

# Drive technology for machine and plant construction

## Overview of portfolio



# Innovative products and individual solutions

## Highly dynamic, precise and robust

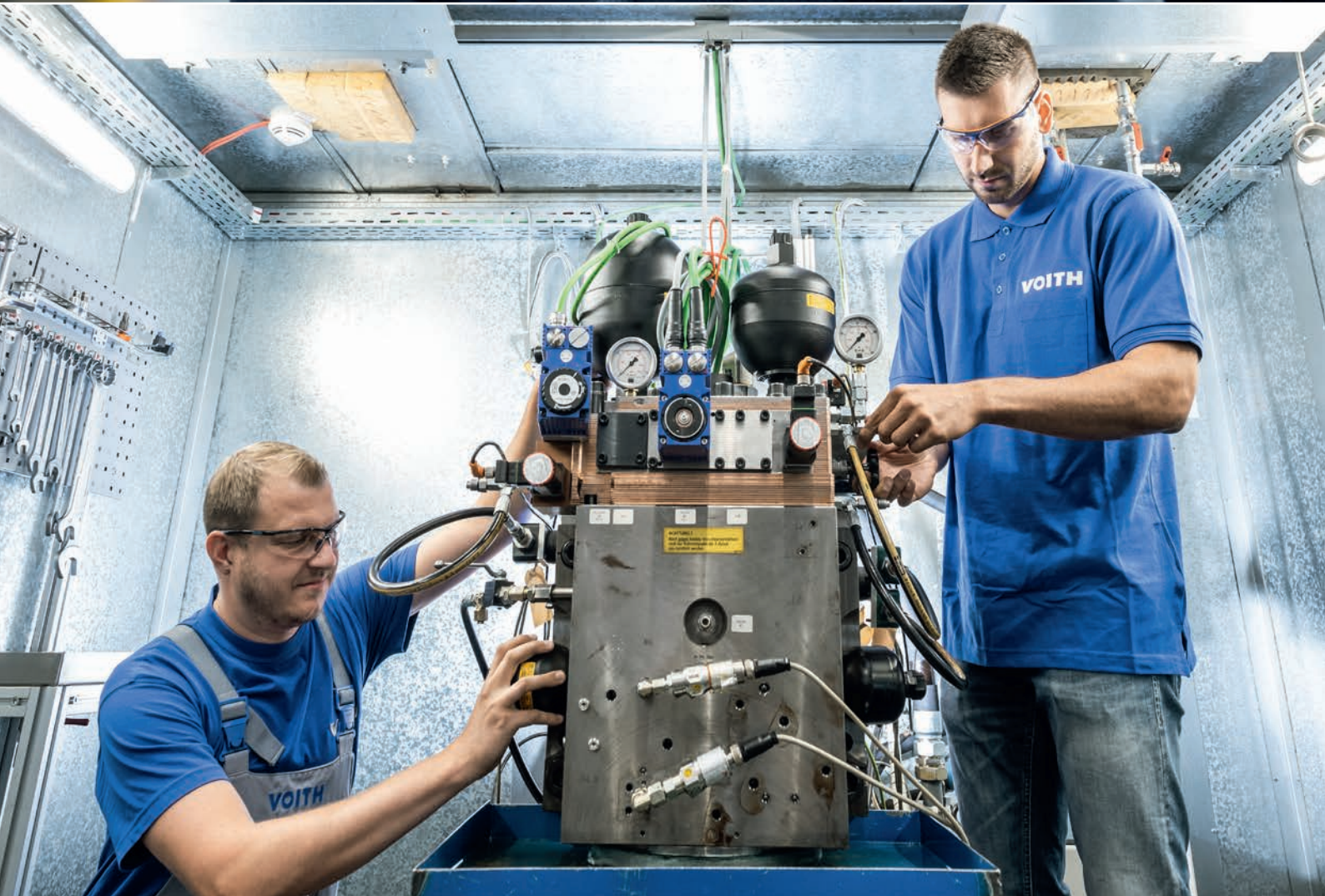
Voith offers innovative hydraulic systems and components as well as self-contained servo drives for a wide variety of applications. Voith hydraulic solutions are used primarily in mechanical engineering and the automotive and energy sectors. As an international partner with high system competence, we develop modern fluid technology – customized and tailor-made to your requirements.

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## We offer:

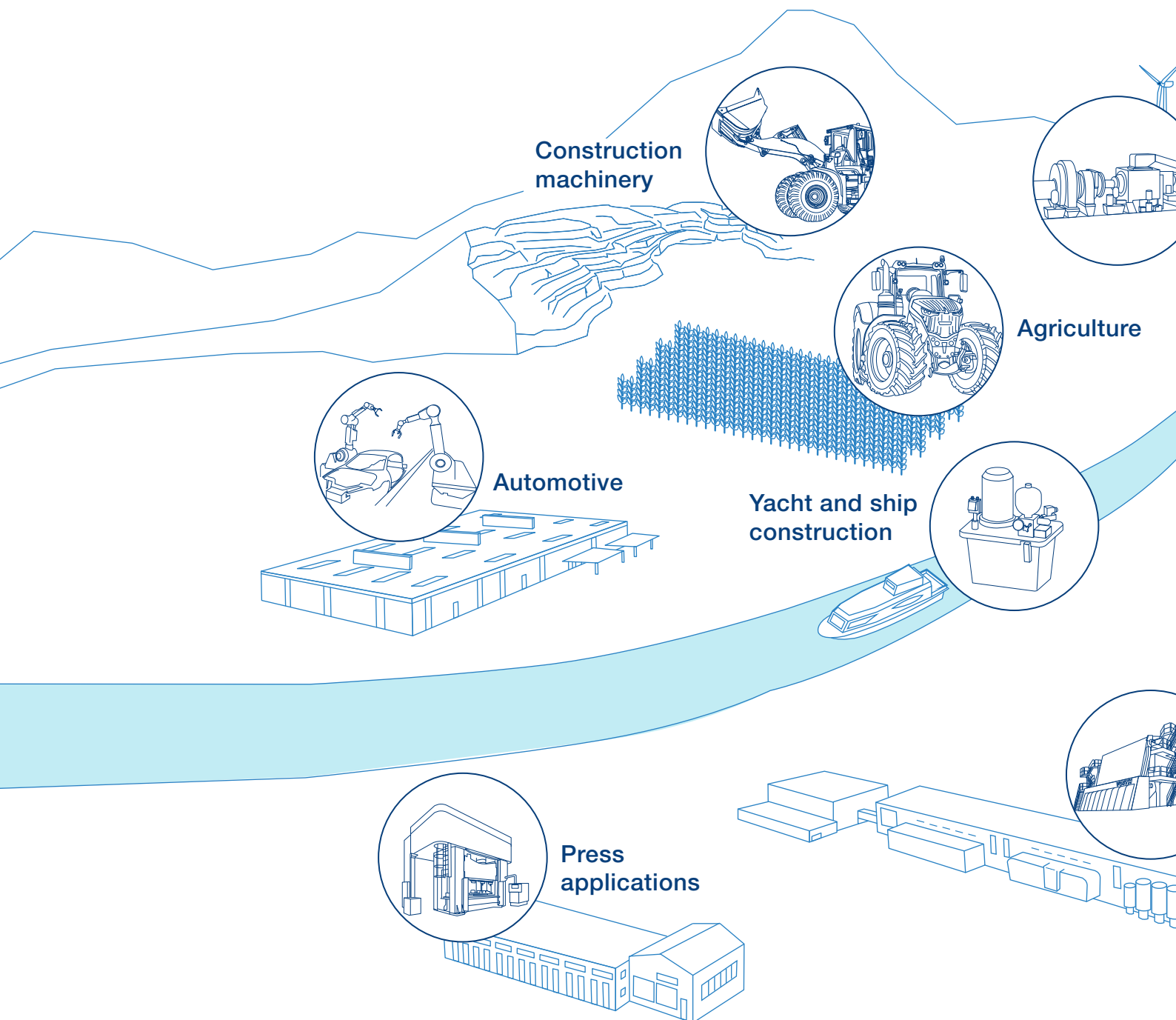
- **Systems engineering**
  - **Self-contained servo drives**
  - **Valve technology**
  - **Internal gear pumps**
  - **Hydraulic power packs**
  - **Electronics for hydraulics**
  - **Progressive hybrid solutions**
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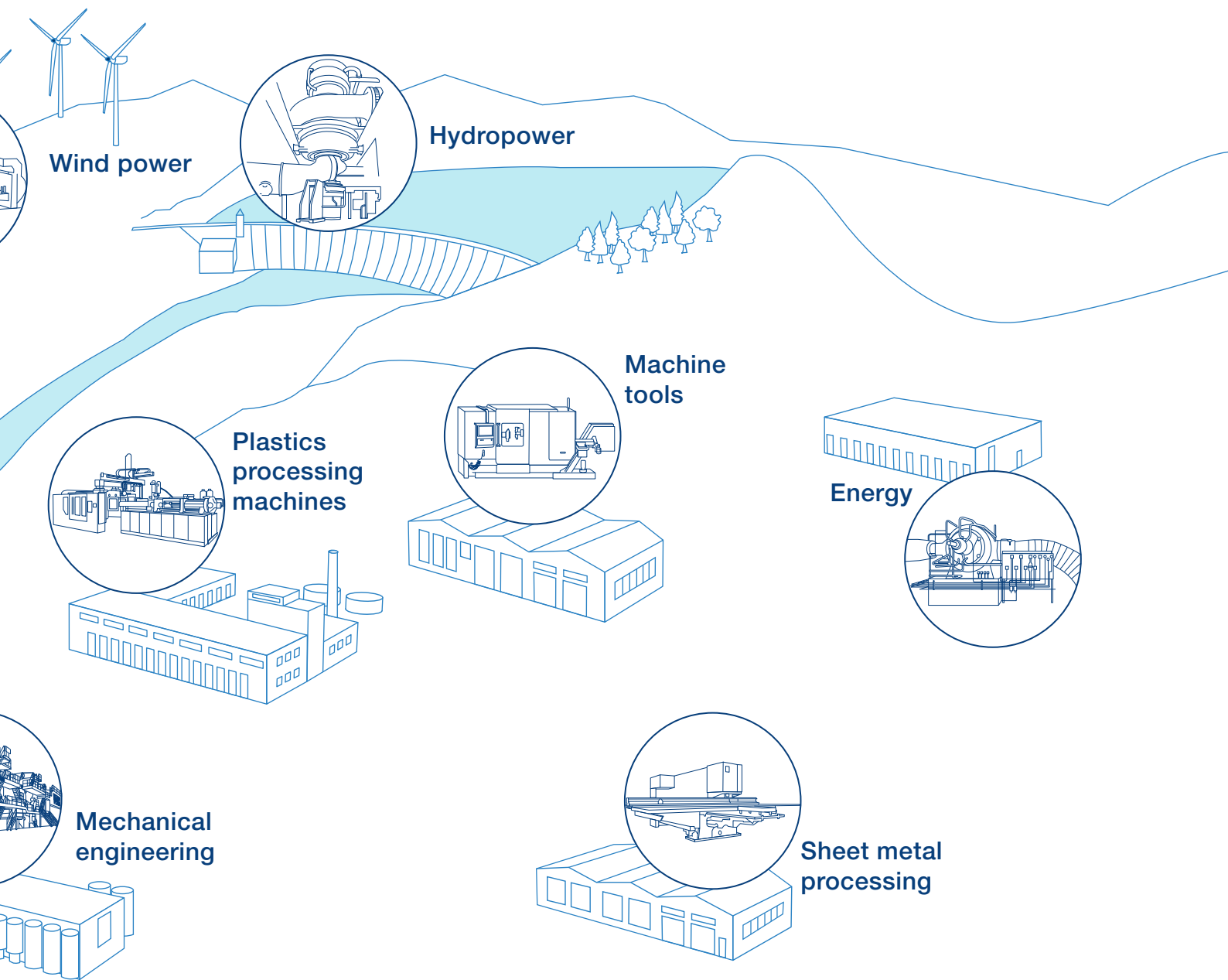






# Application areas







# Innovative drive systems

With tailor-made plug-and-play solutions that have been developed based on our extensive expertise derived from over 50 years' worth of experience, we deliver the entire solution from a single source.

In addition to conventional systems with a hydraulic power pack, actuators, control electronics and control valves, we also develop self-contained press drives, self-contained servo

drives and servo drives with variable-speed internal gear pumps. Our in-depth industry knowledge and professional service is aligned with our digital expertise, which guarantees a high-performance system.



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**“Drive systems that meet customer expectations and needs are continuously evolving. Our business evolves with the times and we grow with customers. We strive to provide better, faster and more accurate technology – anytime and anywhere.”**

**Bert Brahmer**, Managing Director Voith Turbo Industry

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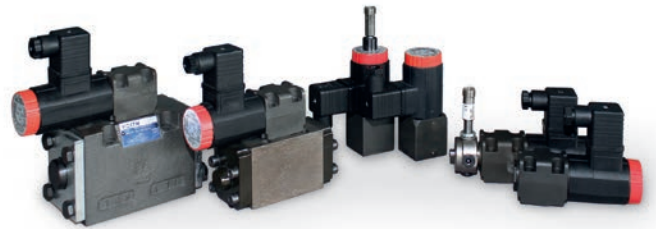


# Precise valve technology for high-performance systems

Demanding hydraulic systems require exceptional valves. High dynamics and extremely short response times ensure that hydraulic systems receive optimum regulation and control characteristics. The compact design of our valves simplifies integration into your machine or plant. In addition to directional control valves, flow control valves and pressure valves, we also develop sandwich plate valves and servo valves.

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## Directional control valves





# Internal gear pumps for energy-efficient drives

Used in countless low-, medium- and high-pressure applications, internal gear pumps from Voith ensure high volumetric and mechanical efficiency and low-pressure pulsation. At nominal speed, the overall efficiency is often 5 to 10 % better than comparable pumps available on the market, making it the ideal solution for constant and variable speed drives. The pumps are available as single pumps, pump combinations, in power packs, as variable speed pumps, servo pumps and servo pump units.

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IPS high-pressure internal gear pump in combination with servomotor as variable speed drive

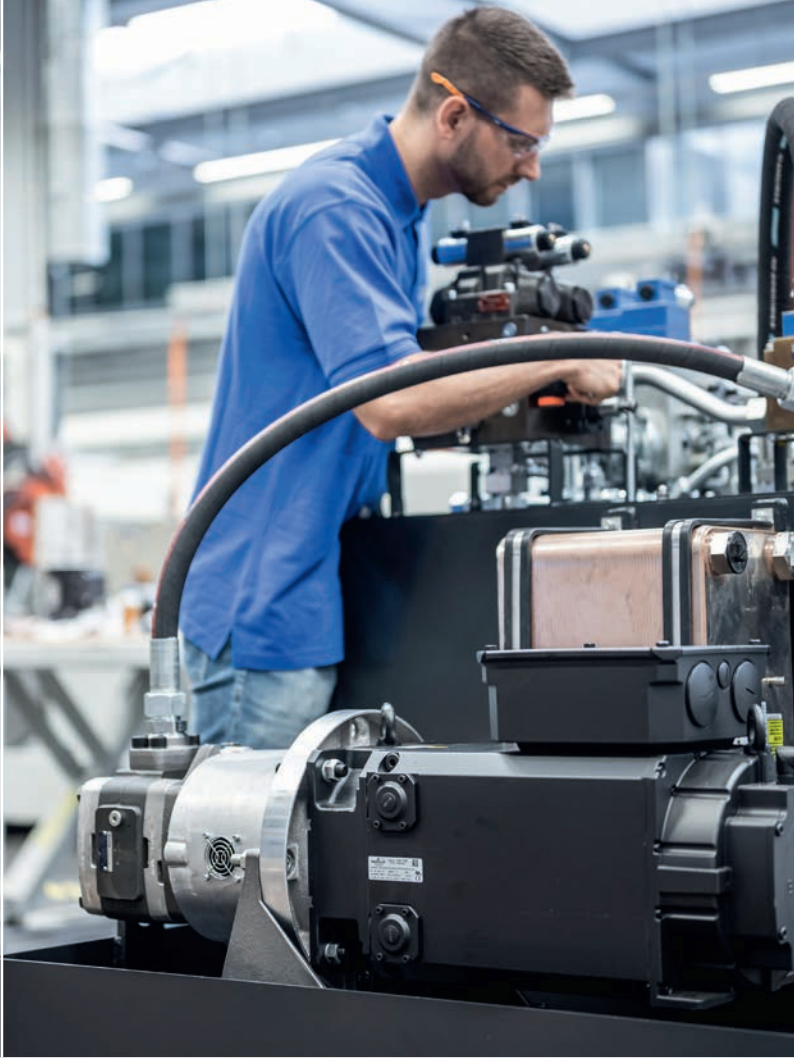
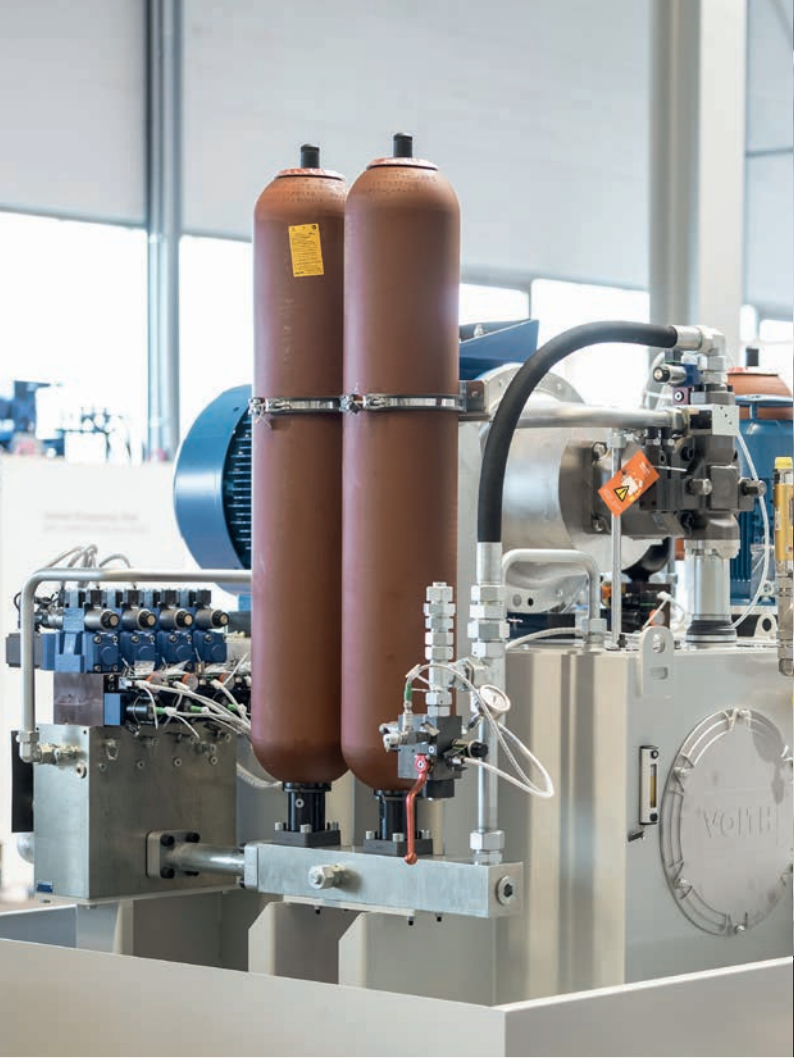


# Customized hydraulic power packs for specific requirements

Low energy consumption, reduced cooling capacity and easy integration into different machines or systems can be achieved with the compact construction and energy-efficient design of our power units.

In order to constantly meet the planned technical and economic requirements, Voith supports the individual product development process and offers comprehensive consulting and detailed planning.







# Self-contained drives

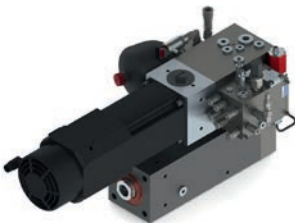
## Resource-friendly, energy-efficient and highly productive

Thanks to high energy efficiency, overload safety and virtually wear-free operation, self-contained drives from Voith are suitable for practically all linear movements that require high dynamics and precision. The simplicity of using electromechanical drives is combined with the power density and durability of hydraulic power transmission.

Rapid development, assembly and commissioning are just some of the countless benefits experienced when using our self-contained drives.

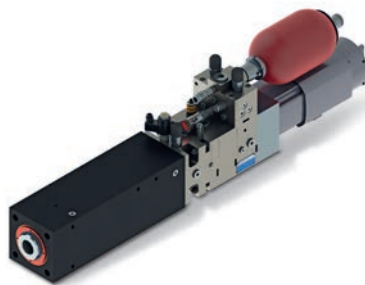
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Self-contained servo drive CLSP



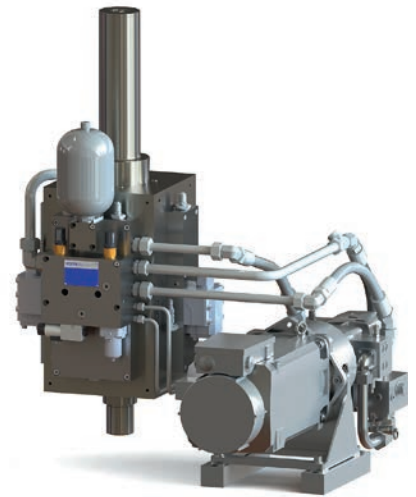
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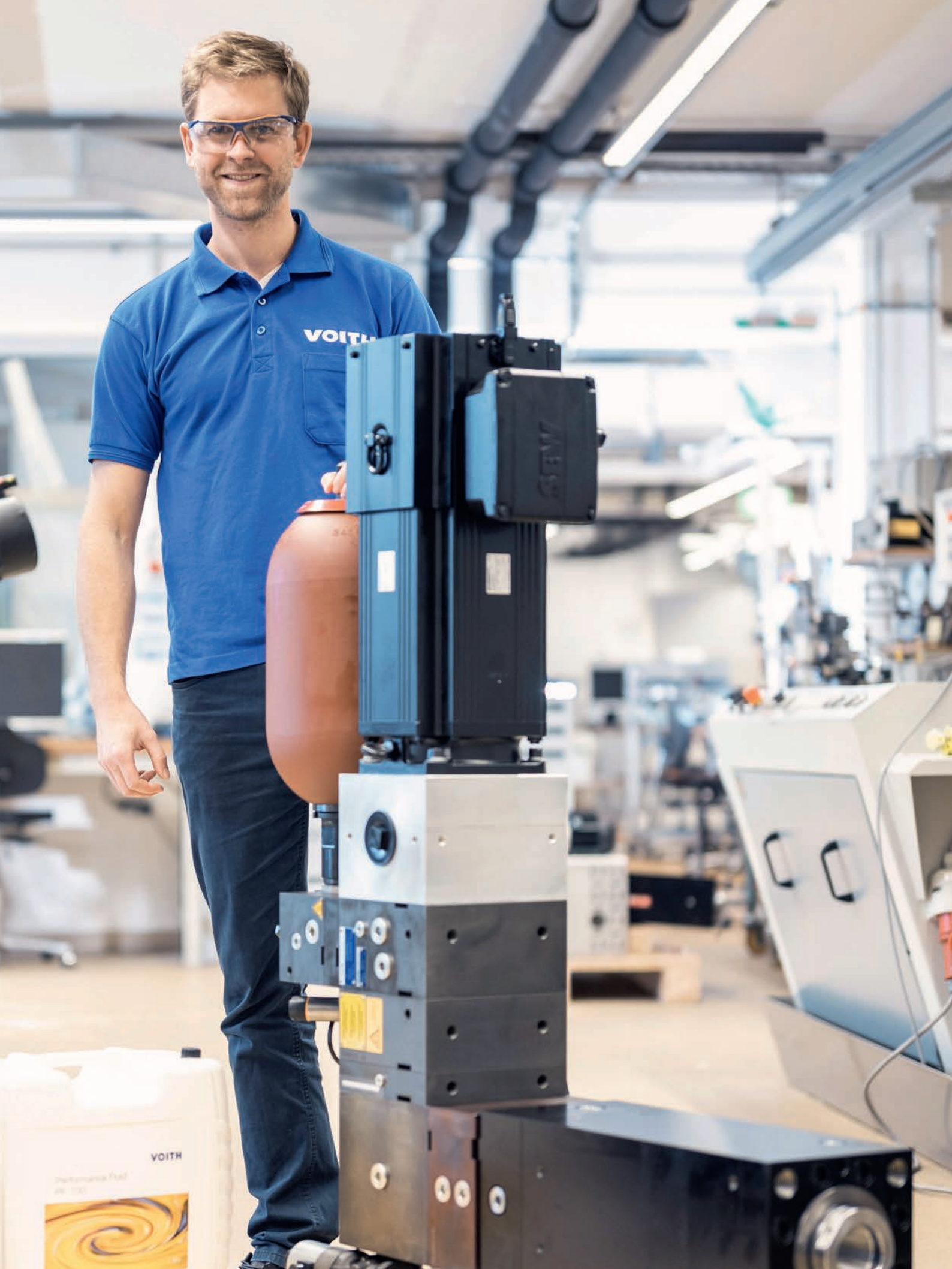
Self-contained servo drive CLDP



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Self-contained press drive PDSC





# Performance-enhancing electronics

## For optimum operation of hydraulic systems and components

Enabling high machine productivity with short cycle times, our electronic devices take over all control and monitoring tasks. Our solutions include digital axis controls as well as amplifiers for controlling servo valves. Additionally, Voith assists in shortening the switching time of directional valves. Intelligent application software also maps all process-relevant control and monitoring data enabling the drive system to become diagnosable. This reduces downtimes and increases machine productivity.





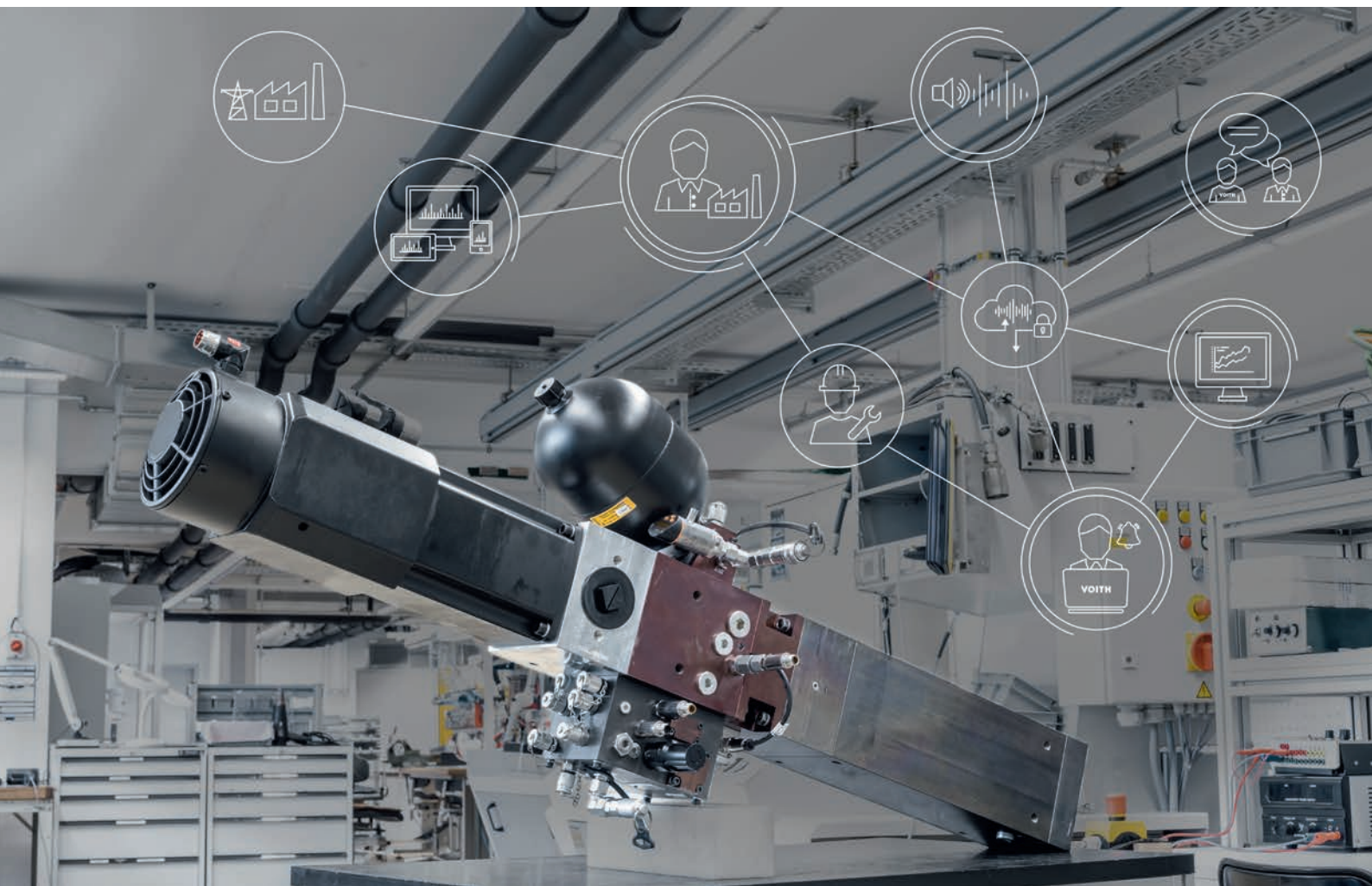
# Intelligent drive systems

## Digital solutions for Industry 4.0

Increasing productivity times and machine availability are achieved with progressive hydraulic and hybrid servo electro-hydraulic solutions. In the context of digitization, data acquisition and the analysis of all machine components becomes necessary. Voith therefore equips its hydraulic systems and components with sensors that accurately record the status of the individual processes. This enables operators to monitor their hydraulic systems and continuously increase the productivity of their systems.

## Condition monitoring and predictive maintenance

Our components record and transmit a wide range of operating parameters, including pressure, acceleration and temperature. Further data such as oil level, filter condition and plant efficiency can be collected for condition monitoring. The servo inverter transmits this information to software, where the data is stored and ready for retrieval. Voith intelligent hydraulic systems can thus detect deviations and initiate predictive maintenance. The need for maintenance is recognized early, maintenance cycles are planned in advance, and machine and system downtimes are significantly reduced. On-site service calls can therefore be reduced by up to 70 percent.



# Reliable service for maximum productivity

In order to maintain high quality and service life of our products, correct maintenance and service are of utmost importance. We guarantee the maximum productivity and performance of our hydraulic systems and components, ensuring the greatest possible availability – for you, on-site.

## Our Service – Part of Your Business.

Reduction of downtime and the increase in reliability, safety and efficiency of all hydraulic systems and components is ensured with our network of service technicians and engineers.

From maintenance and repair of small components to on-site service, individual consultation and optimization to the complete retrofit of a large plant – we stand by our customers' needs with expertise and know-how.

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Technical service &  
agreements



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Spare parts &  
replacement machines



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Maintenance, repair &  
overhaul

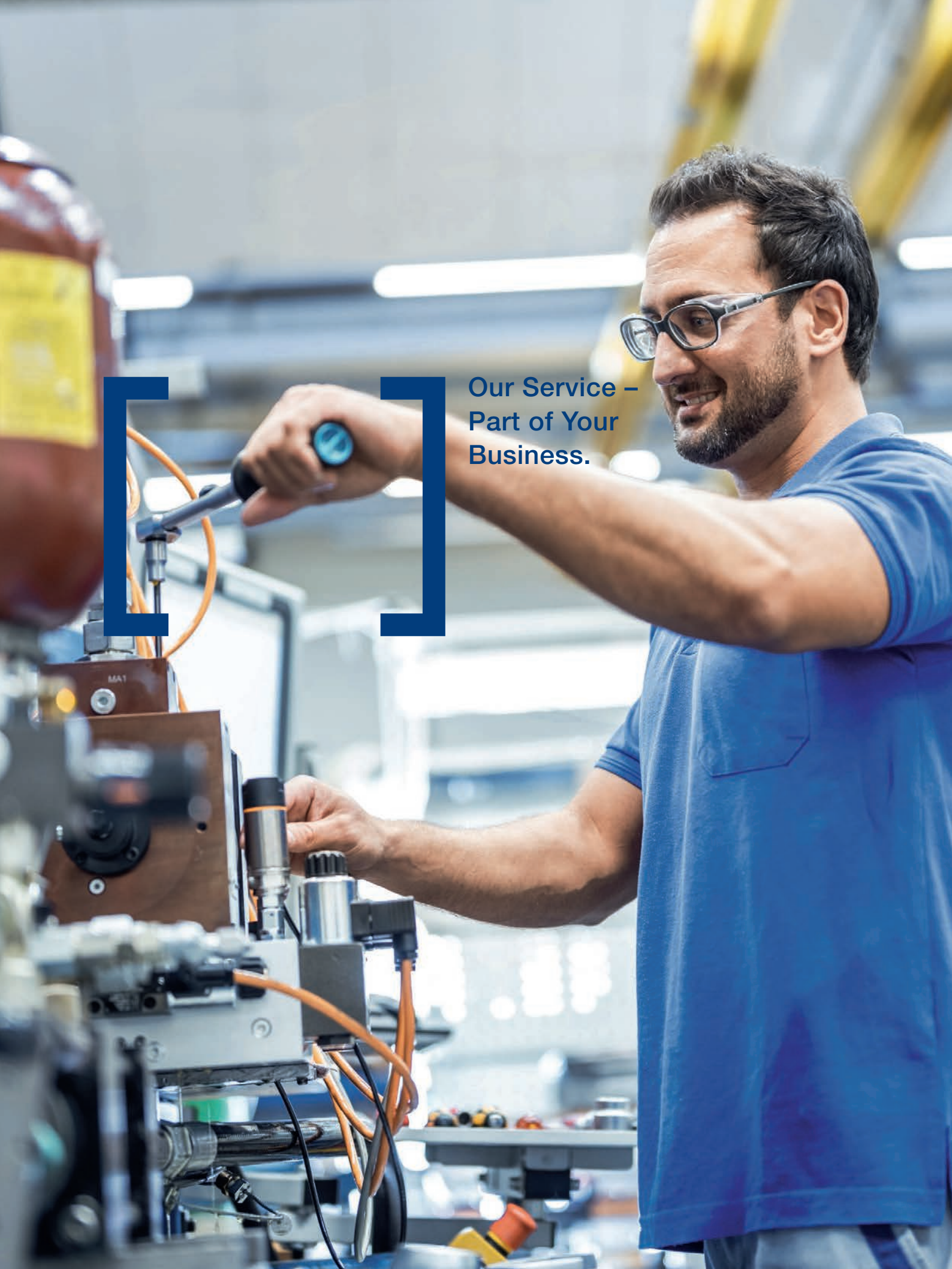


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Retrofit &  
modernization







**Our Service –  
Part of Your  
Business.**



# A wide range of applications

High durability, reliability and availability are assured by our robust hydraulic designs. Their high power density in both stationary and mobile machines as well as standardized products complement the service package.

## Application fields

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### Sheet metal working machines

- Punching machines
- Nibbel machines
- Notching machines
- Plate shears
- Sheet metal working machines in general

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### Energy

- Hydropower
- Wind power
- Gas turbines
- Steam turbines

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### Press applications

- Hydraulic press applications
  - Joining press applications
  - Clinching and riveting press applications
  - Peripheral mechanical press applications
  - Press feeding technology
  - Press security
  - Folding press applications
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### Mechanical engineering

- Wire processing machines
- Shoe machines
- Wood processing machines
- Packaging machines
- Recycling machines

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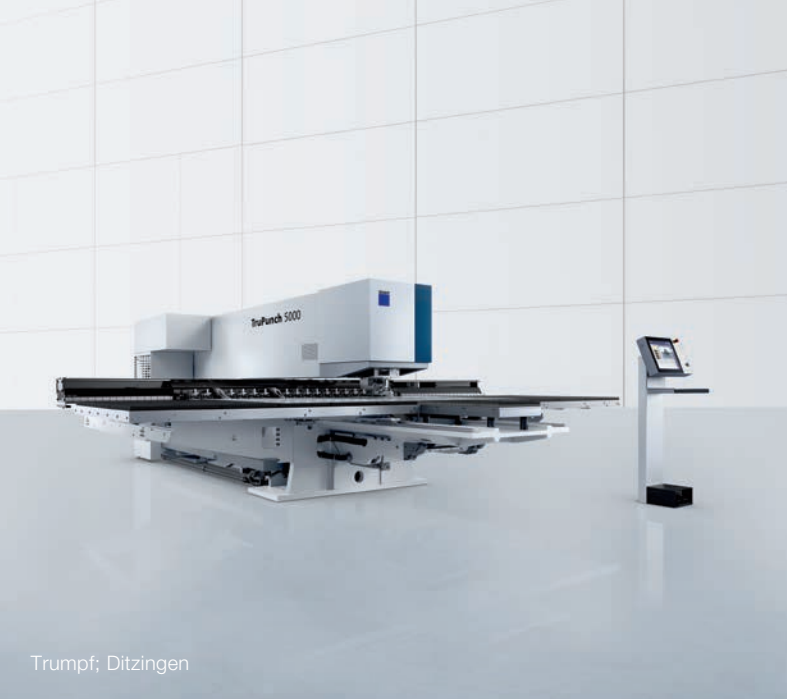
### Cutting machine tools

- Machining centers
- Lathes
- Honing machines
- Grinding machines

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### Plastic machines

- Injection molding machines
  - Blow molding machines
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Trumpf; Ditzingen



Index Werke; Esslingen



KraussMaffei; Munich



Voith Paper, Perlen, Switzerland



Voith Hydro, San Esteban, Spain

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**VOITH**