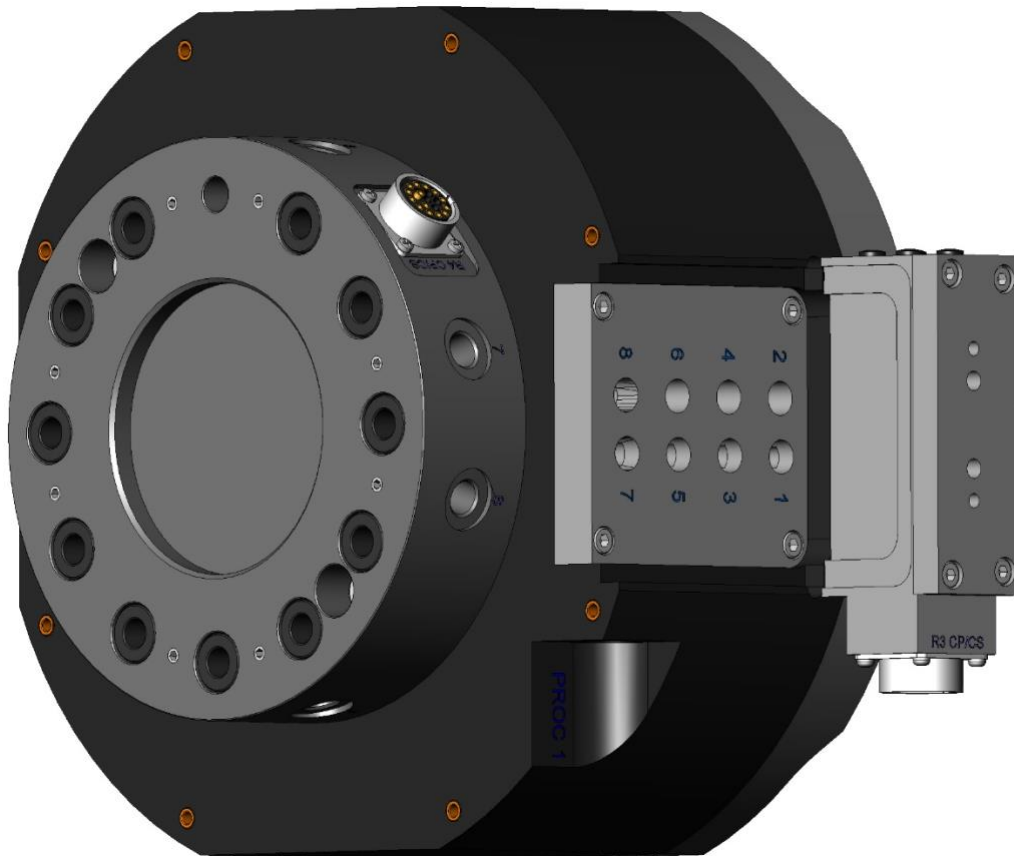


Technical Description

Swivel S350

M0633-1

Tool changers | **Swivels** | Swivel tool changers | Grippers | Hose packages | Valve units | Tool systems



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1 INTRODUCTION

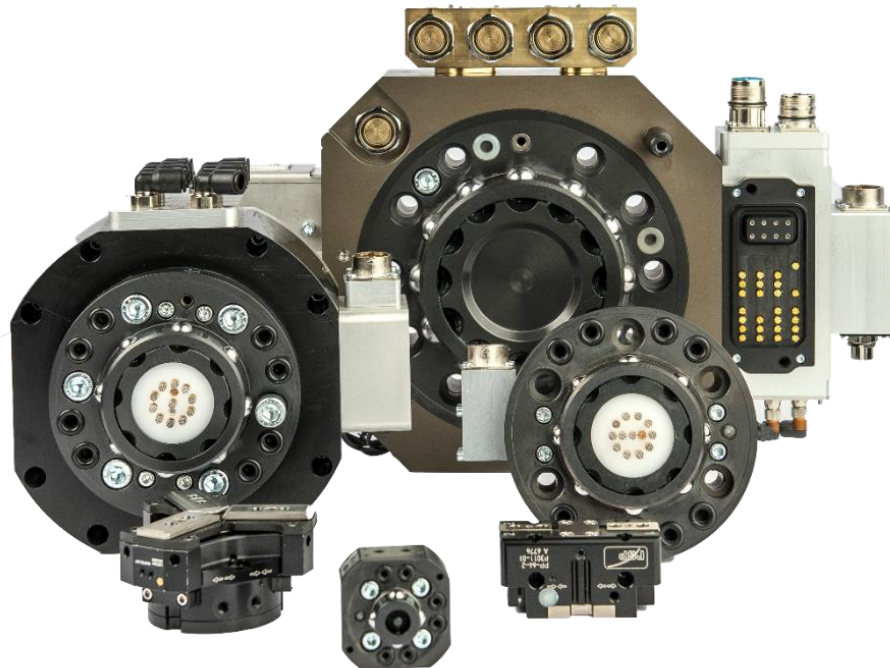
Robot System Products is a front-rank provider of peripheral products for high performance robot applications. We provide complete system solutions for your robot installations, aiming to improve your productivity with the most reliable and cost-effective tooling on the market. Continuously we explore emerging technologies, working with leading edge design.

Robot System Products has a wide range of standard robot peripheral products:

- Tool changers
- Swivels
- Swivel tool changers
- CiRo
- Grippers
- Hose Packages
- Valve units
- Tool systems
- Tool parking systems

Robot System Products' tool changers are constructed to maximize the flexibility and reliability of your robot fleet. Through our patented locking device TrueConnect™ robustness and high safety are combined with low weight and compactness. With our swivels compressed air, water, electrical and data signals as well as weld and servo power are transferred to your tools with robot motion capabilities fully maintained. Our Swivel tool changers unite the TrueConnect™ mechanism with our swivel technology, combining the best out of the two technologies. With RSP's cost-effective CiRo, cables and hoses can be freely selected with high robot flexibility maintained, and space requirements reduced. Our integrated Tool systems are delivered as complete plug-and-play solutions designed for quick and simple installation.

Robot System Products' product lines are available for all major robot brands and come with complete documentation. 3D-models for simulation are available for download at: www.rsp.eu.com.



1.1 Documents

This *Technical Description* contains product information and data, drawings, circuit and pneumatic diagrams and lists of spare parts. In the document *Installation and Maintenance* (M0415-1) procedures for mounting, installation and replacement of equipment are described together with descriptions of inspection, cleaning and lubrication activities including recommended maintenance intervals.

1.2 Complementary Equipment

Complementary equipment is described in separate documents.

Article	Note
Cable and Hose Packages	Complete packages for most robots on the market ready to be mounted without any modifications.
External valve units	Mounted at the rear of the upper arm.
Connection kits	In order to make electrical installation easier, connection kits are available for the swivels.
3D-models	Available in Solid Works® and STEP-format.

2 TECHNICAL SPECIFICATIONS

2.1 Description of swivels

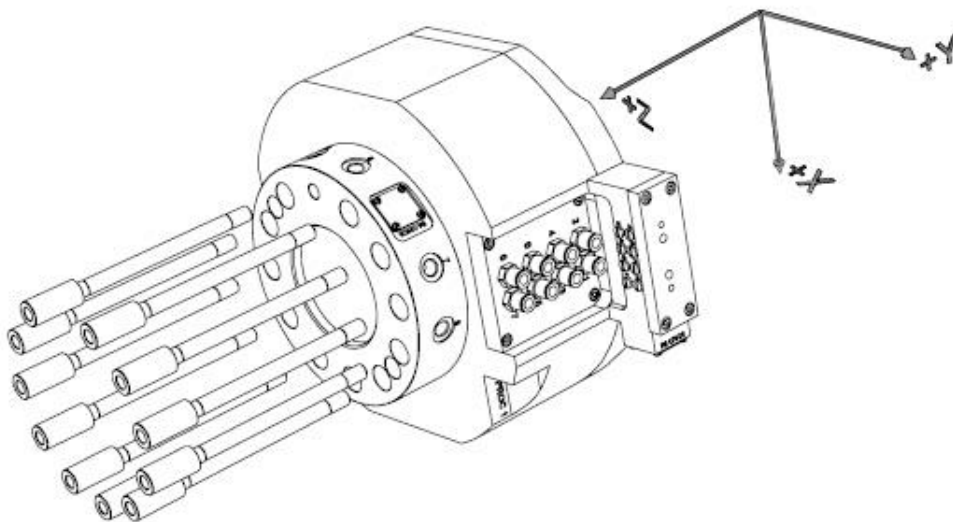
This document presents the Robot System Products' S350-1, S350-8, S350-1E and S350-8E swivels, which are dedicated for material handling especially when a lot of robot movements are performed. When using an RSP swivel compressed air and electric signals will be directly available at the tool without limiting the axis 6 rotation or the robot's working range. With RSP's hose packages there is no need to consider loose, hanging cables and hoses during programming. In addition, the design and installation time for the system integrator will be significantly reduced.

The swivel S350-1 and S350-8, transfers compressed air to the tool. They can also be equipped with transfer of electrical signals to the tool, the electrical versions are designated 'E'. The swivels S350-1 and S350-8 cannot transport fluids.

For swivels rotation stops, which prohibits the swivels to rotate in relation to the robot, are mandatory. Depending on robot model adaptation plates between the swivel and the robot flange may be needed. Adaptation kits including both rotation stops and, when required, adaptation plates are available from RSP. Likewise presented are connection kits to facilitate electrical installation.

2.1.1 Coordinate System Definition

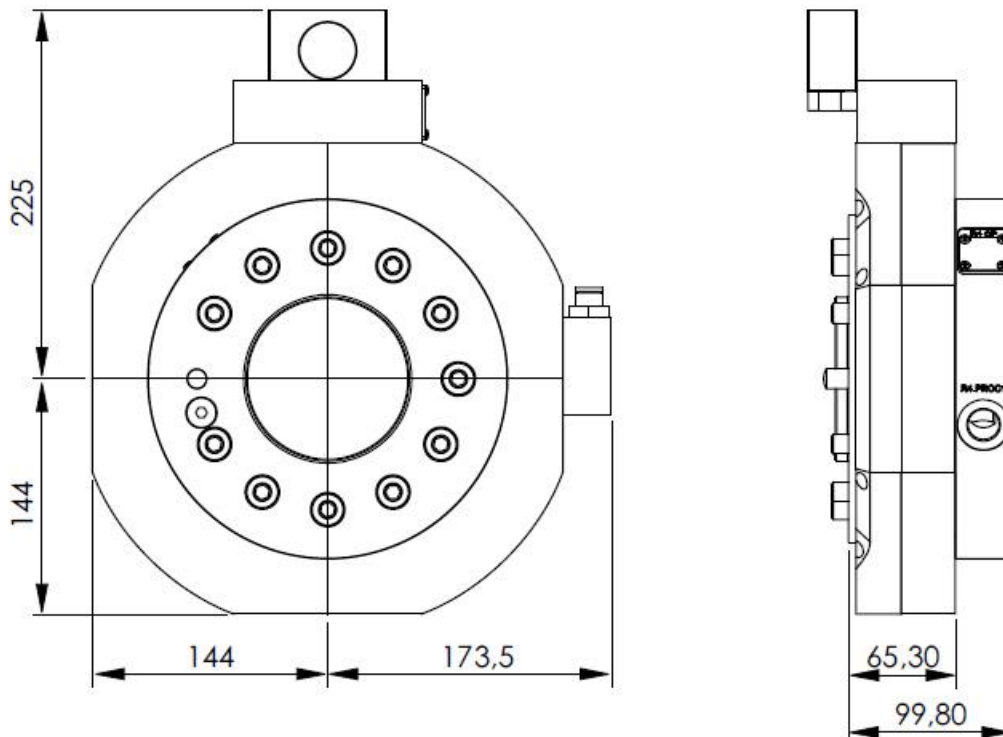
A swivel adds load to the robot. If the arm and tool loads are not stated correctly during programming the behaviour of the robot and the wear of the equipment will be affected. Information about weight and centre of gravity can, in accordance with the co-ordinate system stated below, be found in the technical specification tables of the swivel.



NOTE!

For the swivel the origo is situated on the surface in the centre of the robot mounting flange.

2.1.2 Swivel S350-1. Article no: P0636

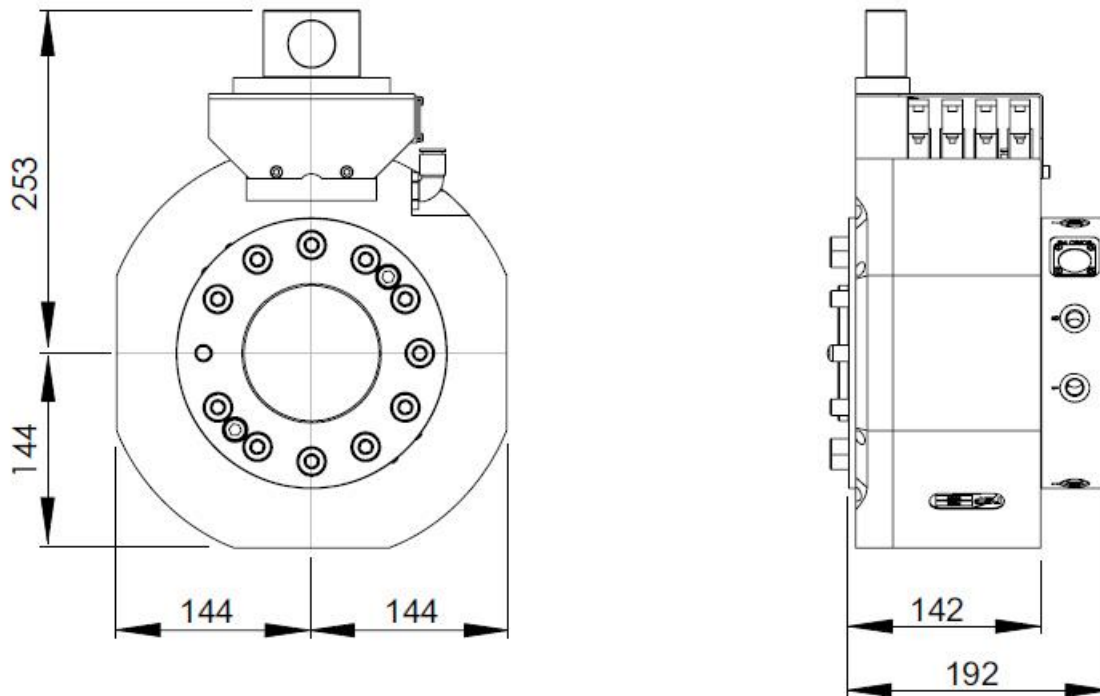


Swivel S350-1 transfers 1 pneumatic channel to the tool.

Technical data

Working temperature		+10°C–+50°C
Bolt pattern		ISO 9409-1 160-11-M12
Maximum tool load	Fz (static) Mx/My (dynamic) Mz (dynamic)	± 3500 N ± 3500 Nm ± 3500 Nm
Weight and centre of gravity (Z-direction)		11.2 kg / 44 mm
Air channels	Pneumatic diagram Connection, robot side Air quality Connections, tool side	See section 2.1.6 1 x G ½" (4000 l/min, max 10 bar) Oil-clean and waterless filtered air, with max 25µm particle content 1 x G ½"

2.1.3 Swivel 350-8. Article no: P0609

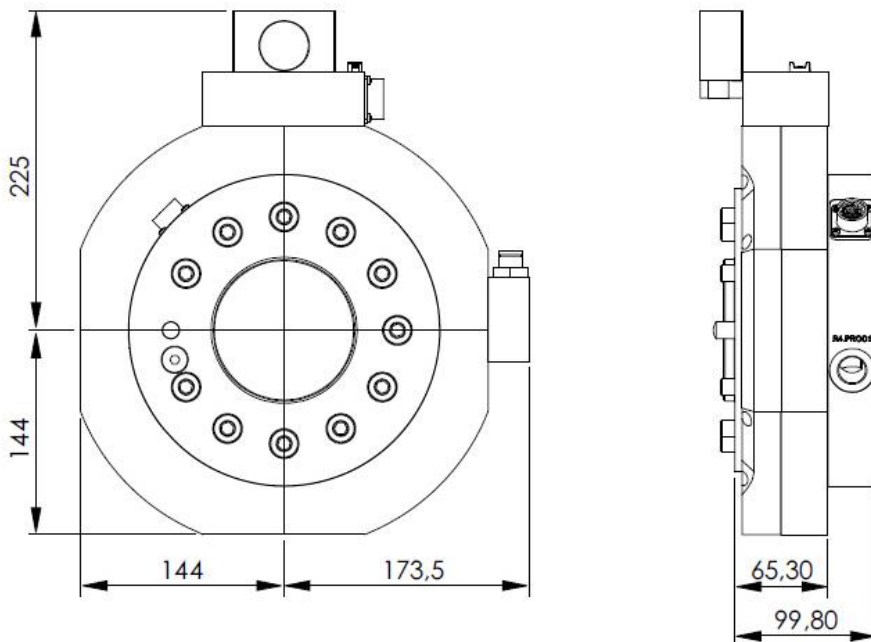


Swivel S350-8 transfers 8 pneumatic channels to the tool.

Technical data

Working temperature	+10°C–+50°C
Bolt pattern	ISO 9409-1 160-11-M12
Maximum tool load	Fz (static) Mx/My (dynamic) Mz (dynamic)
	± 3500 N ± 3500 Nm ± 3500 Nm
Weight and centre of gravity (Z-direction)	19.2 kg / 85 mm
Air channels	Pneumatic diagram Connection, robot side Air quality Connections, tool side
	See section 2.1.7 8 x G ¼" (800 l/min, max 10 bar) Oil-clean and waterless filtered air, with max 25µm particle content 8 x G ¼"

2.1.4 Swivel S350-1E. Article no: P0633

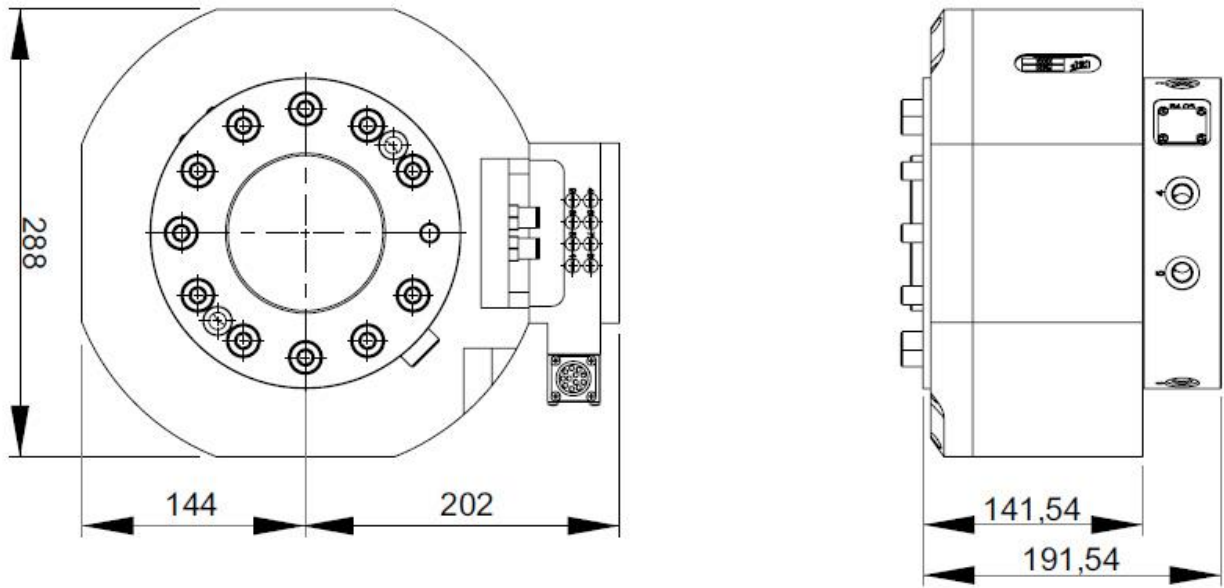


Swivel S350-1E transfers 1 pneumatic channel and 13 electrical signals to the tool.

Technical data

Working temperature		+10°C–+50°C
Bolt pattern		ISO 9409-1 160-11-M12
Maximum tool load	Fz (static) Mx/My (dynamic) Mz (dynamic)	± 3500 N ± 3500 Nm ± 3500 Nm
Weight and centre of gravity (Z-direction)		11.4 kg / 44 mm
Air channels	Pneumatic diagram Connection, robot side Air quality Connections, tool side	See section 2.1.6 1 x G ½" (4000 l/min, max 10 bar) Oil-clean and waterless filtered air, with max 25µm particle content 1 x G ½"
Electrical signals	Circuit diagram Connection, robot side Total signals Dedicated signals Connection, tool side	E0168-002 (section 2.1.8) Souriau 23P (UTO01823PH) 13 x (2A, 60V) 24V, 0V Souriau 19S (UTOW01419SH)
Connection kits (optional)	P8129-50 (cable kit, robot side) P8002 (connector, robot side) P8002-1 (connector, robot side) P8105-20 (cable kit, tool side) P8007 (connector, tool side) P8007-1 (connector, tool side)	Souriau 23S, 5-meter cable (CP/CS/CBUS), open end Souriau 23S (straight) Souriau 23S (angled) Compact Souriau 19P, 2-meter cable, open end Compact Souriau 19P, (straight) Compact Souriau 19P, (angled)

2.1.5 Swivel S350-8E. Article no: P0610

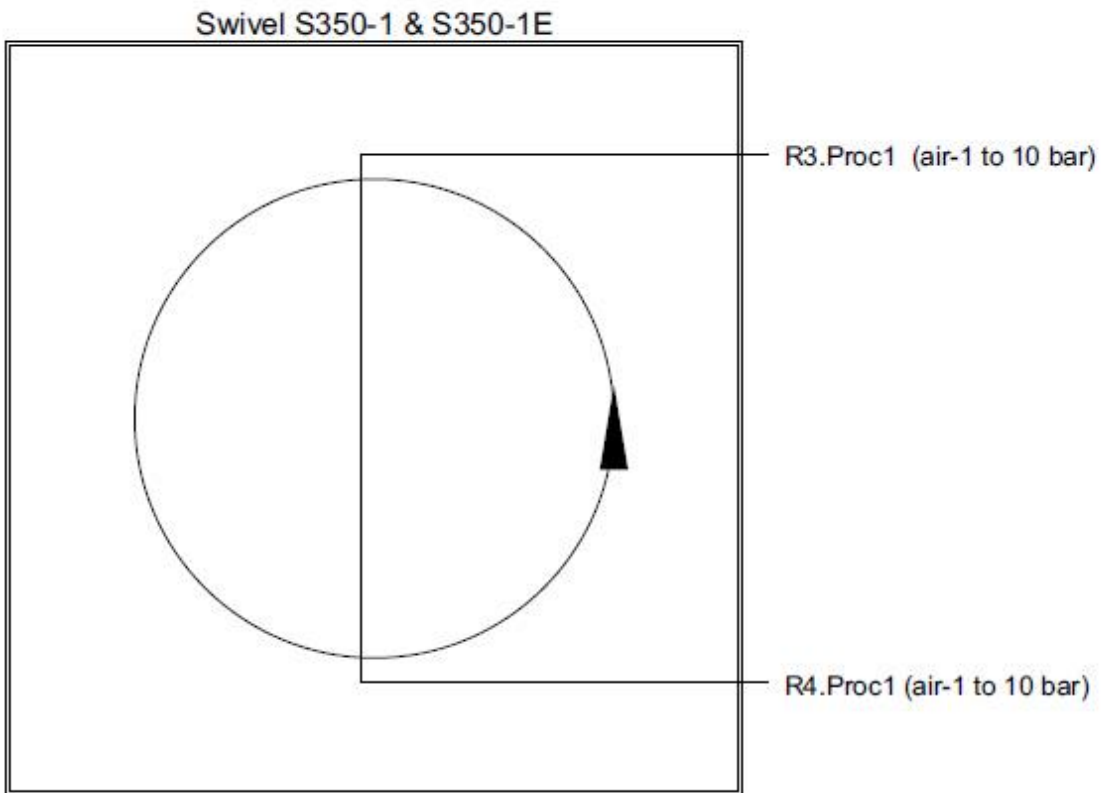


Swivel S350-8E transfers 8 pneumatic channels and 13 electrical signals to the tool.

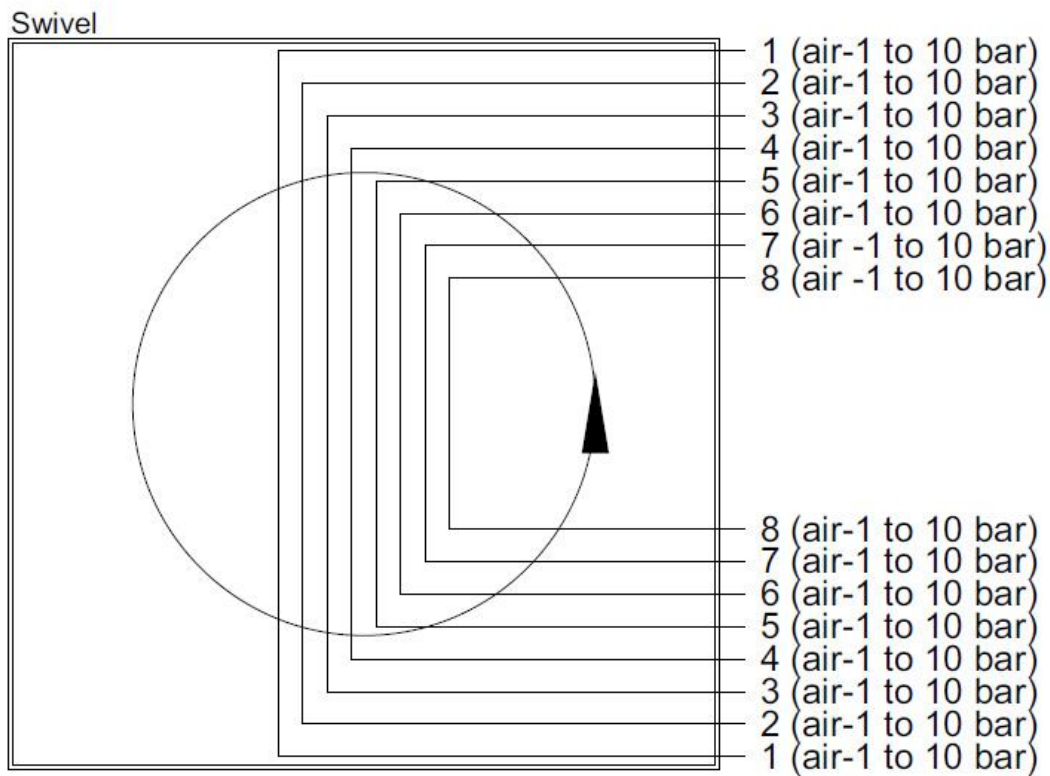
Technical data

Working temperature		+10°C–+50°C
Bolt pattern		ISO 9409-1 160-11-M12
Maximum tool load	Fz (static)	± 3500 N
	Mx/My (dynamic)	± 3500 Nm
	Mz (dynamic)	± 3500 Nm
Weight and centre of gravity (Z-direction)		19.4 kg / 84 mm
Air channels	Pneumatic diagram	See section 2.1.7
	Connection, robot side Air quality	8 x G ¼" (800 l/min, max 10 bar) Oil-clean and waterless filtered air, with max 25µm particle content
	Connections, tool side	8 x G ¼"
Electrical signals	Circuit diagram	E0168-002 (section 2.1.8)
	Connection, robot side	Souriau 23P (UTO01823PH)
	Total signals	13 x (2A, 60V)
	Dedicated signals	24V, 0V
	Connection, tool side	Souriau 19S (UTO01619SH)
Connection kits (optional)	P8129-50 (cable kit, robot side)	Souriau 23S, 5-meter cable (CP/CS/CBUS), open end
	P8002 (connector, robot side)	Souriau 23S (straight)
	P8002-1 (connector, robot side)	Souriau 23S (angled)
	P8102-20 (cable kit, tool side)	Compact Souriau 19P, 2-meter cable, open end
	P8003 (connector, tool side)	Compact Souriau 19P, (straight)

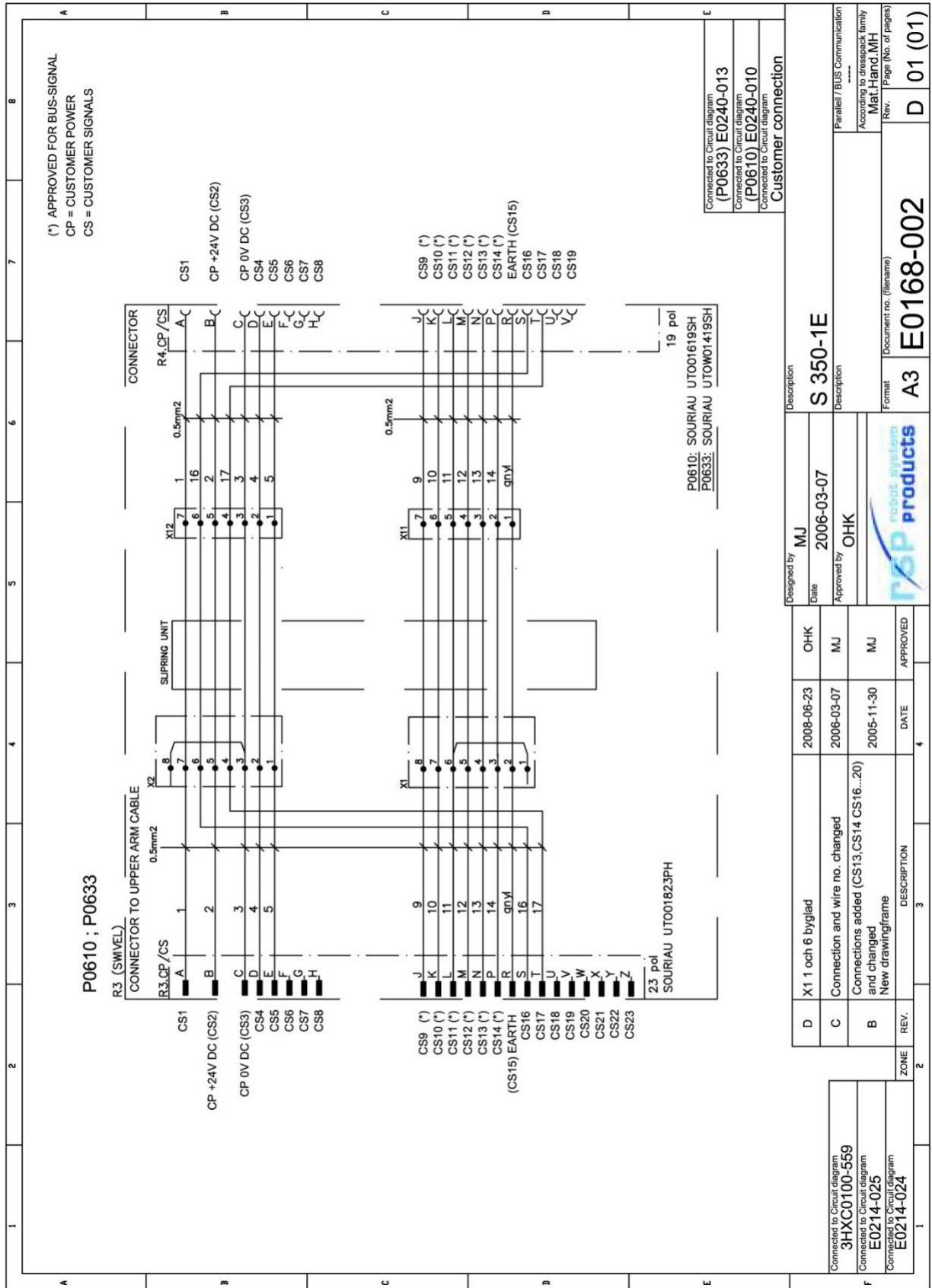
2.1.6 Pneumatic diagram swivel P0636 and P0633



2.1.7 Pneumatic diagram swivel P0609 and P0610



2.1.8 Circuit diagram E0168-002 for P0633 and P0610

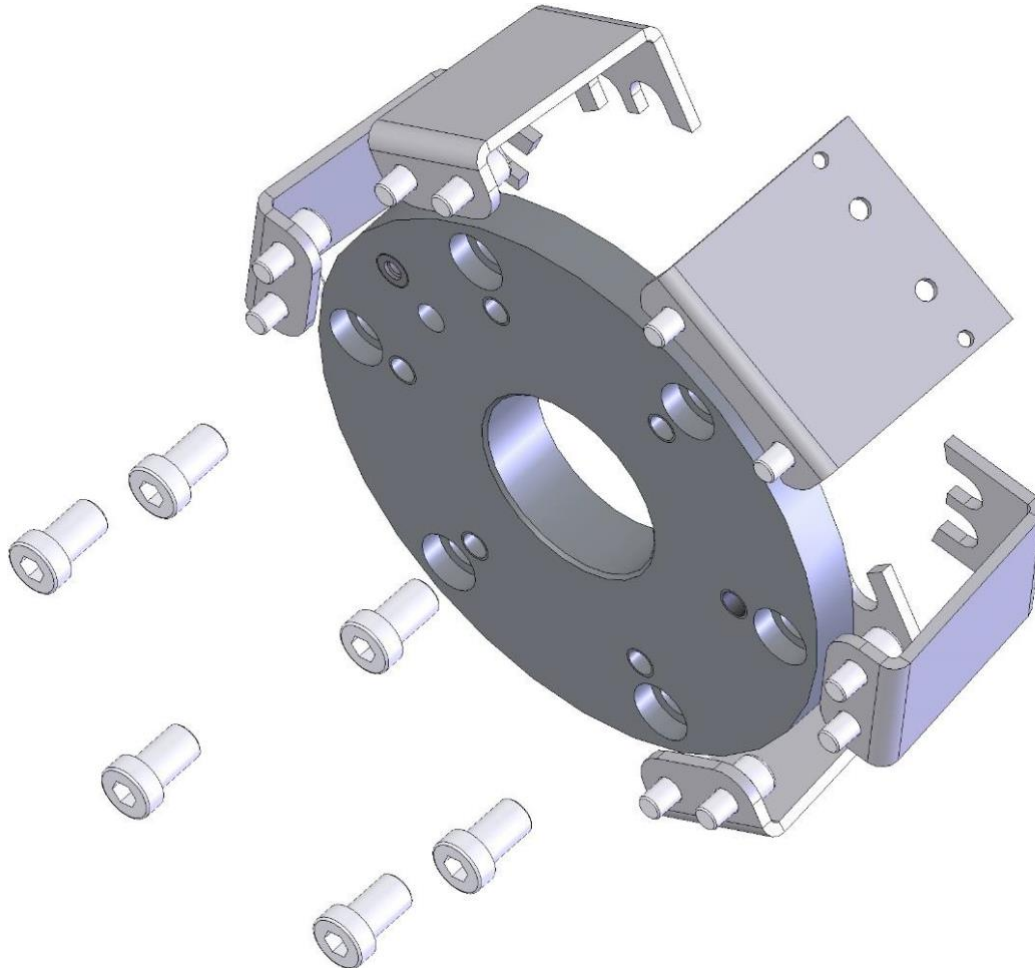


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2.2 Options for swivel tool changer

2.2.1 Robot adaptation kit

A robot adaptation kit is mandatory for mounting of a swivel to a robot. The adaptation kits always include rotation stops which are prohibiting the swivel to rotate in relation to the robots. Dependent on robot model an adaptation kit may also include an adaptation plate for other bolt circles. Robot adaptation kits are available from RSP.



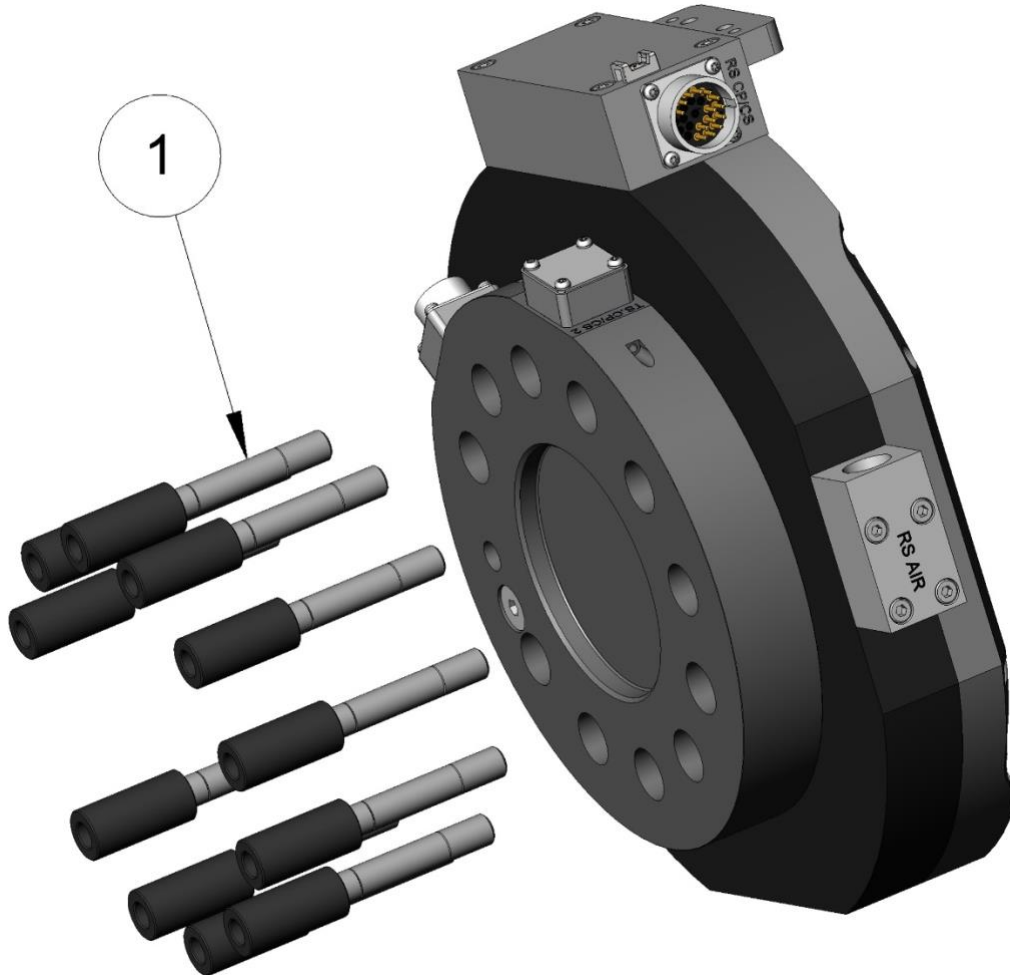
NOTE! Dependent on robot model and rotation stop, there can be limitations on the freedom of movement of axis 5. Contact Robot System Products for more information.

2.2.2 Limitation of Robot movements

There can be some limitations on the movement of axis 5 for some robot models. Contact Robot System Products for more information.

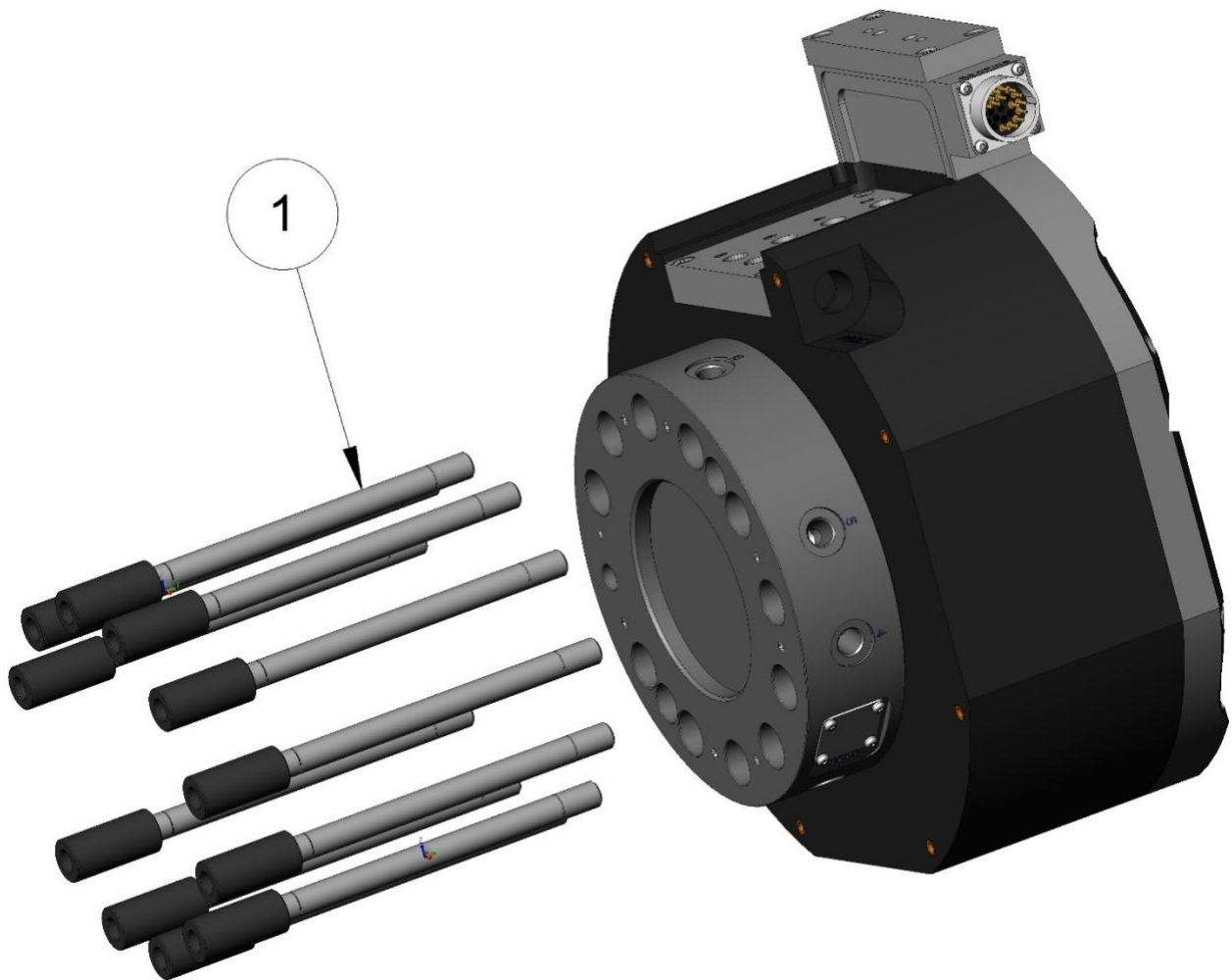
3 SPARE PARTS

3.1 Part list for swivel P0636 and P0633



Item	Description	Part number	Pcs
1	Fastening screw	A0177-007	11

3.2 Part list for swivel P0609 and P0610



Item	Description	Part number	Pcs
1	Fastening screw	A0168-002	11

