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.

STRENGTHS & EXPERTISE

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

HAINZL INDUSTRIESYSTEME 002-003
TECHNOLOGY 004-005
PRODUCTION 006-007
APPLICATIONS: STEEL INDUSTRY | WATER POWER 008-009
APPLICATIONS: PLASTICS INDUSTRY | CABLE CARS 010-011
ADDITIONAL AREAS OF APPLICATIONS & SERVICE 012-013
PRODUCT RANGE 014-015

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COMPLEX DEMANDS – INDIVIDUAL SOLUTIONS
EFFICIENT AND PRACTICAL.

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

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.

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. Additionally, 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.
Our production line is highly flexible and capable of assembling cylinders with a total weight of up to 25 tons and a stroke of 10 meters, according to our customer's specific needs. The welding workshop is certified according to ISO 3834-2 and DIN 18800-7/E.

The specific focus of our core production competence is on piston rods, cylinder tubes, assembly, testing, and coating. This assures the profitability of HAINZL cylinders. Our assembly plant can handle cylinders with a stroke of up to 10 meters and a total weight of 25 tons. Every component is scrupulously cleaned in a specialized washing machine or 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 corrosion-resistant state.

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. Additionally, our welding workshop is certified according to ISO 3834-2 and DIN 18800-7/E.
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

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

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.

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 CABLE CARS

- 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.

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%.

STRENGTHS IN PLASTICS INDUSTRY

- Professional and responsible operations are the basic principles behind the development and manufacturing 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.

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%.
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.

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**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

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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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**SERVICE**
PROFESSIONAL SERVICE IN ANY CASE.
**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>NOMINAL pressure</td>
<td>710 bar</td>
</tr>
<tr>
<td>Weight</td>
<td>up to 25 tons</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 6039-2**

<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 Ø4,000 mm</td>
</tr>
<tr>
<td>Stroke</td>
<td>up to 4,000 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 rod
- 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>710 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 300 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>
</tbody>
</table>

**CABLE CARS**

- Tensioning cylinders for carrying ropes

** SPECIAL SOLUTIONS FOR **

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

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

**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

**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