



Hydraulic solutions

From the cylinder to the complete drive system



HANCHEN®

There's no limit to the possibilities for the application of hydraulic drives.

And almost no limit to the factors to be considered when looking for the best solution.

We have made this easy for our customers. Because Hänchen's complete service ranges from personal consulting to the interactive product configurator HÄKO. From the planning phase to the start-up. From individual cylinders and clamping devices to entire drive systems including documentation. From standard applications to custom-made special solutions. Decades of experience will help us find the perfect solution for you.



Hänchen.
Hydraulics are in our genes.

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Hydraulic solutions from a reputable company.

Hänschen. A family business in its third generation.

The passion for hydraulic cylinders and drive systems is hereditary. At least with us it is. We are the third generation to continue the work of our grandfather Herbert Hänschen. With the same pioneering spirit, the same passion for first-class quality and the same enthusiasm for the smell of oil and metal.

Everything started in 1925 with repairing motors:

Especially precise and long-living cylinders and crankshafts were needed. The solution was to hone the surface – a method we're still using today. With success!

Our passion for reliable, robust products is the reason why we decided to concentrate on hydraulic cylinders as our main competence in 1952. Hydraulic drives are extremely reliable, extremely durable and, while being very compact, offer a high power density.

With more than 200 highly motivated employees, we have been developing, testing and manufacturing innovative solutions for our customers – in our own research and production departments in Germany. We are at home where durability, reliability and availability matter. The best proof of this is our cylinders that have been running without failure for up to 40 years.

The original Hänschen headquarters in Ruit near Stuttgart. In our certified company we create sustainable and future-oriented drive solutions.



Hänschen's success story is still running smoothly. The reason for this is that our customers can be sure that we always use solutions tailored exactly to their requirements. This mutual trust is based on our know-how that has been growing for three generations, and which makes us a worldwide authority for drive solutions.



Passion meets accuracy.



Passion for high-quality hydraulic cylinders needs a basis of accuracy down to the last detail. Our cylinder production makes no compromises on quality, giving you every reason to choose Hänchen products: 80% vertical integration. 100% made in Germany. 100% quality.

+ Low friction. Low wear. Long life time.

The high surface quality and geometrical accuracy of the component parts of every single Hänchen cylinder guarantee a long life time without failure.

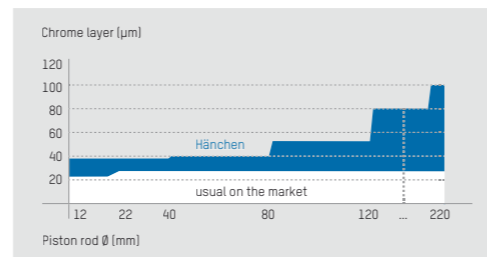
Honed surfaces

For the best lubrication and running properties and as little wear as possible on cylinders and seals, the cylinders' sliding surfaces are refined with a cross-hatch finish.



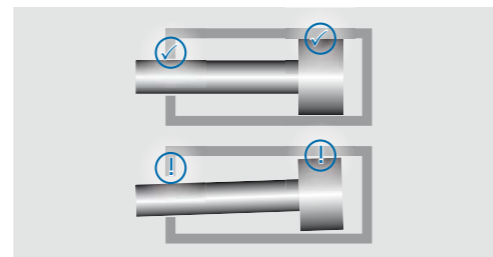
Chrome-plated surfaces

A thick chrome layer means a higher basic hardness of the piston rod and even permits refinishing for repair purposes. This is why Hänchen applies extra-thick chrome layers.



H7/f7 – Clearance fit

The guide clearance must be neither too small nor too large. This is why Hänchen places so much importance on optimal accuracy. The result is reduced stress on the guide and thus less wear on the component parts.

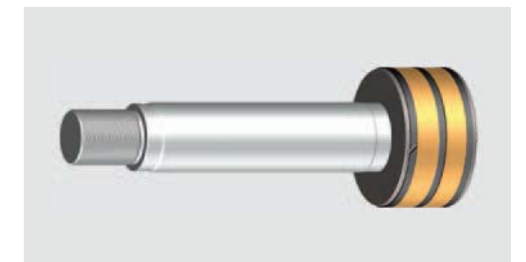


+ Three components. One unit. Easy handling.

The fewer component parts a cylinder has, the less accident-prone it is. And the simpler and safer maintenance and installation is. The three main parts of a Hänchen cylinder:

Piston rod

In Hänchen products, piston and piston rod are inseparably joined. The piston is coated with non-ferrous metal, enabling a precise metallic guide. The sophisticated rod ends with rounded edges permit a seal-friendly installation.



Cylinder tube

Round-head design, inseparably welded to the cylinder mounting. Drilled ports permit a space-saving installation with many options for adjustment to various applications.



Cover

A cover type perfectly adapted to the requirements is crucial for the life time of the entire cylinder [see pages 8|9]. Special feature: The synthetic guide is permanently integrated, reaches a better load distribution and minimizes the risk of scratches caused by dirt particles.



Unlimited possibilities. Accurate fitting combinations.

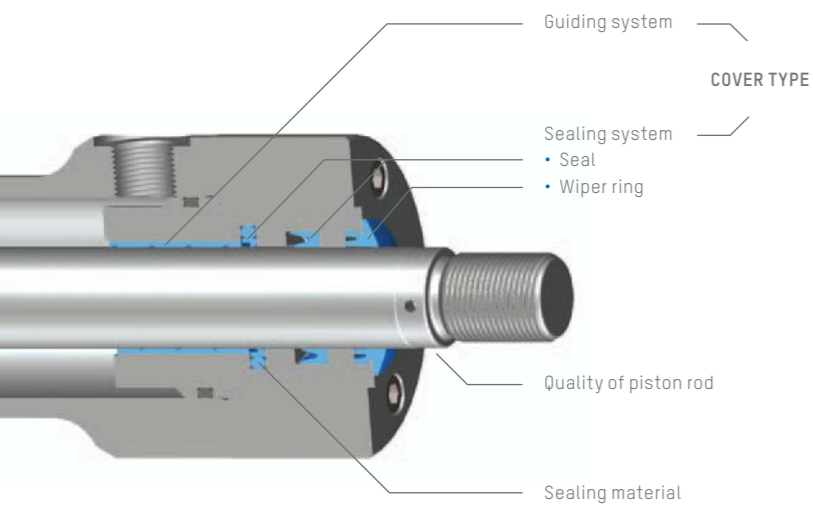


For further details on this and other equipment features, please refer to our book "The Hydraulic Cylinder".

High temperatures in steel mills, high stress in outdoor applications, hygiene requirements in food processing: We'll tune your cylinder. Tell us what you need – to make the perfect cylinder, we need to know what you want.

Equipment system

For the perfect combination, the cover type with the best sealing and guiding system with matching piston rod quality and the right sealing material is selected based on your application.



* The recommended cover type also depends on the series and the piston equipment.

SEALING SYSTEM	Basic design: lip seal, wiper ring	Servocop®: compact seal, lip seal, wiper ring	Servofloat®: floating gap seal, functional oil seal, wiper ring	Functional oil seal: functional oil seal, wiper ring
GUIDING SYSTEM				
Servoslide®: Synthetic guide	<ul style="list-style-type: none"> • Simple movement, long-stroke oscillations ≤ 25 Hz • Side loads due to lateral movement • Good friction properties • Vibration-damping • Low stick-slip • v ≤ 0.5 m/s 	<ul style="list-style-type: none"> • Simple and controlled movement, long-stroke oscillations ≤ 25 Hz • Side loads due to lateral movement • Optimized friction properties • Vibration-damping • Mostly stick-slip-free • v ≤ 2 m/s 	<ul style="list-style-type: none"> • Sensitive movements, long- and short-stroke oscillations ≤ 25 Hz • External side loads or due to lateral movement • Extremely low friction • Low-wear • No leak-oil pump • v ≤ 2 m/s 	
Metallic guide	<ul style="list-style-type: none"> • Simple movement • High temperatures • Universal application • v ≤ 0.5 m/s 	<ul style="list-style-type: none"> • Simple movement • High temperatures • Optimized friction properties • Mostly stick-slip-free • v ≤ 1 m/s 	<ul style="list-style-type: none"> • Simple movement • High temperatures • Extremely low friction • Low-wear • No leak-oil pump • v ≤ 1 m/s 	
PTFE Wear rings		<ul style="list-style-type: none"> • Simple and controlled movement, long-stroke oscillations ≤ 25 Hz • Side loads due to lateral movement • For long strokes • Mostly stick-slip-free • v ≤ 3 m/s 	<ul style="list-style-type: none"> • Sensitive movements, long- and short-stroke oscillations • High side loads • Extremely low friction • Low-wear • No leak-oil pump • v ≤ 4 m/s 	
Servobear®: Hydrostatic bearing				<ul style="list-style-type: none"> • Sensitive movements, short-stroke oscillations, highly dynamic > 25 Hz • Highest side loads • Extremely low friction • No leak-oil pump • v ≤ 4 m/s

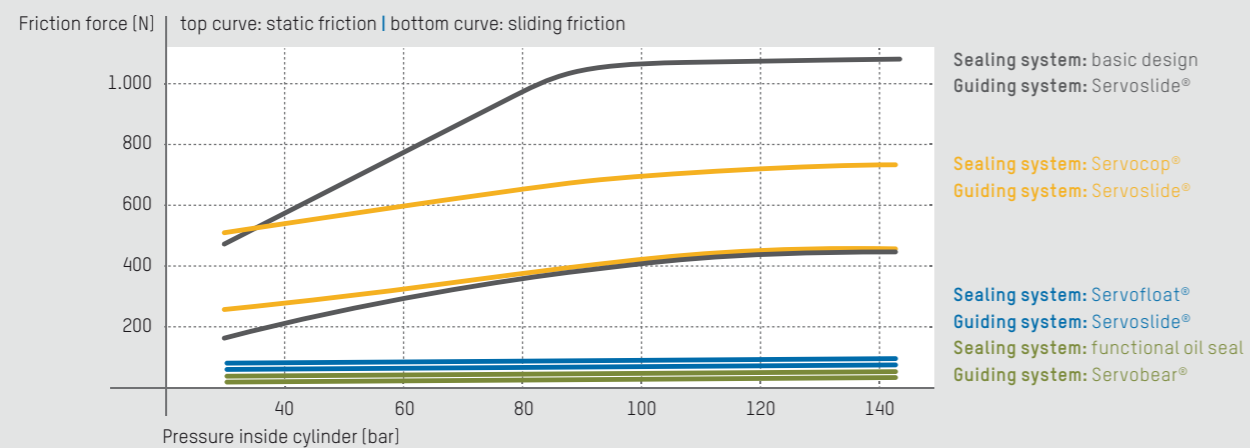


The strong point of Hänchen cylinders is their extreme versatility. We provide reliable cylinders with the perfect friction force for your dynamic application case.

+ Low level of friction force

Sensitive, free-moving or robust – we have the right cover type for your requirements.

Friction in dependence on sealing and guiding system in the cover



Values measured on the double-rod cylinder (bore 46 mm without seal, piston rod Ø 40 mm) during sine operation according to VDMA24577 at 50 °C/HLPD46. The level of the friction force curves is lower than usual on the market.

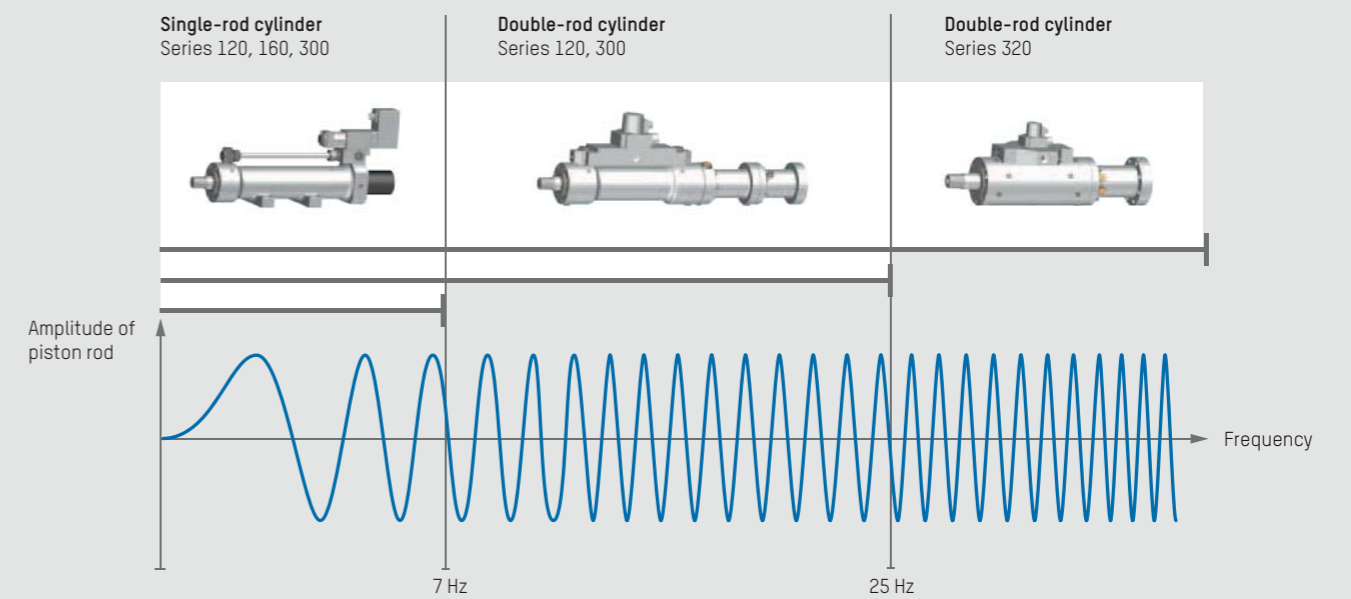


Just contact us, we will be pleased to help you! You can find our contact addresses on the insert.

+ Cylinders for every frequency range

High or low frequencies, quick or slow movement – we'll help you to find what you need.

Which cylinder series is suitable for which frequency range



Every application area has unique requirements:

icy coldness or extreme heat, scrupulous cleanliness or grime and oil wherever you look. High irregular speeds or smooth and steady movement, for testing or manufacturing. No matter under which conditions you wish to use your hydraulic cylinders, we'll make them work. With a complete system that is custom-made for your requirements. With services that go far beyond just selling our products. Simply with the best solution for your drive needs. Just ask us!



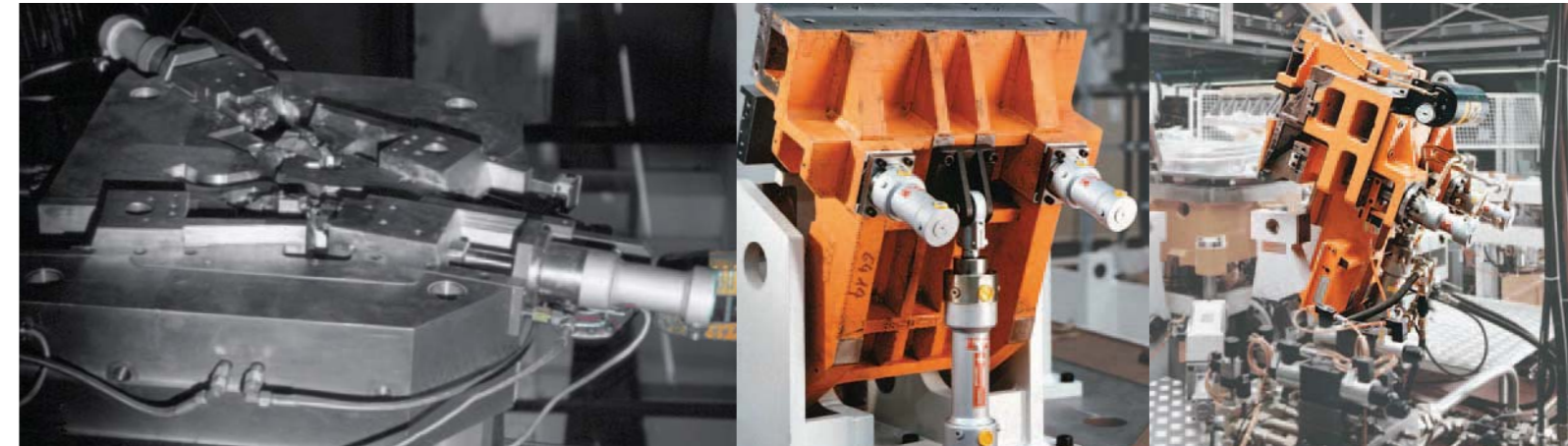
The Hänschen program.
Exactly the right thing for you.





**Best performance
made easy.**

Hydraulic cylinder have a lot of advantages: they are long-lasting, low-friction and robust. The 120 and 300 series convincingly exhibit all Hänchen quality features: excellent responsive behaviour, low wear and therefore long maintenance intervals.



1 | Die-casting machine: Positioning of upper die and slide
2 | 3 | Folding machine: Connecting the outer and inner parts of doors



You need the right accessories?
We provide mounting plates, sensor technology, spherical rod eyes, flanges, clevis brackets and grade 12.9 screws.

+ Good to go: Full speed ahead under full load

The compact design with low inertia resistance guarantees a high power density. The cylinders can start moving immediately from standstill fully loaded, and can quickly change direction.

+ On the spot: In every situation

High control accuracy. Stepless speed adjustment with a continuously simple control concept – even if the requirements vary.

+ Quick: Even under high loads

Force and speed are continuously and simultaneously available at full capacity.

Technical data

Type of effect: single-rod, double-rod
Sealing systems: basic design, Servocop®, Servofloat®
Speeds: up to 2 m/s

Series	Max. pressure (bar)	Bore (mm)	Force (kN)	Stroke (mm)
120	120/150/200*	12 – 600	1 – 6,000	1 – 6,000
300	300	25 – 600	10 – 9,000	1 – 6,000

* depending on mounting and size

HAKO

You can find the exact dimensions and the data sheets in our product configurator at www.haenchen-hydraulic.com

High force.
Full control.



For the necessary sensitivity, Hänchen offers convenient sensor technology components and valves – all for highly dynamic, precise drives with high energy density.



+ Force transducer

Force transducers use strain-gauge or piezo-technology and measure the retracting and extending forces of the hydraulic cylinder. They are installed directly on the piston

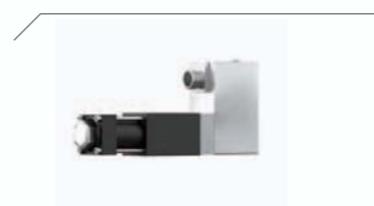
rod and measure the load on the piston rod statically or dynamically. Force transducers are used e.g. for monitoring or controlling the cylinder force.



+ Proximity switch

Pressure-resistant inductive proximity switches detect the end positions of the stroke in the hydraulic cylinder – wear-free and without contact. The signal is used to check or control the hydraulic cylinder.

Hydraulic cylinders with proximity switches also feature adjustable cushioning.



+ Valves

Control valves regulate the flow rate in proportion to the electrical select signal. Depending on the application case, valves with hydraulic pilot control or directly proportional solenoid-controlled valves are used.

Valves with zero overlap of the control edges are especially suitable for hydraulic control tasks.

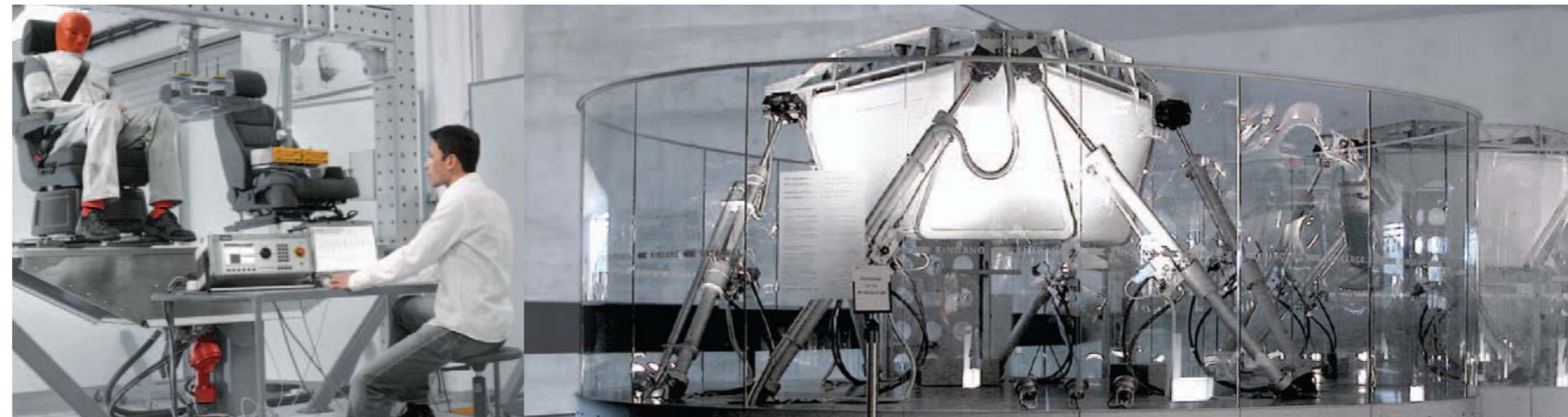


+ Position transducers

Position transducers show the position of the piston rod electronically. An analogue or digital travel signal can be generated using the stroke. This can be used e.g. as an actual-signal in the position control circuit, or for monitoring position or speed limits. A position transducer can be integrated in the cylinder, making a compact, mechanically protected system.



1 | A "deep stop" prevents possible crashes: Hänchen proximity switches can't go in too far.



1 | Test stand for seats: Service strength test for vehicle seats
 2 | Hexapod: Simulation of a driving route
 3 | Material test stand: Long-term test of airplane wings

Dynamic for test winners.



High speeds, frequencies, accelerations: Hänchen cylinders in the 120, 300 and 320 series with integrated position transducers always keep up.

+ Perfect for highly dynamic industry and test tasks

- Industrial applications – from friction welding and ingot oscillation to compacting sintered metal
- Checking the functional safety of systems, component parts or products
- Structure test of aircraft, automobile exhaust systems, refrigerating compressors and many more
- Load and movement simulation, e.g. operational profiles and flight profiles

+ Economy series 120 and 300: Perfect for tasks with long strokes

In their typical Hänchen quality with harmonized sealing elements, these cylinders fulfil highest technical requirements – for safe and reliable drive control.



Technical data

Type of effect: single-rod, double-rod
 Sealing systems: basic design, Servocop®, Servofloat®
 Speeds: up to 2 m/s

Series with position transducer	Max. pressure (bar)	Bore (mm)	Force (kN)	Stroke (mm)
120	120/150*	40 – 180	18.8 – 381.7	1 – 1,500
300	300	50 – 140	37.7 – 461.8	1 – 1,500

* depending on mounting



Technical data

Type of effect: double-rod | Sealing systems: Servofloat®, functional oil seal (Servobear®) | Speeds: up to 4 m/s

Rod Ø (mm)	Bore (mm)	Type	Force [kN] 210 bar	Force [kN] 320 bar	Stroke (mm)	Rod Ø (mm)	Bore (mm)	Type	Force [kN] 210 bar	Force [kN] 320 bar	Stroke (mm)
25	28 – 45	strong	2.6 – 23.1	4 – 35	50 – 170	80	90 – 150	strong	28.0 – 265.5	43 – 405	50 – 450
30	34 – 55	strong	4.2 – 35.0	6 – 53	50 – 220	100	110 – 150	slim	34.6 – 206.2	53 – 314	50 – 450
40	45 – 70	strong	7.0 – 54.4	11 – 83	50 – 270	100	110 – 175	strong	34.6 – 311.7	53 – 518	50 – 450
50	56 – 80	strong	10.5 – 64.3	16 – 98	50 – 450	125	140 – 175	slim	65.6 – 218.9	100 – 377	50 – 450
63	70 – 100	strong	15.4 – 134.1	23 – 204	50 – 450	125	140 – 200	strong	65.6 – 402.0	100 – 613	50 – 450
80	90 – 120	slim	28.0 – 131.9	43 – 201	50 – 450	160	180 – 220	slim	112.2 – 376.0	171 – 573	50 – 450

strong: massive construction (e.g. vertical installation) slim: lighter construction (e.g. horizontal installation)

+ Premium series 320: Efficient for varying applications

Compact, versatile, quick, sensitive and robust – the best choice for challenging tasks.

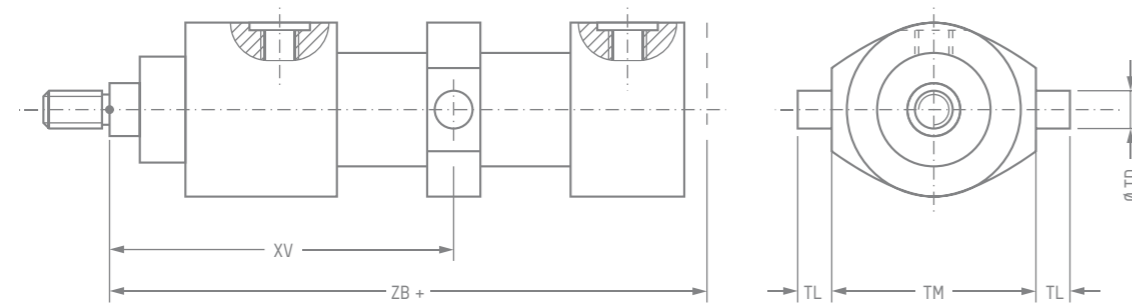
- Suitable for every frequency range thanks to its high inertia
- Quick and cost-efficient remodelling thanks to compatible mounting elements and accessories
- Working without a leak oil pump, with variable bores for adaptable cylinder areas – meaning lower acquisition / operation costs and also energy efficient due to a smaller hydraulic system
- Stable, steady and admissible for high lateral forces



If required, we also provide matching accessories: from mounting plates, valves and accumulators to flanges and force transducers.



You can find design and calculation assistants in our product configurator at www.haenchen-hydraulic.com



Standard on the outside.
Hänschen on the inside.

Honed surfaces, geometrical accuracy, long life time. Although the mounting dimensions and accessory options are according to applicable standards, these series convince through their inner Hänschen values.

+ Series 100, 160, 660 and 250: Cylinders complying with the standards

For all those who are obliged to use hydraulic cylinders with mounting dimensions according to DIN 24336 or DIN ISO 6020/6022: Our series matches the standard dimensions. With all the benefits you've come to expect from Hänschen.



Technical data

Type of effect: single-rod (with cushioning)
Sealing systems: basic design, Servocop®
Speeds: up to 0.5 m/s

Series	Max. pressure (bar)	Bore (mm)	Force (kN)	Stroke (mm)
100 DIN 24336	100	25 - 125	4.9 - 122.7	1 - 6,000
160 DIN ISO 6020-1	160	25 - 200	7.9 - 502.7	1 - 6,000
660 DIN ISO 6020-2	160	25 - 125	7.9 - 196.3	1 - 1,500
250 DIN ISO 6022	250	50 - 200	49.1 - 785.4	1 - 6,000

+ Series 550: Hänschen compact construction plus standard mounting dimensions

Cylinders with mounting dimensions according to DIN ISO 6022 with even more Hänschen advantages: We use a piston rod elongation to adapt Hänschen cylinders of the 300 series to the standard dimensions of the 250 series. The result:

- Compact, lightweight construction
- Low inertia moment in case of transverse acceleration
- Available with/without cushioning
- Good cost/performance ratio
- Compatible with standard accessories

Technical data

Type of effect: single-rod (with/without cushioning)
Sealing systems: basic design, Servocop®
Speeds: up to 0.5 m/s

Series	Max. pressure (bar)	Bore (mm)	Force (kN)	Stroke (mm)
550 according to DIN ISO 6022	250	40 - 140	37.7 - 461.8	1 - 6,000

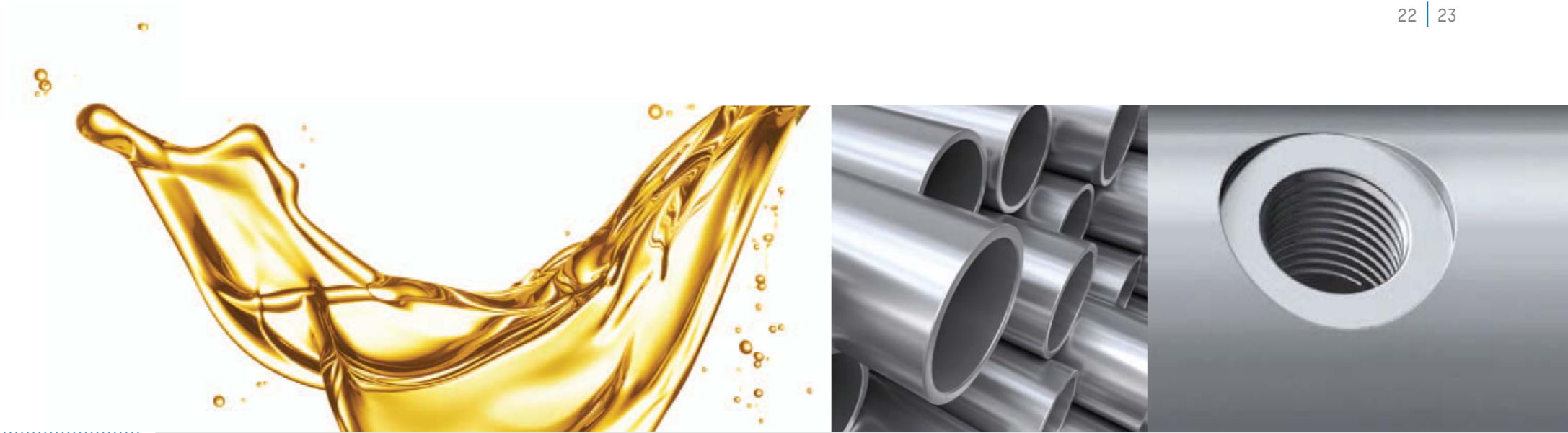
- 1 | Tip: Always compare the standard dimensions of different manufacturers since the standard allows a lot of leeway.
- 2 | Parabolic rolling machine: Production of special leaf springs
- 3 | Pressure container: Hydraulic quick-release shutter



We provide matching accessories according to DIN ISO 8132/8133.



You can find the exact dimensions and the data sheets in our product configurator at www.haenchen-hydraulic.com



Special tasks?
Individual solutions!

Just what you need: From small adjustments to completely new design. Our large team of developers is there for you - with decades of experience in the development and creation of special solutions. Whenever possible, we use minor modifications of our modular standard elements to adapt them to your requirements as cost-effectively as possible. If necessary, we'll rise to the challenge and develop an entire new system for you. Whether it be turning oil supply or special cushioning, dosing, injection, telescope, counterweight or oscillation cylinders. Impossible? Not with Hänschen.

+ Typical for Hänschen:
Cost-efficient expansions and adjustments

Minor adjustments can often solve major problems. This is why customized products have almost become a standard for us. We make customized cylinders quickly and without the prototype risk.

Changing the fluid

Different applications require different fluids. The food industry requires oils that are not harmful to the human body, steel mills need fire-resistant fluids. The cylinders are designed accordingly with suitable seals and coatings. Examples of fluids:

- Mineral oils
- Silicone oils
- Bio-degradable oils
- Brake fluid

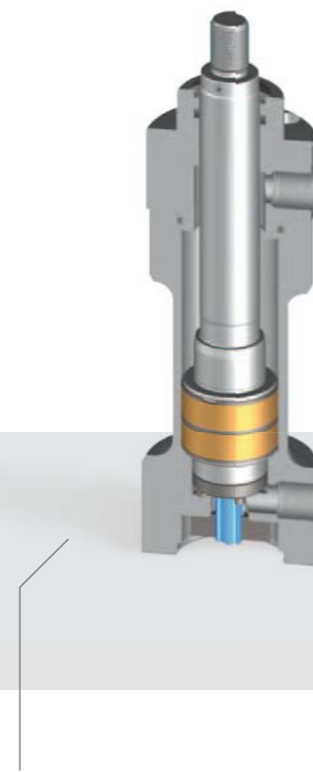
Changing the material

The choice of material depends on the application in question and is customized to your individual requirements. For example:

- Stainless steel for the food industry
- Non-magnetic steel for the medical industry
- Aluminium saves weight
- Tough-at-sub-zero-temperatures steel for cold regions/environments

Modifying the cylinder

- Cylinders with special flanges
- Different hydraulic ports
- Special cushioning
- Installation of special sensors



+ Individual constructions

If minor adjustments don't suffice, we'll construct complete cylinders to suit your requirements. Here you can see some examples for such special cylinders.

Areas of application, e.g.

- Machine tools/plastic injection machines
- Presses
- Foundries/founding frames
- Steel mills
- Test engineering

**Example 1:
Screw-in cylinders**

Hydraulic cylinders are mounted mechanically before establishing a hydraulic connection using hoses or pipes. A space-saving alternative are screw-in cylinders built into multiple-step holes using a multiple-step cylinder housing. Insertable in a block, this cylinder is usually integrated in a machine and protected from external influences.

The advantages:

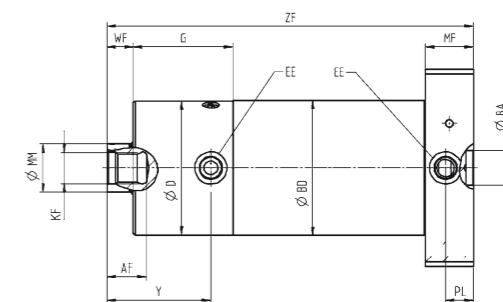
- Small construction volume
- Easy to install
- Service-friendly
- Easy installation without screwed fittings

**Example 2:
Cylinder with anti-torsion mechanism**

The anti-torsion protection of piston rods in hydraulic cylinders is usually realized using fixation elements. If the rod is not fixed, torsion can occur. Even small external torques can be enough. Even the surface structure of the piston rod can cause torsion over the stroke. Mechanical devices can prevent this, even for very high torques. We select the best version for your application.

**Example 3:
Hydraulic cylinders as guide rod**

The solution for a space-saving combination of linear movement and an exact guide: The guide rod with the hardened surface and an integrated hydraulic cylinder. This allows precise guidance and movement of loads coupled with the piston rod without subjecting the cylinder to side loads.



Technical data

Bore (mm)	MM (mm)	BD (mm)	Max. pressure (bar)
80	50	130	160
100	60	160	160
125	80	180	160

More size on request



Won't let you down!



The patented clamping device Ratio-Clamp® hold the rod in a standstill and locks it into position mechanically. The clamping effect is immediate, lasts for an unlimited period of time and doesn't require an energy supply – suitable for various applications, as a safety element or for locking component parts into place. 100% reliable! If necessary, we can also develop a customized solution for you.

+ Safe advantages

- Immediate locking of the rod without slippage
- Immediate clamping effect in case of a power failure without additional energy supply
- Allowance- and wear-free locking with all types of movement, even with vibrations of the application
- Clamping for an unlimited period of time
- Energy-efficient thanks to pressureless clamping process

+ Application areas

- Protecting people, machines and tools in case of a power failure or plant shutdown
- Locks axes during certain production steps or for highly dynamic applications/test processes

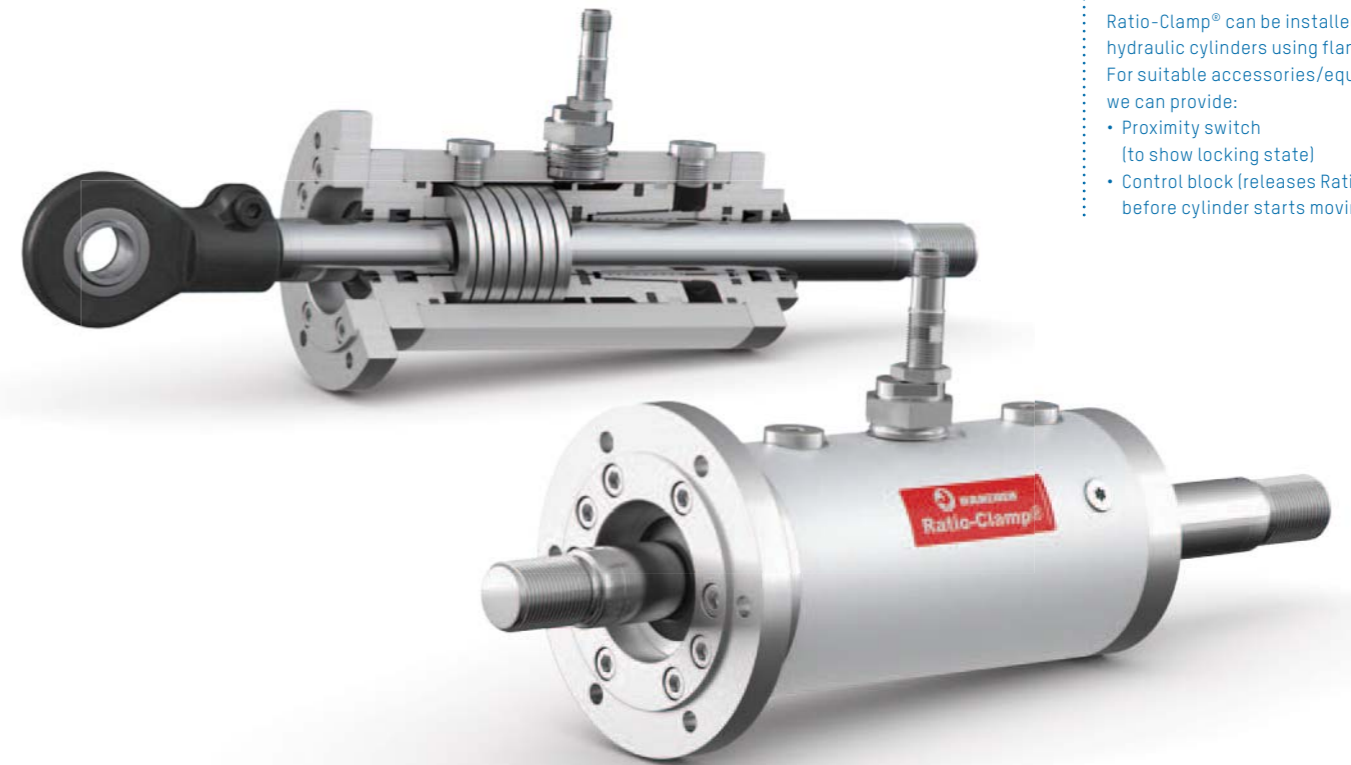


- 1 | Ferry: Lifting, lowering and fixing the bow and stern doors
- 2 | Low-pressure die-casting machine: Production of aluminium crankcases
- 3 | Sanding machine: Positioning of an ICE track bed during processing



Ratio-Clamp® can be installed to all hydraulic cylinders using flanges. For suitable accessories/equipment, we can provide:

- Proximity switch (to show locking state)
- Control block (releases Ratio-Clamp® before cylinder starts moving)



Technical data

Suitable for: all hydraulic cylinders, round rods
 Certification: TÜV, DGUV test
 Sealing systems: Servocop®, pressure piston seal

Ratio-Clamp®	Rod Ø (mm)	Force (kN)
Standard version	16 – 140	1 – 450
Special solution	up to 300	up to 2,000

HAKO

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Change of application made easy.

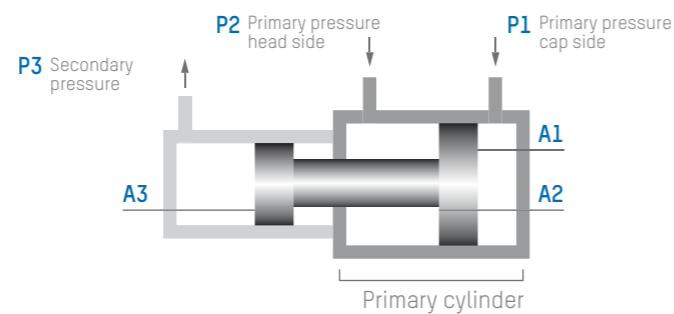


- 1 | Exact fluid dosing
- 2 | Closing moulds in glass bottle production
- 3 | Bursting test of pipes

If certain processes require more or less force or a different fluid; pressure and fluid transformers are a quick and cost-efficient solution. The secondary side can use almost all fluids, such as water, emulsions or AdBlue.

+ The perfect boost: Pressure intensifier

Pressure intensifiers are the perfect solution when you need more pressure, and reconfiguring the entire system would be too complex. Perfect in clock mode for high-pressure compression forming, for bursting tests of hoses, pipes or containers, and closing or clamping tools or moulds.



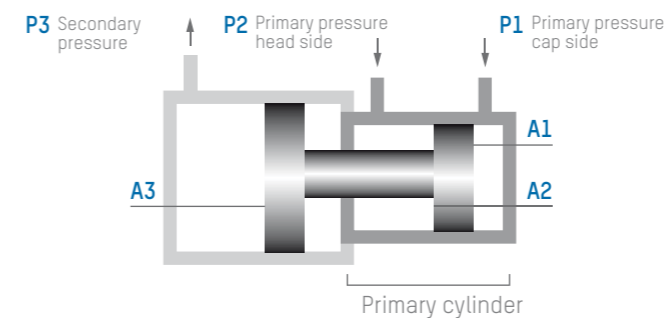
Technical data

Secondary pressure p3 [bar]	Effective Ø primary [mm]	Effective Ø secondary [mm]	Transmission ratio	Primary pressure p1 [bar]	Stroke volume [cm³/mm stroke]
630	100	60	2.78	227	2.83
	125	80	2.44	258	5.03
	160	100	2.56	246	7.85
1,000	100	50	4.00	250	1.96
	125	60	4.34	230	2.83
	160	80	4.00	250	5.03
1,600	125	50	6.25	256	1.96
	160	60	7.11	225	2.83
	200	80	6.25	256	5.03
2,500	125	40	9.77	256	1.26
	160	50	10.24	244	1.96
	200	60	11.11	225	2.83
4,000	125	30	17.36	230	0.71
	160	40	16.00	250	1.26
	200	50	16.00	250	1.96

More sizes and pressures on request

+ More precision: Pressure reducer

For quick moving or exact control of fluids at low pressure, pressure reducers are the best choice – for instance for sensitive low pressure tests of heat exchangers, fittings or hot-water storage tanks.



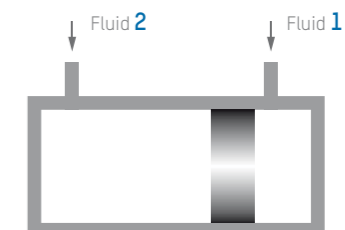
Technical data

Secondary pressure p3 [bar]	Effective Ø primary [mm]	Effective Ø secondary [mm]	Transmission ratio	Primary pressure p1 [bar]	Stroke volume [cm³/mm stroke]
15	16	60	0.07	211	2.83
	20	80	0.06	240	5.03
	25	100	0.06	240	7.85
	30	125	0.06	260	12.3
25	20	60	0.11	225	2.83
	25	80	0.10	256	5.03
	30	100	0.09	278	7.85
40	40	125	0.10	244	12.3
	25	60	0.17	230	2.83
	30	80	0.14	284	5.03
	40	100	0.16	250	7.85
	50	125	0.16	250	12.3

More sizes and pressures on request

+ Clearly separated: Fluid separator

For a change of fluids without its own hydraulic supply – the pressure remains the same on both sides. A complete separation of the two fluids is possible. For all pressure ranges and almost all fluids, e.g. for pressure carriers in testing facilities for different fluids, or fluid changes in separated areas, e.g. hydraulic oil to Skydrol®.



Technical data

Nominal pressure p1 [bar]	Effective Ø [mm]	Stroke volume [cm³/mm stroke]
150	40	1.26
	50	1.96
	60	2.83
	80	5.03
	100	7.85
300	125	12.3
	50	1.96
	60	2.83
	80	5.03
300	100	7.85
	125	12.3
	140	15.4

More sizes and pressures on request



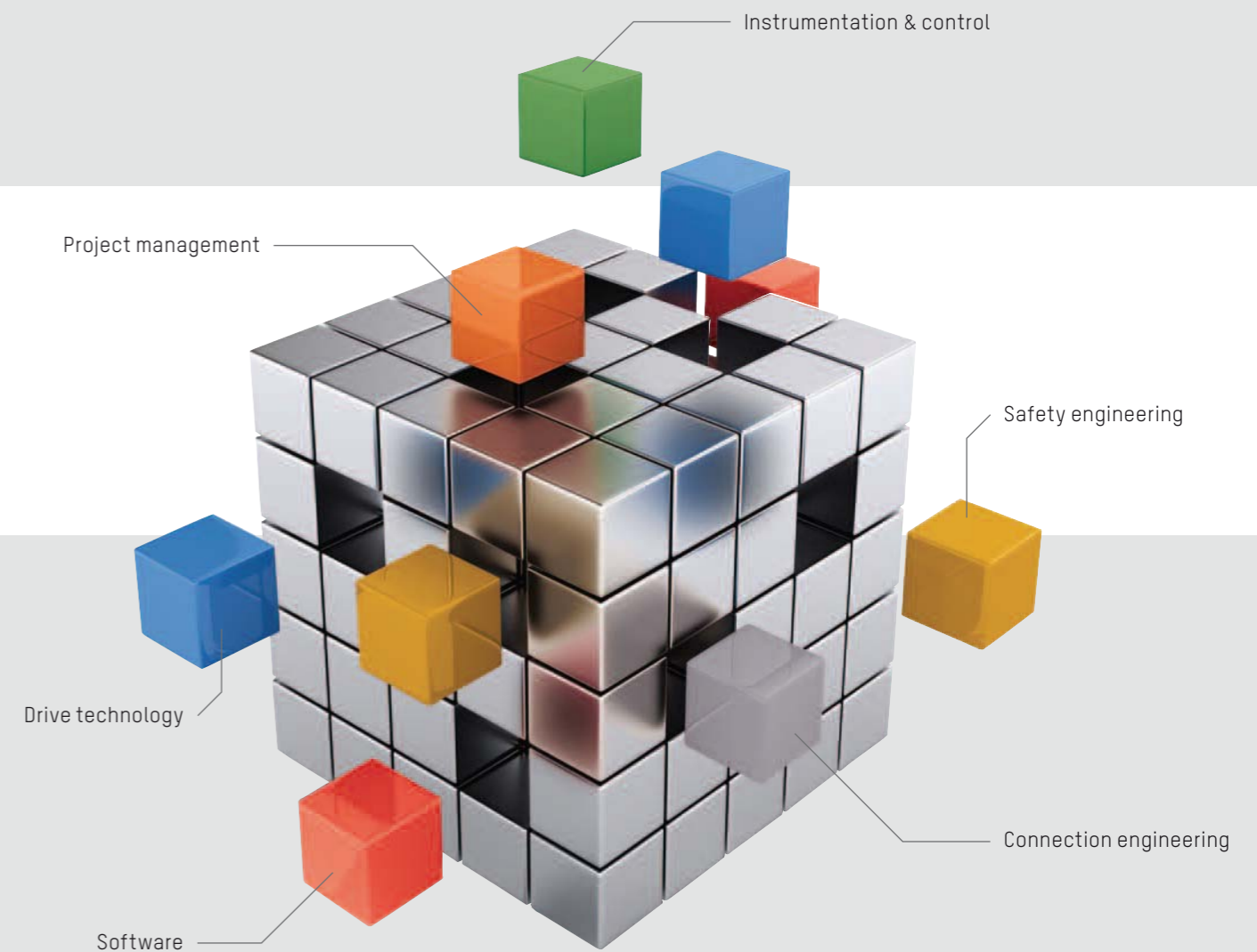
Just what you need.

You need your system optimized or a complete solution developed for tasks in the fields of automation or drive technology? We solve your problems with customized and sector-independent solutions. Consulting, engineering, realization – all from one source. And in good hands.

With our drive system Ratio-Drive®, we can provide exactly the solution you need; always with the option to expand it at any time: We offer all-round support, harmonize all components and see to it that your drive system is energy-efficient and always state-of-the-art. The modular structure allows us to respond to your requests in a quick and flexible manner – saving you time, money and trouble, and enabling you to focus on your main business.

+ Your advantages

- Only one contact person
- Seamless incorporation in your application
- Energy-efficient components
- Individual solution, you only buy the functions you actually need
- Independent of technology & manufacturer



- Safety engineering
- Design
- Documentation
- Plant monitoring

- Project management
- Engineering/project development
- Project implementation
- Commissioning
- After-sales service

- Software
- HMI (Human-Machine Interface)
- Control software for drive axes
- Sequence control
- Communication with the customers computer
- Safety software

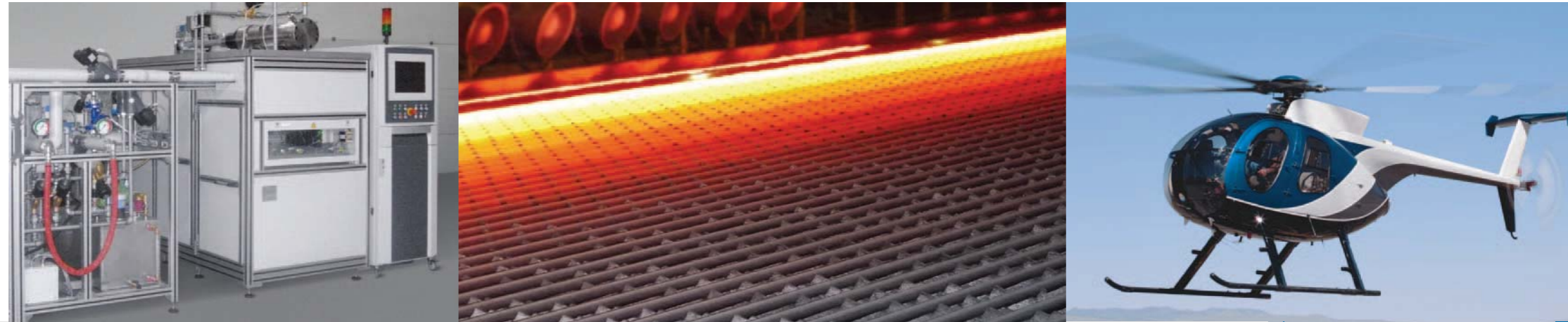
- Drive technology
- Hydraulic drive unit
- Electric actuator
- Sensors
- Hydraulic pressure supply

- Instrumentation & control
- Measuring, controlling, regulating
- Measurement engineering
- Electrical power control

- Connection engineering
- Hydraulics
- Electronics
- Mechanics



For more information on Ratio-Drive®, go to www.haenchen-hydraulic.com or contact us. You can find our contact addresses on the insert.



With Ratio-Drive® you can realize the most complex control structures – with hydraulic as well as with electromechanical drives.

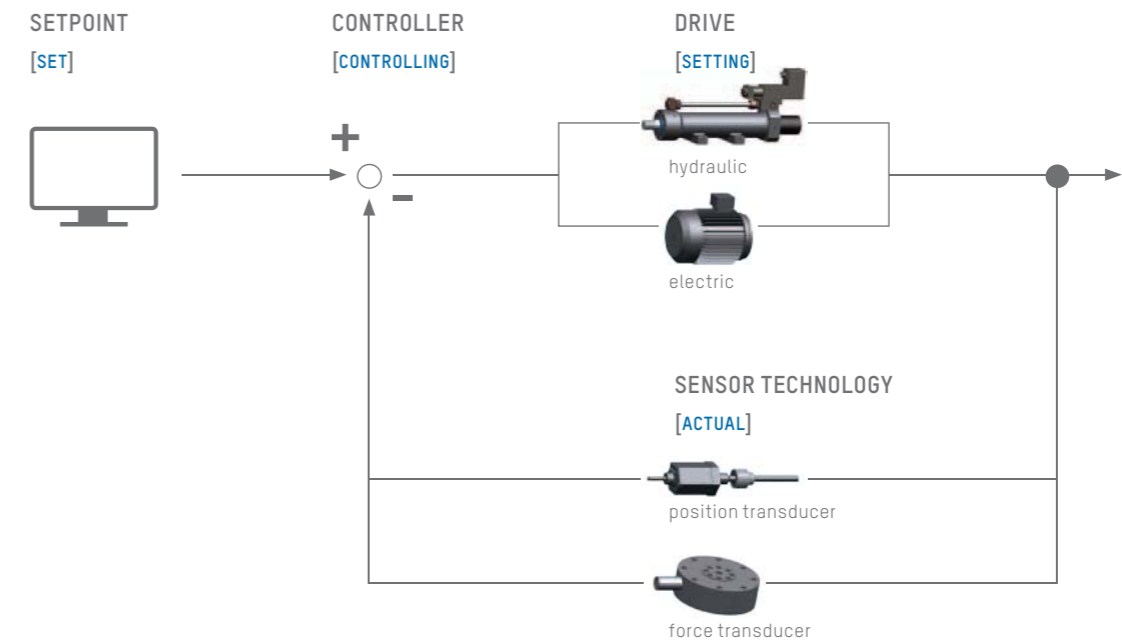
- 1 | Test rig for accumulators and collectors
- 2 | Steel mill: Putting red-hot steel rods into the cooling bed
- 3 | Static tensile and pressure test of helicopter components



Using intelligent control technology allows you to increase the performance of your drive, to control forces with greatest accuracy, and reproduce complex process structures. The technology uses software controllers that can easily be parametrized for the application in question via a web interface, and that can also feature very complex control structures.

+ Possible applications for Ratio-Drive®
Automatic control engineering: Examples

- Reproducing independently programmed, measured or synthetic operational profiles
- Synchronizing the movement of several drives
- Positioning in the micrometer range
- Oscillations with prescribed amplitudes, frequencies or accelerations
- Coupling movement and force of the drive



Control circuit: From "Set" to "Actual" with the right components.



Basis for a successful business relationship.



Comprehensive consulting service and quick support:

We're happy to help you anytime with any questions or challenges you might face - from the accessories to the equipment. Because we want to give you the best drive solution and smooth manufacturing processes for your individual requirements: by minimizing the time required for installation and maintenance, and providing the best functional reliability.

+ Our know-how: Your benefit

- Consulting service for individual cylinders and engineering and project development for complex drive systems
- Design planning on-site or at one of our locations
- Small lot sizes possible
- Available 24/7: HÄKO, the product configurator with design assistance and calculation programs >> www.haenchen-hydraulic.com

+ Simply safe: Service with additional benefits

- Approval e.g. according to Lloyd's (Register of Shipping) or customer-specific
- Realization as per your requirements, e.g. according to ATEX directives
- Drawings: 3D models complete with accessories – for a perfect fit without errors
- Documentation according to EG machine directive
- Operating manual in several languages
- Preliminary and final start-up on request

+ Short reaction time: We're always there for you

- From the first quote up to helping in an emergency
- Broad range of field service options – we'll come to you for consulting and service
- Quick availability of spare parts throughout the service life thanks to consistent documentation and a serial number on every single cylinder
- As good as new after repair

+ Everything included: Equipment available

- Sealing and assembly tools for correct seal replacement
- Hook wrench for holding the piston rod in place during installation
- Venting set with measuring coupling: venting makes the seal last longer
- Air filter for dirt protection or filtering air and gases, used e.g. for non-pressurized hydraulic cylinder spaces or oil containers up to 100 °C

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HÄNCHEN®