SPATZ

STÖGER Pick&Place screwdriver robot with automatic tool change and feed unit for fasteners

Example for 2 different fasteners and a 3rd tool (e.g. gripper). One feed unit is required per fastener. Shown here with both options - internal and external supply unit.

From left to right: external supply unit, 3x tool station, encoder, 2 screwing tools. Attached to the tools are the scan codes for the encoder.

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CAD data available on www.stoeger.com/en/downloads.html under file "automatic screwdrivers"
The SPATZ (STÖGER Pick&Place screwdriving robot with automatic tool change and feed unit for fasteners) has all the features to revolutionize the system layout in automated production and offers high savings potential in the design of assembly and manufacturing systems.

The SPATZ consists of a drive, the tool holder with quick lock, the required screwdriving tools and the corresponding number of feed units. In the standard version, the SPATZ can handle up to 15 different screwdriving programmes.

The modular and flexible design opens up completely new and significantly more cost-effective concepts than before.

Due to the modular design, all conceivable screw sequences with different screw geometries and screw positions can be mapped and combined with each other.

Since only additional tools are required for different screw geometries instead of additional screwdriving units, the system price is significantly reduced. The more different fasteners are processed with the SPATZ, the higher the savings potential.

In addition to screwing, many other activities are possible. For example, grippers can also be integrated. Thus one robot can pick up a component, screw in different screws, set balls or pins, assemble components and much more.

This opens up completely new possibilities for the system layout.

The SPATZ can be operated on different robots and axis systems. For the UR robots UR3e, UR5e, UR10e and UR16e a software has been developed, which enables users to store the associated screwdriving programmes and to determine in just a few steps all the positions that the robot has to move to. Extensions and changes to the system layout are also conveniently adapted via an intuitive user interface.

### Technical Data

#### General
- Concept: modular Pick&Place Screwdriving system; automatic tool change; design optimized for HRI; certified UR+ product
- Versions: Free choice of drive; up to 15 screwdriving programs possible; provisioning of screws realised by a feed unit with internal or external supply unit; further tools, e.g. gripper adaptable

<table>
<thead>
<tr>
<th>Screwdriving unit with tool Dimensions screwdriving unit</th>
<th>64 x 64 x 380 mm with drive Desoutter ERXS 80 (Standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure range compressed air</td>
<td>5 - 6 bar unlubed air</td>
</tr>
<tr>
<td>Torque</td>
<td>up to 4 Nm</td>
</tr>
<tr>
<td>Total weight of screwdriving unit</td>
<td>approx. 0.93 – 1.40 kg</td>
</tr>
<tr>
<td>Environmental conditions - Temperature</td>
<td>0 - 40 °C</td>
</tr>
<tr>
<td>Air humidity</td>
<td>0 - 95 % RH (not condensing)</td>
</tr>
<tr>
<td>Energy requirements - Power supply voltage</td>
<td>230 V</td>
</tr>
<tr>
<td>- Electrical load</td>
<td>approx. 150 W (depending on drive)</td>
</tr>
<tr>
<td>- Compressed air</td>
<td>up to 120 l/min</td>
</tr>
</tbody>
</table>

#### Tool Dimensions tool (Ø x L)  Ø 30 x 132 mm
- Total weight: approx. 0.2 kg
- Bit connecting thread: up to M5

#### Tool station
- Dimensions (B x W x H): 55 x 80 x 92 mm
- Total weight: 2.2 kg

#### Encoder Dimensions (B x W x H): 43 x 75 x 122 mm
- Total weight: approx. 0.3 kg
- Scanning distance: approx. 40 mm

#### Feed unit with internal / external supply unit
- Feed unit: see data sheet ZSE / STF / SGF
- External supply unit Dimensions (B x W x H): 35 x 167 x 75 mm without feed hose
- Total weight: approx. 1 kg
- Compressed air: 0.1 NL/cycle

#### Controller
- Measurable values (depending on the robot model and the screwdriving technology used): Depth, Position, Down force of bit, Torque, Rotation angle, Time
- Measuring precision: ± 10 % of the measuring range
- Software: Simple programme changes to the robot and graphic user guidance by UR-certified software when using an UR e-series robot