

# **Program summary**

# **ROEMHELD Group**

Workholding elements Hydraulic cylinders



Clamping power units



Handling technology



Die clamping systems



Workholding systems Machine vices



**Hydraulic components** 



Press-in devices



Magnetic clamping technology



Zero point clamping systems



**Pneumatic elements** 



Drive technology



System solutions







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#### Quality

#### as an obligation

To take a leadership role in the national as well as international quality competition the ROEMHELD Group feels obliged to a continuous process of improvements. Thereby the high quality of the processes and products is always guaranteed even with continuously changing demands on the market.

Certification as per EN ISO 9001:2000 guarantees the compliance with standard guidelines.

In addition, it is a stated objective to make the products and services of the ROEMHELD Group an established idea of quality. This will be a long-term guarantee that the ROEMHELD Group will offer efficient and economic products and will contribute to a considerable extent to the success of its customers.

#### **Solutions**

#### from the catalogue or as a customer-specific design

In addition to the most comprehensive range of catalogue elements and systems, available in clamping technology, the ROEMHELD Group permanently develops, designs, manufactures and supplies customer-specific solutions in cooperation with their customers. This program summary of the product range of the ROEMHELD Group shows essentially the catalogue program.

Please contact for customer-specific designs the corresponding companies of the ROEMHELD Group.

#### International

#### aimed at global presence

Beside national customers, which are well looked after by 17 sales partners in Germany, export is more and more important. Already today the ROEMHELD Group shows an export share of approx. 50 %, which increases to more than 65 % because of indirect exports. Subsidiaries in Great Britain, France, USA, China, Japan, and South Korea as well as numerous sales partners guarantee worldwide an intensive consultation, an efficient sale and an extensive service for the customers of the ROEMHELD Group.

#### **Environment**

# The protection of the environment is important to us

The companies of the ROEMHELD Group have their own environmental management systems. These ensure that the impact of the production on the outside world is kept to a minimum, only the necessary extent of emissions occur and resources such as energy, water, air and raw materials are used as carefully as possible.

The environmental management system of ROEMHELD is certified according to EN ISO 14001.



# **ROEMHELD** a strong Group

Römheld forms together with the specialists in clamping technology Hilma-Römheld and Stark Spannsysteme a group of companies, which offers an extensive product range in the field of clamping technology for production engineering.

The product range is supplemented by numerous hydraulic elements for general industrial use, as well as components and systems of the assembly and drive technology.

The ROEMHELD Group comprises about 500 employees with an annual turnover of approx. 105 million Euro.

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# Stark Spannsysteme GmbH

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Hydraulic cylinders for linear motions of every type operating pressure: up to 500 bar

#### **Hydraulic cylinders**

# **Hydraulic cylinders, design with tube** with/without end position monitoring piston diameter: 25...80 mm stroke: 60...1200 mm



### Hydraulic cylinders with round housing

for axial adjustability piston diameter: 10...63 mm stroke: 8...100 mm







#### **Threaded-body cylinders**

# Compact hydraulic cylinders and built-in pistons for screwing in

piston diameter: 8...50 mm stroke: 4...40 mm







# **Block cylinders**

# Hydraulic cylinders with block-type body made of steel, aluminium or bronze

with/without end position monitoring piston diameter: 16...200 mm stroke: 8...200 mm







## **Hydraulic slides**

# Hydraulic cylinders with integrated guides

with/without end position monitoring piston diameter: 25...100 mm stroke: 20...200 mm









# Hydraulic elements for positioning and clamping of workpieces operating pressure: up to 500 bar

#### **Bore clamps**

#### Clamping elements for clamping in bore holes

with/without centring function / with pull-down clamping with/without seat check bore hole diameter: 6.6...46 mm max. low-clamping force 0.6...24.5 kN







#### Position flexible clamping elements

#### Clamping elements for "floating" clamping

for exterior and interior clamping with/without position monitoring max. clamping force: 7.5 kN







#### Clamps / clamping cylinders

#### Clamping elements for clamping in small recesses

with/without position monitoring with/without self-locking max. clamping force: 2.5...50 kN





#### **Hinge clamps**

#### Clamping elements with operation of a clamping lever

with/without position monitoring max. clamping force: 1.3...21.5 kN clamping stroke/clamping range: 2.0...9.0 mm







# Swing clamps

#### Clamping elements with swing piston

with/without position monitoring max. clamping force: 0.6...41 kN clamping stroke: 6...50 mm







#### **Work supports**

#### Elements to support workpieces

single or double acting max, load force: 4...102 kN plunger diameter: 16...50 mm plunger stroke: 6...20 mm







#### **Concentric clamping elements**

# Clamping elements for concentric positioning and clamping

for exterior and interior clamping max. clamping force: 5...44 kN repetitive clamping accuracy: ± 0.005 mm







# Fixture clamps

# Compact standard clamping systems for use on fixtures

with fixed jaw, concentric or position flexible max. clamping force: 6.5...15 kN jaw width: 40...65 mm







#### **Hollow-piston cylinders**

# Clamping cylinders with through hole in the piston

piston diameter: 20...80 mm max. push force: 10...153 kN clamping stroke: 6...40 mm









Mechanically, mechanically-hydraulically or hydraulically operated standard fixtures for workpieces

Machine vices Series EL Series NC Series KNC

mechanically-hydraulically or hydraulically operated clamping against the fixed jaw

• with hydraulic power transmission

• completely encapsulated lead screw area sizes: 100...160 mm

max. clamping force: 25...50 kN



5-axis workholding systems

mechanically or hydraulically operated clamping against the fixed jaw or concentric clamping

• compact design

• collision-free tool paths sizes: 40...125 mm

max. clamping force: 8...35 kN

Series MC-P Series SCS Series PC







**Double workholding systems** 

mechanically, mechanically-hydraulically or hydraulically-operated clamping against the fixed jaw

• safe loading and unloading by 3rd-hand function sizes: 80...160 mm

max. clamping force: 25 ... 63 kN

Series DS Series DF Series DUO







#### **Multiple workholding systems**

mechanically operated clamping against the fixed jaw

• compact design

• modular design sizes: 24...120 mm

max. clamping force: 15...40 kN







#### Variant workholding system VarioLine

#### mechanically-hydraulically or hydraulically operated clamping against the fixed jaw

- option: clamping force display
- system with variants for customised machine vices sizes: 100...160 mm

max. clamping force: 25...60 kN length of base: up to 750 mm



Series VL

Series ZH

#### Concentric workholding systems

#### hydraulically operated, double acting concentric clamping

- high repetitive clamping repeatability ± 0.01 mm
- fixing and mounting possibilities for customer-specific clamping jaws sizes: 100 ... 160 mm

max. clamping force: 16...64 kN



# **Automation**

### hydraulically operated, double acting clamping against the fixed jaw

- also available with position measuring system (electrically or via flow rate)
- setups can be automated sizes: 100 ... 125 mm

hydraulic stroke: up to 250 mm max. clamping force: 32 kN



Series ASH

### Clamping jaws

top jaws with grip spacer iaws precision step reversible jaws precise step bars formed jaws

central jaws pendulum jaws

precision step jaws

Vee jaws

QIS base jaws

with permanent magnets

QIS interchangeable jaws, smooth QIS interchangeable jaws, serrated QIS interchangeable jaws, crowned QIS interchangeable jaws, stepped

QIS interchangeable jaws, prismatic QIS interchangeable jaws, soft

floating central jaws

SlimFex jaws

clamping jaws, soft

clamping jaws, extra high

clamping jaws, extra large

clamping jaws with grip bar special grip jaws

reversible step jaws

interchangeable inserts, round, with grip interchangeable inserts with grip / smooth

interchangeable inserts

with hard-metal coating / smooth

reversible jaws























#### **Tower workholding systems**

#### arrangement of the clamping points: TS: 4x 90° | TS TriStar: 3 x 120° mechanically operated clamping against the fixed jaw

- version with 3rd-hand function
- version Vector sizes: 80 ... 125 mm

max. clamping force: 20...40 kN





### Series TS TriStar



### **Series TS Vector**



### Milling and turning machining

#### Box iaws mechanically operated

- lead screw and nut completely encapsulated
- easy pre-adjustment using a scale

track: 150 and 180 mm

max. clamping force: 30...63 kN

#### Series KK





Clamping systems for exact zero point positioning and clamping of the workpieces and fixtures

#### **STARK.metec**

#### easy, compact and sturdy

clamping: mechanically unclamping: mechanically max. retention force: 12...50 kN



#### **STARK.classic**

#### clamping force monitoring, seat check, blast cleaning, flow power

clamping: mechanically unclamping: hydraulically or pneumatically max. insertion force: 30 kN

max. retention force: 55 kN



# **STARK.airtec**

#### quick and precise

clamping: mechanically unclamping: pneumatically max. clamping force: 20 kN max. retention force: 55 kN



# STARK.easy click

#### clamping by pressing

clamping: mechanically unclamping: pneumatically max. clamping force: 5 kN max. retention force: 10 kN



# STARK.hydratec

#### quick and flexible

clamping: hydraulically unclamping: hydraulically max. clamping force: 20 kN max. retention force: 38 kN



# **STARK.sweeper**

#### for the automation

clamping: mechanically unclamping: hydraulically or pneumatically max. insertion force: 20 kN

max. retention force: 38 kN



# **STARK.**plaintec

#### strong and unique

clamping: hydraulically unclamping: hydraulically max. clamping force: 50 kN



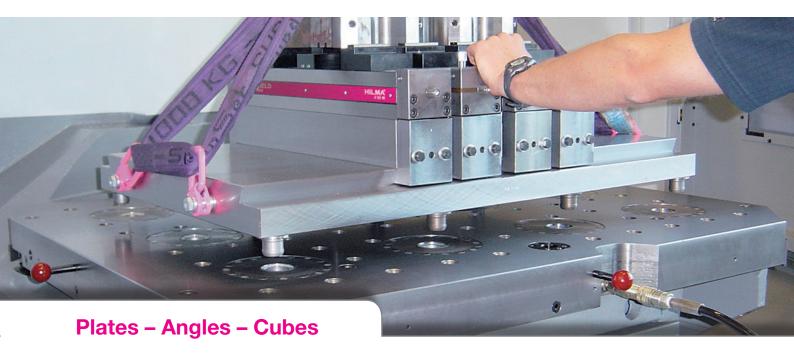
#### **Couplings**

universal and compact for hydraulics, pneumatics, vacuum and electrics

nominal diameters: 3...8 mm







# From standard elements to systems for flexible use - with minimum set-up time

- mechanical - hydraulic - pneumatic - electrical - single acting - double acting -

### **Quick-locking plates**

### for milling machining

from standard components, adapted to the machine and machining task

• fully assembled with 3D dimensional and functional test



# **Quick-locking plates**

#### for turning machining

from standard components, adapted to the machine and the machining task

- standard clamping monitoring
- applicator for pre-centring



# **Quick-locking cubes**

### for milling machining

from standard components, adapted to the machine and the machining task

• 3rd-hand-function (DHF) prevents the dropping of the parts



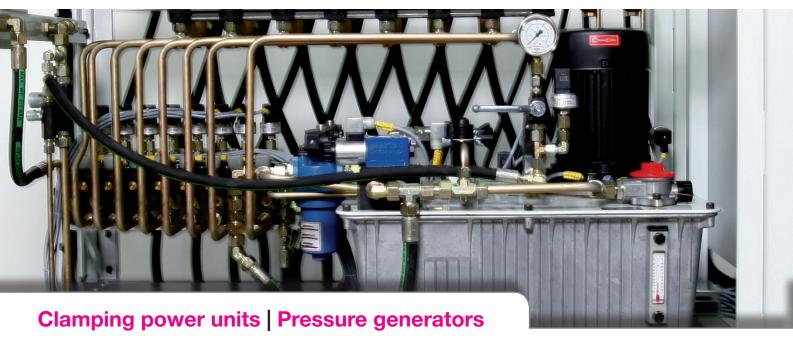
# **Quick-locking plates**

#### for the automation

from standard components, adapted to the machine and machining task

• flow power as interface for pneumatic or hydraulic clamping fixtures and signal queries





Clamping power units, hydraulic power units, hydro-pneumatic pump units and manually-operated pumps to generate and control hydraulic pressure

#### Power units D 8.013

#### with two-hand operator console

flow rate: 0.9...4.5 l/min max. operating pressure: 50...500 bar reservoir volume: approx. 11 l voltage: 400 VAC



#### Power units D8.015

# with proportional pressure adjustment

flow rate: 0.9 l/min max. operating pressure: 500 bar reservoir volume: approx. 11 l voltage: 400 VAC



# Power units D8.031

#### basic versions

flow rate: 0.9...24 l/min max. operating pressure: 50...500 bar reservoir volume: 11, 27, 40 and 63 l voltage: 400 VAC



#### Power units D 8.026

#### modular design

flow rate: 0.9...24 l/min max. operating pressure: 120...500 bar reservoir volume: 11, 27, 40 and 63 l voltage: 400 VAC



#### Power units D 8.0115

# ready for connection energy-saving intermittent cycling

flow rate: 0.8...3.5 l/min max. operating pressure: 160...500 bar reservoir volume: approx. 5 l voltage: 400 VAC



# **Manually-operated pumps**

# Hydraulic pumps for single-acting cylinders

operation by hand or foot lever displacement per stroke: 2...12 cm<sup>3</sup>

**Screw pumps** displacement: 21 cm<sup>3</sup>



### Hydro-pneumatic pump units

#### for single and double acting cylinders

flow rate: 0.85...1.5 l/min air pressure: 0.85...5.0 bar max. operating pressure: 500 bar







# Elements for oil supply and control to hydraulic elements

#### **Hydraulic valves**

Directional control and shut-off valves Throttle and pressure control valves Pressure relief valves Check valves Sequence valves Valve combinations



### Hydraulic accumulator

Diaphragm accumulator for hydraulic oil with nitrogen gas filling

nominal volume: 13...750 cm<sup>3</sup>

ports: G1/4 ... G1/2

max. operating pressure: 250...500 bar



#### **Rotary couplings**

Rotary couplings and rotary valve couplings

for oil supply to rotating and swivelling installations max. operating pressure: 500 bar



#### **Intensifiers**

hydraulic-hydraulic or pneumatic-hydraulic

single and double acting max. output pressure: 500 bar



#### Pressure transducer

piston pressure switch

with continuously adjustable switching point manifold mounting or G1/4

pressure sensors with radio transmission receiver units with data interfaces



#### **Coupling elements**

for hydraulic oil, compressed air and vacuum

nominal diameter: ND 3...8 max. flow rate: 8...35 l/min

max. operating pressure: 300...500 bar



### **Multi-couplings**

2 to 12 passages

nominal diameter: ND 5...8 depressurised coupling or coupling against pressure max. operating pressure: 300 bar



### **High-pressure filters**

In-line filters, plug-in filters and rectifier filter

filter fineness: 10 and 100 µm material: stainless steel and steel max. operating pressure: 350 and 500 bar



#### Coupling units and systems

manually or automatically operated

for single or double acting elements max. operating pressure: 400 and 500 bar



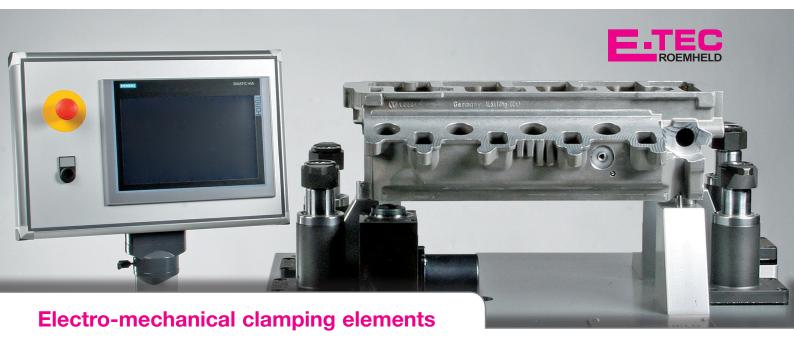
#### **Piping elements**

**Fittings** 

Hydraulic hoses / Hydraulic oil Precision steel pipes **Plug-in connectors** Pressure gauges / pipe clamps







#### **Electric swing clamps**

max. clamping force: 7 kN clamping stroke: 23 mm swing angle: max. 180° voltage: 24 VDC



#### **Electric work supports**

max. load force: 20 kN plunger stroke: 20 mm voltage: 24 VDC



#### **Electric block cylinders**

max. clamping force: 10...20 kN stroke: 100 mm voltage: 24 / 48 VDC



#### **Electric wedge clamps**

max. retention force: 130 ... 320 kN clamping stroke: 20 mm voltage: 24 VDC





#### Flexible clamping and support elements for clamping of thin-walled workpieces with free-form surfaces

# Clamping and supporting elements

elements with their own linear actuator and vacuum clamping technology

piston rod Ø: up to 70 mm strokes: 100 to 1000 mm max. axial support force: 1.2 ... 12.0 kN



The core elements of a FSS clamping system are the clamping and support elements that can be used in unlimited quantity and that together form the contact surface of the workpiece.

Since each element can be positioned individually on the relevant work-piece geometry, FSS clamping systems allow for a flexible configuration of individual surfaces to clamp and support workpieces.

Depending on the workpiece surface and geometry, clamping forces of 300 N per element and more can be obtained.





Electrically and manually operated linear actuators for adjusting procedures under demanding conditions in industry, automotive engineering and medicine technology

### **Electrically-operated linear actuators**

version with limit switches or stroke measuring system

max. lifting force: 0.3...6.0 kN stroke: 100...600 mm voltage: 12 or 24 VDC



### Manually-operated linear actuators

manual-hydraulic version

max. lifting force: 4.5 ... 12.5 kN stroke: 140 ... 600 mm





# Pneumatically operated swing clamps

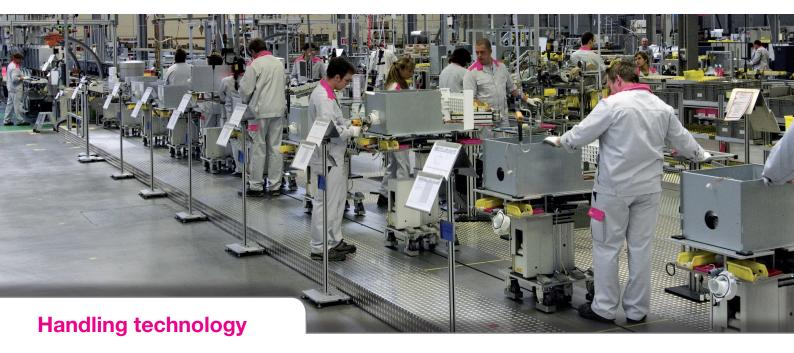
### Pneumatic swing clamps

with adjustable magnetic sensors

double acting

max. clamping force: 140...1400 N max. operating pressure: 7 bar





*moduhub* module programme – modules for rotating, lifting, tilting and moving of heavy workpieces Individual modules can be easily combined to built multi-functional units

#### Rotating modules - horizontal axis

# for rotation of the workpiece around the horizontal axis

manually or electrically operated option: indexing

option: flow power

workpiece weight: up to 200 kg



#### Rotating modules - vertical axis

# for rotation of the workpiece around the vertical axis

manually or electrically operated

option: indexing option: flow power

workpiece weight: up to 1000 kg



# Lifting modules

# for guided lifting and lowering of the workpiece

operated by a hydraulic or electrical actuator workpiece weight: up to 600 kg max. strokes: 200...1000 mm



### Tilting modules

### for tilting or swivelling of the workpiece around an axis between the final positions 0° and 90°

manually or electrically operated option: indexing

workpiece weight: up to 100 kg



#### Cart modules

to displace manually individual modules or module combinations

with parking brake max. load: 2000 and 6000 N



### Floor modules

#### base frame for 1 or 2 modules

to compensate unevenness of the floor space and good stability max. load: 6000 and 8000 N



#### Clamping jaws

# to clamp workpieces on *moduhub* modules

- hydraulic and mechanical clamping elements with universal clamping plate
- quick-change mounting plate with STARK zero point clamping system



#### Accessories

Base plates, Adaptor plates,
Flange plate, Table plates,
Supply units,
Hand panel, Foot switch, Operating panels
Power supply for mobile systems,
Command modules





modupress module programme – hydraulically or electrically-operated press in devices for power-operated processes such as jointing, pressing-in, jolting, deforming and riveting

#### Press-in devices P1.100

#### portal design hydraulic drive

creep/rapid speed control with optional force/stroke monitoring max. press-in force: 40...100 kN



#### Press-in devices P1.200

# C-frame design hydraulic drive

creep/rapid speed control with optional force/stroke monitoring max. press-in force: 40...100 kN



#### Press-in devices P1.101

# portal design electrical drive

creep/rapid speed control with optional force/stroke monitoring max. press-in force: 7 and 25 kN



### Press-in devices P1.201

# C-frame design electrical drive

creep/rapid speed control with optional force/stroke monitoring max. press-in force: 7 and 25 kN



#### Press-in devices P1.102

# portal design hydraulic drive

creep/rapid speed control with programming of the operating time max. press-in force: 40...100 kN



#### Press-in devices P1.202

# C-frame design hydraulic drive

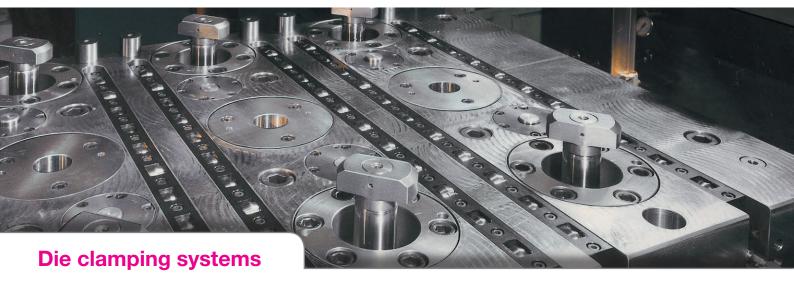
creep/rapid speed control with programming of the operating time max. press-in force: 40...100 kN



# Accessories

Protection cabins, Light grids, Sliding tables, Sensor technology, Quick-disconnect couplings





Die clamping and changing systems for press automation Quick changing systems for machines, presses and equipments

### Hydraulic clamping elements

#### Hollow-piston cylinders

for retrofitting on press bed and ram

### **Spring clamping cylinders**

for spring-loaded long-term clamping

#### **Angular clamps**

for clamping on small clamping edges

# Clamping bars

flat clamping element for bed and ram

max. clamping force: 30  $\dots$  116 kN, piston stroke: up to 8 mm

# **Double-T clamping bars**

to use the complete bed or ram surface max. clamping force: 16  $\dots$  320 kN

# **Sliding clamps**

for insertion in T-slots

max. clamping force: 19...78 kN, piston stroke: up to 12 mm

#### Swivel and pull clamps

clamping cylinders with tie rods

#### Wedge clamps

sturdy clamping elements for straight or inclined clamping edge

max. clamping force: 1250 kN

#### **Block clamps**

with self-locking mechanical lock max. clamping force: 200 kN

### Pivot and pull clamps

max. clamping force: 104...160 kN

#### Swing / swing sink clamps

without interfering edges when inserting the die

max. clamping force: 60 ... 164 kN

### Rapid clamping systems

automatic travelling units with clamping element

#### **Pull clamps**

pull-type cylinder with tie rod for inaccessible points

#### Wedge swing clamps

with mechanical lock

# Grip rail couplings

Rapid clamping systems for grip rails





































#### Electro-mechanical clamping elements

#### **Tenon-type clamps**

clamping by grip and pull movement

#### Swivel and pull clamps

clamping by swivel and lifting movement

#### **Swing clamps**

clamping by swing and lifting movement

max. clamping force: 70 ... 160 kN



compact electro-mechanical power package max. clamping force: 160 kN, retention force: 300 kN

#### **Angular clamps**

clamping in any position of the travelling path max. clamping force: 50 kN, retention force: 320 kN

#### Mechanical clamping elements

#### Sliding clamps

max. clamping force: 40 ... 80 kN

#### **High-pressure spindles**

max. clamping force: 40 ... 140 kN

#### Clamping nuts, mechanical

max. clamping force: 60 ... 200 kN

# Clamping nuts, hydro-mechanical

max. clamping force: 60 ... 150 kN

#### Die changing technology

#### Roller and ball bars

hydraulic or spring-loaded

#### **Roller conveyors**

without lifting

# Roller and ball inserts

spring-loaded

#### Carrying consoles, hanging

max. load per pair: 5...30 kN

# Carrying consoles, supported

max. load per pair: 20...250 kN

#### Carrying consoles, swivelling

max. load per pair: 10...60 kN

#### **Changing carts**

for handling of dies up to 500 kg with ball table, hydraulic height adjustment and safety docking station

#### Die changing consoles

with drive system for die weights up to 250 kN













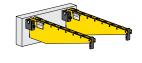




























# **Locking cylinders**

To fix rotors of on- and offshore wind power plants for maintenance works

#### Rotorlock

# hydraulic, mechanical or electro-mechanical

sizes: up to 7500 kN side load with position monitoring corrosion protection as per DIN ISO 12944 max. temperature range: -40 ... +70 °C





# Magnetic clamping technology

Rivi Magnetics® M-TECS magnetic clamping plates and systems for injection moulding machines, forming presses, rubber presses, mould carriers, milling machines and machining centres

#### M-TECS P

### for the plastics industry max. temperature range: 120°C plate thickness: 47 mm



#### M-TECS R

### for the rubber and Duroplast industry

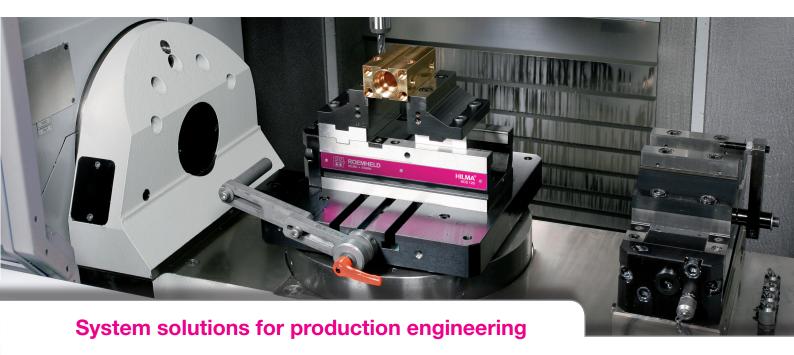
max. temperature range: 240 °C plate thickness: 55...85 mm



# M-TECS M

# **for sheet metal forming** max. temperature range: 80 °C plate thickness: 55 mm





Consulting, design, planning, engineering, construction design, production, delivery, commissioning and maintenance of clamping and positioning systems.

#### All from a single source

#### From the idea to the engineering up to start up and maintenance

If it is the matter of planning of clamping systems for a new machine tool or of optimising and transition to flexible of already existing clamping processes, we give you our advice and support.

Based on your demands, we develop for you ideas and support you in engineering, start up and maintenance.



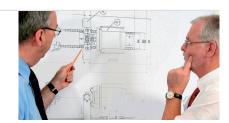
# Expert know-how on call

# Individual consultation and services

From the first consultation free of cost up to order-related services, our activities for all tasks are adapted to your requests and objectives.

If it is a matter of preparation of concepts or constructional sketches for partial or complete solutions or calculations of amortisations or detailed designs:

You decide yourself which services you would like to use.



### Approved and reliable solutions

# Clamping and fixture systems made of standard modules

With the experience in realising versatile individual projects in the individual companies of the ROEMHELD Group, we are now in the position to offer an unique, modular product range of clamping and fixture systems.

The use of approved and reliable standard modules is the key for optimised production and engineering costs and guarantees the realisation of individual system solutions without risks.



#### System solutions - directly from the manufacturer of power workholding

### Customer-specific clamping and positioning systems

Our engineering know-how and the huge number of fully-developed clamping and positioning technologies in the ROEMHELD Group allows us to produce and to deliver customer-specific systems.

Due to design and production of the relevant components within the ROEMHELD Group we have access to extended know-how and well-proven production engineering, which together with our engineering know-how guarantees a fully-developed and reliable function of the complete system.









Are you interested in an individual consultation or do you have any questions about our products?

We are pleased to support you.

Elements and systems for production engineering

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Workholding systems and standard fixtures for metal cutting and non-cutting manufacturing

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Intelligent zero point clamping systems

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