

Handling Technology

Handling Technology construction kit
for YASKAWA-Robots

THE KNOW-HOW FACTORY

HUMAN-ROBOT COLLABORATION

EASY TO INTEGRATE – EASY TO HANDLE

What is human-robot collaboration?

Do you still use your Finnish cell phone from ten years ago? – No? Exactly - Our life changes, our demands change, our world changes. The demographic development in industrial countries will lead to comprehensive changes in the working world in coming years. In the future, people will collaborate more and more with robots or have their work supported by robots. Making this vision of a collaborating working world a reality not only requires a new type of reliable robot with overload limiters, comprehensive sensors and quickly reacting control systems. It is also necessary for the tool at the end of the robot to meet extensive requirements in relation to work safety, working environment, the use of operating equipment, certification and acceptance, etc. The guidelines regarding the safety requirements for industrial robots, ISO 10218, and their technical specification, ISO/TS 15066, currently describe the types of collaboration. Even though these regulations are currently valid, they are being revisited by both DIN and CEN in the context of collaborative use of robots. That's why a product developed for this purpose should go beyond the current requirements. The HRC gripper series from Zimmer Group have been designed in accordance with BG/DGUV recommendations.

HRC from the experts

As a pioneer and one of the world's leading manufacturers of HRC components, the Zimmer Group is making special developments for this work environment to reduce the physical load on workers, reduce monotonous work steps to prevent accidents and increase the efficiency of work steps through the collaboration of the best from both worlds: man and machine.

Easy to integrate

Not only is one of the world's best HRC grippers available for your MOTOMAN Robots, but also a modular construction system specially matched to your model. This provides a broad selection of grippers and handling components with corresponding accessories, so that you don't have to worry about compatibility and integration. Of course, in this robot tool building kit are the HRC and Industrie 4.0 components included. This will open up numerous advantages: Easy to install, easy to configure, easy to operate, advanced diagnostics and preventive maintenance as well as the ability to make replacements while operation is in progress.

Easy to handle

The components are operated either using the central control system or, as is the case for most components, using the integrated control panel or via an app. The app offers users maximum flexibility when creating, storing and restoring device parameters and also provides assistance during diagnostics/preventive maintenance. Furthermore, the HRC grippers and GEH6000IL gripper series offer the user practical, pre-programmed movement profiles, which can be adjusted to the individual requirements of the gripping application with just a few mouse clicks. This ensures that complete implementation and commissioning are possible for any user within just a few minutes.

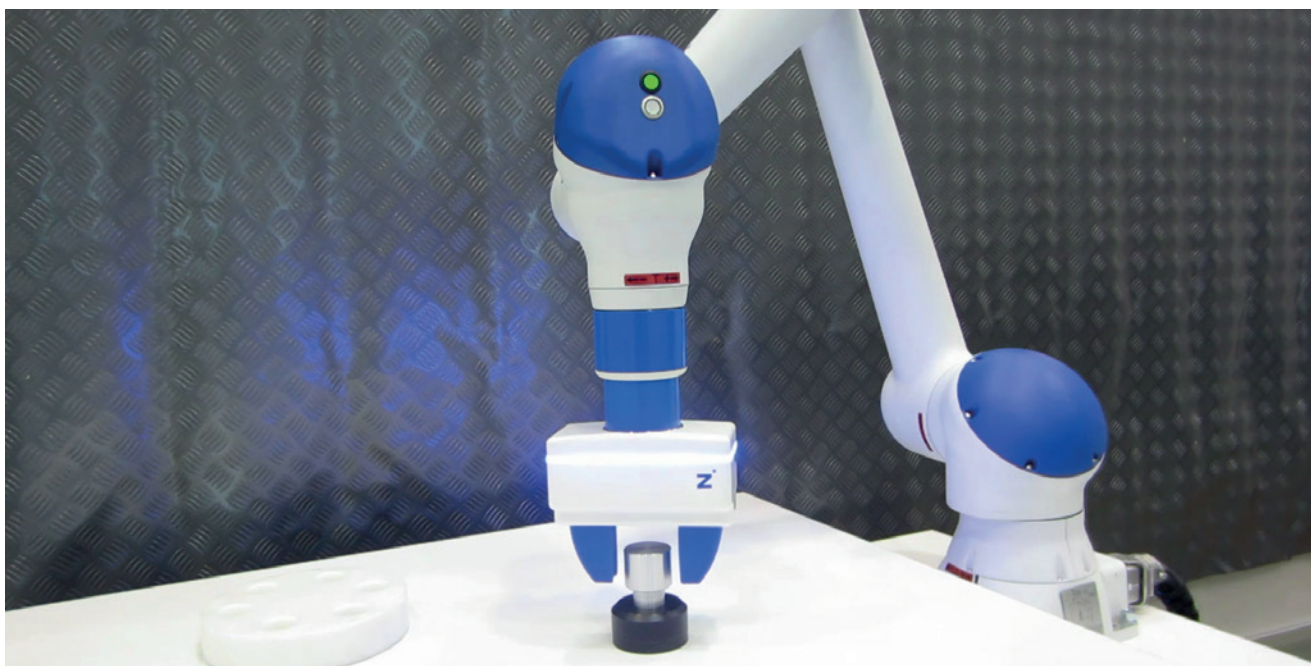
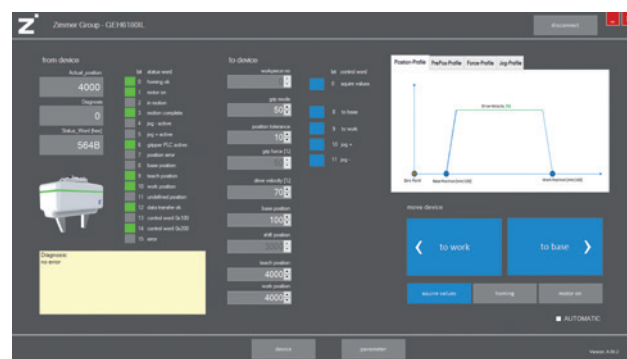
► Simple operation

The operation of Industrie 4.0 components from the Zimmer Group is just as easy and flexible as the installation. What originally applied primarily for industrial control systems is now available for robots. In doing so, operation is integrated completely into the robot control system. As a result, the Zimmer Group components can now be configured manually using the robot control panel directly and be integrated into the robot program sequence. An external PLC control system is not required to do this. The Yaskawa specialists oriented themselves toward the already known Zimmer HMI to create a uniform, intuitive user interface for the user. The user can control the complete IO-Link gripper portfolio from the Zimmer Group using this tailor-made complete system and pneumatic, electrical, servo-electric as well as digital Zimmer Group components with the innovative MOTOMAN robots from Yaskawa.



► Because simple is simply better

This integration makes it possible for the user to enable the maximum levels of flexibility and straightforward adaptation, flexibility and straightforward adaptation, storage and restoring device parameters during the creation of new application-specific application profiles. Furthermore, Zimmer HMI supports the condition monitoring or predictive maintenance of the components. This makes it possible for any user to implement and commission the Zimmer Group components within a few minutes. This simplifies the interaction of robots and handling components considerably.



HMI CONFIGURATION PACKAGE

EASY TO INTEGRATE – EASY TO USE



ZIMMER READY TO USE PACKAGE

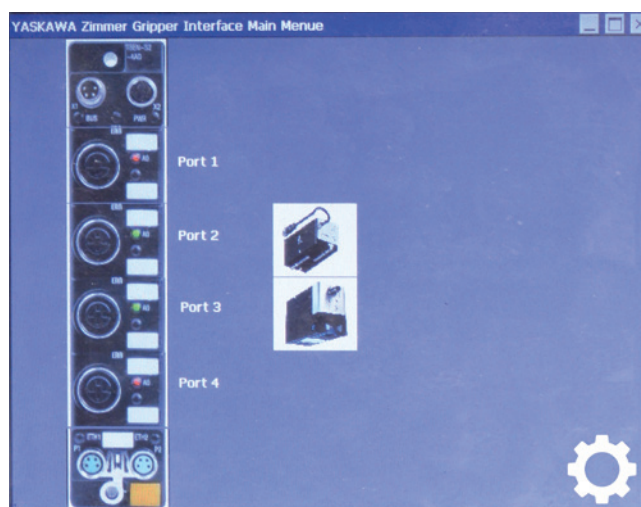
► Maximum performance included

The combination of Zimmer Group components, the Zimmer Ready to use package and Yaskawa robots ensures the easiest integration, as well as intuitive operation.



MAINPAGE

► Start page to select the configuration and HMI

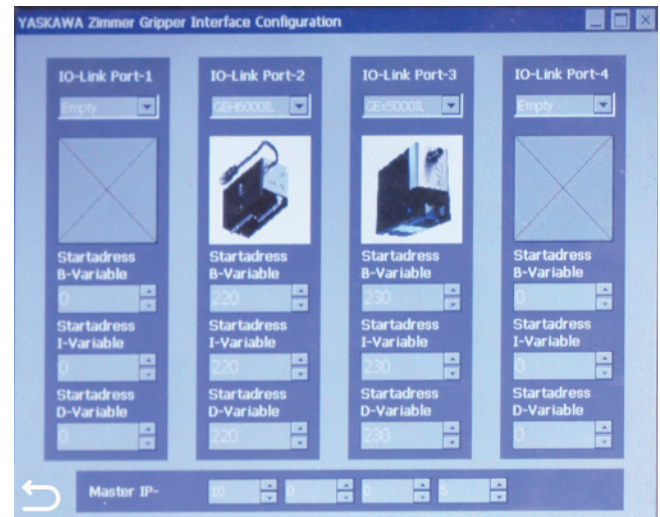




CONFIGURATION

► Graphic component selection

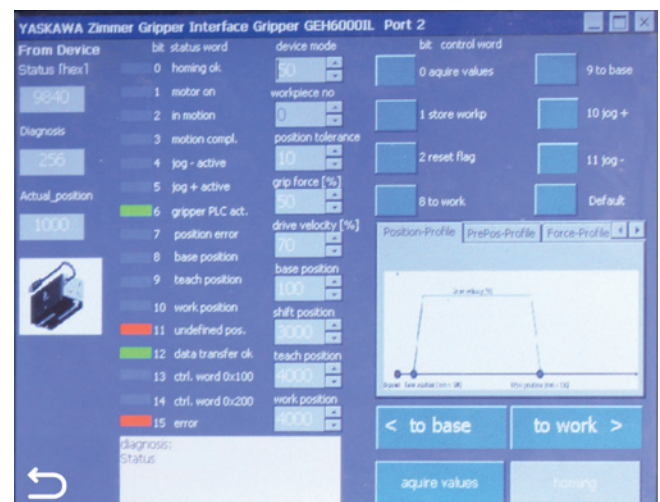
Simple assignment of Zimmer Group grippers to the robot



HUMAN MACHINE INTERFACE

► Manual operation

Generation of gripper process parameters such as gripping forces, gripping positions, gripping speed, etc.

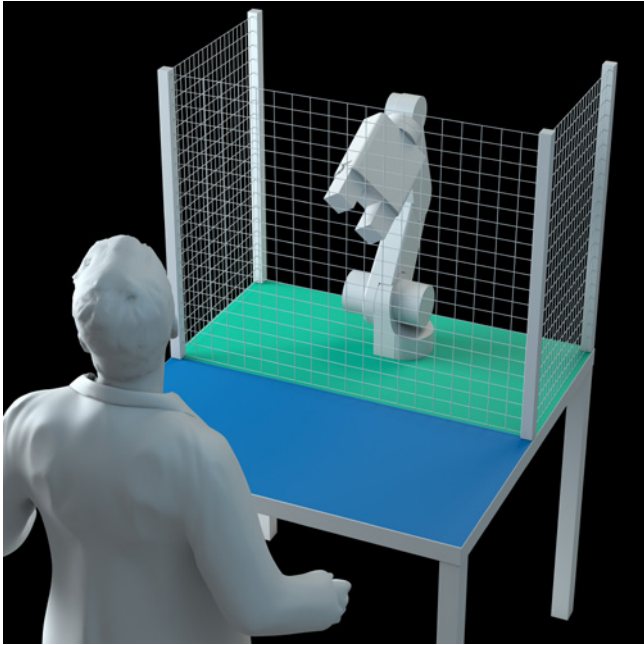


HUMAN - ROBOT

DIFFERENT FORMS OF INTERACTION

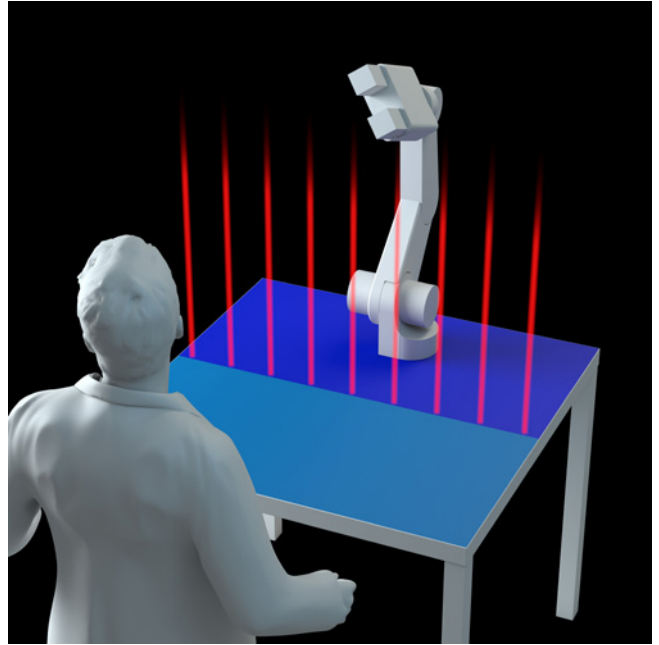
CONVENTIONAL COMPONENTS

► AUTOMATION CELL



► SEPARATED WORKING AREAS

► COEXISTING



► ROBOT RECOGNIZES WORKER

WORK PIECE RECEPTION IN THE SECURED AREA

ALL GRIPPING SYSTEMS USEABLE

ALL GRIPPING SYSTEMS USEABLE

SEPARATED WORKING AREAS

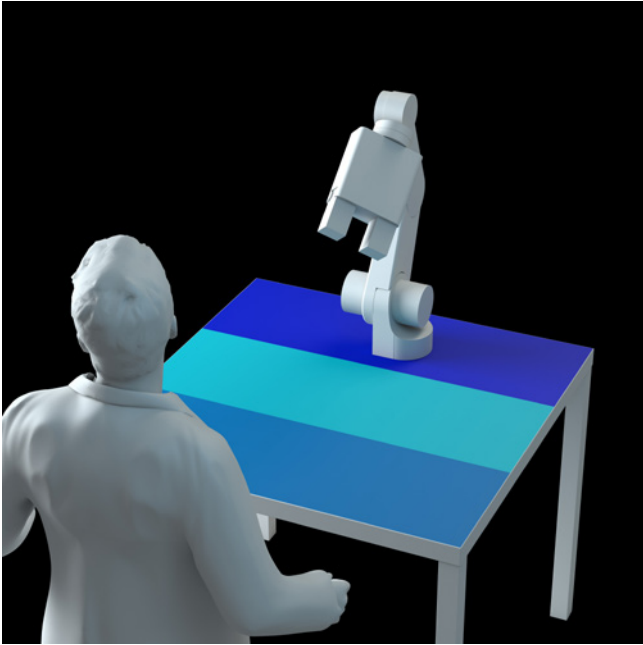
DECODED WORK

NO TOUCHING NEEDED

MAX. SPEED

HRC - COMPONENTS

► COOPERATION

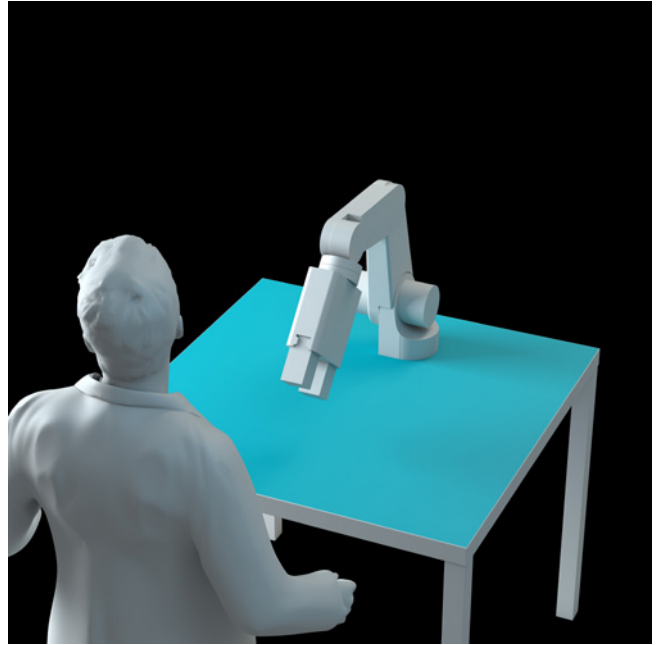


► INTERFERENCE ZONES

GRIPPERS WITH SPECIAL HRC GEOMETRY

- Safe holding of the workpiece also at power failure

► COLLABORATION



► SAME WORKING AREAS

RECORDING IN THE SECURED AREA

GRIPPERS WITH SPECIAL HRC GEOMETRY + SAFE CAPACITY

- Safe holding of the workpiece also at power failure
- Control limited to max. 140 N according to ISO/TS 15066, redundant protection via patented safety jaws

SAME WORKING AREAS

COUPLED WORK

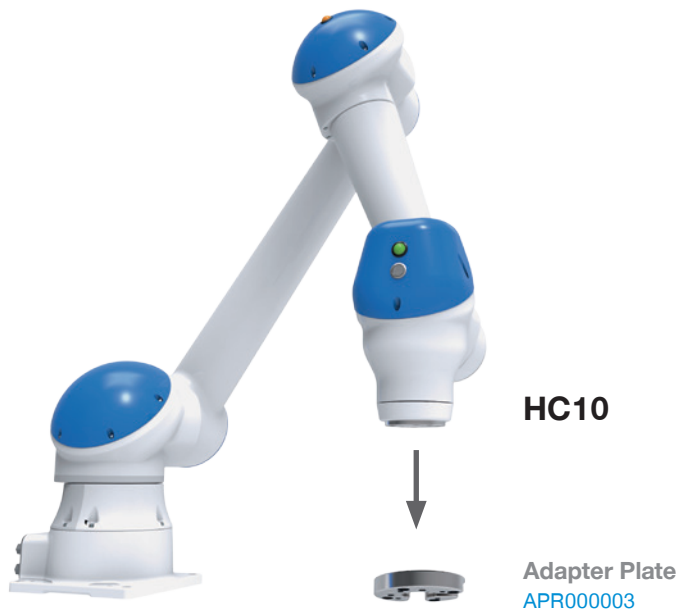
TOUCHING NEEDED

REDUCED SPEED



MRK COMPONENTS

THE SERIES AT A GLANCE



2-JAW PARALLEL GRIPPERS

ELECTRIC

COOPERATIVE

GEH6060IL-02-A-04 IO-Link	Stroke per jaw:	60 mm
	Gripping force:	950 N
	Weight:	1,8 kg
	IP class:	40
	Without maintenance (max.):	5 Mio. cycles

Safetyfunctions: STO + mechanical self locking mechanism in the event of power failure

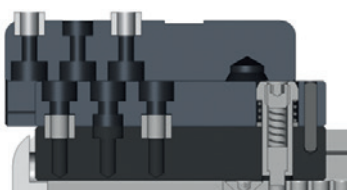
COLLABORATIVE

GEH6060IL-02-A-01 IO-Link	Stroke per jaw:	60 mm
	Gripping force:	140 N max.
	Weight:	2,0 kg
	IP class:	40
	Without maintenance (max.):	5 Mio. cycles

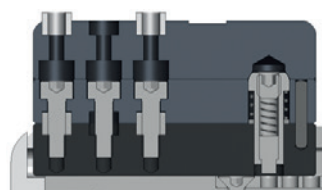
STO safetyfunctions + mechanical self locking mechanism in the event of power failure + safety gripper jaws

SAFETY JAWS

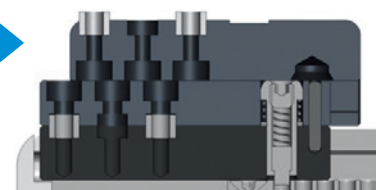
A power and force limitation, for example, is required to be able to operate the gripper without a safety fence. This can be implemented using passive protective measures. Our safety gripper jaw limits the clamping force of the gripper to the biometric limit values (ISO/TS 15066).



Internal gripping
Safety mechanism activated



Home position
below 140 N



External gripping
Safety mechanism activated

END OF ARM CONFIGURATION LEVELS

► Robot flange

Mechanical connection via standard part-cone with media transmission of electrical energy, pneumatic energy, hydraulic energy, control signals. These transmissions can be conducted either via a central hollow shaft or externally.

► Adapter plate robot flange multifunctional level

Adapter plate for mechanical adaptation with mounting points for the media/signal lines or, as the case may be, carrying out the media/signal lines from the central port to the outside.

► Multifunctional level

Multifunctional components with the functions for media transmission, axis compensation XYZ, collision protection, flange extensions, tool changers, energy elements for media/signal transmission.



Rotary Distributors



Axis Compensation Modules



Crash Protection



Angle Flange



Tool Changers



Energy Elements

► Adapter plate multifunctional level - automation component

Adapter plate for mechanical adaptation with mounting points for the media/signal lines.

► Automation component

Various automation components.

2-JAW PARALLEL GRIPPERS



GPP5000
Pneumatic



GPP5000
Pneumatic IL



GEP5000
Electric



GEP5000
Electric IL



GEH6000IL
Electric
Positionable

3-JAW CONCENTRIC GRIPPERS



GPD5000
Pneumatic



GPD5000
Pneumatic IL



GED5000
Electric

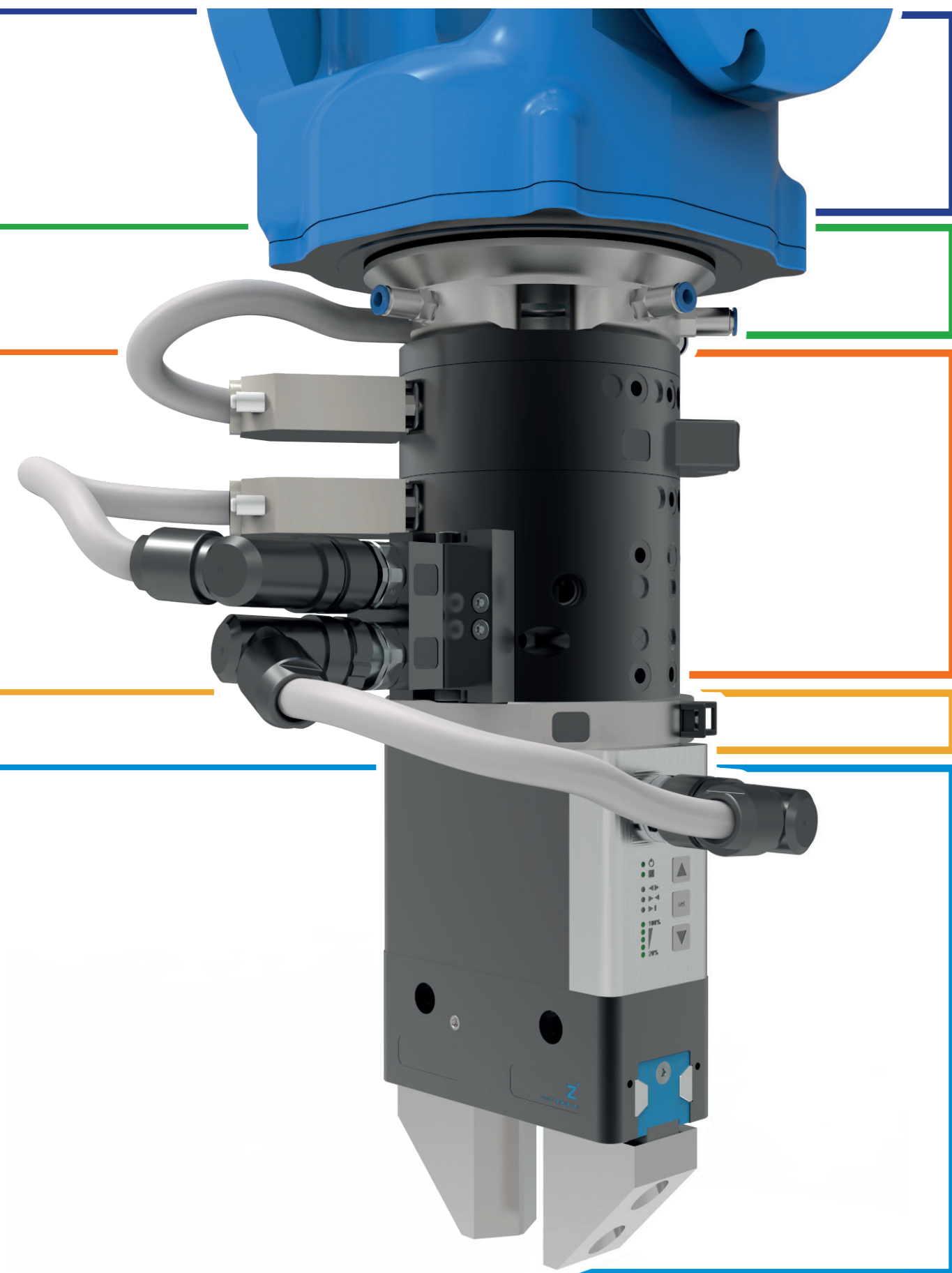


GED5000
Electric IL

2-JAW ANGULAR GRIPPERS



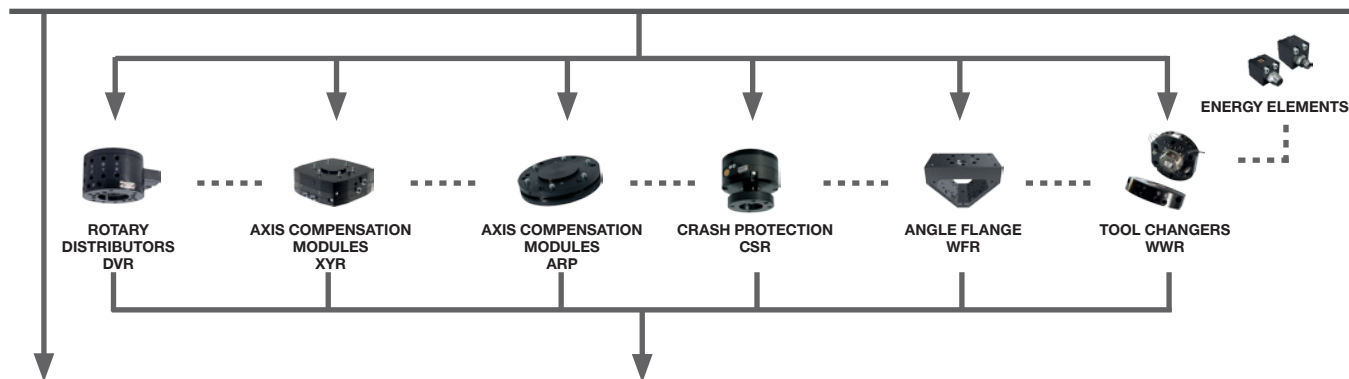
GPW5000
Pneumatic



ROBOT



MH5	GP7	GP8	GP12	MH12	MH24	MH50
5	7	8	12	12	24	50
APR000007 (TK50)	APR000007 (TK50)	APR000007 (TK50)	APR000008 (TK63)	APR000008 (TK63)	APR000008 (TK63)	no (already ISO) TK80



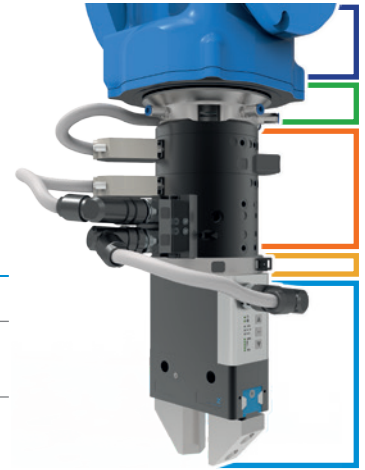
APR000001	APR000001	APR000001					
APR000001	APR000001	APR000001					
			APR000009	APR000009	APR000009		
			APR000009	APR000009	APR000009	APR000011	
						APR000011	
						APR000012	
						APR000013	
APR000002	APR000002	APR000002					
APR000002	APR000002	APR000002	APR000010	APR000010	APR000010	APR000012	
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APR000001	APR000001	APR000001					
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						APR000012	
						APR000013	
						APR000014	

			APR000009	APR000009	APR000009		
						APR000011	
						APR000013	

UNIVERSAL GRIPPERS

POSSIBILITY OF COMBINATION

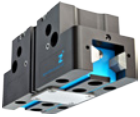






Robot handling weight [kg]





Adapter plate to be used
YASKAWA ► ISO 9409-01

CONVENTIONAL COMPONENTS


2-JAW PARALLEL ROTARY GRIPPERS

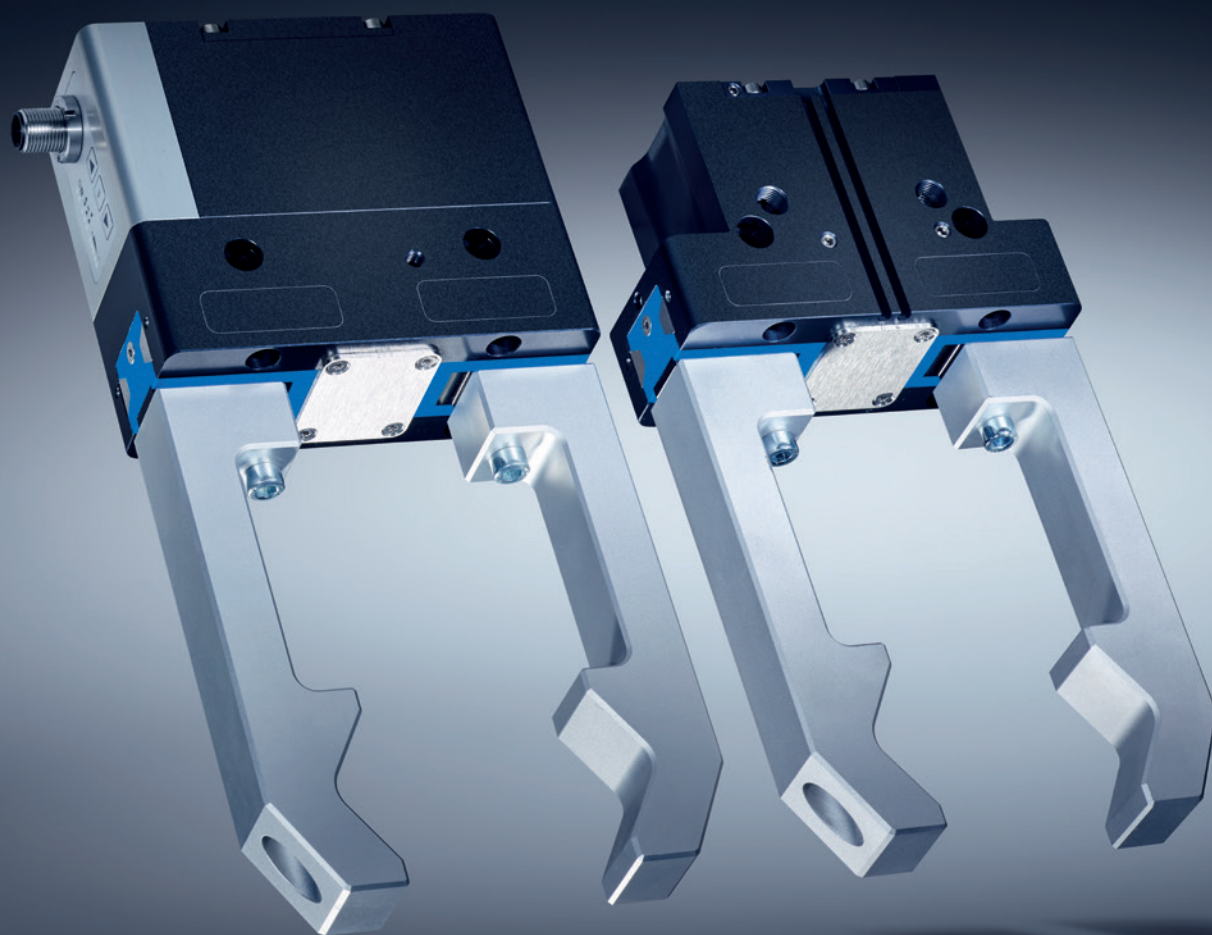
Pneumatic	Pneumatic IL	Electric	Electric IL	Electric Positionable	
	 IO-Link		 IO-Link	 IO-Link	Series GPP5000/GEP5000
•					Installation size 5004
•	•	•	•		Installation size 5006
•	•	•	•		Installation size 5008
•	•	•	•		Installation size 5010
•	•				Installation size 5013
•	•				Installation size 5016
•	•				Installation size 5025
				•	Series GEH6000IL
				•	GEH6060IL-03-A
				•	GEH6140IL-03-A
				•	GEH6180IL-03-A

3-JAW CONCENTRIC GRIPPERS

	 IO-Link		 IO-Link		Series GPD5000/GED5000
•					Installation size 5004
•	•	•	•		Installation size 5006
•	•	•	•		Installation size 5008
•	•	•	•		Installation size 5010
•	•				Installation size 5013
•	•				Installation size 5016
•	•				Installation size 5025

2-JAW ANGULAR ROTARY GRIPPERS

					Series GPW5000
•					Installation size 5008
•					Installation size 5013
•					Installation size 5025



CONVENTIONAL COMPONENTS

OVERVIEW OF SERIES

2-JAW PARALLEL GRIPPERS

PNEUMATIC

GPP5000

IO-Link



Number of installation sizes: 11
Stroke per jaw: 2,5 mm - 45 mm
Gripping force: 140 N - 26950 N
Weight: 0,08 kg - 41,5 kg
IP class: 64/67
Without maintenance (max.): 30 mil. cycles

ELECTRIC

GEP5000

IO-Link



Number of installation sizes: 3
Stroke per jaw: 6 mm - 10 mm
Gripping force: 540 N - 1900 N
Weight: 0,79 kg - 1,66 kg
IP class: 64
Without maintenance (max.): 30 mil. cycles

2-JAW PARALLEL GRIPPERS WITH LONG STROKE

ELECTRIC

GEH6000IL

IO-Link



Number of installation sizes: 2
Stroke per jaw: bis zu 80 mm
Gripping force: 60 N - 2400 N
Weight: 0,76 kg - 2,6 kg
IP class: 40/54
Without maintenance (max.): 5 mil. cycles

3-JAW CONCENTRIC GRIPPERS

PNEUMATIC

GPD5000

IO-Link



Number of installation sizes: 11
Stroke per jaw: 2,5 mm - 45 mm
Gripping force: 310 N - 72500 N
Weight: 0,14 kg - 88 kg
IP class: 64/67
Without maintenance (max.): 30 mil. cycles

ELECTRIC

GED5000

IO-Link



Number of installation sizes: 3
Stroke per jaw: 6 mm - 10 mm
Gripping force: 540 N - 1900 N
Weight: 1,09 kg - 2,33 kg
IP class: 64
Without maintenance (max.): 30 mil. cycles

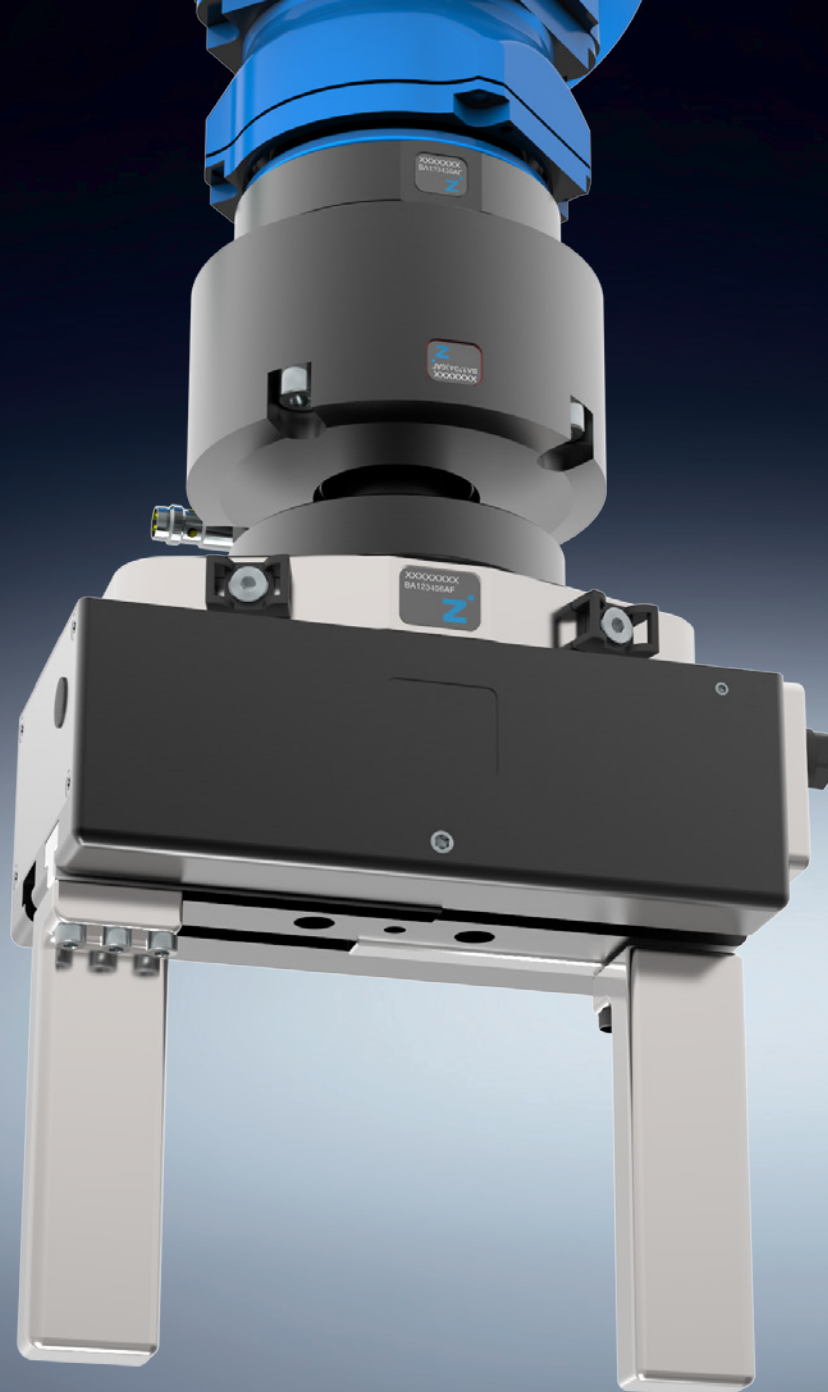
2-JAW ANGULAR GRIPPERS

PNEUMATIC

GPW5000

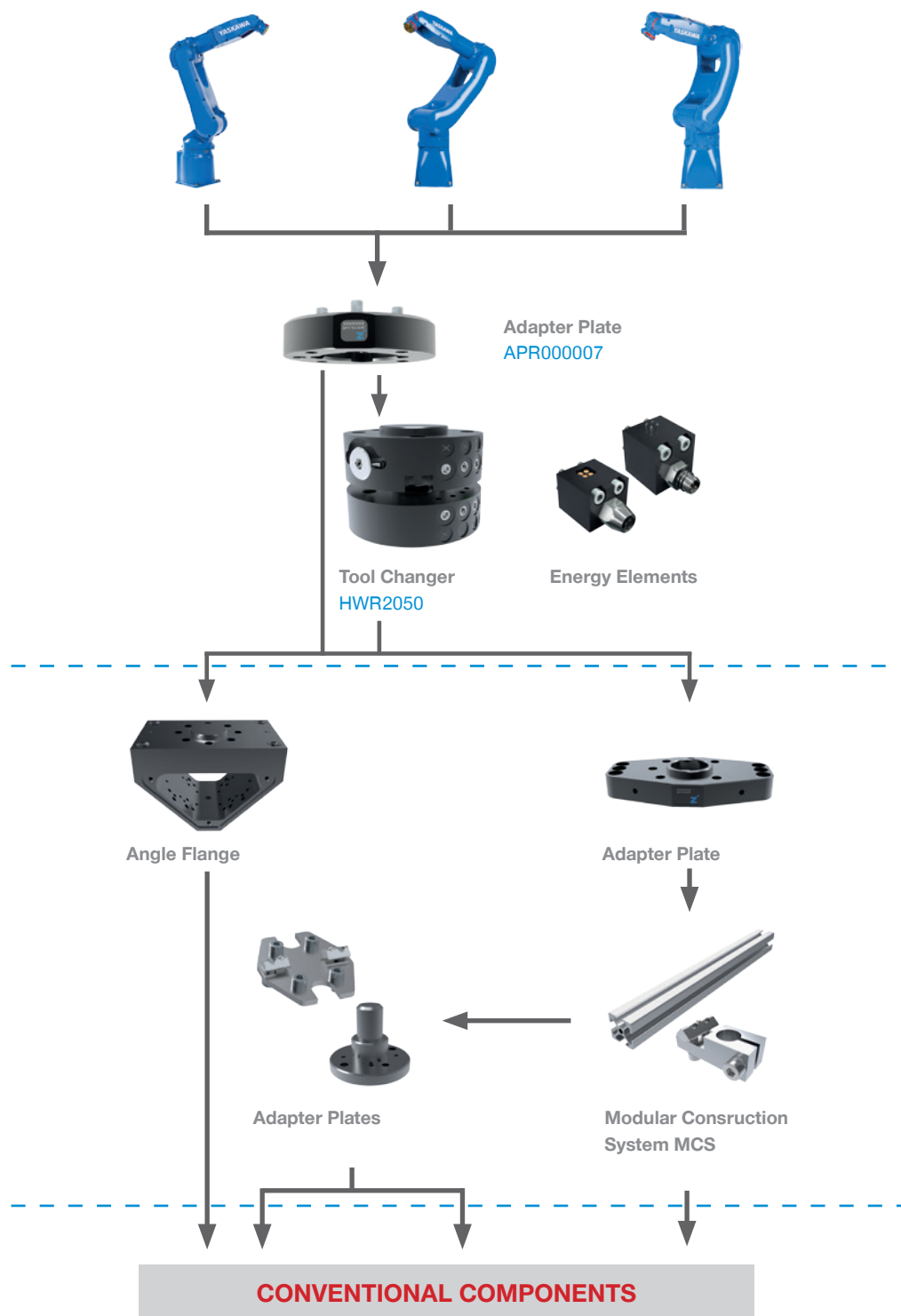


Number of installation sizes: 3
Stroke per jaw: +15° / -2°
Gripping force: 1330 N - 14500 N
Weight: 0,9 kg - 12,1 kg
IP class: 64
Without maintenance (max.): 30 mil. cycles

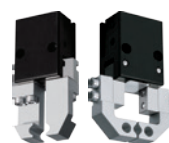


ROBOT

SMALL PART HANDLING FOR LOADS UP TO 8 KG



Series GPP1000



Series MGP800
Series MGW800



Series GH6000
Series GZ1000
Series ZK1000
Series LG1000
Series HM1000
Series SO-431
Suction Cups

GRIPPERS

OVERVIEW OF SERIES

2-JAW PARALLEL GRIPPERS

PNEUMATIC

GPP1000



Number of installation sizes: 1
Stroke per jaw: 4 mm - 16 mm
Gripping force: 100 N
Weight: 0,16 kg - 0,20 kg
IP class: 30
Without maintenance (max.): 2 mil. cycles

MGP800



Number of installation sizes: 8
Stroke per jaw: 1 mm - 12 mm
Gripping force: 6 N - 400 N
Weight: 0,008 kg - 0,46 kg
IP class: 40
Without maintenance (max.): 10 mil. cycles

2-JAW PARALLEL GRIPPERS WITH LONG STROKE

PNEUMATIC

GH6000



Number of installation sizes: 5
Stroke per jaw: 20 mm - 200 mm
Gripping force: 120 N - 3400 N
Weight: 0,3 kg - 23,8 kg
IP class: 40
Without maintenance (max.): 10 Mio. cycles

2-JAW ANGULAR GRIPPERS

PNEUMATIC

GZ1000



Number of installation sizes: 3
Stroke per jaw: 8° - 10°
Gripping force: 62 N - 315 N
Weight: 0,015 kg - 0,125 kg
IP class: 30
Without maintenance (max.): 10 Mio. cycles

MGW800



Number of installation sizes: 8
Stroke per jaw: 37,5°
Gripping force: 5 N - 325 N
Weight: 0,01 kg - 0,45 kg
IP class: 30
Without maintenance (max.): 10 Mio. cycles

GRIPPERS FOR SPECIFIC TASKS

INTERNAL GRIPPERS

LG1000



Total stroke in Ø : 2,5 mm - 3,5 mm
Gripping diameter min. : 8 mm - 15 mm
Gripping diameter max. : 10,5 mm - 18,5 mm
Slip force max.: 53 N - 58 N
Weight: 0,03 kg - 0,04 kg

MAGNETIC GRIPPERS

HM1000



Adhesive force max.: 27 N - 450 N
Weight: 0,06 kg - 2,2 kg

CUTTING TONGS

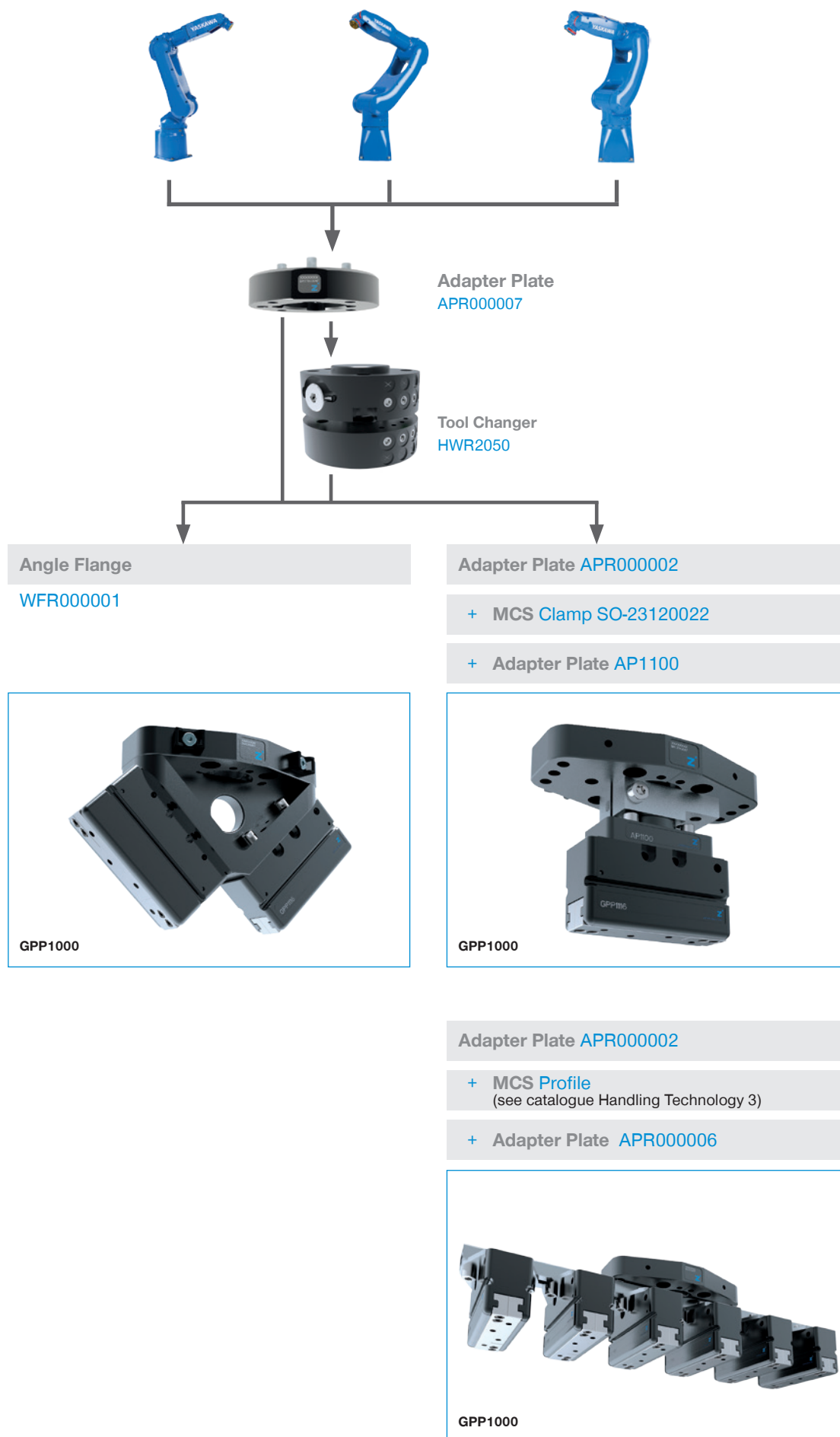
ZK1000



Stroke per jaw: 4,25° - 13°
Gripping moment in closing: 14 Nm - 400 Nm
Weight: 0,08 kg - 0,67 kg

ROBOT TOOL BUILDING KIT

ADAPTATION OPTIONS SERIES GPP1000



ROBOT TOOL BUILDING KIT

ADAPTATION OPTIONS SERIES MGP-MGW



Adapter Plate
APR000007



Tool Changer
HWR2050

Adapter Plate APR000002

+ MCS Clamp
(see catalogue Handling Technology 3)

+ Adapter Plate R000004/5



MGP800

Adapter Plate APR000002

+ MCS Profile + Clamp
(see catalogue Handling Technology 3)

+ Adapter Plate APR000004/5

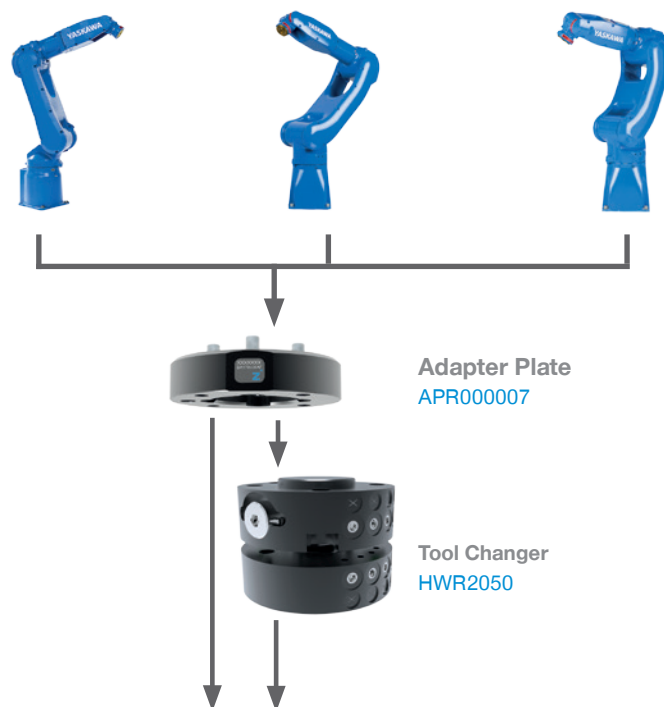


MGW800

MGP800

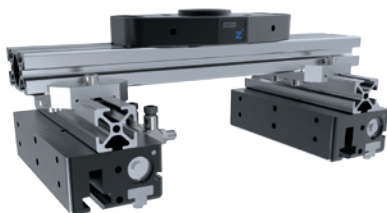
ROBOT TOOL BUILDING KIT

ADAPTATION OPTIONS

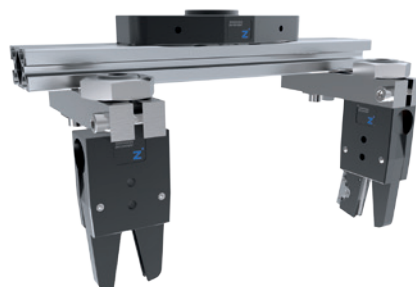


Adapter Plate [APR000002](#)

+ MCS [Profile + Clamp](#) (see catalogue Handling Technology 3)



GH6000



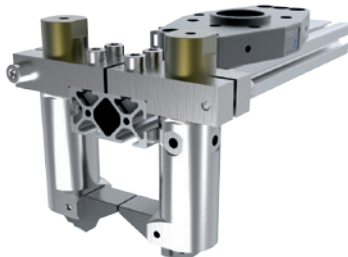
GZ1000



LG1000



HM1000



SO-431



SUCTION CUPS

ZK1000

GZ1000

USAGE NOTE

GENERAL

The contents of this catalog are not legally binding and are intended solely for informational purposes. Any final agreement will be in the form of a written order confirmation from ZIMMER GMBH, which occurs only subject to the respective current General Terms and Conditions of Sale and Delivery of ZIMMER GMBH. These can be found online at www.zimmer-group.com. All of the products listed in this catalog are designed for their intended use, e.g. machines for automation. The recognized technical regulations for safety and professional work must be followed for use and installation. Furthermore, the respective laws, guidelines from TÜV, guidelines from the respective trade association and VDE stipulations shall apply.

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The contents and data correspond to the status as of printing. Edition 05/2017.

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ZIMMER GROUP—THE KNOW-HOW FACTORY

NEW TECHNOLOGY, COMPONENTS, BUSINESS DIVISIONS AND LOCATIONS ACROSS THE GLOBE — OUR COMPANIES HAVE BECOME STRONG AND OUR RANGE OF PRODUCTS HAS GROWN MORE DIVERSE.

THE NEW **ZIMMER GROUP** UMBRELLA BRAND HELPS GIVE YOU DIRECTION AMONG THIS NEW DIVERSITY. IT COMBINES THE COMPANIES ZIMMER GMBH, ZIMMER KUNSTSTOFFTECHNIK, ZIMMER DAEMPFGUNGSSYSTEME AS WELL AS BENZ WERKZEUGSYSTEME INTO ONE PARTNER FOR YOUR PROJECTS: THE KNOW-HOW FACTORY.

CHALLENGE US. DISCOVER THE ENTIRE WORLD OF ZIMMER GROUP! IF YOU HAVE QUESTIONS ABOUT THE NEW ZIMMER GROUP AND OUR TECHNOLOGY, WE WOULD BE HAPPY TO ANSWER THEM.

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