



HAINZL

TECHNOLOGY FOR HIGHER STANDARDS.

**HYDRAULIC
CYLINDERS**



HYDRAULIC CYLINDERS FOR HIGHER STANDARDS

FLEXIBLE & INNOVATIVE.

MANY YEARS OF EXPERIENCE AND GREAT APPLICATIONAL KNOWLEDGE
guarantee optimal system solutions for a wide variety of uses

15,000 CUSTOM MADE CYLINDERS
are shipped from our factory in Linz every year

OVER 150,000 HAINZL CYLINDERS
are in use around the world

QUICK DELIVERY AND EFFICIENCY
in case of changes in customer needs

SERVICE ON-SITE
at the customer through international service technicians

STRENGTHS & EXPERTISE

002003



company headquarters – Linz, Aut

design to cost

Product innovations

HAINZL INDUSTRIESYSTEME is one of the leading global providers of hydraulic cylinders and complex system solutions.

For 50 years highly qualified engineers and specialists at our company headquarters in Linz have taken on the overall responsibility for development, design, and production of linear drive systems.

For our customers from the plant-, machine- and vehicle construction industries we have specialized in challenging applications under the most difficult environmental conditions by fulfilling high international standards in quality, safety, and sustainability.

The continuous broadening of our expertise and applicational knowledge makes us a dynamic and innovative technological partner.

HAINZL INDUSTRIESYSTEME

TECHNOLOGY

PRODUCTION

APPLICATIONS: STEEL INDUSTRY | WATER POWER

APPLICATIONS: PLASTICS INDUSTRY | CABLE CARS

ADDITIONAL AREAS OF APPLICATIONS & SERVICE

PRODUCT RANGE

002-003

004-005

006-007

008-009

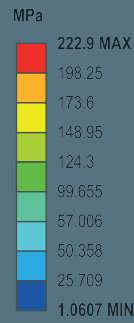
010-011

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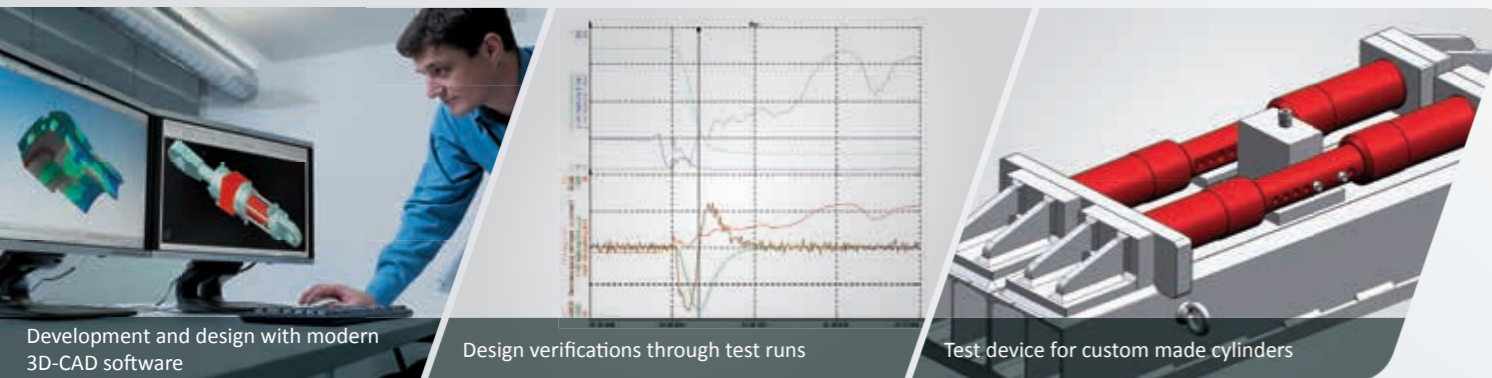
COMPLEX DEMANDS – INDIVIDUAL SOLUTIONS

EFFICIENT AND PRACTICAL.



- RESEARCH & DEVELOPMENT**
New technologies for our products are advanced by an innovative and creative team of engineers
- DESIGN-TO-COST**
guarantees an economical production of our products
- MODERN 3D-CAD SOFTWARE**
for the layout design of customer-specific system solutions
- FINITE-ELEMENT-METHOD**
Calculation of applied loads and strains for the optimizing of components
- EN ISO 9001, PED 97/23/EG, EN ISO 3834-2 AND DIN 18800-7/E**
are the basis for our development and manufacturing processes

TECHNOLOGY



Development and design with modern 3D-CAD software

Design verifications through test runs

Test device for custom made cylinders

HAINZL cylinders are developed according to individual customer specifications. This is where efficient 3D-CAD programs and development tools come into use. The individual cylinder components as well as groups of components are optimized with the help of the Finite-Element-Method. Theoretical concepts are tested through simulation and tests.

Highly qualified employees from the engineering and production sectors work closely together during the design phase according to the design-to-cost principle, in order to offer technically and economically competitive products.



HIGHLY ACCURATE PRODUCTION WITH GUARANTEED QUALITY

EFFICIENT & ENVIRONMENTALLY FRIENDLY.

▲ HIGHLY FLEXIBLE PRODUCTION AND ASSEMBLY OF CYLINDERS
with a total weight of up to 25 tons and 10 meters stroke according to our customers specific needs

▲ LONG OPERATING LIFE OF THE PRODUCTS
through quality control during manufacturing

▲ IN-HOUSE TRAINING OF SKILLED SPECIALISTS
guarantees the broadening of our expertise for the future

▲ A 100% PRESSURE TEST UP TO 700 BAR
provides a problem-free first-time operation

▲ ENVIRONMENTALLY FRIENDLY COATING LINE
for standard and special surface coating

PRODUCTION

In our highly flexible production line, components for our cylinders are produced on modern machines. With the CAD/CAM link-up, smaller units can also be economically produced. In addition, our welding workshop is certified according to ISO 3834-2 and DIN 18800-7/E.

The specific focus of our core production competence on piston rods, cylinder tubes, assembly, testing, and coating assures the profitability of HAINZL cylinders. With the broad layout of our assembly plant, cylinders with a stroke up to 10 meters and a total weight of 25 tons can be mounted. Every component is scrupulously cleaned in a specialized washing machine or rather in an ultrasonic purification facility.

All cylinders are subjected to a pressure test with filtered hydraulic oil with preservation additives. In our coating line the cylinders are brought to a visually flawless and corrosive-resistant state.

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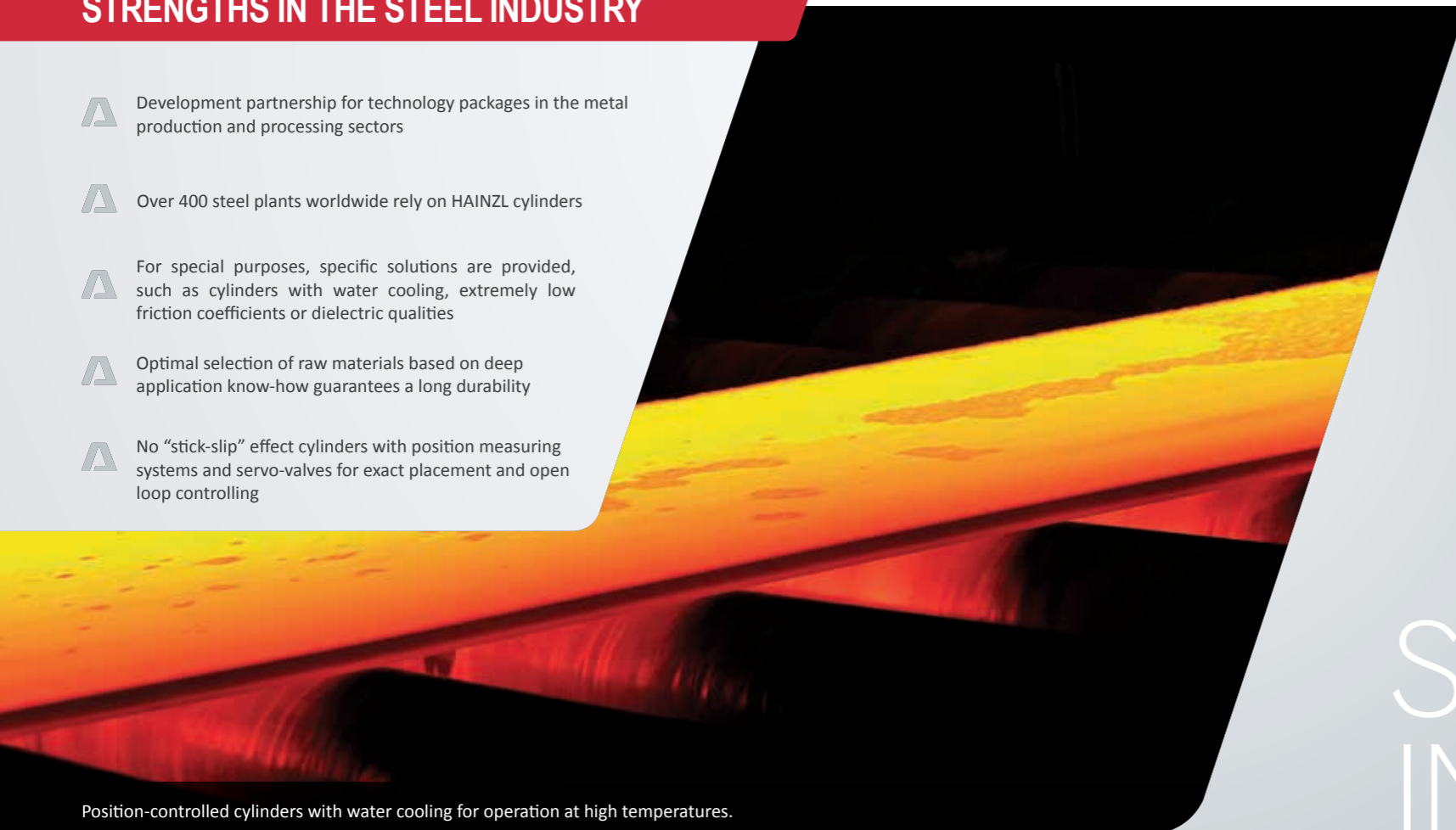
100% inspection with logging

Welding of heavily loaded joints

Ready for plug & play

STRENGTHS IN THE STEEL INDUSTRY

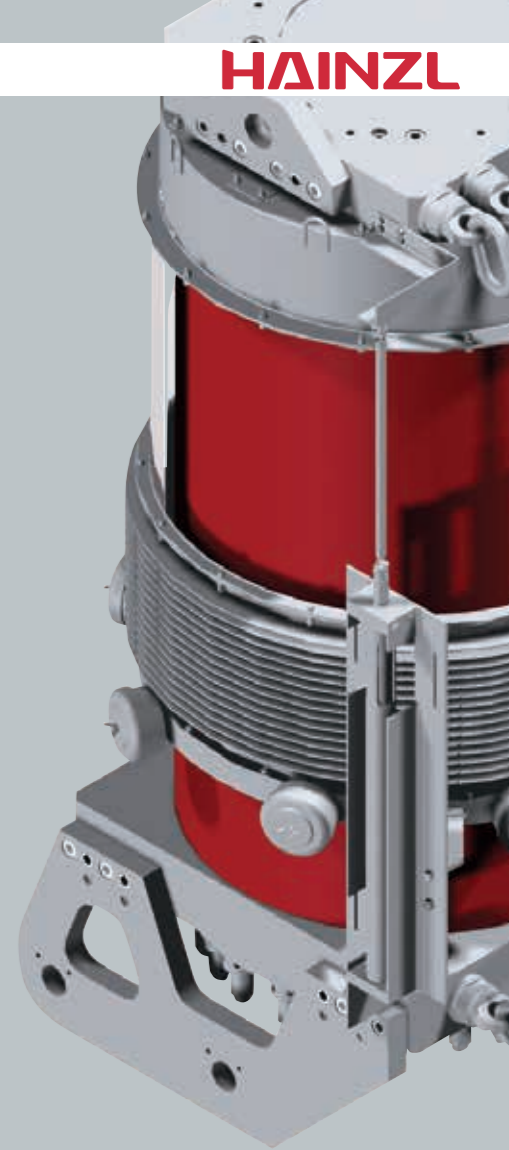
- ▲ Development partnership for technology packages in the metal production and processing sectors
- ▲ Over 400 steel plants worldwide rely on HAINZL cylinders
- ▲ For special purposes, specific solutions are provided, such as cylinders with water cooling, extremely low friction coefficients or dielectric qualities
- ▲ Optimal selection of raw materials based on deep application know-how guarantees a long durability
- ▲ No “stick-slip” effect cylinders with position measuring systems and servo-valves for exact placement and open loop controlling



Position-controlled cylinders with water cooling for operation at high temperatures.

STEEL INDUSTRY

Market leaders in industrial plant construction and plant operators rely on standardized and customer specific solutions from HAINZL. Under extreme exposure to heat and grime, cylinders from HAINZL are in use in electric arc furnaces, continuous casting plants, rolling mills, and strip processing lines worldwide.

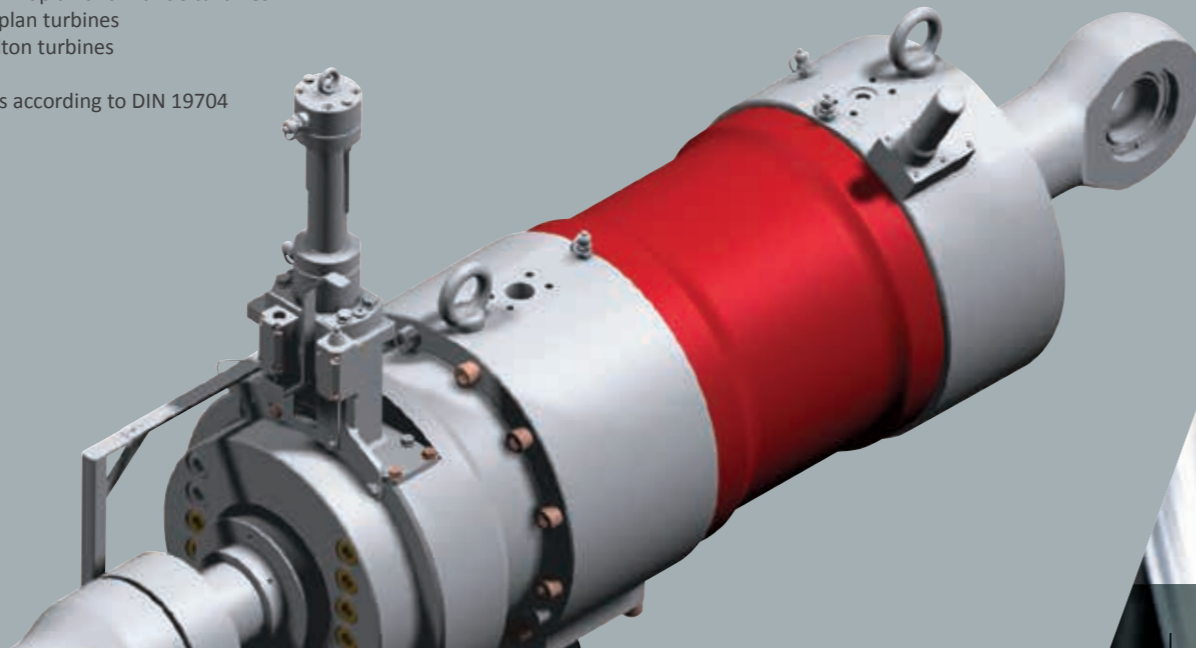


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HYDRO POWER

HAINZL identifies itself with the needs of the leading providers of equipment for turbine technology and hydraulic steel structures. This results in a permanent advancement of products, with the benefits of the customer always in first place. In compliance with strict quality guidelines, HAINZL delivers reliable servomotors for:

- wicket gate regulation for Kaplan and Francis turbines
- runner regulation for Kaplan turbines
- Nozzle regulation for Pelton turbines
- inlet valves
- hydraulic steel structures according to DIN 19704



STRENGTHS IN HYDRO POWER

- ▲ Integrated, hydraulic operated, mechanical piston rod locking device
- ▲ Specific absorbability with selected path-dependent velocity
- ▲ Purpose-specific designed sealing systems
- ▲ Direct position measuring systems for strokes up to 15 meters
- ▲ Cylinder-lined and function tested control valve blocks
- ▲ EN ISO 3834-2 and DIN 18800-7/E welding certified



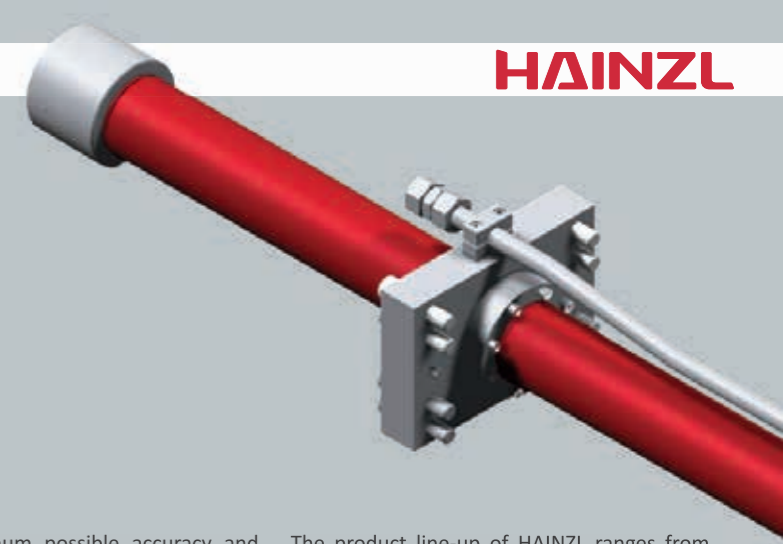
Application of special surface coatings as corrosion protection

STRENGTHS IN PLASTICS INDUSTRY

- △ Quick and reliable production run supply through SCM-connection
- △ Processing speeds up to 1 m/s
- △ Strokes up to 5,000 mm
- △ Cylinders designed to cost
- △ Cylinders with integrated clamping for fulfillment of international safety standards



Reliable run production for project-specific cylinders for special machines



With the maximum possible accuracy and reliability, 20,000 HAINZL cylinders are in operation in injection molding machines, for a variety of uses in the area of injection and clamp sides. Specific sealing systems and precisely designed absorbability ensure extraordinarily smooth and optimal performances of our cylinders.

The product line-up of HAINZL ranges from fast closing, locking, ejector, and clamp cylinders to rotary joints for the rotating of the tools of multi-component units.

With HAINZL, you have a partner, on whom you can count 100%.

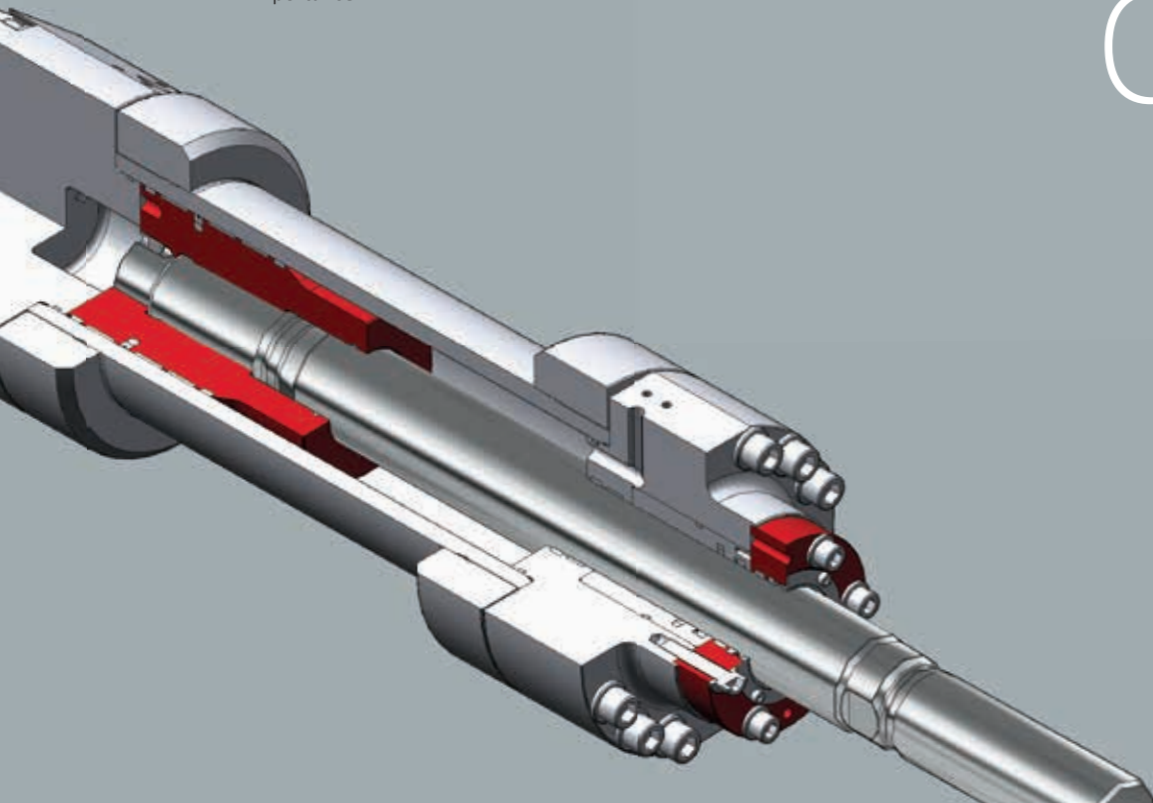
PLASTICS INDUSTRY

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Professional and responsible operations are the basic principles behind the development and manufacture of our hydraulic cylinders for cable lifting devices. Corresponding to a safety-dependent branch, the technical solution expertise and scrupulous compliance with standards and laws are of the highest importance.

Through the selective assortments of raw materials and their manufacturers as well as the consistent carrying out of non-destructive testing, such as ultrasonic and magnetic particle examination, the necessary properties of the raw materials are guaranteed.

CABLE CARS



STRENGTHS IN CABLE CARS

- △ Examination of welds by accredited testing institutes
- △ Cylinder material designed for temperatures up to -40 °C
- △ Application of specialized ice-skimmers for protection of the sealing system
- △ Long-term corrosion resistance coating
- △ Strokes up to 7,000 mm
- △ Maintenance-friendly design for quick exchange of sealing





Various cylinders for construction machines



Cylinders for tunnel building equipment



Cylinders for transfer presses



Cylinders for offshore operations

There is practically no purpose for which a HAINZL cylinder is not already in use or for which we cannot create and deliver one. From simple hydraulic cylinders, telescope cylinders, all the way to custom-built cylinders with a stroke up to 10 meters and 1,000 mm piston diameter, for which a range of integ-

rateable options such as positioning systems, water cooling and built-in rotary joints are available, are delivered by HAINZL as a reliable partner to the various fields of operation. Rotary joints and axial compressors for special uses add to our range of services in the field of hydraulic cylinders.

ADDITIONAL AREAS OF APPLICATION

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Cylinder before ...

... and after completion of the maintenance work

Our many years of experience in the manufacturing and handling of cylinders are valued by reputable costumers across the globe. A strong service organization guarantees a trouble-free application of the well-engineered technologies. Assembly, service, and first-time operation come with after-sales service, maintenance, and repair as well as regular testing and observations.

SERVICE

PROFESSIONAL SERVICE IN ANY CASE.

STRENGTHS IN SERVICE

AFTER SALES SERVICE

The extensive storage of basic materials and spare parts and in-house production guarantee the quickest possible delivery time



MAINTENANCE AND REPAIR

Cylinders of all types and models are skillfully examined, repaired, and if needed undergo redesign in our workshop or on site



FITTING SERVICE AND START UP

Internationally experienced service technicians offer worldwide customer support during setting into operation and for maintenance



TESTING AND ANALYZING

Skillful analysis for detecting causes of defects and conduction of damage analysis for in-depth cost estimates



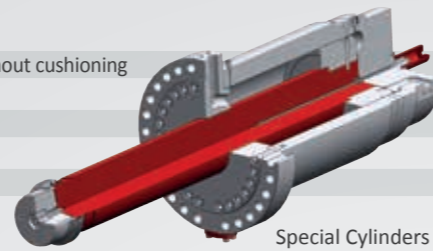
TRAINING

We gladly offer product training for your employees. Theoretical training takes place in one of our training facilities and practical training in our service areas as well as directly in the testing area. Upon request we also gladly come to your business



SPECIAL CYLINDERS

Version	differential cylinder, plunger cylinder, synchronous cylinder with and without cushioning
Piston	up to $\varnothing 1,000$ mm
Stroke	up to 10 meters
NOMINAL pressure	700 bar
Weight	up to 25 tons



STANDARD CYLINDERS ISO 6022

Version	differential cylinder with and without cushioning
Piston	$\varnothing 40$ to $\varnothing 320$ mm
Stroke	up to 6,000 mm
NOMINAL pressure	250 bar



STANDARD CYLINDERS ISO 6020-2

Version	differential cylinder with and without cushioning, single rod- or double rod cylinders
Piston	$\varnothing 25$ to $\varnothing 200$ mm
Stroke	up to 4,000 mm
NOMINAL pressure	160 bar



TECHNICAL OPTIONS (RELEVANT FOR SPECIAL AND STANDARD CYLINDER)

- Non-contacting direct position measuring system up to 7 meters
- Draw wire measuring system up to 15 meters stroke
- Inductive end position control
- Special coating for piston rods
- Water cooling
- Force and form fitted piston rod clamping
- Special sealings for temperatures from -40 °C to $+200$ °C, special fluids and a speed up to 1.5 m/s
- Bellow for piston rod protection
- Hydrostatic bearing of the piston rod especially for higher shear forces
- Mounted control block with piping
- Extremely low friction (friction coefficient $< 1\%$)
- Attached rotary joint for medium supply

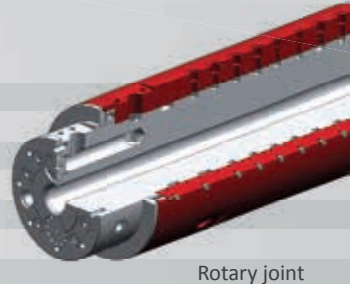
TELESCOPIC CYLINDERS

Version	single and double acting
Piston	up to $\varnothing 500$ mm
Stroke	up to 10 meters
NOMINAL pressure	up to 500 bar
Weight	up to 25 tons



ROTARY JOINTS

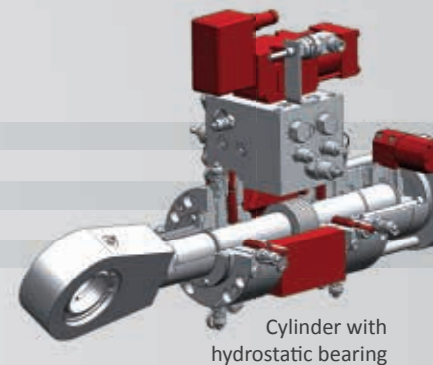
Version	up to 20 channels
NOMINAL pressure	up to 300 bar
Medium	oil, air, water, grease, gas
Sealing	in accordance with the medium
Rotational speed	up to 1,000 rpm
Inlet	radial, axial, combined
Outlet	radial, axial, combined



A variety of surface coatings is available for a long lifetime and high corrosion-resistance

SERVO CYLINDERS WITH HYDROSTATIC BEARING

Version	differential and synchronous cylinders with and without cushioning
Piston	up to $\varnothing 300$ mm
Stroke	up to 1,000 mm
NOMINAL pressure	up to 300 bar
Frequencies	depending on the peripherals



COMPRESSORS (PRESSURE INTENSIFIERS)

Version	linear hydraulic piston compressors with a special separation chamber system
Compression ratio	4:1
Max. Compression pressure	300 bar
Compression medium	natural gas, air (other mediums by inquiry)
Water cooled version	
Temperature monitoring with a thermo sensor	

PRODUCT RANGE OVERVIEW

STEEL MANUFACTURING AND PROCESSING

- Lifting plunger for ladle turrets
- Lifting cylinder for tundish cars
- Electrode control cylinders for electric arc furnaces
- Oscillation cylinder for cast-iron moulds
- Casting gap clamping cylinders
- Looper cylinders
- Expansion mandrel cylinders
- Furnace tilting cylinders
- Pinch roll cylinders
- Segment cylinders for continuous casting
- Work roll exchanger cylinders
- Cooling bed cylinders

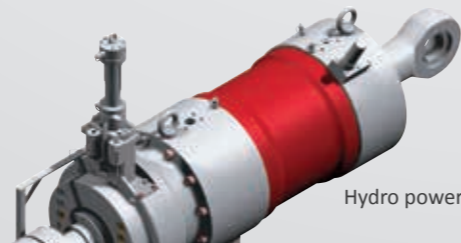


INJECTION MOULDING MACHINES

- Fast closing cylinders for mould moving
- Locking cylinders for tie-bar locking
- Ejector cylinders
- Clamping cylinders for toggle injection moulding machines

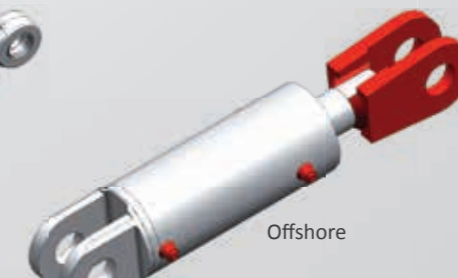
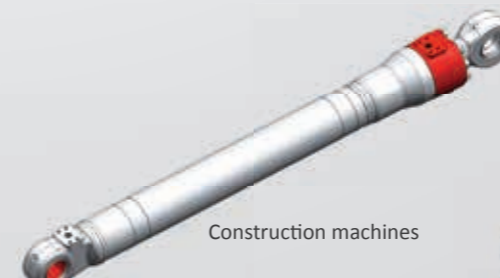
HYDRO POWER

- Servomotors for the adjustment of the wicket gates
- Servomotors for runner and nozzle adjustment
- Servomotors for inlet valves
- Cylinders for hydraulic steel structures acc. to DIN19704



CONSTRUCTION MACHINES

- Cylinders for building up top slewing-cranes
- Arm cylinders
- Cylinders for ditch-cleaning-buckets
- Cylinders for excavator buckets
- Steering cylinders
- Support cylinders for blades
- Track tensioning cylinders

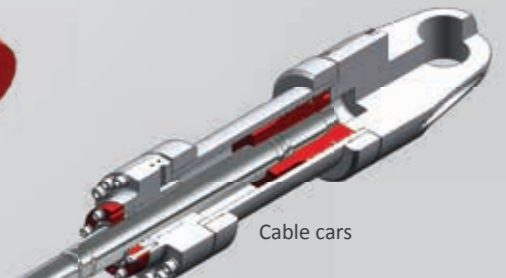


SPECIAL SOLUTIONS FOR

- Pestle balancing cylinders for transfer presses
- Ejector cylinders for presses
- Cylinders for tunnelling machines
- Axial compressors for natural gas stations

CABLE CARS

- Tensioning cylinders for carrying ropes





We have lived the values of competence, fairness and partnership for years now. Our innovative, technically pioneering range of services, our highly motivated and experienced employees as well as our manufacturing and assembly capabilities make us a reliable development, system and series supplier. Our high quality, flexibility and sustainability enable us to meet the needs of our customers, and this is confirmed by our many long term customer relationships. I would be delighted if you will find our range of services interesting and contact us to find out more.

Helmut Possegger MBA
Division Manager Systems Technology

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