Handling technology

Module for
YASKAWA robots

THE KNOW-HOW FACTORY

www.zimmer-group.com

ZIMMER group

THE KNOW-HOW FACTORY

ZIMMER GROUP
COMMITTED TO OUR CUSTOMERS

WE HAVE SUCCEEDED FOR YEARS BY OFFERING OUR CUSTOMERS INNOVATIVE AND INDIVIDUALIZED SOLUTIONS. ZIMMER HAS GROWN CONTINUOUSLY AND TODAY WE HAVE REACHED A NEW MILESTONE: THE ESTABLISHMENT OF THE KNOW-HOW FACTORY. IS THERE A SECRET TO OUR SUCCESS?

Foundation. Excellent products and services have always been the foundation of our company's growth. Zimmer is a source of ingenious solutions and important technical innovations. This is why customers with high expectations for technology frequently find their way to us. When things get tricky, Zimmer Group is in its best form.

Style. We have an interdisciplinary approach to everything we do, resulting in refined process solutions in six technology fields. This applies not just to development but to production. Zimmer Group serves all industries and stands ready to resolve even the most unique and highly individualized problems. Worldwide.

Motivation. Customer orientation is perhaps the most important factor of our success. We are a service provider in the complete sense of the word. With Zimmer Group, our customers have a single, centralized contact for all of their needs. We approach each customer's situation with a high level of competence and a broad range of possible solutions.

HMI – HUMAN MACHINE INTERFACE
EASY TO INTEGRATE – EASY TO USE

SIMPLE OPERATION

Operating Industrie 4.0 components from Zimmer Group is just as easy and flexible as installing them. What originally applied primarily for industrial control systems is now also 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 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 familiar 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 can use 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 maximum levels of flexibility and straightforward adaptation, storage and restoring device parameters during the creation of new application-specific profiles.

Furthermore, the Zimmer HMI supports condition monitoring or predictive maintenance of the components. This makes it possible for any user to implement and commission Zimmer Group components within a few minutes. This simplifies the interaction of robots and handling of components considerably.

CONFIGURATION

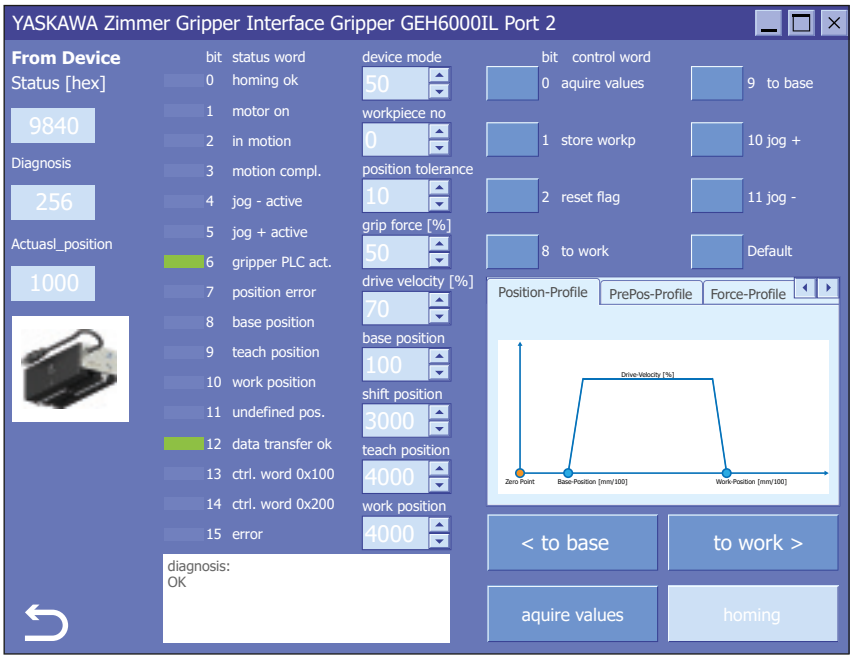
► **Graphic component selection**

Easiest assignment of a Zimmer gripper to the robot

MANUAL OPERATION

► **Generating the gripper process parameters**

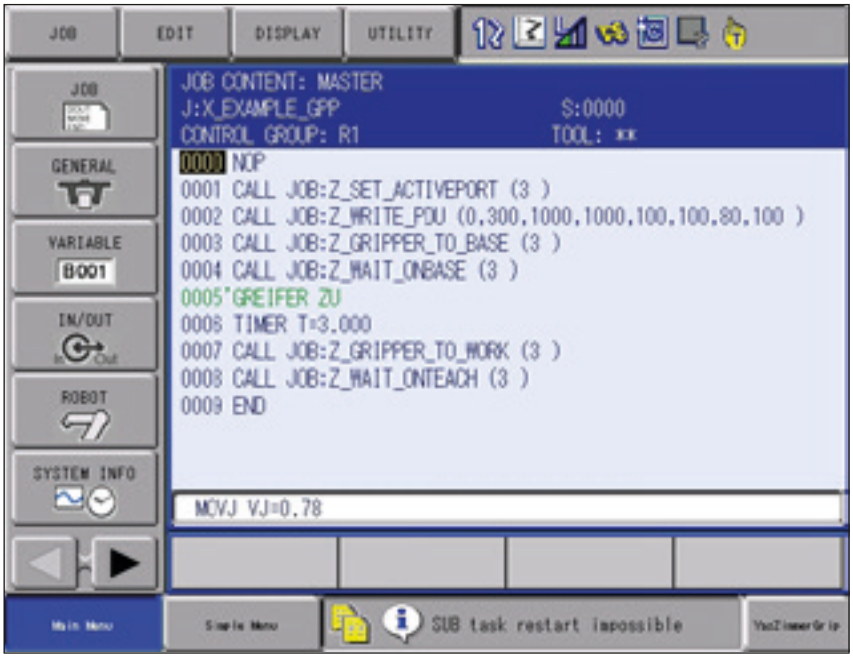
such as gripping forces, gripper positions, gripping speed, etc.



AUTOMATIC MODE ROBOT

► **Use of function blocks**

such as Open gripper / Close gripper, etc. for easy operation



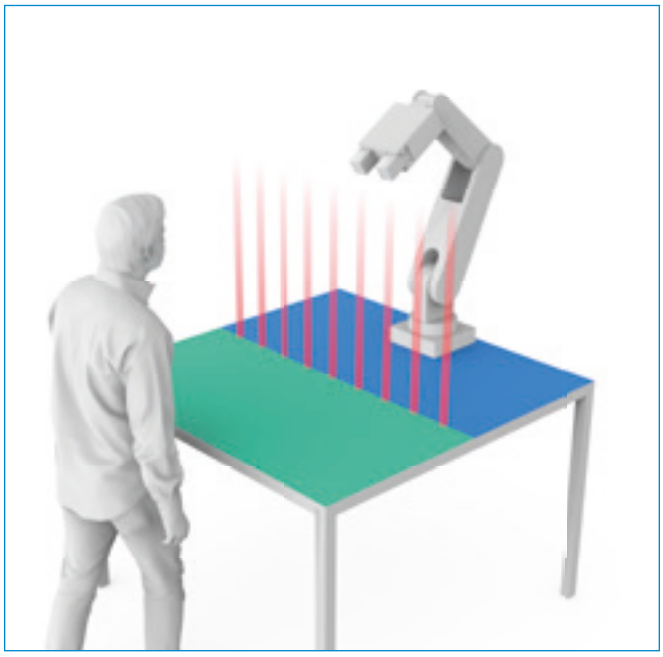
HUMAN – ROBOT
DIFFERENT FORMS OF INTERACTION

CONVENTIONAL COMPONENTS

▶ Automation cell

- Separated workspaces
- Workpiece handling in a secure area
- All gripping systems can be used
- Decoupled work
- No contact necessary
- Maximum speed

▶ Coexistence



- Detection of presence
- Workpiece handling in a secure area
- All gripping systems can be used
- Separated workspaces
- Decoupled work
- No contact necessary
- Reduced speed

HRC COMPONENTS

▶ Cooperation

- ▶ Zones of action
- ▶ Workpiece handling in a secure area
- ▶ Gripper with special HRC geometry
- ▶ Secure holding of the workpiece even if the power supply fails
- ▶ Shared workspaces
- ▶ Coupled work
- ▶ No contact necessary
- ▶ Reduced speed

▶ Collaboration

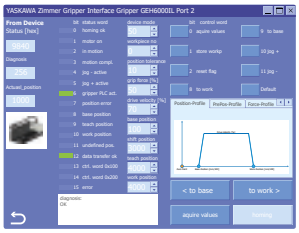
- ▶ Shared workspaces
- ▶ Workpiece handling in a unsecure area
- ▶ Gripper with special HRC geometry and reliable gripping force limiter
- ▶ Gripping force limited to a max. of 140 N as per ISO / TS 15066
- ▶ Secure holding of the workpiece even if the power supply fails
- ▶ Coupled work
- ▶ Contact is necessary
- ▶ Reduced speed

HMI CONFIGURATION PACKAGE
EASY-TO-USE PACKAGE

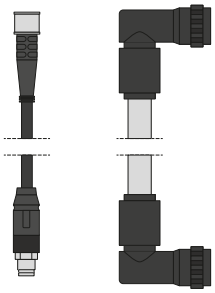
MAXIMUM PERFORMANCE INCLUDED

The combination of Zimmer Group components, the YASKAWA Easy-to-Use Package and YASKAWA robots ensure the easiest integration as well as intuitive operation.

FOR MORE INFORMATION ABOUT THE EASY-TO-USE PACKAGE VISIT YASKAWA AT:
www.yaskawa.eu.com

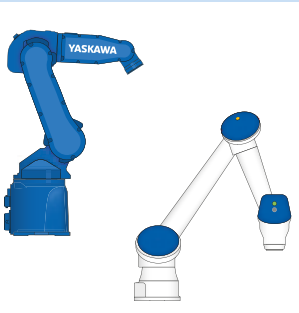


Software

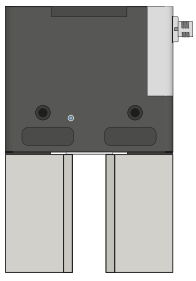


Cables and accessories

IO-Link master



YASKAWA robots*
(industrial / collaborative)

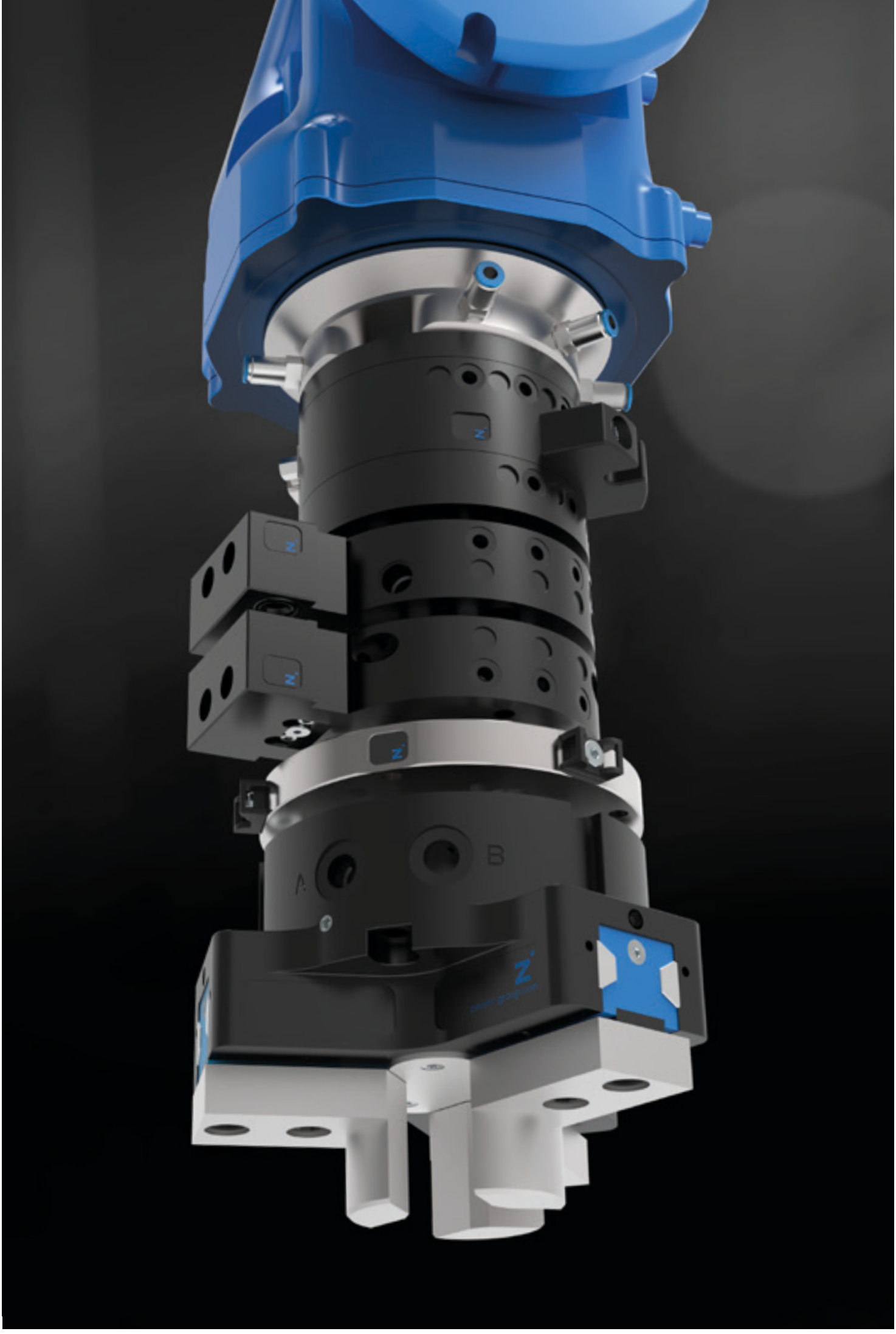


Zimmer Group gripper*

FOR MORE INFORMATION ABOUT OUR COMPONENTS VISIT US AT:

www.zimmer-group.com

* Available separately


A
B

HUMAN-ROBOT COLLABORATION
EASY TO INTEGRATE – EASY TO HANDLE

WHAT IS HUMAN-ROBOT COLLABORATION?

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. For this vision of a collaborative working world to become reality, however, we need more than just a new kind of safe robot with overload limiters, comprehensive sensors and fast-reacting control systems. The tool at the end of the robot also has to satisfy comprehensive requirements with respect to occupational safety, work environment, use of equipment, approval and acceptance, etc. The directives concerning specification of the safety-related requirements for robots, ISO 10218 and their technical specification ISO/TS 15066, currently describe the forms 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 recommendations from BG/DGUV (German occupational insurance association/German Social Accident Insurance).

HRC FROM THE EXPERTS

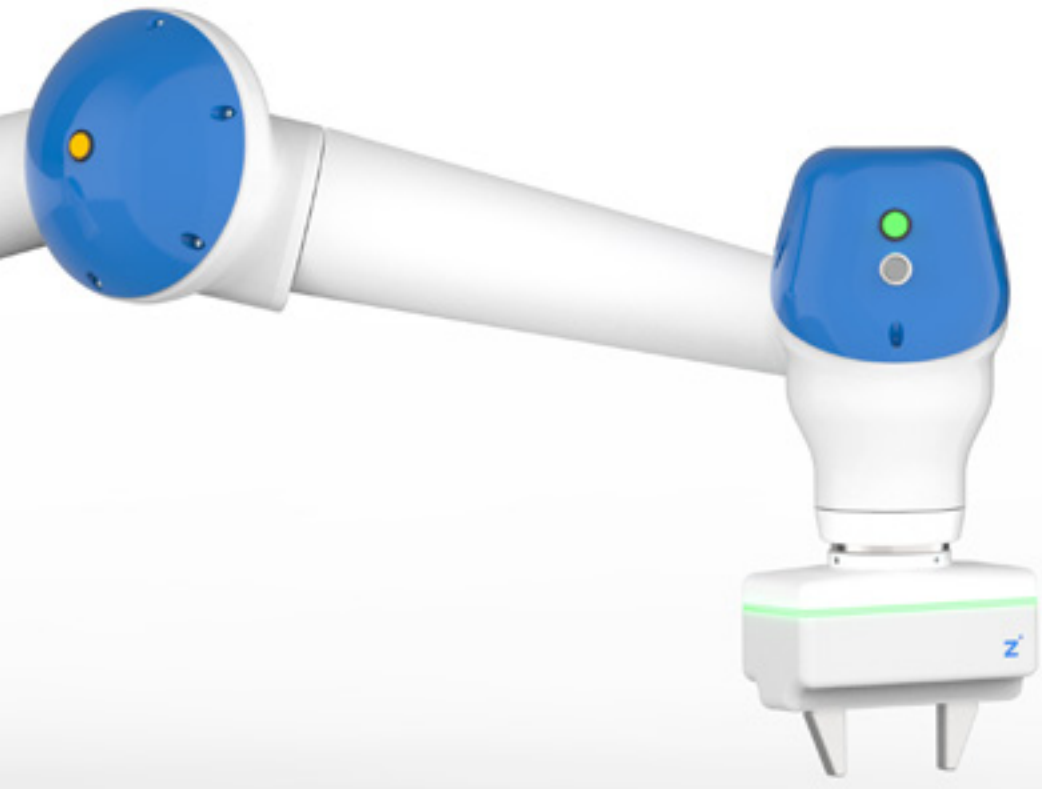
As a pioneer and one of the world's leading manufacturers of HRC grippers, Zimmer Group develops components specifically for this work environment to reduce the physical load on the employees, mitigate against monotonous work steps, prevent accidents and increase the efficiency of workflows through human-robot collaboration.

EASY TO INTEGRATE

Naturally, however, not only the world's best HRC grippers are available for YASKAWA robots, but also a comprehensive system module 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, this system module also includes HRC and Industrie 4.0 components that are compatible with your robot. These open up numerous advantages for you: 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 the maximum level of flexibility when creating, storing and restoring device parameters and also provides assistance during diagnostics/preventive maintenance. Furthermore, the HRC grippers and conventional grippers 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.



HRC COMPONENTS
THE SERIES AT A GLANCE

HC10

Adapter plate
APR000026

Adapter plate
APR000027

HC10 DT
(**D**irect **T**eaching)

2-JAW PARALLEL GRIPPERS

COOPERATIVE

ELECTRIC

HRC-01-072797
IO-Link

Stroke per jaw:	60 mm
Gripping force:	950 N
Weight:	1.8 kg
IP class:	40
Maintenance free (max.):	5 million cycles

STO safety functions + mechanical self-locking mechanism in the event of a power drop

COLLABORATIVE

ELECTRIC

HRC-01-072794
IO-Link

Stroke per jaw:	60 mm
Gripping force (max.):	< 140 N
Weight:	2.0 kg
IP class:	40
Maintenance free (max.):	5 million cycles

STO safety functions + mechanical self-locking mechanism in the event of a power drop + safety gripper jaws prevent 140 N from being exceeded

HRC-03-080663
IO-Link

Stroke per jaw:	10 mm
Gripping force (max.):	< 140 N
Weight:	0.68 kg
IP class:	40
Maintenance free (max.):	10 million cycles

Mechanical self-locking mechanism in the event of a power drop

PNEUMATICALLY INTELLIGENT

HRC-04-080644
IO-Link

Stroke per jaw:	6 mm
Gripping force (max.):	< 140 N
Weight:	0.76 kg
IP class:	40
Maintenance free (max.):	10 million cycles

Gripping force safety device in case of pressure failure via integrated spring

2-JAW ANGULAR GRIPPERS

COLLABORATIVE

PNEUMATICALLY INTELLIGENT

HRC-05-080659
IO-Link

Stroke per jaw:	37.5°
Gripping force (max.):	< 140 N
Weight:	0.82 kg
IP class:	40
Maintenance free (max.):	10 million cycles

Gripping force safety device in case of pressure failure via integrated spring

CONVENTIONAL COMPONENTS
END OF ARM – CONFIGURATION LEVELS

ROBOT FLANGE

For mechanical connection to the follow-on tools. The energy supply for the components installed on the robot flange is arranged internally or externally, depending on the robot type. Control signals as well as pneumatic, electric and hydraulic media can be passed through this.

ROBOT FLANGE ADAPTER PLATE – MULTI-FUNCTION LEVEL

Adapter plate between specific robot flange and ISO partial mounting circle.

MULTI-FUNCTION LEVEL

Multi-function components with ISO partial mounting circle for changing, compensating, protecting and executing. Energy elements for signal transmission and media transfer are also available for the tool changers.


Rotary distributor


Axis compensation modules


Collision protection


Angle flange


Tool changer


Energy elements

MULTI-FUNCTION LEVEL ADAPTER PLATE – AUTOMATION COMPONENT

Adapter plate between ISO partial mounting circle and automation component.

AUTOMATION COMPONENTS

Various versions of automation components.

2-JAW PARALLEL GRIPPERS


GEP2000
Electric

GEP2000
Electric IL


GPP5000
Pneumatic

GPP5000
Pneumatic IL


GEP5000
Electric

GEP5000
Electric IL

GEH6000IL
Electrically positionable

3-JAW CONCENTRIC GRIPPERS


GPD5000
Pneumatic

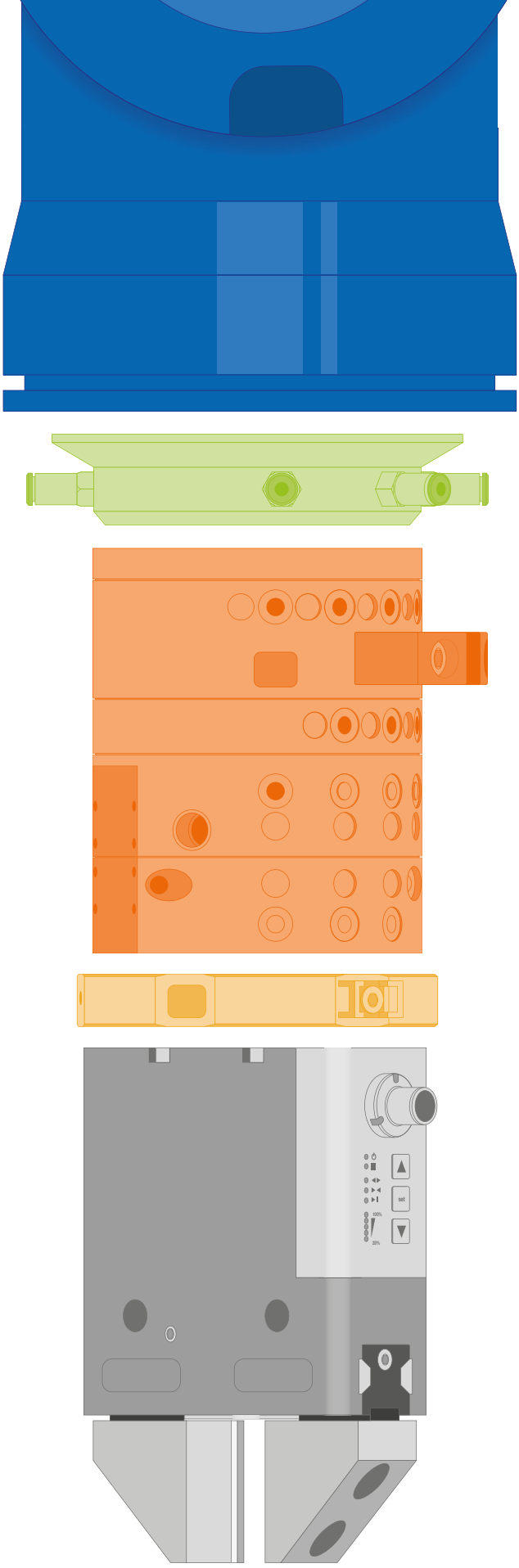
GPD5000
Pneumatic IL


GED5000
Electric

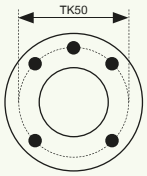
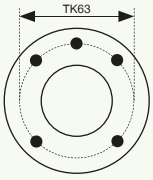
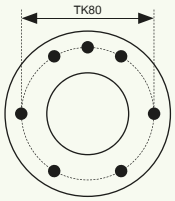
GED5000
Electric IL

2-JAW ANGULAR GRIPPERS


GPW5000
Pneumatic



CONVENTIONAL COMPONENTS
COMBINATION OPTIONS

ROBOTS (Handling weight in kg)	ADAPTER PLATE TO BE USED YASKAWA > ISO 9409-01	MULTI-FUNCTION LEVEL (Select to match the respective pitch circle) OPTIONAL	MULTI-FUNCTION LEVEL ADAPTER PLATE
MH5 (5 kg) **GP7** (7 kg) **GP8** (8 kg)	APR000007 TK50 	 **ROTARY DISTRIBUTOR** DVR and / or  **AXIS COMPENSATION MODULE** XYR and / or	APR000017 APR000001 APR000018 APR000002
GP12 (12 kg) **MH12** (12 kg) **MH24** (24 kg) **GP25** (25 kg)	APR000008 TK63 	 **AXIS COMPENSATION MODULE** ARP and / or  **COLLISION PROTECTION** CSR and / or  **TOOL CHANGER** WWR	APR000009 APR000025 APR000010
GP50 (50 kg) **MH50** (50 kg)	None (already ISO) TK80 	or  **ANGLE FLANGE** WFR	APR000011 APR000012 APR000013 APR000014

Standard combination options. Further combinations available on request.

2-JAW PARALLEL GRIPPERS					3-JAW CENTRIC GRIPPERS				2-JAW ANGULAR GRIPPERS
Pneumatic	Pneumatic IL IO-Link	Electric	Electric IL IO-Link	Electric Positionable IO-Link	Pneumatic	Pneumatic IL IO-Link	Electric	Electric IL IO-Link	Pneumatic
		GEP2010IO	GEP2010IL	GEH6040IL GEH6060IL					
GPP5004 GPP5006	GPP5006IL	GEP5006	GEP5006IL		GPD5004 GPD5006	GPD5006IL	GED5006	GED5006IL	
		GEP2013IO GEP2016IO	GEP2013IL GEP2016IL						
				GEH6040IL GEH6060IL GEH6140IL GEH6180IL					
GPP5008 GPP5010	GPP5008IL GPP5010IL	GEP5008 GEP5010	GEP5008IL GEP5010IL	GEH6040IL GEH6060IL					GPW5008
		GEP2010IO GEP2013IO GEP2016IO	GEP2010IL GEP2013IL GEP2016IL						
				GEH6140IL GEH6180IL	GPD5008 GPD5010	GPD5008IL GPD5010IL	GED5008 GED5010	GED5008IL GED5010IL	
GPP5010 GPP5013	GPP5010IL	GEP5010	GEP5010IL		GPD5010	GPD5010IL	GED5010	GED5010IL	GPW5013
GPP5016				GEH6140IL GEH6180IL	GPD5013				
GPP5025					GPD5016				GPW5025
					GPD5025				

CONVENTIONAL COMPONENTS
THE SERIES AT A GLANCE

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
Maintenance free (max.):	2 million cycles

GPP5000

Number of installation sizes:	11
Stroke per jaw:	2 mm - 45 mm
Gripping force:	140 N - 26950 N
Weight:	0.08 kg - 50 kg
IP class:	64/67
Maintenance free (max.):	30 million cycles

PNEUMATICALLY INTELLIGENT

GPP5000IL
IO-Link

Number of installation sizes:	3
Stroke per jaw:	3 mm - 10 mm
Gripping force:	330 N - 2890 N
Weight:	0.45 kg - 1.45 kg
IP class:	64
Maintenance free (max.):	30 million cycles

ELECTRIC

GEP2000
IO-Link

Number of installation sizes:	3
Stroke per jaw:	10 mm - 16 mm
Gripping force:	50 N - 500 N
Weight:	0.31 kg - 0.9 kg
IP class:	40
Maintenance free (max.):	10 million cycles

GEP5000
IO-Link

Number of installation sizes:	3
Stroke per jaw:	6 mm - 10 mm
Gripping force:	540 N - 1520 N
Weight:	0.79 kg - 1.66 kg
IP class:	64
Maintenance free (max.):	30 million cycles

2-JAW PARALLEL GRIPPERS WITH LONG STROKE

ELECTRIC

GEH6000IL
IO-Link

Number of installation sizes:	2
Stroke per jaw:	up to 80 mm
Gripping force:	100 N - 2400 N
Weight:	0.7 kg - 2.6 kg
IP class:	54
Maintenance free (max.):	5 million cycles

3-JAW CONCENTRIC GRIPPERS

PNEUMATIC

GPD5000

Number of installation sizes:	11
Stroke per jaw:	2 mm - 45 mm
Gripping force:	310 N - 72500 N
Weight:	0.14 kg - 99.9 kg
IP class:	64/67
Maintenance free (max.):	30 million cycles

PNEUMATICALLY INTELLIGENT

GPD5000IL
IO-Link

Number of installation sizes:	3
Stroke per jaw:	3 mm - 10 mm
Gripping force:	740 N - 7160 N
Weight:	0.75 kg - 2.5 kg
IP class:	64
Maintenance free (max.):	30 million cycles

ELECTRIC

GED5000
IO-Link

Number of installation sizes:	3
Stroke per jaw:	6 mm - 10 mm
Gripping force:	540 N - 1520 N
Weight:	1.09 kg - 2.33 kg
IP class:	64
Maintenance free (max.):	30 million cycles

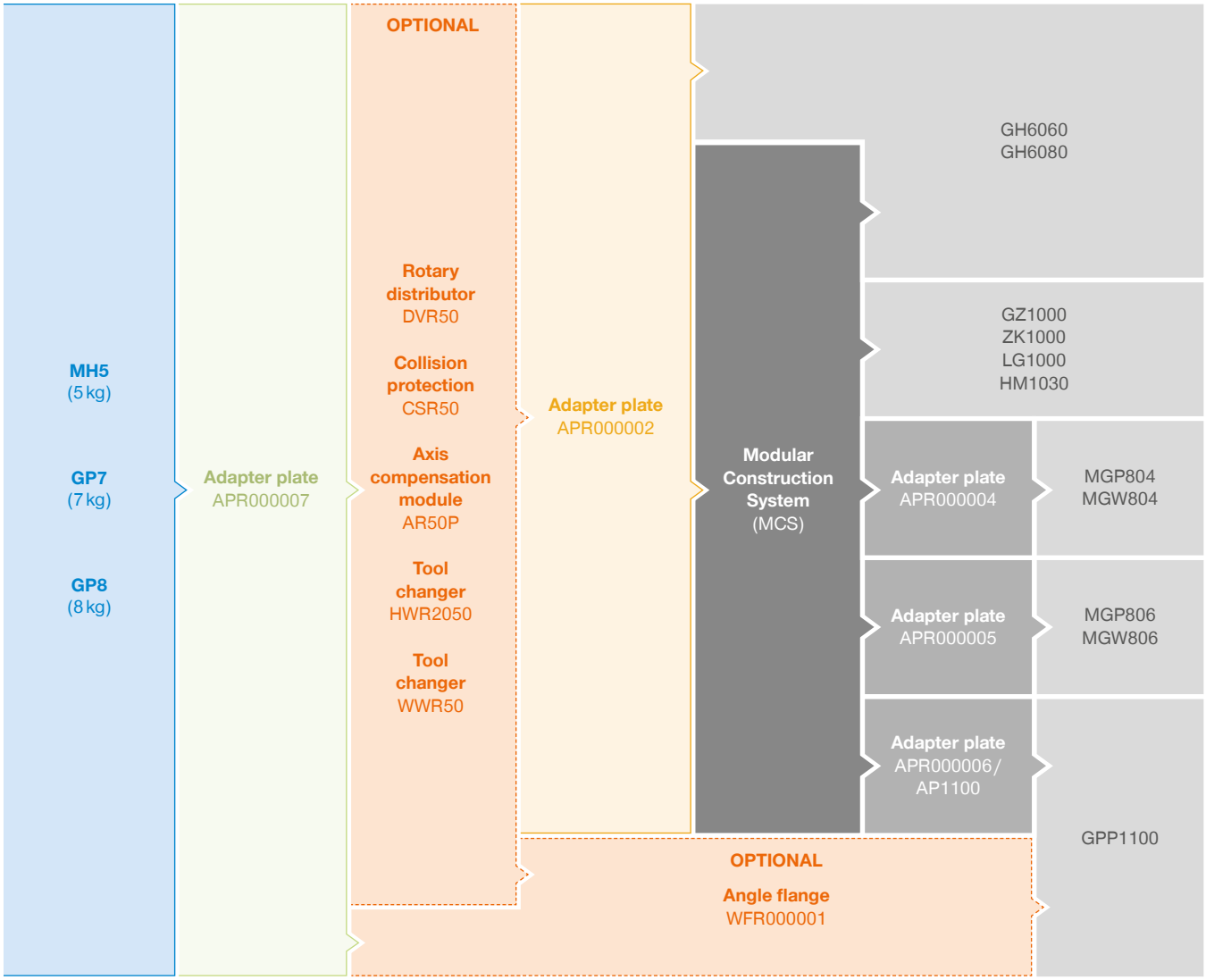
2-JAW ANGULAR GRIPPERS

PNEUMATIC

GPW5000

Number of installation sizes:	3
Stroke per jaw:	+15° / -2°
Gripping force:	1450 N - 14500 N
Weight:	0.9 kg - 12.1 kg
IP class:	64
Maintenance free (max.):	30 million cycles

CONVENTIONAL COMPONENTS
CONNECTION VIA MCS

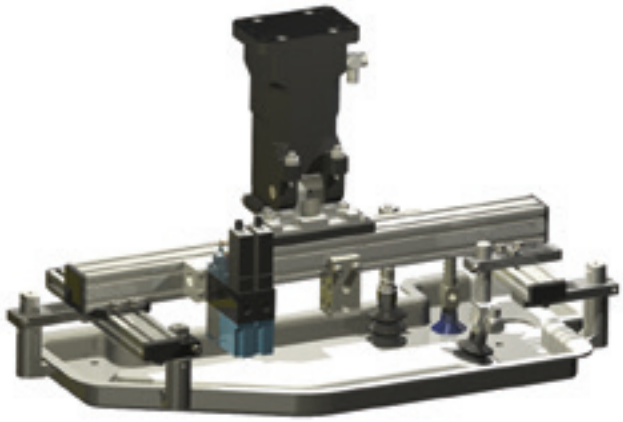


MCS – MODULAR CONSTRUCTION SYSTEM

The modular construction system (MCS) can be used to create a workpiece-specific solution without increased engineering efforts. This is made possible by the harmonized individual components.

The product portfolio includes profiles, compensation modules, suction cup mounts as well as gripper fingers that guarantee a secure grip on the workpiece during motion.

For a complete overview of all the MCS components, refer to our "Handling technology 3" catalog or visit us online at **www.zimmer-group.com**.



CONVENTIONAL COMPONENTS
THE SERIES AT A GLANCE

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
Maintenance free (max.):	2 million 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
Maintenance free (max.):	10 million 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 - 22.7 kg
IP class:	40
Maintenance free (max.):	10 million cycles

2-JAW ANGULAR GRIPPERS

PNEUMATIC

GZ1000

Number of installation sizes:	3
Stroke per jaw:	8 °- 11°
Gripping force:	62 N - 315 N
Weight:	0.015 kg - 0.125 kg
IP class:	30
Maintenance free (max.):	10 million 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
Maintenance free (max.):	10 million cycles

GRIPPERS FOR SPECIAL TASKS

INTERNAL GRIPPER

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:	0.028 kg - 0.041 kg

CUTTING TONGS

ZK1000

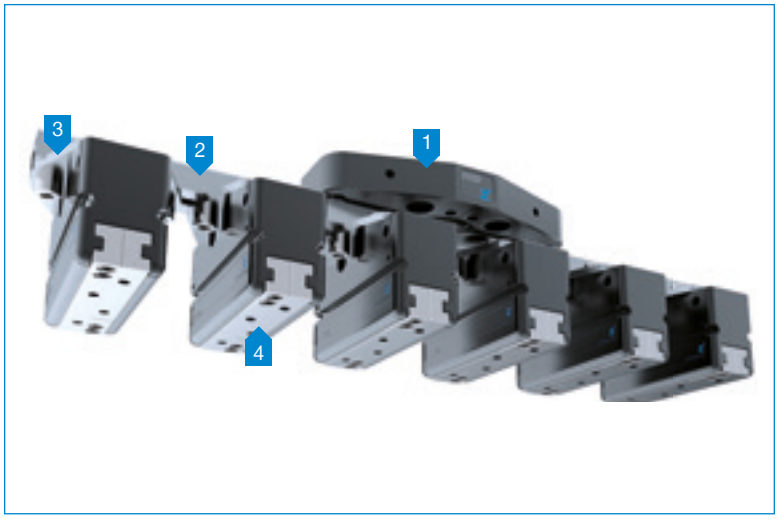
Stroke per jaw:	4.25 °- 13 °
Gripping moment in closing:	14 Nm - 400 Nm
Weight:	0.08 kg - 0.67 kg

MAGNETIC GRIPPER

HM1000

Adhesive force (max.):	27 N - 450 N
Weight:	0.06 kg - 2.2 kg

MODULAR CONSTRUCTION SYSTEM (MCS)
CONNECTION EXAMPLES



* See the Handling technology 3 catalog

CONNECTION EXAMPLE GPP1000 SERIES

YASKAWA ROBOTS GP7 / GP8 / GP12

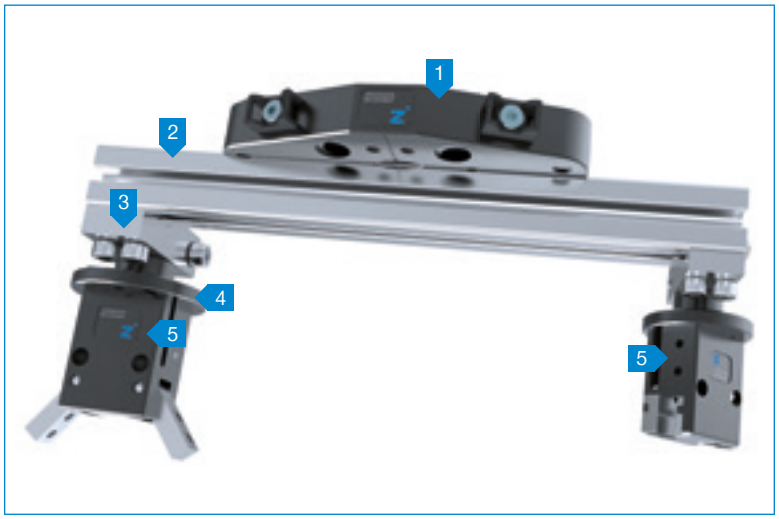
Adapter plate APR000007

1 Adapter plate APR000002

2 MCS Profile*

3 Adapter plate APR000006

4 Series GPP1000



* See the Handling technology 3 catalog

CONNECTION EXAMPLE MGP800 and MGW800 SERIES

YASKAWA ROBOTS GP7 / GP8 / GP12

Adapter plate APR000007

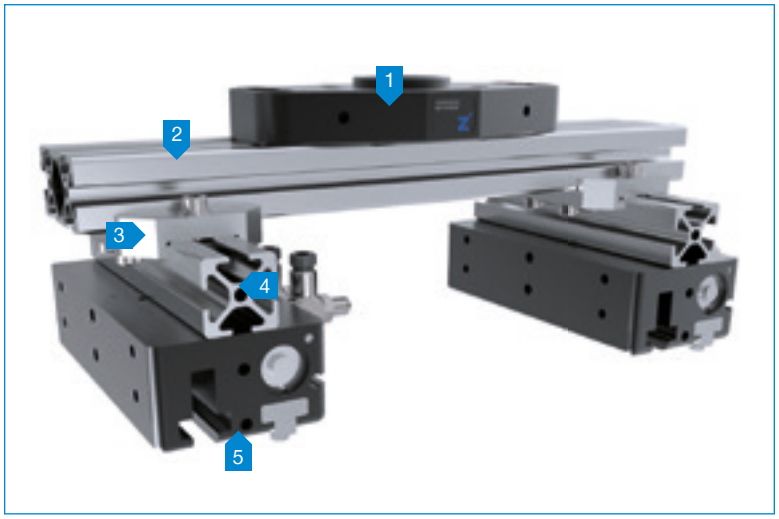
1 Adapter plate APR000002

2 MCS Profile*

3 MCS Clamp SO-23120022*

4 Adapter plate APR000004/APR000005

5 Series MGP800 and MGW800



* See the Handling technology 3 catalog

CONNECTION EXAMPLE GEH6000IL / GH6000 SERIES

YASKAWA ROBOTS GP7 / GP8 / GP12

Adapter plate APR000007

1 Adapter plate APR000002

2 MCS Profile*

3 MCS Cross clamp*

4 MCS Profile*

5 Series GEH6000IL/GH6000

USAGE NOTE
GENERAL INFORMATION

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.

The technical data listed in this catalog must be observed by the user. The user must not exceed or fail to meet the specified data. If that information is missing, it cannot be assumed that there are no upper or lower limits or no limitations for specific use cases. Consultation is always required for unusual use cases.

Disposal is not included in the price, which would have to be taken into account accordingly in the event of return to or disposal by Zimmer GmbH.

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