HYDRAULIC CYLINDERS
HYDRAULIC CYLINDERS FOR HIGHER STANDARDS
FLEXIBLE & INNOVATIVE.

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.

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

company headquarters – Linz, Aut

design to cost

Product Innovations

HAINZL INDUSTRIESYSTEME
TECHNOLOGY 002-003
PRODUCTION 004-005
APPLICATIONS: STEEL INDUSTRY | WATER POWER 006-007
APPLICATIONS: PLASTICS INDUSTRY | CABLE CARS 008-009
ADDITIONAL AREAS OF APPLICATIONS & SERVICE 010-011
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014-015
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.

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.
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.

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

HIGLY ACCURATE
PRODUCTION
WITH GUARANTEED
QUALITY

EFFICIENT & ENVIRONMENTALLY FRIENDLY.
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

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.

HAINZL identifies itself with the needs of 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

HYDRO POWER

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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/F 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

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.

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

CABLE CARS

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.

PLASTICS INDUSTRY

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

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%.

Cables are tested, filled, and delivered with a special hydraulic oil, purified in accordance with ISO 4406 18/15/12 (NAS 1638:6)
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 integratable 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.

Our many years of experience in the manufacturing and handling of cylinders are valued by reputable customers 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.

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**SPECIAL CYLINDERS**

<table>
<thead>
<tr>
<th>Version</th>
<th>differential cylinder, plunger cylinder, synchronous cylinder with and without cushioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston</td>
<td>up to Ø1,000 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>up to 10 meters</td>
</tr>
<tr>
<td>Weight</td>
<td>up to 25 tons</td>
</tr>
<tr>
<td>NOMINAL pressure</td>
<td>700 bar</td>
</tr>
</tbody>
</table>

**STANDARD CYLINDERS ISO 6022**

<table>
<thead>
<tr>
<th>Version</th>
<th>differential cylinder with and without cushioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston</td>
<td>Ø40 to Ø200 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>up to 6,000 mm</td>
</tr>
<tr>
<td>NOMINAL pressure</td>
<td>250 bar</td>
</tr>
</tbody>
</table>

**STANDARD CYLINDERS ISO 6020-2**

<table>
<thead>
<tr>
<th>Version</th>
<th>differential cylinder with and without cushioning, single rod- or double rod cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston</td>
<td>up to 4,000 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>up to Ø500 mm</td>
</tr>
<tr>
<td>NOMINAL pressure</td>
<td>160 bar</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Version</th>
<th>single and double acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston</td>
<td>up to Ø500 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>up to 10 meters</td>
</tr>
<tr>
<td>NOMINAL pressure</td>
<td>up to 500 bar</td>
</tr>
<tr>
<td>Weight</td>
<td>up to 25 tons</td>
</tr>
</tbody>
</table>

**ROTOR JOINTS**

<table>
<thead>
<tr>
<th>Version</th>
<th>up to 20 channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOMINAL pressure</td>
<td>up to 200 bar</td>
</tr>
<tr>
<td>Medium</td>
<td>oil, air, water, grease, gas</td>
</tr>
<tr>
<td>Sealing</td>
<td>in accordance with the medium</td>
</tr>
<tr>
<td>Rotational speed</td>
<td>up to 1,000 rpm</td>
</tr>
<tr>
<td>Inlet</td>
<td>radial, axial, combined</td>
</tr>
<tr>
<td>Outlet</td>
<td>radial, axial, combined</td>
</tr>
</tbody>
</table>

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

**SERVO CYLINDERS WITH HYDROSTATIC BEARING**

<table>
<thead>
<tr>
<th>Version</th>
<th>differential and synchronous cylinders with and without cushioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston</td>
<td>up to Ø300 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>up to 1,000 mm</td>
</tr>
<tr>
<td>NOMINAL pressure</td>
<td>up to 300 bar</td>
</tr>
<tr>
<td>Frequencies</td>
<td>depending on the peripherals.</td>
</tr>
</tbody>
</table>

**COMPRESSORS (PRESSURE INTENSIFIERS)**

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

**INJECTION MOULDING MACHINES**

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

**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

**STEELE 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 fitting cylinders
- Pinch roll cylinders
- Work roll exchanger cylinders
- Cooling bed cylinders

**HYDRO POWER**

- Servomotors for the adjustment of the wicked gates
- Servomotors for runner and nozzle adjustment
- Servomotors for inlet valves
- Cylinders for hydraulic steel structures acc. to DIN 19704

**SPECIAL SOLUTIONS FOR**

- Pesto 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
Based on the clear strategy of HAINZL INDUSTRIE SYSTEME I am convinced that we are a strong and reliable partner for you, in whom you can trust.

Experience, knowledge, innovative thinking and flexibility, social skills, and stability are for me the most important foundations for a strong and long lasting partnership.

I would be very pleased if you are interested in our company and I would appreciate if you get in touch with us to check our possibilities for your future success.

Andreas Bauer
Head of Hydraulic Cylinders Division