



HYDAC INTERNATIONAL

**Fluid Technology,
Hydraulics and Electronics.
Worldwide.**

Over 45 Years of Expertise, Innovation and Quality. From **HYDAC**

With more than 7,500 employees, 45 overseas subsidiaries and over 500 sales and service partners worldwide, we are in close contact with our customers, providing engineering advice, production, installation and service. The high proportion of international business is further evidence of HYDAC's global presence.

With our interdisciplinary network which links expertise, innovation, quality standards, customization and service all over the world, we are best placed to fulfil the exacting demands of the international market.

The knowledge and skill we have gained in over 45 years in the most demanding projects in diverse sectors of industry means that HYDAC industry and product specialists speak our customers' language.

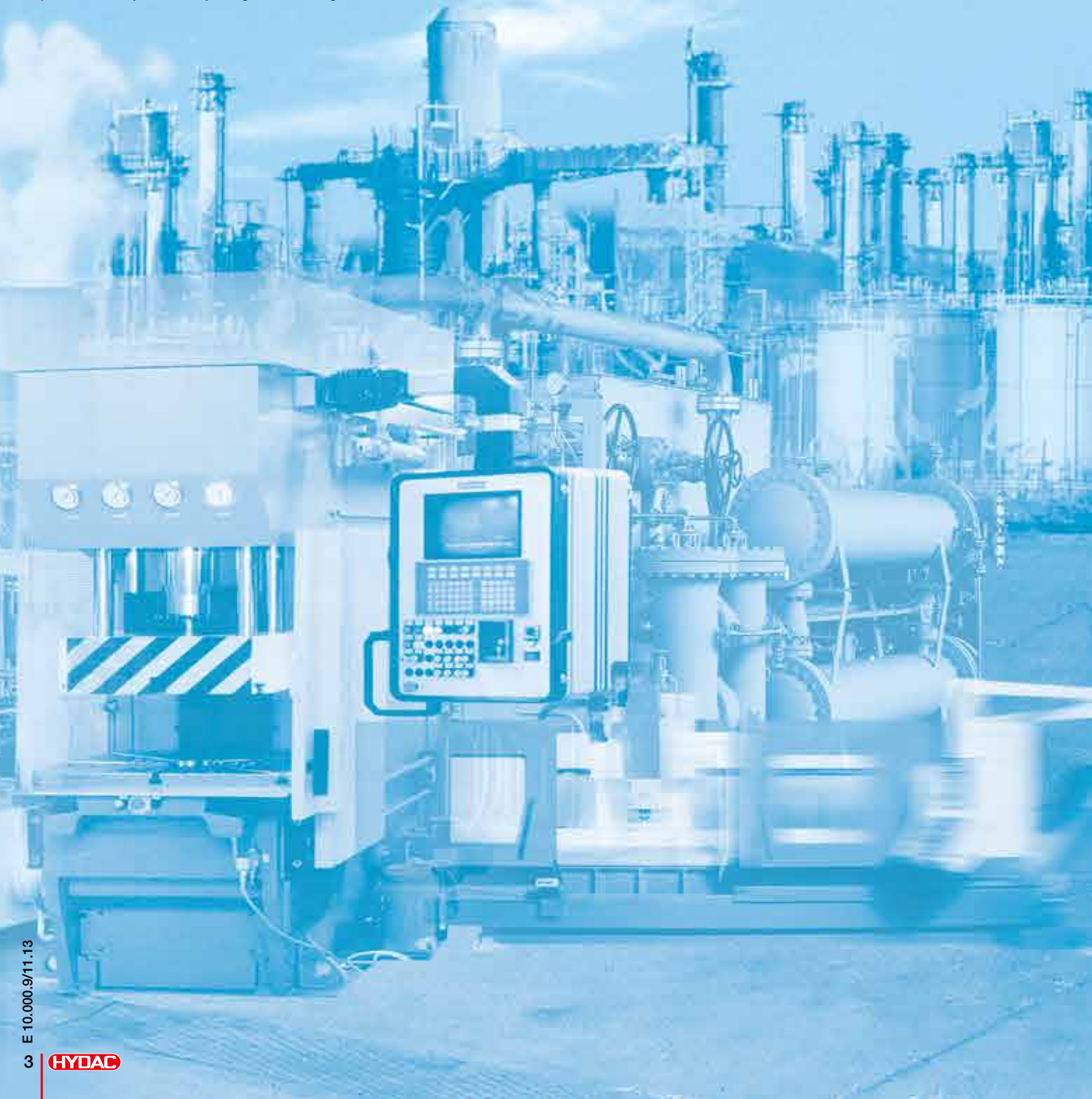
No matter what the job entails or where in the world you need us, we are there to help you find the best solution – with our expertise, innovation and quality. Using our components, systems and service. In machine and system building, and in process engineering.

Components, Systems and Service. All from one Company. From **HYDAC**

Our customers' requirements define the scope and complexity of our fluid engineering solutions.

Our products range from individually designed components in the fields of fluid engineering, hydraulics and electronics right up to complete systems for specific functions.

All components and systems are conceived and implemented in-house. Experienced industry and product specialists develop innovative products, efficient solutions and processes for high-quality and cost-effective production. Our international production facilities are located close to the customer and we represent quality: "Made by HYDAC".



Filtration Technology

Components and systems for removing solid, liquid and gaseous contamination and water from hydraulic, lubricating, flame-resistant and biodegradable operating fluids.

HYDAC filtration products meet market demands:

- High particle removal over a wide differential pressure range
- Low pressure drop, also for cold starts
- High level of stability
- High contamination retention, longer service intervals
- Reduced installation dimensions and machine-specific housings
- Ultra-modern laboratory and test rig technology



The products

- In-line filters, up to 450 bar, $Q_{max} = 15,000 \text{ l/min}$
- Offline filters for extreme contamination
- Filter elements, filter material: glass fibre, metal fibre, wire mesh, paper and incinerable all-plastic
- Filtration rating: $3 \mu\text{m} - 200 \mu\text{m}$
- Clogging indicators: visual, electrical, electronic
- Tank breather filters, filtration rating: $3 \mu\text{m} - 10 \mu\text{m}$
- Stat-Free elements
- Guaranteed reliability thanks to Quality Protection
- Diesel pre-filtration

Typical applications

- Oil hydraulics, lubrication technology
- Machine tools, plastics machinery
- Foundry machines
- Mobile machinery, automotive
- Steel construction, hydro-engineering, mining
- Off-shore, ship-building
- Power plant technology
- Transmission systems
- Paper mills
- Stage / platform engineering
- All types of test rigs
- Cleaning systems

Filter systems technology

Mobile and stationary components and equipment for:

- Separation of solid, gaseous and liquid contaminants from hydraulic fluids, lubricating oils and emulsions.
- Extended maintenance intervals and service life of operating media.
- Monitoring, analysis, diagnostics and documentation of operating conditions for original equipment and for retrofitting machines and systems.
- Condition monitoring using fluid sensors



The products

- Filling units
- Offline units OLF
- Automatic filtration units
- Dewatering systems FAM
- Contamination controllers FCU
- Oil condition sensors CS
- Water sensors AS
- Transformer care units TCU
- Digital analysis equipment
- Portable data recorders
- Sampling equipment
- Measuring and analysis kits

Typical applications

- Iron and steelworks
- Wind turbines
- Foundry equipment
- Cement works
- Paper mills
- Large transmissions
- Turbines
- Large compressors
- Construction, agricultural, forestry machinery
- Plastics processing
- Machine tools
- Off-shore, shipbuilding
- Transformers

Process filtration technology

Components, elements and systems for separating low and high viscosity fluids, aggressive fluids and gaseous media.

Process-specific engineering, computer-aided, simultaneous designs, as well as testing and certification are undertaken in laboratories and on test rigs specially equipped for process technology.



The products

- Stainless steel and carbon steel inline filters for pressures up to 660 bar and temperatures up to 550 °C
- In addition, stainless steel filter elements (cleanable) for differential pressures up to 210 bar and temperatures up to 440 °C
- Automatic backflush filters for flow rates of up to 10,000 m³/h for the filtration of cooling and circulating water
- TwistFlow Strainer ATF
- Gas Seal Filter GCF

Typical applications

- Chemical & petrochemical industries
- Water cooling systems
- Washing systems
- Waste water & sewage treatment
- Water supply plants
- Lubrication systems
- Paper machinery
- Hydroelectric power stations
- Rolling mills
- Machine tools
- Cooling lubricant treatment plants
- Off-shore, shipbuilding
- Snow cannons
- Agricultural irrigation systems

Cooling systems

Modular series of components and systems in cooling technology.

Application-based engineering designs, developed and manufactured in product-orientated laboratories, testing and production facilities for applications in mobile and industrial machines and systems.



The products

- Oil / air coolers up to 1,000 kW
- Oil / water coolers up to 10,000 kW
- Fluid / air cooling systems
- Fluid / water cooling systems
- Pump-transfer cooler filtration units
- Compressor cooler units

Typical applications

- Machine tools
- Hydraulic power units
- Hydrostatic drives
- Mechanical transmissions
- Wind turbines
- Plastic injection moulding and die-casting machines
- Rail technology
- Mobile machines
- Automotive industry
- Turbines
- Compressors

Accumulator technology

Components and systems of all types of hydraulic accumulator – bladder, piston and diaphragm accumulators, hydraulic dampers, silencers – worldwide the most comprehensive accumulator range, providing the best solution for every application drawn from over 45 years' experience.

HYDAC accumulators are manufactured and supplied with approval certification in accordance with the pressure equipment directive and laws of the relevant country.



The products

- Bladder accumulators
- Piston accumulators
- Diaphragm accumulators
- Metal bellows accumulators
- Low weight accumulators
- Pulsation dampers
- Suction flow stabilisers
- Silencers
- Safety and Shut-off blocks
- Charging and testing units
- Monitoring of operating conditions
- Nitrogen charging units
- Mounting elements
- Accumulator stations
- Accumulator sets

Typical applications

- Energy storage
- Volume expansion compensation
- Leakage compensation
- Maintaining constant pressure
- Temperature equalization
- Minimisation of pump pulsations and pressure shocks
- Noise-damping
- Media separation in lubricating systems
- Weight equalization
- Hybrid applications

Hydraulic cylinders

Cylinders and cylinder systems with international approvals including installation, commissioning and maintenance. Repairs and general reconditioning of cylinders, including appropriate surface finishing.

The whole value-added chain, from development through to production is accomplished in-house.



The products

- Cylinders
- Driving cylinders
- Zone cylinders
- Direction cylinders with cooling
- Telescopic cylinders
- Locking cylinders
- Tension cylinders
- Suspension cylinders
- Excavator cylinders
- Mining cylinders
- Pneumatic cylinders
- Rotary joints
- Cylinder systems including all peripheral devices such as valves, control units, sensors and measuring systems

Typical applications

- Telescopic cranes
- Vehicle outriggers
- Excavators
- Road milling machines
- Rope tension cylinder
- Dumpers
- Mining
- Wind turbines
- Hydroelectric plants
- Thermal power plants
- Coal mills
- Weirs and dams
- Steelworks

System engineering

Complete systems, sub-systems and complex, controlled drive units, including electrical equipment and electronics for mobile and industrial machines and systems.

- System-orientated advice and simulation
- Application-based engineering
- Customized, application-orientated and economic solutions
- Function integration and standardisation concepts
- Documentation and international production standard



Typical applications

- Oscillation-damping suspension systems with level control for agricultural, forestry and construction machinery, vehicles and cabs
- Compact, modular drive units with integral control valves and function components for industrial and mobile applications
- Hydraulic power units and control blocks for power plants, the steel industry, presses and marine technology etc of every size and level of complexity
- Compact servo systems and actuators
- Accumulator stations for energy supply, emergency operation, crash systems
- Circulation lubrication systems up to 30,000 l tank volumes for turbines, compressors, large-scale manufacturing operations and paper machinery
- Cooler filtration plants
- Complete pump series for industrial system technology

Compact hydraulics

Components, modules, sub-systems, drive units and controls including electronics in both mobile and industrial hydraulics.

- Range of valves in cartridge technology. Pressure, flow control, shut-off, directional poppet and spool valves, proportional and special valves in nominal sizes 3 - 20, with bodies for inline mounting, manifold mounting and sandwich-plate mounting
- Industrial valve range in manifold and sandwich-plate design, with pressure, flow control, shut-off, directional seat and spool valves, proportional and control valves with standard interfaces
- 2-way cartridge valves



- Control blocks with standard controls
- Modular control block systems for almost all hydraulic controls in the stationary and mobile sector, economic even for small quantities
- Individual control block systems with accumulators, filters, sensors and other components from HYDAC provide compact and ready-to-install solutions
- Medium pressure power units in compact design up to 250 bar in DC or AC versions. Can be selected from a wide catalogue range or designed for a specific application. Can be used in stationary and mobile applications.
- High pressure power units up to 500 bar with piston pumps and oil-immersed AC motors. With wide range of flexible combination options of different control modules.
- DC power units for complex and challenging forklift applications with built-in pressure filters, proportional and sensor technology. Forward-looking – with a high level of energy efficiency.

Control technology

Directional control valves in sectional or monoblock design, with standard types of actuation from mechanical to electro-proportional in both Open Center and Closed Center designs. Special blocks for additional auxiliary hydraulics or pilot oil control.

The HYDAC service package: application advice, project management, prototyping, system architecture, software development and risk analysis.

Quality begins right away with our own castings manufactured at our in-house foundry which specializes in grey cast iron and spherical graphite iron. Design and machining of housings and piston valves using specific programs and tools.



The products

- Directional control valve blocks in OC and CC
- Cartridge valve blocks
- Special valve blocks
- All valve blocks available in monoblock or sectional design
- Types of control possible – hydraulic, electrical, proportional or black / white
- Mobile controllers
- Displays
- Software
- Joysticks
- Oil level sensors
- Electronic pressure transmitters
- Linear position sensors

Typical applications

- Cranes
- Forestry cranes
- Wheel loaders
- Mini excavators
- Road construction machinery
- Municipal vehicles
- Tractors
- Front loaders
- Agricultural machinery
- Dumpers
- Special commercial vehicles

Electronics, measurement technology, Solenoid and vehicle technology

Components and systems in electronic measurement technology, control, feedback and solenoid technology for stationary and mobile applications.

Solutions for standard applications and applications with increased safety (e. g. ISO 13849, IEC 61508).

Adapted standard products and customized solutions, and system developments for control and feedback tasks.



The products

Measurement technology:

- Pressure transmitters
- Electronic pressure and
- Temperature switches
- Temperature transmitters
- Flow rate transmitters
- Electromechanical flow switches
- Electronic level switches
- Ultrasonic distance sensors
- Linear position sensor systems
- Inductive displacement transducers and position monitoring
- Portable data recorders
- Proportional control amplifiers
- Mobile controllers

Solenoid technology:

- Switching / proportional solenoids, EX version solenoids

Vehicle technology:

- Valves and systems

Typical applications

Industrial/mobile applications, e.g.

- Presses
- Plastic injection machinery
- Machine tools
- Test rigs
- Mobile machines
- Automotive
- Paper machinery
- Power plants
- Steelworks equipment
- Oil and gas industry

Accessories

Ball valves and ball valve controls for fluid and gaseous media.

Indicators and monitoring equipment for fluid level and pressure.

Rigid and flexible mounting elements and systems for pipes, hoses, cables, reservoirs and machine components.

Piston and coaxial valves to control gaseous, fluid, colloidal, abrasive, contaminated and aggressive media, at negative and positive pressure.

Standardized products and customized solutions.



The products

- Two-way ball valves
- Three-way ball valves
- Three- and four-way ball valves
- Three- and four-way function blocks in carbon steel and stainless steel in threaded, flange and cartridge designs
- Fluid level gauges with visual and visual / electronic indication
- Mounting elements to DIN 3015
- Quick release swivel bolt clamp
- Swivel bolt clamping band
- Hose clamps
- Supports
- Clamps for cylinders
- Clamp assemblies
- Bell housings
- Piston valves
- Coaxial valves

Typical applications

- System engineering in hydraulics, gas, lubrication, chemical and petrochemical technology
- General machine building
- Pipeline construction
- Vehicle and rail technology
- Agricultural, construction and forestry machinery
- Off-shore and marine
- Machine tools

Fluid Engineering

HYDAC Fluid Engineering is a total concept of technical services for our end customers which aims to:

Increase machine availability and optimize hydraulic equipment and systems, as well as reduce operational costs.

Provide expert training for specialist staff through our **Training Center**.

We offer full maintenance and commissioning services as well as inspections, modifications and repairs through our **Servicenter**. For this purpose we have a comprehensive range of products for all fluids, such as oils, lubricants, cooling lubricants, water, air and gases.



Service Center

- In-house repairs
- Analysis and oil analysis (component cleanliness analysis)
- Commissioning, inspections and repairs worldwide
- Contracting (optimization and conversion projects)
- Fluid handling (filling with new oil, tank cleaning, oil changes)

Training Center

- The broad spectrum of training on offer is focused exclusively on the needs of our customers and is constantly being updated in line with the latest technology and international legal requirements.
- Latest training material (hydraulic trainer)
- E-learning via internet

Engineering Advice, Development, Manufacturing and Service. Global Presence, Local Availability.

So that we can keep pace with the worldwide operations of our customers, we go right to the place of installation – with over 45 subsidiaries and well over 100 branches. HYDAC's engineering experts and industry and product specialists can therefore be found worldwide:

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Economical Solutions for almost all Industries.

Utilizing the experience gained from numerous international projects, our industry and product specialists quickly arrive at the most economical solution, however new and challenging the problem may be. It makes no difference whether it is a case of developing and manufacturing individual stationary or mobile systems, or implementing series production solutions.

Your systems are further protected by worldwide approvals from the relevant certifying bodies, both national and international.



Global Presence. Local Expertise. www.hydac.com



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