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>MPa 0.5</td>
<td>MPa 0.25</td>
<td>MPa 0.75</td>
</tr>
<tr>
<td>Min. Operating Pressure</td>
<td>MPa 0.75</td>
<td>MPa 0.4</td>
<td>MPa 0.5</td>
</tr>
<tr>
<td>Withstanding Pressure</td>
<td>MPa 0.4~0.5</td>
<td>MPa 0.4~0.5</td>
<td>MPa 0.4~0.5</td>
</tr>
<tr>
<td>Air Blow Pressure</td>
<td>°C 0~70</td>
<td>°C 0~70</td>
<td>°C 0~70</td>
</tr>
<tr>
<td>Usable Fluid</td>
<td>Dry Air</td>
<td>Dry Air</td>
<td>Dry Air</td>
</tr>
<tr>
<td>Weight</td>
<td>kg 0.6</td>
<td>kg 0.8</td>
<td>kg 1.4</td>
</tr>
</tbody>
</table>

Notes:
※6. It indicates the value of single clamp.

External Dimensions and Machining Dimensions for Mounting

<table>
<thead>
<tr>
<th>Model No.</th>
<th>WVG0040-M</th>
<th>WVG0060-M</th>
<th>WVG0100-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>53.2</td>
<td>54.2</td>
<td>63</td>
</tr>
<tr>
<td>D</td>
<td>45</td>
<td>55</td>
<td>69</td>
</tr>
<tr>
<td>E</td>
<td>27</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>F</td>
<td>13.5</td>
<td>13.5</td>
<td>16</td>
</tr>
<tr>
<td>G</td>
<td>12.2</td>
<td>12.2</td>
<td>14.5</td>
</tr>
<tr>
<td>K</td>
<td>55</td>
<td>65</td>
<td>81</td>
</tr>
<tr>
<td>L</td>
<td>66</td>
<td>76</td>
<td>94</td>
</tr>
<tr>
<td>M</td>
<td>28</td>
<td>33</td>
<td>41</td>
</tr>
<tr>
<td>N</td>
<td>2.5</td>
<td>2.5</td>
<td>3</td>
</tr>
<tr>
<td>P</td>
<td>34</td>
<td>43</td>
<td>52</td>
</tr>
<tr>
<td>R</td>
<td>25</td>
<td>34</td>
<td>42</td>
</tr>
<tr>
<td>S</td>
<td>24</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>T</td>
<td>179</td>
<td>25.9</td>
<td>32.8</td>
</tr>
<tr>
<td>U</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>V</td>
<td>5.3</td>
<td>5.3</td>
<td>6.8</td>
</tr>
<tr>
<td>W</td>
<td>9</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>AA</td>
<td>45</td>
<td>55</td>
<td>69</td>
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<tr>
<td>AB</td>
<td>45.2</td>
<td>55.2</td>
<td>69.2</td>
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<td>AG</td>
<td>35</td>
<td>35</td>
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<td>AH</td>
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<td>9</td>
<td>14</td>
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<td>AJ</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>AL</td>
<td>M5×0.8</td>
<td>M5×0.8</td>
<td>M6×1</td>
</tr>
<tr>
<td>1-O-ring BA</td>
<td>AS568-030(70)</td>
<td>AS568-033(70)</td>
<td>AS568-037(70)</td>
</tr>
<tr>
<td>3-O-ring BB</td>
<td>AS568-007(70)</td>
<td>AS568-007(70)</td>
<td>1AP5</td>
</tr>
<tr>
<td>Thread for Jack Bolt</td>
<td>M6×1</td>
<td>M6×1</td>
<td>M8×1.25</td>
</tr>
</tbody>
</table>
**External Dimensions**

![Diagram showing external dimensions of WVGB040/060/100-D, WVGB040/060/100-C, and WVGB040/060/100-G models.]

**Notes:**
- 1. The thread for jack bolt is used when removing WVGB block.
- 2. The spring pin is used for phasing of WVGB-C locating direction.

**Machining Dimensions of Mounting Area**

**Flange Mounting**

**Embedded Mounting**

**Dimensions of Level Adjustment Collar**

![Diagram showing dimensions of level adjustment collar VZ0040/0060/0100-VGC.]

**Notes:**
1. Refer to the drawing above when preparing the level adjustment collar by yourself.
- 4. The thread (3 parts) is for jack bolt. Align them with the phase of thread for jack bolt of WVGB block.

**Mounting Drawing of Level Adjustment Collar**

![Diagram showing mounting drawing of level adjustment collar.]

**Notes:**
- 5. Clearance between the seating surface of WVGB block and the bottom surface of the pallet.
Mounting Distance Accuracy and WVGB-C Phase

Connectec State Dimensions

External Dimensions and Machining Dimensions for Mounting

<table>
<thead>
<tr>
<th>Model No.</th>
<th>WVGB040-D</th>
<th>WVGB040-C</th>
<th>WVGB060-D</th>
<th>WVGB060-C</th>
<th>WVGB100-D</th>
<th>WVGB100-C</th>
<th>WVGB100-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>52.0 ±0.010</td>
<td>52g7 ±0.040</td>
<td>64g7 ±0.015</td>
<td>64g7 ±0.040</td>
<td>77g7 ±0.010</td>
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<td></td>
</tr>
<tr>
<td>B</td>
<td>25</td>
<td>25.8</td>
<td>34</td>
<td>34.8</td>
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</tr>
<tr>
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<td>43</td>
<td>52</td>
<td></td>
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<tr>
<td>F</td>
<td>34g7 ±0.010</td>
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<tr>
<td>G</td>
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<td>9</td>
<td>11</td>
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<tr>
<td>Thread for Jack Bolt</td>
<td>M4x0.7</td>
<td>M5x0.8</td>
<td>M6x1</td>
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<tr>
<td>Spring Pin</td>
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<td>4</td>
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<td>(AH)</td>
<td>30.41</td>
<td>37.48</td>
<td>45.25</td>
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<td></td>
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<tr>
<td>AJ</td>
<td>M4x0.7</td>
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<td>M6x1</td>
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<tr>
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<td>–</td>
<td>φ4.5 Depth 5</td>
<td>–</td>
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<tr>
<td>BD</td>
<td>14</td>
<td>14</td>
<td>16.5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BE</td>
<td>12.5</td>
<td>12.5</td>
<td>15.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BF</td>
<td>6.5</td>
<td>6.5</td>
<td>8</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Applicable Clamp</td>
<td>WVG040-M</td>
<td>WVG060-M</td>
<td>WVG100-M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connected state Dimension</td>
<td>DA (Flange Mounting)</td>
<td>23.5</td>
<td>23.5</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DB (Embedded Mounting)</td>
<td>13</td>
<td>13</td>
<td>15.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.15kg</td>
<td>0.2kg</td>
<td>0.35kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. The spring pin is included in WVGB-C only.
2. Pallet with low rigidity (thin pallet or pallet made of aluminum etc.) may be deformed when mounting WVGB block.
   In this case, tolerance of mounting hole machining dimension ±0.010 should be close to +0.010 (the upper limit of the tolerance).
Cautions

Notes for Design

1) Check Specifications
   • Please use each product according to the specifications.

2) Notes for Circuit Design
   • Ensure there is no possibility of supplying air pressure to the lock port and the release port simultaneously. Improper circuit design may lead to malfunctions and damages.
   • Air blow passage should be ≥6 or more for an effective air blow.

3) When Using a Pallet in Vertical Position
   • When setting a workpiece or a fixture plate, make sure it is in proper proximity and square to the clamps.
   • If it is locked out of position, the clamps may be damaged.

   ![Flange Mounting](image1)
   ![Embedded Mounting](image2)

<table>
<thead>
<tr>
<th>Model No.</th>
<th>WVGO040</th>
<th>WVGO060</th>
<th>WVGO100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange Mounting</td>
<td>24</td>
<td>24</td>
<td>29</td>
</tr>
<tr>
<td>Embedded Mounting</td>
<td>14</td>
<td>14</td>
<td>16.5</td>
</tr>
</tbody>
</table>

Dimension of embedded mounting: In case the clearance between the seating surface of WVGB block and the bottom surface of a pallet is 0.5mm.

![Level Adjustment Collar](image3)

4) Setting of Seating
   • In case the clamp/block configuration is linear, it is recommended to provide additional supports for stability.

![Cut Block](image4)

5) Setting of Rough Guide
   • If the position of the pallet during loading is outside the clamp allowable offset, the clamp may contact the seating surface and the taper surface of the block (WVGB-D) causing damage to the product and decrease of the locating accuracy. It is recommended to use rough guides to load the pallet within the allowable offset.

![Recommended 0.2mm or less](image5)

As a workpiece/fixture plate may fall down when releasing, it is recommended to set up the latching mechanism to prevent a fall.

Example of Latching Mechanism
A pallet must be level with a base plate during loading and unloading, otherwise clamps and blocks will be damaged. Provide guide pins (rough guides) to keep the pallet level during loading and unloading.
Cautions

Installation Notes

1) Check the fluid to use.
   - Please supply filtered clean dry air.
   - Oil supply with a lubricator etc. is unnecessary.

2) Preparation for Piping
   - The pipeline, piping connector and fixture circuits should be cleaned and flushed thoroughly. 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 air circuit.

3) Applying Sealing Tape
   - Wrap with tape 1 to 2 times following the screwing direction.
   - Wrapping in the wrong direction will cause leaks and malfunction.
   - Pieces of the sealing tape can lead to air leaks and malfunction.
   - When piping, be careful that contaminant such as sealing tape does not enter in products.

4) Installation of the Product
   - When mounting the product use hexagonal socket bolts (with tensile strength of 12.9) and tighten them with the torque shown in the table below. Tighten them evenly to prevent twisting or jamming.

<table>
<thead>
<tr>
<th>Clamp Model</th>
<th>Block Model</th>
<th>Mounting Bolt</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WVG</td>
<td>WVG040</td>
<td>Thread Size</td>
<td>Qty</td>
</tr>
<tr>
<td>WVG060</td>
<td>WVG060</td>
<td>M5 x 0.8</td>
<td>Qty</td>
</tr>
<tr>
<td>WVG100</td>
<td>WVG100</td>
<td>M6 x 1</td>
<td>Qty</td>
</tr>
</tbody>
</table>

5) Removal of the Product
   - Insert jack bolts and tighten them evenly to remove the product.
   - Protect the thread part with parallel pins, etc. as shown in the drawing below not to damage the surface of mounting bolts.

6) Level Adjustment of WVG Block Seating Surface
   (In case of Embedded Mounting)
   - When mounting each block to the fixture plate, adjust the level of block seating surface as described below.
   - (Recommended Level Adjustment : within ±0.01mm)
   1) Install in order of the level adjustment collar and the block to the fixture and tighten them with the specified torque.
   2) Measure the level of the seating surface of each block.
   3) In case the levels are not even, remove the blocks, and grind the level adjustment collar so that the level range is within ±0.01mm.
   4) Once again, install the block and level adjustment collar into the fixture plate, and check the levels.

Notes on Handling

1) It should be operated by qualified personnel.
   - Hydraulic and/or pneumatic machines and devices 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 removing the product, 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 circuits.
   3) After stopping the product, do not remove until the temperature drops.
   4) Make sure there is no trouble/issue in the bolts and respective parts before restarting the machine or equipment.

3) Do not touch the clamp while it is working.
   Otherwise, your hands may be injured.

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

5) Do not apply an impact on the product during loading/unloading.
   - Failure to do so leads to damage of the product and decrease in locating accuracy.
● Maintenance and Inspection

1) Removal of the Product and Shut-off of Pressure Source

- Before removing the product, 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 air circuits.
- Make sure there is no abnormality in the bolts and respective parts before restarting.

2) Regularly clean out each reference surface (locating surface and seating surface) of the locating products (WVG/WVGB).

- WVG model can remove contaminants with cleaning function (air blow function). 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 air leakage.

3) Regularly tighten pipes, mounting bolts and others to ensure proper use.

4) 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.

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

6) 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. Failure caused by the use of the non-confirming state at the user’s discretion.
  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.