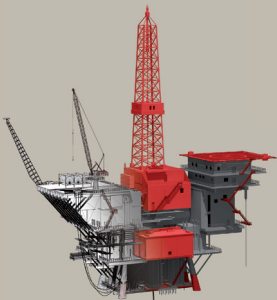
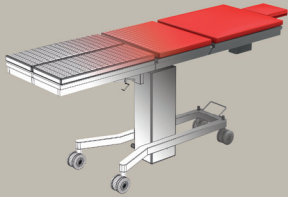
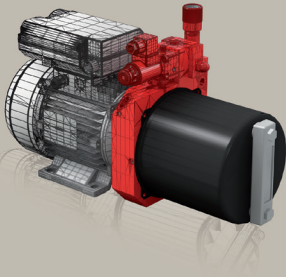
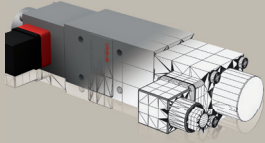
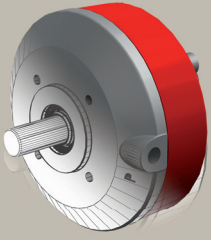


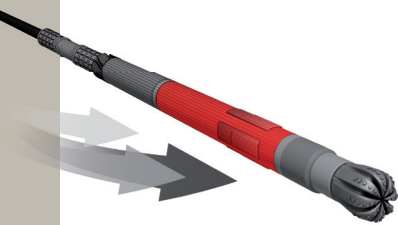
BIERI
HYDAC INTERNATIONAL



**Your Partner for
Micro and High Pressure
Hydraulics**



For any application where space is limited and intelligent solutions are in demand, we are your competent solution partner. From components to systems.



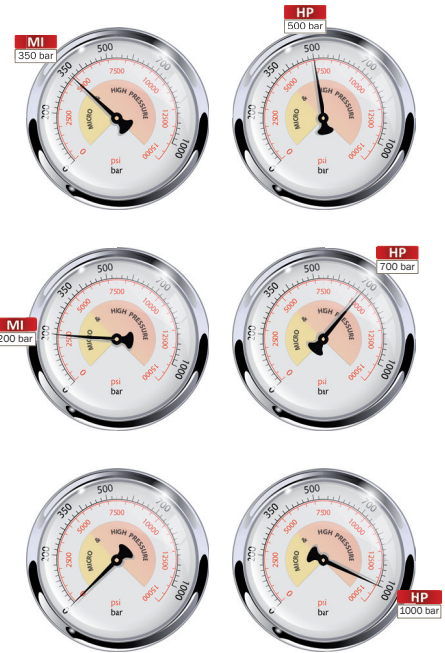
About Us

BIERI Hydraulik

BIERI Hydraulik AG, more than 60 years experience and quality in Hydraulics and since 2011 part of the HYDAC Group of companies, is nowadays a leading international supplier of hydraulic and electrohydraulic solutions in the field of micro and high pressure hydraulics.



- For any application where space is limited and intelligent solutions are in demand, we are your competent solution partner. Our innovative solutions - from **standard components** to **customer specific components** and from **sub-systems** to **complete systems** - essentially contribute to the succes of our customers.
- Through the HYDAC sales and service network, as well as through some selected independent distribution partners, we are always close to our customers and their applications.
- We cultivate a close partnership with our customers and suppliers, based on trust, profitability and sustainability.

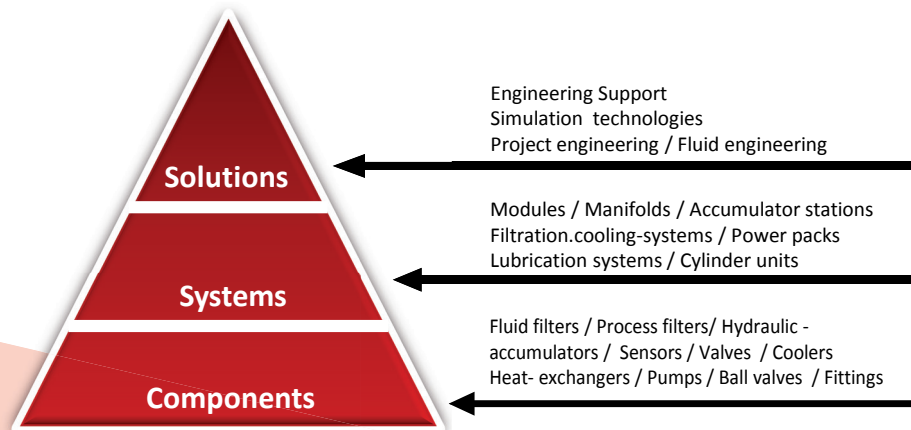


HYDAC

Hydac Group

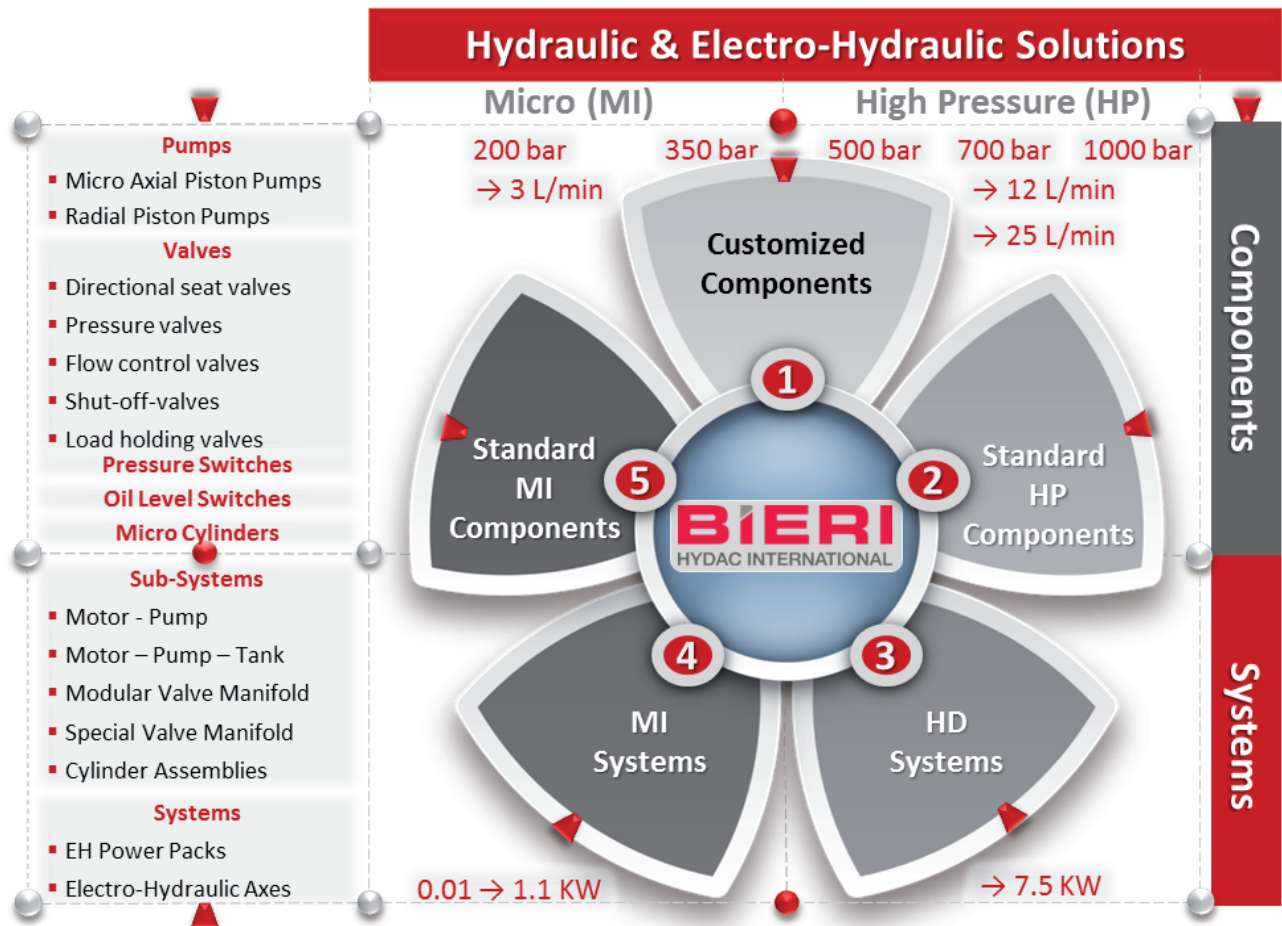
HYDAC is your competent partner for all projects requiring fluid technology in connection with hydraulics, electronics and engineering.

- HYDAC was founded in 1963 as a company for hydraulic accessories and is today an internationally active company group with over 8000 employees, 50 branch offices and 500 trade and service partners world-wide.
- HYDAC components can be found in all areas of industrial and mobile hydraulics
- HYDAC solutions are based on
 - Competence for systems
 - Flair for innovation
 - Feeling for fluids.



Our Products

5 Best in Class Product Lines



Your Benefits

Features and Advantages of our Solutions

Compact design, high power density, robustness, durability and functionality are among the undisputed strengths of hydraulics. BIERI Hydraulik - as a leading international solution provider in the field of micro and high pressure hydraulics - sets the benchmark for these generally accepted advantages of hydraulics even higher.

Our solutions are created to help you - our customers - design your equipment in a space-optimized, energy-efficient way and with increased functionality. All this of course based on proven Swiss reliability.

Please let yourself be convinced.

Our Solutions stand for:

<p>Space - Optimization</p>	<p>Multi - Functionality</p>	<p>Energy - Efficiency</p>	<p>Reliability - Sustainability</p>
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Form Components to Systems

Our Customer Approach

From the potential benefit of our products to the perfect solution for you

You – our customers – are in the focus of everything what we are doing. Our goal is to provide you with the most suitable product and to assist you in the designing or redesigning of your hydraulic equipment, which can give you a competitive advantage.

Our international network and partnership approach, our innovative strength, flexibility and reliability, can help you to reduce unnecessary interfaces and benefit from perfectly functioning solutions. When and wherever you need us, from the **standard component** to **customer-specific components** and from **subsystems** to complete systems in the area of micro and high pressure hydraulics.

customer & market-oriented

Through close personal contact with you, we are inspired by your individual ideas and wishes to find and develop efficient solutions.

In this way, we maintain close partnerships on all hierarchical levels and throughout the entire process: from application advice to product definition and even to the logistic and after-sales concept.

With great implementation skills and passion for detail, we will contribute to make your equipment more competitive and with quicker availability. That is what drives us and is the key to our mutual success.

innovative & flexible

As a partner with solution-finding skills, we understand the challenges of your markets and we have the skills to meet your specific requirements. Therefore, the search for a solution begins with the first joint discussions. We critically question existing solutions, discuss innovative approaches and decide together the best individual solution for you. Our company structure allows a flexible adaptation to your own needs.

Our application and product know-how – Your competitive advantage.

organized & reliable

Our internal organization – from order processing, production, assembly and logistics – is designed to meet your requirements. Again, our maxim is: the right product at the right time, in the right place, in the correct quantity and through the quality of internal processes and delivery to you.

Our reliability – a guarantee of our partnership.



BIERI Hydraulik -

Your partner for individual solutions

Market Segments and Applications

Powerfull equipment in demanding applications

We have collected and implemented know-how in a targeted manner for more than 60 years. That is why we know very well how different the specific requirements for different markets, industries and applications can be. And we are aware of how quickly a technological advantage is gained or even overtaken, if one does not always strive to develop oneself further.

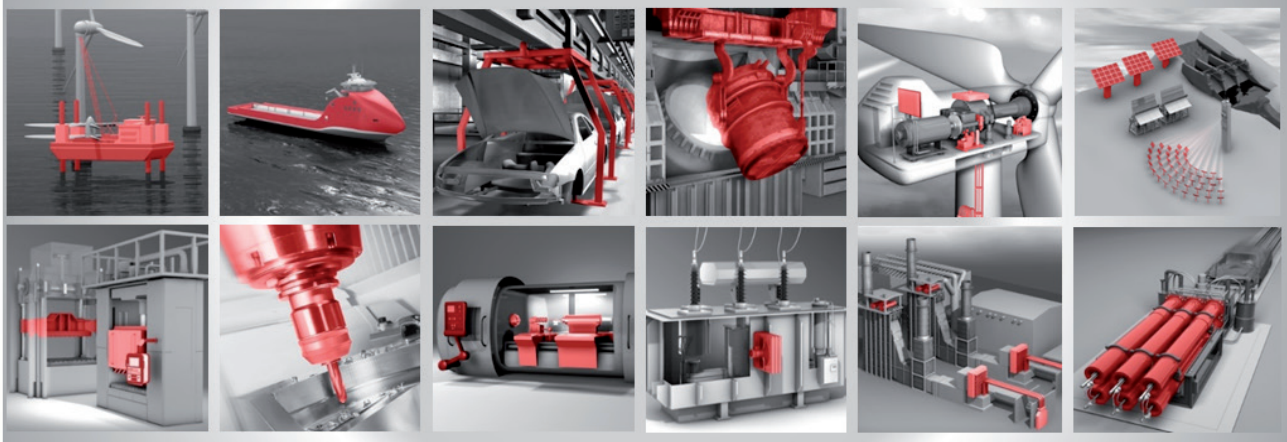
For that reason and for key applications, we have within Bieri Hydraulik and the Hydac Group experienced specialists, who are globally active and are fully focused on the requirements and trends of the industry. Optimal advanced technical solutions, targeted for these industries, are the result.

With our industry-specific solutions and our application knowledge, we can efficiently support you on the way to market success as your partner with thorough application knowledge in micro and high pressure hydraulics.

We are active in the following industries:



▪ Oil & Gas	▪ Clamping Technology & Jig construction	▪ Fire & Rescue Equipment
▪ Maritime Applications	▪ Machine Tools Cutting - auxiliary functions	▪ Testing Systems
▪ Medical Technology	▪ Machine Tools Forming – Clamping	▪ Energy & Power Generation
▪ Fun Park Safety Systems	▪ Machine Tools Forming – Small Presses	▪ Construction & Recycling
▪ Special Vehicles	▪ High-viscosity Lubrication Systems - Grease	▪ Lifting & Transport Systems
▪ Aerospace	▪ Hydraulic Tools	▪ Shipbuilding



BIERI Hydraulik -
Your solutions partner with application
Know-How

Micro and High Pressure Components

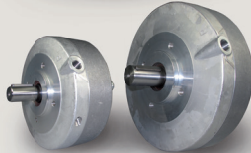
Best in Class Pumps: Micro; 500; 700; 1000 bar



Micro-Axial piston pumps AKP

Valve controlled on pressure and suction side. High volumetric efficiency with a wide speed range. Small mounting dimensions and low noise. 3 and 5 pistons.

p **250 bar, 350 bar, 500 bar, 800 bar**
 Vg / n 0,012 → 2.292 cm³/r; 100 → 5000 min⁻¹



Radial piston pumps BRK

Self priming, self venting. Valve controlled. High volumetric efficiency. 3, 5, 7 and 9 pumping elements.

P **500 bar, 700 bar, 1000 bar**
 Vg / n 0,24 → 8,14 cm³/r; 500 → 2000 min⁻¹



Radial piston pumps SRK-ATEX

For use in explosive environments also mounted outside of the hydraulic tank. Class II: gases, vapours, mists.

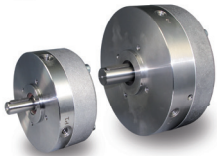
P **700 bar**
 Vg / n 0,47 → 6,33 cm³/r; 500 → 1800 min⁻¹



Radial piston pumps SRK

Self priming, self venting, valve controlled. Suitable for operation with poor lubricating mediums. 3, 5, 7 and 9 low friction pumping elements with low sliding speed.

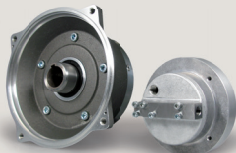
P **700 bar**
 Vg / n 0,47 → 6,33 cm³/r; 500 → 1800 min⁻¹



Multi outlet pumps MRK

Various outlets available on request. Self-priming, self-venting. Valve controlled. High volumetric efficiency. Number of outlets 2 to 9.

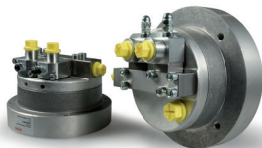
P **700 bar**
 Vg/Circuit / n 0,16 → 3,620cm³/r; 500 → 2000 min⁻¹



Radial piston pumps HRK

Compact design. Direct installation of motor, no coupling, no bell-housing. Version with hollow shaft, with or without pressure relief valve. 1 and 2 pumping elements.

P **700 bar**
 Vg / n 0,12 → 4,52 cm³/r; 500 → 3600 min⁻¹



Combination pumps KKP

Compact and lightweight. Integrated low-pressure shut-off valve and pressure protection valve. Self-venting. Design with hollow shaft. 2, 3 and 4 pumping elements.

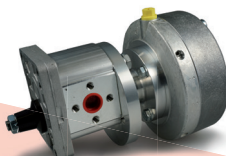
p **LP 160 bar, HP 700 bar**
 Vg / n LP 0,35 → 5,43; HP 0,12 → 2,71 cm³/r
 500 → 3600 min⁻¹ (KKP01/02); 500 → 2000 min⁻¹ (KKP03/04/05)



Combination pumps SKP

Hollow shaft. Optionally integrated low-pressure shut-off valve. Self-venting. 2 or 3 pumping elements HP stage.

p **LP 100 bar, HP 700 bar**
 Vg / n LP 4,45 - 16,71; HP 0,45 - 2,71 cm³/r 500→2000 min⁻¹



Combination pumps BKP

Combination of BRK pump and gear pump. Outstanding energy efficiency ratio. Fixed displacement, any installation position possible.

p **LP 250 bar, HP 1000 bar**
 Vg / n LP 4,0 → 61,1 ; HP 0,47 → 8,14 cm³/r 500 → 2000 min⁻¹

High Pressure Components

Best in Class Valves 500 bar



Seated valves WVM-6I

Direct operated and leakage free. With hardened closing elements as cone seat. 2/2, 3/2, 3/3, 4/2, 4/3 or 4/4 functions with positive or negative overlap. Solenoids with slide on coil technology (turnable). Good corrosion resistance.

p / size **500 bar / NG 6** | Q **25 L/min**



Seated valves WVM

Direct operated and leakage free. With hardened closing elements as cone or ball seat. 2/2, 3/2, 3/3, 4/2 functions with negative or positive overlap. Solenoids with slide on coil technology (turnable) or alternative actuation. Good corrosion resistance.

p / size **500 bar / NG 4** | Q **12 L/min**



Seated valves ATEX WVMX

Direct operated and leakage free. With hardened closing elements as cone or ball seat. 2/2, 3/2, 4/2 functions. Solenoids with slide on coil technology (turnable in 90° steps). For use in explosive environments Class II: gases, vapours, mists.

p / size **500 bar / NG 4** | Q **12 L/min**



Flow control valves SDM and SDRVM

Adjustable while under pressure with high-precision control. The setting can be locked by a counter nut. Throttle valve as cartridge or in manifolds as throttle or throttle check valve.

p **500 bar** | Q **25 L/min**



Shut-off valves 500 bar / NG4

Leakage free in closed position. Available as cartridge or in modular and stand alone manifolds.

p	500 bar		Q	25 L/min
	• Manual shut-off valve AVM		Q	25 L/min
	• Check valve RVM 45 L/min		Q	25 L/min
	• Pilot operated check valve ERVM		Q	63 L/min / NG 10
	• P. o. CV with decompression ERVPM		Q	63 L/min / NG 10



Pressure valves 500 bar / NG4

Direct operated poppet valve as cartridge or with modular- or stand alone manifolds. Outstanding stability over the entire flow range. Low hysteresis and exact pressure control and adjustment.

p / size	500 bar / NG 4			
	• Pressure relief valve DVM		Q	30 L/min
	• Pressure reducing valve DMM		Q	30 L/min
	• Unloading valve DAM		Q	40 L/min

High Pressure Components

Best in Class Valves 700 bar



Seated valves WVH

Direct operated and leakage free. With hardened closing elements as cone or ball seat. 2/2, 3/2, 3/3, 4/2 functions with negative or positive overlap. Solenoids with slide on coil technology (turnable) or alternative actuation. Good resistance against corrosion.

p / size **700 bar / NG 4** | Q **12 L/min**



Seated valves ATEX WVHX

Direct operated and leakage free. With hardened closing elements as cone or ball seat. 2/2, 3/2, 3/3, 4/2 functions. Solenoids with slide on coil technology (turnable in 90° steps). For use in explosive environments Class II: gases, vapours, mists.

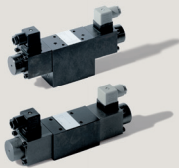
p / size **700 bar / NG 4** | Q **12 L/min**



Seated valves WVM-4B-Bi

Direct operated, leakage free and suitable for bidirectional flow, with hardened closing elements as cone seat. 2/2 and 3/2 functions with low pressure drop (Δp). Solenoids with slide on coil technology (turnable) or alternative actuation. Good corrosion resistance.

p / size **700 bar / NG 4** | Q **12 L/min**



Seated valves WV-700

Direct operated and leakage free. High duty cycle and long lifetime through hardened poppets and valve seats. 2/2, 3/2, 3/3, 4/2, 4/3 functions with positive overlap (exceptions see data sheet) and use of 1 to 4 valve cartridges. Solenoid or alternative actuation.

p / size **700 bar / NG 6** | Q **25 L/min**



Manual spool valves HSV700

Minimum weight. Excellent price-performance ratio.

p / size **700 bar / NG 6** | Q **25 L/min**



Flow control valves SD700 und SDR700

Adjustable while under pressure with high-precision control. The setting can be locked by a counter nut. Throttle valve as cartridge or in manifolds as throttle or throttle check valve.

P / size **700 bar / NG 6** | Q **25 L/min**



Pressure valves 700 bar / NG6

Direct operated poppet valve as Cetop 3 flangeable sandwich plate. Outstanding stability over the entire flow range. Low hysteresis and exact pressure control and adjustment.

- Pressure relief valve DV700 | Q **25 L/min**
- Pressure reducing valve DM700 | Q **25 L/min**
- Unloading valve DA700 | Q **25 L/min**



Proportional pressure relief valves PDV700

Available as direct and pilot operated version. High degree of pressure stability and linear curve. Force controlled proportional solenoid of robust design.

P / size **700 bar / NG 6**
 Q direct operated 2 L/min; Q pilot operated 25 L/min



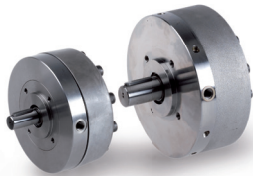
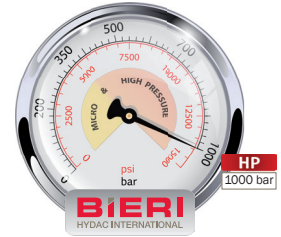
Shut-off valves 700 bar / NG6

Leakage free in closed position. Available as cartridge alone or in sandwich plates or manifolds.

- Manual shut-off valve AV700 | Q **25 L/min**
- Check valve RVH | Q **45 L/min**
- Pilot operated check valve ERV700 | Q **25 L/min**

High Pressure Components

Pumps, Valves, Pressure Switches 1000 bar



Radial piston pumps BRK11/12

Self priming, self venting. Valve controlled.
High volumetric efficiency. 3, 5 and 7 pistons

p **1000 bar**
Vg 0,47 → 4,4 cm³/rev.
n 500 bis 2000 min⁻¹



Manual shut-off valve SPV2

Poppet design leakage free. Low operating force. Both connections designed for max. pressure. For in-line mounting systems.

p **1000 bar**
Q 20 resp. 32 L/min



Pressure relief valve DV2

Cone seat valve direct operated. Max. pressure adjustable by locking nut. Pressure relief valves with threaded connection for in-line mounting systems, mainly test benches.

p **1000 bar**
Q 3 → 12 L/min



Pressure switches DV7.1

Piston type pressure switch with one change-over switch, easily adjustable over the entire pressure range, with scale for pre-setting of the pressure switching point. 7 pressure ranges for the optimal adaptation to any operating pressure.

P → **1000 bar**



Pressure switches DV7.2

Combined instruments for permanent pressure indication, available with two change-over switches, independently adjustable over the entire pressure range and which indicate the pressure settings. 7 pressure ranges for the optimal adaptation to any operating pressure.

p → **1000 bar**

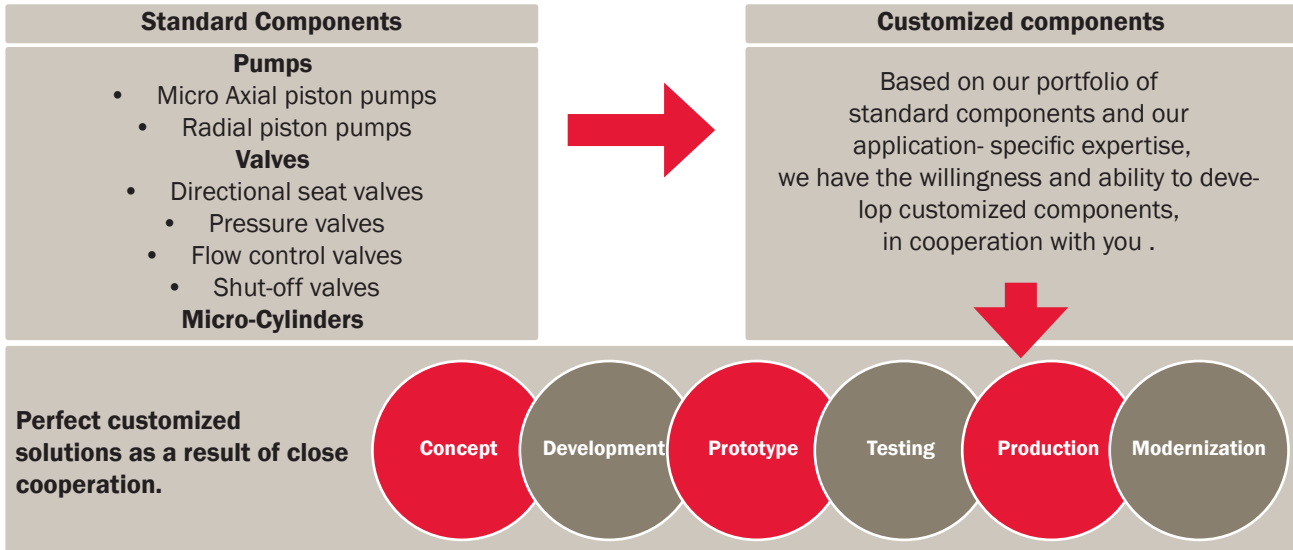


Oil level switches FS

With any length up to 1200mm available, our oil level switches can be threaded directly into tank cover. Level and temperature control in the tank. Guaranteed potential free switching. Can be dismantled without removing the tank cap. Suitable with many different fluids.

Customized Components

Successful partnership for your technological advantage

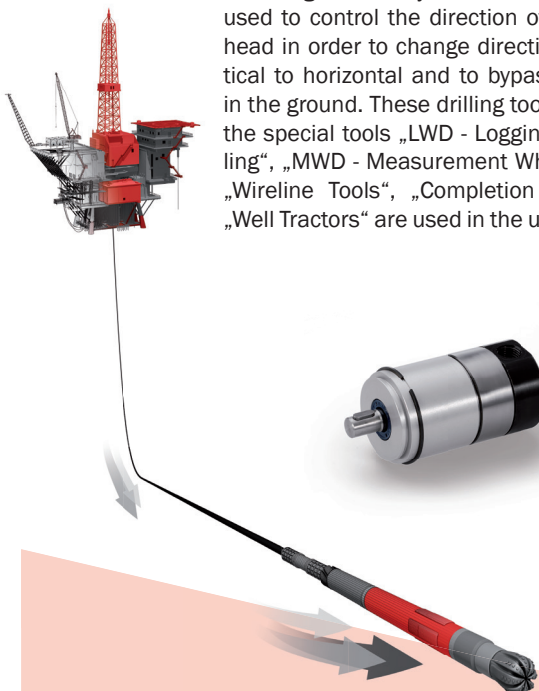


- Together we define the design, and we assist you in your development work. This allows you to tread innovative paths, test prototypes or integrate the solution perfectly into your equipment.
- Once the solution has been developed, we turn to the zero series, volume production and the maintenance service of our components over the entire life of your equipment. A technological advantage therefore becomes a successful partnership

Example: Micro - Axial Piston Pump AKP

Application:
Downhole directional drilling in the oil and gas industry

Down hole directional drilling tools are used in oil & gas industry to drill for oil. They are used to control the direction of the drilling head in order to change direction from vertical to horizontal and to bypass obstacles in the ground. These drilling tools as well as the special tools „LWD - Logging While Drilling“, „MWD - Measurement While Drilling“, „Wireline Tools“, „Completion Tools“ and „Well Tractors“ are used in the underground.



Challenge:

The position and direction of the drilling tools are directed and controlled from the drilling platform. The drilling tools are driven up to 3 km depth and additionally, up to 9 km horizontally. They must be very small and are exposed to extreme operating conditions. The ambient temperature can reach up to 175 °C, the ambient pressure up to 2000 bar and all the while being subjected to extreme vibrations and shock stress.

Solution:

AKP Micro-Pumps from BIERI, which are components of the directional control unit, ensure that the drilling tool reaches the target destination exactly and reliably. The drilling direction is defined by three flaps in the tool, which are actuated by a plunger cylinder. Driven by a DC servo motor, our pumps ensure that reliable and accurate pressure is applied to the plunger cylinders.

AKP – Technical data:

- Suction volume: $V_g = 0,012 \text{ cm}^3/\text{r} \rightarrow 2,2 \text{ cm}^3/\text{r}$
- Revolutions: $n = 50 \text{ min}^{-1} \rightarrow 5\,000 \text{ min}^{-1}$
- Op. pressure: $p = 120 \rightarrow 850 \text{ bar}$
- Env. pressure: $\rightarrow 2000 \text{ bar}$
- Housing: $\varnothing 21,5 \times 66 \rightarrow \varnothing 62,2 \times 146 \text{ mm}$
- Shaft: $\varnothing 5 \rightarrow \varnothing 13 \text{ with wedge, SW, I-6kt., slot.}$

Systems and Sub-systems

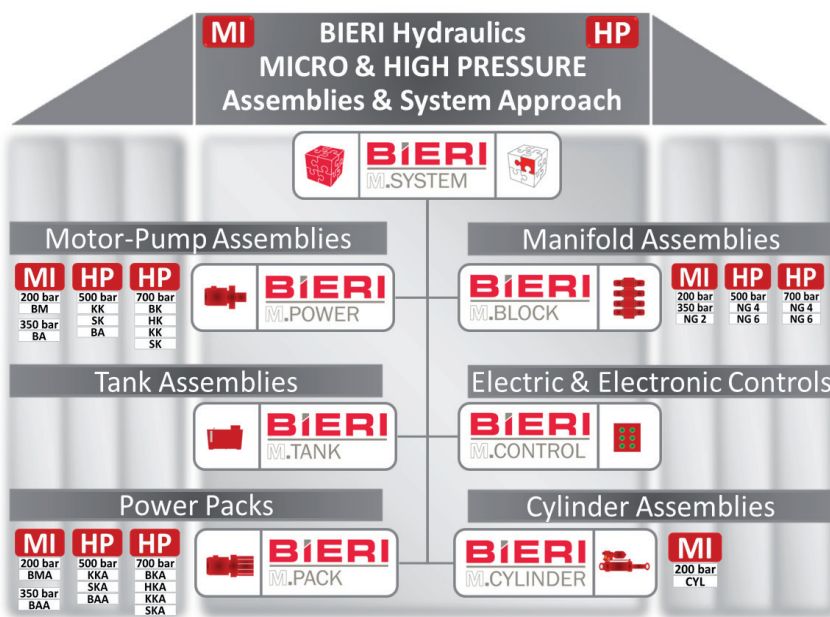
Your reliable partner for system solutions

ONE supplier. ONE contact. ONE responsible.

Based on our many years of experience in the field of micro – and high-pressure hydraulic systems and as a result of our innovation and engineering expertise, we are offering our Best in Class products with the M. SYSTEM in a comprehensive modular system.

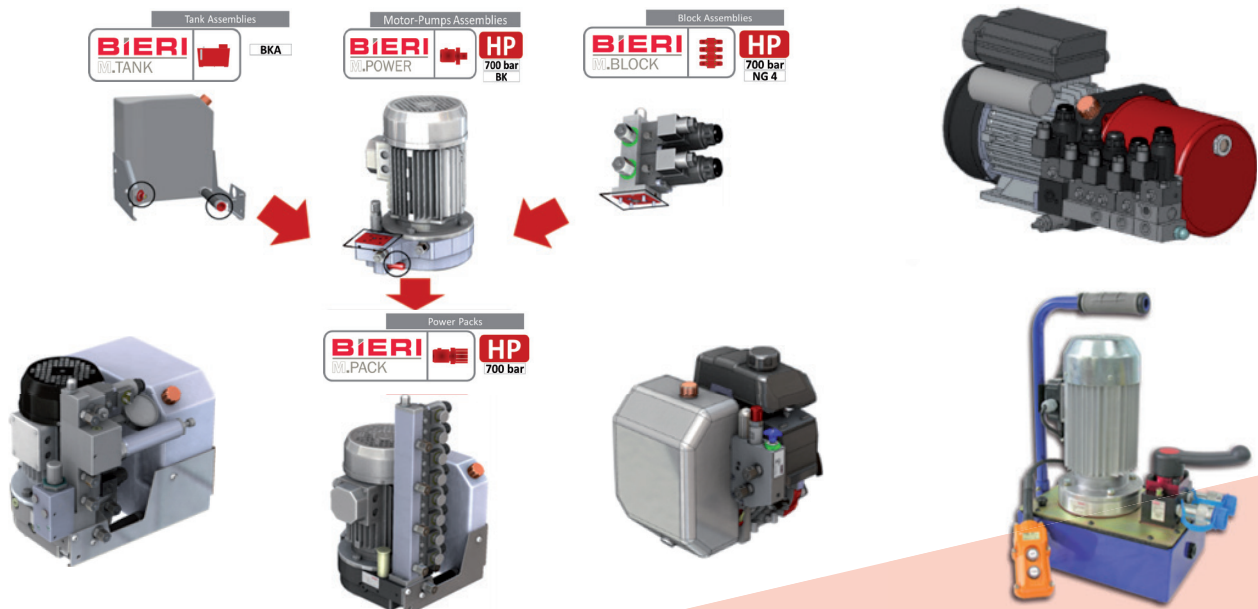
This helps us to find the best individual solution also for your complex requirements:

- The individual components complement each other to form customized solutions.
- Unified assemblies and the possibility to combine them individually serve to increase efficiency at an ideal price-performance ratio.



Together with you, we can integrate our components and assemblies into Best in Class systems, which will make your equipment more competitive and with faster availability.

Example: HP 700 bar Assemblies & Power Units



Industries and Applications

Oil & Gas

- Downhole Directional Drilling
- Wellhead Control Panels (WHCP)

Maritime Applications

- Oceanographic Research
- ROV's
- Process Control

Medical Technology

- Surgical Tables
- Scanner Tables
- Rescue Beds / Stetchers

Fun Park Safety Systems

- Hydraulics Restraint Systems

Special Vehicles

- Armored Vehicles - Window Lifting
- Seat Adjustment

Aerospace

- Locking Systems

Hydraulic Tools

- Torque Wrencher
- Nut Splitter
- Bolt Splitter
- Concrete Splitter
- Concrete Crusher
- Foundry Equipment

Fire & Rescue Equipment

- Cutters
- Forceps/Pinchers
- Spreaders

Clamping Technology & Jig Construction

- Clamping / Tensioning Systems

Machine Tools auxiliary functions

- Milling & Machining Centers
- Grinding Machines
- Turning Lathes
- Sawing Machines

Machine Tools Forming- Clamping & auxiliary functions

- Mechanical & Servo Presses
- Hydraulic Presses
- Bending Machines
- Punches

Small Presses - Forming

- Filter Presses
- Crimping Tools
- Stamping Presses
- Punching and Rivet Presses
- Bench & Workshop Presses
- Material Testing Presses

High-Viscosity Lubrication (Grease)

- Lubrication Units
- Railway Lubrication

Testing Systems

- Hydraulic Test Benches
- Material Testing Systems

Energy & Power Generation

- High Voltage Circuit Breaker
- Wind Turbines
- Solar (Positioning)

Construction Engineering

- Climbing Systems
- Tunnel- /Pipeline Drilling
- Concrete Post Tensioning
- Pile Foundation
- Drilling Technology
- Vibration Dampaning
- Bridge Construction
- Earthquake Devices

Recycling

- Scrap Cutting & Shredding

Lifting & Transport Systems

- Rail Track Tools
- Wheel Set Presses
- Portable Machine Lifting Systems
- Construction Lifting Systems

Shipbuilding

- Lifting & Synchronised Lifting & Fixing
- Instalation of Engines and Screws

Global Presence. Local Expertise.



**MICRO &
HIGH PRESSURE
Hydraulic Solutions**

- BIERI Headquarters
- HYDAC Headquarters
- HYDAC Companies
- BIERI Sales & Service partners

BIERI Hydraulik AG

For any application where space is limited and intelligent solutions are in demand, we will support you on your way to market success as your solution partner for MICRO & HIGH PRESSURE hydraulics.

And this everywhere in the world, close to you and your applications.

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