



ROEMHELD
HILMA ■ STARK

PROGRAM SUMMARY

ROEMHELD Group



WORKHOLDING

Workpiece clamping technology
Zero-point clamping technology
Power units and clamping pumps
Hydraulic cylinders

ws.roemheld.com

QUICK DIE CHANGE

Die clamping technology
Magnetic clamping technology
Quick die changing technology
Locking cylinders

wz.roemheld.com

ASSEMBLY AND HANDLING

moduhub handling technology
Bearing presses
Linear actuators

mh.roemheld.com



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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.

Sustainability 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

The ROEMHELD Group is known worldwide for its high-performance solutions in clamping and handling technology for the manufacturing industry. The group includes Römheld GmbH Friedrichshütte and STARK Spannsysteme GmbH. Together with national and international branches and a global network of sales and service partners, we offer our customers expert support on site.

Our comprehensive product range covers a wide spectrum of hydraulic clamping, positioning and handling elements as well as system solutions for assembly and production technology. The ROEMHELD, HILMA and STARK brands are synonymous worldwide with precision, innovative strength and application expertise.

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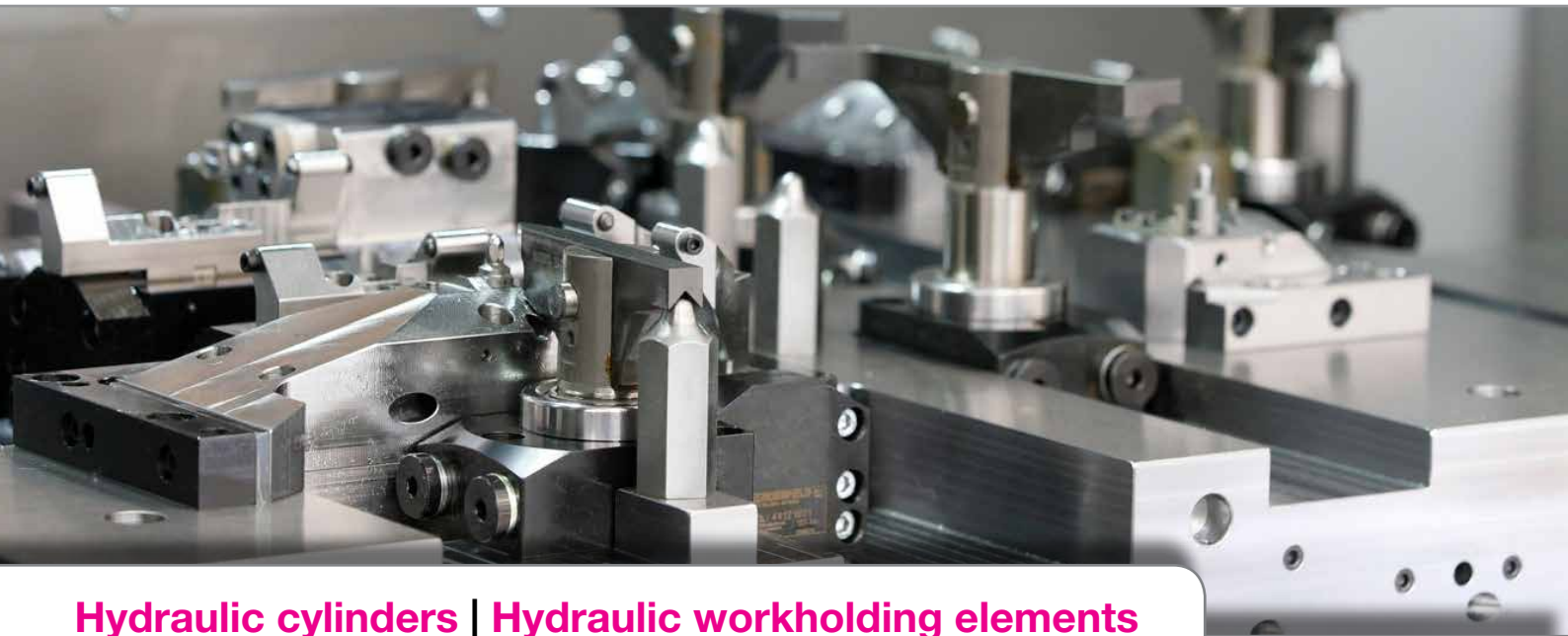


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Hydraulic cylinders | Hydraulic workholding elements

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

Swing clamps

Clamping elements with swing piston

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



Swing clamps, configurable

Configurable swing clamping

Bottom flange, top flange, threaded-body type
Right or left swivelling or non-swivelling



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



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



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



Position flexible clamping elements

Clamping elements for "floating" clamping

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





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



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



Threaded-body cylinders

Compact hydraulic cylinders and built-in pistons for screwing in

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



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



Block cylinders

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

with/without end position monitoring

Optional:

With position measuring system, ice scraper, stainless steel, cooling, multiple pistons, tandem cylinder, high temperature and much more.

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 cylinders

Hydraulic cylinders, design with tube

with/without end position monitoring

piston diameter: 25 ... 80 mm

stroke: 60 ... 1200 mm



Universal cylinders

Hydraulic cylinders with round housing

for axial adjustability

piston diameter: 10 ... 63 mm

stroke: 8 ... 100 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





Workholding systems | Machine vices

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

Machine vices

mechanically-hydraulically or hydraulically operated clamping against the fixed jaw

- with hydraulic power transmission
 - completely encapsulated lead screw area
- sizes: 100, 125 und 160 mm
max. clamping width: 1227 mm

HILMA.NC



5-axis workholding systems

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

- compact design
 - collision-free tool paths
- sizes: 60 ... 125 mm
max. clamping width: 1000 mm

HILMA.MCP

HILMA.SCS

HILMA.UC



Double workholding systems

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

- safe loading and unloading by 3rd-hand function
- max. clamping width: 80 ... 160 mm

HILMA.DS

HILMA.NC

HILMA.DUO





Multiple workholding systems

mechanically operated clamping against the fixed jaw

- compact design
 - modular design
- max. clamping width: 24 and 120 mm

HILMA.MSH



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
max. clamping width: 100, 125 and 160 mm

HILMA.ZH



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

HILMA.ASH



Clamping jaws (Extract)

top jaws with grip
spacer jaws
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

clamping against the fixed jaw

HILMA.TS TriStar with 3 clamping sides

HILMA.TS with 4 clamping sides

mechanically operated

jaw opening: 80, 100 and 125 mm

HILMA.TS TriStar



HILMA.TS



HILMA.SCT





Zero point clamping systems

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

STARK.classic

single acting, hydraulically or pneumatically
clamping control, mount control, blow-out,
media duct
max. insertion force: 30 kN
max. retention force: 55 kN



STARK.basic

single acting, pneumatically
clamping: mechanically
unclamping: pneumatically
max. retention force: 1,5 ... 9 kN



STARK.balance

single acting, hydraulically
clamping: mechanically
unclamping: hydraulically
max. insertion force: 20 kN
max. retention force: 38 kN



STARK.airtec

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



STARK.hydratec

double acting, hydraulically
clamping: hydraulically
unclamping: hydraulically
max. clamping force: 20 kN
max. retention force: 38 kN



STARK.connect

single acting, pneumatically
clamping: mechanically
unclamping: pneumatically
max. pull-in force: 3 ... 10 kN
max. retention force: 10 ... 30 kN



STARK.sweeper

clamping: mechanically
unclamping: hydraulically or pneumatically
max. pull-in force: 20 kN
max. retention force: 38 kN



STARK.metec

Mechanical zero-point clamping system
clamping: mechanically
unclamping: mechanically
max. retention force: 12 ... 50 kN



STARK.plaintec

double acting, hydraulically
clamping: hydraulically
unclamping: hydraulically
max. clamping force: 50 kN



Couplings

**universal and compact
for hydraulics, pneumatics,
vacuum and electrics**



STARK.easyclick

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





Plates – Angles – Cubes

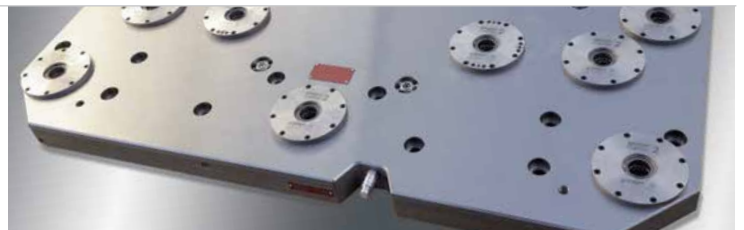
From standard elements to systems for flexible use - with minimum set-up time
– mechanical – hydraulic – pneumatic – electrical – single acting – double acting –

Quick-locking plates

for milling machining

from standard components, adapted to the machine and machining task

- fully assembled with 3D dimensional and functional test

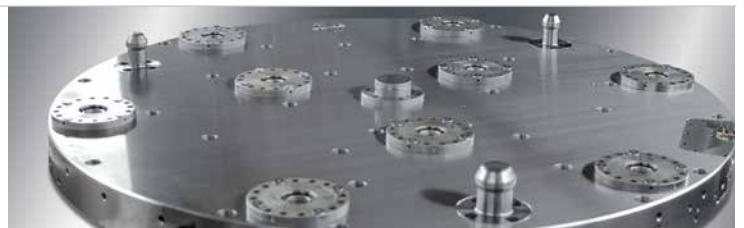


Quick-locking plates

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

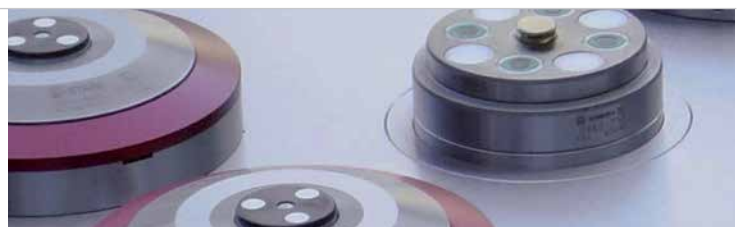


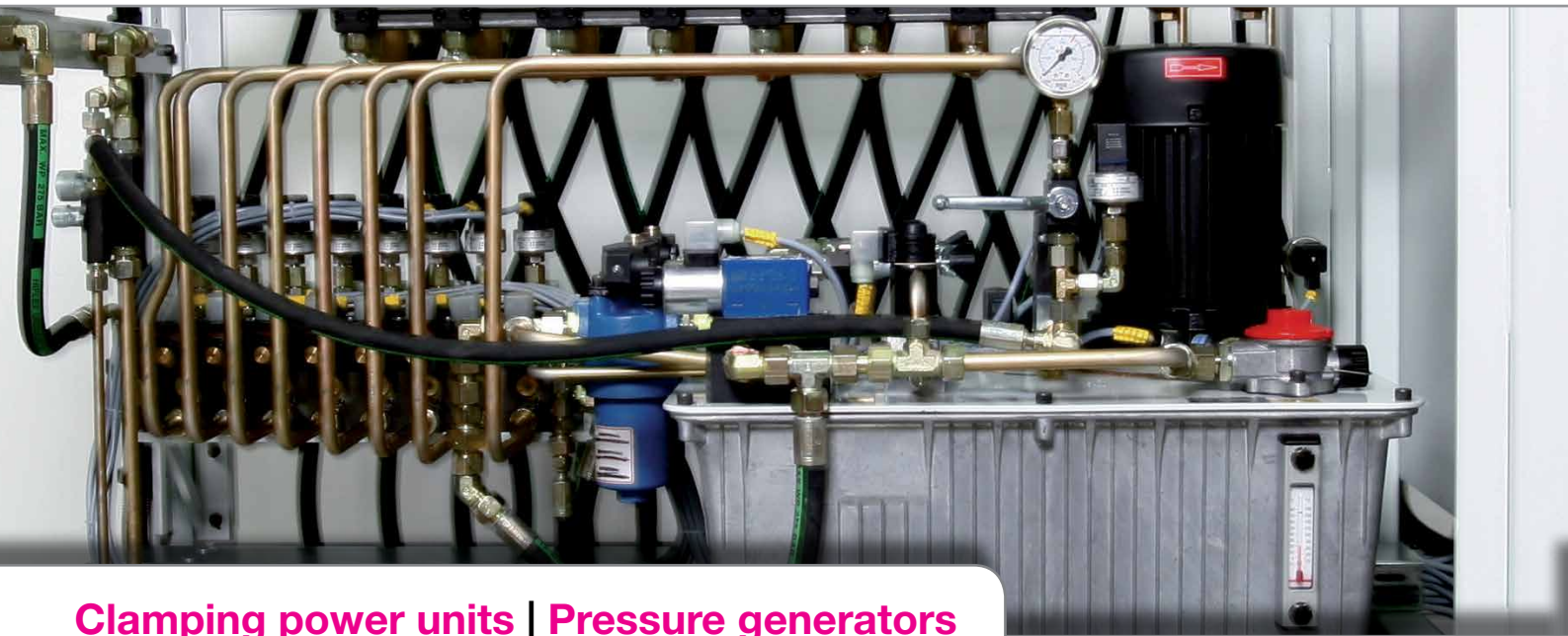
Quick-locking plates

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 | Pressure generators

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

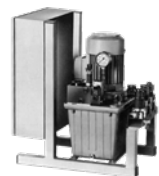
flow rate: 0.9 ... 4.5 l/min
max. operating pressure: 50 ... 500 bar
reservoir volume: approx. 11 l
voltage: 400 VAC



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 cm³

Screw pumps

displacement: 21 cm³

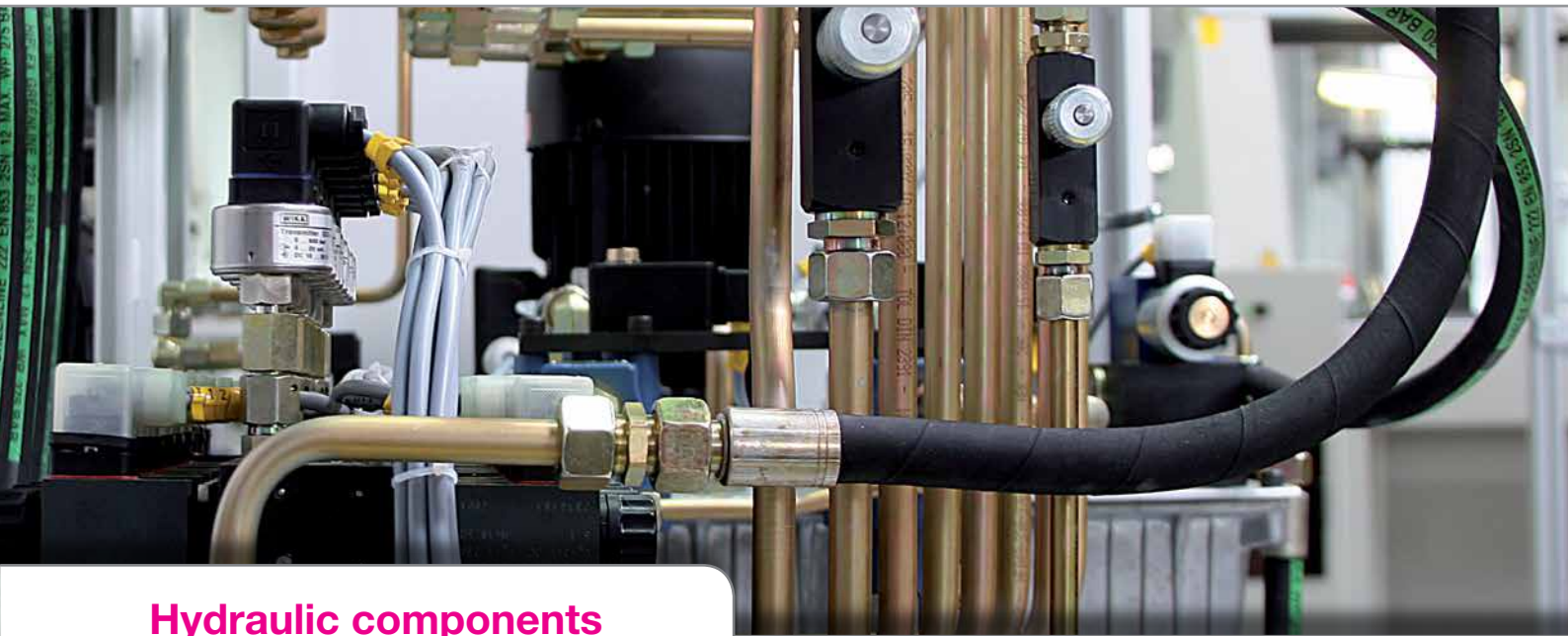


Hydro-pneumatic pump units

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





Hydraulic components

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 cm³
ports: G $\frac{1}{4}$... G $\frac{1}{2}$
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 G $\frac{1}{4}$
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 μ m
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





Electro-mechanical clamping elements

Electric swing clamps

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



Electric wedge clamps

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



FSS clamping systems

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 workpiece 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.



Handling technology

Rotating modules – horizontal axis

for tilting or swivelling 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

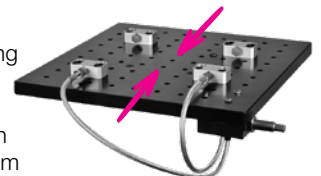
operated by a hydraulic or electrical actuator
workpiece weight: up to 600 kg
max. strokes: 200 ... 1000 mm



Clamping fixtures

to clamp workpieces on **moduhub** modules

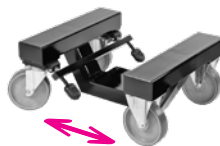
- hydraulic and mechanical clamping elements with universal clamping plate
- quick-change mounting plate with STARK zero point clamping system



Cart modules

to displace manually individual modules or module combinations

with parking brake
max. load: 2000 and 6000 N



Accessories

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



Floor modules

base frame for 1 or 2 modules

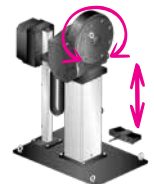
to compensate unevenness of the floor space and good stability
max. load: 6000 and 8000 N



Stationary Systems

for lifting, rotating and tilting workpieces for safe handling in manual assembly

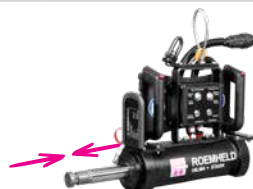
Workpiece weights up to 400 kg



Bearing press

Hydraulic retraction device for bearing installation

Horizontal design for attachment to a crane or balancer
max. pulling force: 100 kN
max. strokes: up to 200 mm

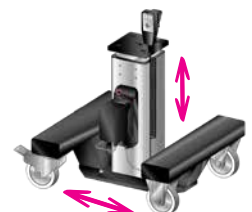


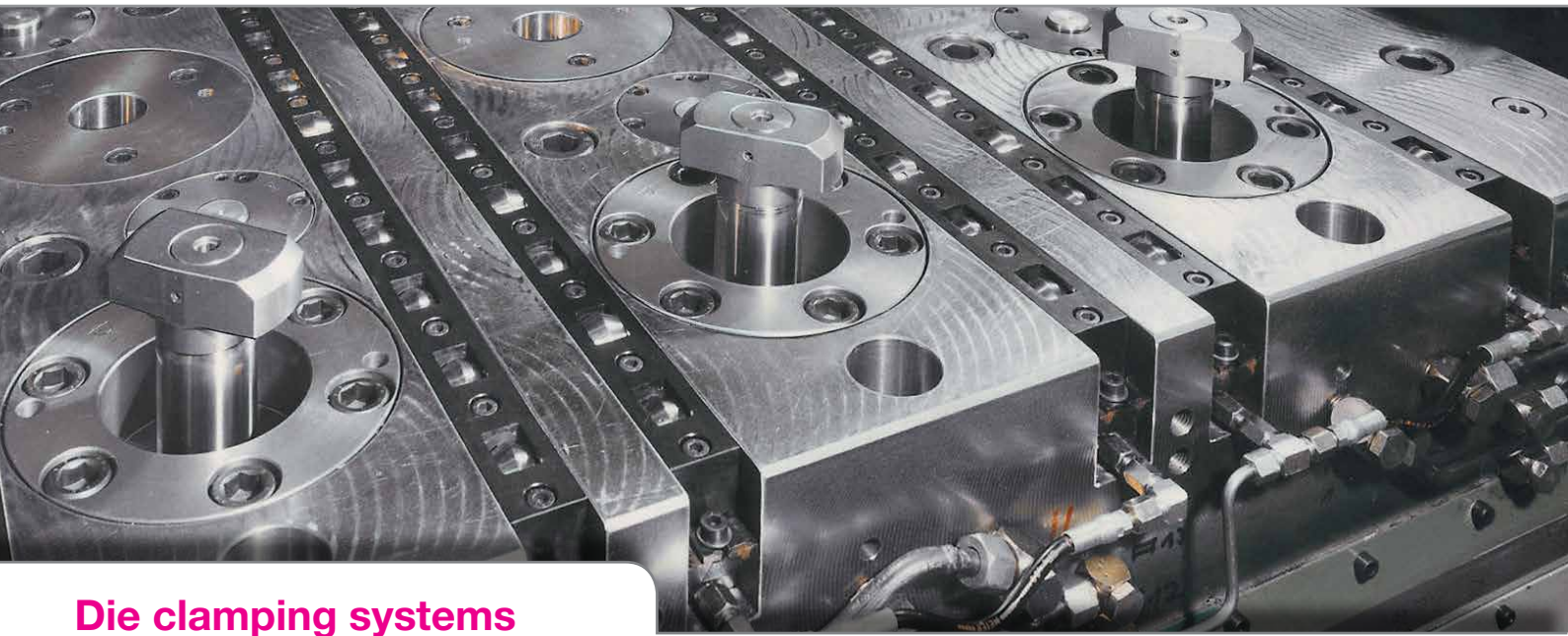
Mobile Systems

for transporting and assembling workpieces

Eliminating transfer processes increases work safety and throughput.

Workpiece weights up to 600 kg





Die clamping systems

Die clamping and changing systems for press automation

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 ... 116 kN, piston stroke: up to 8 mm

Double-T clamping bars

to use the complete bed or ram surface

max. clamping force: 16 ... 320 kN

Sliding clamps

for insertion in T-slots

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



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

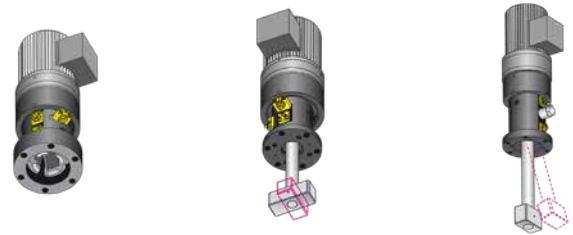
Swivel and pull clamps

clamping by swivel and lifting movement

Swing clamps

clamping by swing and lifting movement

max. clamping force: 70 ... 160 kN



Wedge clamps

compact electro-mechanical power package

max. clamping force: 160 kN, retention force: 300 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

Push Chain Direct System with Push-Pull System

electrically driven, with push chain drive
die weight up to 40 tons



Locking cylinders

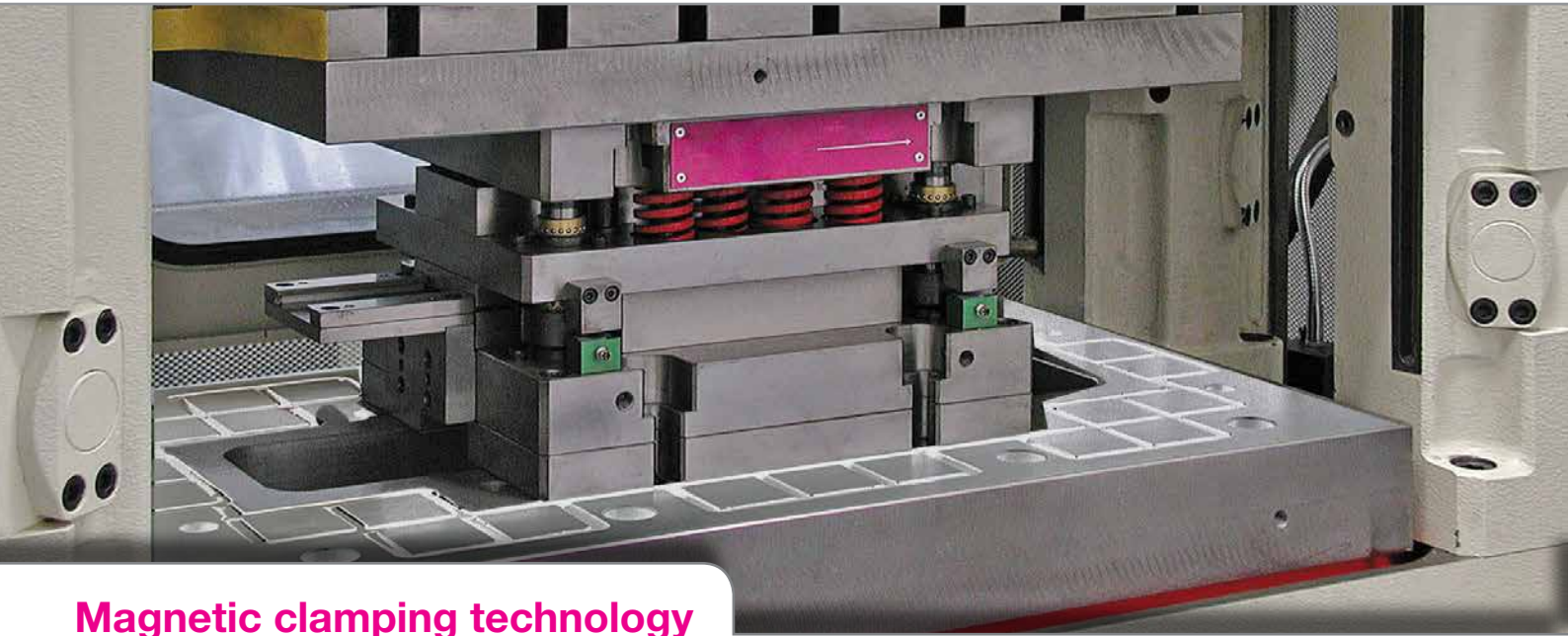
To fix rotors of on- and offshore wind power plants
for maintenance works

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

R-MAG magnetic clamping plates and systems for injection moulding machines, forming presses for sheet metal forming, rubber presses and mould carriers or die casting machines

R-MAG-P

for the plastics industry
operating temperature up to 150 °C
plate thickness: 38 or 55 mm



R-MAG-F

for mould carriers and special applications
operating temperature up to 100 °C
plate thickness: 38 or 55 mm



R-MAG-M

for sheet metal forming
operating temperature up to 100 °C
plate thickness: 38 or 55 mm



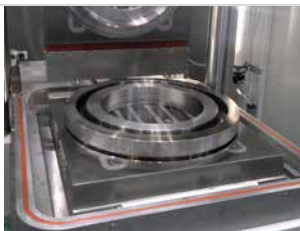
R-MAG-D

for die casting machines
operating temperature up to 200 °C
Plattenstärke: 55 mm



R-MAG-R

for the rubber and Duroplast industry
operating temperature up to 230 °C
plate thickness: 55 mm





System solutions for production engineering

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.



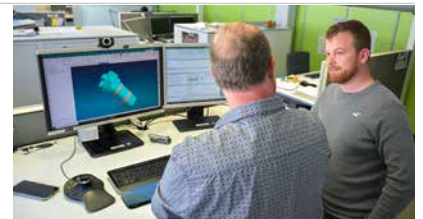
Expert know-how on call

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.





Drive technology

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







ROEMHELD
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INNOVATIVE SOLUTIONS AND PIONEERING TRENDS

Innovative and smart clamping technology solutions for workpieces as well as for tools in forming technology and plastics processing form the core of the continuously growing portfolio. It is supplemented by components and systems for assembly and handling technology, drive technology and automation, as well as locking systems for wind turbine rotors.



WORKHOLDING

Elements and systems for workpiece clamping, hydraulic components and hydraulic cylinders

ws.roemheld.com



QUICK DIE CHANGE

Elements and systems for clamping and changing tools and moulds on presses, punches and injection moulding machines

wz.roemheld.com



ASSEMBLY & HANDLING

Devices and equipment for turning, lifting, tilting and moving heavy workpieces as well as press-fit devices, linear drives and assembly devices for bicycles

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