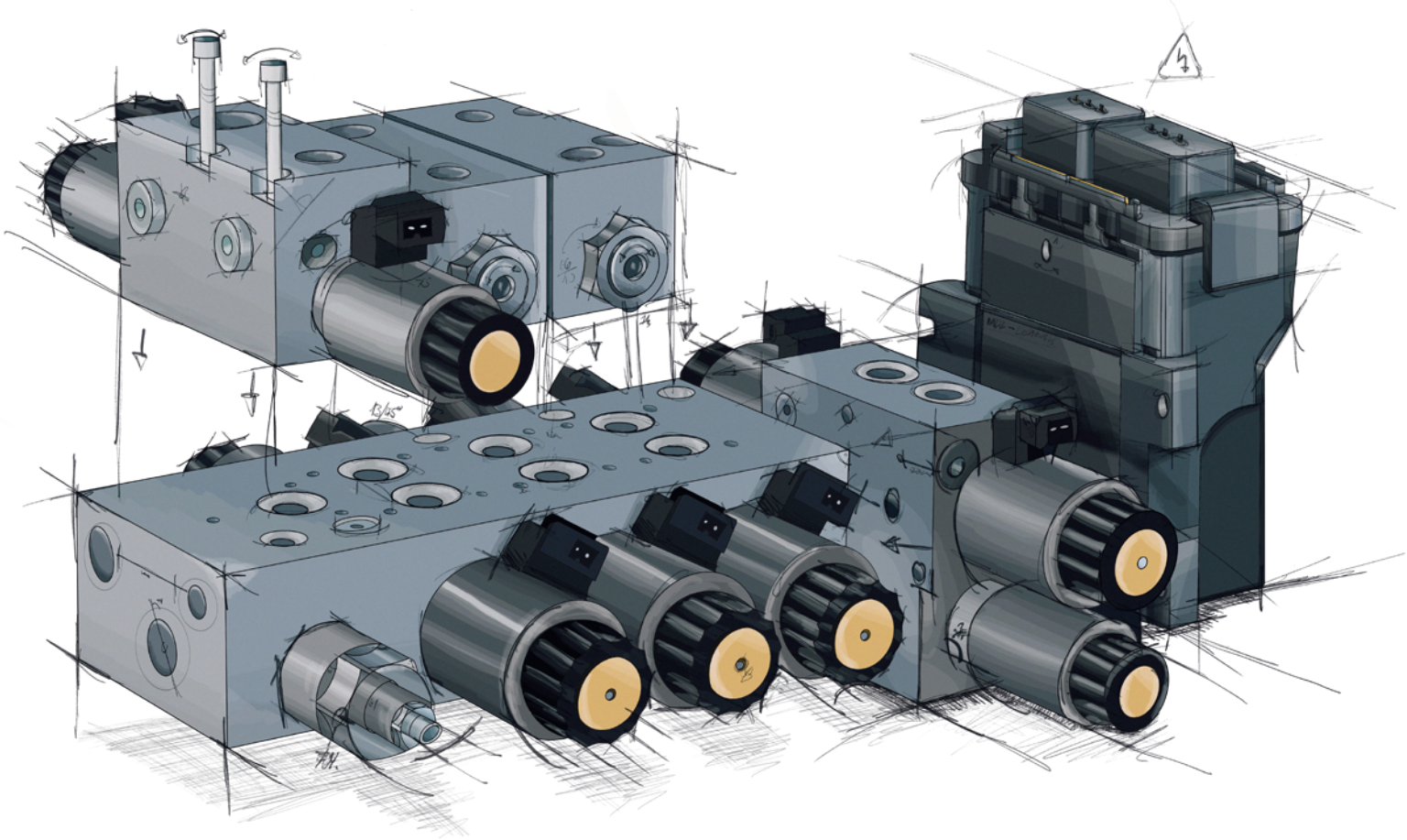
SOLUTIONS **SINCE 1946**

WANDFLUH
HYDRAULICS + ELECTRONICS



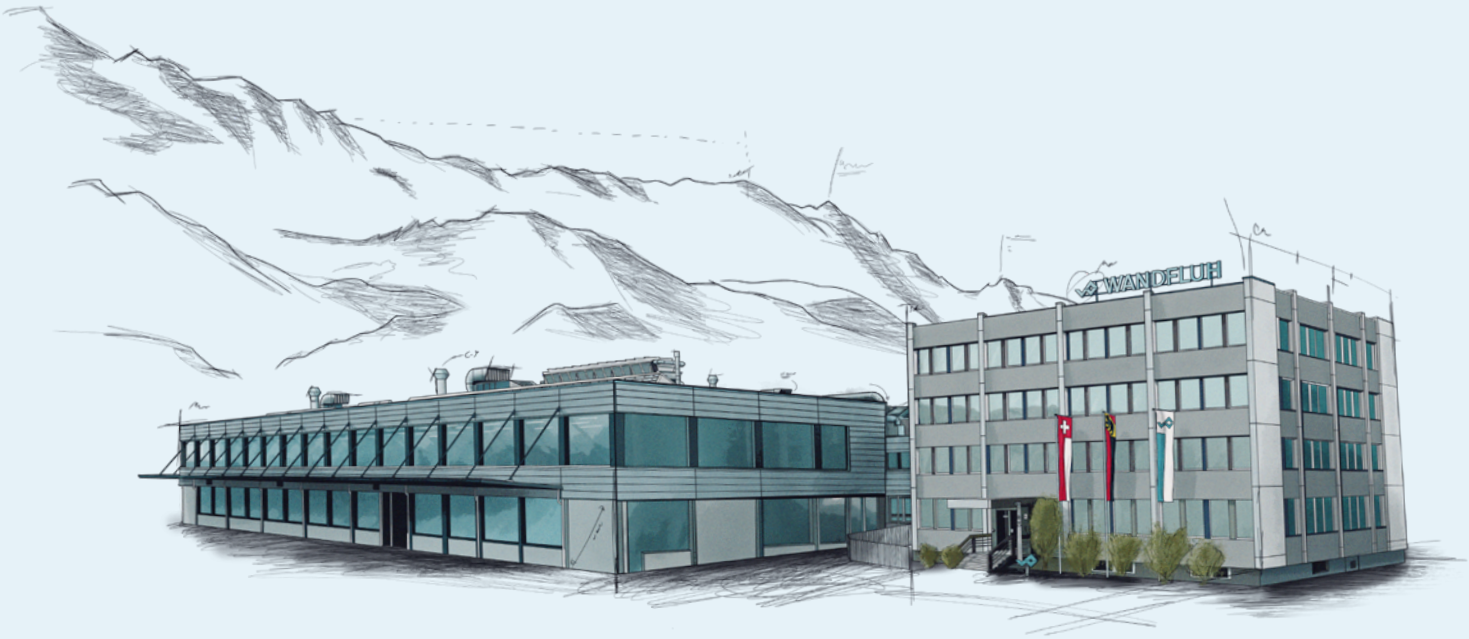
Quality products for
demanding use

WANDFLUH
Hydraulics + Electronics

GROUP

Globally connected, locally rooted Since 1946

What began as a small mechanical workshop in Frutigen in 1946 is now an international group of companies. Wandfluh develops and manufactures high-quality hydraulic and electronic solutions for demanding applications. Our own companies, production sites and worldwide sales network combine Swiss precision and technical expertise with local customer proximity and market knowledge.



We want to provide our customers worldwide with high-quality products and be a valuable partner in the development of technically sophisticated hydraulic systems.

Matthias Wandfluh

WHO WE ARE

The Wandfluh Group combines decades of hydraulic and electronic expertise with extensive development and manufacturing capabilities. From individual valves and electronic components to modular manifolds and customized system solutions, products are precisely tailored to each application. Extensive in-house manufacturing, modern production facilities and specialized staff closely connect development and production. Our companies and international sales network ensure customer proximity and technical support in key markets. Wandfluh supports customers from initial concept and design through prototypes and testing to series production, providing technically sound, reliable and economical solutions.

AT A GLANCE

- Family-owned since 1946
- Over 500 employees worldwide
- 13 companies, 6 production sites
- More than 50 sales partners

WHAT SETS US APART

- High level of in-house manufacturing
- Hydraulics and electronics from one source
- Development and production under one roof
- Standard and customized solutions
- Fast transition from prototype to series production
- Global presence with local engineering
- Precision products meeting high quality standards
- Reliable cooperation and long-term customer partnerships

CONNECTED WORLDWIDE



OUR **BRANCHES**

Hydraulic solutions are used in widely varying applications and operating conditions. Whether in mobile machinery, energy systems, subsea applications or industrial production, every industry has its own requirements for precision, reliability and safety. Our extensive experience enables us to develop tailored solutions for the most demanding requirements.

INDUSTRIAL

Modern industrial applications demand maximum precision, efficiency and process reliability. Our hydraulic systems deliver accurate, repeatable control, even in highly dynamic, connected production environments.



MOBILE

Power density, robustness and precision are essential for mobile machinery. With intelligent hydraulics, electronics and software, we enable efficient, reliable machine control even under demanding conditions.



ENERGY

Safety, availability and durability are essential in the energy sector. Our hydraulic solutions perform safety-critical control tasks and contribute to reliable energy supply.

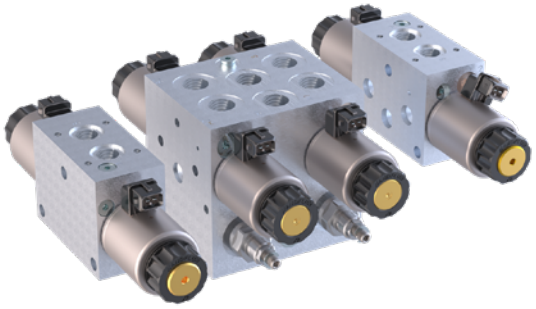


FOCUS

Industrial manufacturing is changing. Industry 4.0 is transforming production environments and the requirements placed on industrial hydraulic systems. Demands on valves and electronics are increasing, ranging from redundant spool position monitoring to customized designs. A key objective is precise, machine-adaptable hydraulics with sensitive control characteristics. Intelligent electronics and intuitive software enable dynamic processes in industrial production systems to be coordinated precisely and efficiently.

FEATURES

- Precisely adaptable hydraulics with intelligent electronics and intuitive software
- Valve technology with switching position monitoring
- High power density (up to 450 bar / 1,600 l/min)
- Compact designs (NG3-MINI, NG4-MINI)
- High precision
- Excellent repeatability
- Sensitive control characteristics
- Easy maintenance
- Individual customer adaptations
- Worldwide customer service

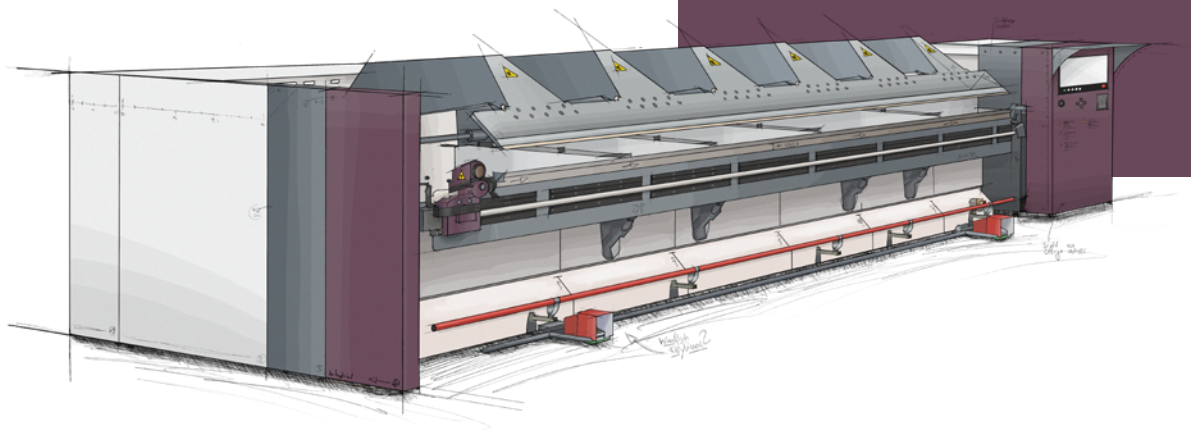


APPLICATION EXAMPLES

- Axis positioning in machine tools
- Industrial robots
- Cutting feed control with positioning
- Variable workpiece clamping
- Controlled force transmission in cutting systems
- Hydrostatic slide bearings
- Web tension control in winding machines
- Drives and control of presses and bending machines

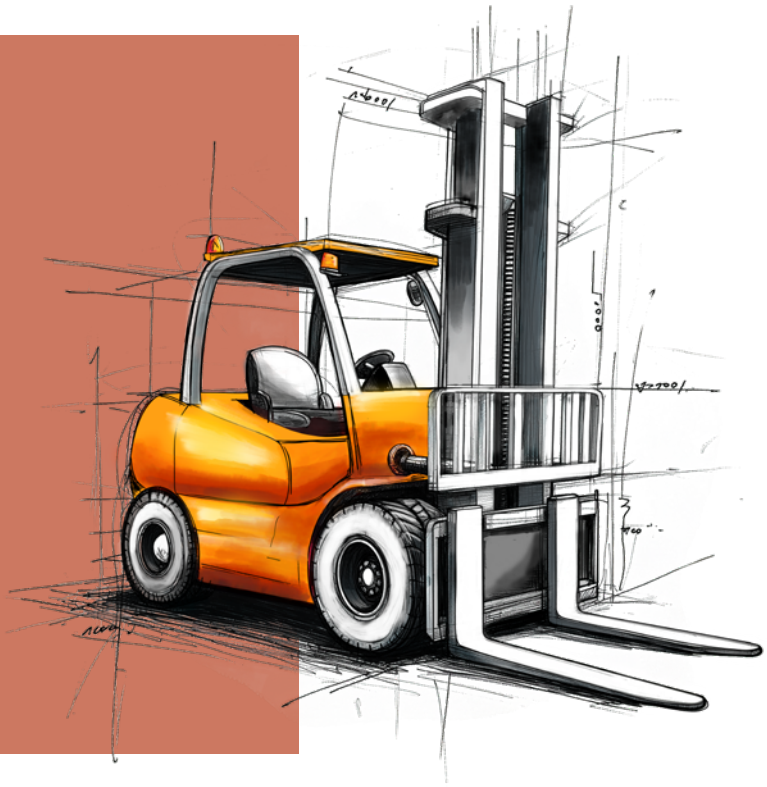
WANDFLUH **INDUSTRIAL**

Industrial machinery has always demanded precision, efficiency and reliability. Industry 4.0 makes these requirements even more relevant. Although other technologies are also used, hydraulics remain essential for fast, powerful movements and clamping devices in machine tools. Stable performance and high repeatability are indispensable.



WANDFLUH **MOBILE**

High power density and reliability in all weather conditions have always been essential in mobile applications. Heavy machinery needs hydraulics precisely matched to the machine to perform demanding work efficiently and accurately. Precise proportional technology with suitable electronics and software is key.



FOCUS

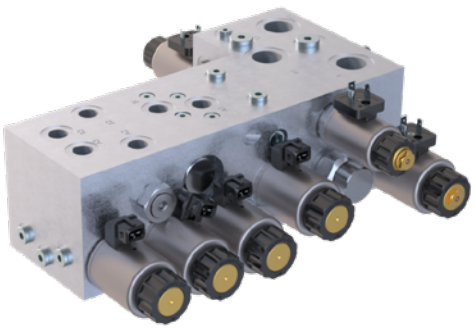
Mobile hydraulic components must meet a broad range of requirements. In addition to all-weather capability, they need high power density and resistance to external influences. Depending on the application, valves are also available with explosion or corrosion protection. Valve and electronic quality becomes evident in daily mobile operation, where shocks, vibration and major temperature fluctuations are normal. Wandfluh focuses on these factors during development. Application-specific hydraulic design has significantly improved machine reliability and availability in numerous projects.

APPLICATION EXAMPLES

- Braking systems and clutches
- Harbour crane control
- Construction equipment
- Forestry harvesters
- Salt spreading vehicles
- Fan drives
- Machines with lifting functions (forklifts, lifting platforms, etc.)

FEATURES

- High flow rates
- Sensitive control characteristics
- Low hysteresis
- Low weight
- Robust construction
- Resistance to vibration and external influences
- Hydraulically efficient valve technology
- Intelligent control with in-house electronics via bus systems
- Corrosion-protected valves, up to stainless steel
- Explosion-protected valves including electronics
- Customized solutions
- Worldwide customer service



FOCUS

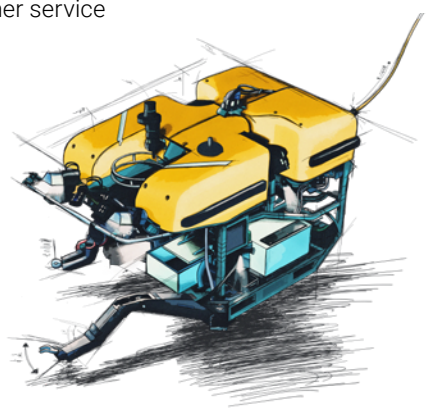
Energy systems generate and control extreme forces. Hydraulic controls have been used since the earliest hydropower plants, regulating water supply and turbine blade angles. In wind turbines, hydraulics adjust rotor blade pitch and actuate braking systems to protect the installation in storms. In thermal power plants, hydraulic controls operate butterfly valves to reduce steam pressure rapidly and safely in an emergency. Safety takes priority in every application. Redundant systems with spool position monitoring are often engineered together with customers for their specific plant requirements.

WANDFLUH **ENERGY**

Redundancy, reliable switching and long service life are essential for components in the energy sector. Hydraulic control circuits often form safety-critical elements of power stations. Process and large butterfly valve systems are accurately operated by optimized hydraulic valves. Low-leakage valves are also used in shipbuilding.

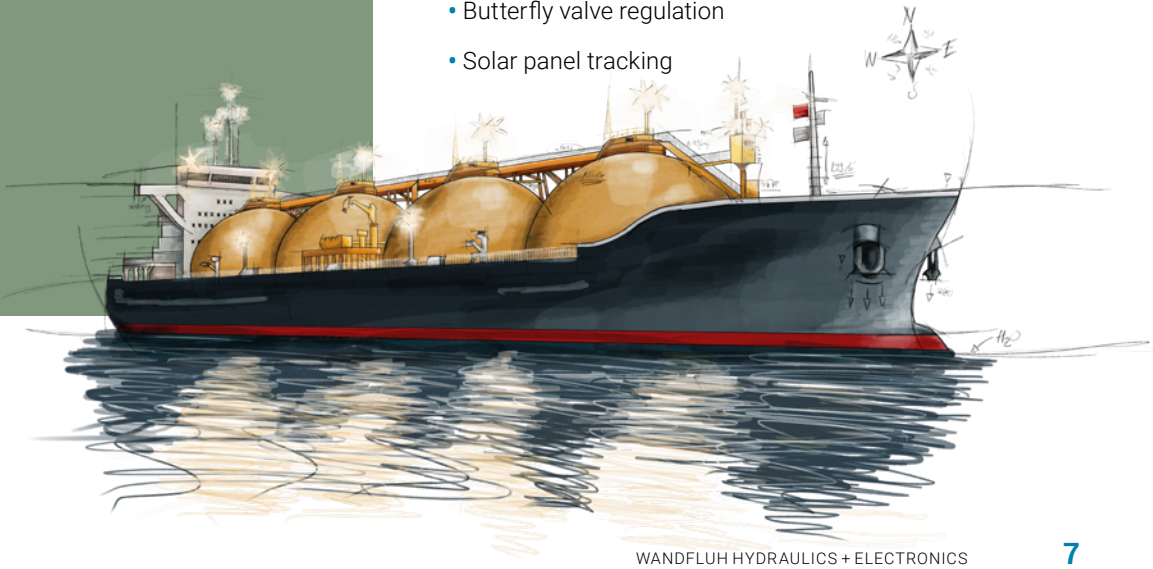
FEATURES

- Corrosion-protected valves, from zinc-nickel to stainless steel
- Redundant systems
- Valve technology with switching position monitoring
- Precise adaptation through in-house electronics and intelligent software
- Configurable controller electronics with bus connection (HART, Profibus, etc.)
- Sensitive control characteristics
- Precise proportional valves
- Reduced electrical power consumption
- Easy maintenance
- BlueCompetence products
- Customized solutions
- Worldwide customer service



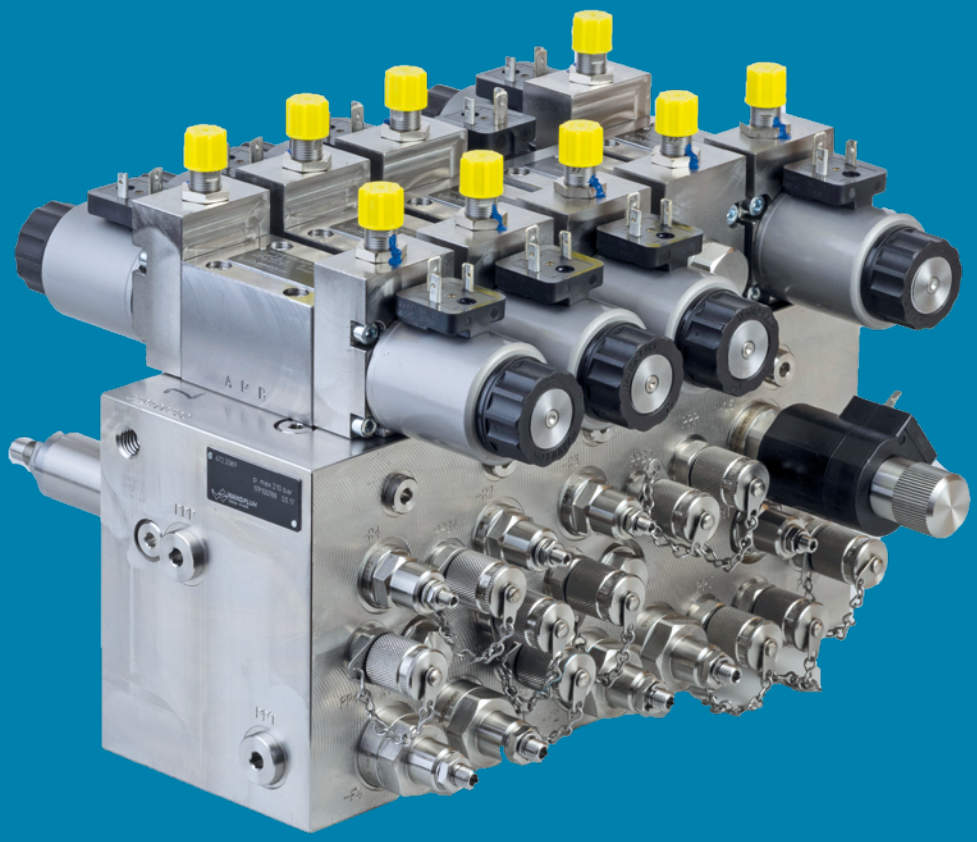
APPLICATION EXAMPLES

- Steam valve control
- Process control
- Rotor blade pitch adjustment in wind turbines
- Butterfly valves on ships
- Disc brake actuation
- Turbine controllers
- Butterfly valve regulation
- Solar panel tracking



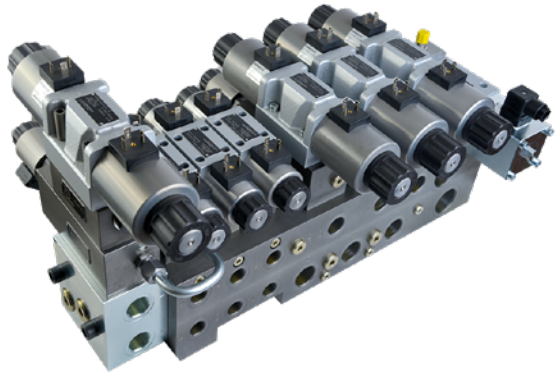
CONTROL UNITS AND POWER PACKS

From individual control units to customized hydraulic power packs: Wandfluh develops hydraulic and electrohydraulic solutions tailored to your machine or plant. Modular manifolds, stacking systems and monoblocks allow compact control units with versatile functions. Hydraulic power packs are engineered for each application, from planning to commissioning.



CONTROL UNITS

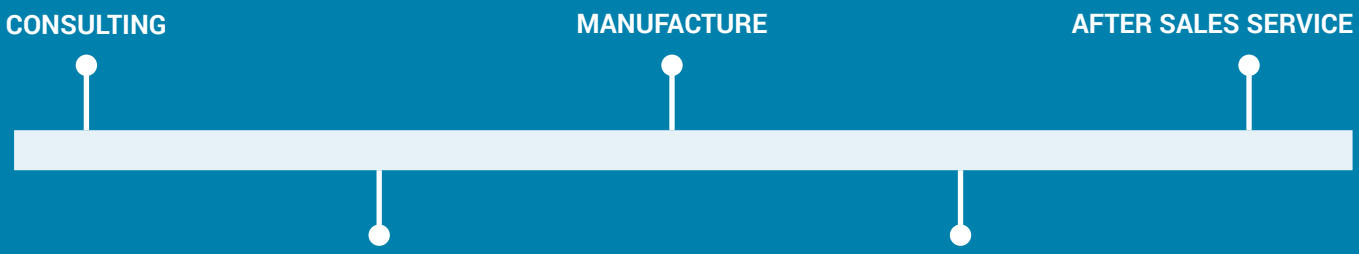
Compact, integrated functions. Whether a conventional manifold, modular stacking system or monoblock, Wandfluh control units combine electrohydraulic functions in a compact design. They are developed as modular or fully integrated solutions tailored to the application.



HYDRAULIC POWER PACKS

Designed for the application. Our portfolio ranges from standard power packs with a 6-litre tank and 0.2 kW output to customized large units with tank capacities exceeding 1,500 litres. Modular construction, energy efficiency and ease of maintenance are key priorities.





FROM CONSULTING TO CUSTOMER SERVICE

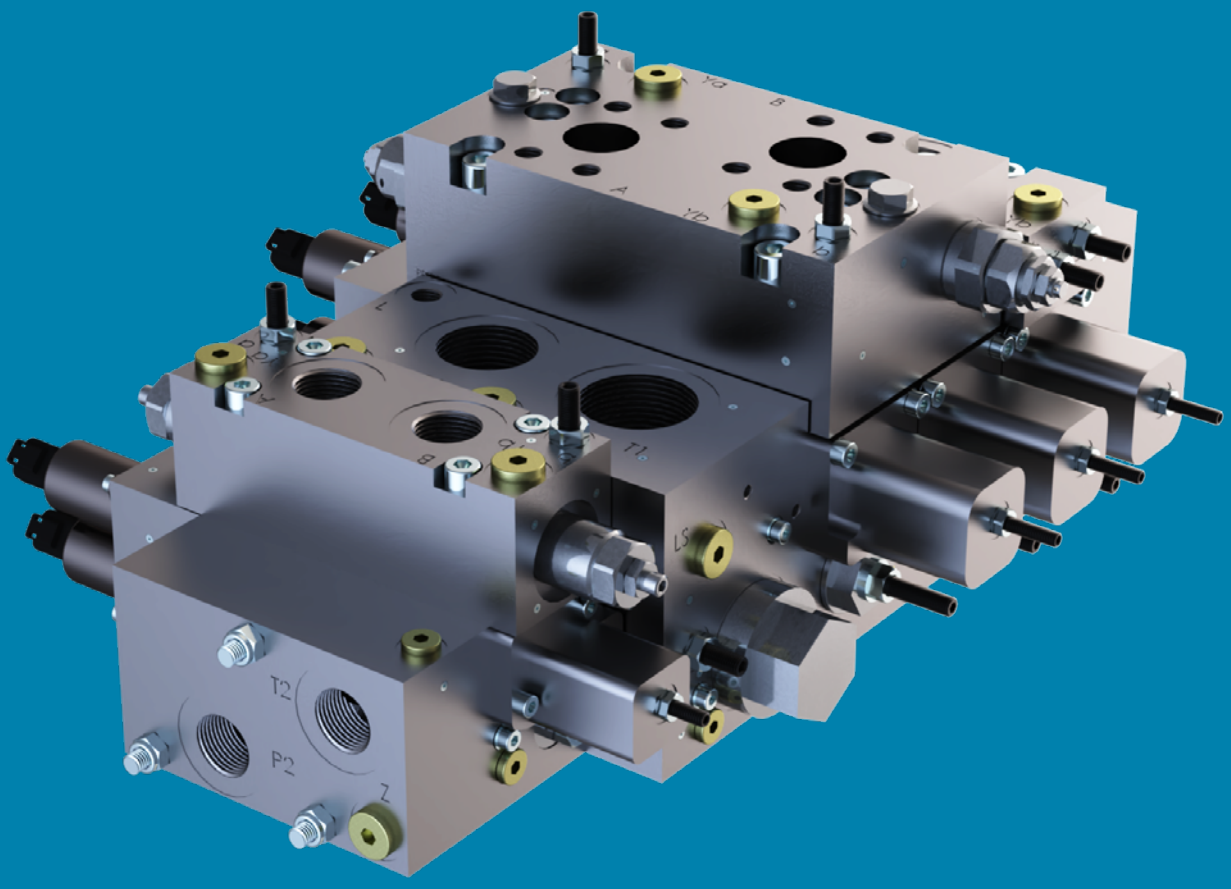
- **Consultation:** We understand your requirements and work with you to find the right solution.
- **Design and Development:** We define functions and interfaces to develop a system tailored to your application.
- **Manufacturing:** We manufacture, assemble, test and integrate the system components.
- **Commissioning:** We verify that all functions work together and support system start-up.
- **Customer Service:** We provide ongoing service and support, even after commissioning.

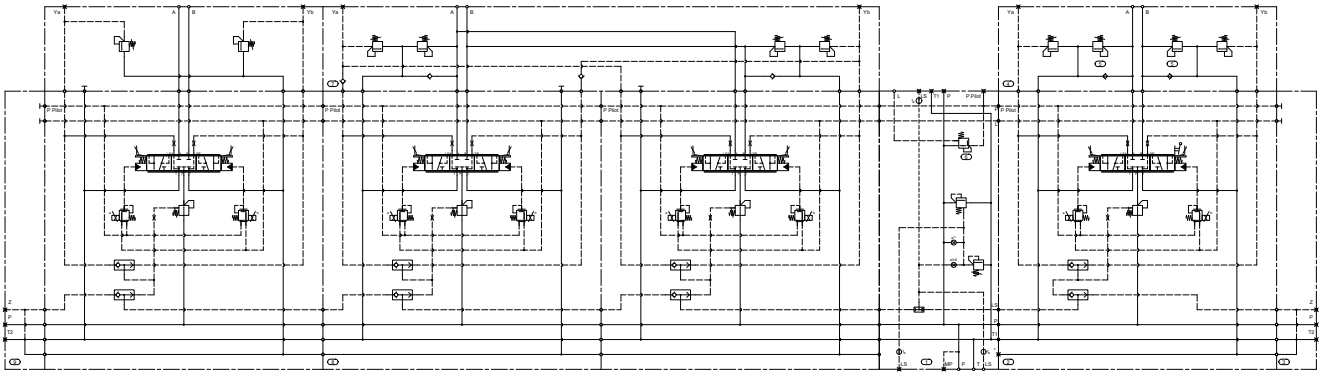
APPLICATIONS

Wandfluh hydraulic systems are used in a wide range of machinery and installations. Control units provide precise actuation and motion, from forming in sheet-metal bending machines to controlled positioning of aircraft passenger stairs during docking. They also control hydraulic starting of emergency power packs. Hydraulic power packs supply power where required, including workpiece clamping in milling machines as well as machine tools and grinding machines. Control units and power packs are engineered as matched system solutions.

PROPORTIONAL **MOBILE VALVES**

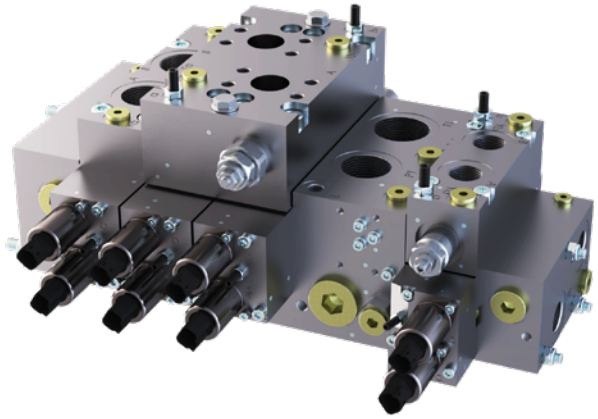
The Proportional Mobile Valves (PMV) range is a flexible hydraulic concept that can be individually configured and adapted to virtually any application. An integrated pressure compensator is fitted as standard, enabling precise, load-independent and sensitive control. PMV also provides solutions for very high flow rates: the twin-plate combination can control almost 800 l/min to the actuator.





APPLICATION

High power density and reliability in all operating conditions are essential in mobile applications. Large machines require hydraulic systems precisely matched to their tasks to perform heavy work efficiently and accurately. The highly flexible PMV range is suitable for nearly every mobile application. Zinc-nickel coating provides excellent corrosion protection.



CONTROL

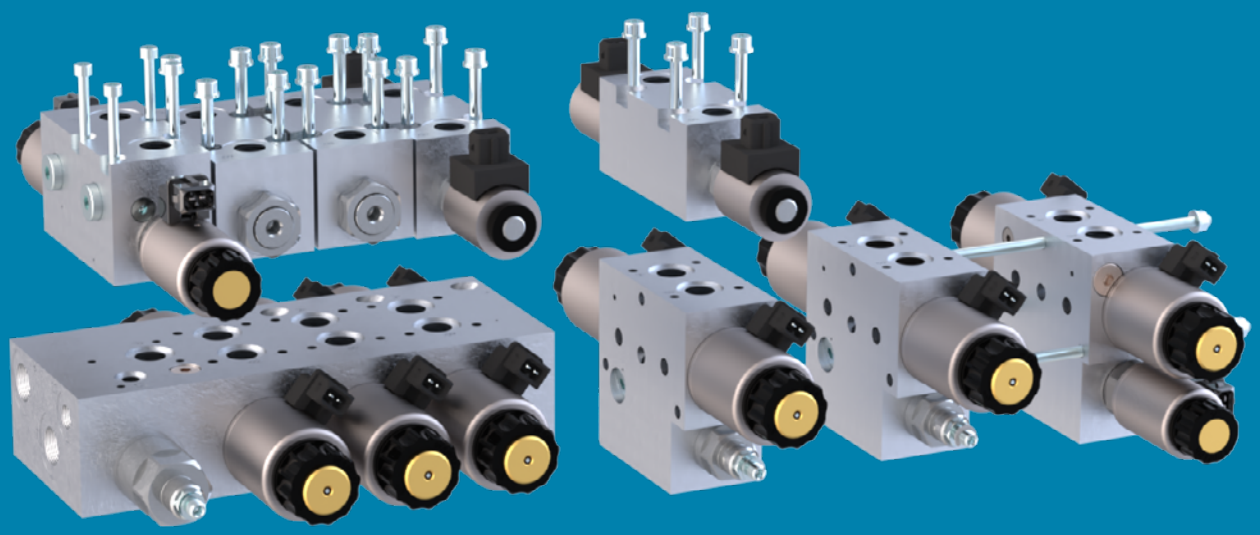
The modular PMV concept enables individual combinations of sections supplied as preassembled units with their own type codes. Modifications can also be made easily in the field. The modular design supports flexible special solutions, for example integrated counterbalance valves or pilot-operated check valves in the connection plate.

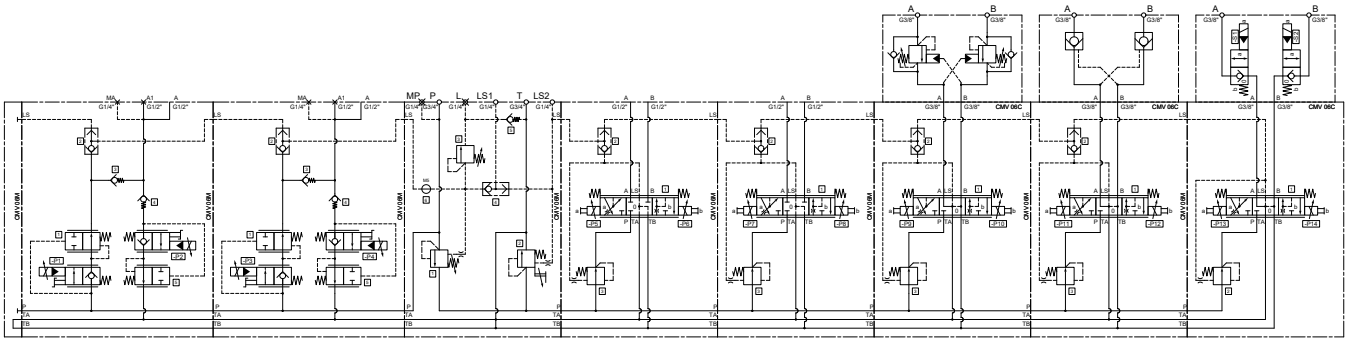
PROPERTIES

- Modular design
- Individually configurable
- Flow rates and load pressures individually matched to downstream actuators
- Extensive modular system with numerous variants and combinations
- Compact construction
- Maximum flow rate up to 800 l/min
- Robust, durable design for system pressures up to 420 bar
- High energy efficiency due to low pressure drop (Δp)
- Load-sensing signal amplifier
- Anti-saturation module
- Load-independent flow
- Zinc-nickel coating
- Load-sensing pressure relief valves at ports A and B reduce energy losses

COMPACT
MOBILE VALVES

With the Compact Mobile Valves, CMV(A), aluminium range, Wandfluh offers manufacturers of mobile machinery weight-optimized, user-friendly and future-ready solutions. New products have been developed and existing products adapted with a focus on defined electrohydraulic functions and specific application requirements. Working closely with OEM customers, we develop innovative solutions that optimize machine weight, installation space, energy efficiency and functionality, backed by proven Wandfluh reliability and quality.





APPLICATION

The Wandfluh Compact Mobile Valves (CMV(A)) range offers lightweight, energy-efficient and highly functional solutions for mobile hydraulics. Developed for demanding environments, the valves provide precise control, reliability and flexibility across a wide range of machines. Customizable sectional and monoblock configurations meet application-specific requirements, supporting high precision and low energy losses. Redundant safety functions and internal damping systems prevent oscillations and ensure smooth, safe operation.

CONTROL

From tractors and harvesters to construction, forestry and municipal machinery, CMV(A) provides optimized hydraulic control for lifting, lowering and positioning heavy loads. Proportional technology enables smooth, fast response and safe, efficient operation in reach stackers, excavators, loaders and snow groomers. In material handling, low-leakage designs securely hold loads and help prevent unintended lowering. In agriculture, sensitive attachment control adjusts pressure to ground conditions. In construction, load-compensated control enables smooth movement and stability when lowering loads. Across applications, CMV(A) combines performance, reliability and flexibility.

CMV(A) CONCEPT

Modular, flexible design based on:

- Inlet modules
- Control modules
- End control modules
- Connection modules
- End modules

CMV(A) ADVANTAGES

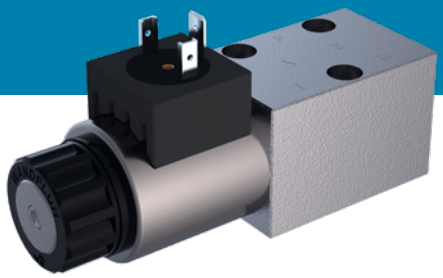
- Lightweight design
- High performance
- Compact size
- Intelligent modular concept
- Product availability and support

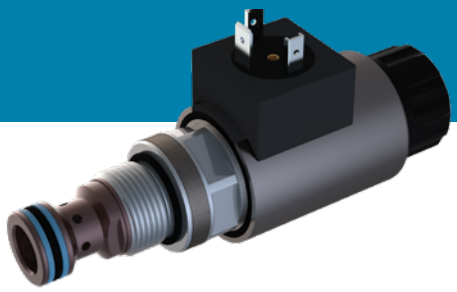
DESIGN

Module configurations:

- Individual sections or multiple sections combined into a monoblock
- Preferred aluminium version (up to 250 bar)
- Steel version up to 350 bar
- Different module sizes, with flow rates up to 60 l/min per section

OVERVIEW **VALVES**





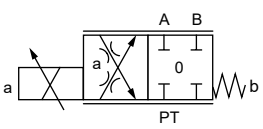
ON/OFF AND PROPORTIONAL VALVES

CHARACTERISTIC

Controls the oil flow and can thus specify the direction of movement of a cylinder, for example. The valve is screwed onto a standardized connection pattern as a flange.

FEATURES

- Solenoid valve can be controlled remotely via intelligent electronics
- Direct or pilot operated
- Optionally latched, as safety in case of power failure
- Low losses due to low leakage
- Soft switching to reduce impacts
- Switching position monitoring
- Pressure max. 350 bar
- Flow rate max. 160 l/min
- Nominal sizes NG3, NG4, NG6, NG10



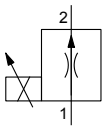
FLOW CONTROL VALVES

CHARACTERISTIC

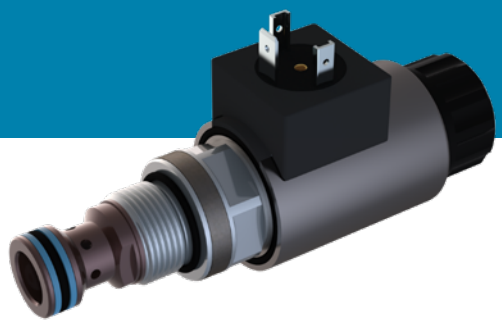
Controls the oil flow and can thus, for example, specify the direction of movement of a cylinder. The valve is screwed as a cartridge into a standardized cavity in the hydraulic block.

FEATURES

- Solenoid actuation
- Direct or pilot-operated
- Space-saving cartridge design for block construction
- Pressure max. 350 bar
- Flow rate max. 160 l/min
- Nominal sizes U10, M33, M42



Over the years, Wandfluh has developed and produced a broad portfolio of high-quality, affordable standard products tailored to the various markets. These are modular in design and allow a wide range of possible combinations and innovative additional options.



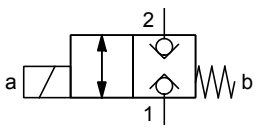
POPPET VALVES

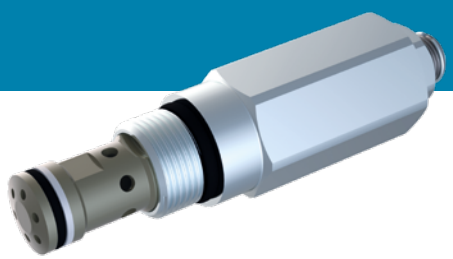
CHARACTERISTIC

For tight closing functions to hold loads in position or to close off cables tightly.

FEATURES

- Cartridge, flange and sandwich design
- Solenoid actuation
- Direct or pilot operated
- Metal-seated design
- Detented or with spring return
- Pressure max. 420 bar
- Flow rate max. 300 l/min
- All types and nominal sizes





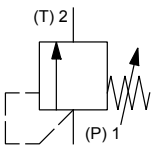
PRESSURE VALVES

CHARACTERISTIC

Limits the inlet pressure to an adjustable value. Used to protect against overpressure of any kind in the system. A pressure control regulates the outlet pressure to the set value.

FEATURES

- Manual setting of the desired pressure
- Direct or pilot operated
- Metal sealing seat
- Pressure limiting or pressure control function
- Pressure max. 420 bar
- Flow rate max. 300 l/min
- Sizes U08, U10, M18, M22, M33, M42



ELECTRONICS

Electronic control units are required to control proportional valves. They control and regulate the solenoid current on the valve and thus ensure very sensitive actuation of the valve. Control units are available in a wide variety of designs to meet the requirements of different tasks in various areas of application.

AMPLIFIER / REGULATOR CONTROLS MD2



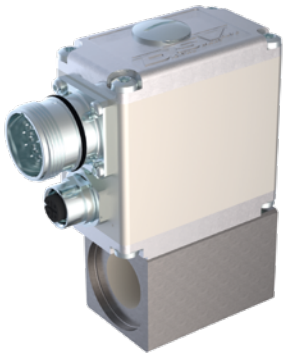
CHARACTERISTIC

Digital amplifier and controller module for use in harsh environments. The device provides up to 8 solenoid outputs for control and regulation tasks of all kinds.

FEATURES

- Robust and compact design with protection class IP67
- Up to 8 solenoid outputs can be used as proportional or switching solenoid outputs
- Set values in the form of voltage, current, frequency, PWM
- Up to 4 analog and 4 digital inputs
- Up to 10 digital outputs
- Optionally with CANopen field bus
- Screw fastening of the housing

VALVE ELECTRONICS DSV



CHARACTERISTIC

Digital amplifier electronics DSV (Digital Smart Valve) integrated directly in the valve to control a proportional valve.

FEATURES

- Amplifier or controller type
- Controller modes selectable: pressure, position, speed
- Valve set at the factory
- Control via solenoid current with dither signal
- Set values as voltage or current
- 2 digital inputs and 1 output
- Can be parameterized using PASO software
- Optionally with fieldbus (CANopen, Profibus DP)
- Protection class IP67

MINIATURE AMPLIFIER PD2, PD3, PDS



CHARACTERISTIC

Digital amplifier module for controlling a proportional valve. PD2 is an electronic unit with cable connection. In the MPS version, it is permanently mounted on a solenoid.

FEATURES

- Housing IP67
- Solenoid current controlled
- Setpoint as voltage or current
- Digital input
- Parameterizable via PASO software or keypad
- Optionally with fieldbus (CANopen or J1939)
- Housing with cable connections or mounted on solenoid
- PD3 is adjustable via blethooth and app
- PDS can control 2 solenoids

Electronic control units regulate solenoid current in proportional valves, enabling sensitive actuation. Various designs suit different tasks and applications. Depending on the version, electronics are integrated into the valve or provided as separate amplifier or controller modules. PASO software enables intuitive laptop-based configuration and parameterization. Important signals can be recorded or analysed in real time for troubleshooting.

ELECTRONICS SD7



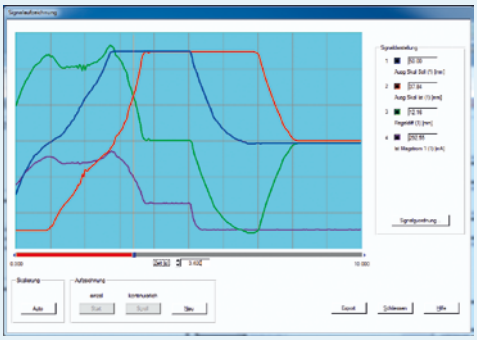
CHARACTERISTIC

Digital controller module for regulating position, pressure or volume flow including integrated amplifier.

FEATURES

- Controller mode selectable: pressure, position, speed
- up to 2 solenoids (prop.)
- Solenoid current regulated, with superimposed dither
- Command and feedback values as voltage or current
- Up to 7 digital inputs and up to 4 outputs
- Optionally with fieldbus (CANopen, Profibus DP, HART)
- Housing for dome rail mounting
- SSI interface
- Analog output

PASO SOFTWARE



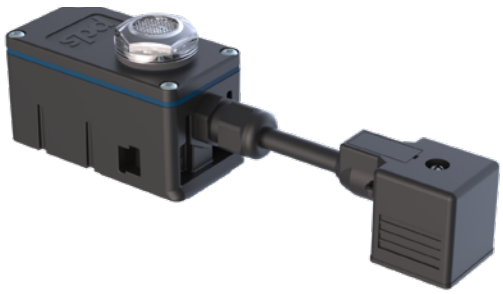
CHARACTERISTIC

Intuitive software for parameterization and diagnostics. Functions are shown in a block diagram; signal values can be tracked in real time. Settings can be saved and transferred to other electronic modules.

FEATURES

- Free PC software
- Customizable process data monitor
- Integrated oscilloscope for signal analysis
- Fieldbus interface
- Real-time display and remote-control functions
- Flexible interface definitions
- Customized software and hardware extensions

PDS1 – AMPLIFIER FOR DIRECT ASSEMBLY



CHARACTERISTIC

Compact amplifier for direct mounting on the solenoid. Pluggable on solenoids according to DIN EN 175301-803, type A. Protection class of the amplifier is IP 65. For 1 or 2 proportional solenoids. Setpoint signal type switchable via PASO2 parametrisation software (voltage/current).

FEATURES

- for 1 or 2 proportional solenoids with DIN plug
- protection class IP 65
- analogue setpoint signal 0..+/-10V / 0/4..20mA
- M12 connector plug
- adjustable via USB by means of new Wandfluh PASO2

SPECIALS

Flammable gases, vapours and dusts mixed with oxygen form explosive atmospheres. Protective standards for different equipment types help prevent explosions. Solenoids used as electrical valve actuators must therefore comply with the relevant type of explosion protection. Continuous exposure to salt water, saline air or severe weather requires increased corrosion protection for long service life.

EXPLOSION PROTECTION

Description

- Electrical equipment for all hazardous areas
- Solutions for valves and systems
- Optional increased corrosion protection, up to stainless-steel versions

Functions

- Solenoid-operated spool valves
- Solenoid-operated poppet valves
- Proportional directional control valves
- Proportional pressure valves (relief and control)
- Proportional flow valves (throttle and flow control)
- Valve-integrated electronics for proportional functions

Features

- Flameproof enclosure (Ex d) for Zones 1 and 2
- Intrinsic safety (Ex i) for Zone 0
- Certified solenoids for surface and mining applications
- Certificates for ATEX, IECEx, EAC, UL/CSA, Australia and MA

CORROSION PROTECTION

K8: > 1000 h Salt spray test

- Zinc-nickel coated, or made of stainless materials.

K9: > 2000 h Salt spray test (solenoid >1000h)

- Mainly made of stainless and acid-resistant AISI 316L stainless steels. The solenoids are zinc-nickel coated.

K10: > 2000 h Salt spray test

- All elements are made of stainless materials (AISI 316L) or coated with stainless material.

LOW TEMPERATURES

Z604: -40° C

- Adjusted seal, fitting clearances partially adapted

Z591: -60° C

- Special materials, special seals, Increased fitting clearances



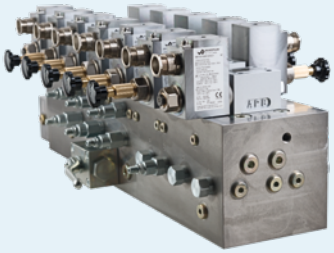




INDIVIDUAL **SOLUTIONS**

Hydraulic systems steer and move vehicles and operate functions such as lift and swivel arms, supports and brakes. They move loads and hold them securely in position. Switching valves control movement direction and limit pressure and flow.

CONTROL UNITS



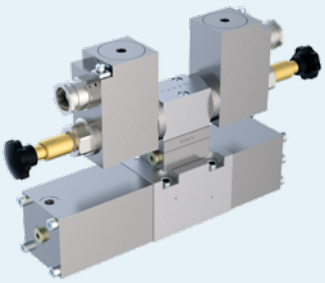
- Compact control units for tools and other machinery
- Complex functional units
- Safety-related functions
- Explosion-protected units for onshore and offshore applications
- Control units for large installations with flows up to 10,000 l/min at 420 bar
- Modular stacking systems

SYSTEMS



- The specialist in hydraulic system construction with over 30 years of experience
- From engineering to commissioning, everything from a single source
- Cost- and space-optimized series units for machine tools
- Energy-efficient standard units
- Technically sophisticated systems for test facilities
- Sophisticated electro-hydraulic functional units
- Plant construction with complete installation and commissioning in the hydropower sector

VALVES



- Combination of several proven functions in one element
- Application and customer-specific solutions with the experience of standard components
- Implementation of explosion and corrosion protection requirements
- Special valve actuation
- Inclusion of special materials, surface treatments and machining processes
- Special functions

WANDFLUH
Hydraulics + Electronics

EUROPE

Switzerland
Tel. +41 33 672 72 72
sales@wandfluh.com

France
Tel. +33 4 81 65 19 46
contact@wandfluh.com

Germany
Tel. +49 74 65 92 74 0
info@wandfluh.de

United Kingdom
Tel. +44 1 926 81 00 81
sales@wandfluh.co.uk

Austria
Tel. +43 55 72 38 62 72 0
office-at@wandfluh.com

Italy
Tel. +39 344 0470 820
italy@wandfluh.com

Scandinavia
Tel. +46 (0)70 140 21 97
scandinavia@wandfluh.com

ASIA

China
Tel. +86 21 67 68 12 16
sales@wandfluh.com.cn

India
Tel. +91 4446621365
india@wandfluh.com

AMERICA

North Carolina
Tel. +1 847 566 57 00
sales@wandfluh-us.com

INTERNATIONAL

Switzerland
Tel. +41 33 672 72 72
sales@wandfluh.com



SOLUTIONS **SINCE 1946**

ID4426E