Handling Technology
Handling Technology construction kit for YASKAWA-Robots

THE KNOW-HOW FACTORY

www.zimmer-group.com
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
► COEXISTING

► SEPARATED WORKING AREAS
► ROBOT RECOGNIZES WORKER

WORK PIECE RECEPTION IN THE SECURED AREA

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**

- 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

**RECORDING IN THE SECURED AREA**

**SAME WORKING AREAS**

**COUPLED WORK**

**TOUCHING NEEDED**

**REDUCED SPEED**
**MRK COMPONENTS**

**THE SERIES AT A GLANCE**

---

**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).
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.

► 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
- GEH6000IL Electric Positionable
- GEPP5000 Electric

3-JAW CONCENTRIC GRIPPERS
- GPD5000 Pneumatic
- GPD5000 Pneumatic IL
- GED5000 Electric
- GED5000 Electric IL

2-JAW ANGULAR GRIPPERS
- GPW5000 Pneumatic
### CRASH PROTECTION

**CSR**

**ANGLE FLANGE**

**WFR**

### AXIS COMPENSATION

**MODULES**

**ARP**

### ROTARY DISTRIBUTORS

**DVR**

### ENERGY ELEMENTS

**WWR**

### TOOL CHANGERS

**WWR**

### Specifications

<table>
<thead>
<tr>
<th>MH5</th>
<th>GP7</th>
<th>GP8</th>
<th>GP12</th>
<th>MH12</th>
<th>MH24</th>
<th>MH50</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>7</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>APR000007 (TK50)</td>
<td>APR000007 (TK50)</td>
<td>APR000007 (TK50)</td>
<td>APR000008 (TK63)</td>
<td>APR000008 (TK63)</td>
<td>APR000008 (TK63)</td>
<td>no (already ISO) TK80</td>
</tr>
</tbody>
</table>

### Data, Drawings, 3-D Models, Operating Instructions

**www.zimmer-group.com**
# 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

<table>
<thead>
<tr>
<th>Pneumatic</th>
<th>Pneumatic IL</th>
<th>Electric</th>
<th>Electric IL</th>
<th>Electric Positionable</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>

- 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

<table>
<thead>
<tr>
<th><img src="image1.png" alt="Image" /></th>
<th><img src="image2.png" alt="Image" /></th>
<th><img src="image3.png" alt="Image" /></th>
<th><img src="image4.png" alt="Image" /></th>
</tr>
</thead>
</table>

- 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

<table>
<thead>
<tr>
<th><img src="image1.png" alt="Image" /></th>
<th><img src="image2.png" alt="Image" /></th>
<th><img src="image3.png" alt="Image" /></th>
<th><img src="image4.png" alt="Image" /></th>
</tr>
</thead>
</table>

- Series GPW5000
  - Installation size 5008
  - Installation size 5013
  - Installation size 5025
CONVENTIONAL COMPONENTS
OVERVIEW OF SERIES

## 2-JAW PARALLEL GRIPPERS

### PNEUMATIC

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of installation sizes</th>
<th>Stroke per jaw</th>
<th>Gripping force</th>
<th>Weight</th>
<th>IP class</th>
<th>Without maintenance (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPP5000</td>
<td>11</td>
<td>2,5 mm - 45 mm</td>
<td>140 N - 2650 N</td>
<td>0,08 kg - 41,5 kg</td>
<td>64/67</td>
<td>30 mil. cycles</td>
</tr>
</tbody>
</table>

### ELECTRIC

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of installation sizes</th>
<th>Stroke per jaw</th>
<th>Gripping force</th>
<th>Weight</th>
<th>IP class</th>
<th>Without maintenance (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEP5000</td>
<td>3</td>
<td>6 mm - 10 mm</td>
<td>540 N - 1900 N</td>
<td>0,79 kg - 1,66 kg</td>
<td>64</td>
<td>30 mil. cycles</td>
</tr>
</tbody>
</table>

## 2-JAW PARALLEL GRIPPERS WITH LONG STROKE

### ELECTRIC

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of installation sizes</th>
<th>Stroke per jaw</th>
<th>Gripping force</th>
<th>Weight</th>
<th>IP class</th>
<th>Without maintenance (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEH6000IL</td>
<td>2</td>
<td>bis zu 80 mm</td>
<td>60 N - 2400 N</td>
<td>0,76 kg - 2,6 kg</td>
<td>40/54</td>
<td>5 mil. cycles</td>
</tr>
</tbody>
</table>

## 3-JAW CONCENTRIC GRIPPERS

### PNEUMATIC

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of installation sizes</th>
<th>Stroke per jaw</th>
<th>Gripping force</th>
<th>Weight</th>
<th>IP class</th>
<th>Without maintenance (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPD5000</td>
<td>11</td>
<td>2,5 mm - 45 mm</td>
<td>310 N - 72500 N</td>
<td>0,14 kg - 88 kg</td>
<td>64/67</td>
<td>30 mil. cycles</td>
</tr>
</tbody>
</table>

### ELECTRIC

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of installation sizes</th>
<th>Stroke per jaw</th>
<th>Gripping force</th>
<th>Weight</th>
<th>IP class</th>
<th>Without maintenance (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GED5000</td>
<td>3</td>
<td>6 mm - 10 mm</td>
<td>540 N - 1900 N</td>
<td>1,09 kg - 2,53 kg</td>
<td>64</td>
<td>30 mil. cycles</td>
</tr>
</tbody>
</table>

## 2-JAW ANGULAR GRIPPERS

### PNEUMATIC

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of installation sizes</th>
<th>Stroke per jaw</th>
<th>Gripping force</th>
<th>Weight</th>
<th>IP class</th>
<th>Without maintenance (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPW5000</td>
<td>3</td>
<td>+15° / -2°</td>
<td>1330 N - 14500 N</td>
<td>0,9 kg - 12,1 kg</td>
<td>64</td>
<td>30 mil. cycles</td>
</tr>
</tbody>
</table>

Data, Drawings, 3-D Models, Operating Instructions  ▶  www.zimmer-group.com  15
SMALL PART HANDLING FOR LOADS UP TO 8 KG

CONVENTIONAL COMPONENTS

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

<table>
<thead>
<tr>
<th>2-JAW PARALLEL GRIPPERS</th>
<th>2-JAW PARALLEL GRIPPERS WITH LONG STROKE</th>
<th>2-JAW ANGULAR GRIPPERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PNEUMATIC</strong></td>
<td><strong>PNEUMATIC</strong></td>
<td><strong>PNEUMATIC</strong></td>
</tr>
<tr>
<td><strong>GPP1000</strong></td>
<td><strong>GPP1000</strong></td>
<td><strong>GZ1000</strong></td>
</tr>
<tr>
<td>Number of installation sizes:</td>
<td>1</td>
<td>Number of installation sizes:</td>
</tr>
<tr>
<td>Stroke per jaw:</td>
<td>4 mm - 16 mm</td>
<td>Stroke per jaw:</td>
</tr>
<tr>
<td>Gripping force:</td>
<td>100 N</td>
<td>Gripping force:</td>
</tr>
<tr>
<td>Weight:</td>
<td>0.16 kg - 0.20 kg</td>
<td>Weight:</td>
</tr>
<tr>
<td>Without maintenance (max.):</td>
<td>2 mil. cycles</td>
<td>Without maintenance (max.):</td>
</tr>
<tr>
<td><strong>MGP800</strong></td>
<td><strong>MGP800</strong></td>
<td><strong>MGW800</strong></td>
</tr>
<tr>
<td>Number of installation sizes:</td>
<td>8</td>
<td>Number of installation sizes:</td>
</tr>
<tr>
<td>Stroke per jaw:</td>
<td>1 mm - 12 mm</td>
<td>Stroke per jaw:</td>
</tr>
<tr>
<td>Gripping force:</td>
<td>6 N - 400 N</td>
<td>Gripping force:</td>
</tr>
<tr>
<td>Weight:</td>
<td>0.008 kg - 0.46 kg</td>
<td>Weight:</td>
</tr>
<tr>
<td>Without maintenance (max.):</td>
<td>40</td>
<td>Without maintenance (max.):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>GRIPPERS FOR SPECIFIC TASKS</strong></th>
<th><strong>MAGNETIC GRIPPERS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERNAL GRIPPERS</strong></td>
<td><strong>HM1000</strong></td>
</tr>
<tr>
<td><strong>LG1000</strong></td>
<td>Adhesive force max.:</td>
</tr>
<tr>
<td>Total stroke in Ø :</td>
<td>Weight:</td>
</tr>
<tr>
<td>2.5 mm - 3.5 mm</td>
<td></td>
</tr>
<tr>
<td>Gripping diameter min. :</td>
<td></td>
</tr>
<tr>
<td>8 mm - 15 mm</td>
<td></td>
</tr>
<tr>
<td>Gripping diameter max. :</td>
<td></td>
</tr>
<tr>
<td>10.5 mm - 18.5 mm</td>
<td></td>
</tr>
<tr>
<td>Slip force max.:</td>
<td></td>
</tr>
<tr>
<td>53 N - 56 N</td>
<td></td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>0.03 kg - 0.04 kg</td>
<td></td>
</tr>
<tr>
<td><strong>ZK1000</strong></td>
<td></td>
</tr>
<tr>
<td>Stroke per jaw:</td>
<td></td>
</tr>
<tr>
<td>4.25° - 13°</td>
<td></td>
</tr>
<tr>
<td>Gripping moment in closing:</td>
<td></td>
</tr>
<tr>
<td>14 Nm - 400 Nm</td>
<td></td>
</tr>
<tr>
<td>Weight:</td>
<td></td>
</tr>
<tr>
<td>0.08 kg - 0.87 kg</td>
<td></td>
</tr>
</tbody>
</table>

| **CUTTING TONGS**                |                       |
| **ZK1000**                       |                       |
| Stroke per jaw:                  |                       |
| 4.25° - 13°                      |                       |
| Gripping moment in closing:      |                       |
| 14 Nm - 400 Nm                    |                       |
| Weight:                          |                       |
| 0.08 kg - 0.87 kg                |                       |
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
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](http://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 conditions of use may not fall below or exceed the specified data. If information is missing, it cannot be assumed that there are no upper or lower limits or no limitations for specific use cases. Consultation is required in these 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.

**TECHNICAL DATA AND FIGURES**
The technical data and figures have been compiled with great care and to the best of our knowledge. We cannot guarantee that the information is up to date, correct or complete.

The specifications and information—such as figures, drawings, descriptions, dimensions, weights, materials, technical and other performance data and the described products and services—contained in general product descriptions, ZIMMER GMBH catalogs, brochures and price lists in any form are subject to change and may be modified or updated at any time without prior notification. They are binding only to the extent expressly specified in a contract or order confirmation. Slight deviations from such descriptive product information shall be considered approved and shall not affect fulfillment of agreements insofar as they are reasonable for the customer.

**LIABILITY**
Products from Zimmer Group are subject to the German Product Liability Act. This catalog does not contain any guarantees, assurances of quality or procurement agreements for the products it depicts, neither expressly nor implied, including for the availability of products. Advertising statements relating to quality features, properties or applications for the products are not legally binding.

To the extent permitted by law, ZIMMER GMBH is exempt from any liability for direct or indirect damage, subsequent damage and requests of any kind or on any legal basis resulting from the use of information contained in this catalogue.

**TRADEMARK, COPYRIGHT AND REPRODUCTION**
The depiction of commercial property rights in this catalog—such as brands, logos, registered trademarks or patents—does not include the granting of licenses or use rights. Their use is not permitted without the expressed written agreement of ZIMMER GMBH. For the purposes of copyright, any unlawful use of intellectual property, including excerpts, is prohibited. Reprinting, copying or translating (including in the form of excerpts) are permitted only with the prior written consent of ZIMMER GMBH.

**STANDARDS**
The contents and data correspond to the status as of printing. Edition 05/2017.
This catalog was created with great care and all information has been checked for accuracy. However, we assume no liability for incorrect or incomplete information. Zimmer Group reserves the right to technical changes and improvements through constant ongoing development of products and services. All text, images, depictions and illustrations in this catalog are the property of Zimmer Group and protected by copyright. Any duplicating, editing, changing, translating, filming, processing or saving in electronic systems is prohibited without the consent of Zimmer Group.