Handling technology

Module for
Universal Robots

THE KNOW-HOW FACTORY

UNIVERSAL ROBOTS+
Certified

ZIMMER group

www.zimmer-group.com

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 Universal Robots 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 innovative robots from Universal Robots.

BECAUSE SIMPLE IS SIMPLY BETTER

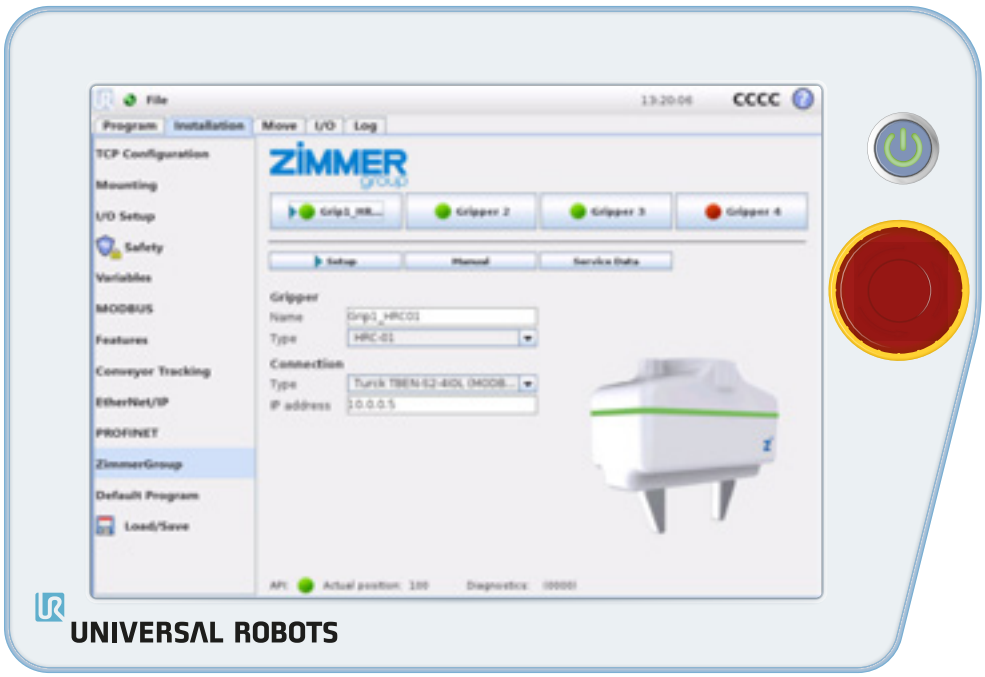
This integration makes it possible for the user to enable maximum levels of flexibility and straightforward adaptation, storage and restoring device parameters during the creation of new application-specific profiles.

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 components considerably.

CONFIGURATION

- **Graphic component selection**

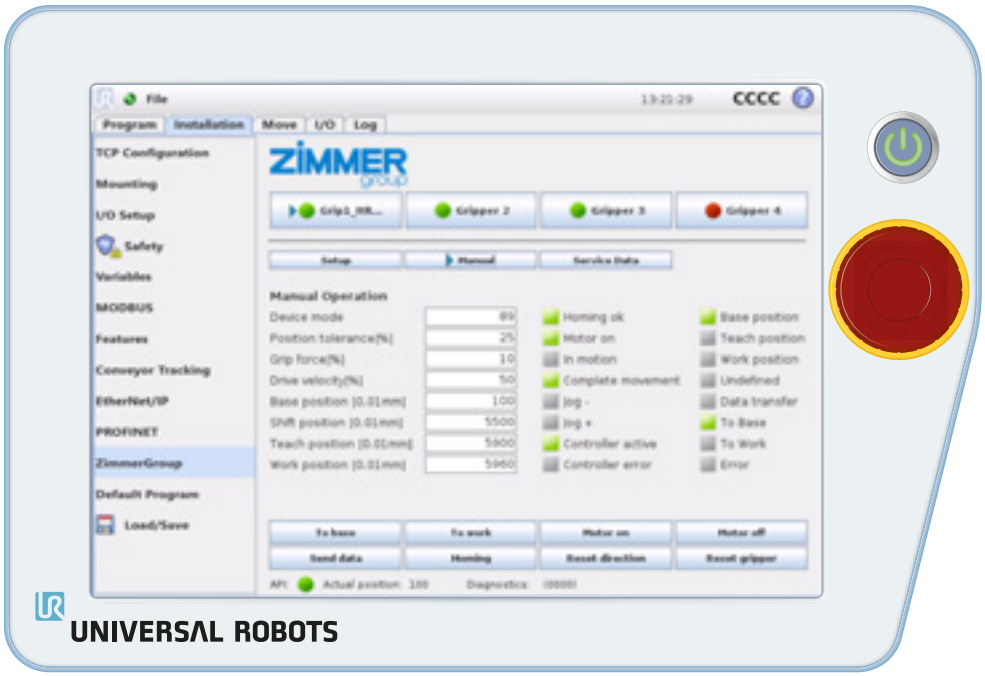
  Easiest assignment of a Zimmer gripper to the robot



MANUAL OPERATION

► **Generating the gripper process parameters**

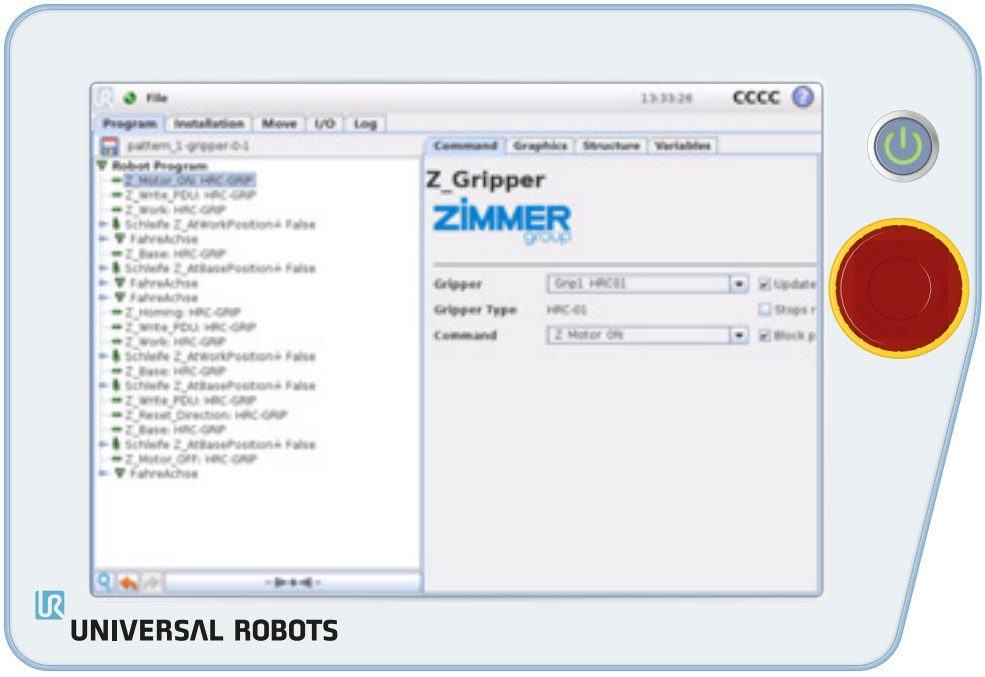
such as gripping forces, gripper positions, gripping speed, etc.



AUTOMATIC MODE ROBOT

► **Use of function blocks**

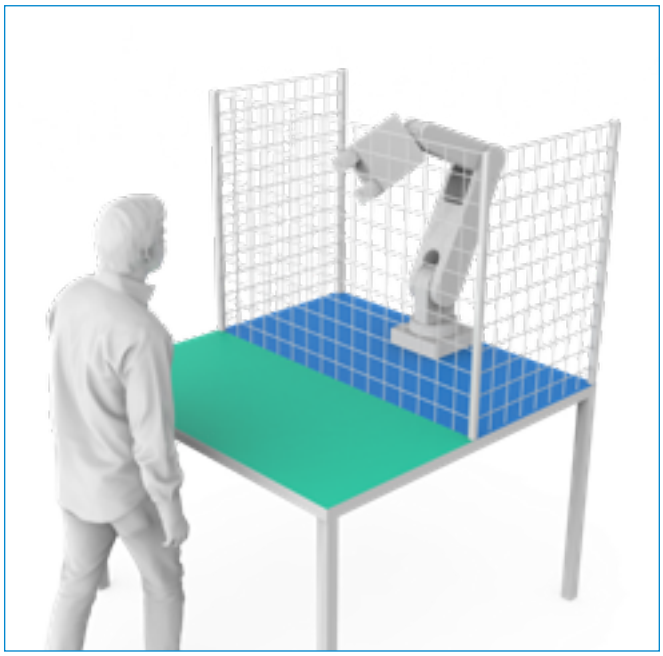
such as Open gripper / Close gripper, etc. for easy operation



HUMAN – ROBOT
DIFFERENT FORMS OF INTERACTION

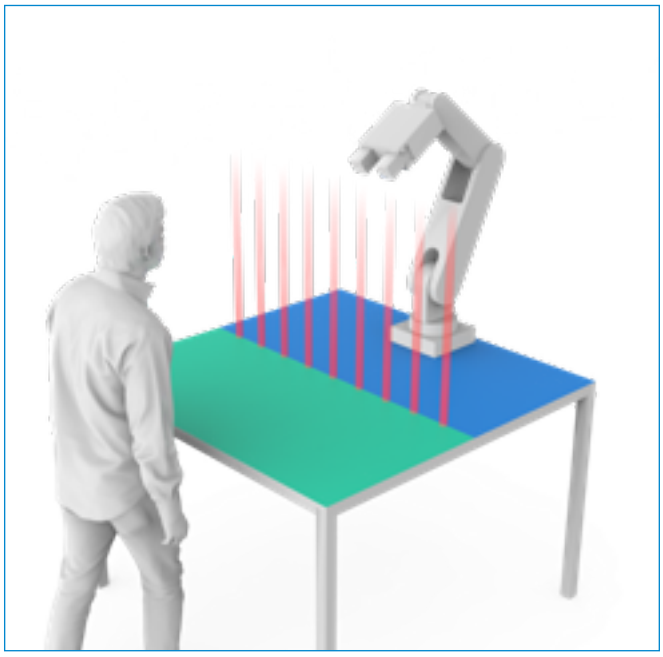
CONVENTIONAL COMPONENTS

▶ Automation cell



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

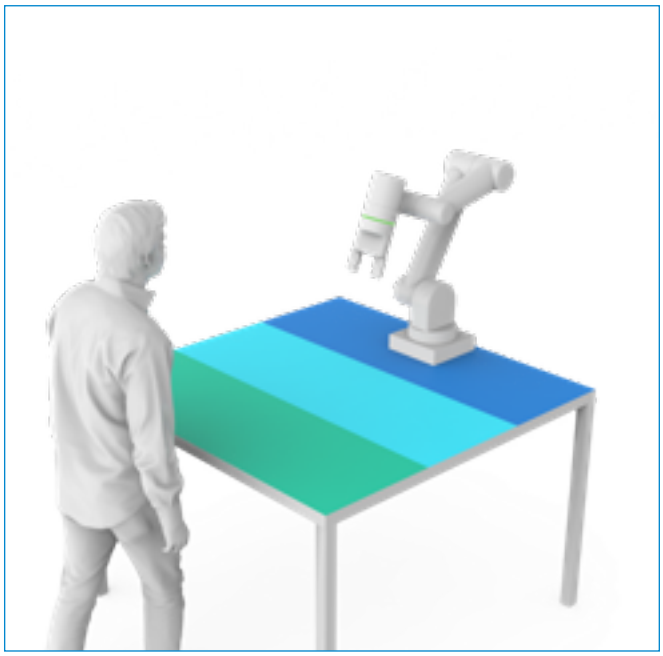
▶ Coexistence



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

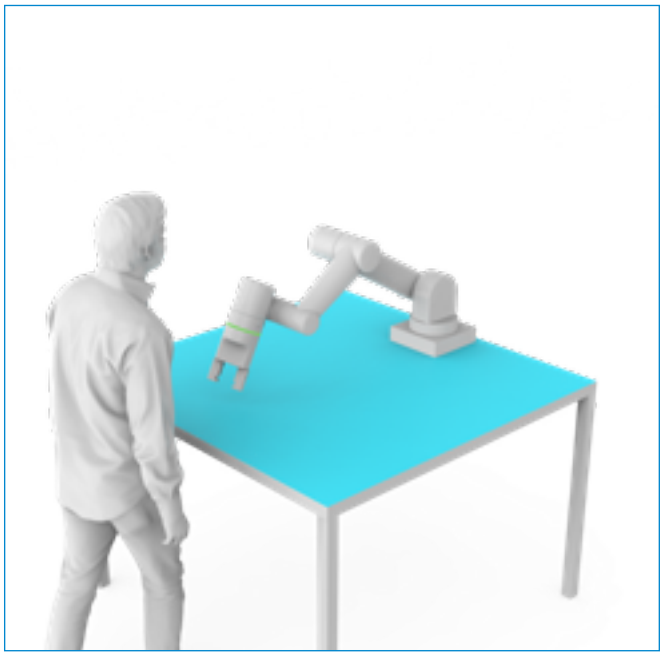
HRC COMPONENTS

▶ 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

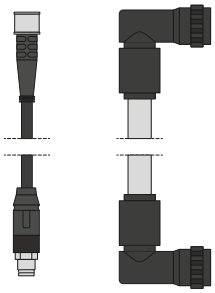
HMI CONFIGURATION PACKAGE
EASY-TO-USE PACKAGE

► MAXIMUM PERFORMANCE INCLUDED

The combination of Zimmer Group components, the Zimmer Easy-to-Use Package and UR robots ensure the easiest integration as well as intuitive operation. Maximum performance included!

FOR MORE INFORMATION ABOUT THE EASY-TO-USE PACKAGE VISIT US AT:
www.zimmer-group.com

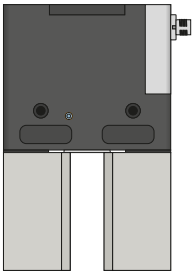
Software



Cables and accessories

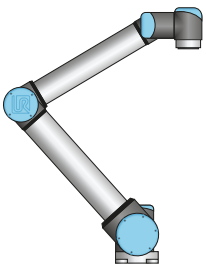
IO-Link master

+



Zimmer Group gripper *

+



UR robot *
(industrial / collaborative)

FOR MORE INFORMATION ABOUT UNIVERSAL ROBOTS VISIT US AT:

www.universal-robots.com

* Available separately

▶ Zimmer Easy-to-Use Package for UR[1]

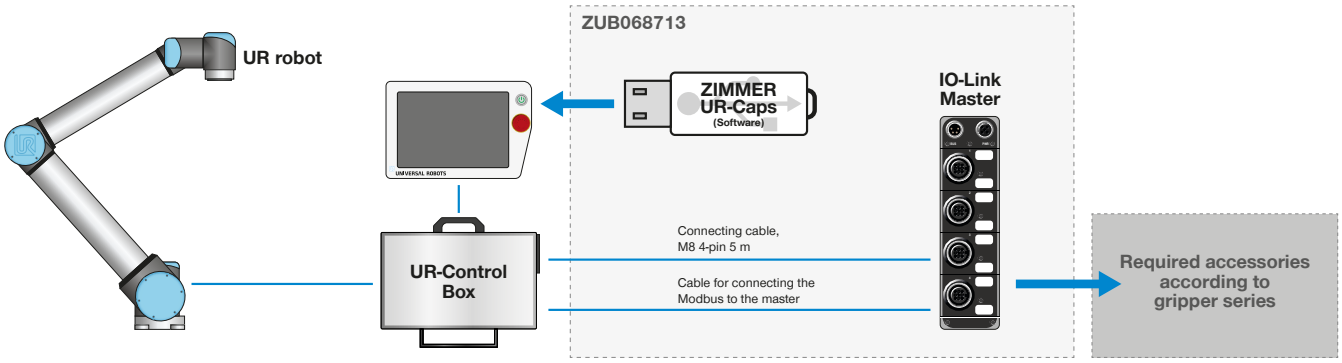
Part number	Article	Description
ZUB068713	IO-Link master	IO-Link master
	Connecting cable, M8 4-pin 5 m	Cable for supplying power to the master
	Cable for connecting the Modbus to the master	Communications cable between the robot and master RJ 45
	UR-Caps (software)	HMI for UR robots

▶ Required accessories according to gripper series

Part number	Article	Description	GPD5000IL [3, 4], GPP5000IL [3, 4]	GEP2000IL, GEH6000IL, GEP5000IL, GED5000IL [3]	HRC-01 [3]	HRC-03 [3]	HRC-04 [3]	HRC-05 [3]
KAG500	Connecting cable M8 3-pin 5 m	STO cable (Safe Torque Off)			●			
KAG500IL	Connecting cable M12 5-pin 5m	Connection between gripper and Y adapter	●	●	●	●	●	●
B12-Y-5IL	Y adapter	Splitting between data and power supply	●	●	●	●	●	●
KAG500-02	Connecting cable (Y to Power)	Connecting cable to power adapter	●	●	●	●	●	●
CELE01442	Power adapter [2]	Power adapter for power supply (24V/10A)	●	●	●	●	●	●

▶ Optional accessories

Part number	Article	Description	GPD5000IL, GPP5000IL	GEP2000IL, GEH6000IL, GEP5000IL, GED5000IL	HRC-01	HRC-03	HRC-04	HRC-05
ZUB000009	UR3 energy chain	Energy chain for robot of type UR3	●	●	●	●	●	●
ZUB000010	UR5 energy chain	Energy chain for robot of type UR5	●	●	●	●	●	●
ZUB000011	UR10 energy chain	Energy chain for robot of type UR10	●	●	●	●	●	●



[1] The Easy-to-Use Package is required once per robot and enables the operation of up to 4 different IO-Link grippers.
[2] The power adapter provides 10 A (15 A peak). Please observe the current draw of the respective gripper series.
[3] These additions are needed each for one gripper. The energy chains are optional here.
[4] The following hose outer diameter is recommended: GPD/GPP5006: 4 mm / GPD/GPP5008: 4 mm / GPD/GPP5010: 6 mm

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 Universal 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

UR3

2-JAW PARALLEL GRIPPERS

COLLABORATIVE

ELECTRIC

HRC-03-072844

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-04-072810

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

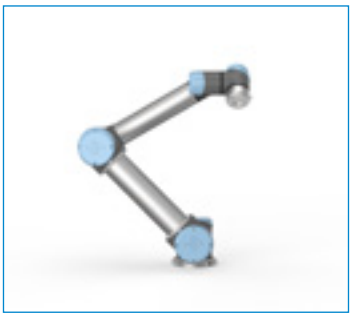
PNEUMATICALLY INTELLIGENT

HRC-05-072836

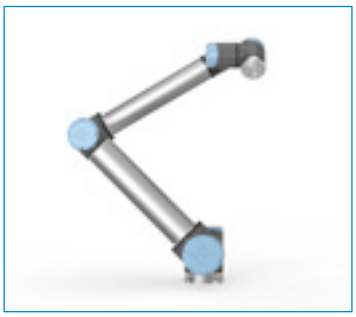
IO-Link

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



UR5



UR10

2-JAW PARALLEL GRIPPERS

COOPERATIVE

ELECTRIC

HRC-01-072802 *

IO-Link

Stroke per jaw:	60 mm
Gripping force:	950 N
Weight:	1.6 kg
IP class:	40
Maintenance-free (max.):	5 million cycles

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

HRC-01-072824 * *

IO-Link

Stroke per jaw:	60 mm
Gripping force:	950 N
Weight:	1.6 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-01-072819 *

IO-Link

Stroke per jaw:	60 mm
Gripping force (max.):	< 140 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 + safety gripper jaws prevent 140 N from being exceeded

HRC-01-072830 * *

IO-Link

Stroke per jaw:	60 mm
Gripping force (max.):	< 140 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 + safety gripper jaws prevent 140 N from being exceeded

HRC-03-072844

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-04-072810

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-05-072836

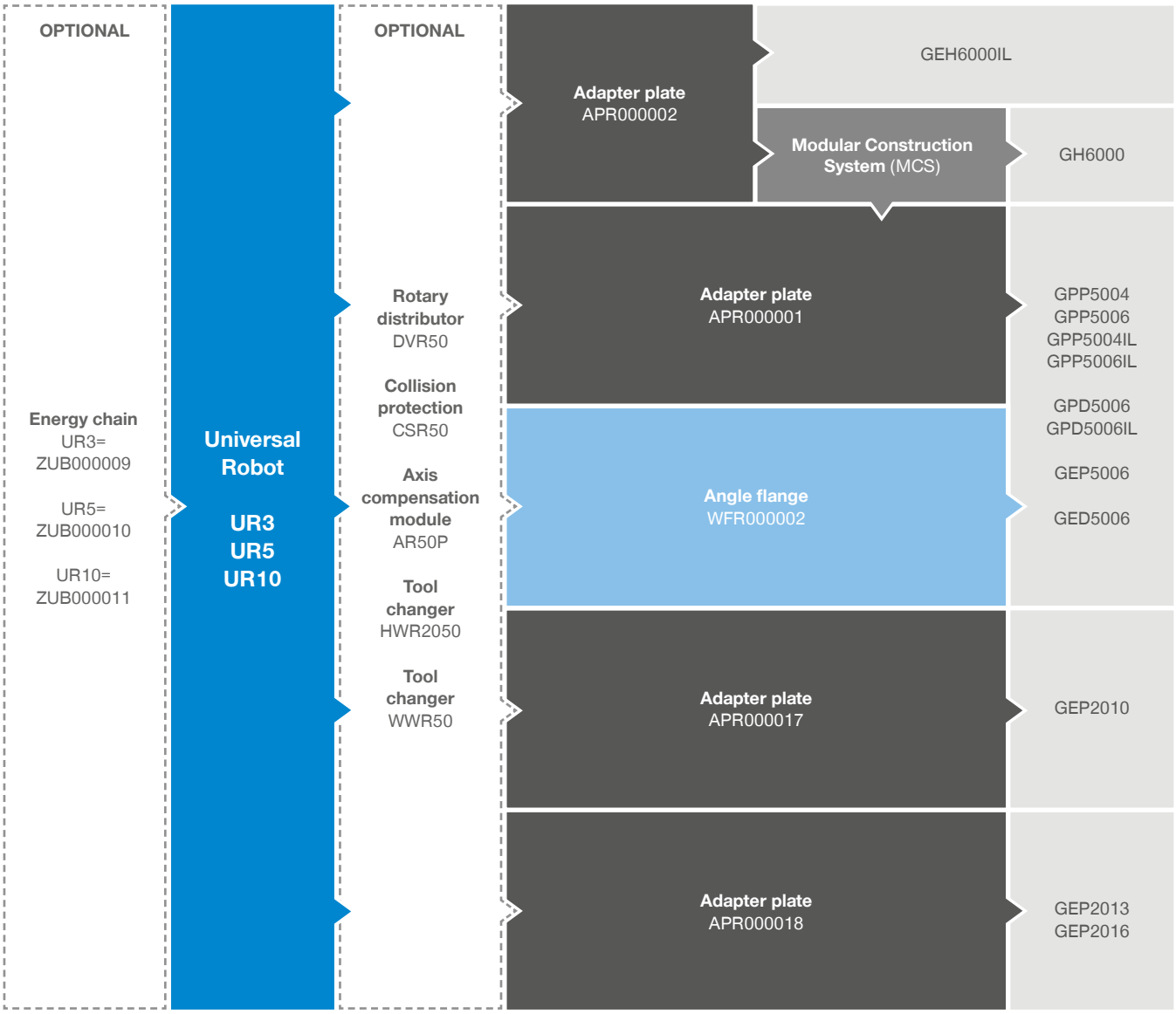
IO-Link

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

* Suitable for UR5
* * Suitable for UR10

CONVENTIONAL COMPONENTS
CONNECTION OPTIONS



UR3

UR5

UR10

CONVENTIONAL COMPONENTS
THE SERIES AT A GLANCE

2-JAW PARALLEL GRIPPERS

PNEUMATIC

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

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

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

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

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

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

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

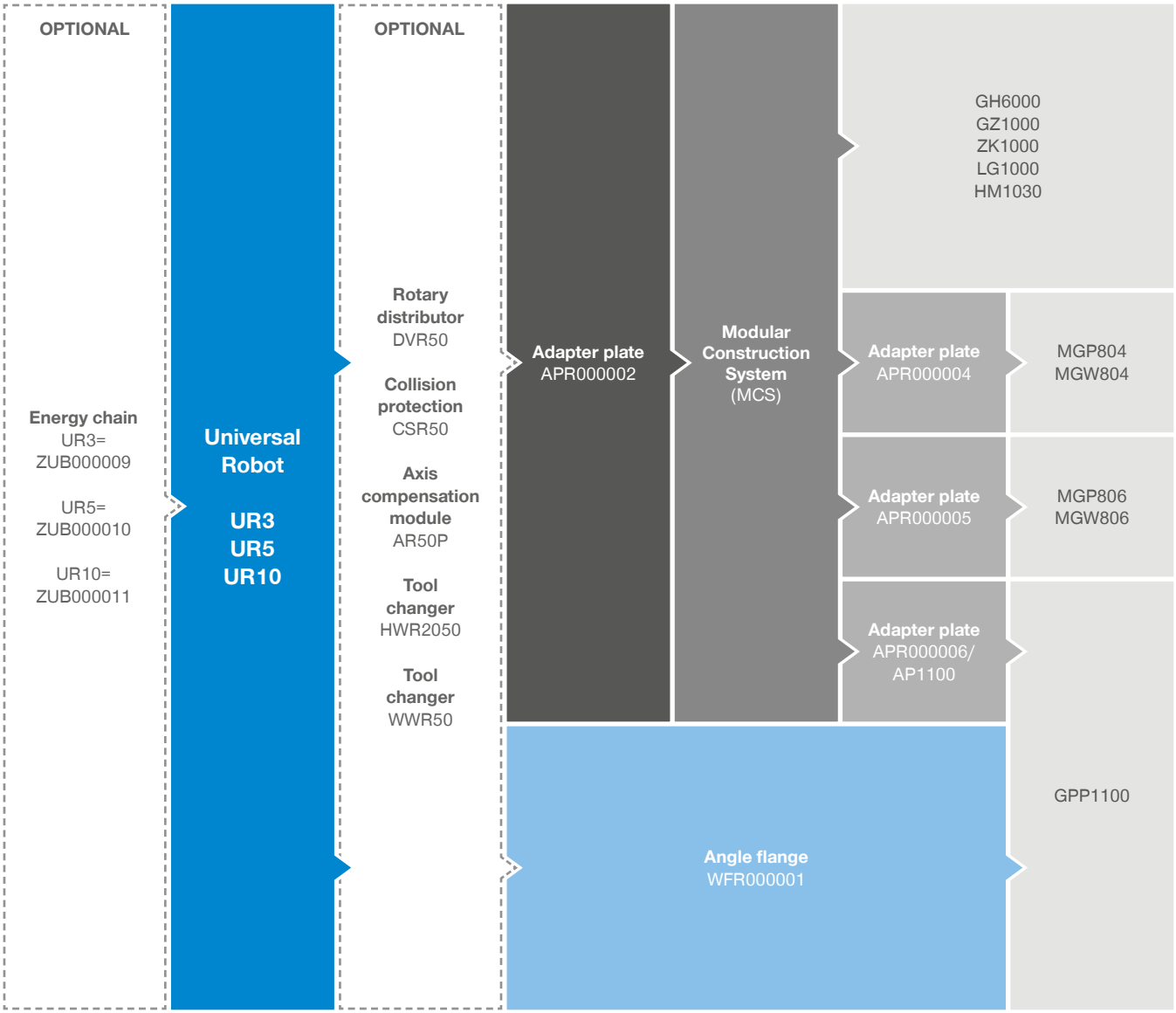
2-JAW ANGULAR GRIPPERS

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



UR3

UR5

UR10

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

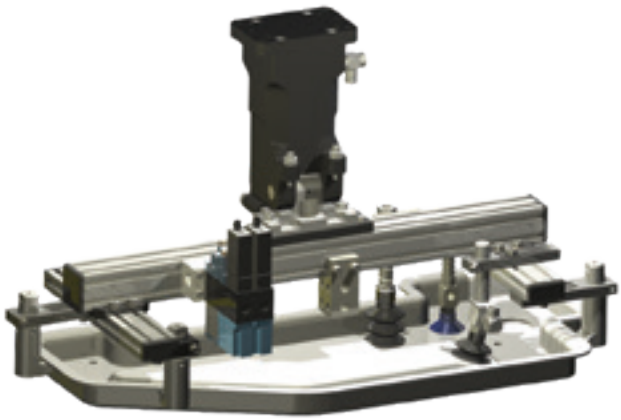
HM1000

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

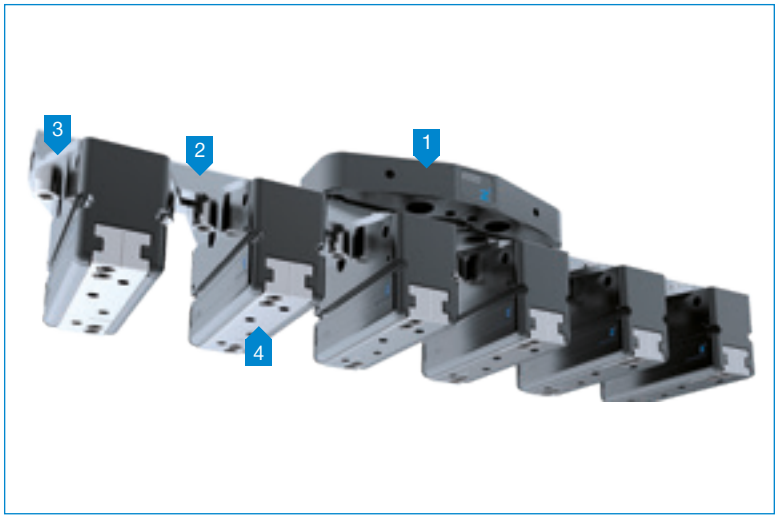
MCS – MODULAR CONSTRUCTION SYSTEM

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**.



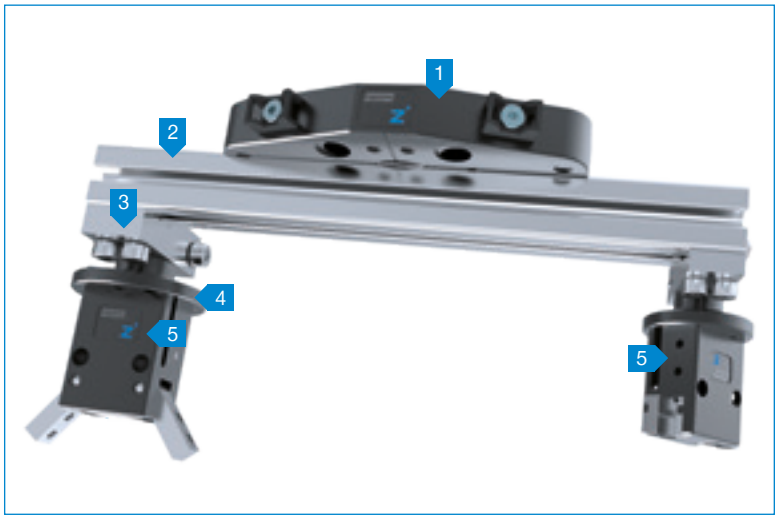
MODULAR CONSTRUCTION SYSTEM (MCS)
CONNECTION EXAMPLES



* See the Handling technology 3 catalog

CONNECTION EXAMPLE GPP1000 SERIES

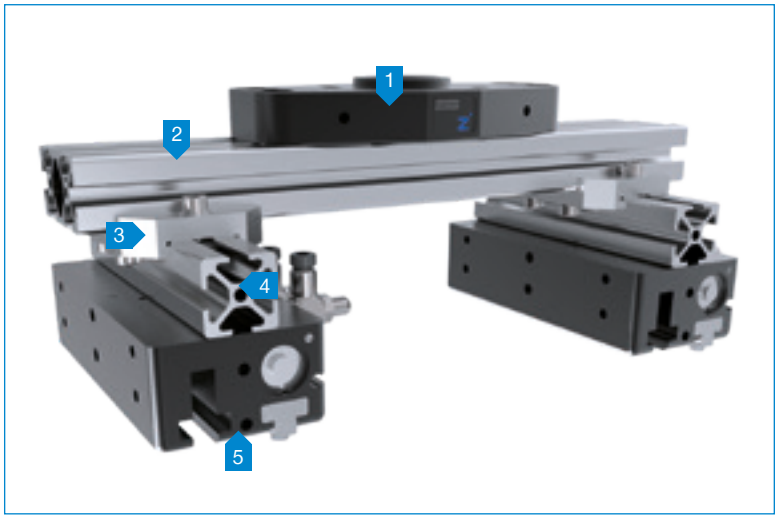
UR ROBOTS UR3 / UR5 / UR10
1 Adapter plate APR000002
2 MCS Profile*
3 Adapter plate APR000006
4 Series GPP1000



* See the Handling technology 3 catalog

CONNECTION EXAMPLE MGP800 and MGW800 SERIES

UR ROBOTS UR3 / UR5 / UR10
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

UR ROBOTS UR3 / UR5 / UR10
1 Adapter plate APR000002
2 MCS Profile*
3 MCS Cross clamp*
4 MCS Profile*
5 Series GEH6000IL/GH6000

* See the Handling technology 3 catalog

USAGE NOTE
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