

FLUID SOLUTIONS FOR MARINE APPLICATIONS



GEAR PUMPS
FLOW METERS
VALVES

KRACHT®

FLUID TECHNOLOGY AND SYSTEMS

Content

Gear pumps

Gear pumps for gearbox and engine lubrication systems

Applications	4
KF low-pressure pumps	5
SOP special pumps	5

Gear pumps for drive systems

Applications	6
KF low-pressure pumps	7
KP high-pressure pumps	7

Multiple gear pumps

KF and KP pumps	9
-----------------	---

Gear pumps for marine fuels

Applications	10
KF-F fuel pumps	11

Flow meters

Flow meters for monitoring and controlling fuel and oil systems

Applications	12
VC gear type flow meters	13
SVC screw type flow meters	13

Valve position indicators for the mechanical/electronic display of hydraulic valve controls

VOLUMEK	15
VOLUTRONIC [®]	15

Electronics for the monitoring, regulation and control of processes

ASR 30	17
SD 2	17

Valves

Valves for the protection, regulation and control of lubricating oil, hydraulic and fuel systems

SPV pressure relief valves	19
DV B pressure relief valves	19
DV R pressure control valves	19
DV S pressure stage control valves	19

Hydraulic manifolds – Customised control units for hydraulic systems

HB	21
----	----

Directional control valves for the precise regulation of fluid flows

WL	21
----	----

Gear pumps for gearbox and engine lubrication systems

Engine lubrication

Gearbox lubrication

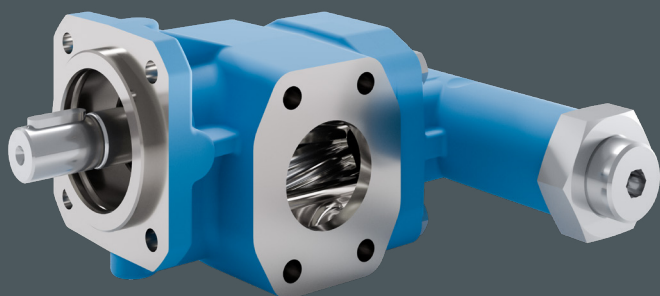
Oil circulation and cooling systems

Clutch lubrication

Supply and transfer functions



KF low-pressure pumps



Displacement	2.5 ... 3 150 cm ³ /rev
Media temperatures	-50 ... 200 °C
Maximum pressures	... 60 bar
Speed	... 3 600 1/min
Viscosities	1.4 ... 100 000 mm ² /s

KF gear pumps are used in the marine industry to ensure reliable component lubrication. They guarantee the formation of a stable lubricating film, efficient heat dissipation and a reduction in wear and corrosion under harsh operating conditions such as seawater environments, continuous operation and fluctuating load profiles.

KF pumps are typically designed for low-pressure lubrication systems up to 25 bar and are suitable for continuous operation, intermittent operation and safety-critical applications.

Types of seals

- > One radial lip-type seal
- > One radial lip-type seal with outboard bearing
- > Two radial lip-type seals with connection possibility for quench
- > Two radial lip-type seals for vacuum operation with connection possibility for quench
- > Mechanical seal
- > Mechanical seal and connection possibility for quench
- > Magnetic coupling

Options

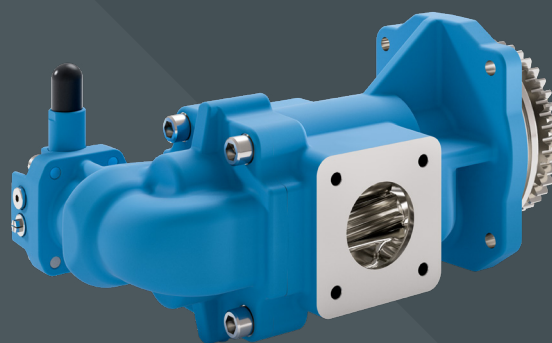
Compatible with various types of valves

- > Pressure relief valves
- > Pressure control valves
- > Pressure stage control valves
- > Universal valves
- > Special valves

Further options

- > ATEX versions
- > Noise-optimised versions
- > Outboard bearing to absorb radial forces from the drive side
- > Vacuum versions
- > Multiple pumps
- > Motor-pump units (electrically / mechanically driven)

SOP special pumps



Displacement	2.5 ... 3 150 cm ³ /rev
Media temperatures	-50 ... 200 °C
Maximum pressures	... 60 bar
Speed	... 3 600 1/min
Viscosities	1.4 ... 100 000 mm ² /s

SOP special pumps for the marine sector are based on the well-proven KF gear pumps and are specifically designed for demanding lubrication processes.

Thanks to space-optimised designs featuring integrated channels and specially designed suction geometries, SOP pumps can be precisely adapted to the specific application. There is no need for external pipework or flanges – this reduces interfaces, saves installation space and increases system reliability.

SOP pumps combine the proven performance of KF technology with maximum freedom of integration – for efficient, safe and long-lasting lubrication solutions in maritime applications.

Type of seal

- > One radial lip-type seal

Options

Compatible with

- > Pressure relief valves

Further option

- > Outboard bearing to absorb radial forces from the drive side

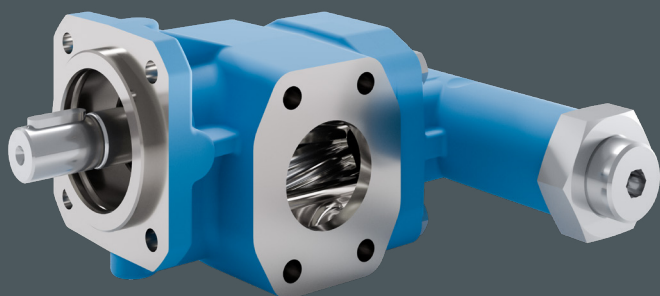
Gear pumps for drive systems

KP pumps for azimuth thrusters and CPP controllable-pitch propellers

KF pumps for the lubrication and cooling of propulsion components



KF low-pressure pumps



Displacement	2.5 ... 3 150 cm ³ /rev
Media temperatures	-50 ... 200 °C
Maximum pressures	... 60 bar
Speed	... 3 600 1/min
Viscosities	1.4 ... 100 000 mm ² /s

KF gear pumps are used in the marine industry to ensure reliable component lubrication. They guarantee the formation of a stable lubricating film, efficient heat dissipation and a reduction in wear and corrosion under harsh operating conditions such as seawater environments, continuous operation and fluctuating load profiles.

KF pumps are typically designed for low-pressure lubrication systems up to 25 bar and are suitable for continuous operation, intermittent operation and safety-critical applications.

Types of seals

- > One radial lip-type seal
- > One radial lip-type seal with outboard bearing
- > Two radial lip-type seals with connection possibility for quench
- > Two radial lip-type seals for vacuum operation with connection possibility for quench
- > Mechanical seal
- > Mechanical seal and connection possibility for quench
- > Magnetic coupling

Options

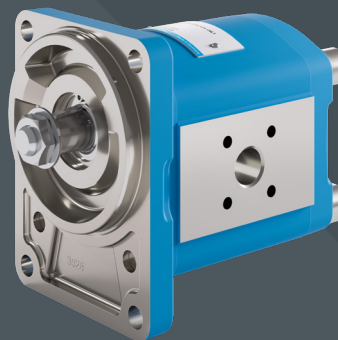
Compatible with various types of valves

- > Pressure relief valves
- > Pressure control valves
- > Pressure stage control valves
- > Universal valves
- > Special valves

Further options

- > ATEX versions
- > Noise-optimised versions
- > Outboard bearing to absorb radial forces from the drive side
- > Vacuum versions
- > Multiple pumps
- > Motor-pump units (electrically / mechanically driven)

KP high-pressure pumps



Displacement	3.0 ... 300 cm ³ /rev
Media temperatures	-20 ... 150 °C
Maximum pressures	... 315 bar
Speed	... 4 000 1/min
Viscosities	1.2 ... 1 000 mm ² /s

KRACHT sets the standard in the field of maritime high-pressure hydraulics: as one of only a few manufacturers, we offer KP high-pressure gear pumps in three different spheroidal cast iron versions – and meet all the requirements of the international classification societies. This allows hydraulic solutions to be designed precisely to meet the specific requirements of marine propulsion systems.

Whether for rotating azimuth thrusters or the precise adjustment of CPP propeller blades – KP pumps deliver reliable performance even under high pressures. The variety of material options enhances operational reliability, optimises service life and provides maximum flexibility.

Types of seals

- > One radial lip-type seal
- > Two radial lip-type seals with or without a „Uni-oiler“

Options

Compatible with

- > Direct-mount pressure relief valve

Further options

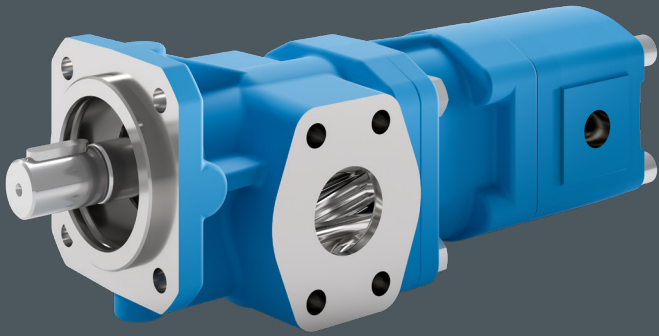
- > ATEX versions
- > Noise-optimised versions
- > Outboard bearing to absorb radial forces from the drive side
- > Multiple pumps
- > Motor-pump units (electrically / mechanically driven)

Multiple gear pumps

Customised solutions optimised
for specific applications

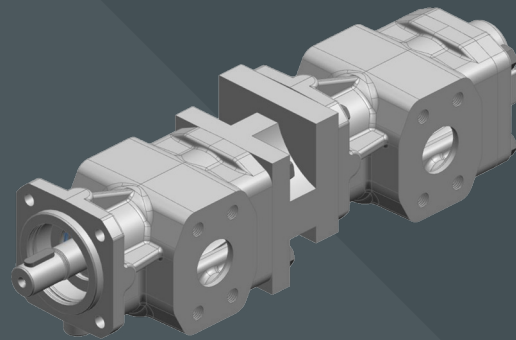


KF and KP pumps

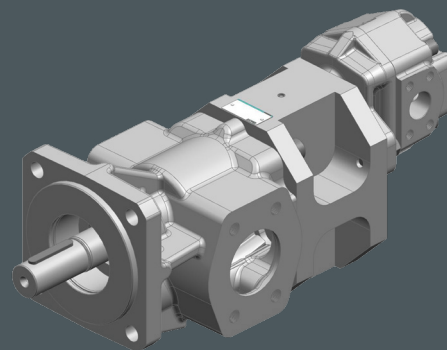


KRACHT multi-pump units combine several pumping functions into a single compact unit, thereby increasing system efficiency whilst reducing the installation space required and the number of interfaces. Hydraulically isolated circuits enable different functions to operate independently – even when flow directions within a pump combination are opposite.

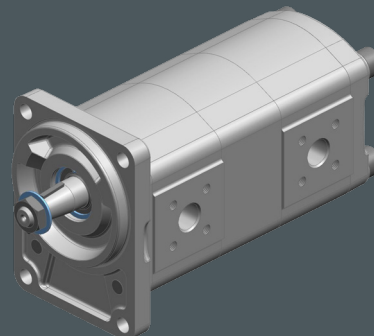
Thanks to the wide range of possible combinations of different nominal sizes, multi-pump units can be precisely tailored to individual system requirements. Approval by all relevant classification societies underlines their suitability for safety-critical maritime applications and ensures maximum operational reliability.



KF low-pressure pump
+ KF low-pressure pump



KF low-pressure pump
+ KP high-pressure pump



KP high-pressure pump
+ KP high-pressure pump

Gear pumps for marine fuels

Fuel supply and processing systems

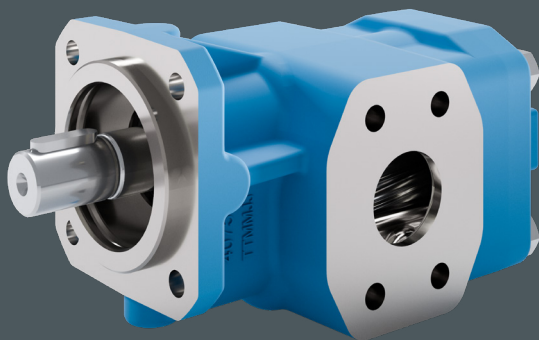
Transfer and bunkering systems

Day-tank and circulation systems

Supply to auxiliary and power generation systems



KF-F fuel pumps



Displacement	2.5 ... 630 cm³/rev
Media temperatures	-20 ... 150 °C
Maximum pressure	25 bar
Speeds	... 3 600 1/min
Viscosities	1.2 ... 20 000 mm²/s
Lubricity (ISO 12156)	WSD ≤ 520 µm

KRACHT KF-F gear pumps are specifically designed for the reliable delivery of marine fuels. They are suitable for marine diesel oil (MDO), marine gas oil (MGO) and heavy fuel oil (HFO), and are structurally optimised for use with low-viscosity and low-sulphur fuels.

Acceptance test certificates from classification societies in accordance with EN 10204-3.2 are available on request, ensuring the highest levels of safety and compliance with standards in marine operations. For particularly high operational reliability, the pumps can be optionally fitted with a magnetic coupling – ensuring leak-free operation, reduced maintenance and a long service life even under demanding maritime conditions.

Types of seals

- > One radial lip-type seal
- > Two radial lip-type seals
with connection possibility for quench
- > Mechanical seal
- > Magnetic coupling

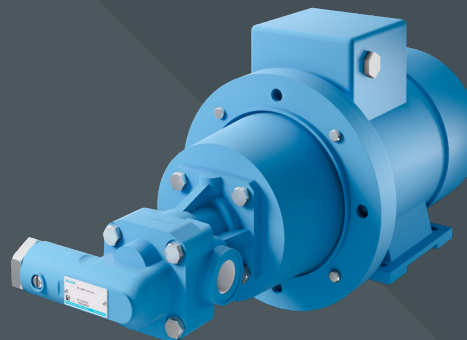
Options

Compatible with

- > Pressure relief valves

Further option

- > Motor-pump units (electrically / mechanically driven)



Option: Electrically driven motor-pump unit with magnetic coupling

Flow meters for monitoring and controlling fuel and oil systems

Fuel consumption measurement

Cooling and oil management systems

Volumetric cylinder stroke measurement

Test, inspection and calibration benches

Monitoring and controlling of hydraulic systems



VC gear type flow meters



Measuring ranges	... 700 l/min
Media temperatures	-60 ... 210 °C
Maximum pressures	... 480 bar
Typical measurement accuracy	... +/- 0.3 % of the measured value from 20 mm ² /s
Resolutions	... 13 000 000 Imp/l
Viscosities	... 2 500 000 mm ² /s

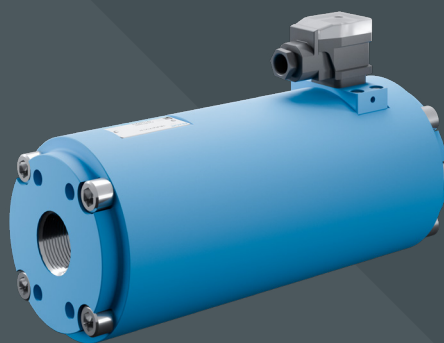
On board modern ships, flow meters do far more than simply measure consumption. They provide precise data for monitoring, improving efficiency and ensuring the operational safety of fuel, lubrication and hydraulic systems – from engine control to condition monitoring of safety-critical propulsion components.

In addition to the spheroidal cast iron versions, stainless steel flow meters are also available, guaranteeing maximum corrosion resistance, high measurement accuracy and long-term reliability – even under harsh environmental conditions and with demanding media.

Product characteristics

- > High-precision measurements with excellent repeatability
- > Pulsation-free measuring principle
- > IO-Link technology available
- > Analogue technology available
- > High-resolution encoder technology available
- > Explosion-proof versions (ATEX/IECEX) available
- > Stainless steel versions available with high resistance to corrosion and process media, as well as high mechanical and thermal resilience
- > Wide measurement ranges with appropriate design sizes
- > Application-optimised specification
- > Low pressure drop

SVC screw type flow meters



Measuring ranges	... 3 750 l/min
Media temperatures	-40 ... 210 °C
Maximum pressures	... 480 bar
Typical measurement accuracy	... +/- 0.2 % of the measured value from 20 mm ² /s
Resolutions	... 247 000 Imp/l
Viscosities	... 2 500 000 mm ² /s

Screw type flow meters are ideal for high-precision flow measurement of low- to medium-viscosity liquids such as fuels, lubricating oils and hydraulic oils. The measurement principle, which involves virtually no pressure loss, ensures accurate measurement of the volumetric flow rate without affecting the system hydraulics.

Thanks to their exceptional measurement dynamics, screw type flow meters deliver stable and reproducible measurement results even with highly fluctuating flow rates. SVC flow meters are characterised by low wear, high long-term stability and minimal maintenance – a clear advantage for reliable continuous operation in maritime applications.

Product characteristics

- > High-precision measurements with excellent repeatability
- > Pulsation-free measuring principle
- > IO-Link technology available
- > Analogue technology available
- > High-resolution encoder technology available
- > Explosion-proof versions (ATEX/IECEX) available
- > Wide measurement ranges with appropriate design sizes
- > Application-optimised specification
- > Very low pressure drop
- > Any flow direction
- > Wide temperature range
- > High working pressure
- > Very low noise
- > Highly-dynamic measurements

Valve position indicators for the mechanical/electronic display of hydraulic valve controls



VOLUME



Flow ranges	... 150 l/min
Maximum pressures	... 300 bar
Media temperatures	-20 ... 80 °C
Ambient temperatures	-20 ... 60 °C
Resolutions	... 5 000 Imp/l
Viscosities	... 380 mm ² /s

The VOLUME valve position indicator is a modular assembly with the connection pattern for directly controlled NG 06 directional control valves. Specifically, the module consists of a hydraulic manifold, a flow meter and a display unit. Mounted on a mounting plate and fitted with a directional control valve, the VOLUME is used to control hydraulically actuated marine valves for ballast, cargo or stripping systems, and to measure and display the valve's travel.

The control module is suitable for installation in deck boxes. The volumetrically measured valve position can be read directly on site or transmitted electrically via a potentiometer or limit switch.

Product characteristics of the flow meter with indicator

- > Double pilot operated check valve for holding the actuator position
- > Pressure relief valves for limiting the pressure caused by increased temperature
- > Check valve to avoid wrong indications when temperature fluctuates
- > Throttle valve for speed regulation of the actuator

VOLUTRONIC®



Flow ranges	... 10 l/min
Maximum pressures	... 160 bar
Media temperatures	-20 ... 80 °C
Ambient temperatures	-20 ... 60 °C
Resolutions	... 5 000 Imp/l
Viscosities	... 380 mm ² /s

The VOLUTRONIC® valve position indicator differs from the mechanical VOLUME in that it uses electronic signal processing. Two incremental signals with a 90° phase shift are transmitted to the control unit, which not only displays the flow volume but also indicates the flow direction.

The VOLUTRONIC® valve position indicator is characterised by its wide range of actuator sizes and travel speeds.

Product characteristics of the flow meter with indicator

- > Check valve for holding the actuator position when switching parallel actuators
- > Check valve to avoid indicator fluctuations due to pressure pulsation
- > Temperature pressure relief valve for limiting the pressure caused by increased temperature
- > Check valve to avoid wrong indications when temperature fluctuates
- > Throttle valve for speed regulation of the actuator

Available hydraulic manifolds

Product characteristics of the HB 4 0311 hydraulic manifold

- > Mechanical, current-independent display
- > Current-independent position detection
- > Leakage detection
- > Reset function
- > Calibration to actuator size by gear reduction

Product characteristics of the HB 4 0324 hydraulic manifold

- > Display via downstream electronics
- > Bidirectional flow direction
- > Leakage detection, reset function, calibration to actuator size and error indication via downstream electronics

Electronics

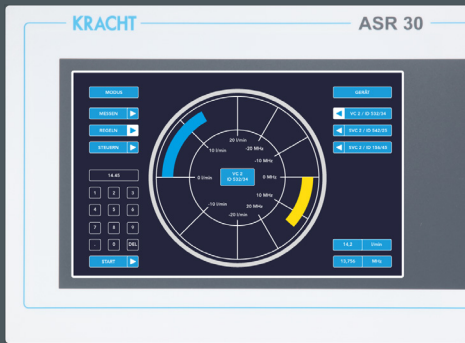
for the monitoring, regulation and control
of a wide range of processes



General

The powerful electronics processes the signals supplied by the flow meter and ensures that processes are precisely monitored, regulated and controlled. It is used, for example, in fuel consumption measurement or as flexible measurement electronics for various applications.

ASR 30



The ASR 30 is a control unit which can be operated via touch screen. In addition, the unit can be expanded with manual operating units. This allows the implementation of numerous fluid technology applications. Standardized programs are available for various applications. The ASR 30 programming can be optimally adapted to the respective application.

SD 2



The SD 2 plug-on display is a universal on-site display for all flow meter series. There are two modes to choose from: flow monitoring and level monitoring. The display can show measured values in the following units: pulses, frequency, rotational speed, volume flow and mass flow, total volume and total mass.

The SD 2 is expected to be available from October 2026.

Valves

for the protection, regulation and control of lubricating oil, hydraulic and fuel systems



SPV pressure relief valves



Volume flow rates	... 800 l/min
Media temperatures	-40 ... 220 °C
Maximum pressures	120 bar
Viscosities	1.2 ... 1 000 mm ² /s

The SPV/SPVF pressure relief valve is a directly controlled slide valve for installation in pipelines and is used to safeguard low-pressure hydraulic circuits. The line connection can be made using SAE flanges (3000 psi) or Whitworth pipe threads.

Product characteristics

- > EN 10204-3.2 inspection certificate from classification authorities, available on request
- > For protecting lubricating oil systems with tank connection
- > Applicable for pretension of lubricating oil systems
- > ATEX versions available
- > Versions in EN-GJL-300 or EN-GJS-400

DV pressure valves



Volume flow rates	... 1 800 l/min
Media temperatures	-20 ... 150 °C
Maximum pressures	210 bar
Viscosities	4.0 ... 1 000 mm ² /s

DV B pressure relief valves

The DV B pressure relief valves are hydraulically pilot controlled valves. The control oil can be discharged either internally or externally. As standard, all designs are equipped with a measuring port and a connection for external control oil regulation. Typical applications are oil hydraulics and lubrication technology.

On request, the DV B pressure relief valves are also available with an additional 2/2-directional control valve (e.g. for pressure-minimized circulation).

DV R pressure control valves

The DV R pressure control valve is a pilot-controlled pressure relief valve with external hydraulic activation. It allows for the system pressure to be controlled irrespective of the pressure losses occurring between the valve and the point of the external control oil tap. Typical applications include pressure control in lubricating oil circuits of diesel engines.

DV S pressure stage control valves

The DV S pressure stage control valve is a pilot-controlled pressure relief valve with two parallel switched pilotcontrol valves which can be set to different pressures. The pressure stage control valve has an integrated directional valve in addition. It is used to switch the low pressure stage (upstream pressure) on and off. The control oil drainage here can also be implemented internally or externally. A typical application field is the coupling control of ship transmissions.

Product characteristics

- > EN 10204-3.2 inspection certificate from classification authorities, available on request
- > For pressure control in various applications in hydraulic, lubricating oil and fuel systems
- > Control oil connections enable external pressure control or relief

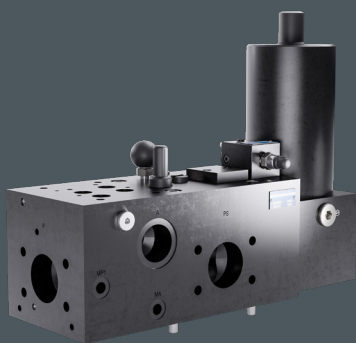


Hydraulic manifolds

Customised control units
for hydraulic systems

Directional control valves
for the precise regulation of fluid flows

HB hydraulic manifolds



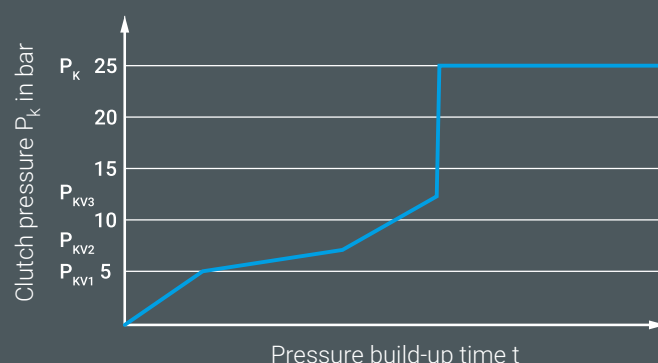
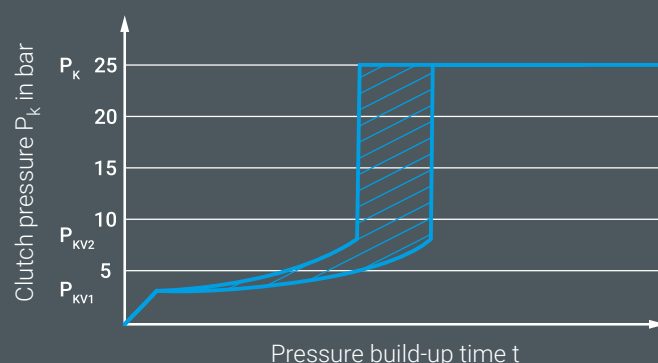
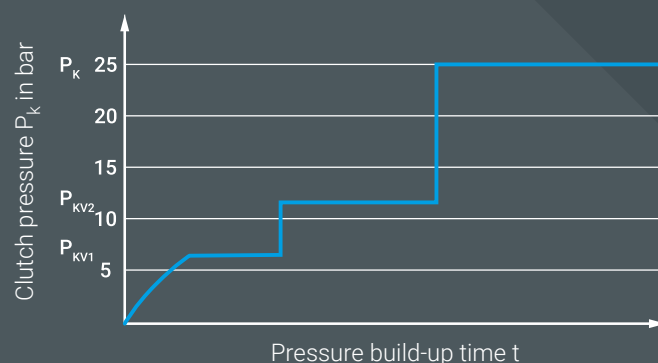
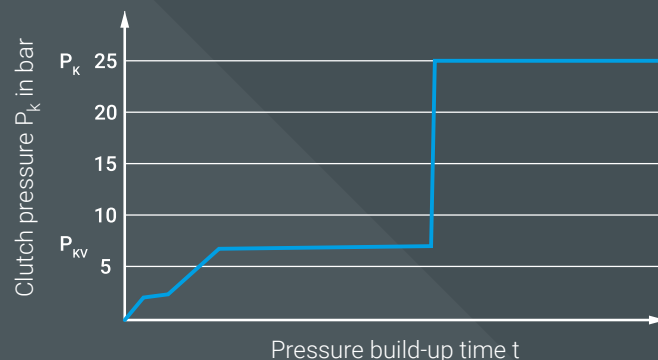
Volume flow rates ... 3000 l/min
Maximum pressures ... 480 bar
Media temperatures -30 ... 200 °C

Our hydraulic manifolds are custom-made control units for hydraulic applications. The product range includes all the necessary hydraulic functional components and their various designs (mono- and sandwich blocks, built-in and surface-mounted components). It is complemented by integrated electronic sensors, control units and actuators.

Characteristics

- > Complete hydraulic control of clutches
- > Purely mechanical versions available
- > Adjustable pressure curves
- > Optional manual emergency override

Example pressure build-up curves for hydraulic manifolds



WL directional control valves



Volume flow rates ... 700 l/min
Maximum pressures ... 350 bar
Media temperatures -30 ... 80 °C

Our directional control valves, which come with a type test certificate in accordance with EN 10204-3.1, are designed to direct the flow of hydraulic fluid in a specific direction, whilst connecting or shutting off the relevant ports. This is how the movement of the actuators in a hydraulic system is controlled.

KRACHT GmbH

Gewerbestrasse 20
58791 Werdohl, Germany
Phone: +49 2392 935 0
E-Mail: info@kracht.eu

kracht.eu

Errors and technical changes reserved
Marine/EN/07.2026