Pneumatic Work Support

Rodless Hollow

Model WNA

Prevents Deformation Caused by Load

Work Support holds the rod and prevents dislocation, overload to the cylinder and deformation caused by load.

There is slight displacement caused by load (reaction force). Please refer to the load/displacement graph.

Before

Requires powerful cylinder to withstand the load.
Excessive thrust is applied to the workpiece.
Overload can be applied to the cylinder.

After

Work support grips and holds the rod so that the cylinder does not receive the load.
Compact and low power cylinder can be selected.
Able to use the cylinder with minimal thrust.
Does not transmit the load to the cylinder and prevents the overload.
● **Application Examples**

Prevents Deformation Caused by Load

Support for Press Fitting of Parts and Screw Fastener

Use as Long Stroke Work Support by Using with a Cylinder

Locates with Electric Cylinder • Withstands the Load with Work Support

● **Action Description**

※ This is a simplified drawing. Actual components are different.

When Releasing

- Lock Air Pressure: OFF
- Not Gripping the Rod

When Locking (Supporting)

- Lock Air Pressure: ON
- Gripping the Rod

**Notes:**

※1. The load acts towards the arrow direction (→) as shown in the drawing. (If used in a reversed position the internal parts are likely to be damaged.)
※2. Please refer to the cautions on P.201 for the air vent.
Model No. Indication

**WNA 070 0 - G - D**

1. **Support Force**

   - **025**: Support Force 0.25 kN (Supply Air Pressure 0.5MPa)
   - **040**: Support Force 0.4 kN (Supply Air Pressure 0.5MPa)
   - **070**: Support Force 0.7 kN (Supply Air Pressure 0.5MPa)
   - **100**: Support Force 1.0 kN (Supply Air Pressure 0.5MPa)
   - **200**: Support Force 2.0 kN (Supply Air Pressure 0.5MPa)
   - **400**: Support Force 4.0 kN (Supply Air Pressure 0.5MPa)

2. **Design No.**

   - **0**: Revision Number

### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>WNA0250-G-D</th>
<th>WNA0400-G-D</th>
<th>WNA0700-G-D</th>
<th>WNA1000-G-D</th>
<th>WNA2000-G-D</th>
<th>WNA4000-G-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Force (at 0.5MPa) kN</td>
<td>0.25</td>
<td>0.4</td>
<td>0.7</td>
<td>1.0</td>
<td>2.0</td>
<td>4.0</td>
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<tr>
<td>Support Force (Calculation formula) kN</td>
<td>0.93×P-0.21</td>
<td>1.40×P-0.28</td>
<td>2.33×P-0.47</td>
<td>3.33×P-0.67</td>
<td>6.06×P-1.03</td>
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<td>Cylinder Capacity cm³</td>
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<td>1.0</td>
<td>1.7</td>
<td>2.9</td>
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<td>Max. Operating Pressure MPa</td>
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<td></td>
<td></td>
<td></td>
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<td>0.25</td>
<td>0.35</td>
<td>0.90</td>
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</table>

*Note*: ※1. P: Supply Air Pressure (MPa)
Performance Curve

Support Force Graph  ※ This graph shows the support force under static load condition.

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<thead>
<tr>
<th>Model No.</th>
<th>WNA0250-G-D</th>
<th>WNA0400-G-D</th>
<th>WNA0700-G-D</th>
<th>WNA1000-G-D</th>
<th>WNA2000-G-D</th>
<th>WNA4000-G-D</th>
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<tr>
<td>Supply Air Pressure (MPa)</td>
<td>0.7</td>
<td>0.44</td>
<td>0.7</td>
<td>1.2</td>
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<td>0.6</td>
<td>0.35</td>
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<td>0.9</td>
<td>1.3</td>
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<td>0.5</td>
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Support Force Formula \( F \) = \( 0.93 \times P - 0.21 \)
\( 1.40 \times P - 0.28 \)
\( 2.33 \times P - 0.47 \)
\( 3.33 \times P - 0.67 \)
\( 6.06 \times P - 1.03 \)
\( 11.63 \times P - 1.71 \)

Note: ※ 1. \( P \) : Supply Air Pressure (MPa)

Load / Displacement Graph  ※ This graph shows the static load-displacement at the time of supplied air pressure 0.7MPa.
### External Dimensions

※ This drawing shows WNA-G-D.

- JA
- B
- H
- J
- C
- Kx
- Plug
- 4-φ R Spot Facing φ Q
- Load φ1
- (φ U) Tolerance 17
- Rod φ2 (Prepared by Customer)
- Dust Seal φ4
- Air Vent
- Air Port: O-ring (included)

### Machining Dimensions of Mounting Area

- 4-CA Thread φ5
- Air Lock Port φ P
- Kx
- Ny
- 4-AC
- 6.35
- 0.6

Note:
※ 5. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimensions ‘S’.

**Notes:**
※ 1. The load acts towards the arrow direction (φ2) as shown in the drawing. If used in a reversed position the internal parts are likely to be damaged.
※ 2. The surface hardness of the rod (prepared by the customer) should be above HRC60. (The hard chrome plated metal is acceptable.)
※ 3. Mounting bolts are not provided. Customer should prepare based on dimension ‘S’.
※ 4. Debur the rod end, and pay attention not to damage the dust seal when the rod is inserted into the body (upper and lower parts).
Model No. Indication

WNA 025 G D

External Dimensions and Machining Dimensions for Mounting (mm)

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<th>Model No.</th>
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<th>WNA0400-G-D</th>
<th>WNA0700-G-D</th>
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<th>WNA4000-G-D</th>
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<td>B</td>
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<td>C</td>
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<td>E</td>
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<td>R</td>
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<tr>
<td>AA</td>
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<td>–</td>
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<td>–</td>
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<td>25.5</td>
</tr>
<tr>
<td>AC</td>
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<td>–</td>
<td>M3×0.5</td>
<td>M3×0.5</td>
<td>M3×0.5</td>
<td>M3×0.5</td>
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<tr>
<td>CA</td>
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<td>M4×0.7</td>
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<td>JA</td>
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<td>3.1</td>
<td>3.1</td>
<td>max. 1.5</td>
<td>max. 1.5</td>
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<tr>
<td>Plug</td>
<td>M5×0.8 (CKD:FPL-M5)</td>
<td>M5×0.8 (CKD:FPL-M5)</td>
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<td>O-ring</td>
<td>ASS68-006(90°)</td>
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<td>ASS68-006(90°)</td>
<td>ASS68-006(90°)</td>
<td>1BP5</td>
<td>1BP7</td>
</tr>
</tbody>
</table>
Cautions

Notes for Design

1) Check Specifications
   ● Please use each product according to the specifications.
   ● When using a work support opposite to the clamp, set the support force at more than 1.5 times the clamping force.

![Clamping Force Diagram]

The load acts towards the arrow direction (●) as shown in the drawing. If used in a reversed position the internal parts are likely to be damaged.

2) Operation without the Rod
   ● Do not supply air without setting the rod.

3) The Surface Hardness of the Rod
   ● The surface hardness of the rod should be above HRc60.
     (The hard chrome plated metal is acceptable.)

4) Outer Diameter of the Rod
   ● The tolerance of the rod must be f7 grade (shown in the external dimensions). Otherwise proper operation may not be ensured.

5) Protect the plunger surface when using on a welding fixture.
   ● If spatter attaches to the plunger it may lead to sliding failure and insufficient supporting function.

6) For Using on a Lathe
   ● For usage that centrifugal force is applied, such as a lathe, please contact us.

7) Appropriate Measures for the Vent Port
   ● The work support, although only slightly, breathes like a single-acting cylinder. Consider the environment and avoid cutting fluid, coolant or any contaminants.
   ● If using it without air vent hole, it will not function properly.
● Installation Notes

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

2) Procedure before 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) Mounting the Work Support
   ● When mounting the work support, use hexagonal socket bolts as multiple bolt holes for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the chart below.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Mounting Bolt Size</th>
<th>Tightening Torque (N-m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WNA0250-G-D</td>
<td>M3×0.5</td>
<td>1.3</td>
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<tr>
<td>WNA0400-G-D</td>
<td>M3×0.5</td>
<td>1.3</td>
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<tr>
<td>WNA0700-G-D</td>
<td>M4×0.7</td>
<td>3.2</td>
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<tr>
<td>WNA1000-G-D</td>
<td>M4×0.7</td>
<td>3.2</td>
</tr>
<tr>
<td>WNA2000-G-D</td>
<td>M5×0.8</td>
<td>6.3</td>
</tr>
<tr>
<td>WNA4000-G-D</td>
<td>M6×1</td>
<td>10</td>
</tr>
</tbody>
</table>

※ Please refer to P.1357 for common cautions.

- Notes on Handling
- Maintenance/Inspection
- Warranty
Cautions

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

  2) Do not operate or remove the product unless the safety protocols are ensured.
     - The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.

  3) Before the product is removed, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.

  4) After stopping the product, do not remove until the temperature drops.

  5) Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

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

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

- **Maintenance and Inspection**

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

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

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

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

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

  6) Make sure the hydraulic fluid has not deteriorated.

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

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

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

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

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

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

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

### Sales Offices across the World

<table>
<thead>
<tr>
<th>Country</th>
<th>Company Name</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>KOSMEK LTD.</td>
<td>+81-78-991-5162</td>
<td>+81-78-991-8787</td>
</tr>
<tr>
<td>overseas sales</td>
<td></td>
<td></td>
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<tr>
<td>United States of America</td>
<td>KOSMEK (USA) LTD.</td>
<td>+1-630-620-7650</td>
<td>+1-630-620-9015</td>
</tr>
<tr>
<td>Mexico</td>
<td>KOSMEK USA Mexico Office</td>
<td>+52-442-161-2347</td>
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<tr>
<td>Europe</td>
<td>KOSMEK EUROPE GmbH</td>
<td>+43-463-287587</td>
<td>+43-463-287587-20</td>
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<td>China</td>
<td>KOSMEK (CHINA) LTD.</td>
<td>+86-21-54253000</td>
<td>+86-21-54253709</td>
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<tr>
<td>India</td>
<td>KOSMEK LTD - INDIA</td>
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<tr>
<td>Thailand</td>
<td>KOSMEK Thailand Representation Office</td>
<td>+66-2-300-5132</td>
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<tr>
<td>Taiwan (Taiwan Exclusive Distributor)</td>
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<td>Philippines (Philippines Exclusive Distributor)</td>
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<td>078-991-5162</td>
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*FOR FURTHER INFORMATION ON UNLISTED SPECIFICATIONS AND SIZES, PLEASE CALL US.*

*SPECIFICATIONS IN THIS CATALOG ARE SUBJECT TO CHANGE WITHOUT NOTICE.*
Global Network

Asia Detailed Map

• Overseas Affiliates and Sales Offices
• Distributors

North America
- Canada
- U.S.A.

South America
- Brazil
- Mexico
- Brazil
- Canada

Europe
- Europe

Asia
- Asia
- Asia

Oceania
- Australia

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