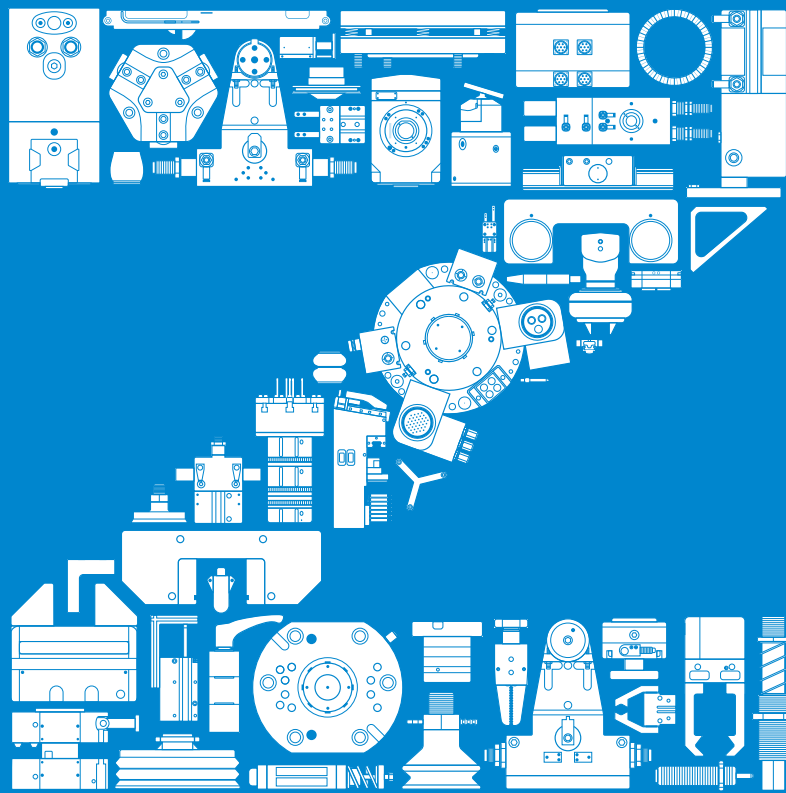
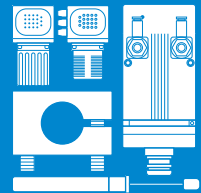


THE FULL PRODUCT LINE.



THE KNOW-HOW FACTORY

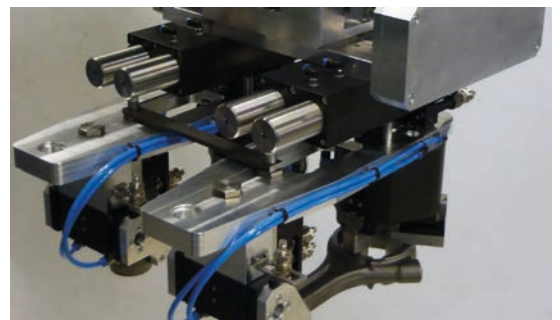
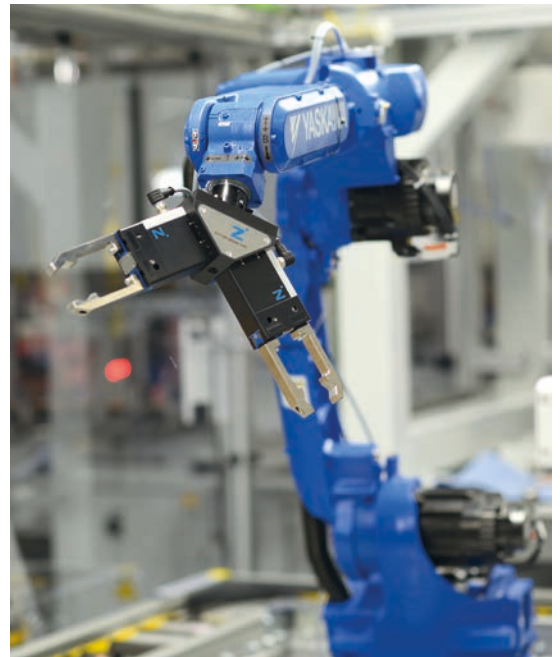
ZIMMER GROUP COMMITTED TO OUR CUSTOMERS

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.



TECHNOLOGIES



HANDLING TECHNOLOGY

MORE THAN 30 YEARS OF EXPERIENCE AND INDUSTRY KNOWLEDGE: OUR PNEUMATIC, HYDRAULIC AND ELECTRICAL HANDLING COMPONENTS AND SYSTEMS ARE GLOBAL LEADERS.

Components. More than 2,000 standardized grippers, swivel units, robotic accessories and much more. We offer a complete selection of technologically superior products that are ready for rapid delivery.

Semi-standard. Our modular approach to design enables custom configurations and high rates of innovation for process automation.



DAMPING TECHNOLOGY

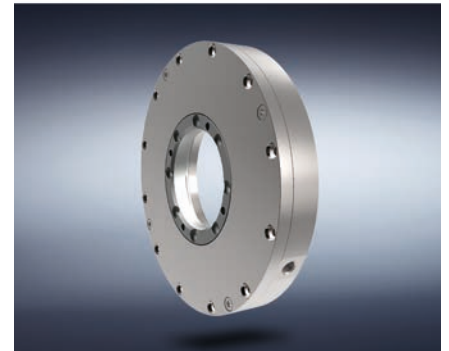
INDUSTRIAL DAMPING TECHNOLOGY AND SOFT CLOSE PRODUCTS EXEMPLIFY THE INNOVATION AND PIONEERING SPIRIT OF THE KNOW-HOW FACTORY.

Industrial damping technology.

Whether standard or customized solutions, our products stand for the highest cycle rates and maximum energy absorption with minimal space requirements.

Soft Close. Development and mass production of pneumatic and fluid dampers with extraordinary quality and rapid delivery.

OEM and direct. Whether they need components, returning mechanisms or complete production lines – we are the trusted partner of many prestigious customers.



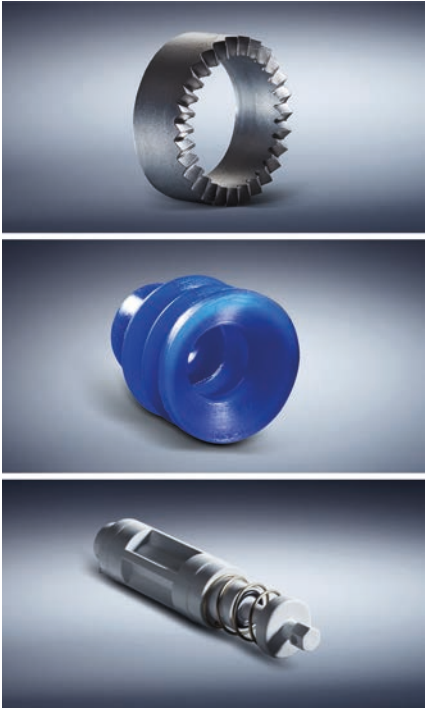
LINEAR TECHNOLOGY

WE DEVELOP LINEAR COMPONENTS AND SYSTEMS THAT ARE INDIVIDUALLY ADAPTED TO OUR CUSTOMERS' NEEDS.

Clamping and braking elements.

We offer you more than 4,000 types for profiled and round rails as well as for a variety of guide systems from all manufacturers. It makes no difference whether you prefer manual, pneumatic, electric or hydraulic drive.

Flexibility. Our clamping and braking elements ensure that movable components such as Z-axes or machining tables maintain a fixed position and that machines and systems come to a stop as quickly as possible in an emergency.



PROCESS TECHNOLOGY

MAXIMUM EFFICIENCY IS ESSENTIAL FOR SYSTEMS AND COMPONENTS USED IN PROCESS TECHNOLOGY. HIGH-LEVEL CUSTOM SOLUTIONS ARE OUR TRADEMARK.

A rich reservoir of experience. Our know-how ranges from the development of materials, processes and tools through product design to production of series products.

Deep production capabilities. The Zimmer Group pairs these capabilities with flexibility, quality and precision, even when making custom products.

Series production. We manufacture demanding products out of metal (MIM), elastomers and plastics with flexibility and speed.



MACHINE TECHNOLOGY

ZIMMER GROUP DEVELOPS INNOVATIVE METAL, WOOD AND COMPOSITE MATERIAL PROCESSING TOOL SYSTEMS FOR ALL INDUSTRIES. NUMEROUS CUSTOMERS CHOOSE US AS THEIR SYSTEMS AND INNOVATION PARTNER.

Knowledge and experience. Industry knowledge and a decades-long development partnership in exchangeable assemblies, tool interfaces and systems make us bound for new challenges around the world.

Components. We deliver numerous standard components from stock and develop innovative, customized systems for OEM and end customers – far beyond the metal and wood processing industries.

Variety. Whether you have machining centers, lathes or flexible production cells, the power tools, holders, assemblies and drilling heads of Zimmer Group are ready for action.

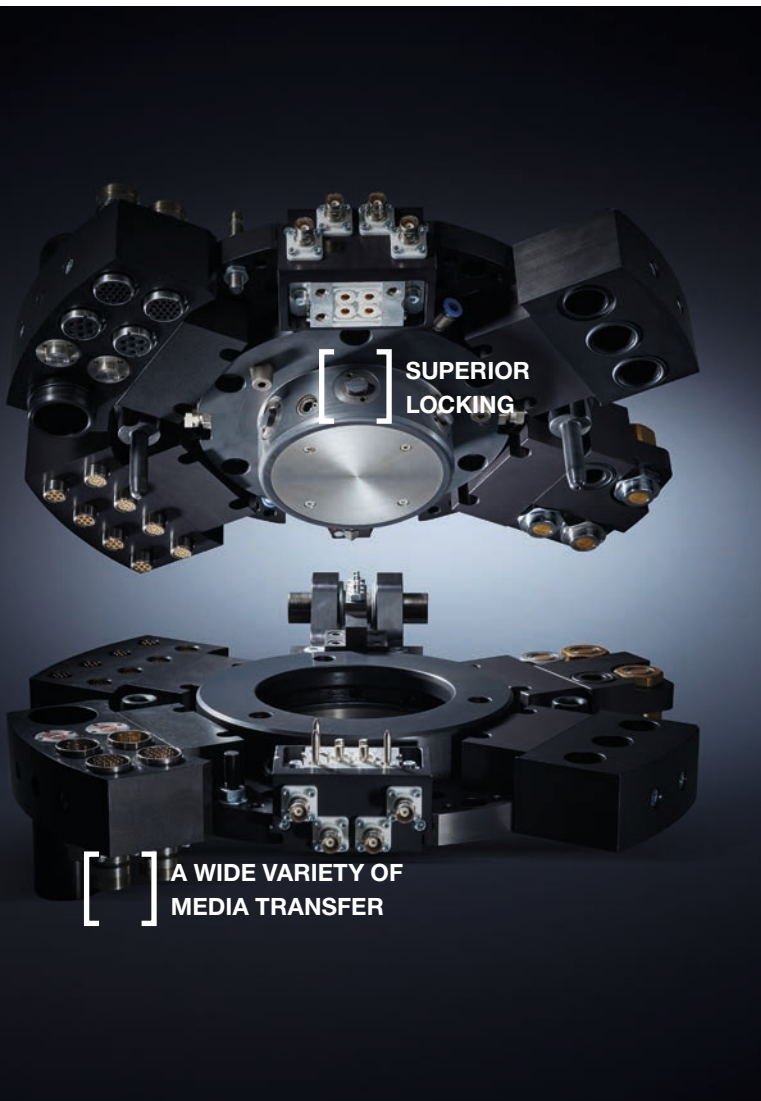
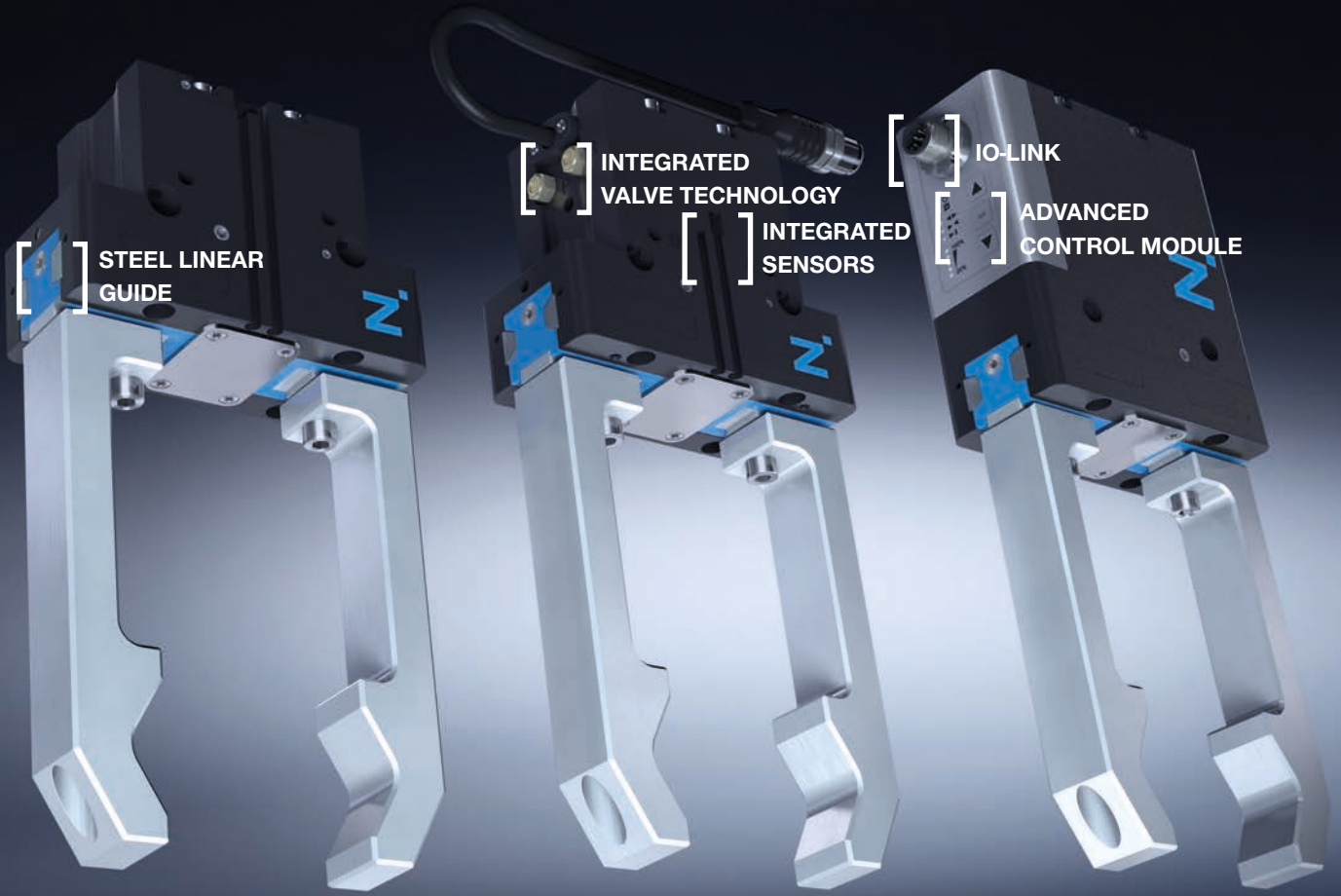


SYSTEM TECHNOLOGY

ZIMMER GROUP IS ONE OF THE LEADING SPECIALISTS IN THE DEVELOPMENT OF CUSTOMIZED SYSTEM SOLUTIONS WORLDWIDE.

Customized. A team made up of more than 20 experienced designers and project engineers develop and produce customized solutions for special tasks in close collaboration with end customers and system integrators. It doesn't matter if it is a simple gripper and handling solution or a complex system solution.

Solutions. These system solutions are used in many industries, from mechanical engineering to the automotive and supplier industries to plastics engineering and consumer goods industries, all the way to foundries. The Know-how Factory helps countless companies to thrive competitively by increasing automation efficiency.



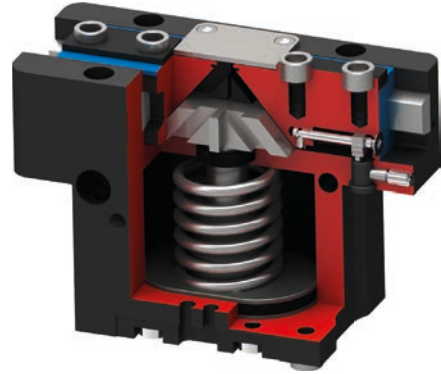
HANDLING TECHNOLOGY

GRIPPER TECHNOLOGY HIGHLIGHTS

OUR EXPERTISE – YOUR ADVANTAGES

“The Universal One”

- ▶ Up to 30% more gripping force than the Benchmark
- ▶ 10% higher static forces and torques than the Benchmark
- ▶ Gripper fingers up to 10% longer than the Benchmark
- ▶ Gripper finger weight up to 15% higher than the Benchmark
- ▶ Sealed IP64 guide / IP67 protector version (with sealing air)
- ▶ Protected against corrosion
- ▶ Up to 30 million cycles without maintenance



DURABLE

Our product portfolio is coordinated to the needs of our customers and provides the perfect solution for any application. The 5000 series provides you with a comprehensive worry-free package – including corrosion protection, IP67 and 30 million cycles without maintenance.

UNIVERSAL

Mechatronic grippers make any type of production more flexible. Since 1992, they have been an established part of our supply product range, as they combine maximum performance with simple operation. The 5000 series combines features from pneumatics, electrical systems and hybrid technology.

PRECISE

We have been continually developing and improving our grippers since 1980. These years of experience are reflected in each gripper, and especially in our premium GPP5000 universal grippers.



Pneumatic



Electric



Hybrid



HANDLING TECHNOLOGY

GRIPPERS

GRIPPERS

2-JAW PARALLEL GRIPPERS

PNEUMATIC

GPP1000



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

GP400



Number of installation sizes: 9
Stroke per jaw: 3 mm - 30 mm
Gripping force: 85 N - 19,275 N
Weight: 0.08 kg - 18.9 kg
IP class: 40
Maintenance free (max.): 10 million cycles

GPP5000

IO-Link



Number of installation sizes: 11
Stroke per jaw: 2,5 mm - 45 mm
Gripping force: 140 N - 26,950 N
Weight: 0.08 kg - 50 kg
IP class: 64/67
Maintenance free (max.): 30 million cycles

ELECTRICAL

GEP9000



Number of installation sizes: 2
Stroke per jaw: 2 mm - 4 mm
Gripping force: 11 N - 50 N
Weight: 0.25 kg - 0.57 kg
IP class: 40
Maintenance free (max.): 30 million cycles

GEP2000

IO-Link



Number of installation sizes: 3
Stroke per jaw: 10 mm - 16 mm
Gripping force: 50 N - 500 N
Weight: 0.79 kg - 1.66 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 - 1,900 N
Weight: 0.79 kg - 1.66 kg
IP class: 64
Maintenance free (max.): 30 million cycles

2-JAW PARALLEL GRIPPERS WITH LONG STROKE

PNEUMATIC

MGH8000



Number of installation sizes: 3
Stroke per jaw: 10 mm - 100 mm
Gripping force: 60 N - 910 N
Weight: 0.35 kg - 7.3 kg
IP class: 64
Maintenance free (max.): 10 million cycles

GH6000



Number of installation sizes: 5
Stroke per jaw: 20 mm - 200 mm
Gripping force: 120 N - 3,400 N
Weight: 0.3 kg - 23.8 kg
IP class: 40
Maintenance free (max.): 10 million cycles

GPH8000



Number of installation sizes: 1
Stroke per jaw: 62,5 mm - 150 mm
Gripping force: 2000 N
Weight: 14,9 kg - 21,3 kg
IP class: 54
Maintenance free (max.): 5 million cycles

ELECTRICAL

GEH6000IL

IO-Link



Number of installation sizes: 2
Stroke per jaw (max.): 80 mm
Gripping force: 60 N - 2,400 N
Weight: 0.76 kg - 2.6 kg
IP class: 40/54
Maintenance free (max.): 5 million cycles

3-JAW CONCENTRIC GRIPPERS

PNEUMATIC

MGD800



Number of installation sizes: 8
Stroke per jaw: 1 mm - 12 mm
Gripping force: 30 N - 1,420 N
Weight: 0.025 kg - 2 kg
IP class: 40
Maintenance free (max.): 10 million cycles

GPD5000

IO-Link



Number of installation sizes: 11
Stroke per jaw: 2,5 mm - 45 mm
Gripping force: 310 N - 72,500 N
Weight: 0.14 kg - 100 kg
IP class: 64/67
Maintenance free (max.): 30 million cycles

ELECTRICAL

GED5000

IO-Link



Number of installation sizes: 3
Stroke per jaw: 6 mm - 10 mm
Gripping force: 540 N - 1,900 N
Weight: 1.09 kg - 2.33 kg
IP class: 64
Maintenance free (max.): 30 million cycles

3-JAW CONCENTRIC GRIPPERS WITH LONG STROKE

PNEUMATIC

GD500



Number of installation sizes: 3
Stroke per jaw: 30 mm - 160 mm
Gripping force: 1,300 N - 2,480 N
Weight: 7.4 kg - 29 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° - 10°
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

GG1000



Number of installation sizes: 4
 Stroke per jaw: 20°
 Gripping force: 2,910 N - 29,110 N
 Weight: 1.3 kg - 13 kg
 IP class: 40
 Maintenance free (max.): 10 million cycles

GPW5000



Number of installation sizes: 3
 Stroke per jaw: +15° / -2°
 Gripping force: 1,330 N - 14,500 N
 Weight: 0.9 kg - 12.1 kg
 IP class: 64
 Maintenance free (max.): 30 million cycles

2-JAW RADIAL GRIPPERS

PNEUMATIC

GK



Number of installation sizes: 6
 Stroke per jaw: 90°
 Gripping force: 70 N - 4,250 N
 Weight: 0.1 kg - 4.1 kg
 IP class: 20
 Maintenance free (max.): 10 million cycles

GG4000



Number of installation sizes: 6
 Stroke per jaw: 90°
 Gripping force: 430 N - 4,000 N
 Weight: 0.25 kg - 4.5 kg
 IP class: 64
 Maintenance free (max.): 10 million cycles

GRIPPERS FOR SPECIAL TASKS

INTERNAL GRIPPERS

PNEUMATIC

LGS

LG1000

LGG



Number of installation sizes: 25
 Full stroke in Ø: 1 mm - 16 mm
 Gripper hole diameter: 4 mm - 135.5 mm
 Weight: 0.031 kg - 2.7 kg

OUTER O-RING ASSEMBLY GRIPPERS

PNEUMATIC

GS

GSI



Number of installation sizes: 4
 O-ring Ø: 4 mm - 130 mm
 Expanding force: 240 N - 1,450 N
 Weight: 0.5 kg - 5.4 kg

NEEDLE GRIPPERS

PNEUMATIC

ST

SCH



Number of installation sizes: 4
 Adjustable needle stroke: 0 mm - 6 mm
 Weight: 0.21 kg - 0.45 kg

ELECTRICAL

GEN9100



Adjustable needle stroke: 0 mm - 2 mm
 Weight: 0.33 kg
 IP class: 50

MAGNETIC GRIPPERS

PNEUMATIC

HM1000



Number of installation sizes: 4
 Adhesive force (max.): 27 N - 450 N
 Weight: 0.06 kg - 2.2 kg

ELECTRICAL

HEM1000



Number of installation sizes: 4
 Adhesive force (max.): 40 N - 720 N
 Weight: 0.09 kg - 1.3 kg

ROTARY GRIPPERS

2-JAW ANGULAR ROTARY GRIPPERS

PNEUMATIC

DGK



Stroke per jaw: 90°
 Gripping force: 150 N
 Weight: 0.55 kg

2-JAW PARALLEL ROTARY GRIPPERS

PNEUMATIC

DGP400



Stroke per jaw: 4 mm
 Gripping force: 115 N - 155 N
 Weight: 0.44 kg - 0.48 kg

HANDLING TECHNOLOGY

SWIVEL AND ROTARY MODULES

OUR EXPERTISE – YOUR ADVANTAGES

“Superior”

► Up to 100% more performance than the Benchmark

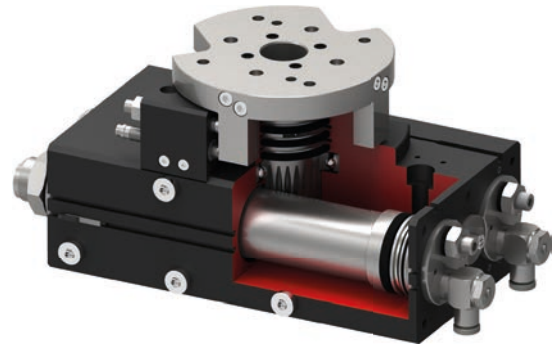
Superior end position damping lets you swivel more mass in the shortest amount of time, increasing your machine's component output

► Large center bore

Reduce the interference contours in your application by placing your power supply line directly through the middle of the rotary flange

► More than 100% higher radial bearing load than the Benchmark

The generously scaled bearings stand for robustness and long service life and provide the highest process reliability for your application



HIGH-PERFORMANCE

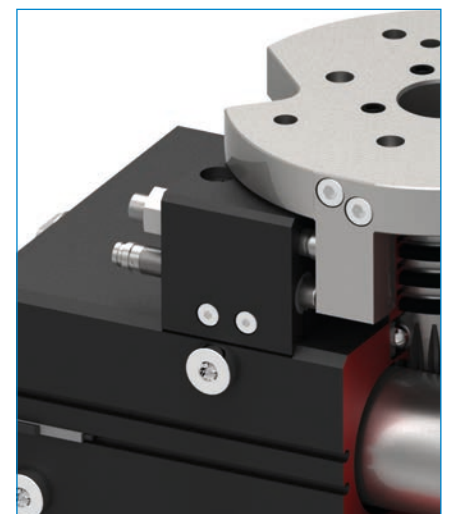
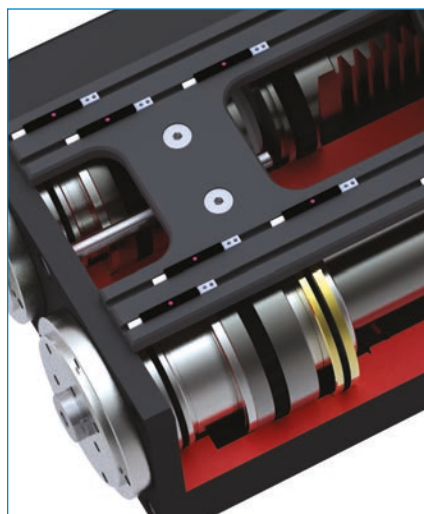
When it comes to swiveling, the shortest possible cycle time is the first priority. Our in-house developed shock absorbers with spiral groove technology provide the market's best end position damping – perfect for our [high-performance swivel units](#) with their extremely short cycle times.

TRIED AND TESTED

As a pioneer from the very beginning, we are offering you a comprehensive product range that is constantly raising the bar. In addition to the world's first shock-absorbed angle pivot unit, we also developed products such as the first flat swivel unit with a [locking middle position](#).

ROBUST

Generously scaled bearings make it possible for our units to handle a great deal. Where others may lose a tooth now and then, we can offer you a virtually wear-free gear drive with [external stops](#).



SWIVEL AND ROTARY MODULES

ROTOR CYLINDER

PNEUMATIC

PRN



Number of installation sizes:	9
Swivel angle:	90° - 270°
Torque:	0.15 Nm - 247 Nm
Weight:	0.04 kg - 12.5 kg
IP class:	54
Maintenance free (max.):	1.5 million cycles

SWIVEL JAWS

PNEUMATIC

SB



Number of installation sizes:	3
Swivel angle:	90° - 180°
Torque:	0.1 Nm - 1.6 Nm
Weight:	0.3 kg - 2.2 kg
IP class:	54
Maintenance free (max.):	10 million cycles

FLAT SWIVEL UNITS

PNEUMATIC

MSF



Number of installation sizes:	3
Swivel angle:	90° - 180°
Torque:	0.3 Nm - 1.2 Nm
Weight:	0.17 kg - 0.46 kg
IP class:	41
Maintenance free (max.):	10 million cycles

SBZ



Number of installation sizes:	5
Swivel angle:	90° - 180°
Torque:	1.2 Nm - 57 Nm
Weight:	0.45 kg - 28 kg
IP class:	54
Maintenance free (max.):	10 million cycles

SF



Number of installation sizes:	6
Swivel angle:	0° - 180°
Torque:	1.5 Nm - 130 Nm
Weight:	0.6 kg - 41.1 kg
IP class:	64
Maintenance free (max.):	10 million cycles

ELECTRICAL

DES



Number of installation sizes:	2
Swivel angle:	unlimited
Torque:	12 Nm - 64 Nm
Weight:	4 kg - 15.9 kg
IP class:	54
Maintenance free (max.):	5 million revs

ANGLE PIVOT UNITS

PNEUMATIC

SWM1000



Number of installation sizes:	4
Swivel angle:	90°
Torque:	10 Nm - 64 Nm
Weight:	0.65 kg - 3.5 kg
IP class:	30
Maintenance free (max.):	10 million cycles

SW



Number of installation sizes:	6
Swivel angle:	180°
Torque:	1.5 Nm - 120 Nm
Weight:	1.2 kg - 48.2 kg
IP class:	64
Maintenance free (max.):	10 million cycles

HANDLING TECHNOLOGY

ROBOT ACCESSORIES

OUR EXPERTISE – YOUR ADVANTAGES

► **Secure hold during pressure drop**

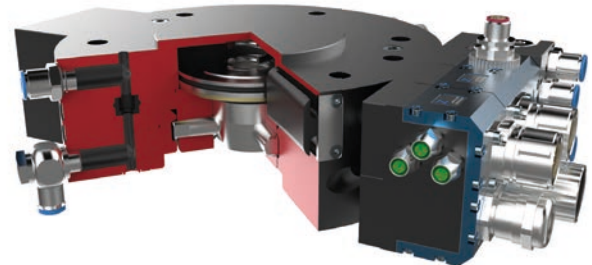
A redundant system, created by the combination of a spring accumulator and a self-locking mechanism, guarantees a safe machine

► **Extremely flat design**

This structure reduces the moment load for your robot to a minimum and makes it possible to use smaller and more affordable sizes

► **Inexhaustible variety of media transfer systems**

No matter which medium you would like to transmit, we will draw from our wealth of experience in implementing projects and find a solution to suit your needs



VARIETY

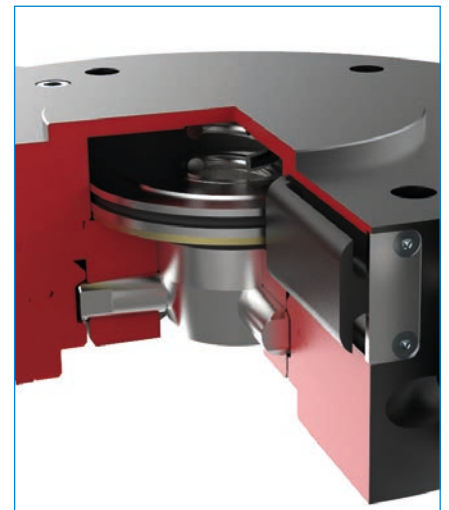
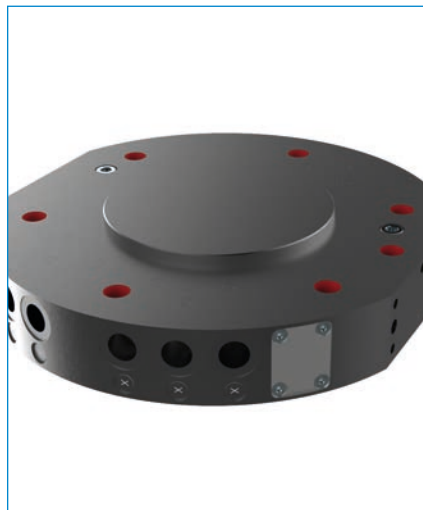
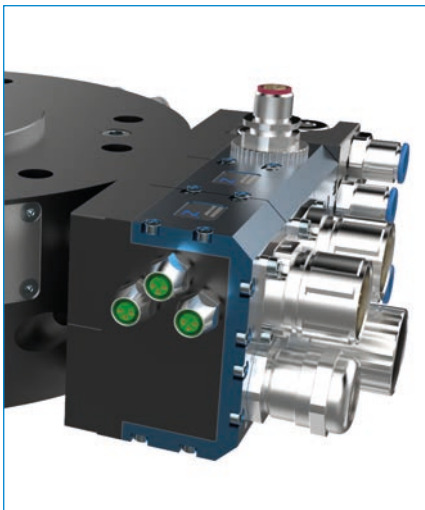
Do you want to custom-build your machine and have freedom in media transmission? Working with us allows you to select from a wide variety of standardized energy elements. We are also experienced to develop a [custom solution](#) for you.

STANDARDIZED

The height of the structure reduces the load capacity of your robot. That is why our robotic components form structures with minimal height and can be combined together without additional adapter plates. Direct mounting onto the robot takes place using the [mounting flange in accordance with EN ISO 9409-1](#).

SAFE

Production safety is a priority for us. That is why our tool changers offer you maximum reliability, with the integrated sensor technology, the spring installed for maintaining force and the extremely robust, [line contacting locking bolts](#).



ROBOT ACCESSORIES



CHANGE

MANUAL

HWR2000
HWR



Connection flange: TK31 - TK80
Recommended handling weight: 5 kg - 50 kg
Pneumatic energy transfer: 4 - 8 ports
Electrical energy transfer: Optional via energy element



TRANSMIT

MANUAL

DVR1000



Connection flange: TK125
Recommended handling weight: 200 kg
Pneumatic energy transfer: 8 ports
Electrical energy transfer: 4pin + PE



PNEUMATIC

WWR



Connection flange: TK40 - TK160
Recommended handling weight: 20 kg - 300 kg
Pneumatic energy transfer: 4 - 10 ports
Electrical energy transfer: Optional via energy element

DVR



Connection flange: TK40 - TK160
Recommended handling weight: 15 kg - 200 kg
Pneumatic energy transfer: 4 - 8 ports
Electrical energy transfer: 4 - 12pin

WWR1000



Connection flange: TK160 - TK200
Recommended handling weight: 500 kg - 1,000 kg
Pneumatic energy transfer: Optional via energy element
Electrical energy transfer: Optional via energy element



ENERGY ELEMENTS

ELECTRICAL / COMMUNICATION

WER

For transmitting signal and load currents



COMPENSATE

PNEUMATIC

FGR
XYR



Connection flange: TK40 - TK160
Recommended handling weight: 7 kg - 75 kg
Deflection in X/Y: 2 mm - 10 mm

FLUID

WER

For transmitting hydraulics, pneumatics and vacuum



PROTECT

PNEUMATIC

CSR



Connection flange: TK50 - TK125
Recommended handling weight: 6 kg - 150 kg
Z-axis deflection: 6 mm - 23 mm
Horizontal deflection +/-: 9° - 12.5°

ANGLE FLANGE

WFR

Suitable for more than 40 different robot types and combinable with 16 different grippers for machine loading

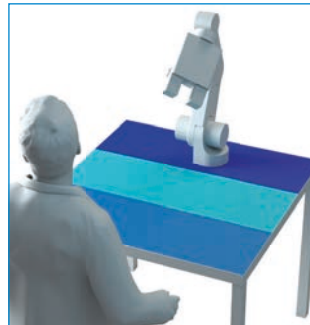


HANDLING TECHNOLOGY

HUMAN ROBOT COLLABORATION

HRC FROM THE EXPERTS

Zimmer Group is a pioneer and one of the world's leading manufacturers of components in the area of human/robot collaboration. We develop our products in pursuit of our goal to increase the efficiency of work processes by fostering the type of collaboration between humans and machines that makes optimal use of their potential.



Cooperation



Collaboration

2-JAW PARALLEL GRIPPERS

COOPERATIVE

ELECTRICAL

HRC-EP-017388

IO-Link



Stroke per jaw:	60 mm
Gripping force:	820 N
Weight:	1.8 kg
IP class:	40
Maintenance free (max.):	5 million cycles

Safety functions STO + mechanical self-locking mechanism in case of power failure

COLLABORATIVE

ELECTRICAL

HRC-EP-014654

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

Safety functions STO + mechanical self-locking mechanism in case of power failure + safety gripper jaws prevent the excess of 140 N

HRC-EP-027988

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 case of power failure

PNEUMATIC

HRC-PP-048748

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

PNEUMATIC

HRC-PW-055639

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

HANDLING TECHNOLOGY

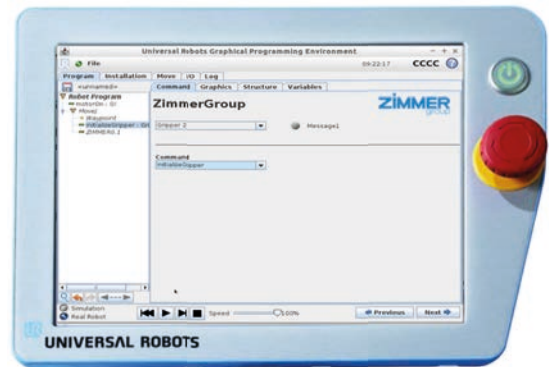
HUMAN MACHINE INTERFACE

Simple operation

- ▶ The operation of our Industrie 4.0 components has now been integrated into the control system of the robots from YASKAWA and Universal Robots. The integration of additional manufacturers is in progress and can be requested as needed. The components can be set up manually using the robot control panel and integrated into the program sequence. The intuitive operating interface allows the user to activate the entire IO-Link gripper portfolio from Zimmer Group and uses all pneumatic, electrical, hybrid, servoelectric and digital components on the robots.

Because simple is just better

- ▶ This integration makes it possible to use application profiles flexibly and to adjust and save the device parameters very easily. Complete implementation and commissioning takes only a few minutes. Furthermore, Zimmer HMI supports condition monitoring or predictive maintenance of the components.



HMI using the example of Universal Robots

HANDLING TECHNOLOGY

INDUSTRIE 4.0

Components

- ▶ In the future, production systems and machines will build upon autonomously acting and intelligent mechatronic components and assemblies. More and more functions will be integrated directly into the assemblies and data processing will take place remotely in the components at an increasing rate. These functions will network, organize and configure themselves in order to take over functions from the higher-level control level or to take over some of its workload. The Zimmer Industrie 4.0 components communicate via IO-Link, which ensures the connection is made easily using an M12 connector that carries all of the signals as well as the power.

IO-Link, the interface of Industrie 4.0 components

- ▶ IO-Link is the first standardized IO-technology worldwide for communication from the control system to the lowest level of automation. This IO-Link standard is used as a fieldbus-independent point-to-point connection. Zimmer Group uses IO-Link to integrate intelligent components into virtually any automation environment.

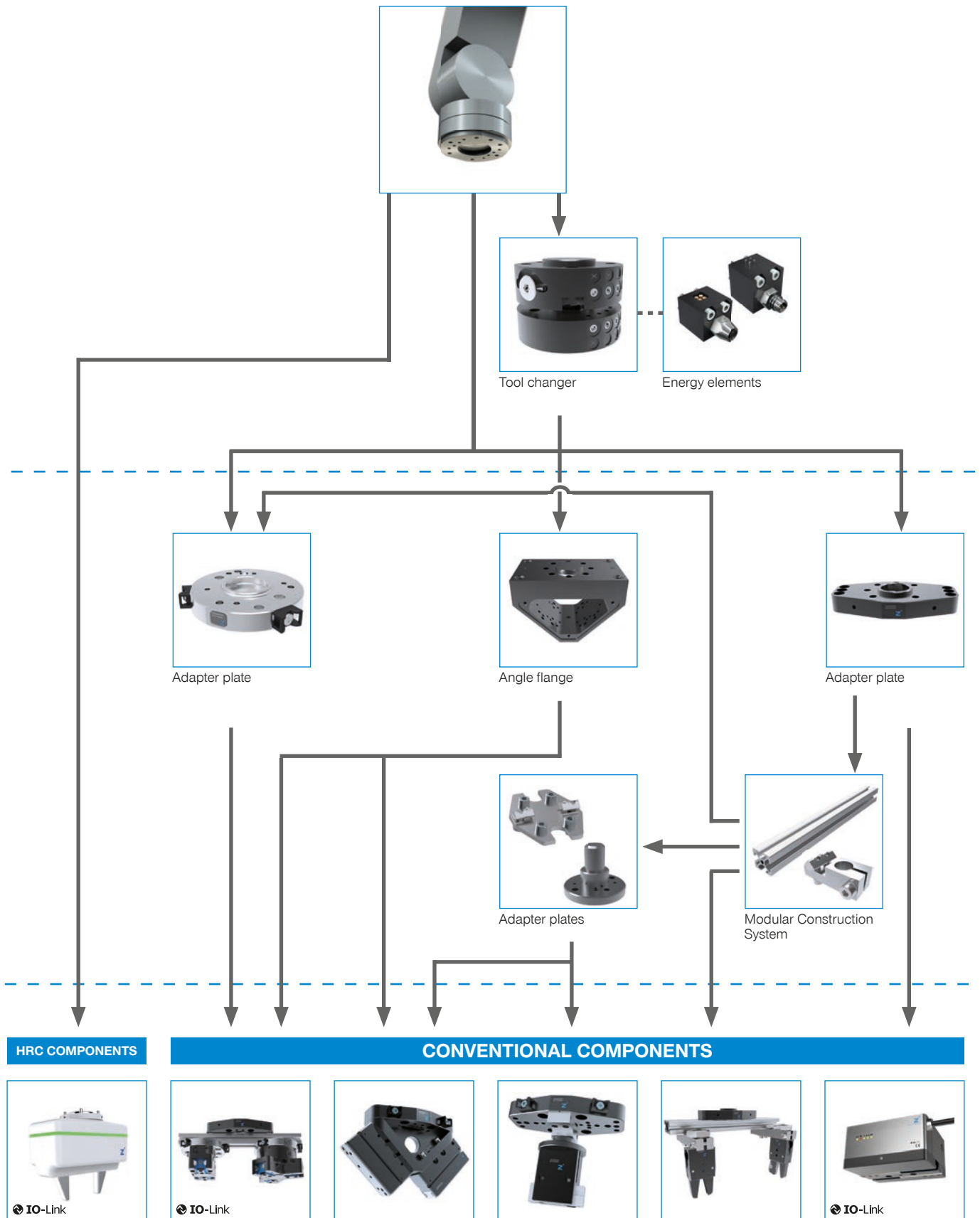
Easily installed with many advantages

- ▶ IO-Link is easy to install and integrate. Moreover, it reduces and standardizes wiring effort. A standardized, unshielded 5-wire cable is sufficient for producing the point-to-point connection. Previous investments are protected as a result of keeping tried-and-tested cabling structures and compatibility with your existing, conventional wiring.



HANDLING TECHNOLOGY

ROBOT MODULES



HANDLING TECHNOLOGY

SERIES AT A GLANCE

LINEAR MODULES

PNEUMATIC

SHX
LI
LS
LSX
HZ



Stroke: 15 mm - 300 mm
Force: 40 N - 950 N

CUTTING TONGS

PNEUMATIC

ZK1000
ZK



Closing torque: 54 Nm - 400 Nm
Stroke per jaw: 4.25° - 13°
Screw diameter (max.): 11 mm

SEPARATORS

PNEUMATIC

VEG
VE



Stroke per plunger: 10 mm - 60 mm
Extension force: 40 N - 220 N

BALL JOINTS

MANUAL

KG



Swivel angle: 30°
Materials: Steel, aluminum

ELECTRICAL

VEE9200



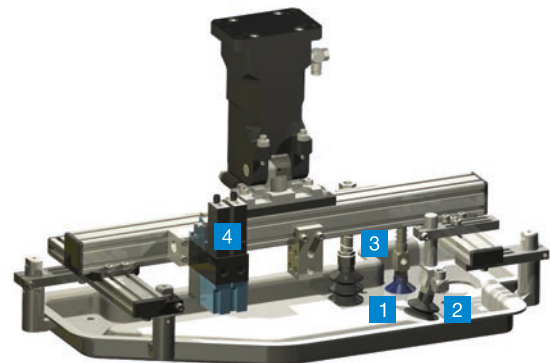
Stroke: 10 mm
Extension force: 10 N

HANDLING TECHNOLOGY

VACUUM COMPONENTS

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



SUCTION CUPS

1



ADAPTERS

2



COMPENSATION MODULES

3



VACUUM GENERATOR

4





[] PRECISE,
LOW-VIBRATION DAMPING

[] SPIRAL GROOVE
TECHNOLOGY

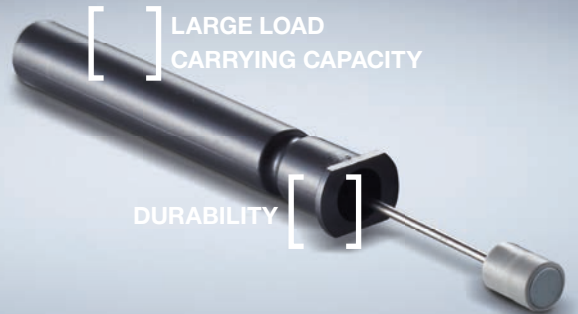
[] STAINLESS
DESIGN



[] SPECIALLY
DEVELOPED PROFILE

HIGH ENERGY
www.zimm.com ABSORPTION []

[] TPC HIGH-PERFORMANCE
PLASTIC



[] LARGE LOAD
CARRYING CAPACITY

DURABILITY []

INDUSTRIAL DAMPING TECHNOLOGY

POWERSTOP TECHNOLOGY HIGHLIGHTS

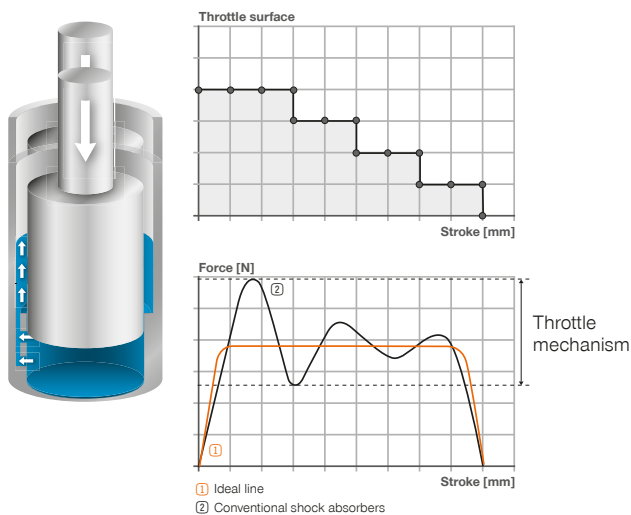
OUR EXPERTISE – YOUR ADVANTAGES

- ▶ Low-vibration and precise braking due to the constantly narrowing spiral groove
- ▶ Low wear and long service life thanks to hydrostatic piston guide
- ▶ Corrosion protection from using stainless steel

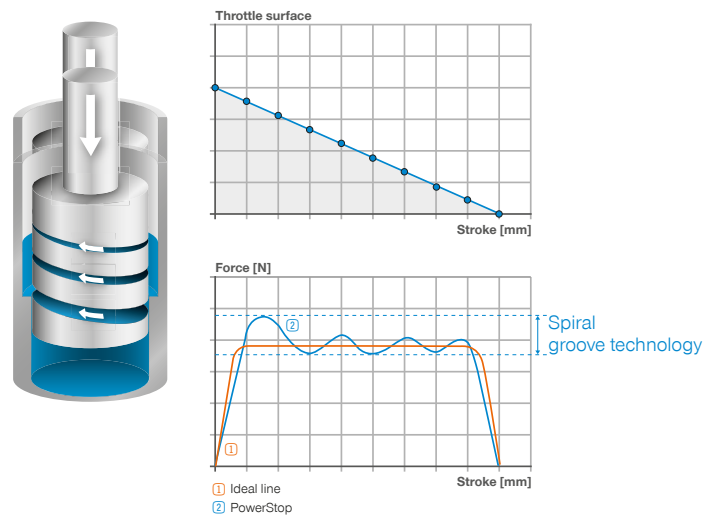
SPIRAL GROOVE TECHNOLOGY

The unique spiral groove technology is a defining feature of PowerStop industrial shock absorbers. In contrast with conventional industrial shock absorbers with throttle bores, the constantly tapering spiral groove causes precise, low-vibration shock absorption. The PowerStop industrial shock absorber achieves maximum energy absorption with the smallest installation space through optimal utilization.

CONVENTIONAL SOLUTION THROTTLE MECHANISM

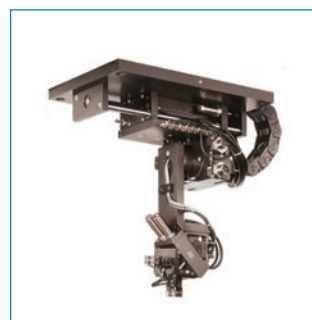
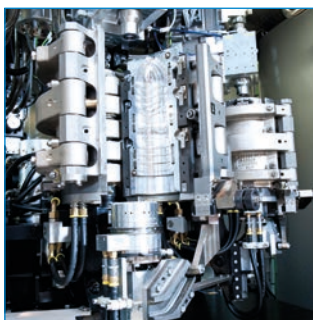
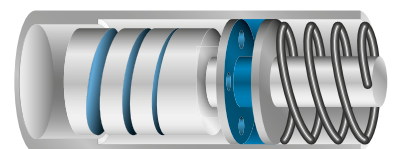


HIGH-END SOLUTION – THE ZIMMER GROUP POWERSTOP SHOCK ABSORBER SPIRAL GROOVE TECHNOLOGY



OIL RESERVE

The shock absorbers of the High Energy series are appropriately filled with oil so that the volume compensation spring is under pre-load. Automatic readjustment of the spring compensates for oil loss, which results in a long service life.



INDUSTRIAL DAMPING TECHNOLOGY

BASICSTOP TECHNOLOGY HIGHLIGHTS

OUR EXPERTISE – YOUR ADVANTAGES

- ▶ TPC high-performance plastic:
 - ▷ High durability and resistance against media*
 - ▷ No swelling, embrittlement or decomposition of the material, as is the case with rubber*
 - ▷ Wide temperature range
- ▶ High damping percentage and high energy absorption in the smallest space
- ▶ Reliable return behavior
- ▶ Increased life cycle in comparison to rubber buffers
- ▶ Usability independent of velocity
- ▶ 100% recyclable due to thermoplastic properties

* For chemical and media resistance, please refer to the Damping Technology catalog or www.zimmer-group.com

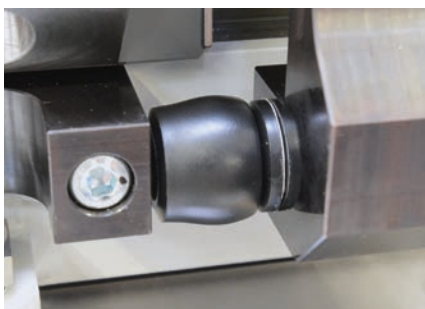
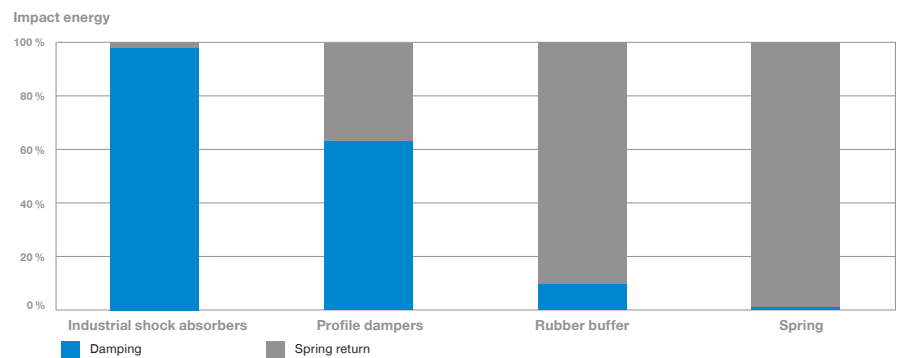


PROFILE DAMPING

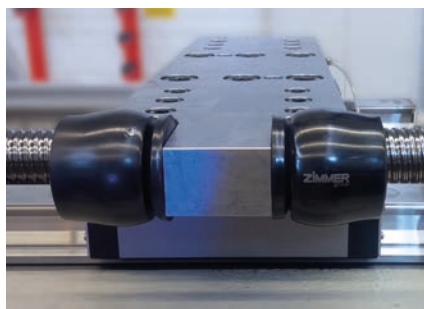
- ▶ The BasicStop profile dampers feature high-performance TPC plastic and a specifically developed profile.
- ▶ BasicStop acquires its unique properties after receiving a special treatment. These properties allow it to absorb maximum amounts of energy even under the toughest conditions, while also achieving high damping rates.

DAMPING VS. SPRING RETURN

- ▶ Conventional rubber buffers only have a very small damping percentage and are more of a spring than a damper. Use of these buffers hardly removes any kinetic energy from the system, which in turn can cause damage to the system.
- ▶ This is where the BasicStop brand profile dampers are setting new standards in the realm of material damping with their high damping percentage.



Emergency stop protection in the movement axis of a spindle tailstock



End position damping in the linear axes of production modules from ELHA



Machine door damping in a machining center

INDUSTRIAL DAMPING TECHNOLOGY

THE SERIES AT A GLANCE

INDUSTRIAL SHOCK ABSORBERS

POWERSTOP

STANDARD ENERGY

Size: M8 - M45
Stroke: 5 mm - 25 mm
Energy absorption (max.): 1.5 Nm - 350 Nm



HIGH ENERGY

Size: M4 - M45
Stroke: 3 mm - 50 mm
Energy absorption (max.): 0.5 Nm - 1,200 Nm



BASICSTOP

AXIAL STANDARD

Height: 11 mm - 109 mm
Stroke: 5 mm - 56 mm
Energy absorption (max.): 2 Nm - 2,950 Nm
Damping percentage (max.): 75 %



AXIAL ADVANCED

Height: 53 mm - 252 mm
Stroke: 30 mm - 198 mm
Energy absorption (max.): 450 Nm - 17,800 Nm



RADIAL STANDARD

Height: 23 mm - 88 mm
Stroke: 15 mm - 60 mm
Energy absorption (max.): 1.2 Nm - 290 Nm
Damping percentage (max.): 60 %



SHOCK ABSORBER SELECTION GUIDE

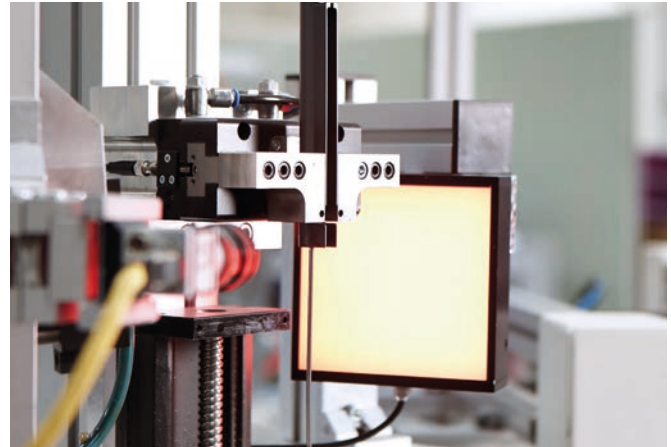
- ▶ **Calculate and select shock absorbers quicker**
Calculation, selection guide and configurator
- ▶ **Clearly arranged selection guide**
Easy to go from the right load case to the suitable damper
- ▶ **Smart solution – available on mobile devices**
Direct access anytime at <http://www.zimmer-group.com/en/pdti>



DAMPING TECHNOLOGY SOFT CLOSE TECHNOLOGY HIGHLIGHTS

OUR FOCUS IS ON THE CUSTOMER

In our development department, the air friction and fluid dampers are not just adapted to customer requirements and constantly being optimized. We also search for innovative solutions for a wide variety of industries. This increases the diversity of the product portfolio and the associated solution options. Our highly professional automation department also enables us to take a rational approach to mass producing products to the industry standard on our own systems. We work in close coordination with our quality team to produce products at the highest level. No damper leaves the plant before undergoing a quality check. At the same time, our sales department is experiencing continuous growth in order to give the utmost attention to the requirements and wishes of our customers around the world and to utilize market development for new products.

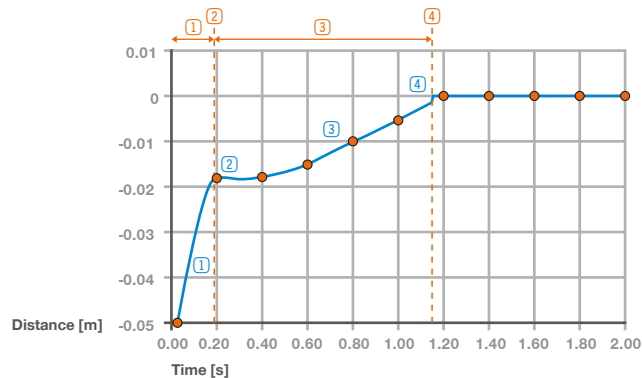


Each individual pneumatic damper is subject to an automatic visual inspection

AIR FRICTION DAMPERS

“The classic”

- ▶ The primary distinguishing feature of our air friction dampers is their longevity. Our ideas have been tested and proven in real-world applications and are protected by patents.
- ▶ The **damping process** with a air friction damper is characterized by a braking phase with a short stop and then a transition into the return phase.
- ▶ All air frictioned dampers have similar **characteristics**. They exhibit nearly parallel movement at various load bearing capacities.



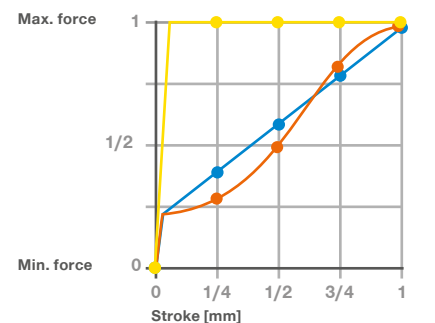
- ① Phase 1: Strong braking phase
- ② Phase 2: Short stop/reversal point
- ③ Phase 3: Damped return phase closing time
- ④ Phase 4: Returned

FLUID DAMPERS

“High performance”

- ▶ Fluid dampers have also been an integral part of Zimmer Group’s product range for many years. Our fluid dampers exhibit a high level of dependability and great load bearing capacity.
- ▶ The **damping process** with a fluid damper is characterized by an almost seamless transition from the braking phase to the return phase without stopping in between the two phases.
- ▶ The **characteristics** differ between linear, linear-constant or S-curve characteristics depending on the fluid damper being used.

Displays the damping force based on the stroke



- Linear fluid damper characteristic
- Linear-constant fluid damper characteristic
- S-curve fluid damper characteristic

DAMPING OF DRAWERS

Components of drawers

- ▶ Drawer damping has securely established itself as an indispensable standard.
- ▶ The Zimmer Group specializes in drawer damping and supplies you with optimal comfort for your products at the highest level.
- ▶ Our individual dampers for drawer damping feature a multitude of options for integration into customer systems. Due to the high adaptability of our designs, we offer a wide range of standard products as well as customer-specific solutions.

Precise – adaptable – tested



DAMPING OF SLIDING DOORS

Sliding door dampers

- ▶ Sliding doors are increasingly attracting attention in the residential, working and sleeping areas due to their ever increasing potential for space-saving applications.
- ▶ The Zimmer Group offers the newest technology for this growing market.
- ▶ Due to their high adaptability, our components for sliding door damping are easily integrated into our customers' railing system.

Intelligent – efficient – reliable



DAMPING OF LIDS

Fluid dampers for lids

- ▶ Closing is often associated with "slamming". The Zimmer Group uses its fluid dampers to get rid of this association.
- ▶ The defining features of our dampers for lid damping are their adaptability and the wealth of available variants.
- ▶ Our fluid dampers are groundbreaking in this regard. Various dimensions, force or damping characteristics – we offer the perfect fluid damper to suit your needs.

Small – strong – robust – adaptable



DAMPING OF HINGES

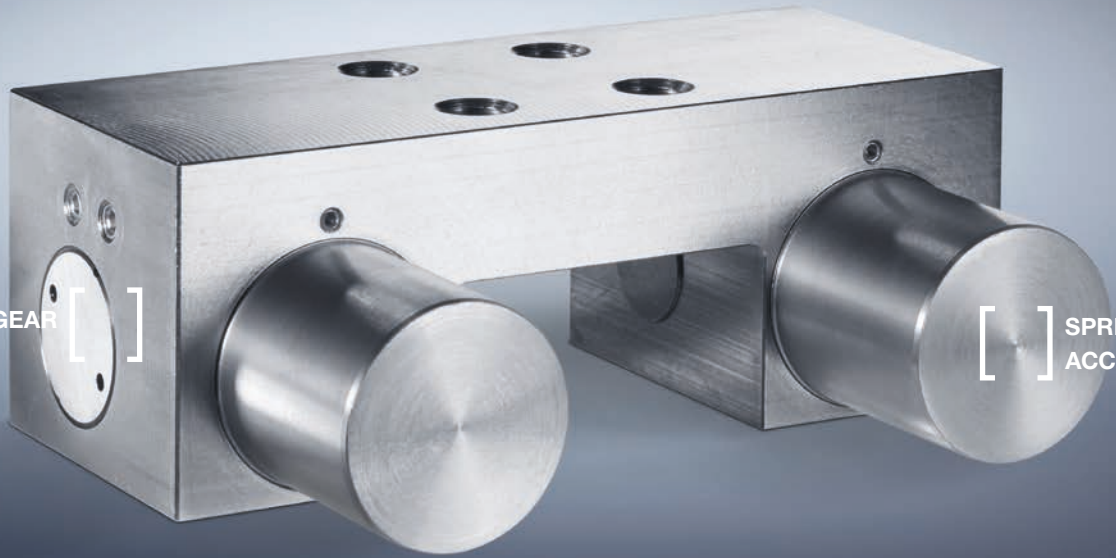
Dampers for hinges

- ▶ The high-performance dampers from Zimmer Group for damping hinges are retrofit solutions that are easy to integrate.
- ▶ Users particularly appreciate the VOLPINO's easy handling of customizable damping force, which can be adjusted to the door weight after assembly.
- ▶ The BELLINO is appealing due to its ability to be integrated into (very) tight installation spaces.

Powerful – flexible – sophisticated



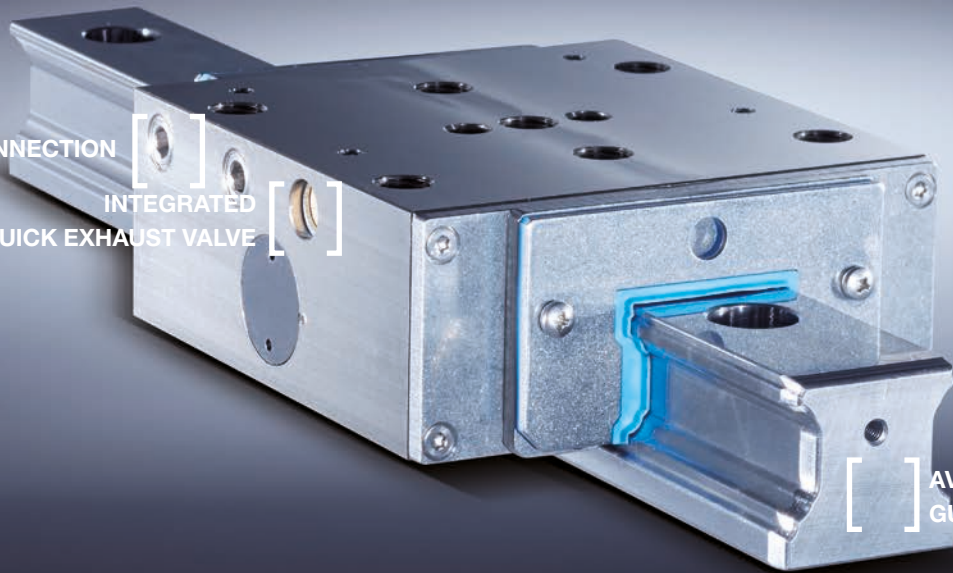
WEDGE-TYPE GEAR []



[] SPRING ACCUMULATOR

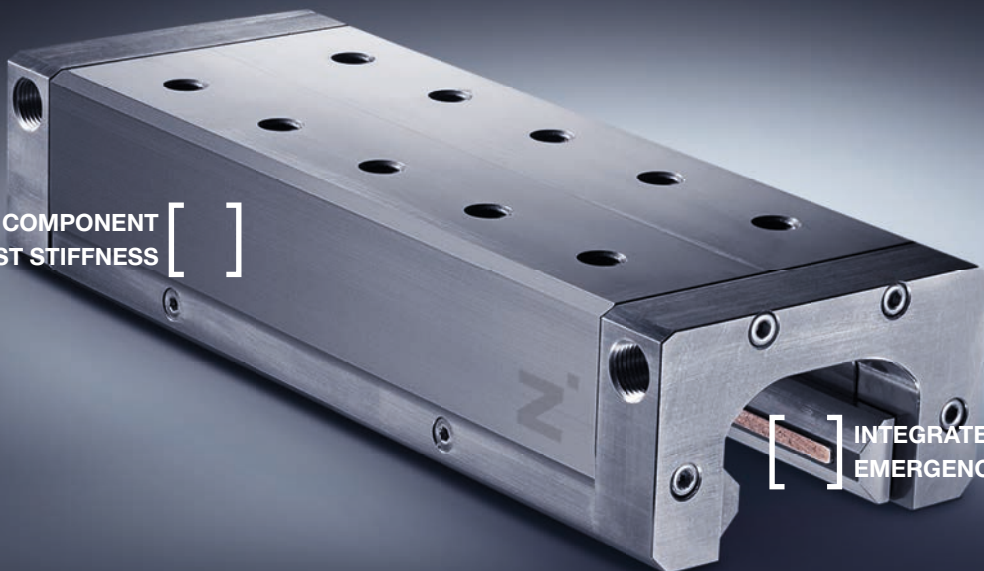
PLUS CONNECTION []

INTEGRATED QUICK EXHAUST VALVE []



[] AVAILABLE FOR ALL GUIDE RAILS AND SIZES

ONE FUNCTIONAL COMPONENT []
HIGHEST STIFFNESS []



[] INTEGRATED EMERGENCY BRAKE FUNCTION

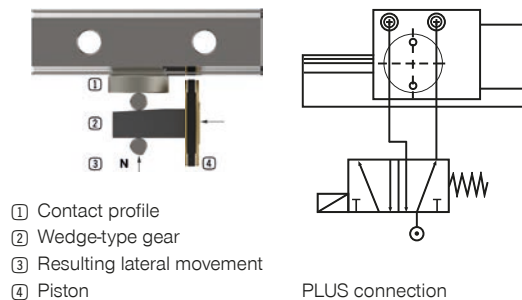
LINEAR TECHNOLOGY

TECHNOLOGY HIGHLIGHTS

OUR EXPERTISE – YOUR ADVANTAGES

More than 20 years of development and market experience have yielded more than 4,000 standardized products.

- ▶ Very high holding force on small dimensions
- ▶ High positional accuracy
- ▶ High stiffness
- ▶ PLUS connection for increased holding forces

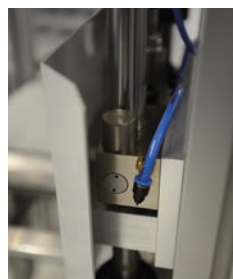
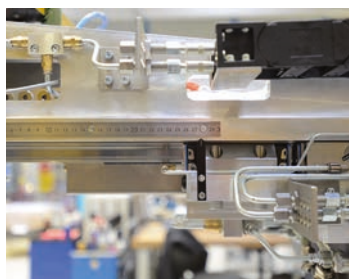
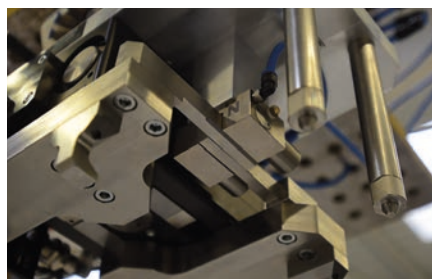
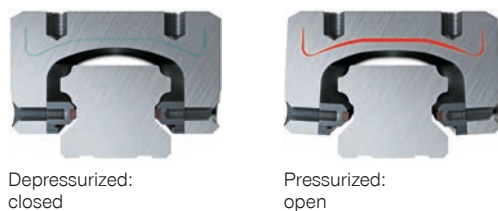


WEDGE-TYPE GEAR – TRIED-AND-TESTED FOR OVER 20 YEARS

- ▶ In the field of clamping and braking on profile rail and round shaft, Zimmer Group with their wedge-type gear has been the pioneer.
- ▶ All pneumatic elements are equipped with a tried-and-tested wedge-type gear for the highest power transmission and market-leading numbers of cycles over 5 million (B10d value).

ONE FUNCTIONAL COMPONENT – HIGHEST STIFFNESS

- ▶ The newest LBHS series once again demonstrates technological expertise.
- ▶ A hydraulic braking element consisting of a single functional component that does not contain any moving parts and generates all braking and holding forces solely through the inherent tension of the base body. It promises the highest stiffness and quickest response times.





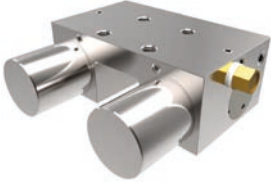

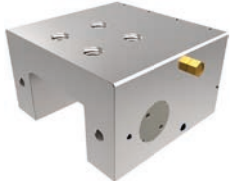





SELECTION GUIDE – OVER 20,000 COMBINATIONS

- ▶ **Select clamping and braking elements quicker**
Suitable for over 20,000 rail and carriage combinations
- ▶ **Clearly arranged selection assistance**
Direct technical data access + CAD download
- ▶ **Smart solution – available on mobile devices**
Direct access anytime at <http://www.zimmer-group.com/en/plt>



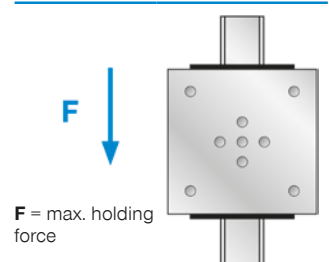
LINEAR TECHNOLOGY

THE SERIES AT A GLANCE

PROFILE RAIL GUIDES			
MANUAL	PNEUMATIC		
CLAMPING	CLAMPING		CLAMPING AND BRAKING
N	NO	NC	NC
HK Holding force up to 2,000 N  <p>Standard</p>	MK Holding force up to 2,250 N  <p>Standard</p>	MKS Holding force up to 3,300 N  <p>Standard</p>	MBPS Holding force up to 4,700 N  <p>Standard</p>
	LKP Holding force up to 2,500 N  <p>Narrow</p>	LKPS Holding force up to 1,900 N  <p>Narrow</p>	LBPS Holding force up to 1,900 N  <p>Narrow</p>
MINIHK Holding force up to 300 N  <p>Miniature</p>	MCP Holding force up to 550 N  <p>Miniature</p>	MCPS Holding force up to 700 N  <p>Miniature</p>	

HOLDING FORCE

The holding force is the maximum force that can be generated in the axial direction. The specified holding forces are tested on every clamping and braking unit before delivery using a slightly lubricated rail (ISO VG 68). Using other oil or lubricating substances can influence the coefficient of friction, which can cause a loss of holding force in individual cases.



PROFILE RAIL GUIDES

HYDRAULIC

CLAMPING NO

KWH Holding force up to 46,000 N
Standard



CLAMPING AND BRAKING NO

KBH Holding force up to 46,000 N
Standard



NC

LBHS Holding force up to 15,000 N
Narrow



ELECTRICAL

CLAMPING N

LKE Holding force up to 1,800 N
Standard



CIRCULAR AND SHAFT GUIDES

MANUAL

CLAMPING N

HKR Holding force up to 2,000 N
Standard



PNEUMATIC

CLAMPING

NO

MKR Holding force up to 1,850 N
Standard



NC

MKRS Holding force up to 1,650 N
Standard



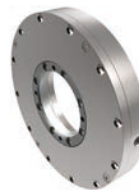
CLAMPING AND BRAKING

NC

RBPS Holding force up to 52,000 N
Standard



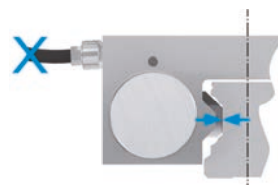
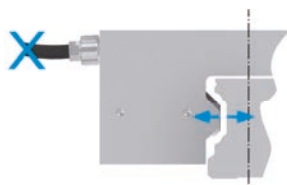
TPS Holding torque static up to 770 Nm
Rotary



N (bistable):
Remains fixed in the current position

NO (Normally Open):
Open at loss of pressure

NC (Normally Closed):
Closed at loss of pressure





[] GEOMETRIC
FREEDOM



MATERIAL []
FREEDOM



[] SERIES
PRODUCTION

PROCESS TECHNOLOGY

MIM TECHNOLOGY

OUR EXPERTISE – YOUR ADVANTAGES

- ▶ Cost-effective series production of complex metallic components
- ▶ Up to 65% less expensive than conventional production processes
- ▶ Material freedom: Low alloy steels, stainless steels, HSS steels as well as carbides, titanium and titanium/tungsten alloys
- ▶ Series production of components with 0.3 g - 150 g part weight
- ▶ Complex parts with wall thicknesses up to 0.2 mm can be implemented
- ▶ Holes, inner and outer threading, undercuts and gear teeth are possible
- ▶ Mechanical strength and workability of workpieces equal to conventional manufacturing processes
- ▶ Control of part hardness during the sintering process
- ▶ Geometric freedom in developing your components or assemblies
- ▶ Part development or design support from a highly experienced development team
- ▶ Injection-molded, milled or 3D-printed parts as a part basis



FEEDSTOCK



Metal powder, binder

Raw material consists of approximately 60% the respective metal powder by volume and 40% a binder, which is a mixture of polymers and waxes. The homogeneous mixture of all of the components is of critical importance.

INJECTION MOLDING



Green part

The binder portion is melted at a high temperature and the highly viscous mass of metal powder and binder is then pressed into the shape of the respective component. The workpieces created from the metal powder and binder are called the green part.

DEBINDING



Brown part

The majority of the binder is removed from the green parts. The remaining binder is vaporized out of the component at a temperature between 400 °C and 900 °C. The metal particles combine by forming what are called sintering necks, giving the part sufficient stability.

SINTERING



Metal part

The parts are condensed at high temperatures, usually above 1,000 °C. The respective temperature profile in the sinter furnace heavily depends on the material and the component geometry. This process step must be carefully adjusted for each part geometry and material.

PROCESS TECHNOLOGY

MIM TECHNOLOGY

MATERIAL CHARACTERISTICS

► Low alloy steels						
AISI	Material No.	sintered		hardened		Characteristics
	DIN	Tensile strength N/mm ²	Hardness HV	Tensile strength N/mm ²	Hardness HV	
FN02		260	85 (45 HRB)		600 (55 HRC)	High strength Fatigue strength Surface hardness and excellent surface quality
4605		415	110 (62 HRB)	1100	490 - 590 (48 - 55 HRC)	
FN08		380	120 (69 HRB)			
FN0805		700	150 (79 HRB)	1300	300 - 510 (30 - 50 HRC)	
100Cr6	1.3505	900	230 (97 HRB)		> 700 (60 HRC)	High wear resistance and hardness
8620	1.6523	650	190 (90 HRB)		650 - 800 (58 - 64 HRC)	High surface hardness in conjunction with toughness
42CrMo4	1.7225	700	130 (71 HRB)	1450	450 (45 HRC)	High strength and toughness, hardening by nitriding results in surface hardnesses of > 600 HV10
4340	1.6565	700	130 (71 HRB)	1450	450 (45 HRC)	High strength and toughness

► Stainless steels						
AISI	Material No.	sintered		hardened		Characteristics
	DIN	Tensile strength N/mm ²	Hardness HV	Tensile strength N/mm ²	Hardness HV	
17-4PH	1.4542	800	320 (32 HRC)		370 (38 HRC)	Martensitic, ferromagnetic stainless steel, high corrosion resistance, precipitation hardening is possible
316L	1.4404	450	120			Austenitic steel with excellent corrosion resistance, non-magnetic, moderate hardness, high ductility, excellent polishability
420W	1.4028	800	600 (55 HRC)	1560	730	High hardness, wear resistance, good corrosion resistance
440C mod.	mod. 1.4125	780	350 (35 HRC)		590 (55 HRC)	Corrosion-resistant martensitic stainless steel with high hardness

► Tool steels						
AISI	Material No.	sintered		hardened		Characteristics
	DIN	Tensile strength N/mm ²	Hardness HV	Tensile strength N/mm ²	Hardness HV	
M2	1.3343	1,200	520 (50 HRC)		820 (64 HRC)	Wear-resistant high-speed steel

► Titanium alloys						
AISI	Material No.	sintered		Eigenschaften		
	DIN	Tensile strength N/mm ²				
Ti grade 2	3.7035	340		Biocompatible, good corrosion resistance, good chemical resistance, low density		
Ti6Al4V (grade 5)	3.7165	850		Biocompatible, good corrosion resistance, good chemical resistance, excellent mechanical properties, low density		

► Tungsten heavy metals						
AISI	Material No.	sintered		hardened		Characteristics
	DIN	Tensile strength N/mm ²	Hardness HV	Tensile strength N/mm ²	Hardness HV	
W-22Fe33Ni						High density

► Carbides						
AISI	Material No.	sintered		Characteristics		
	DIN	Transverse rupture strength N/mm ²	Compressive strength N/mm ²	Hardness HV		
WC0,8Co10		4,000	6,600	1, 500 Excellent compressive and flexural strength, extremely high hardness		

PROCESS TECHNOLOGY

PLASTIC INJECTION MOLDING

We are in our element when the task involves complicated plastic injection molding. It enables us to demonstrate our full range of expertise through the close interaction of development, design, moldmaking, injection molding production and assembly. We process all typical plastics, such as semi-crystalline thermoplastics like POM, PE, PP, PA, PBT and PET as well as amorphous thermoplastics like ABS, PC, PEEK, PMMA, PS and SAN along with all common blends. Even wood/plastic composites (WPCs) with 70% wood fiber content for the furniture industry can be processed. This also applies to high-performance plastics such as PEEK with or without fillers such as glass fibers or glass beads. We offer all of the technically feasible variations, such as modifying

the hardness grades and coloration or using special blends with specific improvements to chemical, mechanical or thermal properties. Laser-markable surfaces or increased UV protection for outdoor applications are no problem for us. As a supplier for the automotive industry, machine construction, automation, medical technology, the furniture industry, device technology and the construction industry, we strive to make our customers' applications more effective. Our moldmaking is subject to virtually zero limitations. We are even capable of implementing complex solutions such as valve-in-valve configurations or unscrewing units. The maximum part weight is 450g in our 200-ton injection molding systems.



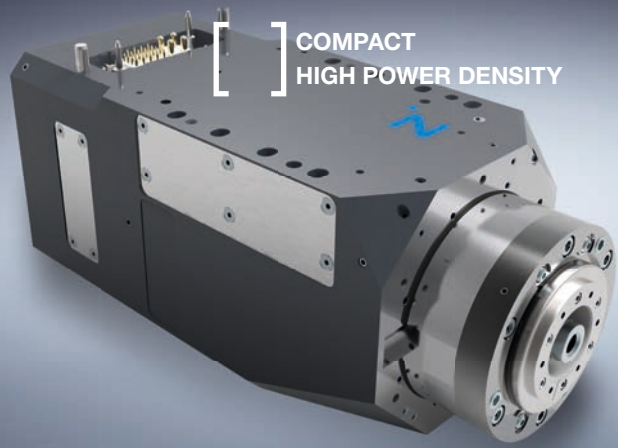
PROCESS TECHNOLOGY

ELASTOMER TECHNOLOGY

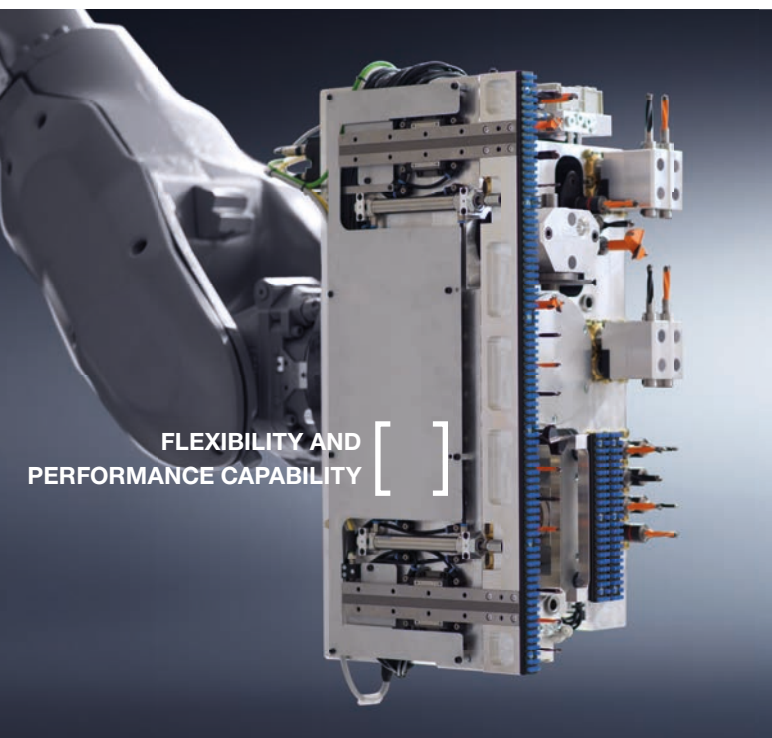
The production volume we can provide, as with the dimensions we can produce, is nearly limitless; we can produce almost any volume desired. From special singlepiece solutions to medium-sized small-scale production to large series production with more than 10,000 pieces. We supply practically everything that can be implemented using the transfer molding (TM) or injection transfer molding (ITM) process, including insert parts like threaded inserts, springs and any other parts made of plastics or metals, which we also machine on request. The transfer molding method is suitable

for manufacturing low part quantities with low implementation times and at attractive prices. The injection transfer molding method is ideal for large quantities. We have NBR, silicone, EPDM, FPM, PU, TPU, TPE or polymethane available to us as materials and we can process them in any Shore hardness available on the market. And the workpiece dimensions are just as varied, running the gamut from pinhead-sized components to workpieces with a volume of several liters. Whether big or small: There is hardly any limit to the component complexity we can provide.





[] COMPACT
HIGH POWER DENSITY



FLEXIBILITY AND
PERFORMANCE CAPABILITY []



[] MODULARITY AND
FLEXIBILITY



[] PRECISION AND
REPEATABILITY

PROCESS RELIABILITY []

MACHINE TOOLING TECHNOLOGY

DRILL HEAD

RETHINKING PRECISION MACHINING

It is not without reason that multi-axis machining is considered the elite of machining processes. Its complexity requires a great deal of competence with the utilized technologies. But the results are worth the effort: Even complex parts can be completed with extraordinary surface quality, and with high dimensional and shape precision, with just one clamping operation. This results in high efficiency thanks to the reduction of process steps and increased flexibility thanks to the elimination of the set-up times of conventional systems. In addition to standard systems, we also develop special solutions on a customer-specific basis. This means that systems suitable for virtually any desirable application are created based on your custom requirements.

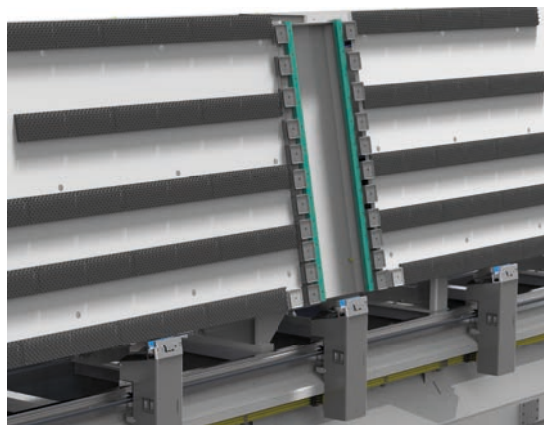


MACHINE TOOLING TECHNOLOGY

SHUTTLE

MAXIMUM PRODUCTIVITY AND FLEXIBILITY

The individual modules move with very high dynamics and precision on a defined travel path. This path implements the high-precision mechanical movement using a linear guide in conjunction with a gear rack drive. The transfer of bus signals or electrical energy takes place via hidden sliding contacts. Depending on the requirement profile, one or more shuttles per transport order can move, either independently or with electronic coupling, synchronously on a travel path of any length at speeds of 0 - 2 m/s and with a positioning accuracy of 0.05 mm. The maximum load of the individual modules is 100 kg. The continuous circulation of the modules on the travel path is achieved by a direction change using a high-performance converter.



ZIMMER GROUP MODULAR TRANSPORT SYSTEM

Zimmer Group has developed a completely new and highly innovative category of automation components. In the case of the Modular Transport System, this is a modularly structured, fully connected and freely scalable system of transport units for a wide variety of application profiles in the area of automation and linked production.

MACHINE TOOLING TECHNOLOGY

SPN ZERO-POINT CLAMPING SYSTEM

OUR EXPERTISE – YOUR ADVANTAGES

Maximum repeatability and precision

- ▶ The Zimmer Group zero-point clamping system features a repeatability of 0.005 mm. Thanks to its very high clamping force and the consistent use of tempered tool steels, the system provides a high precision, torsion resistant base that also stabilizes fragile parts that tend to vibrate during processing.

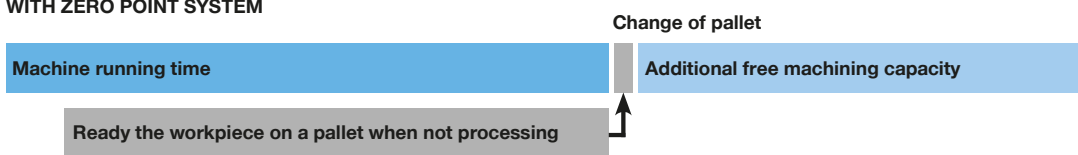
Increased process reliability

- ▶ The zero-point clamping system eliminates errors during milling, rotating, wire or die eroding, flat or cylindrical grinding, drilling, lasering and measuring. The maintenance-free design also contributes to the superior process reliability.

WITHOUT ZERO POINT SYSTEM



WITH ZERO POINT SYSTEM



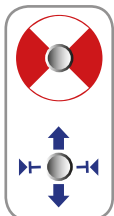
CONFIGURATION

In order to best redirect the forces of the device to be clamped, the displayed arrangement of pins is recommended. This arrangement makes it possible to compensate for geometry errors that emerge from production tolerances or thermal expansion:



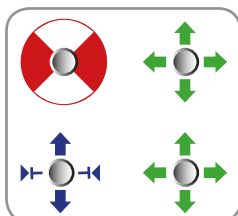
Configuration with one zero-point clamping system

The centering pin gets the position in all three directions of the Cartesian coordinate system X, Y and Z. As a result, it forms the zero-point for the device to be secured in place.



Configuration with two zero-point clamping systems

The sword pin can compensate for a change in length in one direction while absorbing the forces in the other two directions. It must be positioned so that it can support the moments applied around the centering pin in the Z direction.



Configuration with four or more zero-point clamping systems

The retention pin can only absorb forces in the Z direction. It compensates for changes in length in the X and Y direction.

PRODUCT ADVANTAGES

▶ Patented locking piston

▶ Stainless

The housing parts are made of stainless steel – contact parts are hardened and thus wear-free

▶ Integrated rotation prevention as standard

A drive pin can be inserted into the clamping module to counteract torque in the direction of the plunger axis.

▶ Easy insertion of the clamping pins due to optimum, conical lead-in chamfers

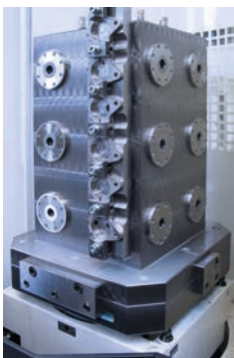
Burring is prevented

The pin will be centered automatically even if positioned at a slant

▶ Integrated flat-surface cleaning for models with positioning check

	Min. operating pressure [bar]	Clamping force [kN]	Clamping force with PLUS connection [kN]	Rotation prevention	Positioning check	Flat-surface cleaning
SPN060EL	4 / 6	2.5 / 4	4.5 / 7.5	●		
SPN060EL with positioning check	4 / 6	2.5 / 4	4.5 / 7.5	●	●	●
SPN110EL	4 / 6	4 / 7	10 / 15	●		
SPN110EL with positioning check	4 / 6	4 / 7	10 / 15	●	●	●
SPN138EL	4 / 6	9 / 18	22.5 / 42	●		
SPN138EL with positioning check	4 / 6	9 / 18	22.5 / 42	●	●	●
SPN195EL	4 / 6	20 / 30	50 / 80	●		
SPN195EL with positioning check	4 / 6	20 / 30	50 / 80	●	●	●

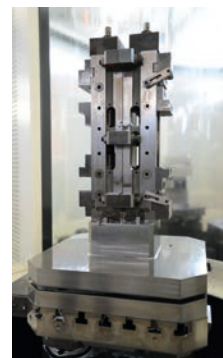
APPLICATION EXAMPLES



Machining center



Exchangeable assemblies



Clamping plate in a metal-cutting machine

MACHINE TOOLING TECHNOLOGY

CLAMPING SYSTEM FOR INJECTION MOLDING MACHINES

OUR EXPERTISE – YOUR ADVANTAGES

- ▶ Short machine setup times as a result of a significantly shortened changeover process
- ▶ An accelerated clamping procedure compared to traditional clamping methods
- ▶ Tool savings (centering ring/thermal insulation panel)
- ▶ A more cost-effective solution than comparable competing systems
- ▶ The use of thermal insulation panels and aluminum tools is possible
- ▶ Low height of the changing device: 30 mm or 36 mm with thermal insulation panels
- ▶ Existing tools can be retrofitted easily
- ▶ Secure and precise change process and easy tool storage

MINIMAL MACHINE SETUP TIMES – MAXIMUM PRODUCTIVITY

In modern production processes, factors like efficiency and flexibility are increasingly important. This poses a neverending challenge to injection molding companies who want to fulfill an increasing number of requests for smaller batch sizes, lower inventories and just-in-time deliveries.

Minimizing machine setup times and saving time in the retooling process are major factors in achieving flexible production processes, bringing greater productivity and value to mature operations.



MACHINE TOOLING TECHNOLOGY

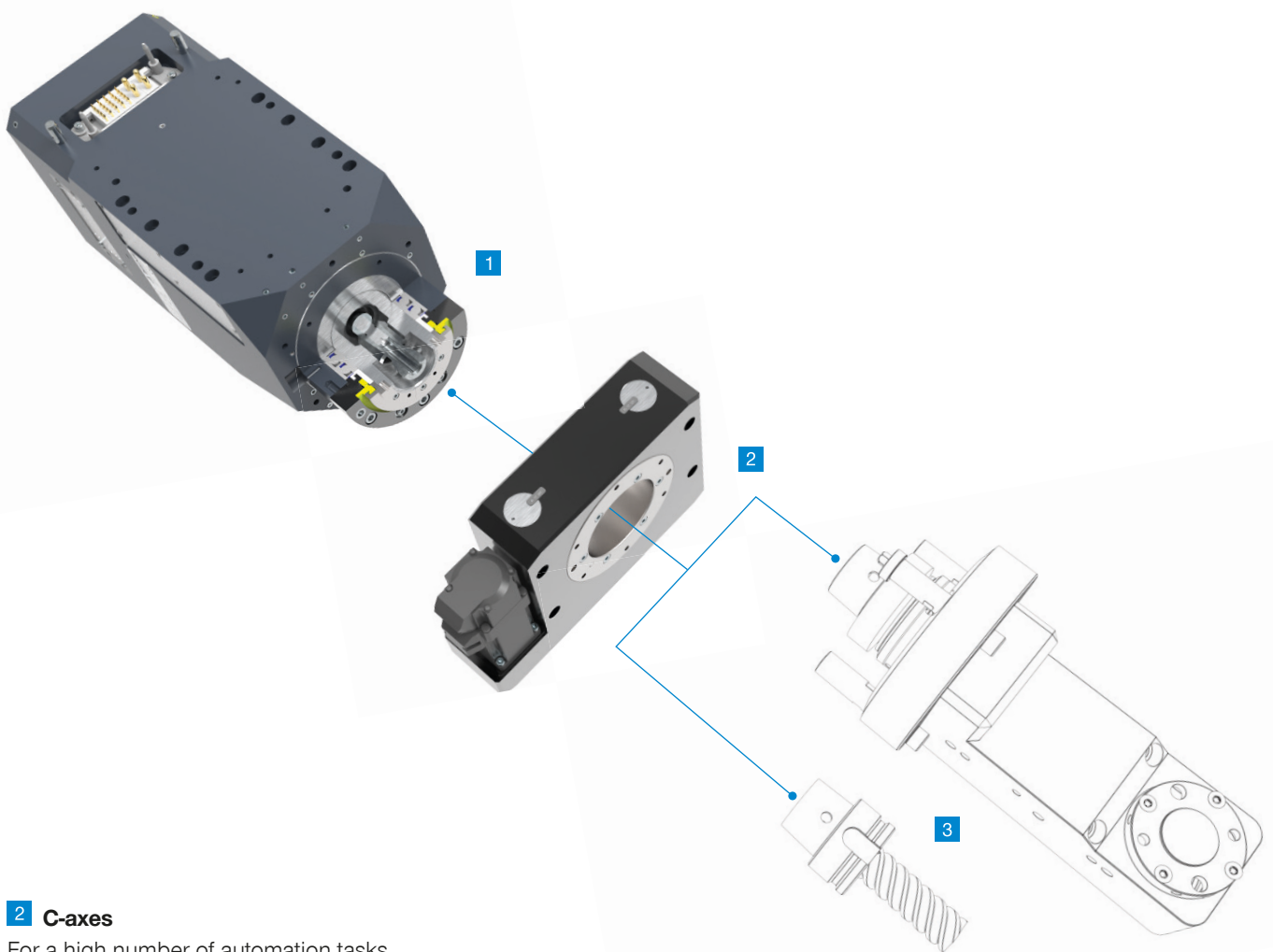
MOTOR SPINDLES

1 Motor spindles

As key components in machining centers, machine tools and end-of-arm applications, guarantee optimal value creation thanks to maximum precision, productivity, availability and a long service life. They are critical for the performance of the machine and the quality of machined pieces. Compact power

packages with high power density and high-precision bearings are essential for achieving high speeds and excellent true-running characteristics. The Zimmer Group product line comprises both air and fluid-cooled motor spindles for wood, aluminum and plastics processing as well as fluid-cooled motor

spindles for metal cutting. The spindles stand out for their extremely high reliability, superior power density and a wide range of compatibility.



2 C-axes

For a high number of automation tasks, it is necessary to rotate a workpiece or tool in position. The requirements for C-axes are varied: The focus lies on fast, precise movement, uniform motion, high repeatability, precise end position damping and low maintenance requirements.

3 Tool

Tool interface on high-frequency spindles compatible with all conventional market standards, e.g. HSK F63, HSK C32 or Solidfix S3.

MACHINE TOOLING TECHNOLOGY

MOTOR SPINDLES

MOTOR SPINDLES

HIGH-FREQUENCY SPINDLES FOR WOOD*

AIR-COOLED

MSL01-09-02-00-A Power: 1.13 kW
Speed (max.): 9,000 U/min
Torque: 5 Nm



HFL04-24-12-00-A Power: 3.6 kW
Speed (max.): 24,000 U/min
Torque: 3 Nm



HFL06-24-35-00-A Power: 6 kW
Speed (max.): 24,000 U/min
Torque: 4.4 Nm



HFL08-24-35-00-A Power: 8 kW
Speed (max.): 24,000 U/min
Torque: 6 Nm



HFL12-24-35-00-A Power: 12 kW
Speed (max.): 24,000 U/min
Torque: 9.5 Nm



WATER-COOLED

HFW02-30-12-00-A Power: 2.2 kW
Speed (max.): 30,000 U/min
Torque: 3.7 Nm



HFW04-30-12-00-A Leistung: 4 kW
Drehzahl (max.): 30,000 U/min
Drehmoment: 6.4 Nm



HFW09-24-35-00-A Power: 9 kW
Speed (max.): 24,000 U/min
Torque: 7.3 Nm



HFW09-24-35-01-A Power: 9 kW
Speed (max.): 24,000 U/min
Torque: 7.3 Nm



HFW20-24-35-00-A

Power: 20 kW
Speed (max.): 24,000 U/min
Torque: 18.5 Nm



HFW21-24-35-00-A

Power: 21 kW
Speed (max.): 24,000 U/min
Torque: 16 Nm



HIGH-FREQUENCY SPINDLES FOR METAL

WATER-COOLED

HFW17-14-00-00-A

Power: 17 kW
Speed (max.): 14,000 U/min
Torque: 55 Nm



HFW25-14-00-00-A

Power: 25 kW
Speed (max.): 14,000 U/min
Torque: 80 Nm



HFW48-06-05-00-A

Power: 48 kW
Speed (max.): 6,000 U/min
Torque: 153 Nm



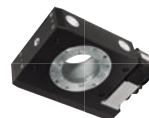
HFW60-06-07-00-A

Power: 60 kW
Speed (max.): 6,000 U/min
Torque: 764 Nm



C-AXES

**CAC
DES**



Drive: Planetary gear, worm gear (including wing drive)
Torque (max.): 30 - 130 Nm
Translation: $i = 1/1.837 - i = 100/1$
Lubrication: Grease lubrication, oil lubrication

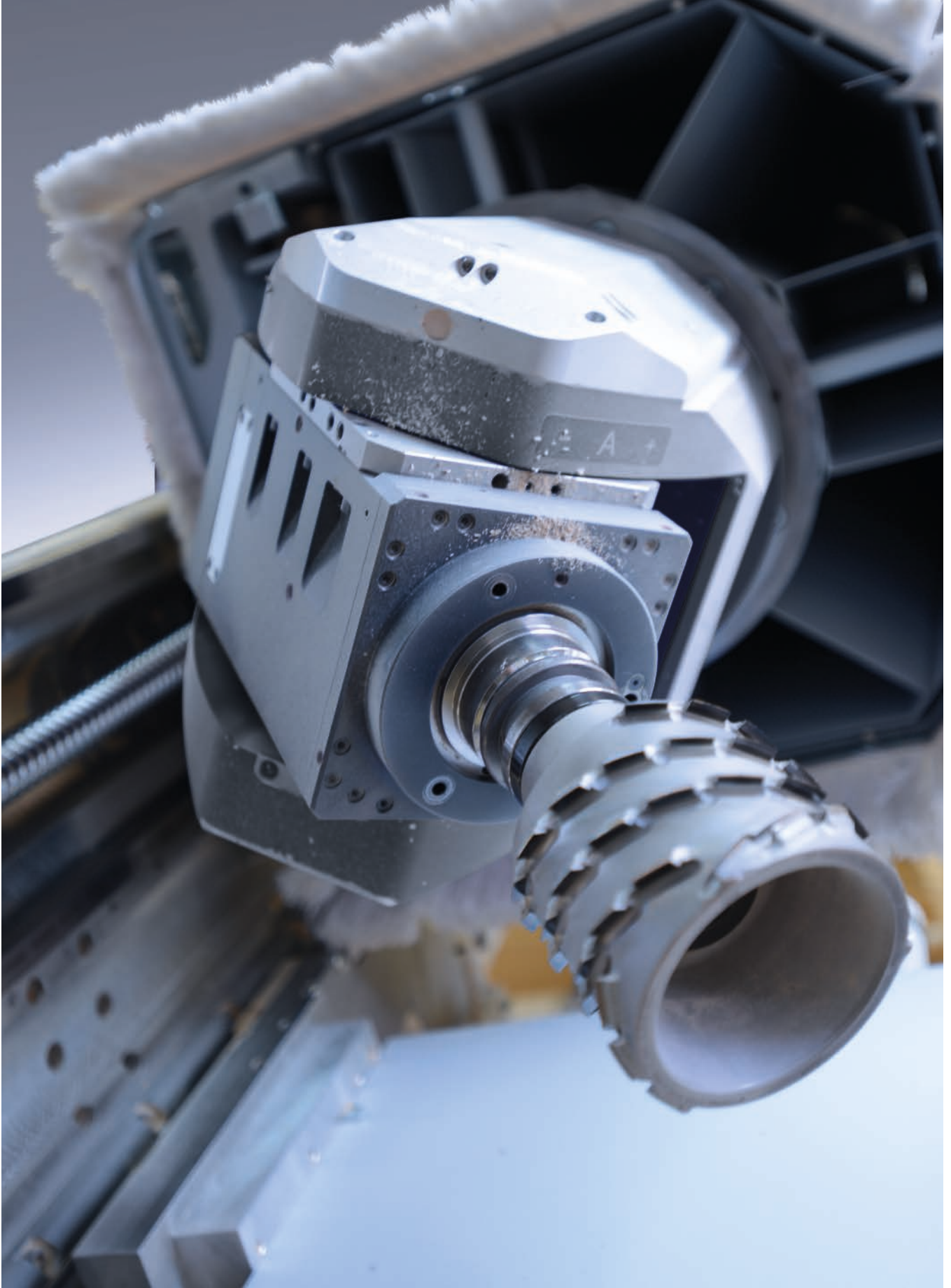
5-AXIS HEADS

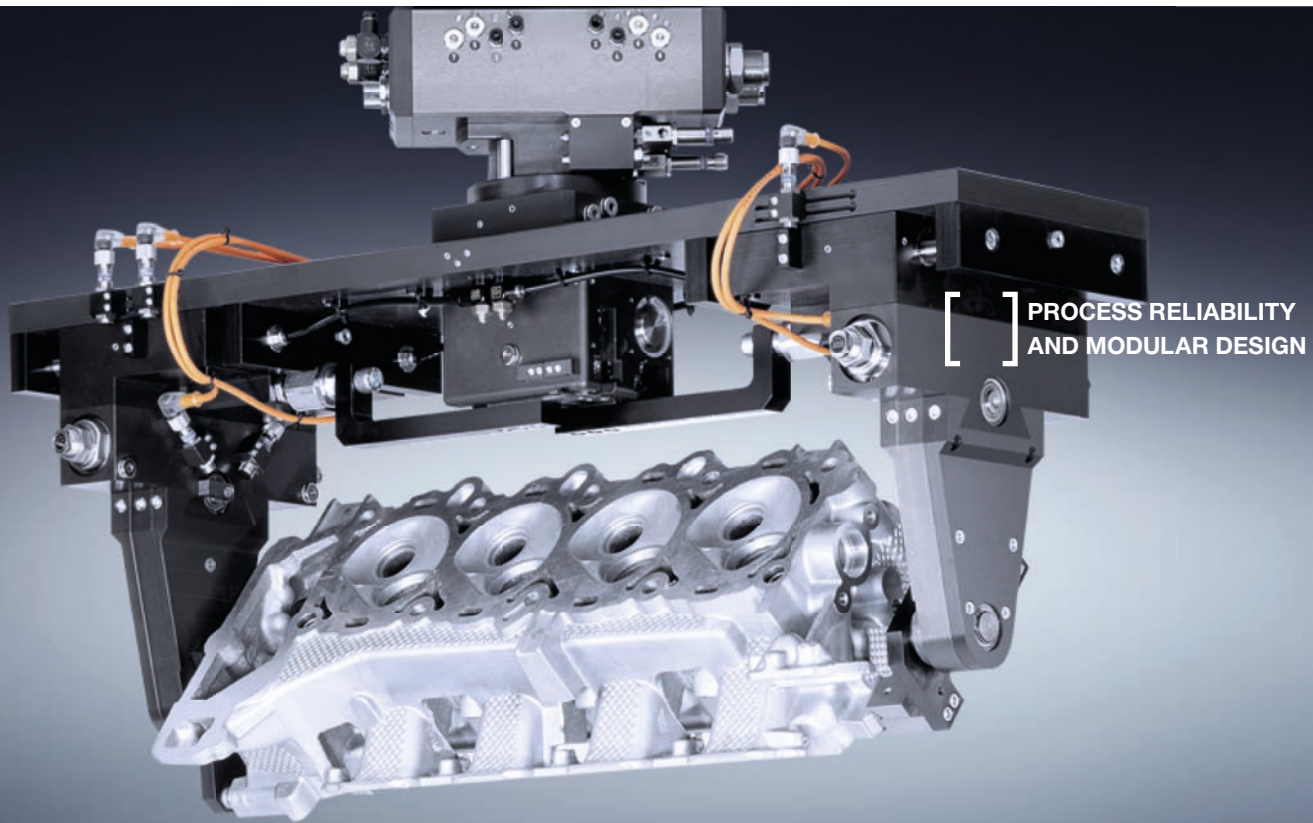
90° ORTHOGONAL

50° CARDANIC

Power: 9 - 24 kW
Speed (max.): 24,000 U/min
Torque: 9 - 38 Nm

* wood, plastic head, lightweight metal and composite





SYSTEM TECHNOLOGY

TECHNOLOGY HIGHLIGHTS

ZIMMER GROUP IS ONE OF THE LEADING SPECIALISTS IN THE AREA OF SYSTEMS SOLUTIONS IN THE WORLD. WE OFFER YOU SOPHISTICATED SYSTEM SOLUTIONS FOR ALMOST EVERY TASK, IN VIRTUALLY ALL INDUSTRIES AND APPLICATIONS. IT DOESN'T MATTER IF IT IS A SIMPLE GRIPPER AND HANDLING SOLUTIONS OR A COMPLEX SYSTEM SOLUTION.

As an industry partner with many years of experience, we are intimately familiar with the requirements of modern production systems, whether in mechanical engineering, the automotive and supplier industries, foundries or in the electronics, plastics or the consumer goods sectors. Zimmer system solutions allow us to equip any make of robot optimally and significantly increase the functionality and efficiency of your robots. The extensive expert solutions of our System Technology department, with their

experienced team of project engineers, designers and manufacturers, has been valued by our customers for 30 years. Our systems are the result of a close collaboration with end customers and integrators built on trust. Zimmer System Technology has specially tailored production and assembly areas with a high degree of production depth. This means that we can guarantee flexible, quick implementation of your project at any time. The Zimmer Group has traditionally worked for a series of core industries that have

benefited from our extensive experience and recognized development expertise for decades. We would be happy to speak with you about specific applications in new growth industries. We are well equipped for the development of new concepts. Together, we will be able to find the right solutions.

WE DESIGN, ASSEMBLE, CHECK AND DOCUMENT CONNECTION-READY SYSTEM SOLUTIONS. WE ARE NEVER SATISFIED WITH JUST FINDING ANY SOLUTION. INSTEAD, WE AIM TO FIND THE BEST SOLUTION FOR EACH CUSTOMER.

- ▶ Connection-ready system solutions reduce your design and project-management costs
- ▶ Developed specifically for your application
- ▶ 100% tested
- ▶ Included detailed documentation
- ▶ Our experience from executing more than 7,000 system solutions ensures that you get the functionality you need without compromising cost security
- ▶ 10 million maintenance-free cycles provide maximum system availability
- ▶ Optimized dimensioning of components reduces gripper weight, optimizes dimensioning of the robot itself and thereby minimizes cycle times
- ▶ Implementation of additional functions like cameras, sensors, measurement sensors and screw functions reduces your costs and optimizes your application

SYSTEM SHOWROOM

Over the years, our designers have implemented over 7,000 custom-made and standardized system solutions. Our online showroom can give you an overview on the wide variety of these solutions, which will allow you to considerably reduce your design and production costs. Take a look and discover what the Zimmer Group can make possible!



SYSTEM TECHNOLOGY

AUTOMOTIVE INDUSTRY



Our system solutions have been used by all major automobile manufacturers for decades. First and foremost, our portfolio includes gripping and handling solutions for all areas of the power train, for example, camshafts and crankshafts, cylinder blocks and heads, gear and chassis parts, as well as tires, wheels and rims. Zimmer Group's System Technology also offers solutions for the production of electric vehicles, such as handling and assembly tasks for the fully-automatic production of battery cells and battery packs.



Gripping system for motor blocks (600 kg each) / loading and unloading of assembly stations

SYSTEM TECHNOLOGY

CONSUMER GOODS INDUSTRY



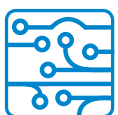
The production of consumer goods in areas with high wages can only be made profitable with a high degree of automation. Here, Zimmer Group's system solutions provide a crucial contribution to efficient production. Whether in the drink and food industry or the medical and pharmaceutical industry, whether during packaging, palletizing or filling, you can package coffee capsules, handle yogurt cups or palletize chocolate cartons, for example, in cycles that last mere seconds on our hygienic, high-speed systems.



Gripping system for yogurt cups (varying diameters) / removal from deep-draw machine and packaging into boxes

SYSTEM TECHNOLOGY

ELECTRONICS INDUSTRY



The electronics industry is characterized by the highest degree of cost pressure and very short product life cycles. The fastest cycle times and production facilities with the highest availability are understandably necessary here, and are the key to commercial success. Whether in the production of cell phones, the installation of power electronics, the electrification of drive trains or in custom device construction, the Zimmer Group supports you with competent engineering and state-of-the-art production.



Robots for handling circuit boards in the electronics industry

SYSTEM TECHNOLOGY

MACHINE TOOL INDUSTRY



The tooling machine trend is also going in the direction of increasing automation. We offer you space-saving automation solutions on robots, machines or directly in the work area. Featuring, of course, components that are perfectly sealed against chips and cooling lubricants. You receive automation solutions from Zimmer Group that integrate seamlessly into your existing machines and systems and deliver strong performance – even under difficult working conditions.



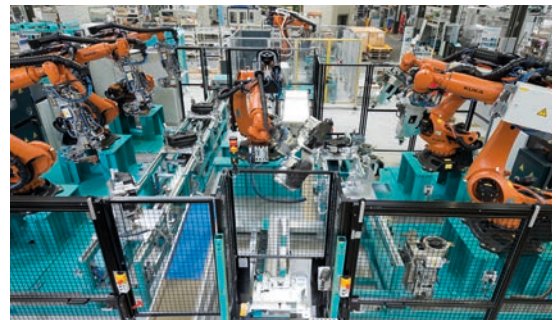
Gripper system, incl. tool changer for cast parts and deburring spindle / loading and unloading of machining center

SYSTEM TECHNOLOGY

PLASTICS INDUSTRY



The plastics industry is shaped by short product life cycles. Tool-specific components must therefore pay themselves off within the shortest amount of time, or be able to be used for the next model line. To that end, we supply you with components like removal grippers, insertion grippers, external feeders and separators that are used on injection molding machines and thermoforming machines. In so doing, we also integrate additional functions into our solutions, such as lettering, test steps or packaging operations.



Gripping system for fuel tanks / loading of various machining stations

SYSTEM TECHNOLOGY

FOUNDRY INDUSTRY



The components used in foundries are governed by stringent requirements. They must withstand high temperatures, abrasive dust, aggressive media and loads caused by machining operations. The Zimmer Group has extensive experience in these areas. From handling filigree sand cores to sampling from the glowing blast furnace, our systems deliver maximum performance and master all challenges in automated processes in the foundry and forging industry.



Gripping assembly system for sand cores / removal from core shooter

ZIMMER GROUP

SERVICE

DO YOU HAVE A QUESTION OR REQUEST OR ARE YOU INTERESTED IN ADDITIONAL MATERIALS RELATED TO OUR TECHNOLOGIES AND COMPONENTS? VISIT OUR WEBSITE, MAKE USE OF OUR DOWNLOADS OR CONTACT US DIRECTLY.

▶ **Service**

Getting it right from start to finish! We strive to be much more than just a manufacturer of products. Instead, we want to accompany you through the entire product lifecycle, from start to finish. This starts with extensive consultation on the selection of a new product, continues with upkeep and maintenance and includes a hotline and repair or replacement. Our team never stops improving how we deliver our service and they continually seek new ways to optimize service through our subsidiaries in the age of globalization.

▶ **Service on-site**

At your request, our experienced service personnel are happy to visit you on-site to carry out service operations or offer professional consultation.

▶ **Service agreements**

You are looking for security and support in the lifecycle process to ensure your ability to make long-term plans for your products and production capabilities. We are offering the corresponding service agreements to guarantee that you are not left without support in the event of damage or defects.

▶ **Spare parts service**

Manufacturer quality at fair prices, discussed and delivered with the appropriate level of skill. That is what we are offering. We know about the life time of machines and, as a rule, take this into account by offering much longer periods of spare part availability than are legally required.

HOTLINE

Not every concern requires an immediate repair or replacement. Our highly qualified employees are available to you by telephone to provide guidance and resources.

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service@zimmer-group.com



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