

## Product Overview



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# KRACHT

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# Company

## 100 years of experience make us stand out as a reliable partner.

We are a leading manufacturer of gear pumps and flow meters. Over 300 employees at the Werdohl site and an additional 85 employees in our subsidiary companies in China, USA and Hungary design, produce and sell products in both standard versions as well as special solutions tailor-made to customer wishes.

These high-quality components are used for gear lubrication, for instance in wind power plants and ships gears, in dosing and mixing plants e.g. for manufacturing PU foams, and in testing technology. The range is supplemented by products for mobile hydraulics and industrial hydraulics which are used, for example, in construction machinery, agricultural machines, in general mechanical engineering and a multitude of stationary applications.

Dependable delivery and high-quality standards are just as important a part of the corporate philosophy as fairness to customers, suppliers and employees alike.



**1911**

Registration in the commercial register under the name „Hillebrand & Kracht OHG“

**1971**

Construction of today's company premises on a total area of over 50,000 square meters

**1983... 1993**

Sale through the Swedish group BAHCO through Investmentholding Industrierården to the COMAC Group

**1992**

Purchase of a gear-manufacturer in Hungary, now KRACHT Hidraulik KFT.

**1995**

First certification according to DIN EN ISO 9001, KRACHT Hidraulik KFT., Budapest according to DIN EN ISO 9002 by Lloyd's Register Quality Company

**1996**

KRACHT is once again in private ownership

**1999**

Mr. Peter Zahn becomes 100% proprietor of KRACHT GmbH

**2000**

First certification according to DIN EN ISO 14001

**2002**

Mr. Heiko Zahn is appointed as Second Managing Director

**2003**

Certification based on the ATEX Directive 94/9/EEC (ATEX 95)

**2008**

In New York, USA the KRACHT Corporation is founded

**2009**

Establishment of the subsidiary in Shanghai, China

**2011**

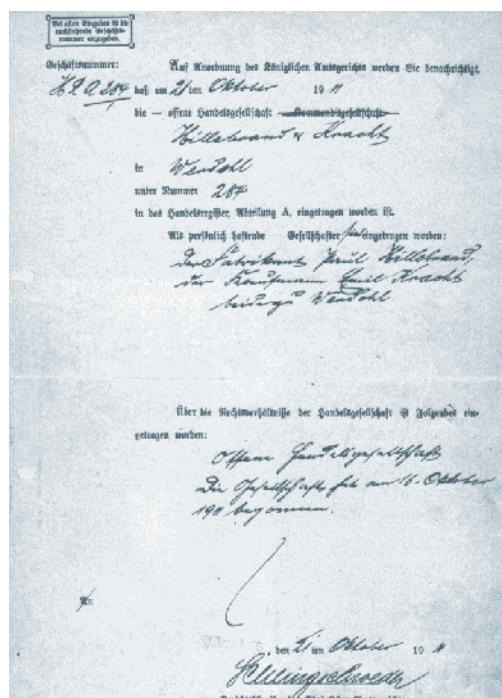
Opening of the in-house health centre on a area of approximately 300 square meters

**Oktober 2011**

The company KRACHT has existed for 100 years

**2012**

KRACHT GmbH was certified in accordance with GOST and has received approval for pressure relief valves, transfer pumps and high pressure gear pumps. In December, KRACHT was certified by the German Federal Department of Aviation (LBA) and now has the status „known signor“



Certificate of incorporation of today's Kracht GmbH

# Gear Pumps

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Gear Pumps KF

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Gear Pumps BT

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DuroTec® - Gear Pumps DT

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Pressure Relief Valves

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Special Pumps

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High economy, optimal efficiency and silent operation. These are all important features which particularly characterize our gear pumps.

Compact design, low weight, solid construction and workmanship, anti-wear coatings, application specific materials, sizes and seal variants, as well as numerous accessories and type of connections are additional reasons which make KRACHT gear pumps more than interesting for every user.



## Gear Pumps

## KF 2.5 ... 315

<b>Housing</b>	Grey cast iron (spheroidal cast iron, optional)
<b>Gear</b>	Steel
<b>Bearing</b>	Stratified plain bearing (Plastic slide bearing, optional)
<b>Connection</b>	KF 2.5 ... 25 Pipe connection or SAE - Flange connection  KF32 ... 315 SAE - Flange connection
<b>Displacement</b>	2.5 ... 315 cm <sup>3</sup> /r
<b>Working pressure</b>	... 25 bar
<b>Speed</b>	... 3600 1/min
<b>Viscosity</b>	1.4 ... 20 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	–30 ... 200 °C
<b>Shaft seal</b>	Single rotary shaft lip NBR, FKM, PTFE or EPDM  Double rotary shaft lip NBR, FKM or PTFE  Connection for quench chamber optional for vacuum applications  Mechanical seal  Magnetic coupling
<b>Option</b>	Flanged pressure relief valve (Safety Valve)  Direction of rotation, left and right / universal  ATEX type  Low - temperature version up to –30°C  Vacuum type up to –0.9 bar
<b>Applications</b>	Supplying of lubricants in ship engines  Supplying of lubricants in wind power plants  Pre-lubrication and main lubrication of diesel engines  Supplying of compressor lubricants  Oil supply in filter systems  Dosing of polyurethane components

## Gear Pumps

## KF 3/100 ... KF6/730

<b>Housing</b>	Grey cast iron (spheroidal cast iron, optional)
<b>Gear</b>	Steel
<b>Bearing</b>	Stratified plain bearing
<b>Displacement</b>	100 ... 730 cm <sup>3</sup> /r
<b>Working pressure</b>	... 25 bar
<b>Speed</b>	... 2000 1/min
<b>Viscosity</b>	12 ... 15 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	–10 ... 200 °C
<b>Shaft seal</b>	Single rotary shaft lip NBR, FKM or PTFE  Double rotary shaft lip FKM or PTFE  Connection for quench chamber optional for vacuum applications  Mechanical seal  Magnetic coupling
<b>Option</b>	Flanged pressure relief valve (Safety Valve)  Direction of rotation, left and right / universal  ATEX type  Low-noise version for media with increased proportion of air
<b>Applications</b>	Supplying of lubricants in ship engines  Supplying of lubricants in wind power plants  Pre-lubrication and main lubrication of diesel engines  Supplying of compressor lubricants  Oil supply in filter systems  Dosing of polyurethane components



## Gear Pumps

**KF 32... 80**

with T-Valve

<b>Housing</b>	Grey cast iron (spheroidal cast iron, optional)
<b>Gear</b>	Steel
<b>Bearing</b>	DU (multi-layer friction-type bearings P 10, DP 4)
<b>Displacement</b>	32 ... 80 cm <sup>3</sup> /r
<b>Working pressure</b>	... 25 bar
<b>Speed</b>	... 3000 1/min
<b>Viscosity</b>	12... 5 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-30 ... 200 °C
<b>Shaft seal</b>	Rotary shaft lip NBR, FKM, PTFE, EPDM

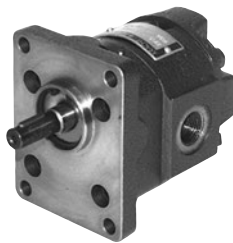
## Gear Pumps

**KF 32... 112**

with Universal Valve

<b>Housing</b>	Grey cast iron (spheroidal cast iron, optional)
<b>Gear</b>	Steel
<b>Bearing</b>	DU (multi-layer friction-type bearings P 10, DP 4)
<b>Displacement</b>	32 ... 112 cm <sup>3</sup> /r
<b>Working pressure</b>	... 25 bar
<b>Speed</b>	... 3000 1/min
<b>Viscosity</b>	12 ... 20 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-30 ... 150 °C
<b>Shaft seal</b>	Rotary shaft lip NBR, FKM, Low Temperature FKM

KRACHT's know-how warrants functional solutions, standardized and optimal for many applications.



#### Gear Pumps

### KF 0

<b>Housing</b>	Grey cast iron
<b>Gear</b>	Special steel with wear-resistant and corrosion resistant coating
<b>Bearing</b>	Plain bearing bushes from special steel with wear-resistant and corrosion-resistant coating
<b>Displacement</b>	0.5 ... 4 cm <sup>3</sup> /r
<b>Working pressure</b>	... 120 bar
<b>Speed</b>	... 3000 1/min
<b>Viscosity</b>	10 ... 20 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-20 ... 200 °C
<b>Shaft seal</b>	Single rotary shaft lip NBR, FKM or PTFE Double rotary shaft lip FKM or PTFE Connection for quench chamber Magnetic coupling
<b>Applications</b>	Supplying of lubricants Dosing of polyurethane components

#### Gear Pumps

### KF 1/4 ... KF 1/24

coated

<b>Housing</b>	Grey cast iron
<b>Gear</b>	Special steel with wear-resistant and corrosion resistant coating
<b>Bearing</b>	Plain bearing bushes from special steel with wear-resistant and corrosion-resistant coating
<b>Displacement</b>	4 ... 24 cm <sup>3</sup> /r
<b>Working pressure</b>	... 50 bar
<b>Speed</b>	... 2000 1/min
<b>Viscosity</b>	12 ... 15 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-10 ... 200 °C
<b>Shaft seal</b>	Double rotary shaft lip FKM or PTFE Connection for quench chamber Magnetic coupling
<b>Option</b>	Flanged pressure relief valve (Safety valve)
<b>Applications</b>	Dosing of polyurethane components



## Gear Pumps

**BT 0...BT 7**

<b>Housing</b>	Grey cast iron (Sizes 0 ... 7) Bronze (Sizes 1 ... 4) Stainless steel (Size 2)
<b>Gear</b>	Steel (Sizes 1 ... 7) Stainless steel (Sizes 1 ... 4)
<b>Bearing</b>	without bearing bushes (Sizes 0 ... 4) Iron bearing bushes (Sizes 1 ... 7) Bronze bearing bushes (Sizes 1 ... 7)
<b>Displacement</b>	4 ... 494 cm <sup>3</sup> /r
<b>Working pressure</b>	... 8 bar
<b>Speed</b>	... 750 1/min
<b>Viscosity</b>	76 ... 30 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-10 ... 220 °C
<b>Shaft seal</b>	Pack Mechanical seal
<b>Option</b>	ATEX type (Sizes 1 ... 7)
<b>Applications</b>	Pumping of bitumen Pumping of paints/inks/varnishes etc. Pumping of glue Pumping of resins

## Gear Pumps

**BTH 1...BTH 3**

<b>Housing</b>	Grey cast iron
<b>Gear</b>	Steel Stainless steel (Sizes 1 ... 4)
<b>Bearing</b>	Iron bearing bushes Bronze bearing bushes
<b>Displacement</b>	97 ... 1056 cm <sup>3</sup> /r
<b>Working pressure</b>	... 8 bar
<b>Speed</b>	... 750 1/min
<b>Viscosity</b>	76 ... 30 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-10 ... 220 °C
<b>Applications</b>	Pumping of bitumen Pumping of paints/inks/varnishes etc. Pumping of glue Pumping of resins





### Gear Pumps DT DuroTec®

<b>Housing</b>	Spheroidal cast iron
<b>Gear</b>	Special steel with wear-resistant and corrosion-resistant coating
<b>Bearing</b>	Bearing bush SIC
<b>Displacement</b>	DT 1 = 5.5, 8, 11, 16, 22 cm <sup>3</sup> /r DT 3 = 63, 100, 125 cm <sup>3</sup> /r DT 5 = 150, 200, 250 cm <sup>3</sup> /r
<b>Working pressure</b>	... 150 bar
<b>Speed</b>	... 1500 1/min
<b>Viscosity</b>	500 ... 50 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	... 150 °C
<b>Shaft seal</b>	Double rotary shaft lip FKM or EPDM Mechanical seal with Quench chamber
<b>Option</b>	ATEX type
<b>Applications</b>	Dosing of media with abrasive additives

### Pressure Relief Valves

**SPV/SPFV** directly-operated  
**HV/HVF** pilot operated

<b>Housing</b>	Grey cast iron (SPV/SPFV optionally in spheroidal cast iron)
<b>Valve cone material</b>	Steel
<b>Max. flow volumes</b>	40 ... 800 l/min
<b>Working pressure</b>	... 160 bar
<b>Viscosity</b>	6 ... 1 500 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-20 ... 220 °C
<b>Applications</b>	System protection of lubrication systems

### Pressure Valves

**DV**  
pilot-operated

<b>Functions</b>	Pressure Relief Valve DV B Pressure Stage Control Valve DV S Pressure Control Valve DV R
<b>Housing</b>	Spheroidal cast iron
<b>Max. flow volumes</b>	... 1800 l/min
<b>Working pressure</b>	... 210 bar
<b>Viscosity</b>	4... 1000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	-20... 150°C
<b>Applications</b>	Coupling control of ship gears Pressure regulation of lubrication oil circuits in diesel engines Oil hydraulics Lubrication systems

# Flow Measurement

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Gear Type Flow Meters VC

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Screw-Type Flow Meters SVC

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Turbine Flow Meters TM

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Electronics

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VOLUMEC

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VOLUTRONIC®

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VOLUCODEC

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Flow Measurement - that means high-dynamic, precise volume and flow measurements, evaluated according to the application – from a simple display unit to an intelligent microcontroller solution.

The basis for all this is the KRACHT flow meter VC. This flow meter presents the successful result of our long-experienced engineers. The sophisticated tooth system geometry in connection with application-specific bearings are made for the flow meter VC being an absolute „All-rounder“.

The flow meter covers a wide medium range: to go from hydraulic oil to printing ink, from gear grease to water based lacquer.

The highly-efficient KRACHT electronics takes the signals given by the flow meter and ensures that processes are exactly monitored, regulated and controlled. For example, in process technology as micro-controller for metering and mixing systems, or as flexible measuring and recording electronics for differentiated applications in test bench construction.



#### Gear Type Flow Meters

### VC

VC 0.025 ... VC 16 - Spheroidal cast iron  
VC 0.025 ... VC 5 - Stainless steel

<b>Measuring range</b>	0.008 ... 700 l/min
<b>Measuring ratio</b>	1 : 300
<b>Working pressure</b>	... 400 bar
<b>Viscosity</b>	1 ... 1 000 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	–30°C ... 220°C
<b>Measuring accuracy</b>	up to ± 0.3% deviation from measured value
<b>Electrical output</b>	2 incremental signals 90° out of phase
<b>Option</b>	ATEX type
<b>Applications</b>	<ul style="list-style-type: none"> <li>– Measuring of fuel consumption</li> <li>– Curve tracing of hydraulic components</li> <li>– Filling of gear lubricants</li> <li>– Indirect, volumetric cylinder stroke measurement</li> <li>– Consumption measurement of inks</li> <li>– Ratio measurement in dosing plants for 2- and multiple component media</li> </ul>

#### Gear Type Flow Meters

### VCA/VCN/VCG

VCA 0.04 / VCA 0.2 / VCA 2 / VCA 5 - Aluminium  
VCN 0.04 / VCN 0.2 - Stainless steel  
VCG 2 / VCG 5 - Spheroidal cast iron

<b>Measuring range</b>	0.02 ... 200 l/min
<b>Measuring ratio</b>	1 : 200
<b>Working pressure</b>	... 200 bar
<b>Viscosity</b>	20 ... 4 000 mm <sup>2</sup> /s
<b>Fluid temperature</b>	–10 ... 80 °C
<b>Measuring accuracy</b>	up to ± 1 % deviation from measured value
<b>Electrical output</b>	1 incremental signal
<b>Option</b>	ATEX type (From size 2)
<b>Applications</b>	<ul style="list-style-type: none"> <li>– Lubrication oil control</li> <li>– Measuring of fuel consumption</li> <li>– Cylinder stroke measurement</li> </ul>



### Screw-Type Flow Meters

## SVC

SVC 10... SVC 250 - Spheroidal cast iron

Measuring range	0.4 ... 3750 l/min
Measuring ratio	1 : 150
Working pressure	... 400 bar
Viscosity	1 ... 1 000 000 mm <sup>2</sup> /s
Fluid temperature	-40°C ... 220°C
Measuring accuracy	± 0.2 %
Option	ATEX type
Applications	<ul style="list-style-type: none"> <li>- Measuring of fuel consumption</li> <li>- Dosing plants</li> <li>- Process Technology</li> <li>- Test bench construction</li> </ul>

### Turbine Flow Meters

## TM

TM 0.275 ... TM 4000 - Stainless steel

Measuring range	4.6 ... 66667 l/min
Measuring ratio	1 : 10
Working pressure	... 400 bar
Fluid temperature	-30 ... 400 °C
Measuring accuracy	up to ± 0.4 % deviation from measured value
Electrical output	1 incremental signal
Option	ATEX type
Applications	Flow measurement of water and cooling lubricants

## Electronics



The plug-on display, the SD 1, is an onsite display that can be used universally for all volume counter series (VC, SVC, TM) with Hirschmann plugs. Flow rate or volume indicators can be optionally attached to the display.



The AS 8 microcontroller processes incremental input signals from the flow meters. The input signals are filtered in the unit, converted, and computed into the physical sizes of flow rate or volumes.

### Plug-On Display

#### SD 1

Local display for all KRACHT flow meters

With plug connection according to DIN EN 175301-803

With 4-digit LED display for flow rate or volume

<b>Power supply</b>	18 VDC - 28 VDC optional 10 - 19 VDC
<b>Display</b>	Principle: 7-segment LED, 7.62 mm, red Display: 0.000 ... 9999 with floating point Overflow: (>9999) display 9999
<b>Touch panel</b>	two buttons behind a screen
<b>Housing</b>	Aluminium
<b>Front frame</b>	Height without plug approx. 35 mm Width approx. 60 mm Depth approx. 60 mm
<b>Degree of protection</b>	IP 65 (DIN 40050)
<b>Weight</b>	Approx. 0.12 kg
<b>Working temperature</b>	0°C ... 60 °C
<b>Connections</b>	Right angle plug DIN 43650 (4-pole), polarized
<b>Output</b>	- SD1-R incremental output - SD1-I analogue output 0 - 20 mA or 4 - 20 mA - SD1-K 2 relay contacts 24 VDC/1A
<b>Option</b>	SD1-Service with battery pack

### Display Unit

#### AS 8

Control unit in control panel housing

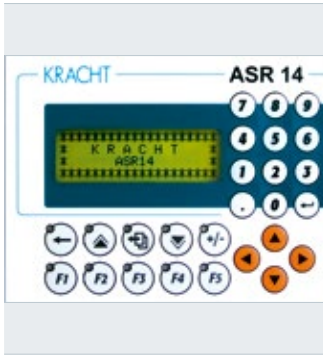
5-digit LED display for flow rate or volume

<b>Power supply</b>	230 VAC, + 6% ... - 10% / 50 - 60 Hz, optional 120 VAC, 24 VDC, 12 VDC
<b>Display</b>	Principle: 7-segment LED, 13.2 mm, red Display: 0.000 ... 9999 with floating point Overflow (>9999): Display 9999 Overflow (< --9999): Display -9999 Status display: Illuminating diode K1 and K2 for relay 1 and 2
<b>Touch panel</b>	three buttons behind the front panel, optional keys on front panel
<b>Housing</b>	for switch panel plug-in unit made of plastic
<b>Front frame</b>	96 × 48 mm, DIN 43700
<b>Insertion depth</b>	approx. 122 mm with plug board
<b>Cut-out panel section</b>	92 × 45 mm, tolerance + 0.8 x + 0.6 mm
<b>Degree of protection</b>	IP 54 in appropriate switch panel mounting
<b>Weight</b>	approx. 0.4 kg
<b>Working temperature</b>	0°C ... 60 °C
<b>Connections</b>	15 pins terminal connecting block
<b>Output</b>	± 20 mA or 0 ... 20 mA or 4 ... 20 mA or Voltage output ± 10 V or 0 ... 10 V or Serial interface RS 232
<b>Supply</b>	230 V, 50/60 Hz or 120 V, 50/60 Hz or 24 VDC or 12 VDC

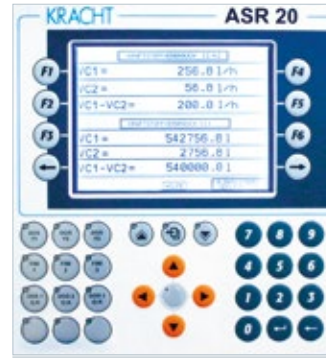
#### Special software for the following applications:

- Flow control
- Dosing
- Cylinder stroke measurement and monitoring
- Display and monitoring of added amounts
- Display and monitoring of differential amounts
- Display and monitoring of mixing ratio
- Display and control of mixing ratio

## Control Units



The ASR 14 integrates control, operation and visualisation. The programming in the ASR 14 can be ideally adapted to each application.



The ASR 20 is a combination comprising a control panel and a controller unit. That means numerous fluid-engineering applications can be implemented. Standardised programs are available for various applications.

### Control Unit ASR 14

Power supply	24 VDC
Display	LC-Display, black / white, 4 × 20 characters, with background lighting
Keyboard	26 function keys (10 with LED)
Housing	Control-panel housing
Front frame	153 × 120 × 46.1 mm (W × H × D)
Cut-out panel section	141 × 108 mm
Degree of protection	IP 65 (front)
Weight	0.5 kg
Working temperature	0°C ... 50 °C
Digital inputs	16, two of which are (one-channel) counting inputs or 1 two-channel counting input
Input current	at 24 V approx. 10 mA
Digital outputs	16
Switching voltage	24 VDC
Output current	0.5 A

#### Special software for the following applications:

- Dosing

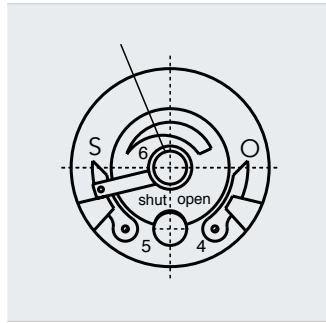
### Control Unit ASR 20

Power supply	24 VDC ± 25%
Display	5.4 QVGA (320 × 240 pixels) black / white LC-Display, with background lighting
Keyboard	8 soft keys and 32 function keys
Housing	Control-panel housing
Front frame	205 × 220 mm (W × H)
Insertion depth	136 mm with connection plug
Cut-out panel section	191 × 202 mm
Degree of protection	IP 65 (front)
Weight	Approx. 1.95 kg
Working temperature	0°C ... 50 °C
Digital inputs	10, four of which are (one-channel) counting inputs
Input current	at 24 V approx. 4 mA
Digital outputs	9, one of which is a floating relay contact
Switching voltage	24 V ± 25%
Output current	Maximum 0.4 A

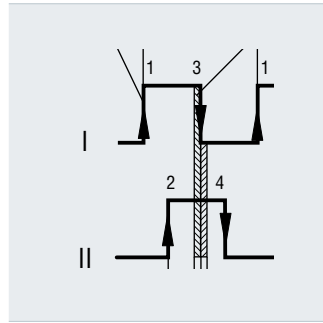
#### Special software for the following applications:

- Flow control
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- Cylinder stroke measurement and monitoring
- Display and monitoring of added amounts
- Display and monitoring of differential amounts
- Display and monitoring of mixing ratio
- Display and control of mixing ratio

Valve Position Indicator  
**VOLUME C**



Valve Position Measuring Instrument  
**VOLUTRONIC®**



Valve Position Indicator with Encoder  
**VOLUCODEC**



<b>Design</b>	Gear type volume counter	Gear type volume counter	Gear type volume counter
<b>max. flow rate</b>	02: 4 l/min 04: 7 l/min 5: 150 l/min	0.25 up to 10 l/min	02: 4 l/min 04: 7 l/min
<b>max. working pressure</b>	02 / 04: 200 bar 5: 300 bar	160 bar	02 / 04: 200 bar
<b>Display</b>	mechanical	by downstream electronic possible	LED
<b>Current-independent display</b>	Yes	-	No
<b>Current-independent position detection</b>	Yes	No	Yes
<b>Leakage detection</b>	Yes	by downstream electronic possible	Yes
<b>Reset function</b>	at slipping coupling	by downstream electronic possible	Yes
<b>Calibration to actuator size</b>	by gear reducing	by downstream electronic possible	free programmable
<b>Flow direction</b>	must be defined	A-B / B-A	free programmable
<b>Error message</b>	No	by downstream electronic possible	Yes

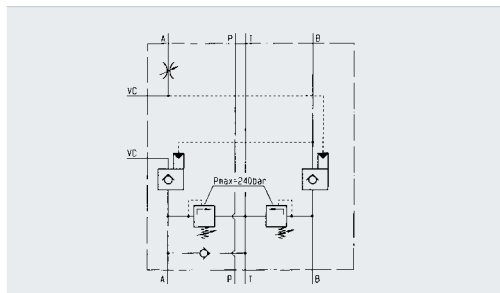
Hydraulic Manifolds

**HB 4 0311**

Description

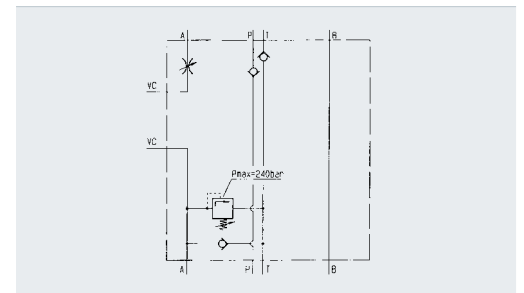
- double pilot operated check valve for holding the actuator position
- two pressure relief valves for limiting the pressure caused by increased temperature
- throttle valve in port A for speed regulation of the actuator
- check valve for filling the piping to avoid wrong indications when temperature fluctuates

Schematic



**HB 4 0324**

- check valve in P for holding the actuator position when switching parallel actuators
- check valve in T to avoid indicator fluctuations due to pressure pulsation
- one temperature pressure relief valve for limiting the pressure caused by increased temperature
- throttle valve in port A for speed regulation of the actuator
- check valve for filling the piping to avoid wrong indications when temperature fluctuates



# Mobile Hydraulics

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High Pressure Gear Pumps and Motors

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Valves for Mobile Applications

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When you need to produce and control high pressures, forces and torques permanently for mobile applications, then there are some preconditions:

- robust, service-friendly technology
- small size
- low weight
- as flexible multiple use of a component as possible
- easy handling and operation

The KRACHT mobile hydraulics components meet these requirements exemplarily.



## High Pressure Gear Pumps

**KP**

with hydraulic axial clearance compensation

Displacement	1 ... 300 cm <sup>3</sup> /r
Working pressure	... 315 bar
Speed	... 4000 1/min
Viscosity	10 ... 800 mm <sup>2</sup> /s
Media temperature	-20 ... 150 °C

Manifold pump combinations  
with a common suction connection



## High Pressure Gear Motors

**KM**

Displacement	1 ... 300 cm <sup>3</sup> /r
Working pressure	... 315 bar
Speed	... 4000 1/min
Viscosity	10 ... 800 mm <sup>2</sup> /s
Media temperature	-20 ... 150 °C

Designs in aluminium, cast iron, spheroidal cast  
iron, flow dividers or as fan motors



## High Pressure Gear Motors

**KM**

Fan drives

## Designs:

- pressure relief valve
- on-off function
- pressure relief valve and reversible unit
- thermostatic valve and pressure relief valve
- thermostatic valve and pressure relief valve with reversible unit
- “standard” with proportional valve
- “space optimized” with proportional valve
- “standard” with proportional valve and reversible unit
- “space optimized” with proportional valve and reversible unit

## Valves

**Directional control Valves,  
Sandwich Valves, Monobloc  
directional control Valves**

Nominal size	... 25
Max. flow capacity	... 400 l/min
Nom. working pressure	... 400 bar

## Valves

**Pressure Valves,  
Flow Control Valves,  
Stop Valves**

Pressure relief valves

Pressure reduction valves

Throttle check valves

Flow-control valves

Lowering brake valves

Blocking valves

Back-pressure valves

Control pressure regulator

Shuttle valves

Directional valves

Version as a valve combination on a cluster gear on  
request.

# Industrial Hydraulics

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Valves, cylinders and pumps for hydraulic systems and aggregates

Technology Test Benches / Fluid Test Benches

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For your stationary hydraulic installation, KRACHT offers a complete programme of hydraulic components: Industrial valves, pumps, cylinders and accessories. One hundred per cent safety of the components in operation and material function is absolutely vital here.

Our engineers' many years of experience and competence guarantee that this requirement is met correctly and in the best possible way.

KRACHT employees demonstrate their know how and commitment every time they take decisions regarding the general field of application and the specific use of valve types of completely different designs, and in the case of the in-house construction of cylinders which can satisfy the most demanding requirements.

## Directional valves

Nominal size	6/10/16/25
Max. flow capacity	... 700 l/min
Working pressure	... 350 bar



## Pressure regulator valves

Nominal size	6 ... 32
Max. flow capacity	... 200 l/min
Working pressure	... 315 bar



## Sandwich valves

Nominal size	6 ... 20 (25)
Max. flow capacity	... 200 l/min
Working pressure	... 315 bar



## Pressure Relief valves

Nominal size	3 ... 80
Max. flow capacity	... 800 l/min
Working pressure	... 400 bar

## Cylinders

Working pressure	... 350 bar
Cylinder size	40 ... 250
Max. stroke length	... 6000 mm

## Pumps

Displacement	1 ... 3000 cm <sup>3</sup> /r
Working pressure	... 350 bar
Speed	... 3000 1/min



## Test bench construction

Bearing test benches

$\Delta p$  test benches

Pulsation test benches

Pump test benches

Pump nozzle test benches

Oil supply systems

Lubricating oil plants

Hydraulic facilities

# Quality Assurance at KRACHT

## Machinery

### Housing and cover manufacture

The main components of our products comprise the housing and the cover. These components are manufactured in all sizes (GG-25 to GGG-40) from casts as well as from stainless steel and aluminium. The dimensional accuracy of the components in the entire material spectrum lies in the  $\mu\text{m}$ -range.

All housings and covers are fabricated completely on our ultra-modern horizontal Mazak machining centres. The constant coolant temperature stabilization, a cooling system for the ball roller spindles and a linear system for all axes guarantees the precision.

To reduce the clamping and setup times, all the machines are equipped with multi-pallettes and have machine-monitoring systems for fully-automatic machining. The machining tools in use are ceramic, CBN or TIN coated, which is another characteristic feature of the high KRACHT quality.

To ensure the guarantee of long-term precision, all machines are put through a machine capability analysis semi-annually by our quality assurance department.



## Gear manufacture

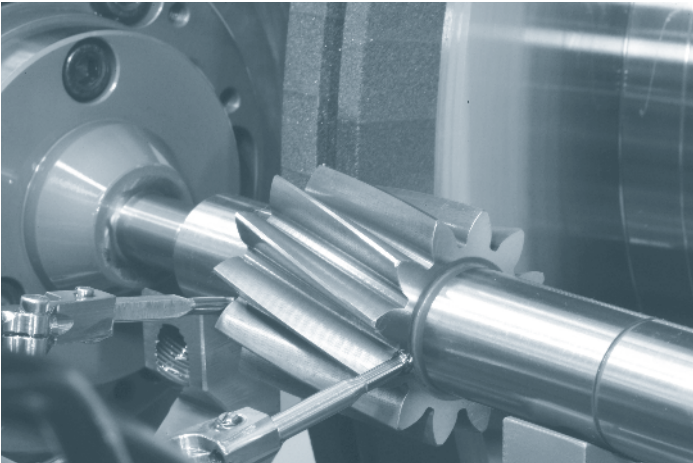
Since our components are highly complex and high requirements are placed on the quality of the workpieces, the manufacture of gearing and the external cylindrical machining pose a special challenge.

**We are perfectly up to the challenge.**

We manufacture our products on ultra-modern gear hobbing machines, generating grinding machines, profile grinders and on external cylindrical and internal cylindrical grinders. Prefabricated rotating blanks are prepared and machined on CNC-gear hobbing machines with vertical workpiece axis. The external cylindrical machining is undertaken on CNC-angular plunge-cut

tables. This grinding technology is highly versatile and its enormous productivity simultaneously impressive. We are capable of grinding nearly any workpiece contours with one, single grindstone - in one, single clamping restraint. After completing the external cylindrical machining, the gear sections are conclusively ground on CNC-tooth profile sharpening machines with the generation grinding method.

The measuring equipment integrated in the machinery facilitates measuring all relevant tooth dimensions. That greatly reduces the setup times when setting up new machining jobs. Compliant with the housing and cover manufacturing, these machines are also put through a semi-annual machine capability analysis by the quality assurance department.



All products are put through a 100% pre-delivery inspection. Along with the functions, all working parameters are set on the testbench.

**KRACHT GmbH, Werdohl**  
according to DIN EN ISO 9001  
according to DIN EN ISO 14001  
according to ATEX 94/9/EEC  
(ATEX 95)

**KRACHT Hidraulik Kft, Budapest**  
according to DIN EN ISO 9002



# Customer Service

## Fair, reliable and competent

We have been developing, designing and manufacturing high-quality products for 100 years. Special solutions are implemented in close cooperation with our customers. On schedule performance and full comprehensive service are our top priorities.



# Sales

## International



Australia	<b>China</b>	<b>Germany</b>	Indonesia	Luxembourg	Slovakia	Sweden	<b>USA</b>
Austria	Czech Republic	Holland	Italy	Norway	Slovenia	Switzerland	
Belgium	Finland	Hong Kong	Japan	Poland	South Africa	Turkey	
Canada	France	<b>Hungary</b>	Korea	Portugal	Spain	United Kingdom	

We are ready to support you around the world with the professional mastery of specific applications and complete solutions based on our one-hundred years of experience. A closely woven network of sales and customer specialists provide the right tools for national and international consulting and optimal customer service.

# KRACHT

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