Product Information
Angular gripper SWG 12
SWG
Angular gripper

SWG gripper for small components

Narrow double-acting 2-finger angular gripper.

Field of application
For universal use in clean and slightly dirty environments. Suitable for applications which require a space-optimized gripper arrangement.

Advantages – Your benefits
Slim design allowing the grippers to be arranged in a row
Spring-supported gripping force maintenance holds the workpiece even in case of a loss of pressure
Wedge-hook design for high power transmission and synchronized gripping
Light, compact design for space-saving handling without interfering contours
Monitoring via electronic magnetic switches a space-saving feature in a slot in the housing

Sizes
Quantity: 8

Weight
0.0025 .. 0.213 kg

Gripping moment
0.01 .. 2.8 Nm

Angle per jaw
15°

Workpiece weight
0.007 .. 0.46 kg
**Functional description**

The piston is moved up and down by compressed air. The kinematics transforms this vertical motion into a synchronous and rotatory gripping motion of the base jaws.

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1. **Housing**  
   Weight-optimized due to the use of high-strength aluminum alloy

2. **Base fingers**  
   For the connection of workpiece-specific gripper fingers

3. **Kinematics**  
   Precise gear for centric gripping

4. **Sensor system**  
   Electronic magnetic switch, space-saving integration in the groove of the housing

5. **Gripping force maintenance**  
   Mechanic gripping force maintenance for O.D. gripping

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CAD data, operating manuals and other current product documents can be found online.
General notes about the series

Operating principle: double-acting, guided kinematics

Housing material: Aluminum alloy, anodized

Base jaw material: Aluminum alloy, anodized

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Warranty: 24 months

Scope of delivery: Swivel fittings, centering sleeves, assembly and operation manual with manufacturers declaration

Gripping force maintenance: always integrated, and additional possible via SDV-P pressure maintenance valve

Gripping moment: gripping moment is the arithmetic total of gripping moments for each gripper jaw.

Finger length: is measured from the reference surface as the distance P in direction to the main axis.

Repeat accuracy: is defined as the spread of the end position during 100 consecutive strokes.

Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times, or PLC reaction times are not a part of this and are to be considered when cycle times are calculated.

Application example

Triple transfer unit for packaging with small boxboards

- SWG 2-finger angular gripper
- OPR collision sensor
SCHUNK offers more ...

The following components make the product SWG even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.

Centering sleeves  Fittings  Pressure maintenance valve  Magnetic switches

Sensor distributor  Gripper pads  Sensor cables  Plastic inserts

Additional information regarding the products can be found on the following product pages or at www.schunk.com. Please contact us for further information: SCHUNK technical hotline +49-7133-103-2696

Options and special information

The SWG angular gripper can be directly mounted in a row to reduce interfering contours.
Angular gripper

Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>SWG 12</th>
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<tbody>
<tr>
<td>ID</td>
<td>0305115</td>
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<tr>
<td>Opening angle per jaw [°]</td>
<td>15</td>
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<tr>
<td>Closed angle per jaw up to [°]</td>
<td>7</td>
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<tr>
<td>Closing moment [Nm]</td>
<td>0.03</td>
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<tr>
<td>Closing moment generated by spring [Nm]</td>
<td>0.009</td>
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<td>Weight [kg]</td>
<td>0.0048</td>
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<td>Recommended workpiece weight [kg]</td>
<td>0.017</td>
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<tr>
<td>Fluid consumption double stroke [cm³]</td>
<td>0.07</td>
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<tr>
<td>Min./max. operating pressure [bar]</td>
<td>4/6.5</td>
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<tr>
<td>Nominal operating pressure [bar]</td>
<td>6</td>
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<tr>
<td>Closing/opening time [s]</td>
<td>0.015/0.02</td>
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<tr>
<td>Max. permissible finger length [mm]</td>
<td>12</td>
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<td>Max. permissible mass per finger [kg]</td>
<td>0.006</td>
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<td>Protection class IP</td>
<td>30</td>
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<td>Min./max. ambient temperature [°C]</td>
<td>5/90</td>
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<tr>
<td>Repeat accuracy [mm]</td>
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**The diagram is valid for all opening angle variants.**
The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

1. The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening
B, b Main / direct connection, gripper closing
1. Gripper connection
2. Finger connection
19. Air connection

72. Ø2.5 (2x)
M1.6 (2x)
80

72. Fit for centering sleeves
80. Depth of the centering sleeve hole in the counter part

Bosch-Rexroth compressed air hose, TU1-S (Ø 3.0 – 0.6) series, Order no.: 1820712066 (-67/-68/-69)
Maximum permitted finger projection

![Diagram showing permitted and inadmissible ranges for finger projection.]

$L_{\text{max}}$ is equivalent to the maximum permitted finger length, see the technical data table.

SDV–P pressure maintenance valve

The SDV–P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Pressure maintenance valve</td>
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<td>SDV–P 04</td>
<td>0403130</td>
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<tr>
<td>Pressure maintenance valve with air bleed screw</td>
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<td>SDV–P 04–E</td>
<td>0300120</td>
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Optical proximity switch

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<td>Optical proximity switch</td>
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<tr>
<td>ONS 01</td>
<td>0301390</td>
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<tr>
<td>Optical wave guide</td>
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<tr>
<td>ONS 01–LWL</td>
<td>0301391</td>
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*Per each unit a sensor (ONS 01) as well as an optical wave guide (ONS 01–LWL) are required. Assembly of the optical sensors at the gripper is done with the supplied plastic clip.*