

# Technical Description

## Tool changer TC500

M0504-1

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





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Robot Systems Products AB  
Isolatorvägen 4  
SE-721 37 Västerås  
Sweden

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# 1 INTRODUCTION

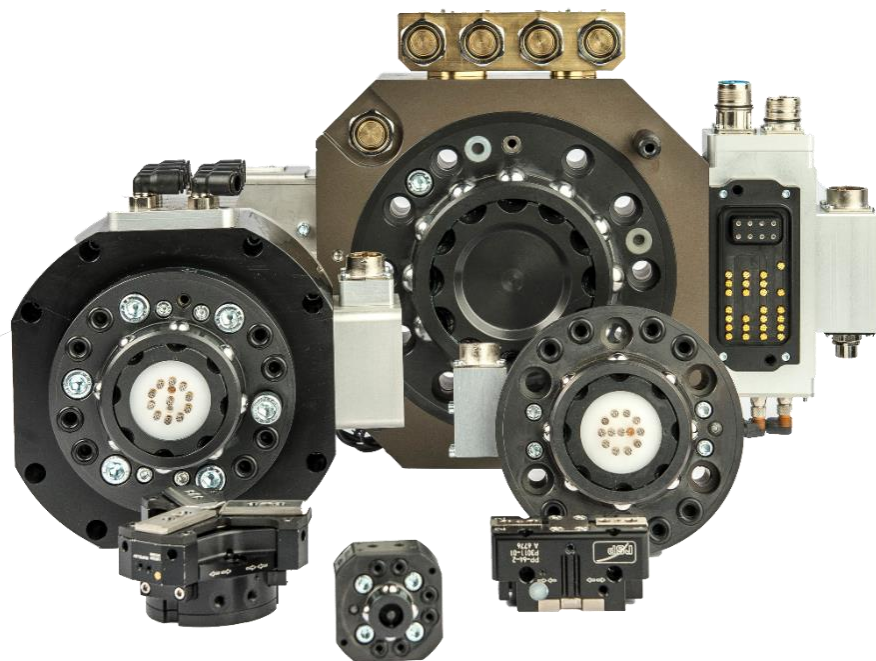
**Robot System Products** is a front-rank provider of peripheral products for high performance robot applications. We provide complete system solutions for your robot installations, aiming to improve your productivity with the most reliable and cost-effective tooling on the market. Continuously we explore 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.robotsystemproducts.com](http://www.robotsystemproducts.com).



## 1.1 RSP tool changer

The Robot System Products' tool changers enable robots to handle and switch between multiple tools. They are built to ensure reliable and smooth operation, being compact with low weight and robust design and incorporating many safety features. Depending on model and options, electrical signals, weld and servo power, data, water and compressed air are transferred from the robot side to the tool.

The patented locking device TrueConnect™ has a minimum of play and gives a practically, through the lifespan, absolute positioning repeatability. The principle behind the locking mechanism is the uniform distribution of load obtained by pressing locking balls into spherical grooves. In consequence, substantially larger positional tolerances are accepted during docking.

## 1.2 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* (M0416-1) procedures for mounting, installation and replacement of equipment are described together with descriptions of inspection, cleaning and lubrication activities including recommended maintenance intervals.

## 1.3 Wear parts

Wear parts should be replaced before considerable damage occurs. The interval depends on the number of tool changes and its working environment. Generally, the more contaminated environment, the closer maintenance intervals.

The following parts are considered as wear parts:

- Water/air couplings
- Signal pins
- Air sealings
- O-rings

## 1.4 Complementary Equipment

Complementary equipment is described in separate documents.

Article	Note
External valve units	Mounted at the rear of the upper arm. Shuts off the air automatically during tool changing.
Tool parking systems	RSP tool parking systems give rigid installations for easy tool changing.
Connection kits	Connection kits for tool changers and tool attachments simplifying electrical installations.
3D-models	Available in Solid Works®, STEP and Parasolid-format.

## 2 TECHNICAL SPECIFICATIONS

### 2.1 Description of tool changers and tool attachments

This document presents the Robot System Products TC500-1EV and TC500-SWS tool changers including tool attachments dedicated for material handling and spot welding.

The tool changer TC500 transfers compressed air and electrical and field bus signals via spring loaded signal pins to the tool. The version for material handling is designated '1EV' and can transfer compressed air to the tool. The version for spot welding is designated 'SWS' and can as well transfer water, servo and weld power.

The spring-loaded signal pins of the TC500 are placed and protected at the centre of the tool changer. The contact surface of the tool attachment and the signal pins are not in connection until at the very end of the docking cycle when the tool attachment is already properly aligned. This guarantees a minimum of wear of the contact surfaces.

Electrical unit and jumpers can be used for checking the presence and identifying tools on the tool attachment. For other bolt circles adaptation plates between the tool changer and the turning disc on the robot may be needed. Such adaptation plates are available from RSP.

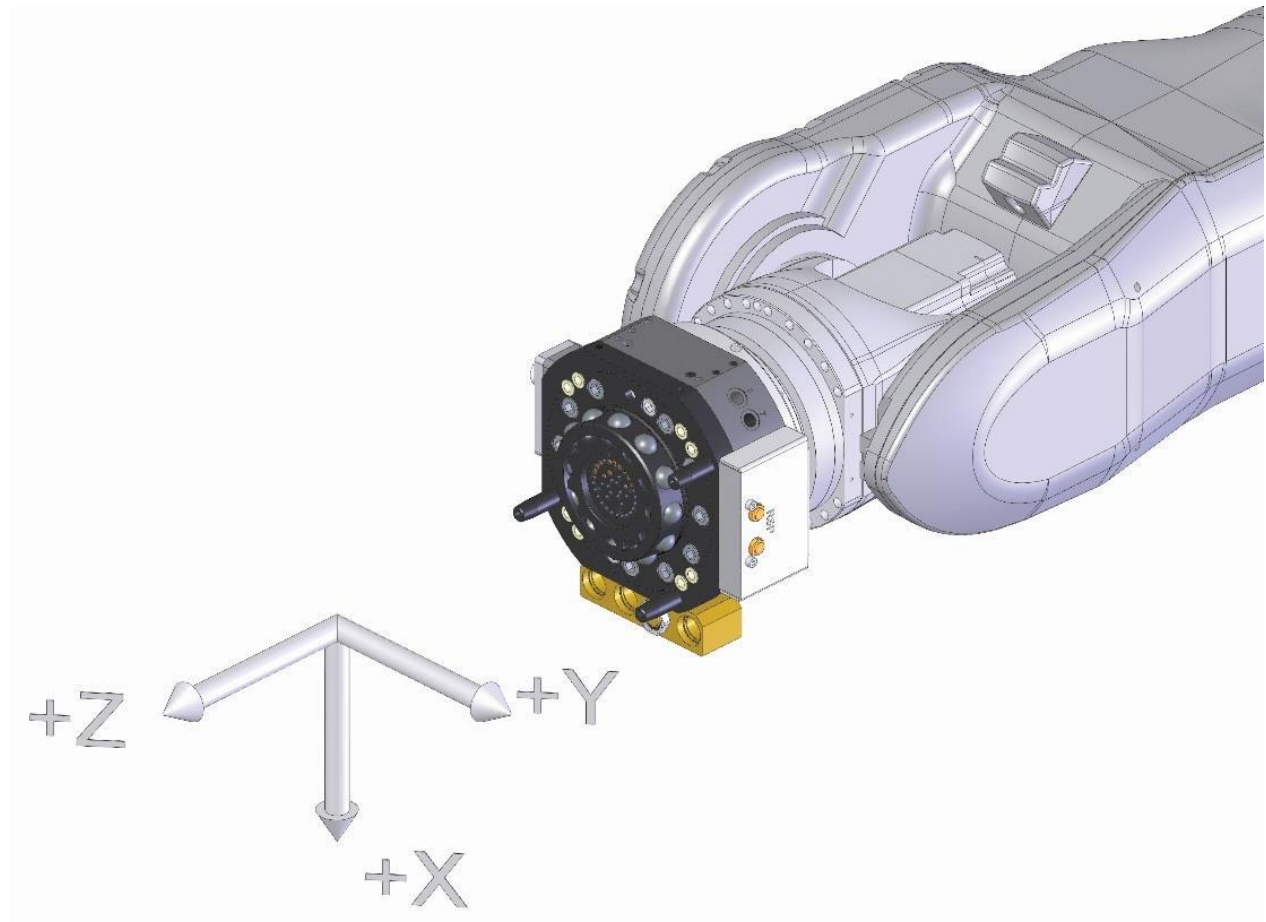


**TC500-SWS**



### 2.1.1 Coordinate System Definition

A tool changer 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 tool changer.



**NOTE!** For the tool changer and tool changer with tool attachment, the origo of the co-ordinate system is situated in the centre of the robot mounting flange.

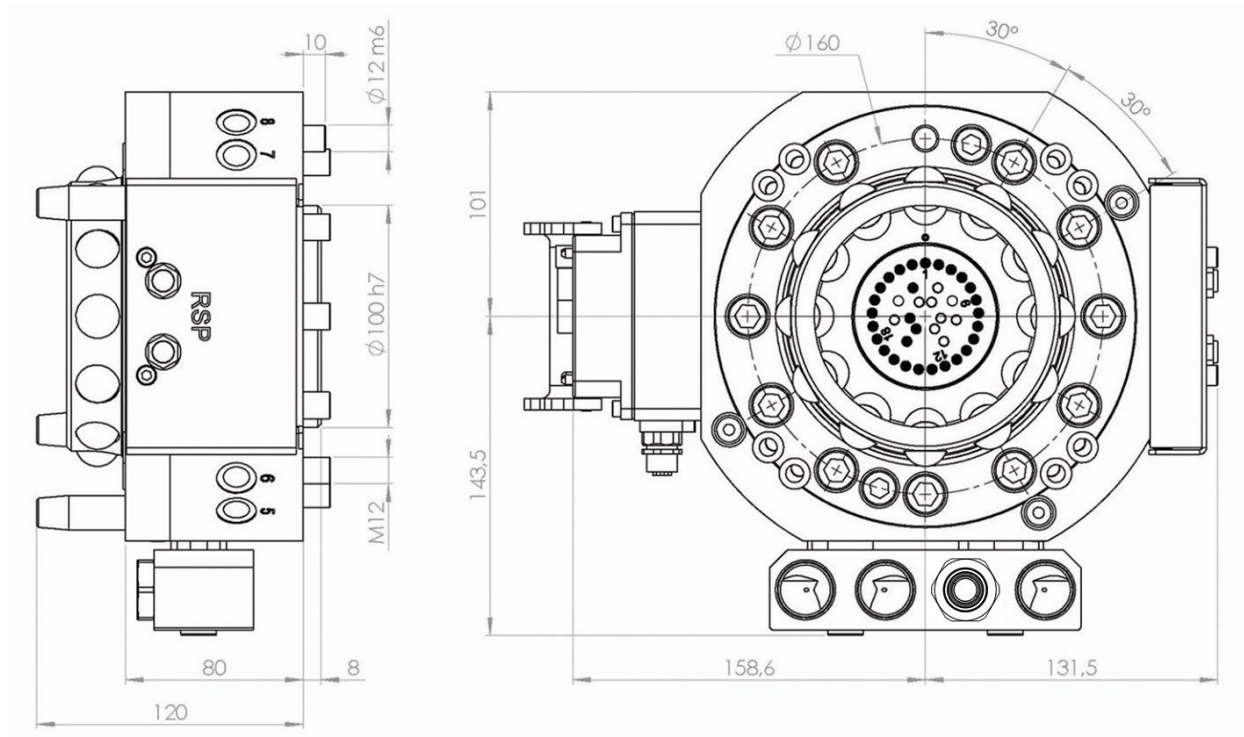
### 2.1.2 Tool Identification

Jumpers on signals at the tool attachment can be used to give information about which tool attachment that is docked in the tool changer.

### 2.1.3 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.

## 2.2 Tool changer TC500-1EV (MH), Article: P0581P

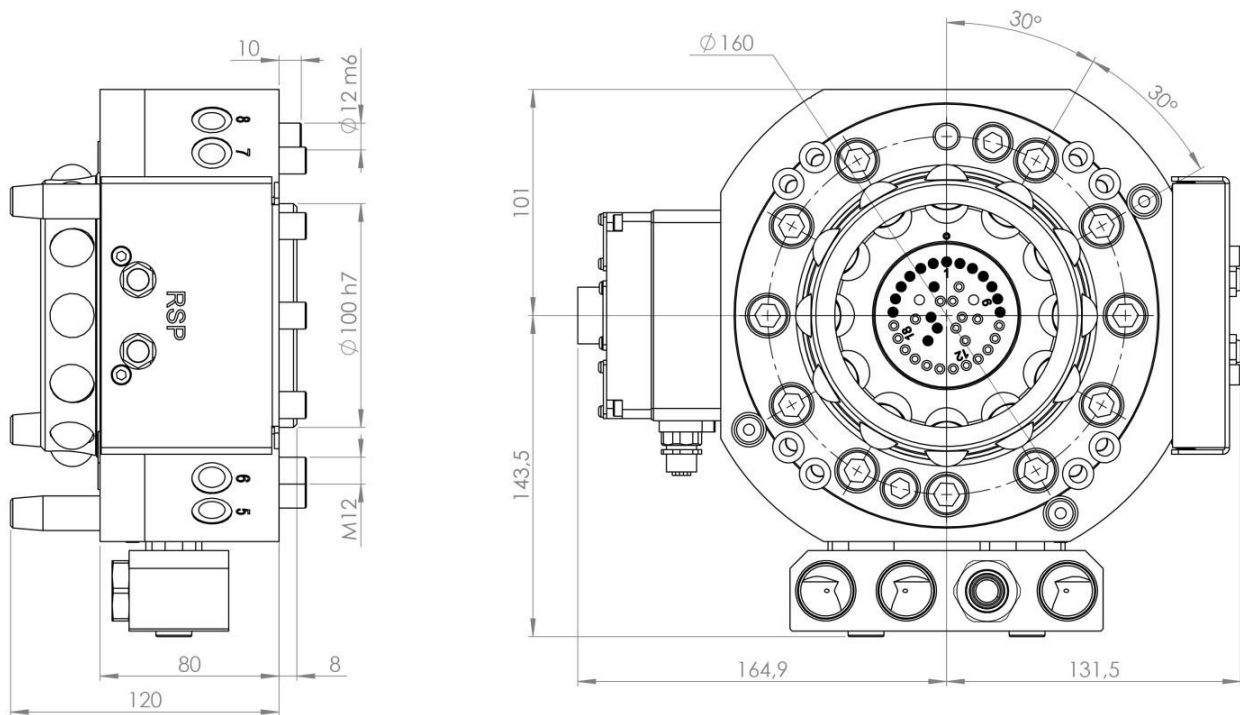


Tool changer P0581P for material handling transfers 1 pneumatic channel, 10 electrical signals and 4 field bus signals to the tool attachment. To be used together with tool attachment TA500-1E, P0582P.

### Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1 160-11-M12
<b>Maximum tool load</b>	Fz (static)	±5 000 N
	Mx/My (dynamic)	±3 500 Nm
	Mz (dynamic)	±3 500 Nm
<b>Weight and centre of gravity (Z)</b>		
P0581P		14.5 kg / 54 mm
P0581P with P0582P		23.3 kg / 72 mm
<b>Air channels</b>	Pneumatic diagram	Pne0230-003 (section 2.10)
	Air supply	Air inlet G ½" marked "2" on water/air module.
	User channels, robot side	1 x G ½" (2 000 l/min, 6-10 bar)
	Air quality	Oil-clean and waterless filtered air, with max 25µm particle content
<b>Electrical signals</b>	Circuit diagram	E0230-154 (section 2.12)
	3-module Harting 10B	9 x (2A, 60V) + PE
	Dedicated signals	24V, 0V, TC_Coupled, TC_Opened, doOpen_TC_1, doOpen_TC_2
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)

## 2.3 Tool changer TC500-1EV (MH), Article: P1510P

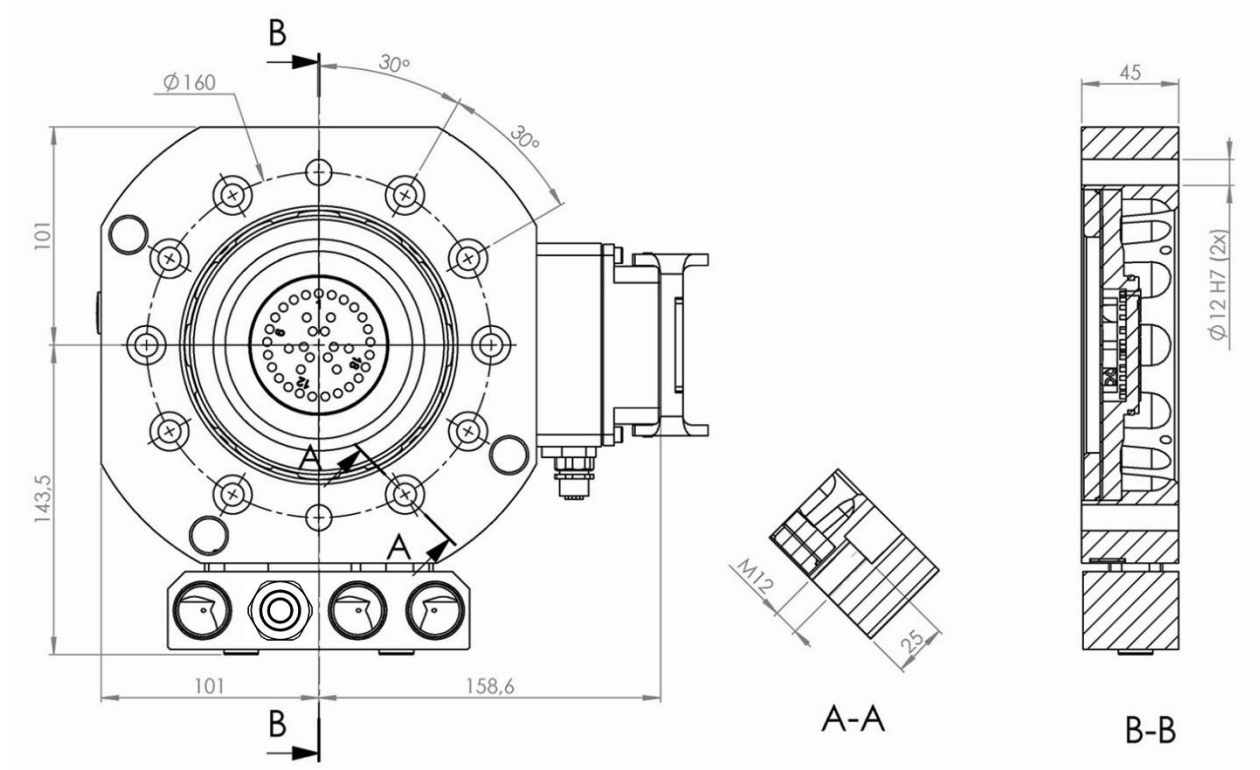


Tool changer P1510P for material handling transfers 1 pneumatic channel, 10 electrical signals and 4 field bus signals to the tool attachment. To be used together with tool attachment TA500-1E, P0582P.

### Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1 160-11-M12
<b>Maximum tool load</b>	Fz (static)	±5 000 N
	Mx/My (dynamic)	±3 500 Nm
	Mz (dynamic)	±3 500 Nm
<b>Weight and centre of gravity (Z)</b>		
P1510P		14.5 kg / 54 mm
P1510P with P0582P		23.3 kg / 72 mm
<b>Air channels</b>	Pneumatic diagram	Pne0230-003 (section 2.10)
	Air supply	Air inlet G ½" marked "2" on water/air module.
	User channels, robot side	1 x G ½" (2 000 l/min, 6-10 bar)
	Air quality	Oil-clean and waterless filtered air, with max 25µm particle content
<b>Electrical signals</b>	Circuit diagram	E0230-253 (section 2.13)
	Souriau 26P	9 x (2A, 60V) + PE
	Dedicated signals	24V, 0V, TC_Coupled, TC_Opened, doOpen_TC_1, doOpen_TC_22
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)

## 2.4 Tool attachment, TA500-1EV (MH). Article no: P0582P



Tool attachment P0582P transfers 1 pneumatic channel, 10 electrical signals and 4 field bus signals to the tool. To be used together with tool changers TC500-1EV, P0581P and P1510P.

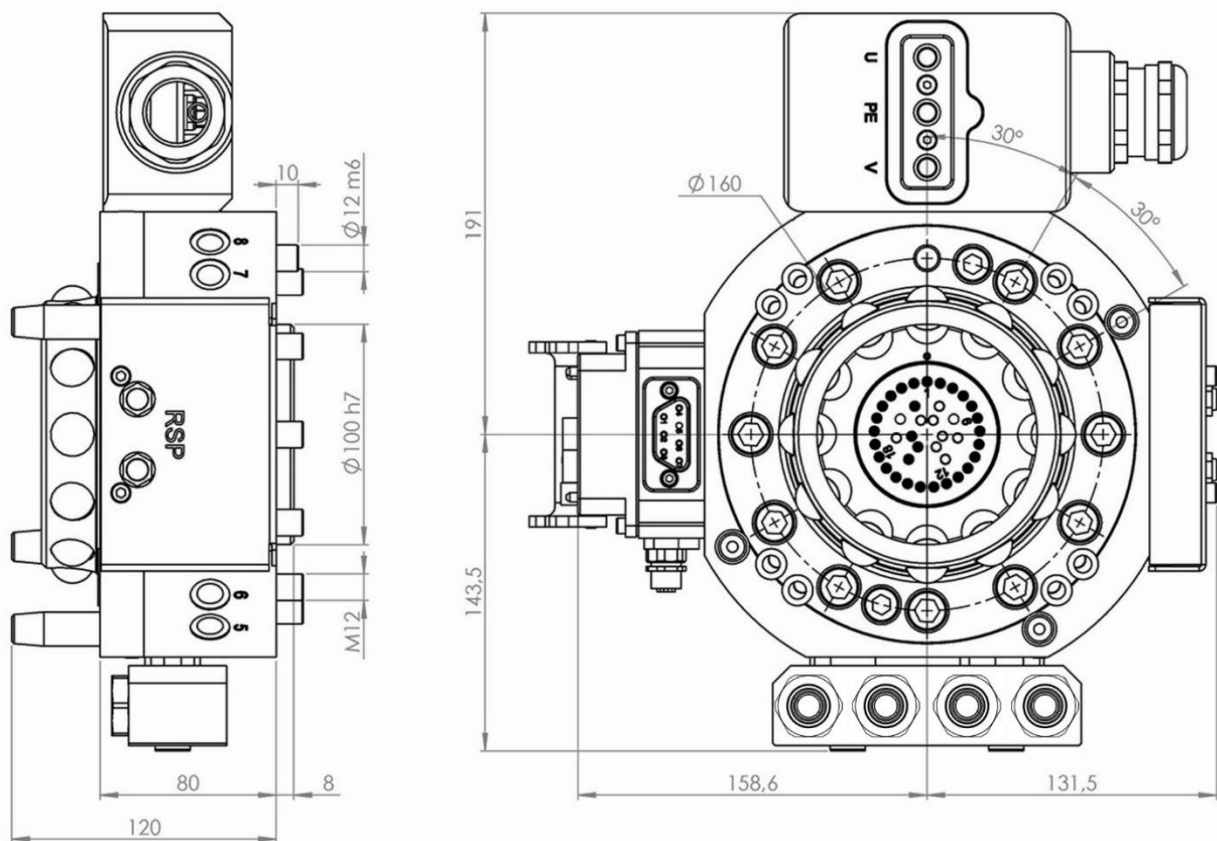
### Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1 160-11-M12
<b>Weight</b>		8.8 kg
<b>Air channels</b>	Connection, tool side	1 x G 1/2"
<b>Electrical signals</b>	Circuit diagram	E0230-167 (section 2.14)
	Total number of signals	9 + PE
	Connection, tool side	3-module Harting
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet).



**NOTE!** Tools can be mounted to the tool attachment using eleven M12-screws, alternatively the tool attachment can be mounted to the tool using eleven M10-screws.

## 2.5 Tool changer TC500-SWS, Article: P0576P



Tool changer P0576P transfers 1 pneumatic channel, 3 water channels, 24 electrical signals, 3 power signals, 4 field bus signals and connects 3 weld power conductors to the tool attachment. To be used together with tool attachments TA500-SWS, P0577P, P1518P and TA500-SWS/MH, P0579P.

### Technical data

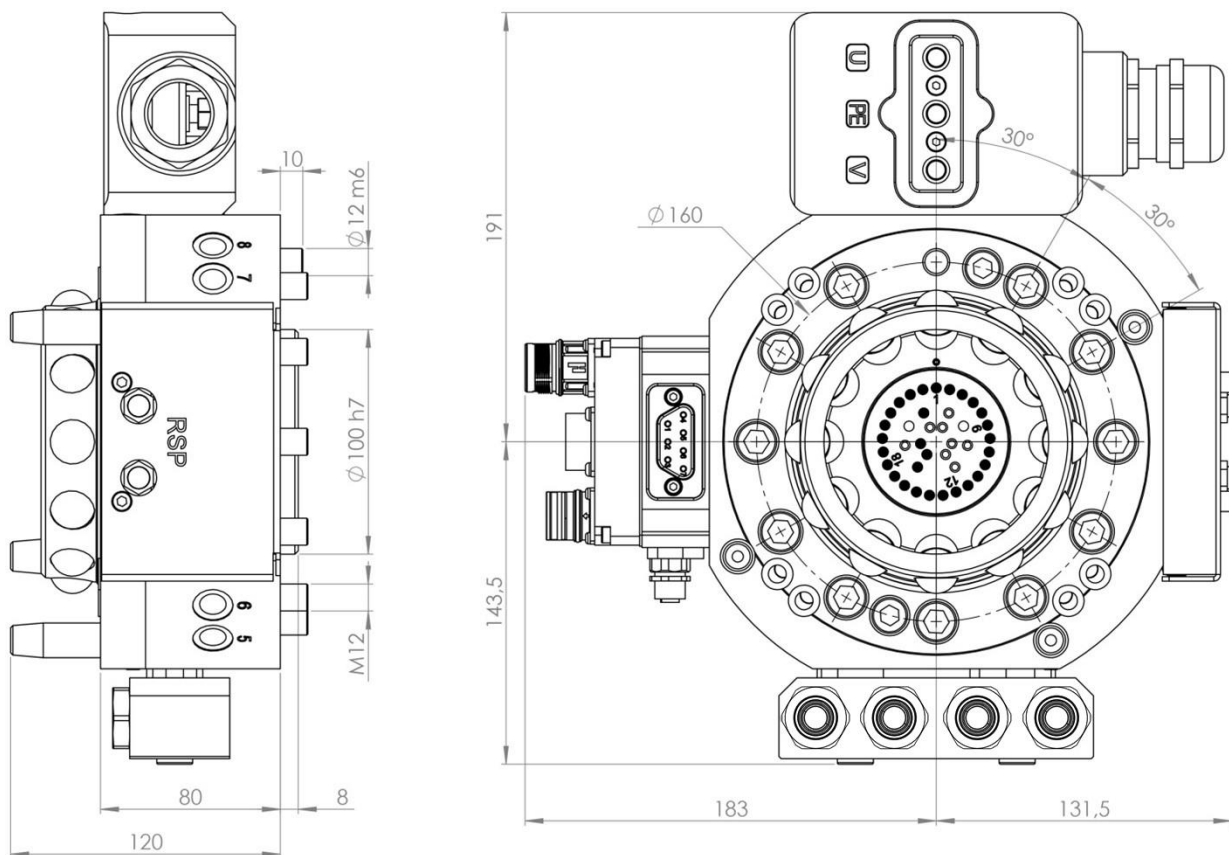
<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1 160-11-M12
<b>Maximum tool load</b>	Fz (static)	±5 000 N
	Mx/My (dynamic)	±3 500 Nm
	Mz (dynamic)	±3 500 Nm
<b>Weight and centre of gravity (Z)</b>		
P0576P		16.0 kg / 54 mm
P0576P with P0577P		26.2 kg / 72 mm
P0576P with P0579P		25.0 kg / 71 mm
<b>Air/water channels</b>	Pneumatic diagram	Pne0230-002 (section 2.11)
	Air supply	Air inlet G ½" marked "2" on water/air module.
	User channels, air	1 x G ½" (2 000 l/min, 6-10 bar)
	User channels, water	3 x G ½" (20 l/min, 6-10 bar)
	Air quality	Oil-clean and waterless filtered air, with max 25µm particle content

<b>Electrical signals</b>	Circuit diagram	E0230-122 (section 2.15)
	3-module Harting 10B Dedicated signals	23 x (2A, 60V) + PE 24V, 0V, TC_Coupled, TC_Opened, doOpen_TC_1, doOpen_TC_2
<b>Servo power</b>	Power signals	3 x (15A, 600V) + PE
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)
<b>Weld power</b>	Total number of conductors	3 x (690V, 140A)
	Connection	Cable gland (M40x1.5) for a 3-conductor 19– 28 mm cable



**NOTE!** The three water channels, marked “1”, “3” and “4”, can alternatively be used for pneumatic air.

## 2.6 Tool changer TC500-SWS, Article: P1511P



Tool changer P1511P transfers 1 pneumatic channel, 3 water channels, 24 electrical signals, 3 power signals, 4 field bus signals and connects 3 weld power conductors to the tool attachment. To be used together with tool attachments TA500-SWS, P0577P, P1518P and TA500-SWS/MH, P0579P.

## Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1 160-11-M12
<b>Maximum tool load</b>	Fz (static)	±5 000 N
	Mx/My (dynamic)	±3 500 Nm
	Mz (dynamic)	±3 500 Nm
<b>Weight and centre of gravity (Z)</b>		
P1511P		16.1 kg / 54 mm
P1511P with P0577P		26.4 kg / 72 mm
P1511P with P0579P		25.1 kg / 71 mm
<b>Air/water channels</b>	Pneumatic diagram	Pne0230-002 (section 2.11)
	Air supply	Air inlet G ½" marked "2" on water/air module.
	User channels, air	1 x G ½" (2 000 l/min, 6-10 bar)
	User channels, water	3 x G ½" (20 l/min, 6-10 bar)
	Air quality	Oil-clean and waterless filtered air, with max 25µm particle content

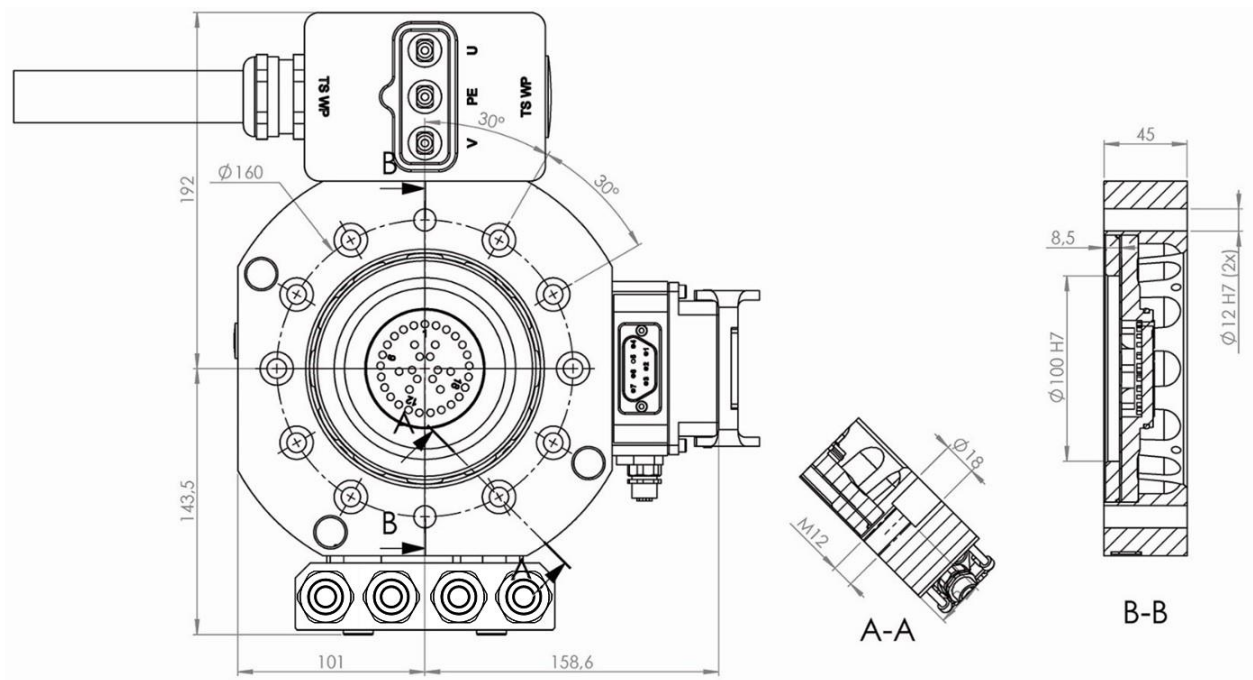
<b>Electrical signals</b>	Circuit diagram Souriau 26P (UT0W01626PH Dedicated signals	E0230-246 (section 2.16) 16 x (2A, 60V) + PE  24V, 0V, TC_Coupled, TC_Opened, doOpen_TC_1, doOpen_TC_2
	M23 17P (Encoder)	6 x (2A, 60V)
<b>Servo power</b>	M23 8P	3 x (15A, 600V) + PE
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)
<b>Weld power</b>	Total number of conductors	3 x (690V, 140A)
	Connection	Cable gland (M40x1.5) for a 3-conductor 19– 28 mm cable



**NOTE!** The three water channels, marked “1”, “3” and “4”, can alternatively be used for pneumatic air.



## 2.7 Tool attachment, TA500-SWS, Article: P0577P



Tool attachment P0577P transfers 1 pneumatic channel, 3 water channels, 24 electrical signals, 3 power signals, 4 field bus signals and connects 3 weld power conductors to the tool. To be used together with tool changers TC500-SWS P0576P, and TC500-SWS, P1511P.

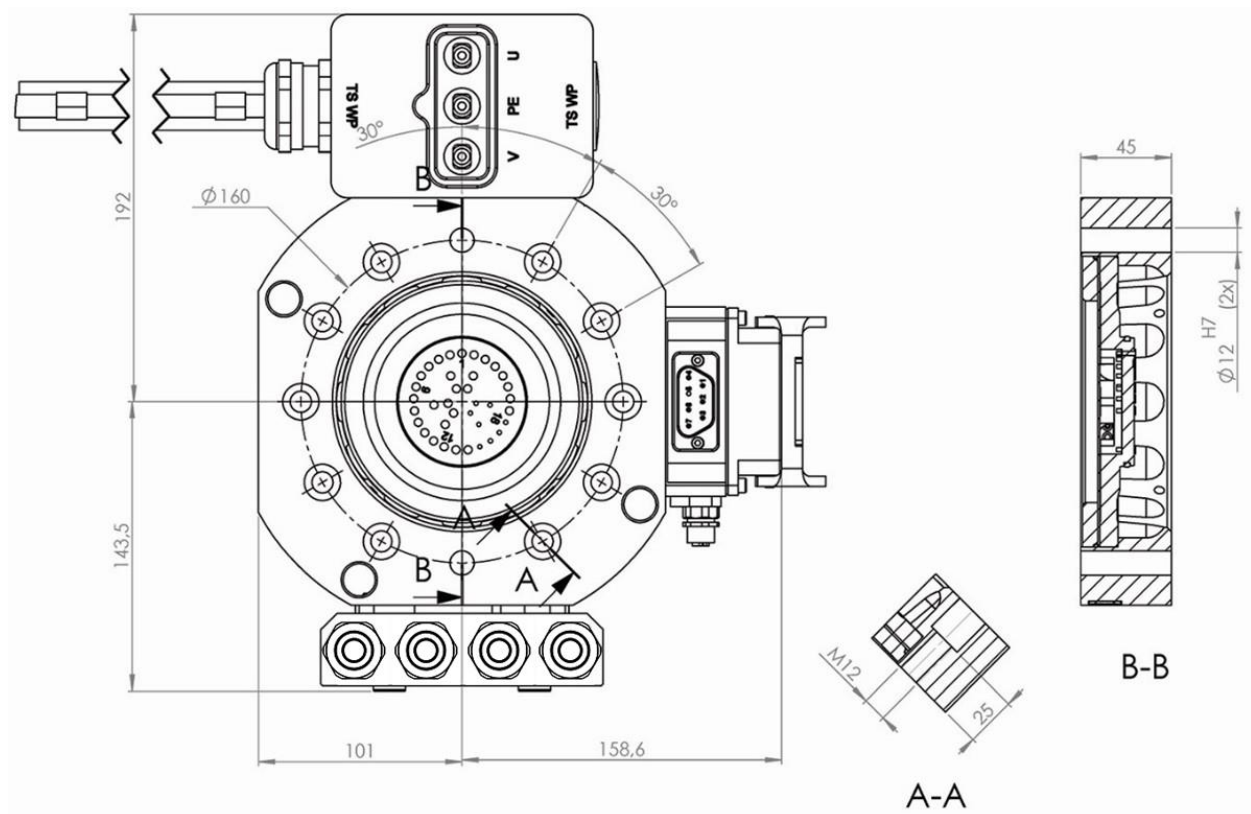
### Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1-160-11-M12
<b>Weight</b>		10.2 kg
<b>Air/water channels</b>	Connections, tool side	4 x G 1/2"
<b>Electrical signals</b>	Circuit diagram	E0230-123 (section 2.17)
	3-module Harting	19 + PE
<b>Servo power</b>		3 + PE
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)
<b>Weld power</b>	Total number of conductors	3
	Connection	1.5 m 3-conductor cable, 3x25mm <sup>2</sup> mm <sup>2</sup>



**NOTE!** Tools can be mounted to the tool attachment using eleven M12-screws, alternatively the tool attachment can be mounted to the tool using eleven M10-screws.

## 2.8 Tool attachment, TA500-SWS, Article: P1518P



Tool attachment P1518P transfers 1 pneumatic channel, 3 water channels, 24 electrical signals, 3 power signals, 4 field bus signals and connects 3 weld power conductors to the tool. To be used together with tool changers TC500-SWS P0576P, and TC500-SWS, P1511P.

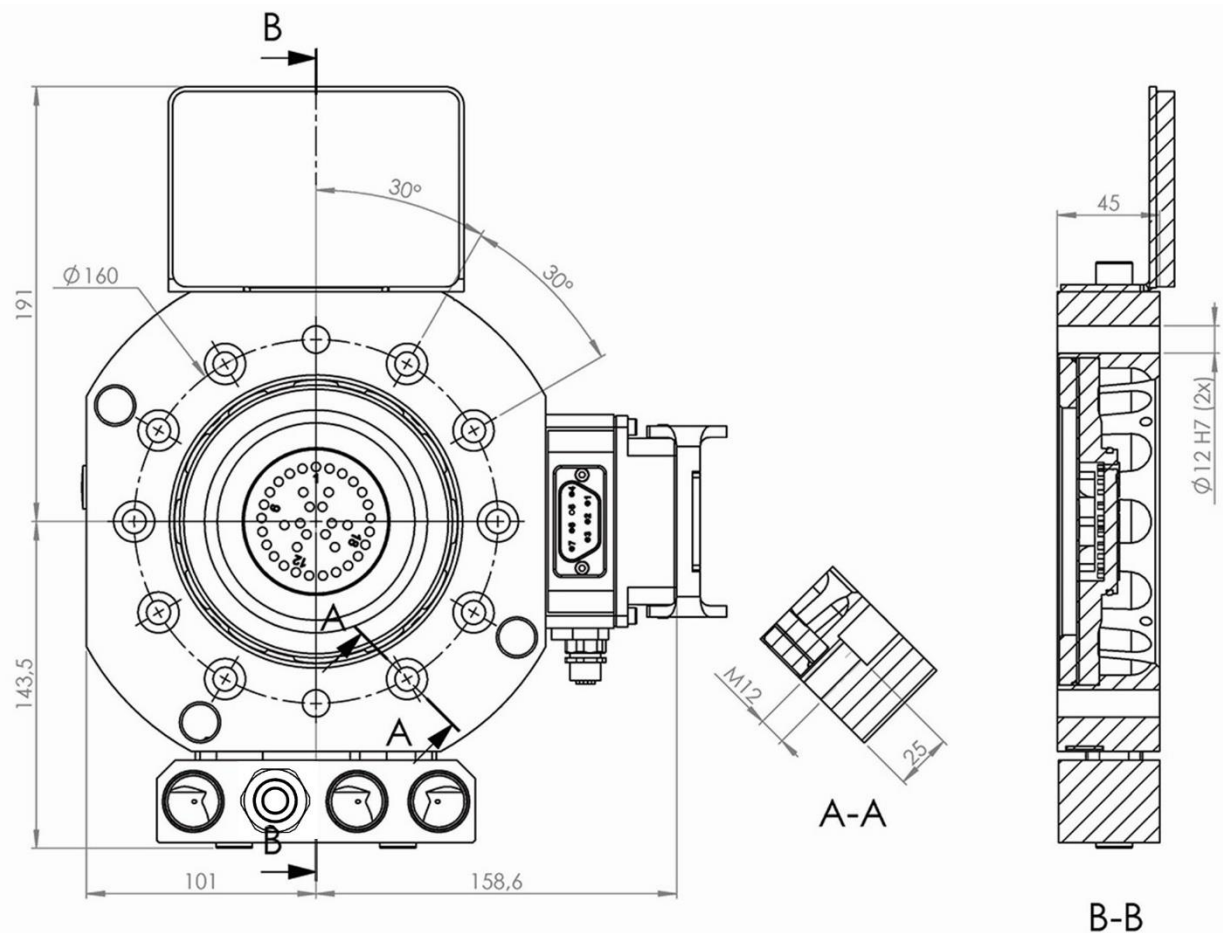
### Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1-160-11-M12
<b>Weight</b>		10.2 kg
<b>Air/water channels</b>	Connections, tool side	4 x G 1/2"
<b>Electrical signals</b>	Circuit diagram	E0230-123 (section 2.17)
	3-module Harting 10B	19 + PE
<b>Servo power</b>		3 + PE
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)
<b>Weld power</b>	Total number of conductors	3
	Connection	1.4 m, 3 x single wire cables 25 mm <sup>2</sup>



**NOTE!** Tools can be mounted to the tool attachment using eleven M12-screws, alternatively the tool attachment can be mounted to the tool using eleven M10-screws.

## 2.9 Tool attachment, TA500-SWS/MH, Article: P0579P



Tool attachment P0579P transfers 1 pneumatic channel, 3 water channels, 24 electrical signals, 3 power signals and 4 field bus signals to the tool. To be used together with tool changers TC500-SWS P0576P, and TC500-SWS, P1511P.

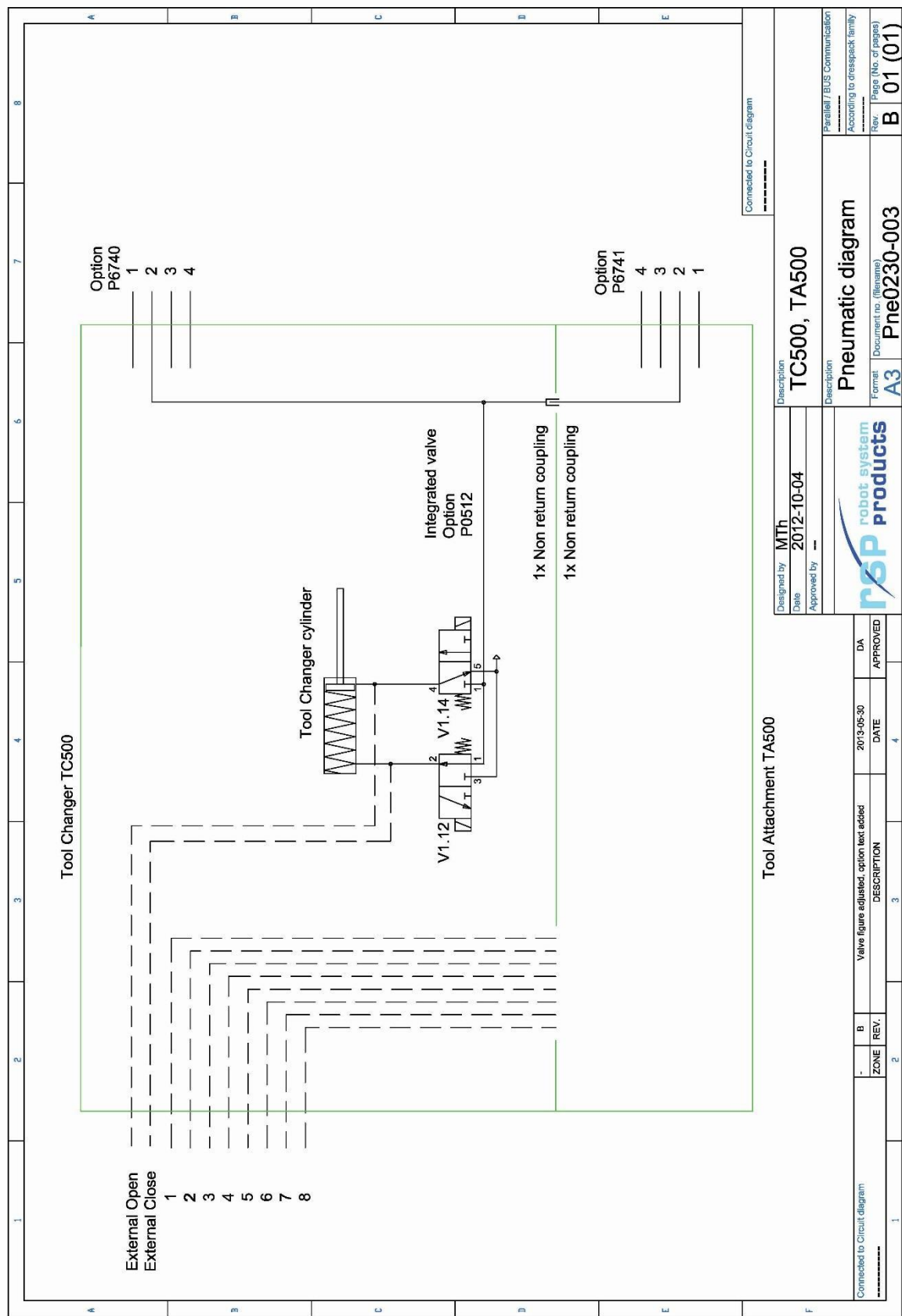
### Technical data

<b>Working temperature</b>		+10°C – +50°C
<b>Bolt pattern</b>		ISO9409-1-160-11-M12
<b>Weight</b>		10.2 kg
<b>Air/water channels</b>	Connections, tool side	4 x G 1/2"
<b>Electrical signals</b>	Circuit diagram	E0230-166 (section 2.18)
	3-module Harting 10B	19 + PE
<b>Servo power</b>		3 + PE
<b>Field bus</b>	M12 4S D-code, female	4 (2 pairs) field bus channels, 100 Mbit/s (Profinet)

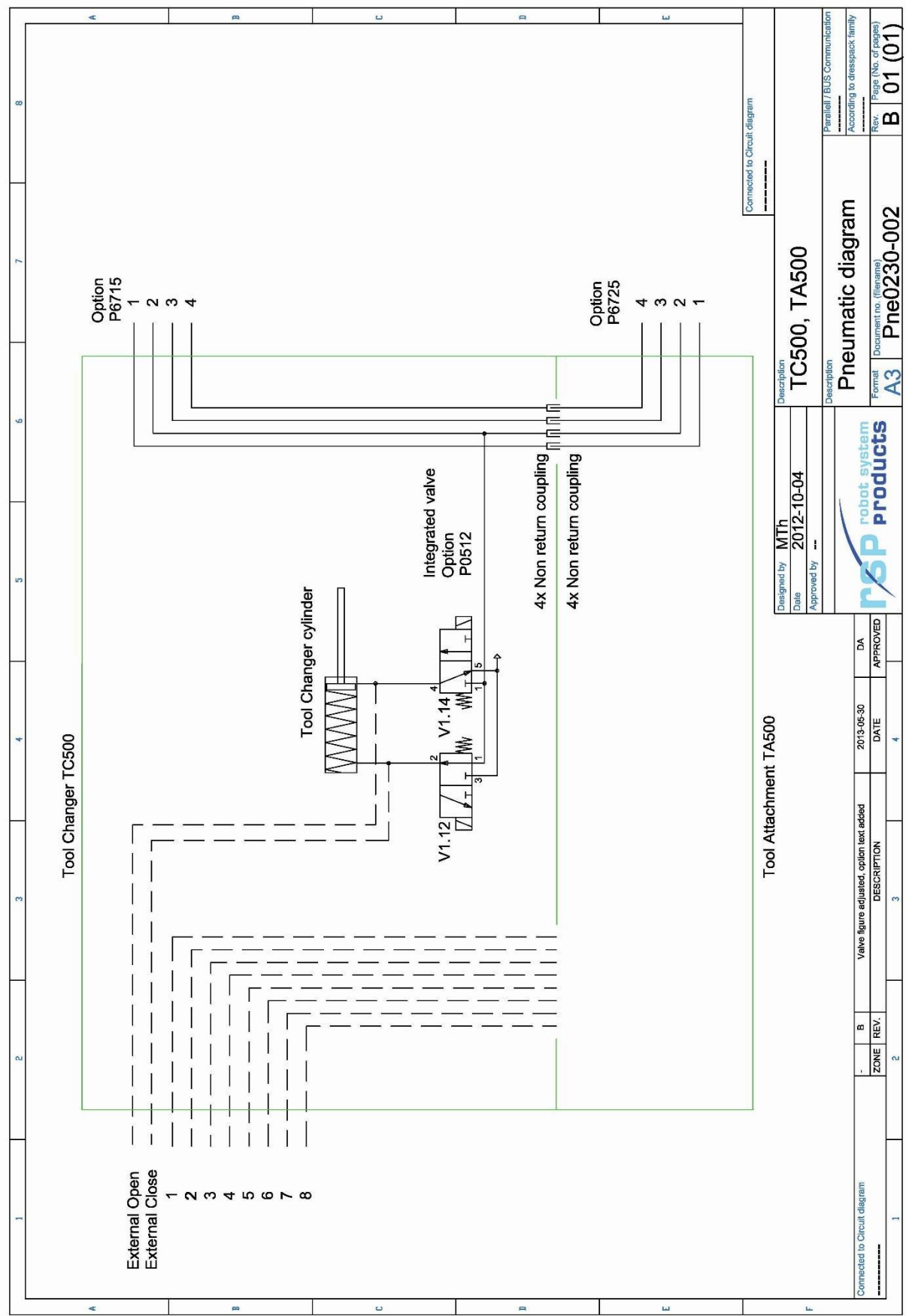


**NOTE!** Tools can be mounted to the tool attachment using eleven M12-screws, alternatively the tool attachment can be mounted to the tool using eleven M10-screws.

2.10 Pneumatic diagram Pne0230-003 for TC500-1EV (MH),



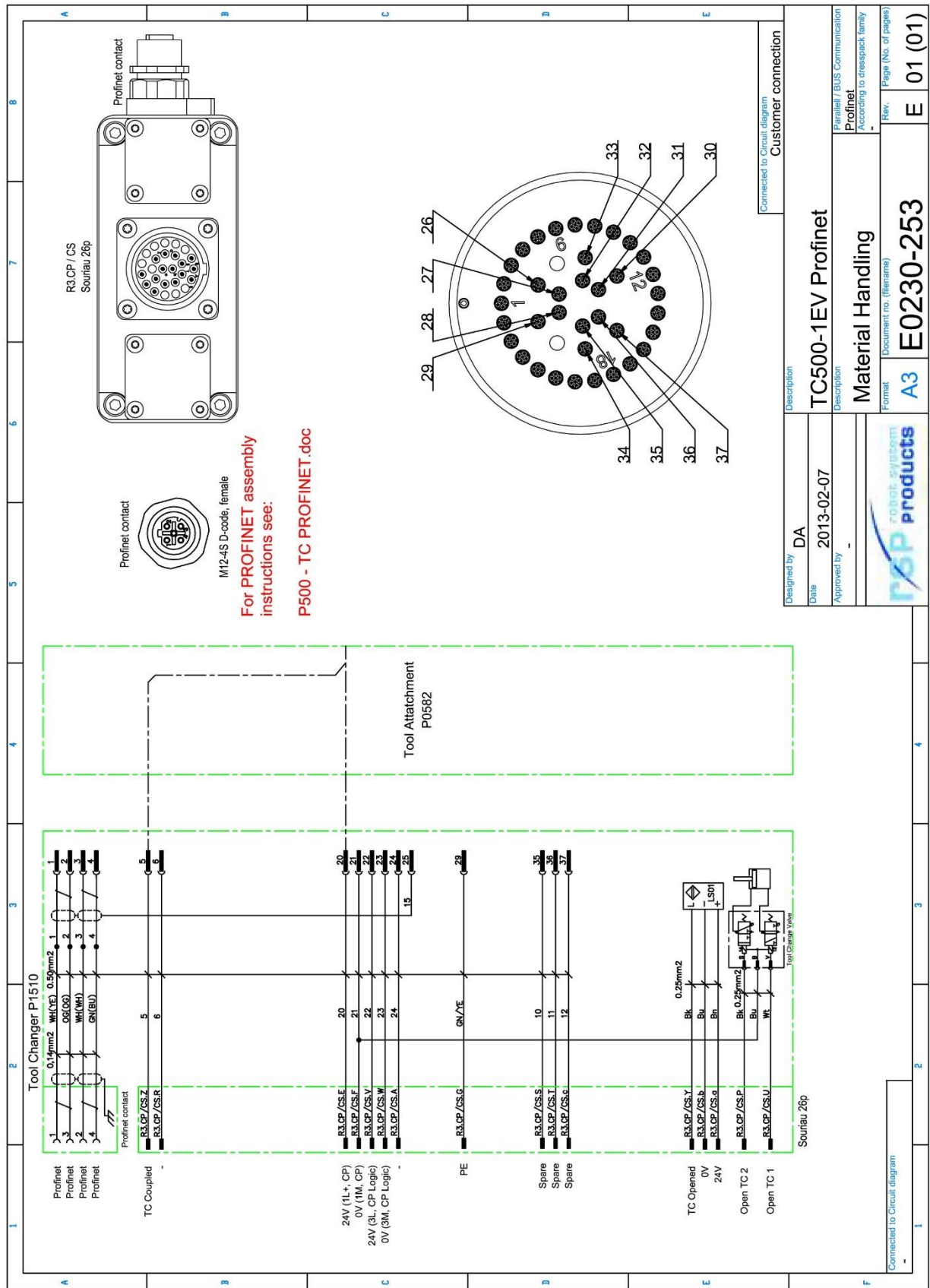
2.11 Pneumatic diagram Pne0230-002 for TC500-1EV (SWS),







## 2.13 Circuit diagram E0230-253 for P1510P



## 24



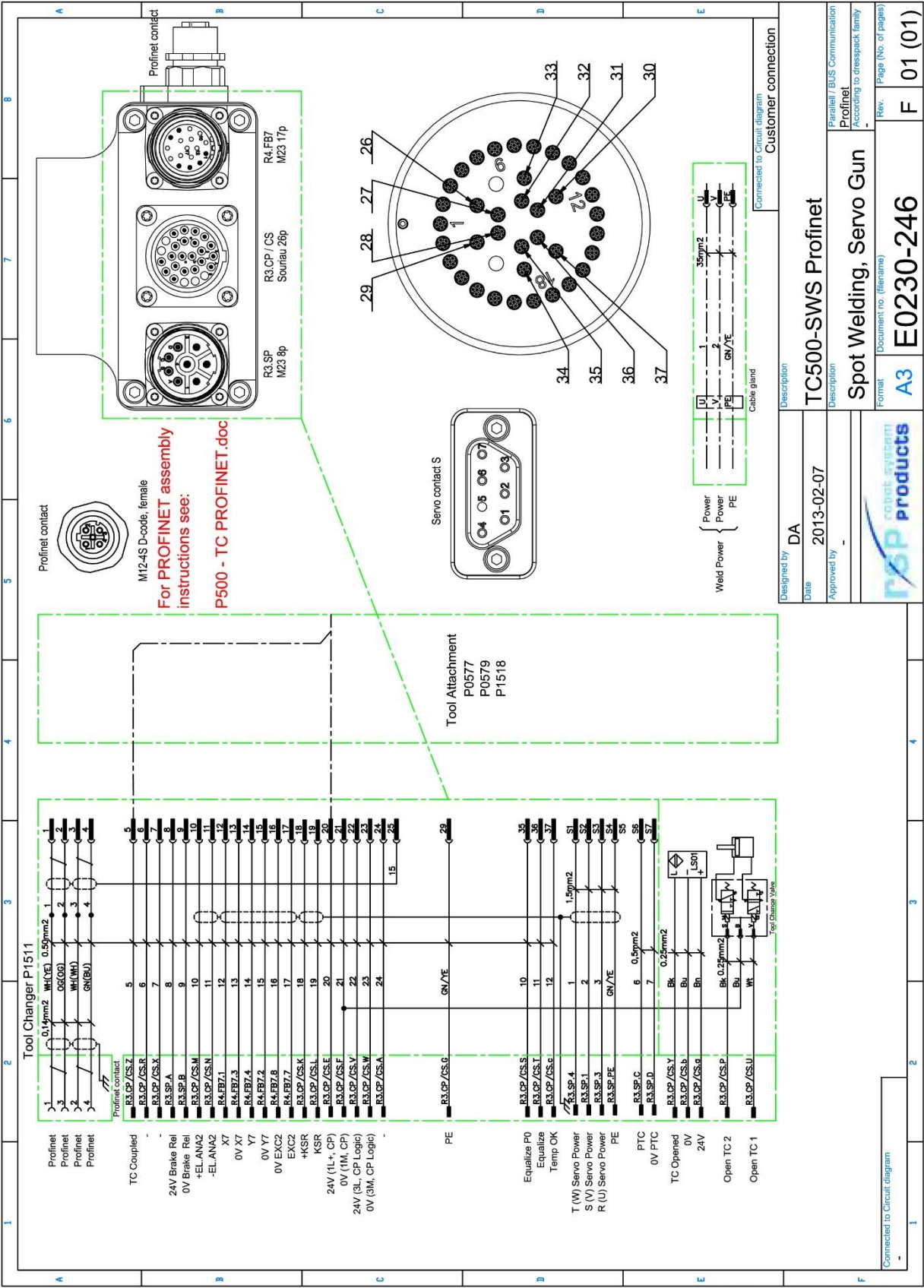




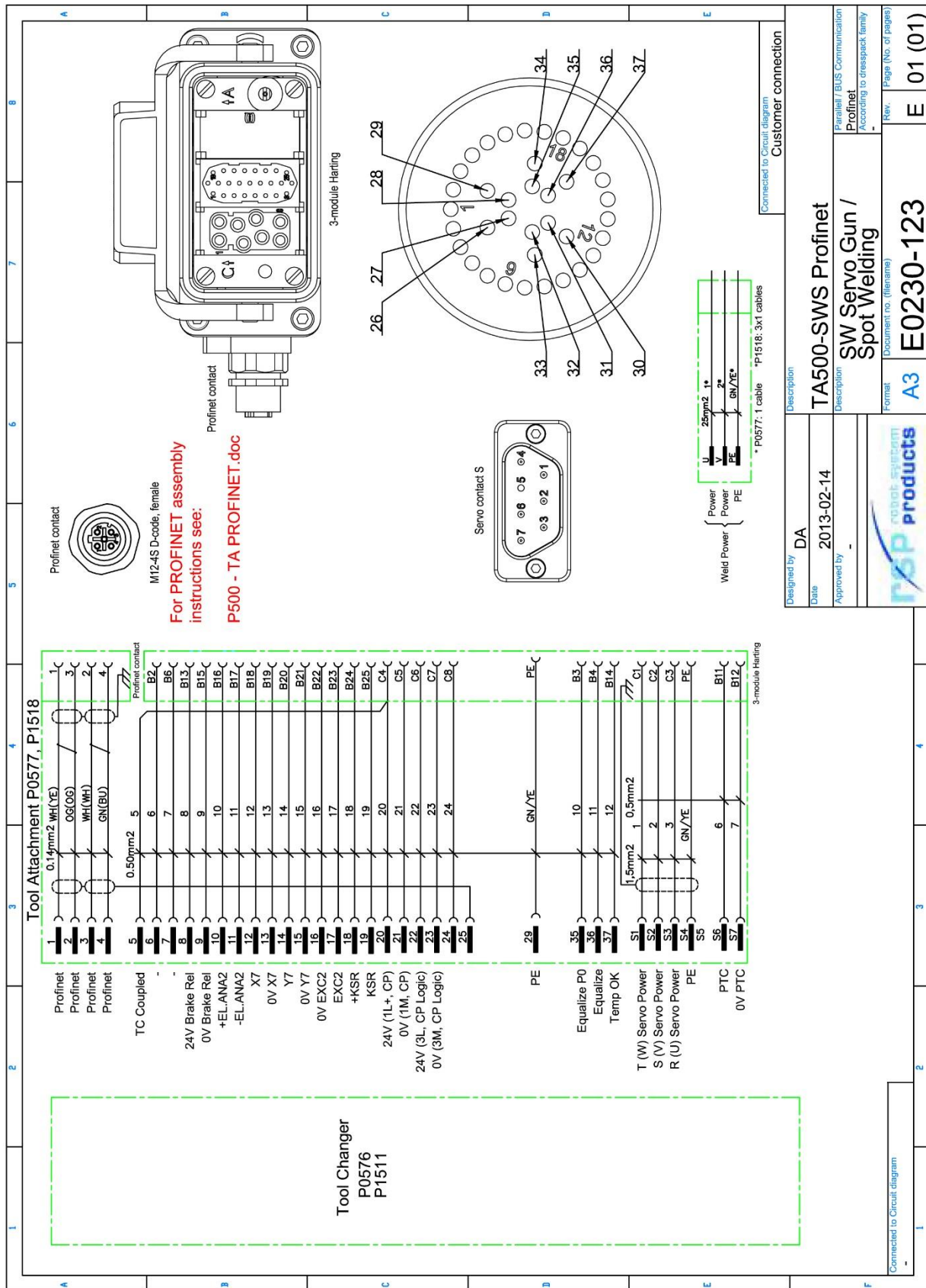
## 26



2.16 Circuit diagram E0230-246 for P1511P





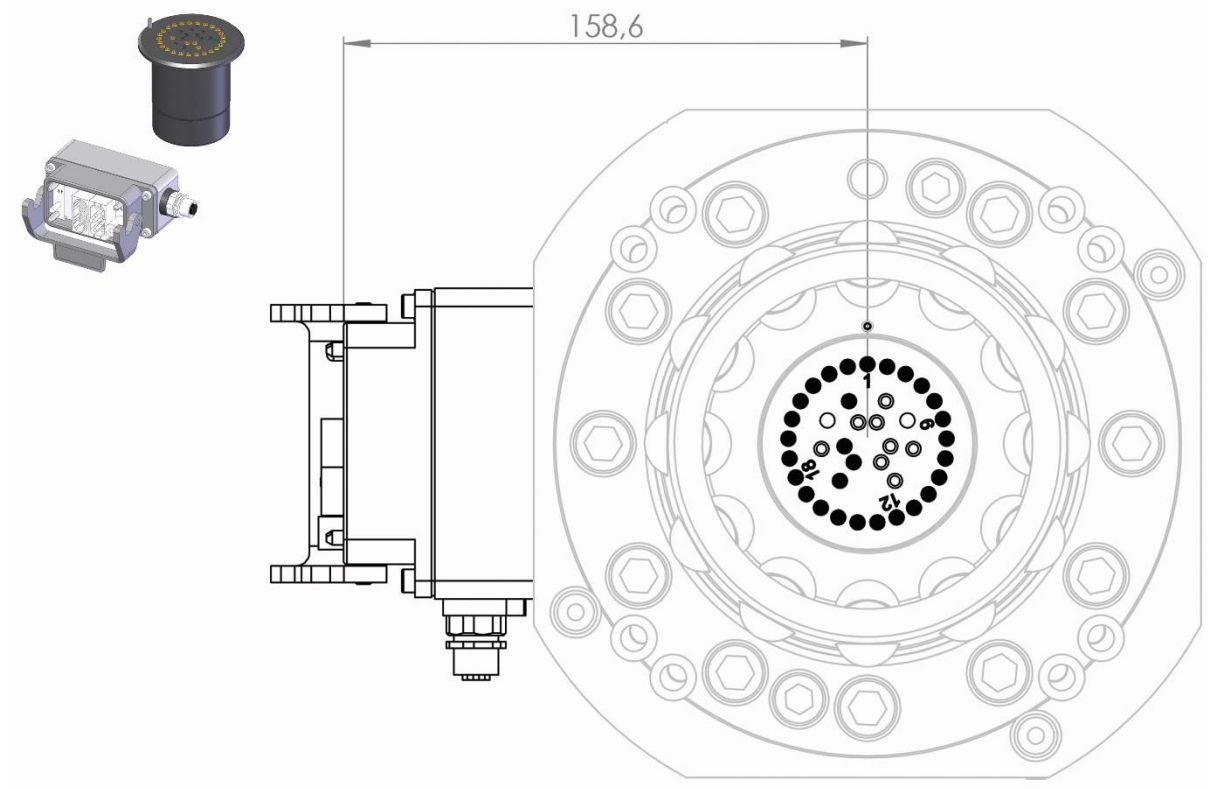


## M0504-1 version 3.0



### 3 DESCRIPTIONS OF COMPONENTS

#### 3.1 Signal module Harting with ProfiNet. Article no: P1527

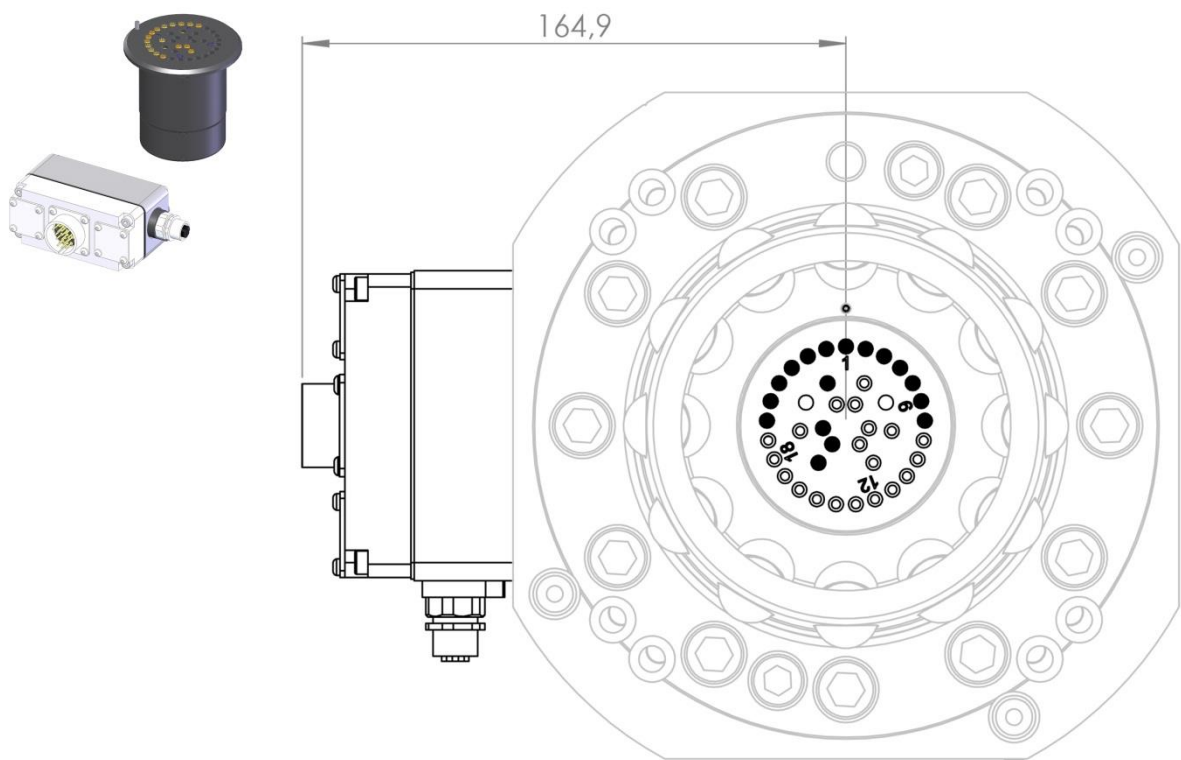


Signal module P1527 Harting with ProfiNet is included in tool changer TC500-1EV (MH), P0581P. To be used together with signal module P1529 attached to the tool attachment.

#### Technical data

<b>Weight</b>		0.4 kg
<b>Electrical signals</b>	Connector	3-module Harting 10B
	Connector (ProfiNet)	M12, D-code, female

3.2 Signal module Souriau with Profinet. Article: P1532

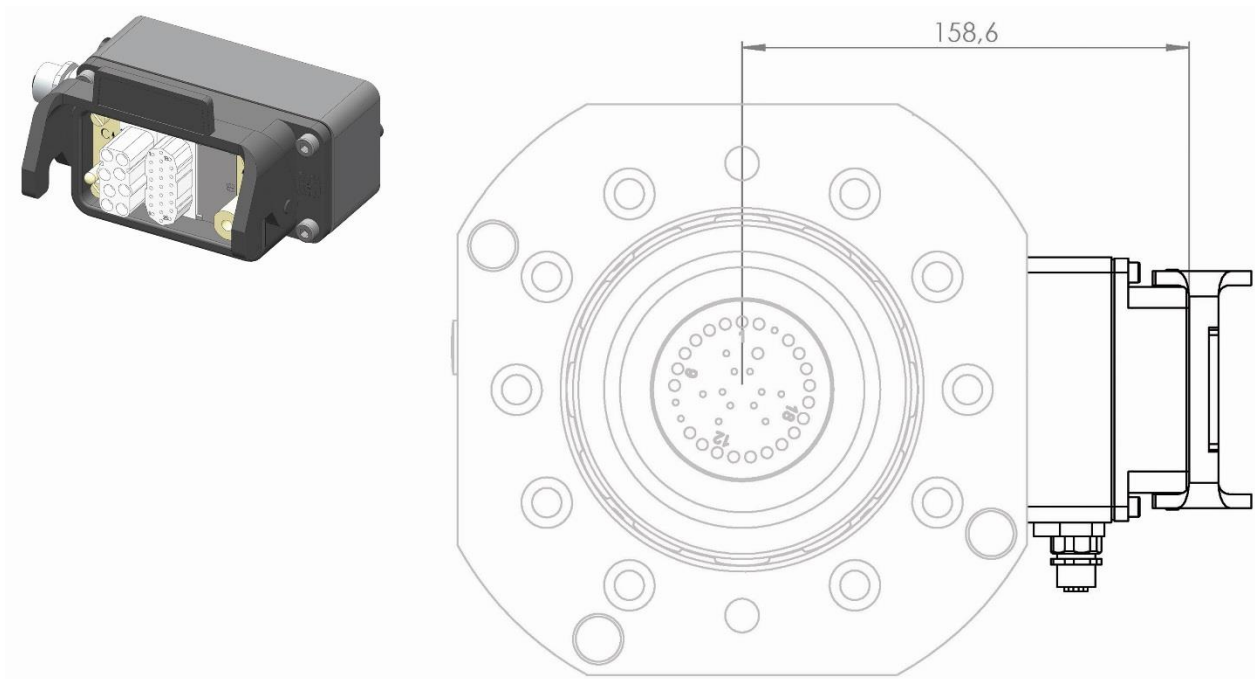


Signal module P1532 Souriau with ProfiNet is included in tool changer TC500-1EV (MH), P1510P. To be used together with Signal module P1529 attached to the tool attachment.

Technical data

<b>Weight</b>		0.4 kg
<b>Electrical signals</b>	Connector	Souriau 26P (UT0W01626PH)
	Connector (ProfiNet)	M12 D-code, female

### 3.3 Signal module Harting with ProfiNet. Article: P1529



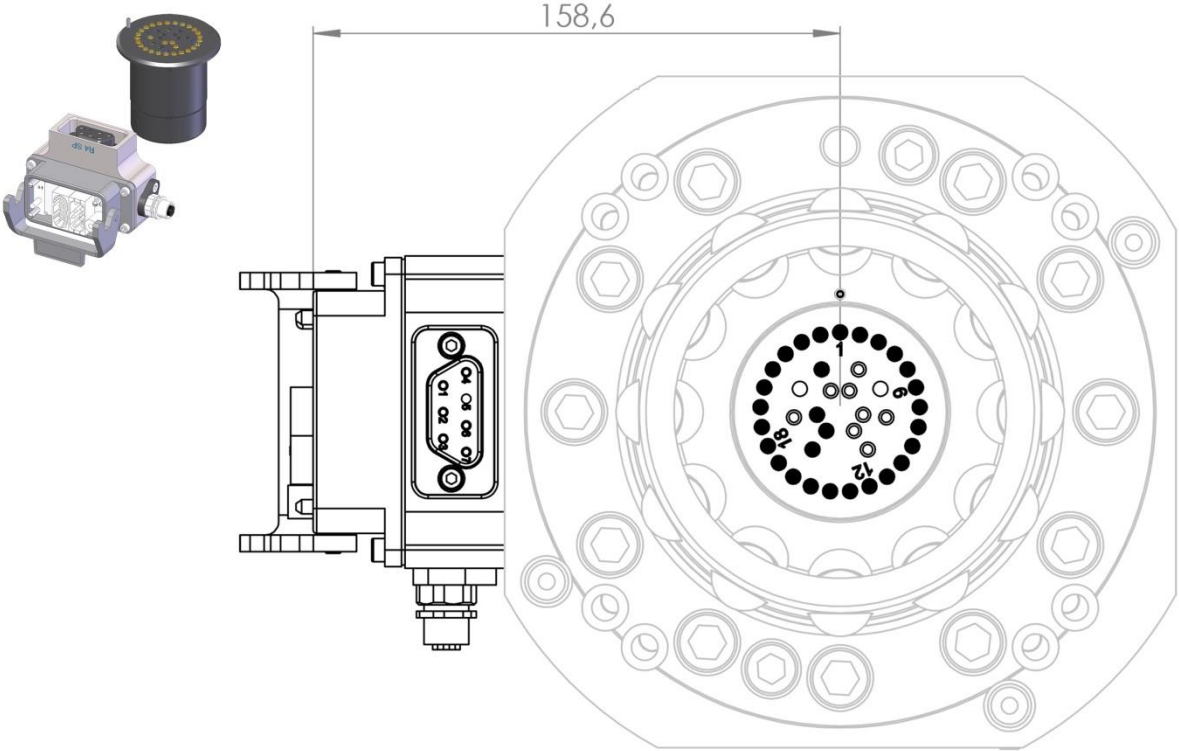
Signal module P1529 Harting with ProfiNet is included in tool attachment TA500-1EV (MH), P0582P. To be used together with signal modules P1527 or P1532 attached to the tool changer.

#### Technical data

<b>Weight</b>		0.2 kg
<b>Electrical signals</b>	Connector	3-module Harting 10B
	Connector (ProfiNet)	M12, D-code, female



**3.4 Signal/servo module Harting with ProfiNet. Article: P0574**

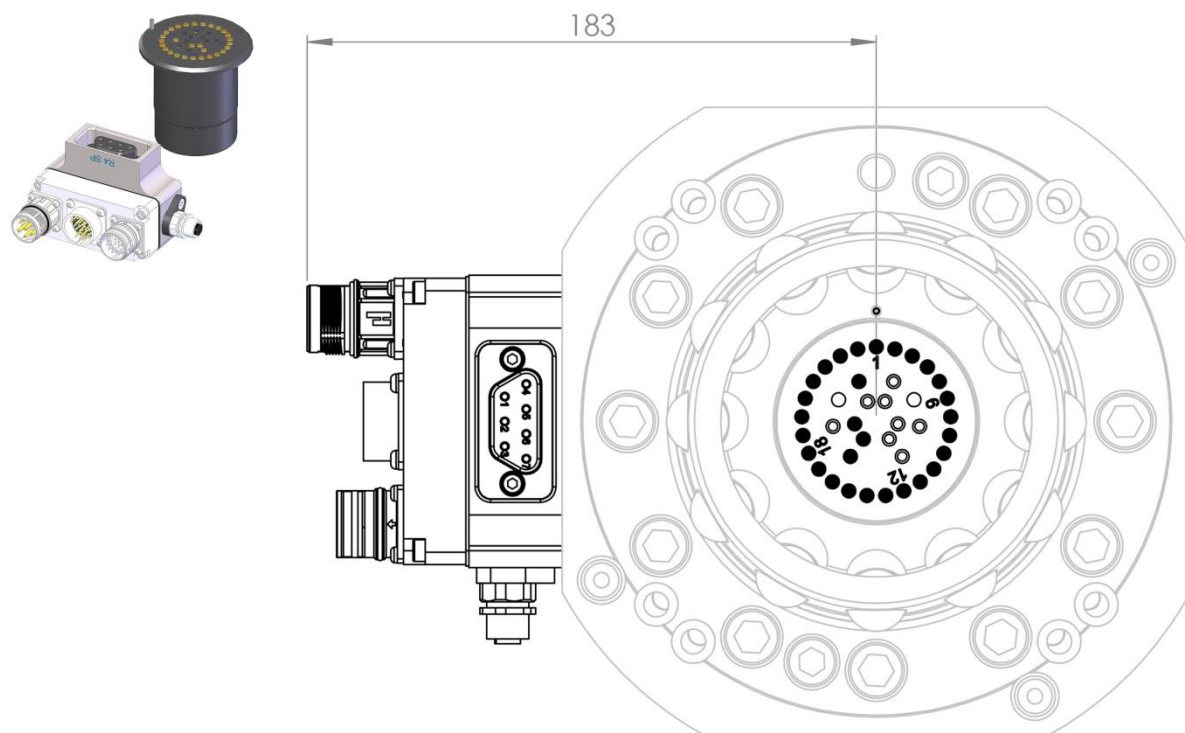


Signal/servo module P0574 Harting with ProfiNet is included in tool changer TC500-SWS, P0576P. To be used together with signal modules P0578 and P0575 attached to the tool attachment.

**Technical data**

<b>Weight</b>		0.4 kg
<b>Electrical signals</b>	Connector	3-module Harting 10B
	Connector (ProfiNet)	M12 D-code, female

### 3.5 Signal/servo Souriau and M23 with Profinet. Article: P1531

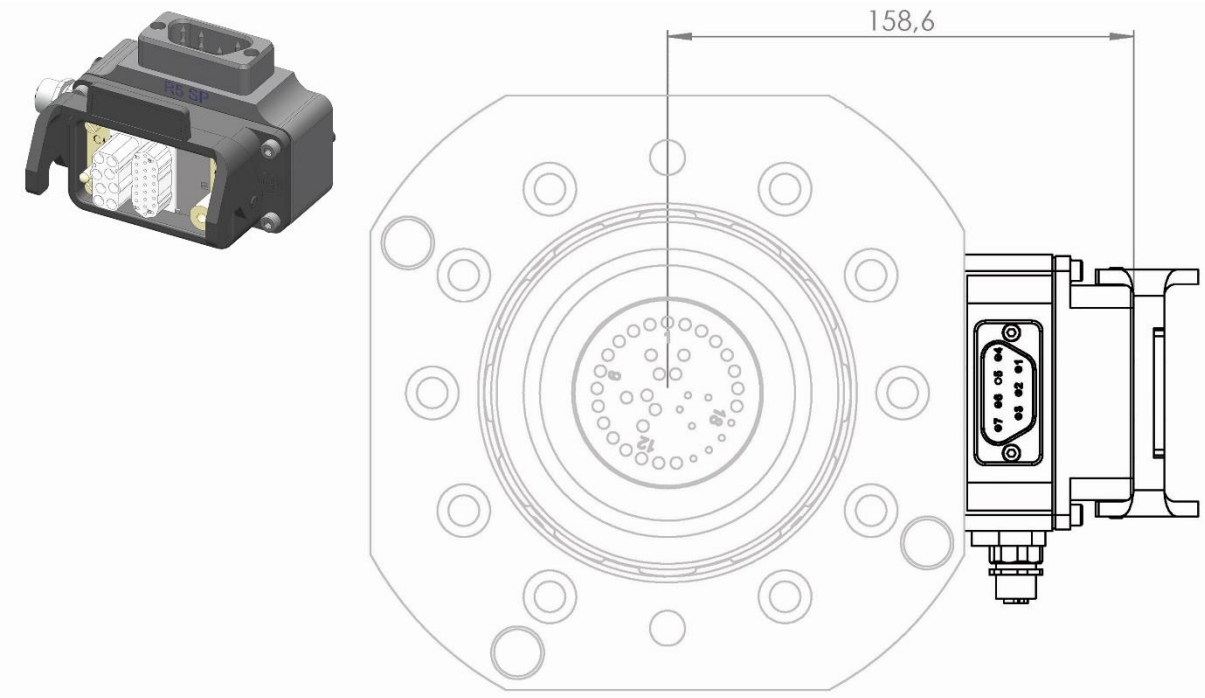


Signal/servo module P0574 Souriau with Profinet is included in tool changer TC500-SWS, P1511P. To be used together with signal modules P0578, and P0575 attached to the tool attachment.

#### Technical data

Weight		0.6 kg
Electrical signals	Connector	Souriau 26P UT0W01626PH
	Connector (Encoder)	M23 17P
	Connector (Servo Power)	M23 8P
	Connector (ProfiNet)	M12 D-code, female

**3.6 Signal/servo interface Harting/ProfiNet Article: P0575**

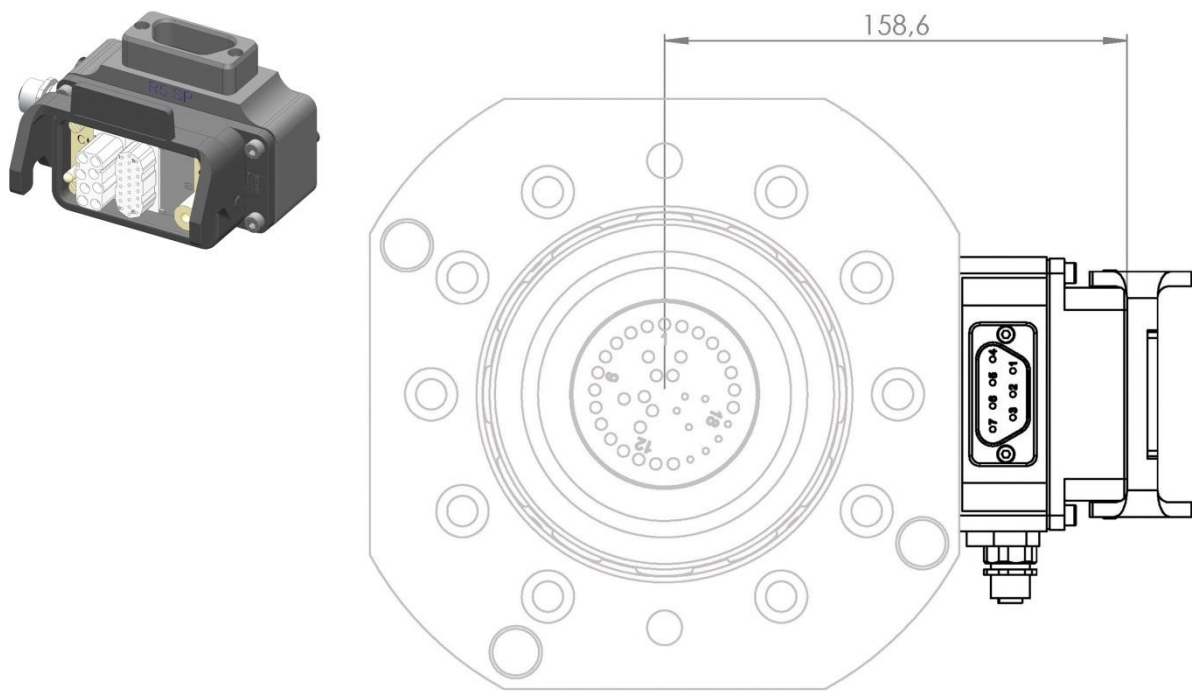


Option to TA, Signal/servo interface Harting/ProfiNet, P0575 is included in tool attachment TA500-SWS, P0577P and P1518P. To be used together with signal modules P0574, and P1531 attached to the tool changer.

**Technical data**

<b>Weight</b>		0.3 kg
<b>Electrical signals</b>	Connector	3-module Harting 10B
	Connector (ProfiNet)	M12 D-code, female

### 3.7 Signal/servo module Harting/ProfiNet. Article: P0578

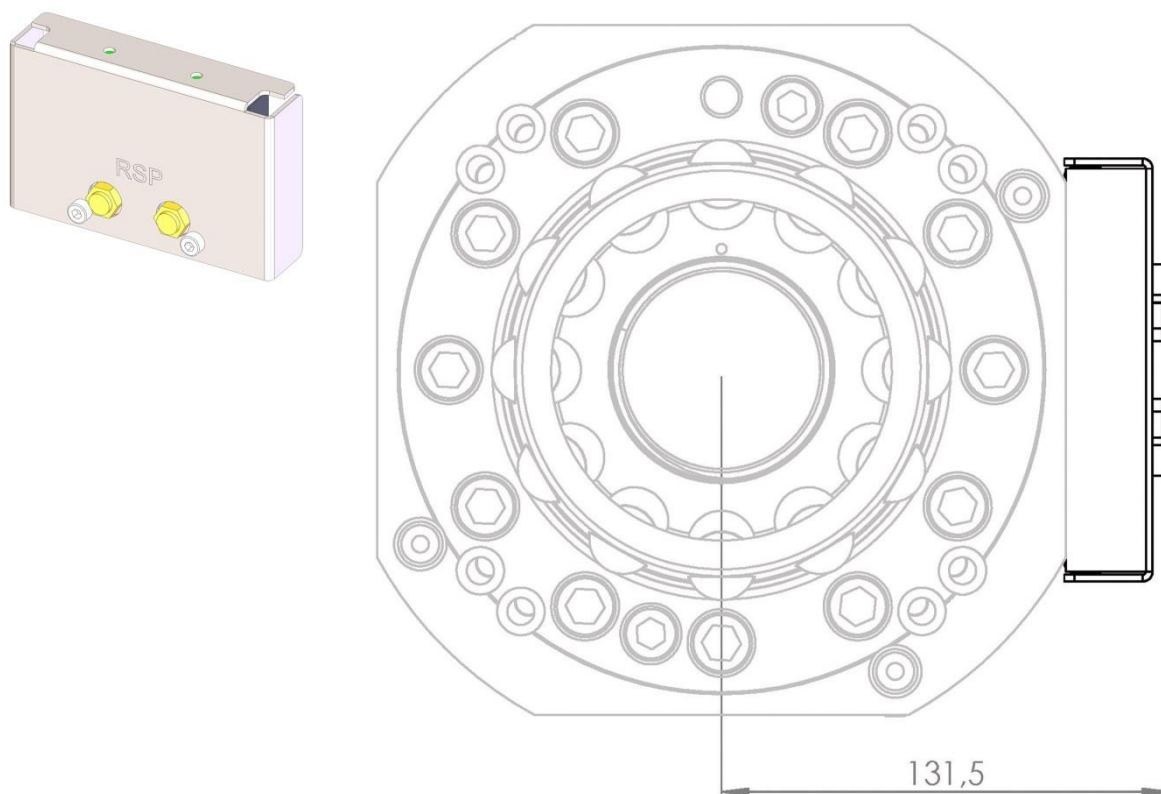


Signal module P0578 Souriau with ProfiNet is included in tool attachment TA500-SWS/MH, P0579P. To be used together with signal modules P0574, and P1531 attached to the tool changer.

#### Technical data

<b>Weight</b>		0.3 kg
<b>Electrical signals</b>	Connector	3-module Harting 10B
	Connector (ProfiNet)	M12 D-code, female

### 3.8 Integrated valve, TC Open/Close. Article: P0512

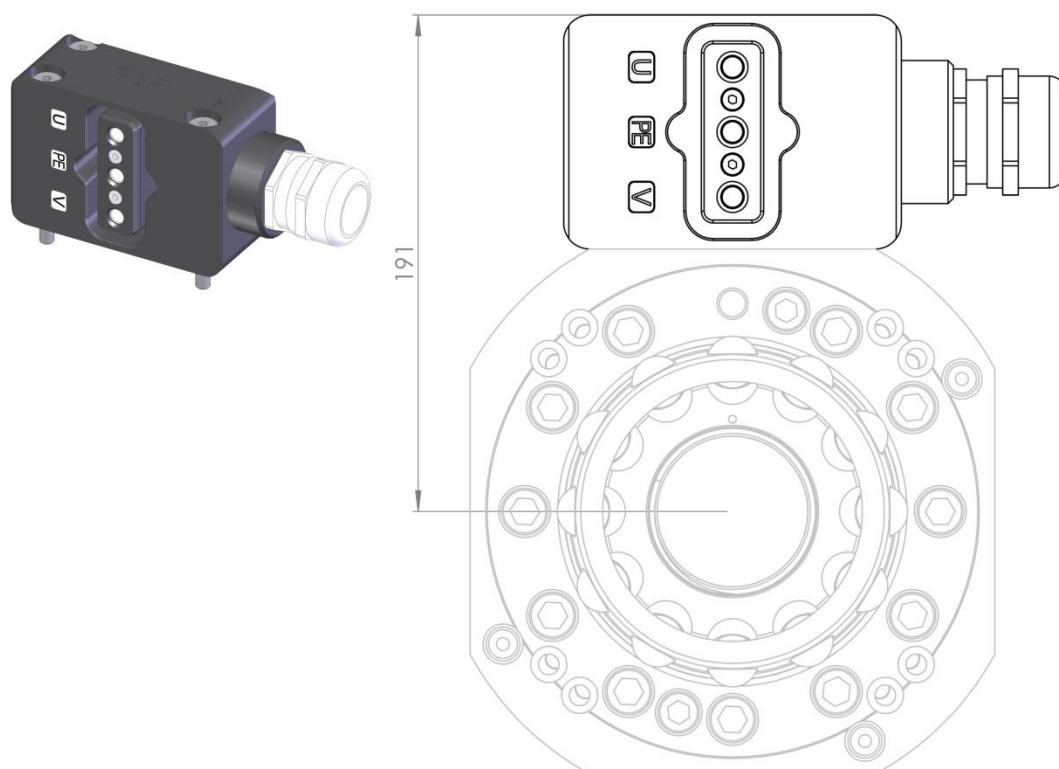


The integrated valve P0512 includes two integrated monostable 3/2-valves. Air is supplied via air inlet marked “2” on water/air modules P6740P or P6715P. The integrated valve P0512 is included in tool changers P0581P, P1510P, P0576P and P1511P.

#### Technical data

<b>Weight</b>		0.3 kg
<b>Electrical signals</b>	Circuit diagram	See respective tool changer.
	Dedicated signals	doOpen_TC_1, doOpen_TC_2, 0V
	Connections	See respective tool changer.
<b>Air channels</b>	Pneumatic diagram	Pne0230-003 / Pne0230-002
	Air supply	Air inlet G ½" marked “2” on water/air module (6-10 bar)
	Air quality	Oil clean waterless filtered air, with max 25 µm particle content.

### 3.9 Weld power module. Article: P6716

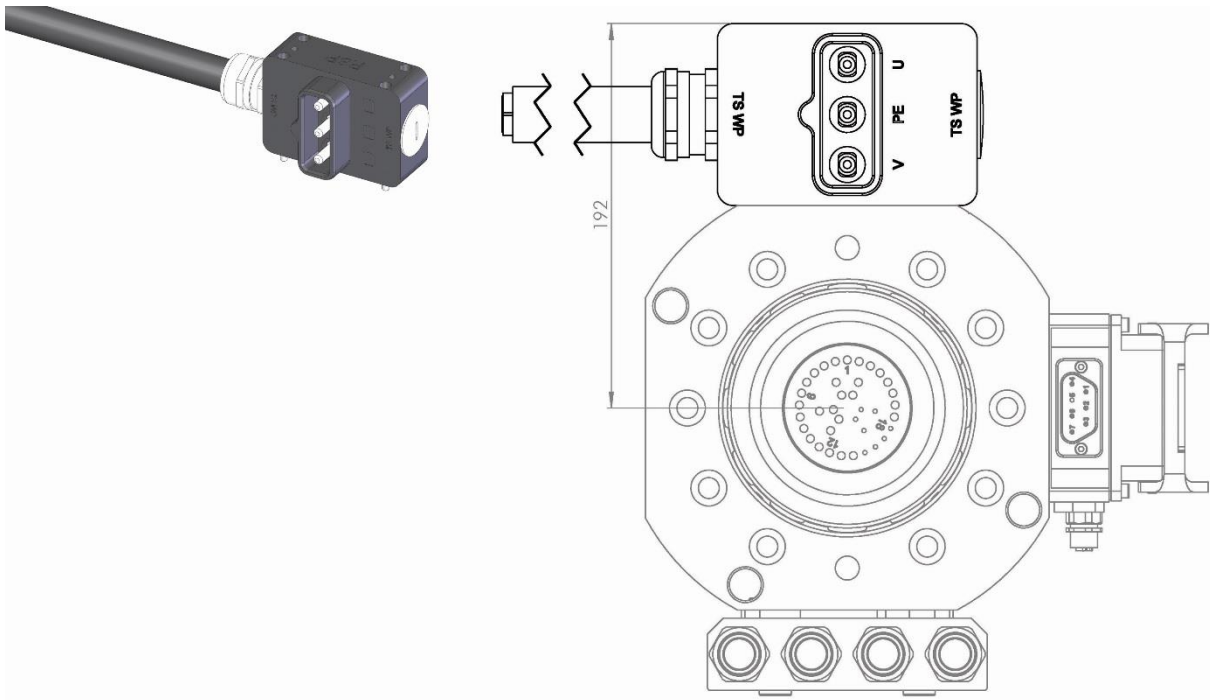


Connects 3 weld power conductors to the tool attachment and is included in tool changer TC500-SWS, P0576P and P1511P. Can be mounted in two different positions on the tool changer. To be used together with weld power module P0712A or P1517 attached to the tool attachment.

#### Technical data

<b>Weight</b>		1.1 kg
<b>Weld power</b>	Total number of conductors	3 x (690V, 140A)
	Connection	Cable gland (M40x1.5) for a 3-conductor 19–28 mm cable

3.10 Weld power module. Article: P0712A

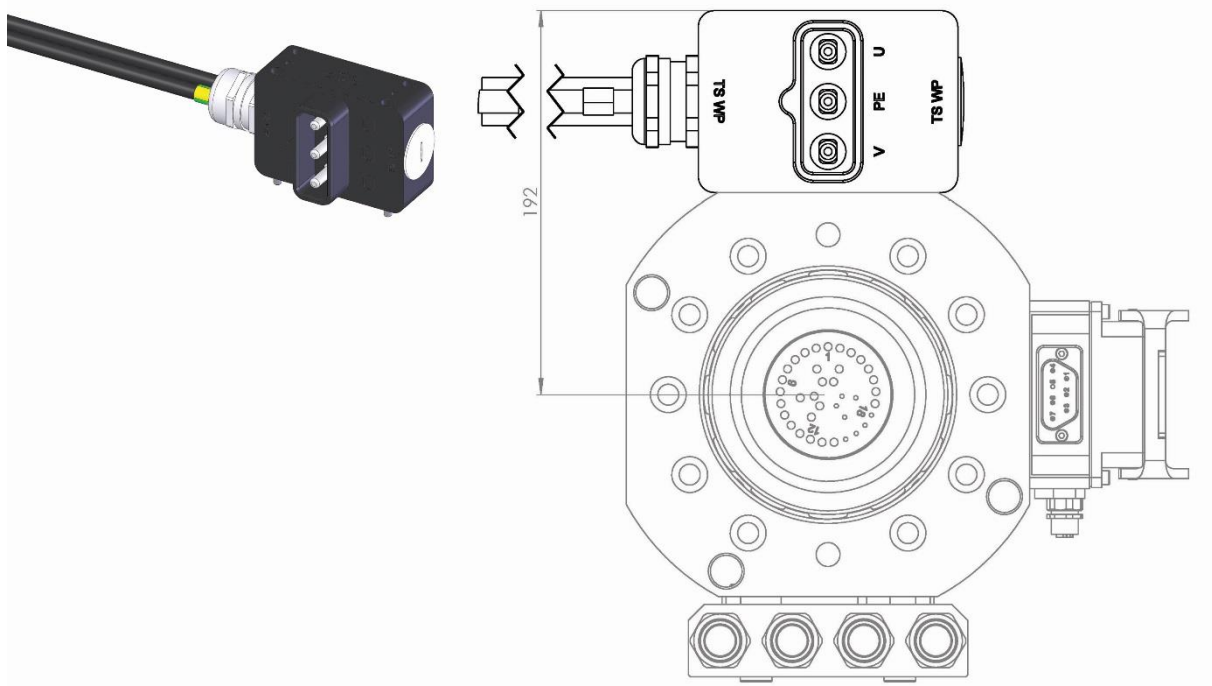


Weld power contact cover, P0712A is included in tool attachment TA500-SWS, P0577P. Can be mounted at two different positions on the tool attachment. To be used together with weld power module P6716 attached to the tool changer.

Technical data

<b>Weight</b>		1.0 kg
<b>Weld power</b>	Total number of conductors	3
	Connection	1.5 m 3-conductor cable, 3x25mm <sup>2</sup> mm <sup>2</sup>

### 3.11 Weld power module. Article: P1517



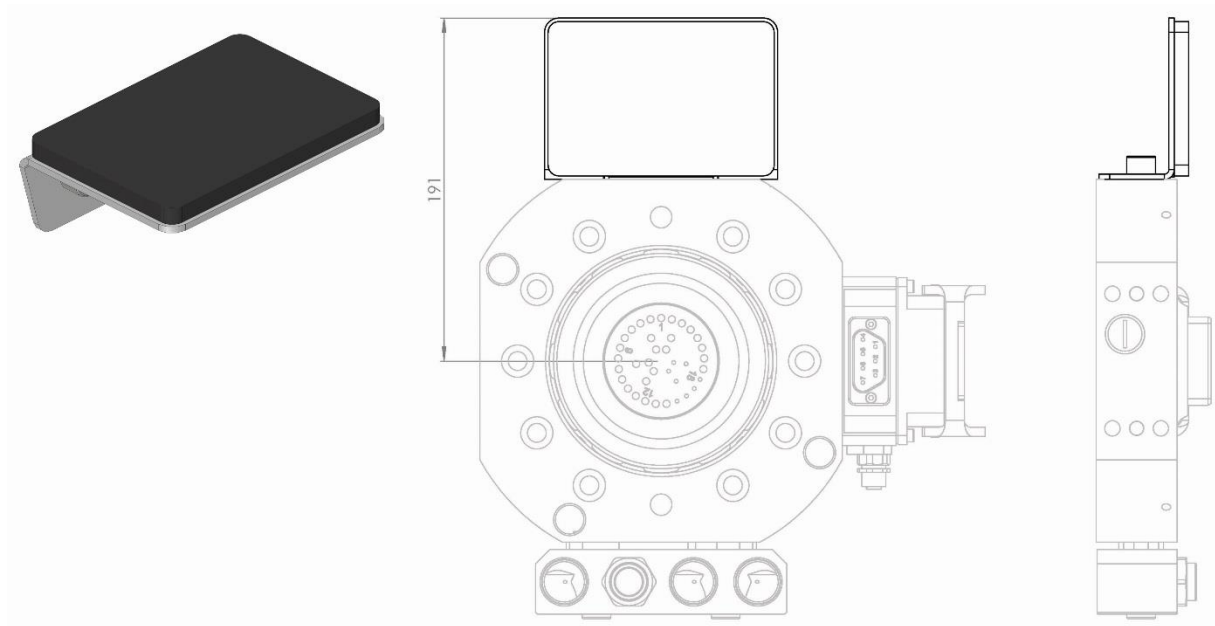
Weld power contact cover, P1517 is included in tool attachment TA500-SWS, P1518P. Can be mounted at two different positions on the tool attachment. To be used together with weld power module P6716 attached to the tool changer.

#### Technical data

<b>Weight</b>		1.0 kg
<b>Weld power</b>	Total number of conductors	3
	Connection	1.4 m, 3 x single wire cables 25 mm <sup>2</sup>



### 3.12 Weld power contact cover. Article: P6742

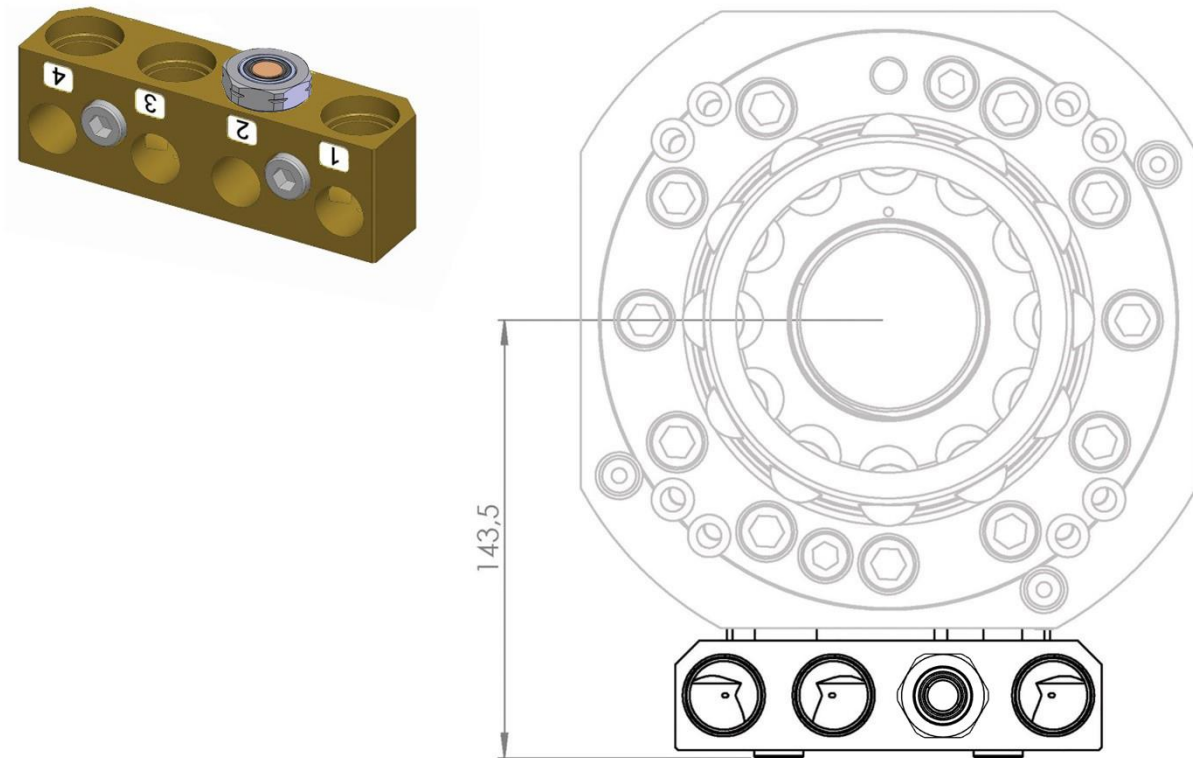


Weld power contact cover, P6742 is included in tool attachment TA500-SWS/MH, P0579P. Can be mounted at two different positions on the tool attachment. To be used together with weld power module P6716 when no power connector are used on the tool attachment.

#### Technical data

Weight	0.2 kg
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### 3.13 Air module. Article: P6740P

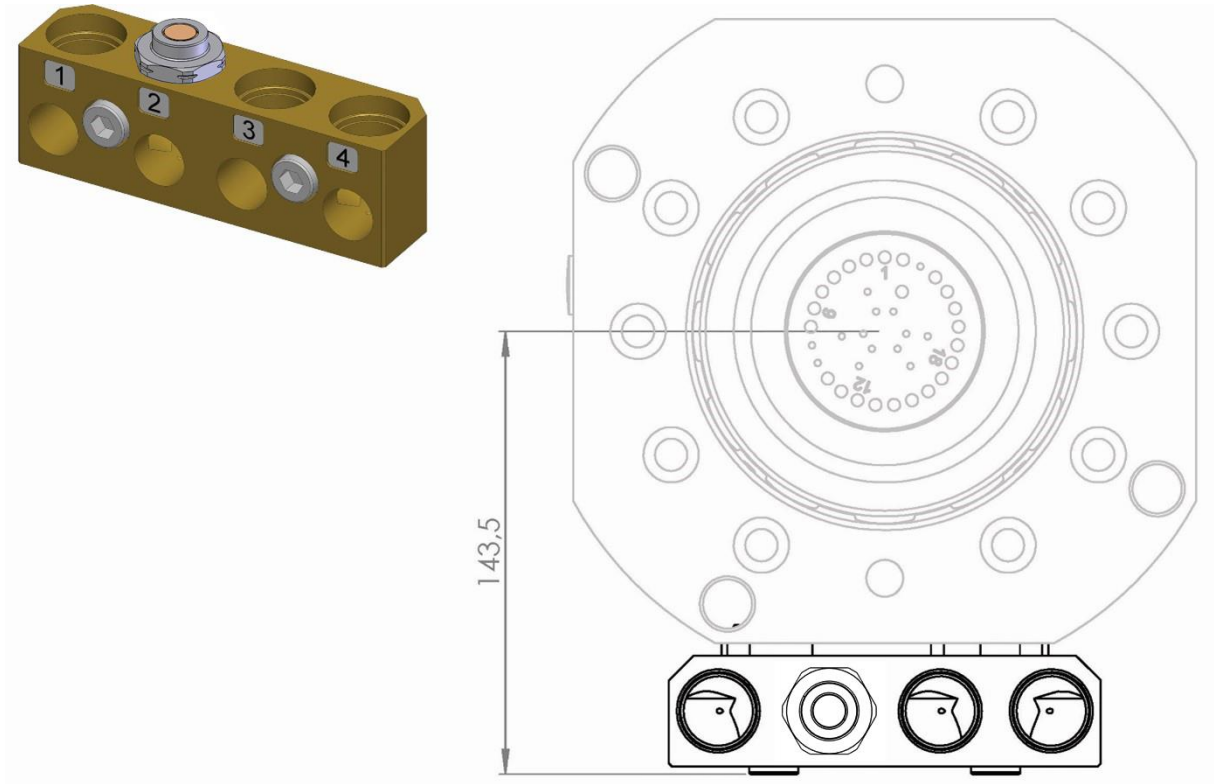


Air module P6740P is included in tool changer TC500-1EV (MH) P0581P and P1510P. To be used together with option P6741P attached to the tool attachment.

#### Technical data

Weight		1.4 kg
Air ducts	Connection	1 x G½" (2000l/min air, max 10 bar)
	Air quality	Oil-clean and waterless filtered air, with max 25µm particle content

**3.14 Air module. Article: P6741P**

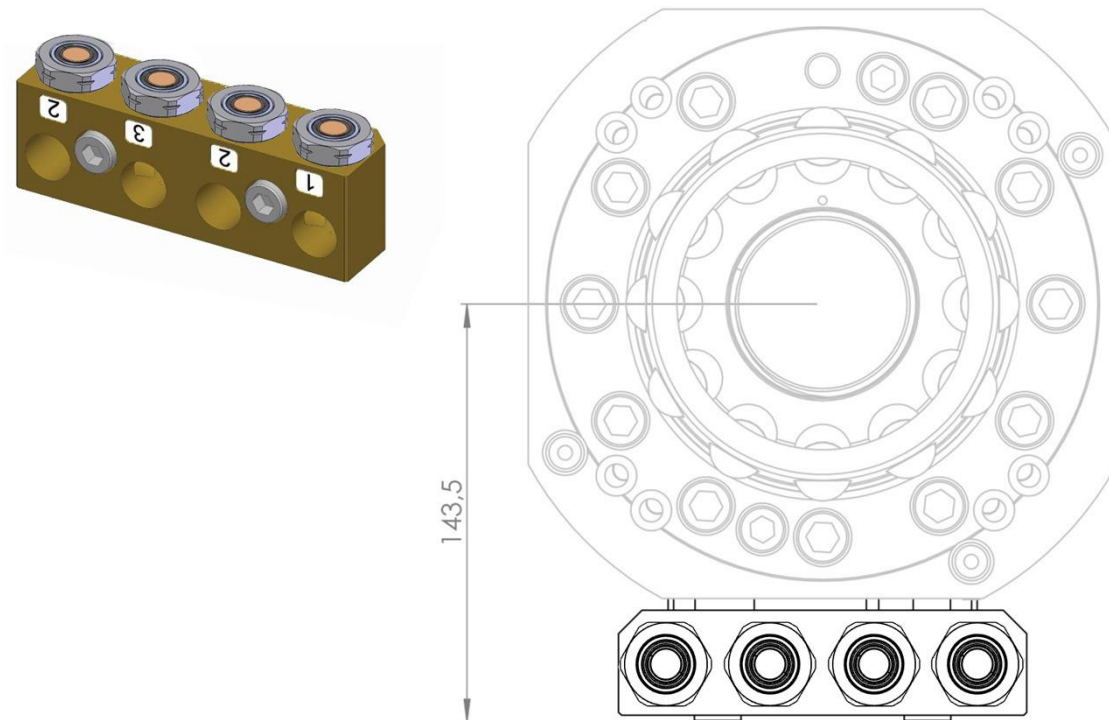


Option to TA, Air module, P6741P is included in tool attachment TA500-1E, P0582P and TA500-SWS/MH, P0579P and P1534P. To be used together with option P6740P attached to the tool changer.

**Technical data**

Weight	1.4 kg
Air ducts	Connection 1 x G½"

### 3.15 Water/air module. Article: P6715P

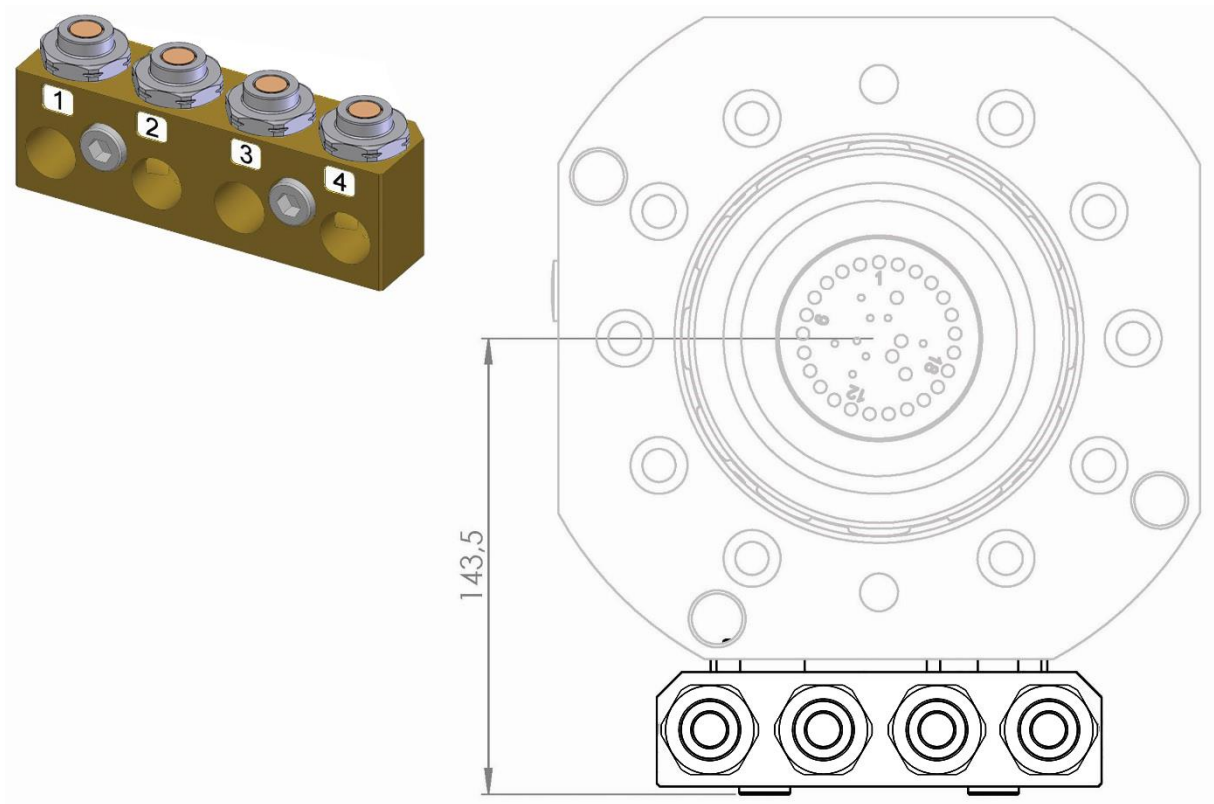


Water/air module P6715P is included in tool changer TC500-SWS P0576P and P1511P. To be used together with option P6725P attached to the tool attachment.

#### Technical data

Weight		1.6 kg
Air ducts	Connection	4 x G $\frac{1}{2}$ " (2000l/min air, max 10 bar)
	Air quality	Oil-clean and waterless filtered air, with max 25µm particle content.

**3.16 Water/air module. Article: P6725P**



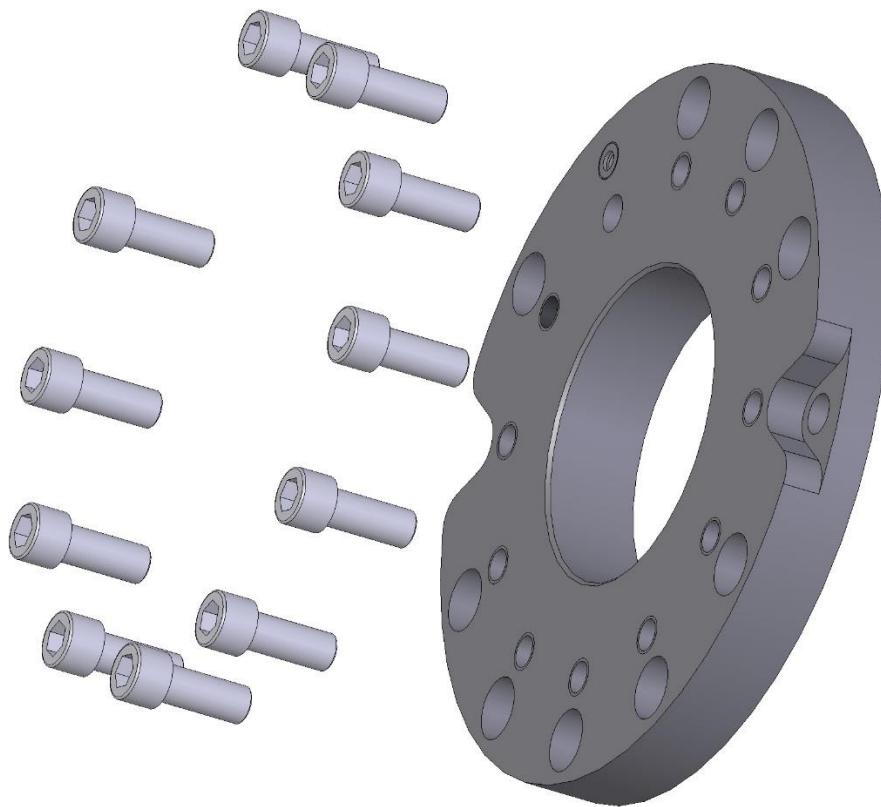
Option to TA, Water/air module, P6725P is included in tool attachment TA500-SWS P0577P and P1518P. To be used together with option P6715P attached to the tool changer.

**Technical data**

<b>Weight</b>		1.6 kg
<b>Air ducts</b>	Connection	4 x G½"

### ***3.17 Robot adaptation kits, optional***

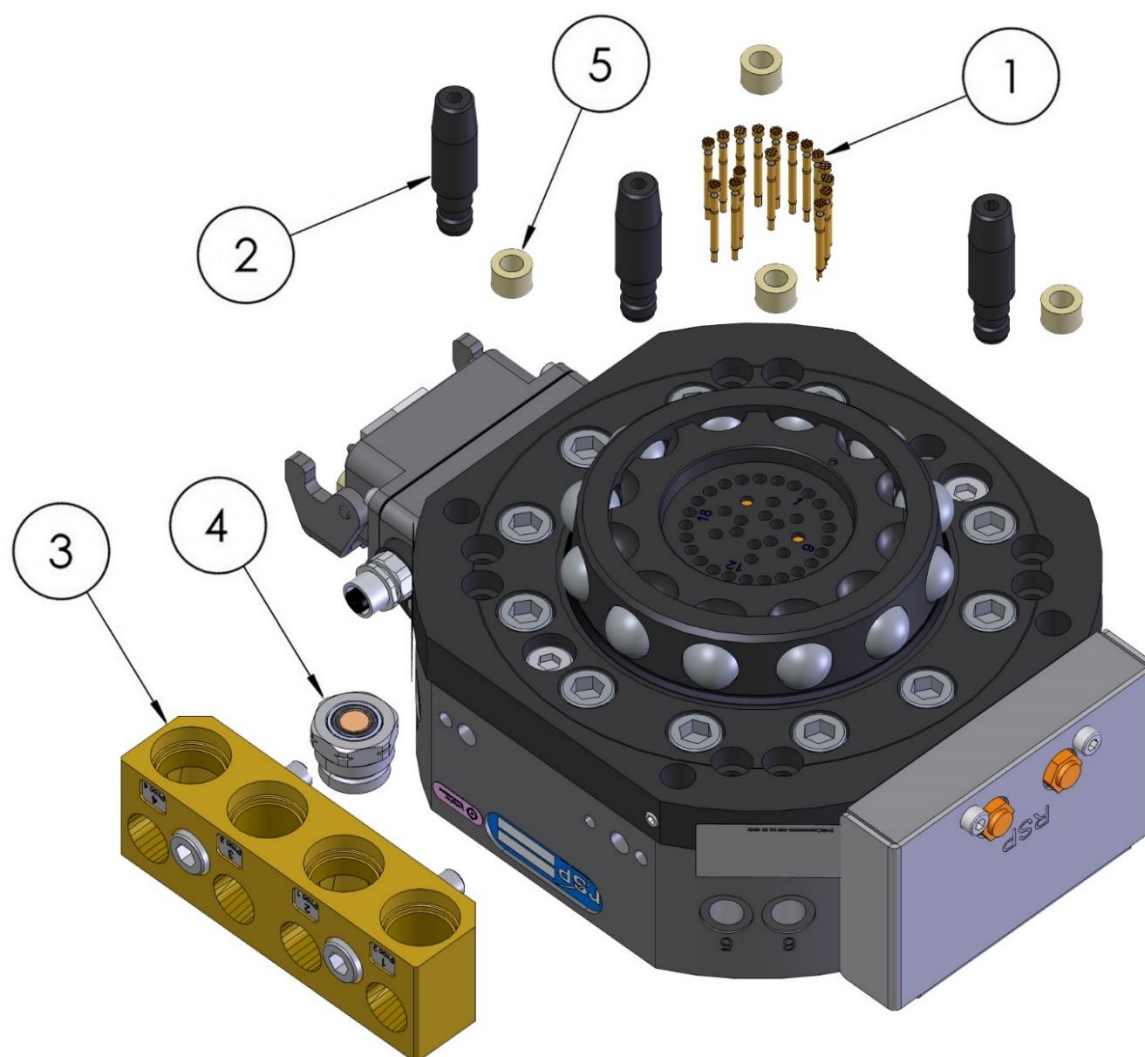
Robot adaptation kits are required for mounting on robot flanges using alternative bolt patterns and consist of an adaptation plate including mounting screws. Robot adaptation kits for various robot models are available from RSP.



***Example of adaptation plate with mounting screws***

## 4 SPARE PARTS

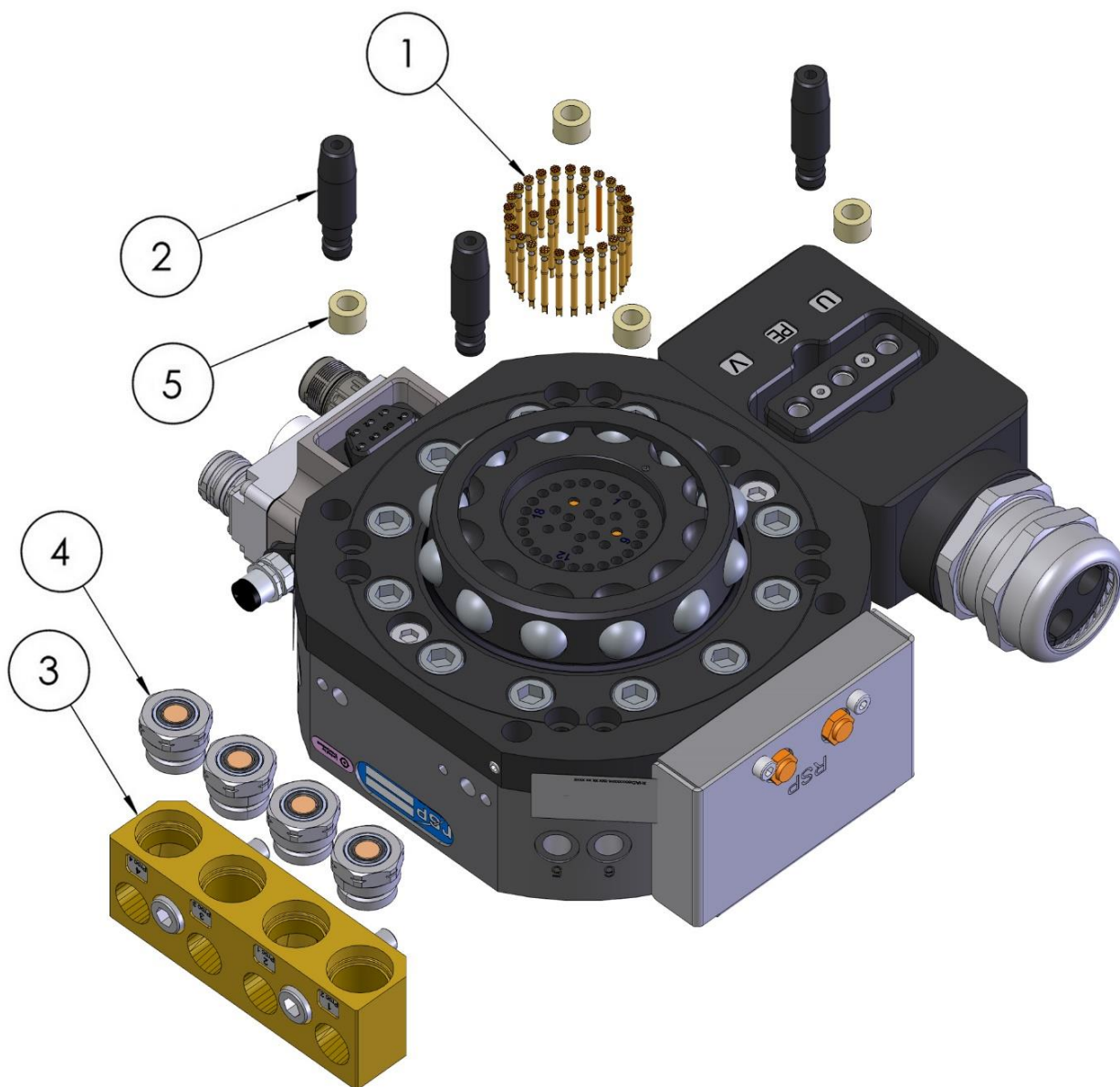
### 4.1 Part list for tool changers P0581P and P1510P



Item	Description	Part number	Wear part	Pcs
1	Spring loaded signal pins	I0042	X	16
2	Guide pins	P0230-175	X	3
3	Complete water/air module, including water/air coupling	P6740P-1		1
4	Water/air coupling (separate)	I1846	X	1
5	Air sealing/dampers	P0230-002	X	4



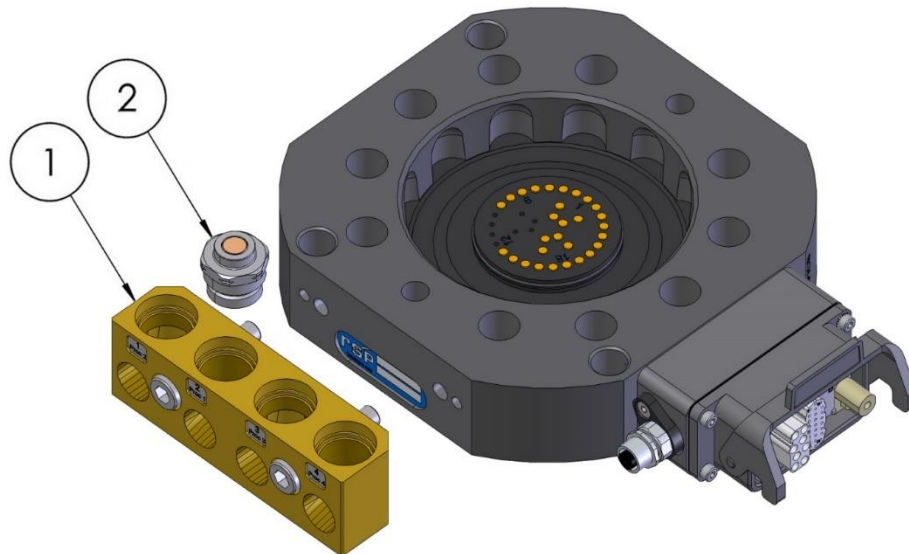
## 4.2 Part list for tool changers P0576P and P1511P



Item	Description	Part number	Wear part	Pcs
1	Spring loaded signal pins	I0042	X	29
2	Guide pins	P0230-175	X	3
3	Complete water/air module, including water/air couplings.	P6715P-5		1
4	Water/air couplings (separate)	I1846	X	4
5	Air sealing/dampers	P0230-002	X	4

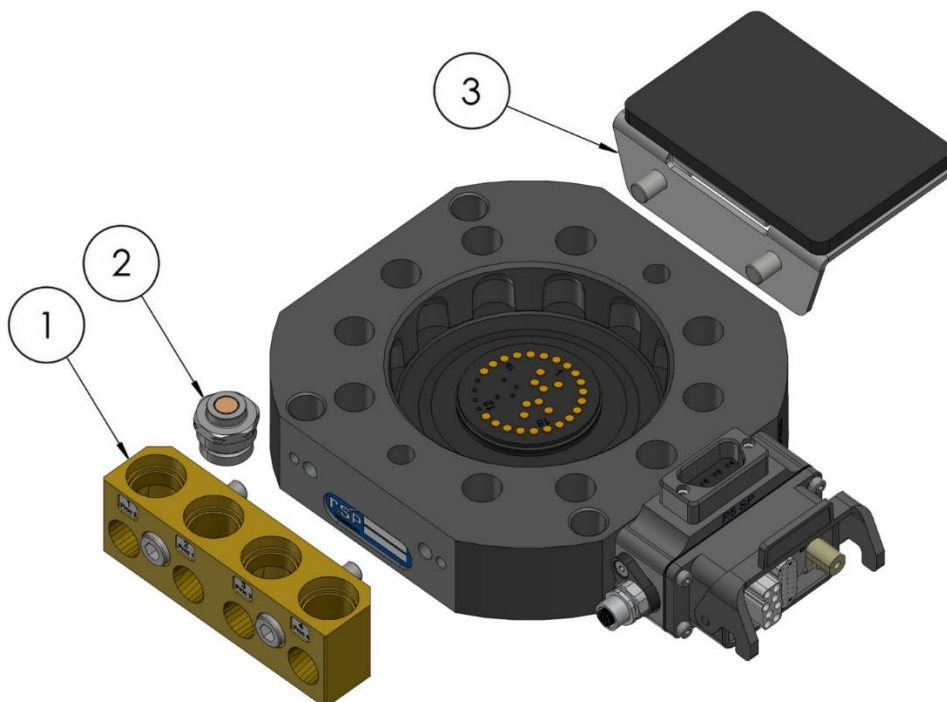


#### 4.3 Part list for tool attachment P0582P



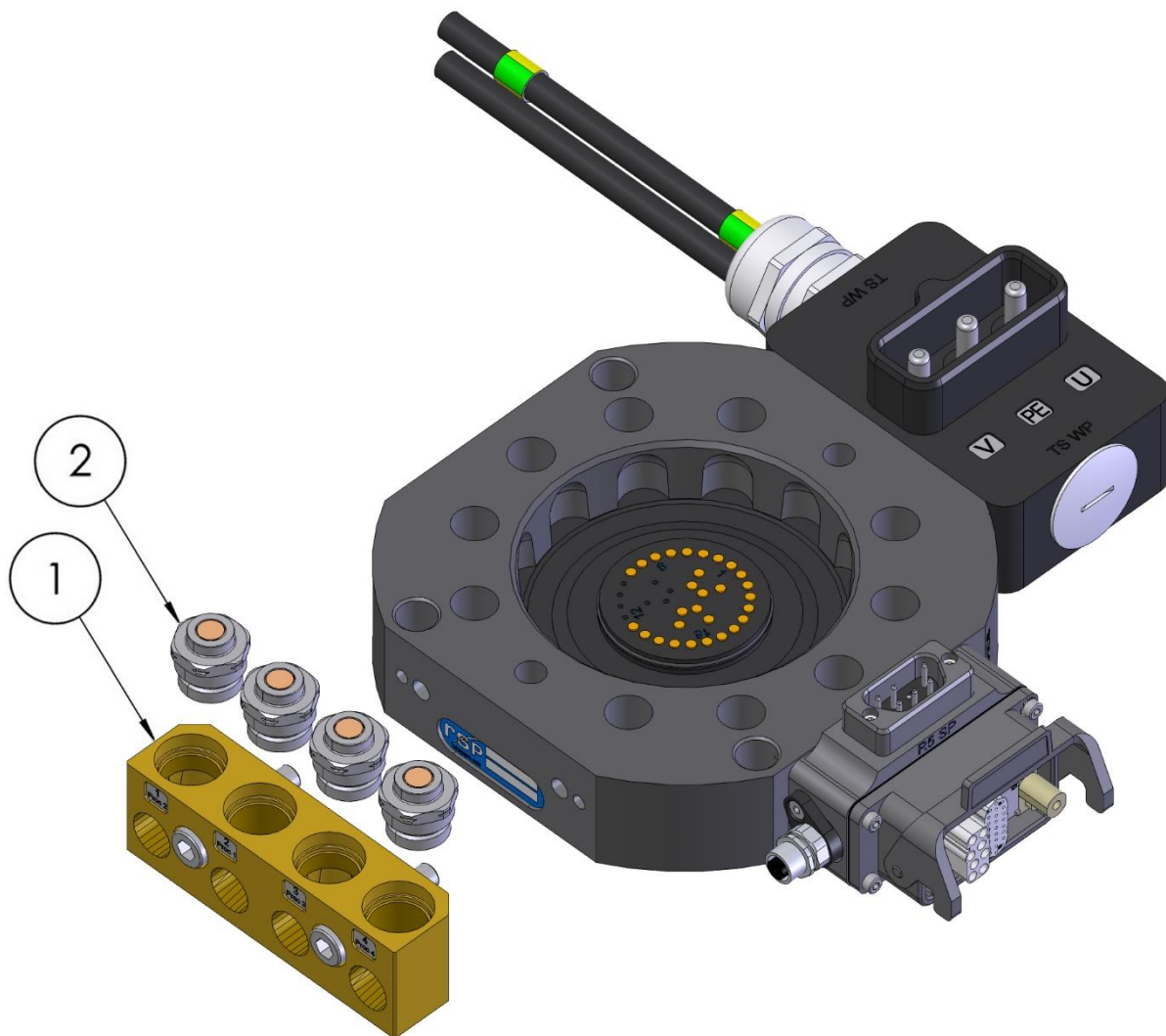
Item	Description	Part number	Wear part	Pcs
1	Complete water/air module, including water/air coupling	P0230-007		1
2	Water/air coupling (separate)	I1847	X	1

#### 4.4 Part list for tool attachment P0579P



Item	Description	Part number	Wear part	Pcs
1	Complete water/air module, including water/air coupling.	P0230-007		1
2	Water/air coupling (separate)	I1847	X	1
3	Weld power contact cover	P6742		1

#### 4.5 Part list for tool attachments P0577P and P1518P



Item	Description	Part number	Wear part	Pcs
1	Complete water/air module, including water/air couplings.	P0230-007		1
2	Water/air couplings (only)	I1847	X	4



