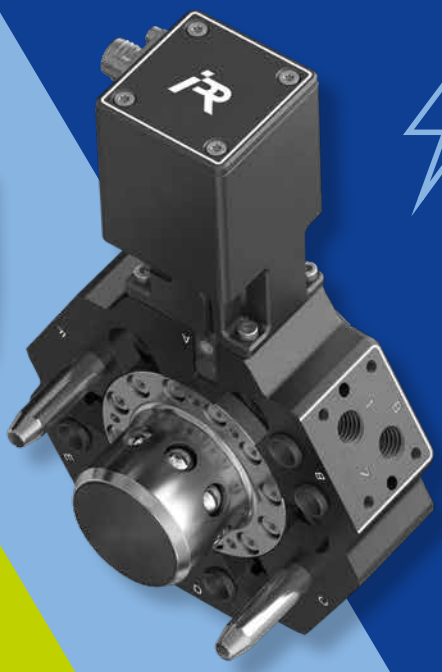
TOOL CHANGERS

TKX SERIES

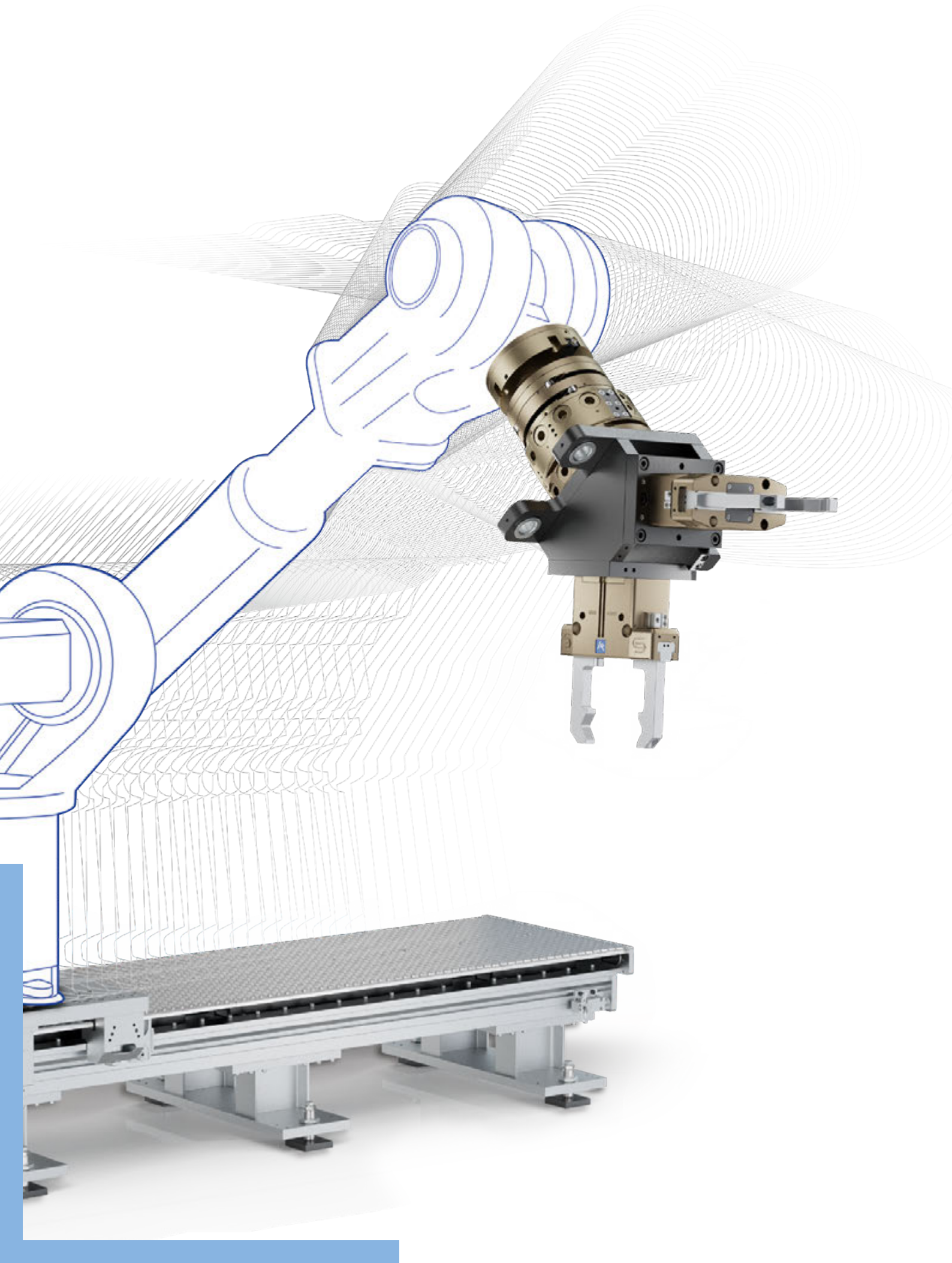


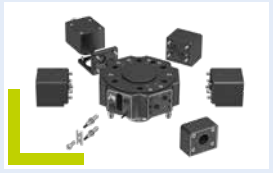
TKX TOOLCHANGER3

PNEUMATIC · ELECTRIC · MANUAL

MODULARITY TAKEN TO THE LIMIT

INTELLIGENT PERIPHERALS FOR ROBOTS





Overview

IPR – Solutions at hand

Our components make your robot more intelligent, flexible and versatile

Innovation meets top quality

IPR Intelligente Peripherien für Roboter GmbH is a leader in the development and manufacturing of products related to industrial robots and offers an extensive product range with innovative systems and components for assembly and handling technology. Our parallel and angular grippers, tool changers, joining and compensating systems as well as load limiters, 7th axes for robots and customer-specific solutions are used by customers in many countries around the world.

Companies from all industries trust our products. Quality, technical and industry knowledge are our most important success factors.
We offer you standard products ready for immediate use, but we also support you in special and large-scale projects. Here you benefit directly from the development and manufacturing technologies in our house.

Industry-specific solutions

For robot applications and automation solutions

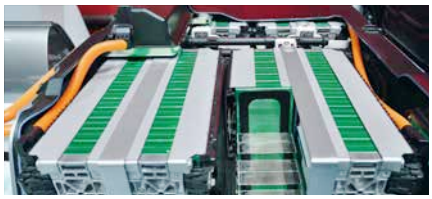
Assembly and handling technology

Machinery loading and unloading

Foundry and forge

Automotive

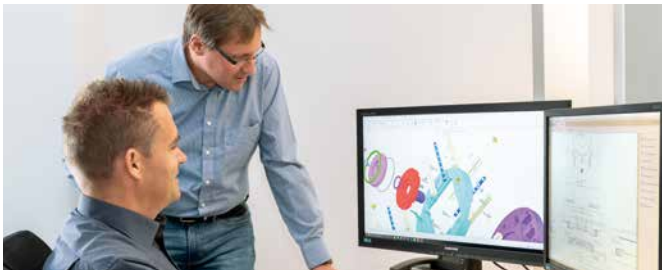
E-mobility



Medicine and pharmaceuticals

Increased value for your application

IPR components are used in a wide variety of industries. The high variance in the product series combined with the possibility of creating modified standard or specifically designed special products in a short time holds a lot of potential for meeting the requirements of our customers. Our success is the result of many years of experience in our company. Our employees are professionals in their field and have extensive knowledge around industries and production processes. This is how we continually develop innovative, high-quality and high-performance solutions for each individual project.



Individuality for your application

From standardized to customized

For individual solutions, we combine standardized components with custom-built modules to reduce design and delivery times as well as costs. Our company provides these services for a wide range of industries such as the automotive and supplier industry, machine tools and plant engineering, intralogistics, electrical industry, renewable energies, medical technology and the aerospace industry.

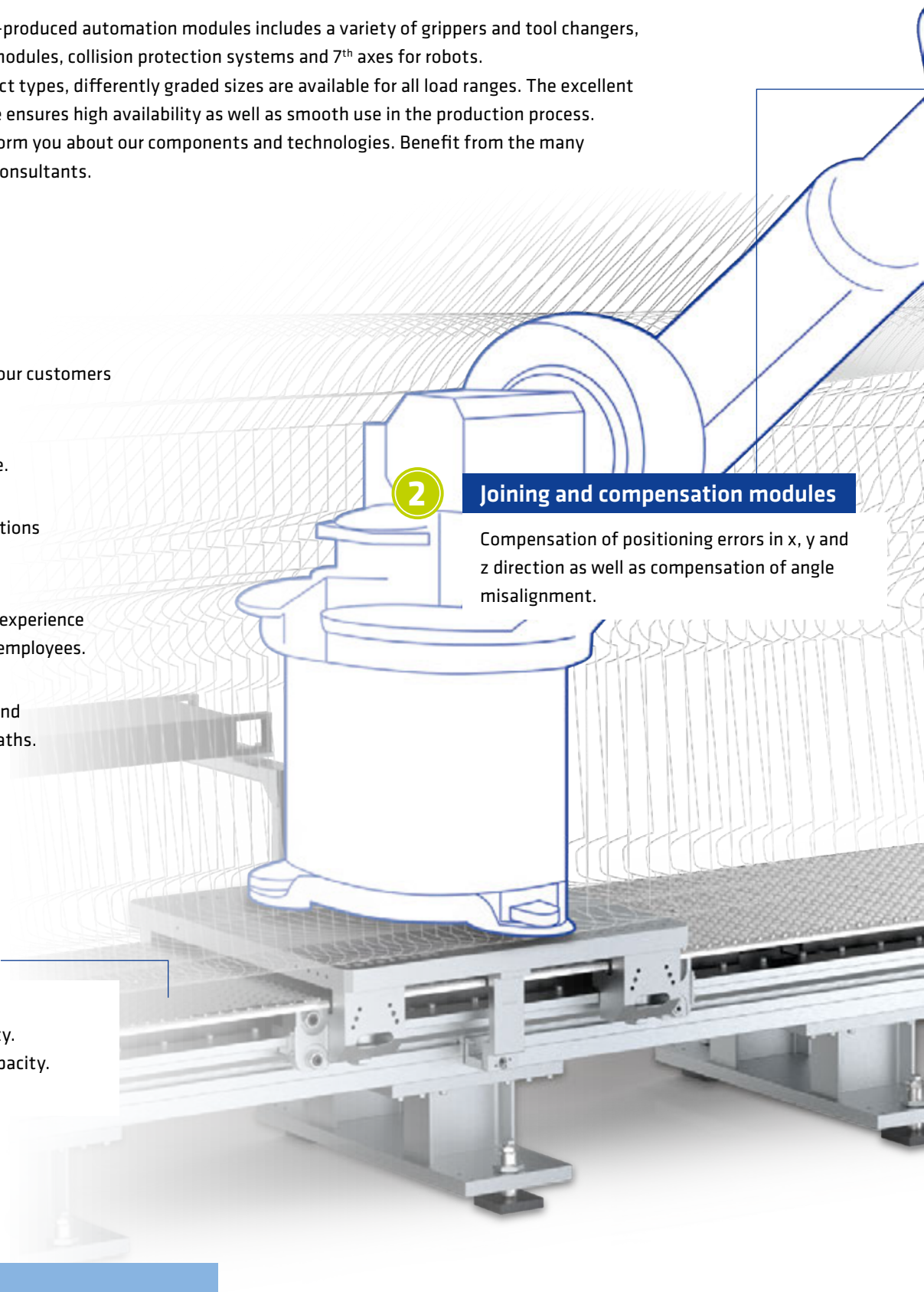
IPR offers everything that robots need to work

Discover our extensive portfolio of peripherals for robots

Our product range of series-produced automation modules includes a variety of grippers and tool changers, joining and compensation modules, collision protection systems and 7th axes for robots.
Within the individual product types, differently graded sizes are available for all load ranges. The excellent quality of our product range ensures high availability as well as smooth use in the production process.
We would be pleased to inform you about our components and technologies. Benefit from the many years of experience of IPR consultants.

IPR stands for:

- **Customer proximity**
  We are always there for our customers with advice and support.
- **Internationality**
  We are on site worldwide.
- **Innovation**
  We offer innovative solutions in top quality.
- **Competence**
  We utilize many years of experience and the know-how of all employees.
- **Quality and flexibility**
  We live lean structures and short decision-making paths.

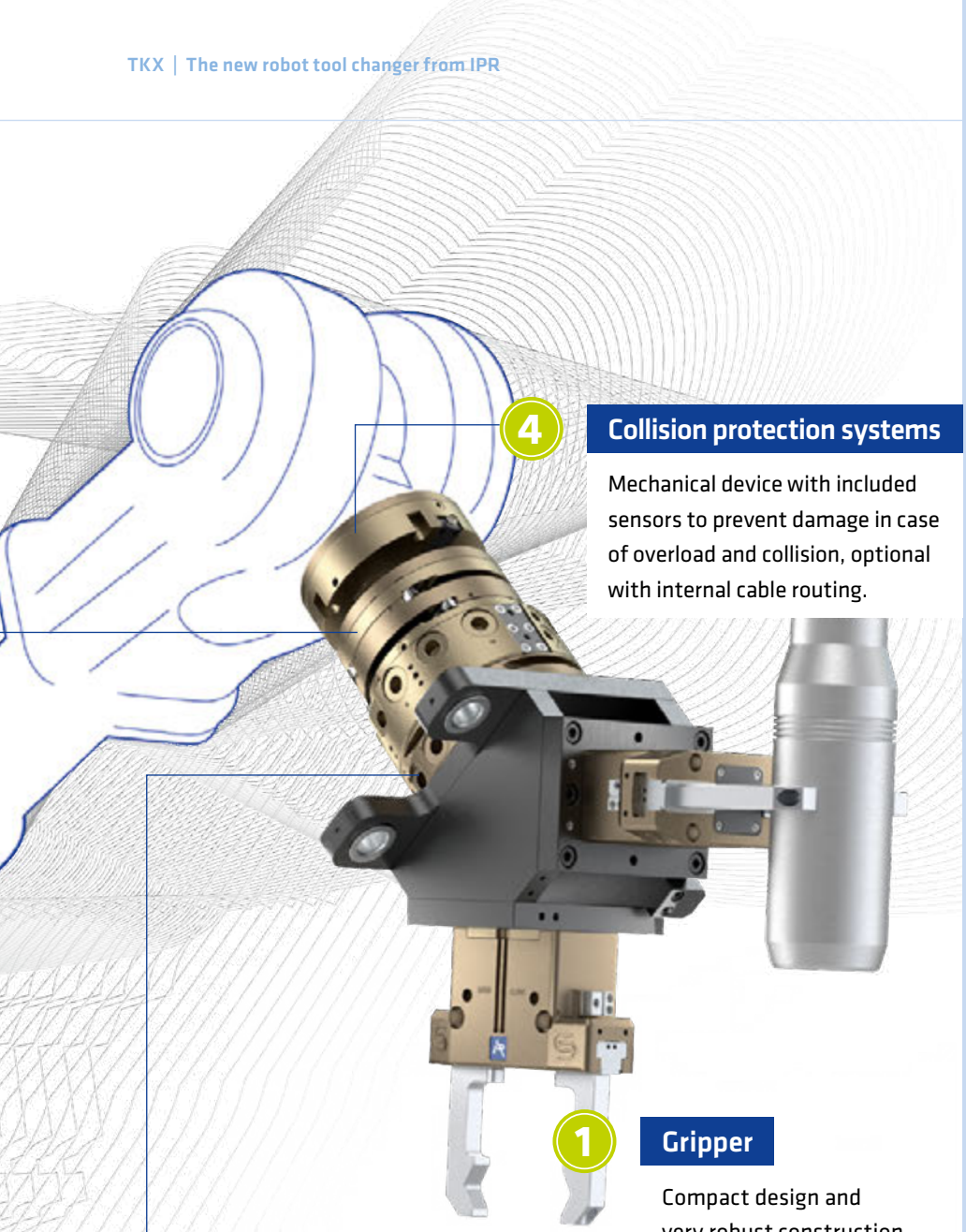


2 **Joining and compensation modules**

Compensation of positioning errors in x, y and z direction as well as compensation of angle misalignment.

5 **7th axes**

Modular system.
High repeatability.
Extreme load capacity.
Long life.



4 Collision protection systems

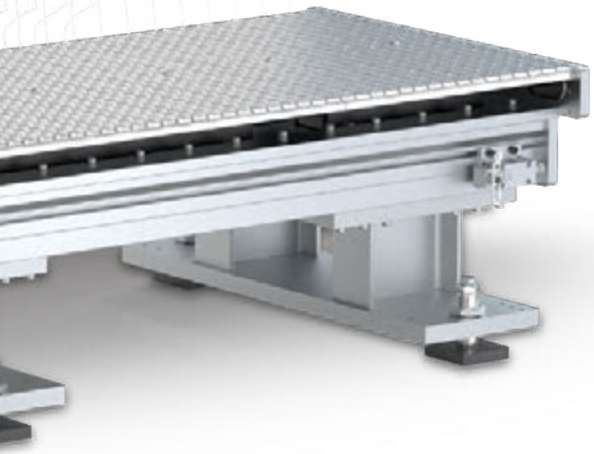
Mechanical device with included sensors to prevent damage in case of overload and collision, optional with internal cable routing.

1 Gripper

Compact design and very robust construction. Gripping force retention via spring (optional).

3 Tool changer

Quick change of tools and grippers on the robot or gantry. Simple assembly and high flexibility due to short changeover times.



1 Gripper

2 Joining and compensation modules

3 Tool changer

4 Collision protection systems

5 7th axes for robots

The revolutionary tool changer modular system from IPR

3 drives – compatible and interchangeable

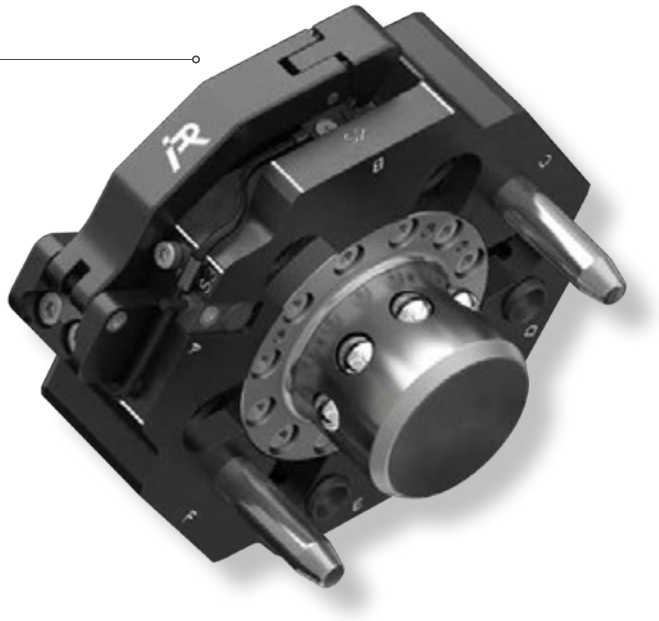
Everything from a single source

The new TKX family is revolutionizing the world of robotic automation: Three drive technologies with endless application possibilities. From classic industrial applications to use with lightweight robots and stationary applications, the new tool changers are convincing all along the line. From now on every robot in production can be equipped with a single system – interchangeable and fully flexible.

TKX TOOLCHANGER3
PNEUMATIC · ELECTRIC · MANUAL

TKM | MANUAL

Change in the blink of an eye – no power supply necessary, therefore especially suitable for applications with low replacement cycles.



The TKX Ecosystem

Optimal accessories for your tools

In addition to standardized transmission modules for signals, power, pneumatics and various fluids, the TKX ecosystem also includes a double interlock and an extensive modular system for storing the TKT tool sides. This ecosystem is continuously being expanded and optimized in order to provide the highest performance to our customers.

TKT

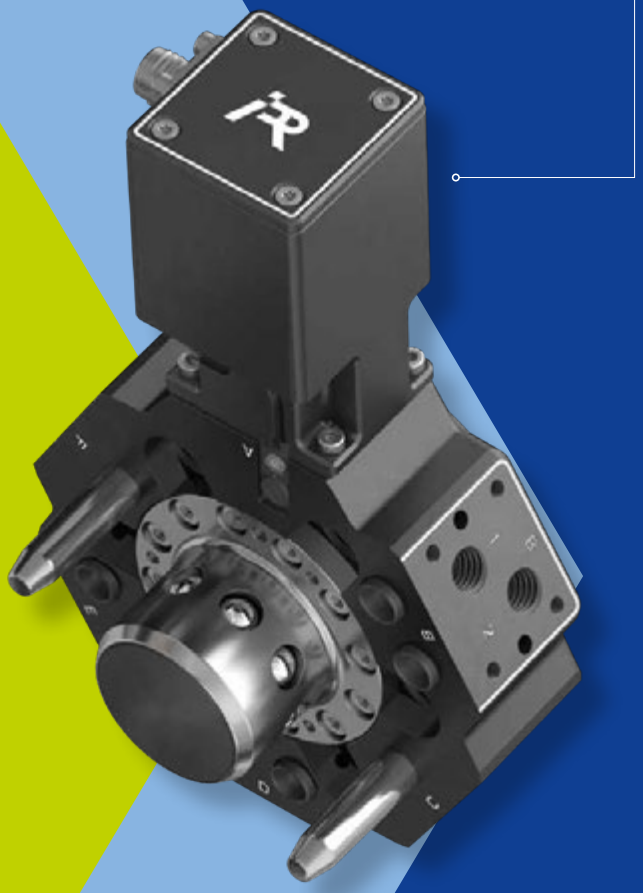
One for all – the same tool side can be used for each drive variant and interchanged between them as required.

TKP | PNEUMATIC

Proven functional principle – successful for 30 years and further improved with optimized kinematics for maximum locking force.

TKE | ELECTRIC

Changing with 24 V – no pneumatics necessary, therefore especially suitable for light-weight robots, cobots and environments without compressed air.



TKX Series Product Name

TKX	-	080
Type		
Size		

Advantages of the TKX series

- **Modular design** with countless combination options
- **New pneumatic seals** for efficient sealing and low coupling forces
- Designed for **highest loads**
- Easy teaching thanks to **extra long tapered pins**

TKP | PNEUMATIC

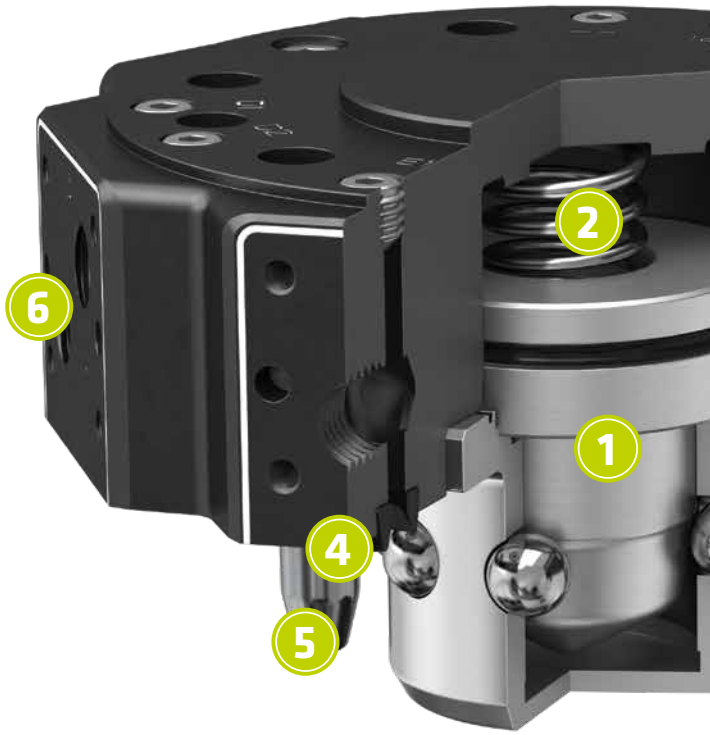
Proven functional principle

Fields of application

The TKP pneumatic tool changer is suitable for all robot and gantry applications with automated tool changing by the robot. In most cases, a compressed air supply is already provided on the robot, so that the locking and unlocking of the changer can be easily triggered via the robot controller.

Compatibility

Screw-on patterns according to DIN EN ISO 9409-1 allow for compatibility of TKP series with almost every robot from Fanuc, Kuka, ABB, Stäubli, Yaskawa and many more. They can be mounted directly to the hand flange of the robot and do not require any special mounting tool. If a special mounting pattern is required, we will be pleased to supply a robot-specific adapter plate.



PNEUMATIC

FAST

RELIABLE

Figure shows TKP-080 with optional sensors

Product advantages & benefits at a glance

- Modular system with different drives and interchangeable mold side
- Multiple mounting surfaces for optional modules allow specific configuration of the system for each application
- Up to 5x higher tensile load possible compared to similar tool changers
- Improved integrated air feedthroughs with high reliability, high temperature resistance and low abrasion
- Modern design with high quality appearance and increased functionality
- Hard chrome plated functional parts for high corrosion resistance, surface hardness and low friction
- Easy robot teaching due to extra long centering pins and increased maximum distance when locking

1 **Pneumatic piston**
The proven and widely used technology of locking via compressed air also contributes to fast change cycles and reliable function in the TKP.

2 **Stainless steel spring for force retention**
Even in the event of a loss of compressed air, the standard integrated compression spring briefly prevents unintentional release of the mold side.

3 **Preparation for standard sensors**
For integrated process control, sensor kits can be ordered at the same time or retrofitted, both for sensing the interlock and the coupling with the mold.

4 **Specially sealed pneumatic feedthroughs**
The pneumatic seals specially developed for the TKX series are particularly robust, ensure a constant feedthrough of pneumatics or vacuum and can be replaced without tools.

5 **Extra long taper pins**
In order to make teaching the robot as easy and safe as possible without external aids, extra long tapered pins support centering and coupling of the tool side.

6 **Multiple module surfaces**
For maximum modularity, each robot side of the TKX series has several screw-on surfaces for modules of various types.

7 **Uniform tool side**
Regardless of the drive of the robot side – whether pneumatic, electric or manual – a single tool side can be used universally and interchanged between the different versions as required.

TKE | ELECTRIC

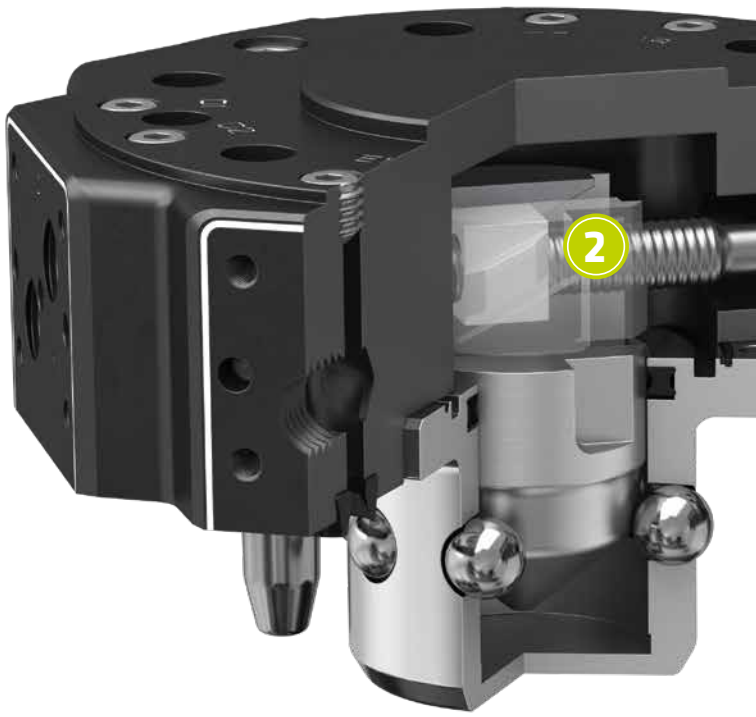
Change with 24 V

Fields of application

The TKE electric tool changer is particularly suitable for applications that do not require pneumatics at all. In addition to lightweight robots and cobots, these also include applications in the food, medical and pharmaceutical industries with high demands on cleanliness and protection against external influences.

Compatibility

Screw-on patterns according to DIN EN ISO 9409-1 allow for compatibility of TKE series with almost every robot from Fanuc, Kuka, ABB, Stäubli, Yaskawa and many more. They can be mounted directly to the hand flange of the robot and do not require any special mounting tool. If a special mounting pattern is required, we will be pleased to supply a robot-specific adapter plate.



ELECTRICAL

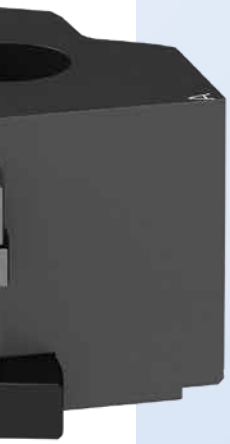
CLEAN

SAFE

Figure shows TKE-080 with optional sensors

Product advantages & benefits at a glance

- Modular system with different drives and interchangeable mold side
- Multiple mounting surfaces for optional modules allow specific configuration of the system for each application
- Up to 5x higher tensile load possible compared to similar tool changers
- Improved integrated air feedthroughs with high reliability, high temperature resistance and low abrasion
- Modern design with high quality appearance and increased functionality
- Hard chrome plated functional parts for high corrosion resistance, surface hardness and low friction
- Easy robot teaching due to extra long centering pins and increased maximum distance when locking



1 **Powerful electric motor**
The electric drive of the locking device makes it possible to completely dispense with a pneumatic supply and use it in environments without compressed air.

2 **Self-locking via thread pitch**
The mechanical properties of the sliding block on the threaded rod result in self-locking and thus force retention in the de-energized state.

3 **Preparation for standard sensors**
For integrated process control, sensor kits can be ordered at the same time or retrofitted, for example for coupling with the mold.

4 to **7** See page 13

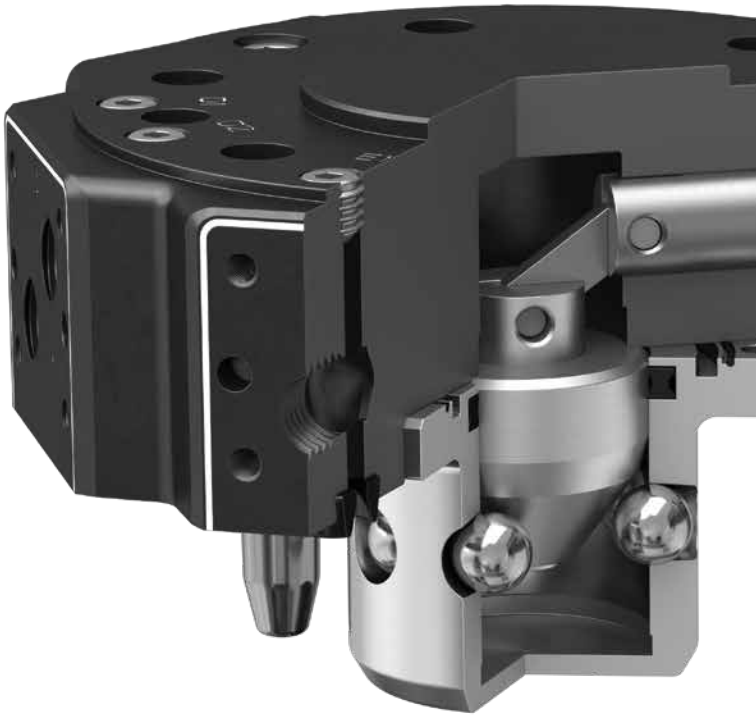
TKM | MANUAL

Fields of application

The TKM manual tool changer is particularly suitable for applications with low change cycles for which the implementation of an automated control system is not worthwhile. With the ergonomically shaped push lever, the mounted tool can be changed quickly and easily without extensive training.

Compatibility

Screw-on patterns according to DIN EN ISO 9409-1 allow for compatibility of TKM series with almost every robot from Fanuc, Kuka, ABB, Stäubli, Yaskawa and many more. They can be mounted directly to the hand flange of the robot and do not require any special mounting tool. If a special mounting pattern is required, we will be pleased to supply a robot-specific adapter plate.



MANUAL

SIMPLE

AFFORDABLE

Figure shows TKM-080 with optional sensors

Product advantages & benefits at a glance

- Modular system with different drives and interchangeable mold side
- Multiple mounting surfaces for optional modules allow specific configuration of the system for each application
- Up to 5x higher tensile load possible compared to similar tool changers
- Improved integrated air feedthroughs with high reliability, high temperature resistance and low abrasion
- Modern design with high quality appearance and increased functionality
- Hard chrome plated functional parts for high corrosion resistance, surface hardness and low friction
- Easy robot teaching due to extra long centering pins and increased maximum distance when locking

1 **Ergonomic push lever**
With complete elimination of external drive power, the TKM can be locked and unlocked quickly and easily by hand.

2 **Protection against accidental unlocking**
Mechanical engagement of the thrust lever in the locked position prevents unintentional release of the locking mechanism. Optionally, it can be equipped with a sensor.

3 **Preparation for standard sensors**
For integrated process control, sensor kits can be ordered at the same time or retrofitted, both for sensing the interlock and the coupling with the mold.

4 to **7** See page 13

Tool changer TKX series

Visualized principle of function

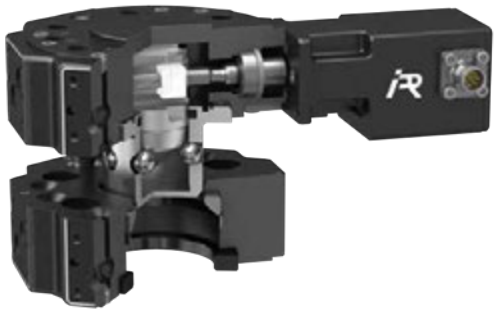
decoupled

TKP | PNEUMATIC

The proven functional principle of a pneumatic tool changer has been further optimized and improved in the new TKP. The piston is pressed upwards (towards the screw-on surface, unlocked) or downwards (towards the coupling surface, locked) by compressed air supply. An angled contour on the piston presses the balls outward against the locking bushing on the tool side. The pressure spring in the piston chamber also briefly prevents the tool side from releasing in the event of a drop in compressed air. The optional integrated sensors monitor the piston position as well as the presence of the mold side.

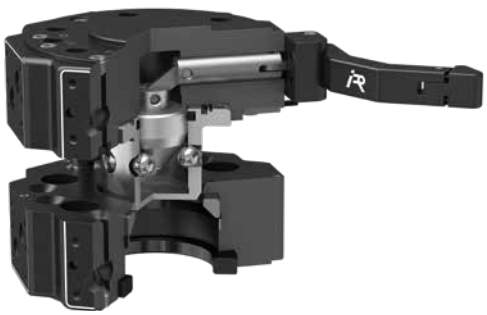
TKE | ELECTRIC

The electric motor, in conjunction with specially developed deflection kinematics, enables the same locking system to be used as in the pneumatic changer. The threaded spindle is rotated by the motor and moves a spindle nut, which sits in an oblique contour in the locking piston and moves it up or down. The balls are pushed outward and locked to the tool side. Standard integrated sensors for piston sensing enable process control and assist with motor control. Overloading of the motor is avoided and the service life of all components is increased.



TKM | MANUAL

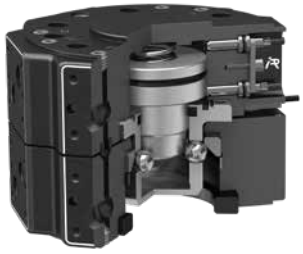
The uniform locking system of the TKX series allows the same mold side to be used without restrictions in the manually lockable variant. The thrust lever can be opened with little effort after releasing the lock, which causes a stroke movement of the piston by means of special toggle lever kinematics. Here, too, the presence of the tool side as well as the locking that has taken place can be sensed via optional sensors. Extra-long taper pins prevent excessive tilting of the tool side during the coupling process, thus avoiding damage to the locking bush.



coupled

locked

Figure shows TKP-080
with optional sensors



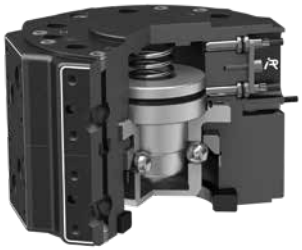


Figure shows TKE-080
with optional sensors

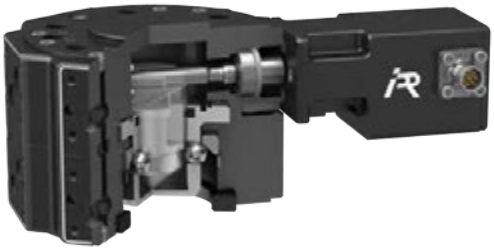


Figure shows TKM-080
with optional sensors

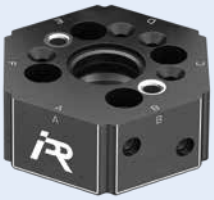
Basic modules

TKX-003

TKP-003

TKE-003

TKM-003



TKT-003

Technical data

TKP PNEUMATIC | TKE ELECTRIC | TKM MANUAL

	TKP-003	TKE-003	TKM-003	TKT-003
Item no.	150301100	150301251	150301264	150301101
Attachment	robot side	robot side	robot side	tool side
Type of actuation	pneumatic	electric	manual	-
Recommended payload	3 kg			
Max. tensile/compressive force	5,000 N			
Max. moment Mx, My	190 Nm			
Max. moment Mz	100 Nm			
Repeatability	0.02 mm			
Number of mounting surfaces	5	5	4	5
Number of pneumatic/ vacuum feedthroughs	4			
Connection type of pneumatic/vacuum bushings	M3			
Weight	0.14 kg	-	0.2 kg	0.1 kg
Locking/unlocking time	coming soon	-	application-dependent	-
Energy required for locking/unlocking	4 to 8 bar	-	application-dependent	-
Self-hold	Stainless steel pressure spring	-	Kinematics	-
Optional sensors	Status query (locked/ unlocked/ presence mold side by means of attachment module)			-
Connection flange	ISO 9409-1-31,5-4-M5			
Outer diameter (base body)	55 mm			
Height (base body)	22 mm			
Protection class	IP 54			
Max. axis deviation in X/Y direction	+/- 1.5 mm			
Max. offset while locking	0.8 mm			
Coupling way	17 mm			
Air consumption per cycle	0.022 l	-	-	-
Ambient temperature	+5 to +80 °C	+5 to +55 °C	+5 to +80 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-003	150301339	via add-on module
TKE-003	integrated*	via add-on module
TKM-003	-	via add-on module

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type		Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X	10 GBIT	150301210	150301209	See page 41
ME-4-4M12D	100 MBIT	150301146	150301145	See page 41
ME-3-3M8A		150301128	150301127	See page 41
ME-4-4M8A		150301124	150301126	See page 41
ME-4-4M12A		150301129	150301125	See page 42
ME-5-5M12A		150301123	150301122	See page 42

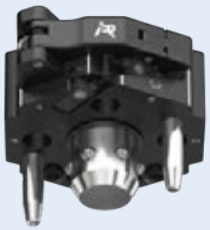
More information and 3D data available on request

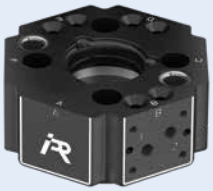
Basic modules

TKX-010

TKP-010

TKM-010





TKT-010

Technical data

TKP PNEUMATIC TKM MANUAL

	TKP-010	TKM-010	TKT-010
Item no.	150301248	150301382	150301247
Attachment	robot side	robot side	tool side
Type of actuation	pneumatic	manual	-
Recommended payload		10 kg	
Max. tensile/compressive force		6,000 N	
Max. moment Mx, My		225 Nm	
Max. moment Mz		390 Nm	
Repeatability		0.02 mm	
Number of mounting surfaces	5	4	5
Number of pneumatic/ vacuum feedthroughs	6	4	6
Connection type of pneumatic/vacuum bushings		M5	
Weight	0.4 kg	0.46 kg	0.22 kg
Locking/unlocking time	0,4 s	application-dependent	-
Energy required for locking/unlocking	4 bis 8 bar	application-dependent	-
Self-hold	Stainless steel pressure spring	Kinematics	-
Optional sensors	Status query (locked/ unlocked/ presence mold side by means of attachment module)		-
Connection flange		ISO 9409-1-50-4-M6	
Outer diameter (base body)		72 mm	
Height (base body)		31 mm	
Protection class		IP 54	
Max. axis deviation in X/Y direction		+/- 1.5 mm	
Max. offset while locking		0.8 mm	
Coupling way		25.5 mm	
Air consumption per cycle	0.087 l	-	-
Ambient temperature	+5 to +80 °C	+5 to +80 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-010	150301339	via add-on module
TKM-010	150301267	via add-on module

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type		Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X	10 GBIT	150301210	150301209	See page 41
ME-4-4M12D	100 MBIT	150301146	150301145	See page 41
ME-3-3M8A		150301128	150301127	See page 41
ME-4-4M8A		150301124	150301126	See page 41
ME-4-4M12A		150301129	150301125	See page 42
ME-5-5M12A		150301123	150301122	See page 42
ME-8-8M12A		150301344	150301345	See page 42
ME-12-12M12A		150301346	150301347	See page 42

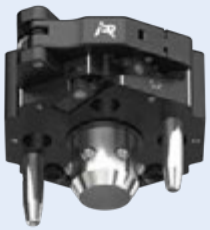
More information and 3D data available on request

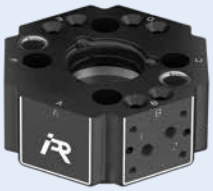
Basic modules

TKX-016

TKP-016

TKM-016





TKT-016

Technical data

TKP PNEUMATIC TKM MANUAL

	TKP-016	TKM-016	TKT-016
Item no.	150301249	150301379	150301245
Attachment	robot side	robot side	tool side
Type of actuation	pneumatic	manual	-
Recommended payload		16 kg	
Max. tensile/compressive force		6,000 N	
Max. moment Mx, My		260 Nm	
Max. moment Mz		770 Nm	
Repeatability		0.02 mm	
Number of mounting surfaces	5	4	5
Number of pneumatic/ vacuum feedthroughs	6	4	6
Connection type of pneumatic/vacuum bushings		M5	
Weight	0.48 kg	0.55 kg	0.31 kg
Locking/unlocking time	0.4 s	application-dependent	-
Energy required for locking/unlocking	4 to 8 bar	application-dependent	-
Self-hold	Stainless steel pressure spring	Kinematics	-
Optional sensors	Status query (locked/ unlocked/ presence mold side by means of attachment module)		-
Connection flange		ISO 9409-1-50-4-M6	
Outer diameter (base body)		80 mm	
Height (base body)		31 mm	
Protection class		IP 54	
Max. axis deviation in X/Y direction		+/- 1.6 mm	
Max. offset while locking		0.8 mm	
Coupling way		25.5 mm	
Air consumption per cycle	0.087 l	-	-
Ambient temperature	+5 to +80 °C	+5 to +80 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-016	150301339	150301235
TKM-016	150301267	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type		Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X	10 GBIT	150301210	150301209	See page 41
ME-4-4M12D	100 MBIT	150301146	150301145	See page 41
ME-3-3M8A		150301128	150301127	See page 41
ME-4-4M8A		150301124	150301126	See page 41
ME-4-4M12A		150301129	150301125	See page 42
ME-5-5M12A		150301123	150301122	See page 42
ME-8-8M12A		150301344	150301345	See page 42
ME-12-12M12A		150301346	150301347	See page 42

More information and 3D data available on request

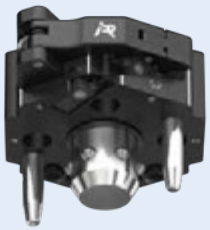
Basic modules

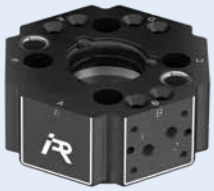
TKX-030

TKP-030

TKE-030

TKM-030





TKT-030

Technical data

TKP PNEUMATIC | TKE ELECTRIC | TKM MANUAL

	TKP-030	TKE-030	TKM-030	TKT-030
Item no.	150301250	150301476	150301378	150301246
Attachment	robot side	robot side	robot side	tool side
Type of actuation	pneumatic	electric	manual	-
Recommended payload	30 kg			
Max. tensile/compressive force	6.000 N			
Max. moment Mx, My	300 Nm			
Max. moment Mz	815 Nm			
Repeatability	0.02 mm			
Number of mounting surfaces	5	5	4	5
Number of pneumatic/ vacuum feedthroughs	6	6	4	6
Connection type of pneumatic/vacuum bushings	M5			
Weight	0.58 kg	-	0.66 kg	0.41 kg
Locking/unlocking time	0.4 s	-	application-dependent	-
Energy required for locking/unlocking	4 to 8 bar	-	application-dependent	-
Self-hold	Stainless steel pressure spring	-	Kinematics	-
Optional sensors	Status query (locked/ unlocked/ presence mold side by means of attachment module)			-
Connection flange	ISO 9409-1-50-4-M6			
Outer diameter (base body)	90 mm			
Height (base body)	31 mm			
Protection class	IP 54			
Max. axis deviation in X/Y direction	+/- 1.6 mm			
Max. offset while locking	0.8 mm			
Coupling way	25.5 mm			
Air consumption per cycle	0.087 l	-	-	-
Ambient temperature	+5 to +80 °C	+5 to +55 °C	+5 to +80 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-030	150301339	150301235
TKE-030	integrated*	via add-on module
TKM-030	150301267	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type		Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X	10 GBIT	150301210	150301209	See page 41
ME-4-4M12D	100 MBIT	150301146	150301145	See page 41
ME-3-3M8A		150301128	150301127	See page 41
ME-4-4M8A		150301124	150301126	See page 41
ME-4-4M12A		150301129	150301125	See page 42
ME-5-5M12A		150301123	150301122	See page 42
ME-8-8M12A		150301344	150301345	See page 42
ME-12-12M12A		150301346	150301347	See page 42

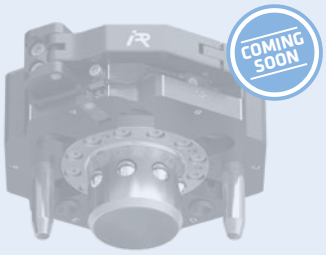
More information and 3D data available on request

Basic modules

TKX-050

TKP-050

TKM-050



TKT-050

Technical data

TKP PNEUMATIC TKM MANUAL

	TKP-050	TKM-050	TKT-050
Item no.	150301218	150301285	150301221
Attachment	robot side	robot side	tool side
Type of actuation	pneumatic	manual	-
Recommended payload		50 kg	
Max. tensile/compressive force		40,000 N	
Max. moment Mx, My		1,000 Nm	
Max. moment Mz		1,400 Nm	
Repeatability		0.02 mm	
Number of mounting surfaces	5	4	5
Number of pneumatic/ vacuum feedthroughs	6	4	6
Connection type of pneumatic/vacuum bushings		G1/8"	
Weight	0,95 kg	-	0,58 kg
Locking/unlocking time	0.5 s	-	-
Energy required for locking/unlocking	4 to 8 bar	-	-
Self-hold	Stainless steel pressure spring	-	-
Optional sensors	Status query (locked/unlocked/presence tool side)		-
Connection flange		ISO 9409-1-63-4-M6	
Outer diameter (base body)		99 mm	
Height (base body)		38 mm	
Protection class		IP 54	
Max. axis deviation in X/Y direction		+/- 1.7 mm	
Max. offset while locking		0.8 mm	
Coupling way		35 mm	
Air consumption per cycle	0.111 l	-	-
Ambient temperature	+5 to +80 °C	+5 to +80 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-050	150301234	150301235
TKM-050	150301267	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X 10 GBIT	150301210	150301209	See page 41
ME-4-4M12D 100 MBIT	150301146	150301145	See page 41
ME-3-3M8A	150301128	150301127	See page 41
ME-4-4M8A	150301124	150301126	See page 41
ME-4-4M12A	150301129	150301125	See page 42
ME-5-5M12A	150301123	150301122	See page 42
ME-5-5M12L	150301197	150301199	See page 43
ME-12-MIL12	150301133	150301134	See page 43
ME-19-MIL19	150301136	150301135	See page 43
ME-15-DA15	150301143	150301144	See page 44
ME-26-DA26-R	150301148	150301149	See page 44

Pneumatic/vacuum transmission

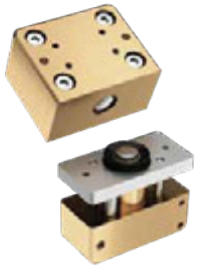
MP-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MP-4-M5NW4	150301162	150301160	See page 45
MP-2-G1/8NW6	150301163	150301161	See page 45
MP-1-G1/4NW11	150301164	150301158	See page 45
MP-1-G3/8NW11	150301157	150301159	See page 45

Grounding contact

MG-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MG-1-1M4	150301152	150301151	See page 44



Further modules of the TKX ecosystem starting on page 40

ⓘ More information and 3D data available on request

Basic modules

TKX-080

TKP-080

TKE-080

TKM-080

TKT-080

Technical data

TKP PNEUMATIC TKE ELECTRIC TKM MANUAL

	TKP-080	TKE-080	TKM-080	TKT-080
Item no.	150301055	150301117	150301177	150301056
Attachment	robot side	robot side	robot side	tool side
Type of actuation	pneumatic	electric	manual	-
Recommended payload	80 kg			
Max. tensile/compressive force	53,000 N			
Max. moment Mx, My	2,000 Nm			
Max. moment Mz	1,700 Nm			
Repeatability	0.02 mm			
Number of mounting surfaces	5	5	4	5
Number of pneumatic/ vacuum feedthroughs	6	6	4	6
Connection type of pneumatic/vacuum bushings	G1/8"			
Weight	1.25 kg	1.73 kg	1.43 kg	0.81 kg
Locking/unlocking time	0.5 s	2.0 s	application-dependent	-
Energy required for locking/unlocking	4 to 8 bar	24 V / 2 A	application-dependent	-
Self-hold	Stainless steel pressure spring	Self-locking	Kinematics	-
Optional sensors	Status query (locked/unlocked/presence tool side)			-
Connection flange	ISO 9409-1-80-6-M8			
Outer diameter (base body)	120 mm			
Height (base body)	38 mm			
Protection class	IP 54			
Max. axis deviation in X/Y direction	+/- 1.75 mm			
Max. offset while locking	1.0 mm			
Coupling way	35 mm			
Air consumption per cycle	0.179 l	-	-	-
Ambient temperature	+5 to +80 °C	+5 to +50 °C	+5 to +80 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-080	150301261	150301235
TKE-080	integrated*	150301479
TKM-080	150301267	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X 10 GBIT	150301210	150301209	See page 41
ME-4-4M12D 100 MBIT	150301146	150301145	See page 41
ME-3-3M8A	150301128	150301127	See page 41
ME-4-4M8A	150301124	150301126	See page 41
ME-4-4M12A	150301129	150301125	See page 42
ME-5-5M12A	150301123	150301122	See page 42
ME-5-5M12L	150301197	150301199	See page 43
ME-12-MIL12	150301133	150301134	See page 43
ME-19-MIL19	150301136	150301135	See page 43
ME-15-DA15	150301143	150301144	See page 44
ME-26-DA26	150301148	150301149	See page 44

Pneumatic/vacuum transmission

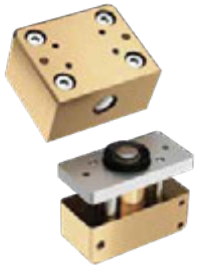
MP-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MP-4-M5NW4	150301162	150301160	See page 45
MP-2-G1/8NW6	150301163	150301161	See page 45
MP-1-G1/4NW11	150301164	150301158	See page 45
MP-1-G3/8NW11	150301157	150301159	See page 45

Grounding contact

MG-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MG-1-1M4	150301152	150301151	See page 44



Further modules of the TKX ecosystem starting on page 40

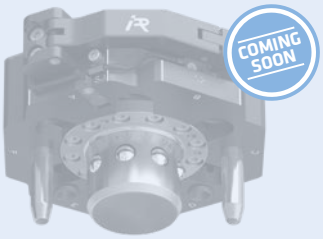
ⓘ More information and 3D data available on request

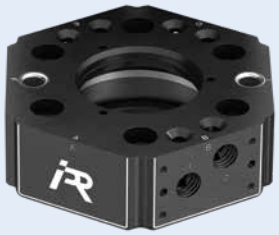
Basic modules

TKX-100

TKP-100

TKM-100





TKT-100

Technical data

TKP PNEUMATIC TKM MANUAL

	TKP-100	TKM-100	TKT-100
Item no.	150301098	150301354	150301095
Attachment	robot side	robot side	tool side
Type of actuation	pneumatic	manual	-
Recommended payload		100 kg	
Max. tensile/compressive force		66,000 N	
Max. moment Mx, My		3,990 Nm	
Max. moment Mz		2,170 Nm	
Repeatability		0.03 mm	
Number of mounting surfaces	5	4	5
Number of pneumatic/ vacuum feedthroughs	6	4	6
Connection type of pneumatic/vacuum bushings		G1/4"	
Weight	1.92 kg	2.25 kg	1.11 kg
Locking/unlocking time	0.5 s	-	-
Energy required for locking/unlocking	4 to 8 bar	-	-
Self-hold	Stainless steel pressure spring	-	-
Optional sensors	Status query (locked/unlocked/presence tool side)		-
Connection flange		ISO 9409-1-100-6-M8	
Outer diameter (base body)		140 mm	
Height (base body)		42 mm	
Protection class		IP 54	
Max. axis deviation in X/Y direction		+/- 1.8 mm	
Max. offset while locking		1.0 mm	
Coupling way		35 mm	
Air consumption per cycle	0.295 l	-	-
Ambient temperature	+5 to +80 °C	+5 to +50 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-100	150301279	150301235
TKM-100	150301267	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X 10 GBIT	150301210	150301209	See page 41
ME-4-4M12D 100 MBIT	150301146	150301145	See page 41
ME-3-3M8A	150301128	150301127	See page 41
ME-4-4M8A	150301124	150301126	See page 41
ME-4-4M12A	150301129	150301125	See page 42
ME-5-5M12A	150301123	150301122	See page 42
ME-5-5M12L	150301197	150301199	See page 43
ME-12-MIL12	150301133	150301134	See page 43
ME-19-MIL19	150301136	150301135	See page 43
ME-15-DA15	150301143	150301144	See page 44
ME-26-DA26	150301148	150301149	See page 44

Pneumatic/vacuum transmission

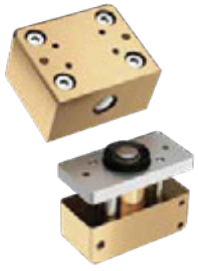
MP-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MP-4-M5NW4	150301162	150301160	See page 45
MP-2-G1/8NW6	150301163	150301161	See page 45
MP-1-G1/4NW11	150301164	150301158	See page 45
MP-1-G3/8NW11	150301157	150301159	See page 45

Grounding contact

MG-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MG-1-1M4	150301152	150301151	See page 44



Further modules of the TKX ecosystem starting on page 40

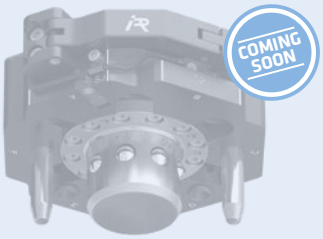
ⓘ More information and 3D data available on request

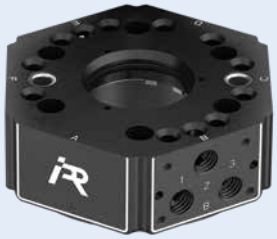
Basic modules

TKX-150

TKP-150

TKM-150





TKT-150

Technical data

TKP PNEUMATIC TKM MANUAL

	TKP-150	TKM-150	TKT-150
Item no.	150301253	150301349	150301266
Attachment	robot side	robot side	tool side
Type of actuation	pneumatic	manual	-
Recommended payload		150 kg	
Max. tensile/compressive force		80,000 N	
Max. moment Mx, My		4,200 Nm	
Max. moment Mz		2,730 Nm	
Repeatability		0.03 mm	
Number of mounting surfaces	5	4	5
Number of pneumatic/ vacuum feedthroughs	12	9	12
Connection type of pneumatic/vacuum bushings		G3/8"	
Weight	4.67 kg	4.87 kg	2.86 kg
Locking/unlocking time	0,6 s	-	-
Energy required for locking/unlocking	4 to 8 bar	-	-
Self-hold	Stainless steel pressure spring	-	-
Optional sensors	Status query (locked/unlocked/presence tool side)		-
Connection flange		ISO 9409-1-125-6-M10	
Outer diameter (base body)		183 mm	
Height (base body)		59.5 mm	
Protection class		IP 54	
Max. axis deviation in X/Y direction		+/- 1.9 mm	
Max. offset while locking		1.0 mm	
Coupling way		55 mm	
Air consumption per cycle	0.829 l	-	-
Ambient temperature	+5 to +80 °C	+5 to +50 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-150	150301261	150301235
TKM-150	150301267	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X 10 GBIT	150301210	150301209	See page 41
ME-4-4M12D 100 MBIT	150301146	150301145	See page 41
ME-3-3M8A	150301128	150301127	See page 41
ME-4-4M8A	150301124	150301126	See page 41
ME-4-4M12A	150301129	150301125	See page 42
ME-5-5M12A	150301123	150301122	See page 42
ME-5-5M12L	150301197	150301199	See page 43
ME-12-MIL12	150301133	150301134	See page 43
ME-19-MIL19	150301136	150301135	See page 43
ME-15-DA15	150301143	150301144	See page 44
ME-26-DA26	150301148	150301149	See page 44

Pneumatic/vacuum transmission

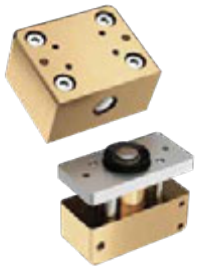
MP-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MP-4-M5NW4	150301162	150301160	See page 45
MP-2-G1/8NW6	150301163	150301161	See page 45
MP-1-G1/4NW11	150301164	150301158	See page 45
MP-1-G3/8NW11	150301157	150301159	See page 45

Grounding contact

MG-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MG-1-1M4	150301152	150301151	See page 44



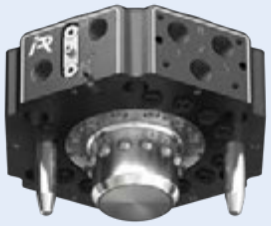
Further modules of the TKX ecosystem starting on page 40

More information and 3D data available on request

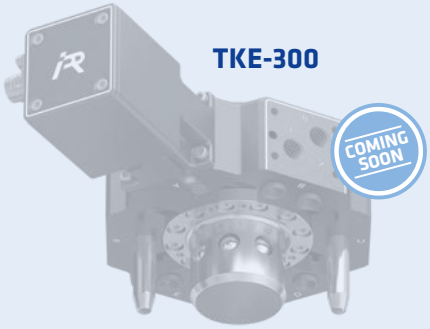
Basic modules

TKX-300

TKP-300



TKE-300



TKT-300

Technical data

TKP PNEUMATIC TKE ELECTRIC

	TKP-300	TKE-300	TKT-300
Item no.	150301053	150301252	150301054
Attachment	robot side	robot side	tool side
Type of actuation	pneumatic	electric	-
Recommended payload		300 kg	
Max. tensile/compressive force		93,000 N	
Max. moment Mx, My		4,500 Nm	
Max. moment Mz		6,300 Nm	
Repeatability		0.03 mm	
Number of mounting surfaces	5	5	5
Number of pneumatic/ vacuum feedthroughs	13	12	13
Connection type of pneumatic/vacuum bushings		G3/8"	
Weight	5,40 kg	-	3,51 kg
Locking/unlocking time	0.6 s	-	-
Energy required for locking/unlocking	4 to 8 bar	-	-
Self-hold	Stainless steel pressure spring	-	-
Optional sensors	Status query (locked/unlocked/presence tool side)		-
Connection flange	ISO 9409-1-160-6-M10		
Outer diameter (base body)	198 mm		
Height (base body)	59.5 mm		
Protection class	IP 54		
Max. axis deviation in X/Y direction	+/- 1.9 mm		
Max. offset while locking	1.0 mm		
Coupling way	55 mm		
Air consumption per cycle	0.829 l	-	-
Ambient temperature	+5 to +80 °C	+5 to +55 °C	+5 to +80 °C

Sensors

Interrogation of locking and mold side

Sensor kits by version and type of query

Suitable for	Interrogation of the interlock Item no.	Query tool side Item no.
TKP-300	150301276	150301235
TKE-300	150301271	150301235

*The TKE electric tool changer contains sensors for interlock sensing as standard, as these are required to control the motor.

Transmission modules

Transmission of signals/power/field buses

ME-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
ME-8-8M12X 10 GBIT	150301210	150301209	See page 41
ME-4-4M12D 100 MBIT	150301146	150301145	See page 41
ME-3-3M8A	150301128	150301127	See page 41
ME-4-4M8A	150301124	150301126	See page 41
ME-4-4M12A	150301129	150301125	See page 42
ME-5-5M12A	150301123	150301122	See page 42
ME-5-5M12L	150301197	150301199	See page 43
ME-12-MIL12	150301133	150301134	See page 43
ME-19-MIL19	150301136	150301135	See page 43
ME-15-DA15	150301143	150301144	See page 44
ME-26-DA26	150301148	150301149	See page 44

Pneumatic/vacuum transmission

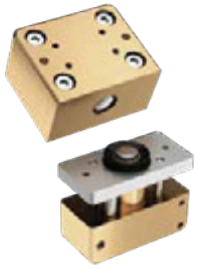
MP-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MP-4-M5NW4	150301162	150301160	See page 45
MP-2-G1/8NW6	150301163	150301161	See page 45
MP-1-G1/4NW11	150301164	150301158	See page 45
MP-1-G3/8NW11	150301157	150301159	See page 45

Grounding contact

MG-Series

Type	Item no. Robot side	Item no. Tool side	Technical data
MG-1-1M4	150301152	150301151	See page 44



Further modules of the TKX ecosystem starting on page 40

More information and 3D data available on request

TKX Ecosystem

Configurable for your application

All from a single source

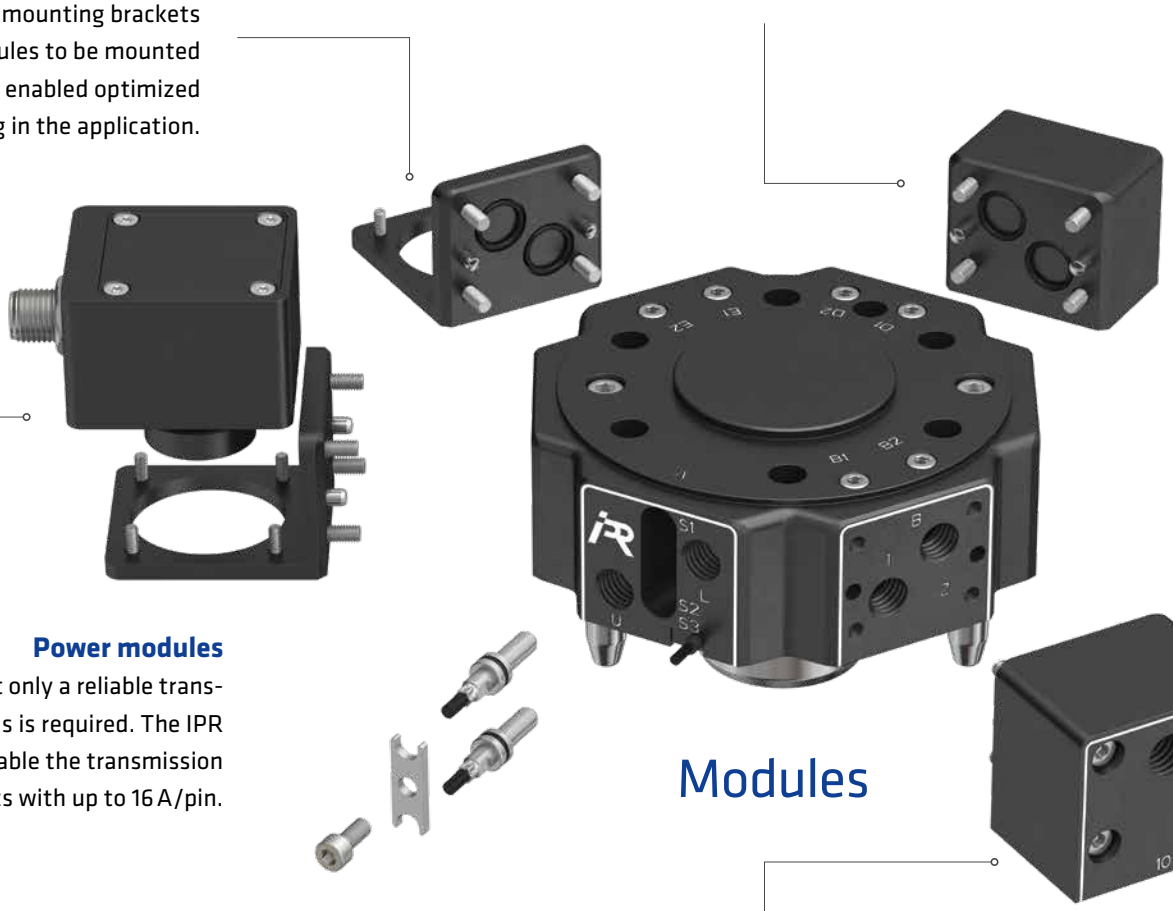
The TKX family offers an extensive module catalog. In addition to additional air, vacuum, signal, industrial Ethernet, fluidics modules, the mounting surfaces can be used for the II tray (stud tray). The variety of combinations here is almost infinite and is continuously being expanded.

Pneumatic modules

If additional air feedthroughs are required for the application or if the air transfers included in the TKX tool changer cannot be used, the pneumatic modules make it possible to transfer compressed air and vacuum.

Module angle

Specially developed mounting brackets allow the TKX modules to be mounted rotated by ±90°. This enabled optimized cable routing in the application.



Power modules

In electronics, not only a reliable transmission of signals is required. The IPR power modules enable the transmission of currents with up to 16 A/pin.

Fluidics modules

Various liquid media can be transferred via the TKX fluidic modules. In three sizes, they allow a flow rate of up to 25 l/min.

Advantages

- **22 modules** for unlimited combinations
- Different connections and designs – **suitable for every application**
- Constantly growing modular system

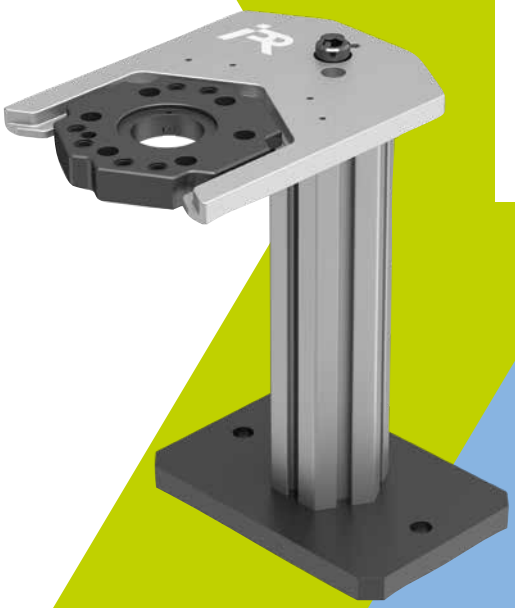
Trays

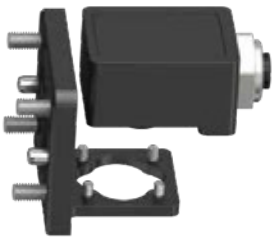
II-Tray Pin Tool Rack

One mounting surface is all that is needed to use the space-saving II-Tray depositing system. It supports horizontal or vertical depositing as well as torque support as needed.

U-Tray Tool Rack

If all attachment areas are required for modules, the U-Tray storage system offers the solution. By means of an add-on adapter, the tray is placed on an additional level with minimal structure. It can be used horizontally and vertically.





Signal modules

A variety of electrical transmission modules enables the process-safe transmission of signals up to 10 GBit/s. In addition, the TKX mounting brackets allow these modules to be installed in up to 3 orientations.

Standard is not enough for us

- II-Tray, the **simple and fast solution** for filing requirements
- U-Tray, our **extended storage solution**
- Vertical and horizontal storage possible
- **Sensors optionally** expandable

Transmission modules

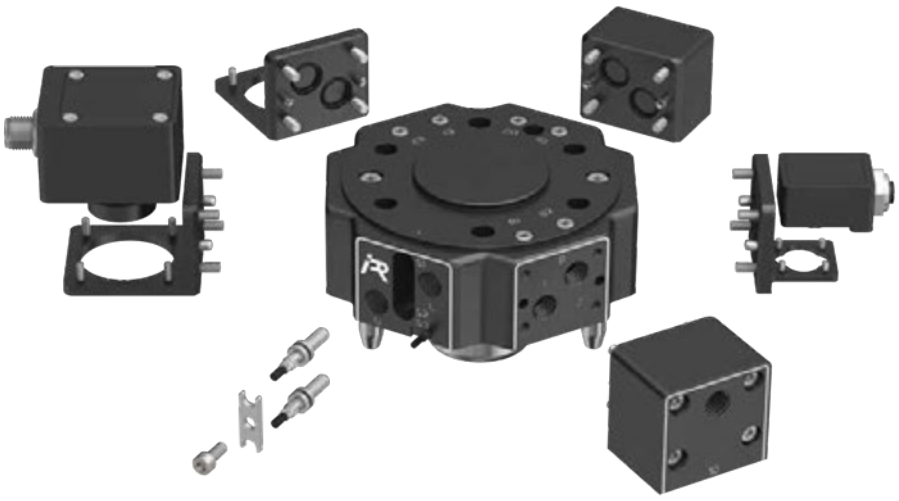
Implementation of any type of media

Overview

The new transmission modules for IPR's TKX series allow electrical signals, field buses as well as pneumatics and fluids of any kind to be transmitted. The standardized screw-on pattern allows the direct attachment to one of the various module surfaces of the tool changer. The highlight of the new accessory portfolio are the **Ethernet modules for up to 100 Mbit and 10 Gbit transmission rate** – the solution for Industrial Ethernet and Industry 4.0!

Compatibility

The transmission modules have been specially developed for the TKX series, ensuring compatibility across all sizes and versions. Our experts will be happy to provide support in the event of queries regarding optimum configuration and design.



Module assembly made easy:

ⓘ Module and adapter kit are always required for use.

Advantages

- Coordinated product design. **Modules** for TKP, TKE, and TKM are **identical**
- Reliable coupling of all suitable media
- **Easy retrofitting** of new modules **or replacement** when requirements change

Pneumatic / Fluid Modules at a glance

Technical data	from	to
Number of feedthroughs	1	4
Max. pressure	8 bar	120 bar
Connection thread	M5	G3/8“
Weight	0,10 kg	0,12 kg
Material	Aluminium	
Customs tariff number	84799070	

Electrical modules at a glance

Technical data	from	to
Number of contact pins	3	26
Max. voltage per pin	5 V	400 V
Max. current per pin	0,5 A	16 A
Weight	0,03 kg	0,1 kg
Material	POM / Aluminium	
Customs tariff number	85369095	

Transmission of signals/power/field buses

ME-8-8M12X

Data

ME-8-8M12X-R

10 GBIT

90°

ME-8-8M12X-T

Type	ME-8-8M12X-R	ME-8-8M12X-T
Item no.	150301210	150301209
Attachment	robot side	tool side
Number of contact pins	8	
Max. voltage per pin	5 V	
Max. current per pin	0.5 A	
Connection type	M12 (female), 8-pin, X-coded	M12 (female), 8-pin, X-coded
Weight	0.031 kg	0.031 kg
Contact pin type	fixed	spring-loaded

ME-4-4M12D

Data

ME-4-4M12D-R

100 MBIT

90°

ME-4-4M12D-T

Type	ME-4-4M12D-R	ME-4-4M12D-T
Item no.	150301146	150301145
Attachment	robot side	tool side
Number of contact pins	4	
Max. voltage per pin	5 V	
Max. current per pin	0.5 A	
Connection type	M12 (female), 4-pin, D-coded	M12 (female), 4-pin, D-coded
Weight	0.031 kg	0.031 kg
Contact pin type	fixed	spring-loaded

ME-3-3M8A

Signals

ME-3-3M8A-R

90°

ME-3-3M8A-T

Type	ME-3-3M8A-R	ME-3-3M8A-T
Item no.	150301128	150301127
Attachment	robot side	tool side
Number of contact pins	3	
Max. voltage per pin	60 V	
Max. current per pin	3 A	
Connection type	M8 (male), 3-pin, A-coded	M8 (female), 3-pin, A-coded
Weight	0.030 kg	0.028 kg
Contact pin type	fixed	spring-loaded

ME-4-4M8A

Signals

ME-4-4M8A-R

90°

ME-4-4M8A-T

Type	ME-4-4M8A-R	ME-4-4M8A-T
Item no.	150301124	150301126
Attachment	robot side	tool side
Number of contact pins	4	
Max. voltage per pin	60 V	
Max. current per pin	3 A	
Connection type	M8 (male), 4-pin, A-coded	M8 (female), 4-pin, A-coded
Weight	0.030 kg	0.028 kg
Contact pin type	spring-loaded	fixed

ME-4-4M12A

Signals

ME-4-4M12A-R

ME-4-4M12A-T

Type	ME-4-4M12A-R	ME-4-4M12A-T
Item no.	150301129	150301125
Attachment	robot side	tool side
Number of contact pins	4	
Max. voltage per pin	60 V	
Max. current per pin	3 A	
Connection type	M12 (male), 4-pin, A-coded	M12 (female), 4-pin, A-coded
Weight	0.032 kg	0.031 kg
Contact pin type	spring-loaded	fixed

ME-5-5M12A

Signals

ME-5-5M12A-R

ME-5-5M12A-T

Type	ME-5-5M12A-R	ME-5-5M12A-T
Item no.	150301123	150301122
Attachment	robot side	tool side
Number of contact pins	5	
Max. voltage per pin	60 V	
Max. current per pin	3 A	
Connection type	M12 (male), 5-pin, A-coded	M12 (female), 5-pin, A-coded
Weight	0.033 kg	0.031 kg
Contact pin type	spring-loaded	fixed

ME-8-8M12A

Signals

ME-8-8M12A-R

ME-8-8M12A-T

Type	ME-8-8M12A-R	ME-8-8M12A-T
Item no.	150301344	150301345
Attachment	robot side	tool side
Number of contact pins	8	
Max. voltage per pin	30 V	
Max. current per pin	2 A	
Connection type	M12 (male), 8-pin, A-coded	M12 (female), 8-pin, A-coded
Weight	0.039 kg	0.042 kg
Contact pin type	spring-loaded	fixed

ME-12-12M12A

Signals

ME-12-12M12A-R

ME-12-12M12A-T

Type	ME-12-12M12A-R	ME-12-12M12A-T
Item no.	150301346	150301347
Attachment	robot side	tool side
Number of contact pins	12	
Max. voltage per pin	30 V	
Max. current per pin	1,5 A	
Connection type	M12 (male), 12-pin, A-coded	M12 (female), 12-pin, A-coded
Weight	0.040 kg	0.042 kg
Contact pin type	spring-loaded	fixed

ME-5-5M12L

Power

ME-5-5M12L-R

ME-5-5M12L-T

Type	ME-5-5M12L-R	ME-5-5M12L-T
Item no.	150301197	150301199
Attachment	robot side	tool side
Number of contact pins	5	
Max. voltage per pin	63 V	
Max. current per pin	16 A	
Connection type	M12 (male), 5-pin, L-coded	M12 (female), 5-pin, L-coded
Weight	0.104 kg	0.100 kg
Contact pin type	fixed	spring-loaded

ME-12-MIL12

Signals/Power

ME-12-MIL12-R

ME-12-MIL12-T

Type	ME-12-MIL12-R	ME-12-MIL12-T
Item no.	150301133	150301134
Attachment	robot side	tool side
Number of contact pins	12	
Max. voltage per pin	320 V	
Max. current per pin	5 A	
Connection type	MIL (male), 12-pin	MIL (female), 12-pin
Weight	0.116 kg	0.103 kg
Contact pin type	fixed	spring-loaded

ME-19-MIL19

Signals/Power

ME-19-MIL19-R

ME-19-MIL19-T

Type	ME-19-MIL19-R	ME-19-MIL19-T
Item no.	150301136	150301135
Attachment	robot side	tool side
Number of contact pins	19	
Max. voltage per pin	250 V	
Max. current per pin	5 A	
Connection type	MIL (male), 19-pin	MIL (female), 19-pin
Weight	0.112 kg	0.135 kg
Contact pin type	fixed	spring-loaded

ME-8-MIL8

Power

ME-8-MIL8-R

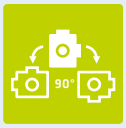
ME-8-MIL8-T

Type	ME-8-MIL8-R	ME-8-MIL8-T
Item no.	150301300	150301301
Attachment	robot side	tool side
Number of contact pins	8	
Max. voltage per pin	400 V	
Max. current per pin	13 A	
Connection type	MIL (male), 8-pin	MIL (female), 8-pin
Weight	0.103 kg	0.103 kg
Contact pin type	fixed	spring-loaded

ME-24-MIL24

Signals/Power

ME-24-MIL24-R



ME-24-MIL24-T

Type	ME-24-MIL24-R	ME-24-MIL24-T
Item no.	150301302	150301303
Attachment	robot side	tool side
Number of contact pins	24	
Max. voltage per pin	250 V	
Max. current per pin	5 A	
Connection type	MIL (male), 24-pin	MIL (female), 24-pin
Weight	0.103 kg	0.103 kg
Contact pin type	fixed	spring-loaded

ME-15-DA15

Signals

ME-15-DA15-R

ME-15-DA15-T

Type	ME-15-DA15-R	ME-15-DA15-T
Item no.	150301143	150301144
Attachment	robot side	tool side
Number of contact pins	15	
Max. voltage per pin	60 V	
Max. current per pin	3 A	
Connection type	D-SUB DA (male), 15-pin	D-SUB DA (female), 15-pin
Weight	0.032 kg	0.032 kg
Contact pin type	spring-loaded	fixed

ME-26-DA26

Signals

ME-26-DA26-R

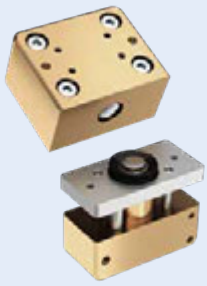
ME-26-DA26-T

Type	ME-26-DA26-R	ME-26-DA26-T
Item no.	150301148	150301149
Attachment	robot side	tool side
Number of contact pins	26	
Max. voltage per pin	60 V	
Max. current per pin	3 A	
Connection type	D-SUB DA (male), 26-pin	D-SUB DA (female), 26-pin
Weight	0.032 kg	0.032 kg
Contact pin type	spring-loaded	fixed

MG-1-1M4

Ground

MG-1-1M4-R



MG-1-1M4-T

Type	MG-1-1M4-R	MG-1-1M4-T
Item no.	150301152	150301151
Attachment	robot side	tool side
Number of contact pins	1	
Max. voltage per pin	-	
Max. current per pin	35 A	
Connection type	Cable lug M4	Cable lug M4
Weight	0.173 kg	0.307 kg
Contact pin type	spring-loaded	fixed

Pneumatic/vacuum transmission

MP-4-M5NW4

Pneumatic module

MP-4-M5NW4-R

MP-4-M5NW4-T

Type	MP-4-M5NW4-R	MP-4-M5NW4-T
Item no.	150301162	150301160
Attachment	robot side	tool side
Number of feed-throughs	4	
Connection thread	M5	
Max. pressure	8 bar	
Weight	0.114 kg	0.114 kg

MP-2-G1/8NW6

Pneumatic module

MP-2-G1/8NW6-R

MP-2-G1/8NW6-T

Type	MP-2-G1/8NW6-R	MP-2-G1/8NW6-T
Item no.	150301163	150301161
Attachment	robot side	tool side
Number of feed-throughs	2	
Connection thread	G1/8"	
Max. pressure	8 bar	
Weight	0.111 kg	0.111 kg

MP-1-G1/4NW11

Pneumatic module

MP-1-G1/4NW11-R

MP-1-G1/4NW11-T

Type	MP-1-G1/4NW1-R	MP-1-G1/4NW11-T
Item no.	150301164	150301158
Attachment	robot side	tool side
Number of feed-throughs	1	
Connection thread	G1/4"	
Max. pressure	8 bar	
Weight	0.109 kg	0.110 kg

MP-1-G3/8NW11

Pneumatic module

MP-1-G3/8NW11-R

MP-1-G3/8NW11-T

Type	MP-1-G3/8NW11-R	MP-1-G3/8NW11-T
Item no.	150301157	150301159
Attachment	robot side	tool side
Number of feed-throughs	1	
Connection thread	G3/8"	
Max. pressure	8 bar	
Weight	0.107 kg	0.107 kg

Transmission of fluids

MP-1-G1/2NW12

Pneumatic module

MP-1-G1/2NW12-R

MP-1-G1/2NW12-T

Type	MP-1-G1/2NW12-R	MP-1-G1/2NW12-T
Item no.	150301333	150301334
Attachment	robot side	tool side
Number of feed-throughs	1	
Connection thread	G1/2"	
Max. pressure	8 bar	
Weight	0.113 kg	0.115 kg

MF-1-G1/8NW3

Fluid module

MF-1-G1/8NW3-R

MF-1-G1/8NW3-T

Type	MF-1-G1/8NW3-R	MF-1-G1/8NW3-T
Item no.	150301305	150301306
Attachment	robot side	tool side
Number of feed-throughs	1	
Connection thread	G1/8"	
Max. flow rate	8 l/min	
Max. pressure	120 bar	
Reduction of the payload at 0 bar, per coupling point	9,5 kg	
Additional reduction of the payload under pressure, per coupling point	1,0 kg/bar	
Coupling mode	pressure-free	
Weight	0.2 kg	0.16 kg

MF-1-G1/4NW5

Fluid module

MF-1-G1/4NW5-R

MF-1-G1/4NW5-T

Type	MF-1-G1/4NW5-R	MF-1-G1/4NW5-T
Item no.	150301307	150301308
Attachment	robot side	tool side
Number of feed-throughs	1	
Connection thread	G1/4"	
Max. flow rate	12 l/min	
Max. pressure	80 bar	
Reduction of the payload at 0 bar, per coupling point	10 kg	
Additional reduction of the payload under pressure, per coupling point	1,5 kg/bar	
Coupling mode	pressure-free	
Weight	0.31 kg	0.28 kg

MF-1-G3/8NW8

Fluid module

MF-1-G3/8NW8-R

MF-1-G3/8NW8-T

Type	MF-1-G3/8NW8-R	MF-1-G3/8NW8-T
Item no.	150301309	150301310
Attachment	robot side	tool side
Number of feed-throughs	1	
Connection thread	G3/8"	
Max. flow rate	25 l/min	
Max. pressure	40 bar	
Reduction of the payload at 0 bar, per coupling point	10 kg	
Additional reduction of the payload under pressure, per coupling point	3,2 kg/bar	
Coupling mode	pressure-free	
Weight	0.86 kg	0.72 kg

TKX Ecosystem Overview

The right answer to application requirements

The foundation of the TKX ecosystem is the versatile mounting surfaces of the TKX tool changer. Perfect module combinations for the application can be individually selected and mounted from a wide range of transfer modules. Other modules such as the II-Tray storage system can be easily connected to the TKX via a mounting surface. The TKX ecosystem offers the flexibility to equip applications in the best possible way.

Electric and Grounding modules		Adapter kit				
Type	**Item no.**	**TKX-003**	**TKX-010/ -016/-030**	**TKX-050/-080**	**TKX-100**	**TKX-150/-300**
ME-3-3M8A-R	150301128	153200189	153200221	153200190	153200223 + 153200190	153200224 + 153200190
ME-3-3M8A-T	150301127					
ME-4-4M8A-R	150301124					
ME-4-4M8A-T	150301126					
ME-4-4M12A-R	150301129					
ME-4-4M12A-T	150301125					
ME-4-4M12D-R 100 MBIT	150301146					
ME-4-4M12D-T	150301145					
ME-5-5M12A-R	150301123					
ME-5-5M12A-T	150301122					
ME-5-5M12L-R	150301197	-	-	153200192	153200223 + 153200192	153200224 + 153200192
ME-5-5M12L-T	150301199					
ME-8-8M12A-R	150301344	-	153200237	153200238	153200223 + 153200238	153200224 + 153200238
ME-8-8M12A-T	150301345					
ME-8-8M12X-R 10 GBIT	150301210	153200189	153200221	153200190	153200223 + 153200190	153200224 + 153200190
ME-8-8M12X-T	150301209					
ME-8-MIL8-R	150301300	-	-	-	153200226	153200245
ME-8-MIL8-T	150301301					
ME-12-12M12A-R	150301346	-	153200237	153200238	153200223 + 153200238	153200224 + 153200238
ME-12-12M12A-T	150301347					
ME-12-MIL12-R	150301133	-	-	153200192	153200223 + 153200192	153200224 + 153200192
ME-12-MIL12-T	150301134					
ME-15-DA15-R	150301143	-	-	153200193	153200222	153200224 + 153200193
ME-15-DA15-T	150301144					
ME-19-MIL19-R	150301136	-	-	153200192	153200223 + 153200192	153200224 + 153200192
ME-19-MIL19-T	150301135					
ME-24-MIL24-R	150301302	-	-	-	153200226	153200245
ME-24-MIL24-T	150301303					
ME-26-DA26-R	150301148	-	-	153200194	153200225	153200224 + 153200194
ME-26-DA26-T	150301149					
MG-1-1M4-R	150301152	-	-	153200196	153200223 + 153200196	153200224 + 153200196
MG-1-1M4-T	150301151			153200197	153200223 + 153200197	153200224 + 153200197

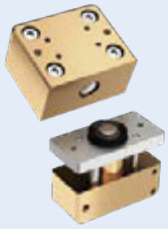
ⓘ Module and adapter kit are always required for use.

Electric module

ME
Transmission of
Signals/power/field buses

Grounding module

MG
Grounding contact



Pneumatic modules		Adapter kit				
Type	**Item no.**	**TKX-003**	**TKX-010/ -016/-030**	**TKX-050/-080**	**TKX-100**	**TKX-150/-300**
MP-4-M5NW4-R	150301162	-	-	BFS in MP included	153200223	153200224
MP-4-M5NW4-T	150301160					
MP-2-G1/8NW6-R	150301163	-	-	BFS in MP included	153200223	153200224
MP-2-G1/8NW6-T	150301161					
MP-1-G1/4NW11-R	150301164	-	-	BFS in MP included	153200223	153200224
MP-1-G1/4NW11-T	150301158					
MP-1-G3/8NW11-R	150301157	-	-	BFS in MP included	153200223	153200224
MP-1-G3/8NW11-T	150301159					
MP-1-G1/2NW12-R	150301333	-	-	BFS in MP included	153200223	153200224
MP-1-G1/2NW12-T	150301334					

ⓘ Module and adapter kit are always required for use.

Fluid modules		Adapter kit				
Type	**Item no.**	**TKX-003**	**TKX-010/ -016/-030**	**TKX-050/-080**	**TKX-100**	**TKX-150/-300**
MF-1-G1/8NW3-R	150301305	-	-	BFS in MP included	153200223	153200224
MF-1-G1/8NW3-T	150301306					
MF-1-G1/4NW5-R	150301307	-	-	-	153200223	153200224
MF-1-G1/4NW5-T	150301308					
MF-1-G3/8NW8-R	150301309	-	-	-	-	BFS in MP included
MF-1-G3/8NW8-T	150301310					

ⓘ Module and adapter kit are always required for use.

Module assembly made easy:

Select

Module

Attach

Adapter kit

Here we go

Changer with module

ⓘ For the assembly of our TKX modules, the corresponding adapter kit is always required!
The adapter kit includes brackets and screws.

Pneumatic module

MP
Pneumatic/vacuum transmission

Fluid module

MF
Transmission of fluids

Storage systems for TKX series

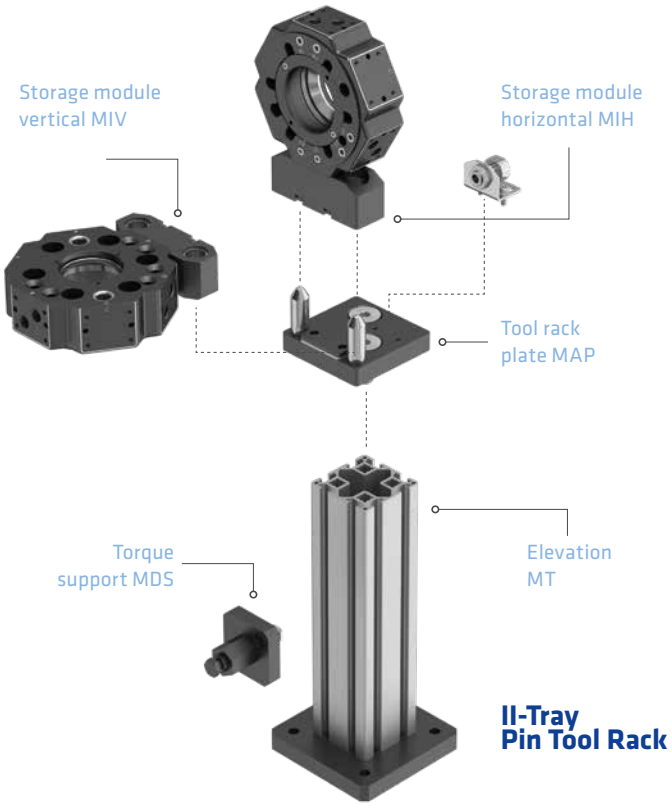
Quick and easy change

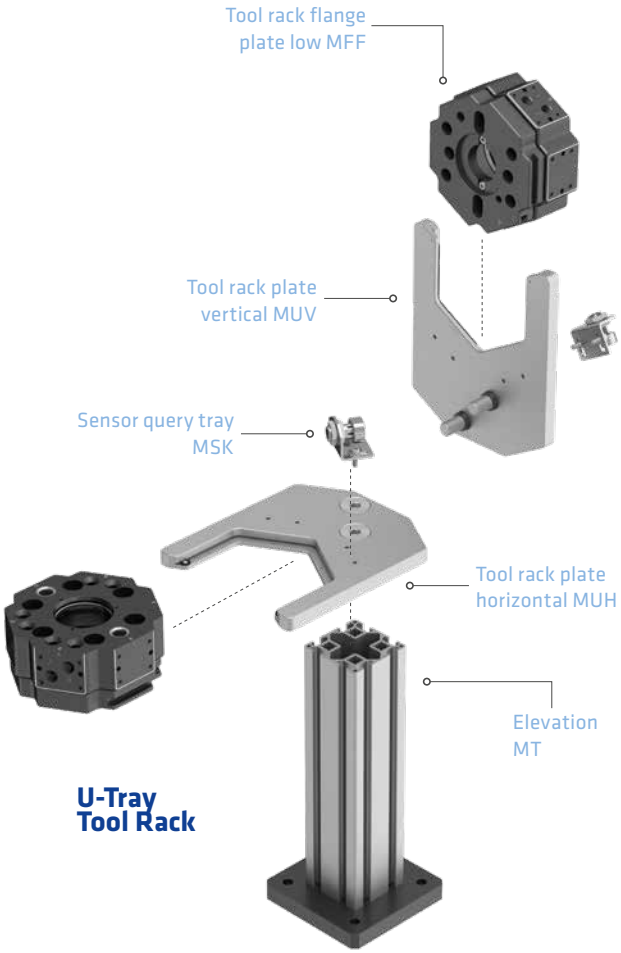
Overview

A central element of the comprehensive TKX tool changer modular system are the trays, II-Tray and U-Tray. They complement the TKX ecosystem with the right features for highly flexible, secure and optionally expandable storage solutions. Like all storage stations from IPR, the TKX trays enable the automatic change of tools on the robot in an uncomplicated and process-safe manner.

Application areas

Do you want to store your tools in a process-safe and defined way without spending a lot of time on manual changing processes? Then IPR's storage systems are ideal for your application. Whether assembly, removal or testing application – the automated exchange of tools increases productivity and reduces downtimes of your plant.





Advantages

- Extensive **tray construction kit**
- **Two** principles with two variants each
- **Horizontal or vertical** deposit
- Optional **sensor scanning** in the tray

TKX storage solutions

Tailored to your project

II-Tray Pin Tool Rack

Type	Designation	TKX-003	TKX-010/ -016/-030	TKX-050/-080	TKX-100	TKX-150/-300
Tool rack plate	MAP	150301369	150301405	150301291	150301355	150301364
Torque support	MDS*	150301370	150301351	150301292	150301357	150301367
Storage module horizontal	MIH	150301371	150301406	150301290	150301356	150301361
Storage module vertical	MIV	150301372	150301407	150301321	150301360	150301368
Elevation 200 mm	MT-H200mm**	150301394	-	-	-	-
Elevation 250 mm	MT-H250mm**	150301393	150301411	150301293	150301352	150301366
Elevation 550 mm	MT-H550mm**	-	150301412	150301294	150301353	150301367

Advantages: ■ Modular solution ■ Easy to install ■ Highly space saving

*other lengths on request | **other heights on request

U-Tray Tool Rack

Type	Designation	TKX-003	TKX-010/-016/-030		TKX-050/-080	
Tool rack plate horizontal	MUH	-	150301416		150301373	
Tool rack plate vertical	MUV	-	150301417		150301374	
Tool rack flange plate low	MFF	-	150301418		150301387	150301385
Tool rack flange plate high with air connections	MHF	-	-	150301419 / 150301420	150301388	150301386
Elevation 200 mm	MT-H200mm**	150301394	-		-	
Elevation 250 mm	MT-H250mm**	150301393	150301411		150301293	
Elevation 550 mm	MT-H550mm**	-	150301412		150301294	

Type	Designation	TKX-100	TKX-150/-300
Tool rack plate horizontal	MUH	150301375	
Tool rack plate vertical	MUV	150301376	
Tool rack flange plate low	MFF	150301389	
Tool rack flange plate high with air connections	MHF	150301390	
Elevation 200 mm	MT-H200mm**	-	-
Elevation 250 mm	MT-H250mm**	150301352	150301366
Elevation 550 mm	MT-H550mm**	150301353	150301367

Advantages: ■ Proven tool rack ■ All module surfaces are furthermore available for other modules
*other lengths on request | **other heights on request

Universal

Type	Designation	TKX-003	TKX-010/ -016/-030	TKX-050/ -080	TKX-100	TKX-150/ -300
Sensor holder tray (Without sensor Ø 8 mm, M8)	MSK	160100137	160100133			
Sensor M8		118000607				

Pneumatic and vacuum feedthroughs of the TKX series

Flexible air connections for the TKX

Up to every challenge

In the event that you discover the absence of standard air connections on the tool changer, perhaps due to the installation of electrical or fluidic modules on all module surfaces, you have the option to switch to the air connections on the base side. This enables you to utilize not only all module surfaces but also the integrated air feedthroughs of the tool changer

Air connections on the TKX

Base side connections

Strategic advantage

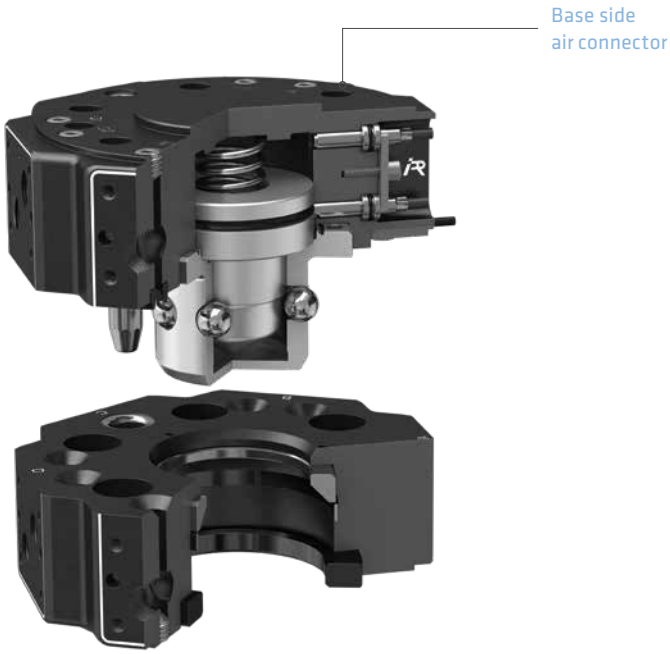
The air connections on the base side provide strategic opportunities for optimizing the tubing on the End of Arm Tooling (EoAT). Through clever use, you can minimize or even completely eliminate tubing. In addition, the use of the base side air connections on both the tool side as well as on the robot side to improve the overall system.

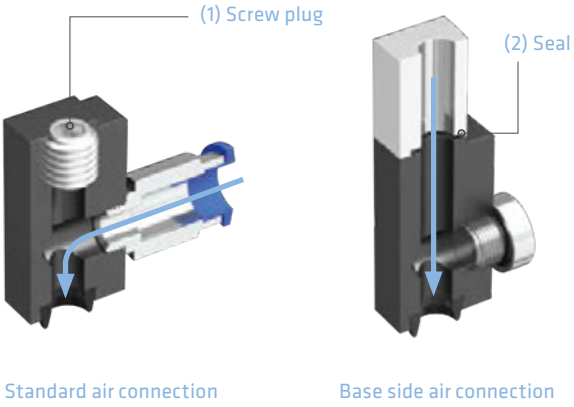
Sealing

In order to make optimum use of the base side air connections, we recommend ensuring that the coupling point is suitably sealed. Our sealing kits are ideally suited for this purpose in conjunction with the corresponding manufacturing instructions.

Base side air connection of the TKP series

Functional principle





If structural conditions or the configuration with add-on modules prevent the use of the standard side air connections, you can remove the screw plugs (1) and use the air base side connections on the base side. In this case, particular attention must be paid to precise sealing (2) using our recommended seals (O-rings). This also applies when using add-on modules.

Type	Size	003	010	016	030	050	080	100	150	300
Number of pneumatic / vacuum connectors on the base side	**TKP**	-	-	6	6	6	6	6	12	13
	TKE			-	6	-	6	-	-	12
	TKM			4	4	4	4	4	9	-
Nominal diameter of pneumatic / vacuum feedthroughs on the base side		-	-	Ø 4 mm		Ø 5 mm	Ø 6 mm		Ø 10 mm	
Required O-ring sizes		-	-	6,0 x 1,0 mm			8,0 x 1,0 mm		13,0 x 1,0 mm	
Item no.		-	-	110100669			11010103		11010094	

Standard is not enough for us

Solution competence made to measure

Our standard components can easily be adapted to customer-specific requirements. Various attachments and accessories are available for this purpose.

For more complex applications, where the modification of standard components no longer offers a sensible solution, we design special components that are precisely tailored to your applications. Many years of experience help us to find a technically and economically fit solution for you – quickly and effectively.

Special nozzle changer for seam sealing applications

Personal consulting

We are happy to provide advice on our components and technologies. Benefit from the long standing experience of the IPR advisors.

01

CONSULTING

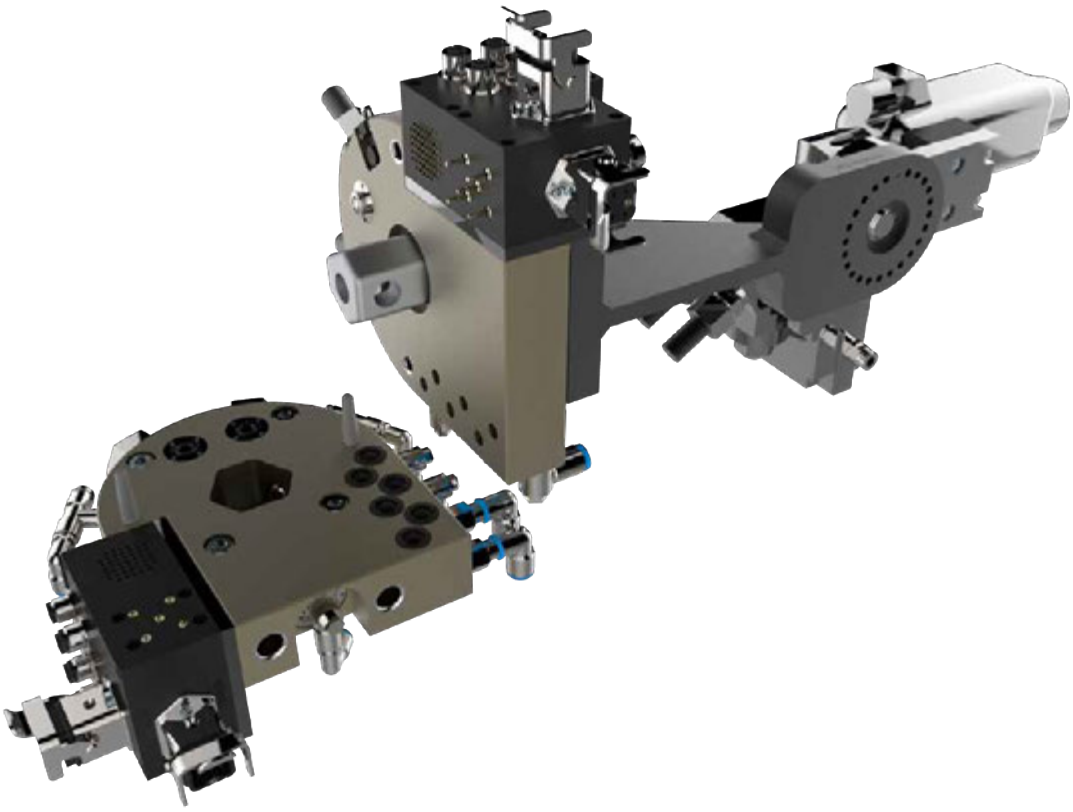
Our expert employees specifically address your wishes and requirements and offer you competent advice on your application. With over 30 years of experience in the production of high-quality components and systems, IPR supports and supplies its customers worldwide, thereby creating valuable customer proximity.

02

QUOTING & PROJECT PLANNING

In the next step, we develop a solution proposal for you and create a project plan in this context. This is followed by a cost-benefit optimization and a feasibility analysis. These include the technical designs as well as constructive tests by our engineering team.

Complex tool changer for PVC applications



03

ENGINEERING AND DESIGN

Our engineers and designers are professionals in their field and have in-depth knowledge of all industries and processes. Our specialists implement individual projects professionally and on schedule. Look forward to first-class conception and implementation.

04

MANUFACTURING

A machine park equipped with the latest technologies and processes, great know-how in manufacturing as well as highly trained employees ensure that every single product is manufactured with the highest precision, quality and passion to your satisfaction.

05

ON SITE SERVICE

We offer you a unique support in every phase – even after commissioning: from maintenance and repair service to spare parts service and customer training on site or at IPR.
Our professional services show that customer proximity is very important to us.

INTELLIGENT
PERIPHERALS FOR ROBOTS

IPR Intelligente Peripherien für Roboter GmbH

Jakob-Dieffenbacher-Str. 4/2
75031 Eppingen
Germany

T +49 7262 9239-100
F +49 7262 9239-400

info@iprworldwide.com
www.iprworldwide.com

We are represented worldwide.

USA
IPR Robotics LLC.
50775 Wing Drive
Shelby Township
MI 48315, USA
T +1 248 556-7556
F +1 248 556-7560
sales@iprrobotics.com

Mexico
Intellum, S.A. de C.V.
Av. Central 206, 1er piso
Col. San Pedro de los Pinos
Del. Alvaro Obregon, CP 01180
T +52 55 5668 6063
F +52 55 5668 6079
info@iprmexico.com

China
IPR China
Shanghai Representative Office
Room C2119, Tomson Centre
No 188, ZhangYang Road
Pudong, Shanghai 200120
T +86 21 5876 9833
F +86 21 5876 9941
info@ipr-china.com

You can find more contacts on our website:
en.iprworldwide.com

engineered and made in Germany