Product Information
Quick change system SWS-L 1210
Flexible. Modular. Strong.

Quick-change system SWS–L

Pneumatic tool change system with patented locking system for heavy loads

Field of application

can be used wherever short changeover times between a handling device and a tool (gripper, pallet, welding gun) are required

Advantages – Your benefits

Patented fail-safe locking mechanism for secure connection between the quick-change master and adapter

Manual emergency unlocking possible no counter-forces from springs

All functional components made from hardened steel for high mechanical resilience of the changing system

The same feed-through modules for all sizes that permits the use of standard parts in the production line

Possibility of transmission of electric media for a safe power supply of the handling modules and tools

As standard, many feed-through modules can be attached for highest flexibility of your application

Adapter side coding via plug connector possible

Suitable storage racks for all sizes to ensure the optimum adaption to each application

ISO mounting pattern for easy assembly to most types of robots without needing additional adapter plates

Sizes
Quantity: 4

Handling weight
300 .. 1350 kg

Moment load M,
7600 .. 13500 Nm

Moment load M,
4060 .. 16200 Nm
Functional description

Automatic exchange of the end effector (e.g. gripper, pallets, vacuum gripping systems, pneumatically or electrically driven tools, welding guns, etc.) increases the flexibility of your robot.

The quick-change system (SWS) consists of a quick-change master (SWK) and a quick-change adapter (SWA). The SWK is mounted onto the robot, and couples the SWA mounted onto your tool. A pneumatically driven locking piston, with its patented design, ensures that the connection is secure. After coupling, pneumatic and electric feed-throughs automatically supply your robot tool.

1. **Locking piston**
   - self-locking and robust

2. **Pneumatic supply module**
   - with integrated valve for supply of the SWK

3. **Control module**
   - for actuation of the SWK and additional signal transmission

4. **Servo signal module**
   - for separate transmission of power and sensor signals for servo drives, for example

5. **Welding current module**
   - for high current loads

6. **Fluid module, self-sealing**
   - for drip-free transfer of liquid media
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General notes about the series

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

Operating principle: locking balls actuated by pistons for locking

Energy transmission: variable via attachment feed-through modules, depending on the unit size

Housing: The housing consists of high-strength, hard-coated aluminum alloy. The functional components are made of hardened steel.

Scope of delivery: Operating and maintenance instruction, manufacturer’s declaration

Warranty: 24 months

Harsh environmental conditions: Please note that use under harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service life of the units, and we will not take over any warranty. However, in many cases we can find a solution. Please contact us for assistance.

Handling weight: is the weight of the total load attached to the flange. When designing, the permissible forces and moments have to be paid attention to. Please note that exceeding the recommended handling weight will shorten the lifespan.

Application example

Heavy-load gripping unit with robot quick-change system for changing the handling devices such as grippers and welding tongs.

1 Quick-change system SWS–L
2 3-finger universal gripper PZN–plus
SCHUNK offers more ...

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

Heavy-load gripper  Storage rack  Electronic module  Fluid feed-through  Inductive proximity switches

For more information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

Options and special information

**No-Touch-Locking™:** Locking without touching. Ensures that the SWS is securely locked even when the SWK and SWA do not touch.

**Patented fail-safe locking mechanism:** A large piston diameter and an outside clamping locking increase the permissible moment capacity. Steel parts made of low corrosion Rc 58.
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Ordering example SWS–L

Description
SW

Page
K = head (robot side)
A = Adapter (tool side)

Size
210 = SWS-210
310 = SWS-310
510 = SWS-510

Collar or step on the mounting surface
A = no collar (master side), no step (tool side)
B = 80 mm step/collar (only for 210)
C = 100 mm step/collar (only for 210, 310)
D = 125 mm step/collar (only for 310, 510)
E = 160 mm collar (only for 510)

Pneumatic supply modules (on surface A only)
Note: A pneumatic supply module must be mounted on surface A. Control modules can be mounted on the pneumatic supply module. If two modules are combined (e.g. JB2 and SA2) on surface A, the designation will be a combination SWK-210BM-JB2SA2-AA2-0-0-SM

Optional modules
Axx = Pneumatic module (anodized aluminum housing, not suitable for liquids)
Dxx = DeviceNet module
Exx = Servo modules
Fxx = Fluid module (stainless steel, self-sealing)
Pxx = pneumatic module (anodized aluminum housing, not suitable for liquids)
Sxx = signal modules
Uxx = stud welding modules
Vxx = Vacuum module
0 = unused option
A selection of available modules can be found in the chapter “SWS–L” options.

Proximity switch monitoring
SM = inductive proximity switch PNP
0 = Monitoring possible, not included in the scope of delivery

More versions on request
### Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>SWK-L-1210AM-0-0-0-0-0-0-0-SL</th>
<th>SWA-L-1210AT-0-0-0-0-0-0-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended handling weight [kg]</td>
<td>1350</td>
<td>1350</td>
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<tr>
<td>Piston stroke monitoring</td>
<td>integrated</td>
<td></td>
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<tr>
<td>Locking force [N]</td>
<td>93000</td>
<td>93000</td>
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<tr>
<td>Repeat accuracy [mm]</td>
<td>0.01</td>
<td>0.01</td>
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<tr>
<td>Weight [kg]</td>
<td>18</td>
<td>10</td>
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<tr>
<td>Max. distance when locking [mm]</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Max. permissible XY-axis offset [mm]</td>
<td>±2</td>
<td>±2</td>
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<tr>
<td>Max. permissible angular offset [°]</td>
<td>±1</td>
<td>±1</td>
</tr>
<tr>
<td>Min./max. ambient temperature [°C]</td>
<td>5/60</td>
<td>5/60</td>
</tr>
<tr>
<td>Min./max. operating pressure [bar]</td>
<td>5/6.9</td>
<td>5/6.9</td>
</tr>
<tr>
<td>Dimensions X x Y x Z [mm]</td>
<td>305 x 351 x 68.1</td>
<td>305 x 351 x 54.1</td>
</tr>
<tr>
<td>Screw connection diagram</td>
<td>L2 side A/L side B/C/D/E/F</td>
<td>L2 side A/L side B/C/D/E/F</td>
</tr>
</tbody>
</table>

* Please note that the heights of the change master (ZK) and change adapter (ZA) differ. The sum represents the total height of a coupled change system.
Main view

The drawing shows the basic design of the quick-change system without dimensional consideration of the options described below.

1. Robot-side connection
2. Tool-side connection
5. Through hole for connection with screws

Actuation

The SWK can optionally be locked and unlocked directly with a pneumatic supply module with an integrated valve or an additional control module. They must be taken into account when selecting the options.

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Jens Lehmann, German goalkeeper legend, SCHUNK brand ambassador since 2012 for safe, precise gripping and holding.
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