

Gear pumps and flow measurement  
for the process technology

**KRACHT**<sup>®</sup>

Your fluid solution partner

# KRACHT®

Your fluid solution partner

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## Gear pumps

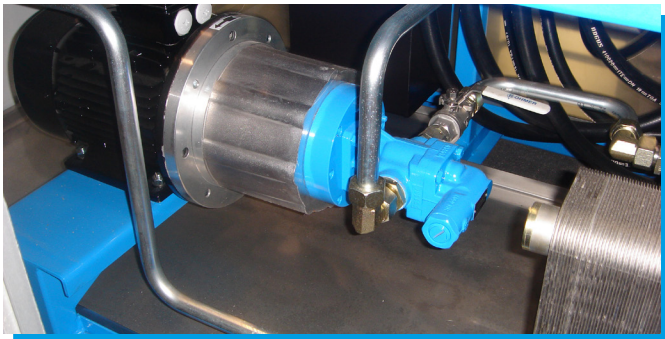
### I Technical data / Applications

#### Characteristics

|                   |  |
|-------------------|--|
| Displacement      | 0.1 ... 3 150 cm³/rev                                  |
| Maximum pressure  | 150 bar / 2176 psi                                     |
| Viscosity         | ... 100 000 cSt<br>(higher viscosity on request)       |
| Fluid temperature | -40 ... 220 °C / -40 ... 428 °F                        |
| Shaft seal        | Double radial lip-type seal with liquid seal           |
|                   | Mechanical seal with liquid seal                       |
|                   | Magnetic coupling                                      |
|                   | Packing  |
| Applications      | Metering pump in low pressure and high pressure plants |
|                   | Recirculation pump                                     |
|                   | Filling pump   |
|                   | Feed pump for piston pump                              |

#### Characteristics

- Versions for unfilled and filled media
- Noise optimized
- Very robust design for a long life
- Highly effective across a wide speed range
- Versions as pump assembly with electric motor with and without gear reducer
- Optionally with flanged pressure relief valve
- Optionally in ATEX version (ATEX/IECEX)

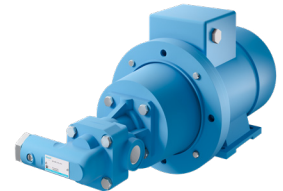


Magnetic coupled gear pump as feed pump in a high-pressure plant

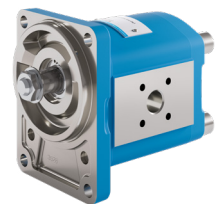
#### I Gear pump KF



#### I Gear pump KF with magnetic coupling



#### I High-pressure gear pump KP



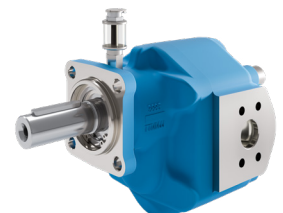
#### I Gear metering pump ADP



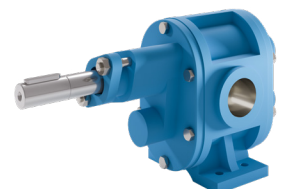
#### I Drum pump KP



#### I DuroTec-Gear pump DT



#### I Gear pump BT



## Gear pumps

### I Technical data – nominal sizes 0.1 ... 730

|                         |   | Maximum pressure in bar / psi                |              |                    |   |                                    |            |              |  |
|-------------------------|---|--|--------------|--------------------|---|------------------------------------|------------|--------------|--|
|                         |   | 8 / 116                                      | 25 / 363     | 50 / 725           | 60 / 870  | 100 / 1450                         | 110 / 1595 | 120 / 1740   | 150 / 2176   |
| Displacement in cm³/rev | 0.1   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/0.1  |
|                         | 0.3   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/0.3  |
|                         | 0.5   |  |              |                    |   |                                    |            | 1,2 KF 0/0.5 |  |
|                         | 0.6   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/0.6  |
|                         | 0.8   |  |              |                    |   |                                    |            | 1,2 KF 0/0.8 |  |
|                         | 1.0   |  |              |                    | 1,2 KF 0/1.../516                                       |                                    |            | 1,2 KF 0/1   |  |
|                         | 1.2   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/1.2  |
|                         | 1.6   |  |              |                    | 1,2 KF 0/1.6.../516                                     |                                    |            | 1,2 KF 0/1.6 |  |
|                         | 1.8   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/1.8  |
|                         | 2.0   |  |              |                    |   |                                    |            | 1,2 KF 0/2   |  |
|                         | 2.4   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/2.4  |
|                         | 2.5   |  | 1,2,3 KF 2.5 |                    | 1,2 KF 0/2.5.../516                                     |                                    |            | 1,2 KF 0/2.5 |  |
|                         | 3.0   |  |              |                    |   |                                    |            | 1,2 KF 0/3   | <sup>1</sup> KP 1/3.../245<br>1,2,4 ADP-1/3.0  |
|                         | 4.0   |  | 1,2,3 KF 4   | 1,2 KF 1/4.../130  | 1,2 KF 0/4.../516                                       |                                    |            | 1,2 KF 0/4   |  |
|                         | 4.8   |  |              |                    |   |                                    |            |              | 1,2,4 ADP-1/4,8  |
|                         | 5.0   |  | 1,2,3 KF 5   |                    |   |                                    |            |              | 1,2 KP 1/5,5... /492 /499<br><sup>1</sup> KP 1/5,5... /245   |
|                         | 6.0   |  | 1,2,3 KF 6   |                    |   |                                    |            |              | 1,2,4 ADP-1/6.0  |
|                         | 8.0   |  | 1,2,3 KF 8   | 1,2 KF 1/8.../130  |   |                                    |            |              | <sup>1</sup> KP 1/8.../245   |
|                         | 10.0  |  | 1,2,3 KF 10  |                    |   |                                    |            |              |  |
|                         | 11.0  |  |              | 1,2 KF 1/11.../130 |   |                                    |            |              | <sup>1</sup> KP 1/11.../245<br><sup>2</sup> KP 1/11.../487<br><sup>2</sup> KP 1/11.../492<br><sup>2</sup> KP 1/11.../499 |
|                         | 12.0  |  | 1,2,3 KF 12  |                    |   |                                    |            |              | 1,2,4 ADP-2/12.0   |
|                         | 16.0  |  | 1,2,3 KF 16  | 1,2 KF 1/16.../130 |   |                                    |            |              | <sup>1</sup> KP 1/16.../245  |
|                         | 20.0  |  | 1,2,3 KF 20  | 1,2 KF 1/20.../130 |   |                                    |            |              | 1,2,4 ADP-2/20.0   |
|                         | 22.0  |  |              |                    |   |                                    |            |              | <sup>1</sup> KP 1/22 ... /245  |
|                         | 24.0  |  |              | 1,2 KF 1/24.../130 |   |                                    |            |              |  |
|                         | 25.0  |  | 1,2,3 KF 25  |                    |   |                                    |            |              |  |
|                         | 28.0  |  |              |                    |   |                                    |            |              | <sup>1</sup> KP 2/28.../434  |
|                         | 32.0  | <sup>4</sup> BT1<br><sup>4</sup> BT1.../04   | 1,2,3 KF 32  |                    |   |                                    |            |              |  |
|                         | 40.0  | <sup>4</sup> BT2<br><sup>4</sup> BT1.../04   | 1,2,3 KF 40  |                    |   |                                    |            |              | <sup>1</sup> KP 2/40.../434  |
|                         | 50.0  |  | 1,2,3 KF 50  |                    |   | <sup>3</sup> SOP 74/50 (Drum pump) |            |              |  |
|                         | 63.0  |  | 1,2,3 KF 63  |                    |   | <sup>3</sup> DT 3/63               |            |              | <sup>1</sup> KP 3/63.../434  |
|                         | 80.0  | <sup>4</sup> BT 3<br><sup>4</sup> BT 3.../04 | 1,2,3 KF 80  |                    |   |                                    |            |              |  |
|                         | 100.0   |  | 1,2,3 KF 100 |                    |   | <sup>1,3</sup> DT 3/100            |            |              | <sup>1</sup> KP 3/100.../434   |
| 112.0                   |   | 1,2,3 KF 112                                 |              |                    |   |                                    |            |              |  |
| 125.0                   |   | 1,2,3 KF 125                                 |              |                    |   | <sup>1</sup> KP 3/125.../434       |            |              |  |
| 150.0                   |   | 1,2,3 KF 150                                 |              |                    | <sup>1</sup> KP 5/150.../434                            |                                    |            |              |  |
| 180.0                   |   | 1,2,3 KF 180                                 |              |                    |   |                                    |            |              |  |
| 200.0                   | <sup>4</sup> BT 4<br><sup>4</sup> BT 4.../04  | 1,2,3 KF 200                                 |              |                    | <sup>1</sup> KP 5/200.../434                            |                                    |            |              |  |
| 250.0                   | <sup>4</sup> BT 5<br><sup>4</sup> BT 5.../04  | 1,2,3 KF 250                                 |              |                    | <sup>1</sup> KP 5/250.../434<br><sup>1,3</sup> DT 5/250 |                                    |            |              |  |
| 315.0                   | <sup>4</sup> BT 6<br><sup>4</sup> BT 6.../04  | 1,2,3 KF 315                                 |              |                    |   |                                    |            |              |  |
| 400.0                   |   | 1,2,3 KF 400                                 |              |                    |   |                                    |            |              |  |
| 500.0                   | <sup>4</sup> BT 7<br><sup>4</sup> BT 7 .../04 | 1,2,3 KF 500                                 |              |                    |   |                                    |            |              |  |
| 630.0                   |   | 1,2,3 KF 630                                 |              |                    |   |                                    |            |              |  |
| 730.0                   |   | 1,2,3 KF 730                                 |              |                    |   |                                    |            |              |  |

#### Versions

- with high-level wear protection
- with low-level wear protection
- stainless steel
- without wear protection

#### Shaft seal

- 1 Double radial lip-type seal
- 2 Magnetic coupling
- 3 Mechanical seal
- 4 Packing

## Gear pumps

### I Technical data – nominal sizes 1000 ... 3150

|                         |        | Maximum pressure in bar / psi |               |
|-------------------------|--------|-------------------------------|---------------|
|                         |        | 16 / 232                      | 25 / 363      |
| Displacement in cm³/rev | 1000.0 |                               | 1,2,3 KF 1000 |
|                         | 1250.0 |                               | 1,2,3 KF 1250 |
|                         | 1500.0 |                               | 1,2,3 KF 1500 |
|                         | 1800.0 | 1,2,3 KF 1800                 |               |
|                         | 2000.0 | 1,2,3 KF 2000                 |               |
|                         | 2500.0 | 1,2,3 KF 2500                 |               |
|                         | 3150.0 | 1,2,3 KF 3150                 |               |

#### Versions

- with high-level wear protection
- with low-level wear protection
- stainless steel
- without wear protection

#### Shaft seal

- <sup>1</sup> Double radial lip-type seal
- <sup>2</sup> Magnetic coupling
- <sup>3</sup> Mechanical seal
- <sup>4</sup> Packing

#### Speed recommendation at fixed flow rates (unfilled medias)

| Viscosity        | KF / KP / DT | BT      | ADP     |
|------------------|--------------|---------|---------|
| up to 200 cSt    | 1450 rpm     | 750 rpm | 200 rpm |
| up to 1.000 cSt  | 950 rpm      | 750 rpm | 200 rpm |
| up to 3.000 cSt  | 750 rpm      | 500 rpm | 200 rpm |
| up to 5.000 cSt  | 550 rpm      | 400 rpm | 150 rpm |
| up to 8.000 cSt  | 440 rpm      | 300 rpm | 130 rpm |
| up to 12.000 cSt | 350 rpm      | 300 rpm | 110 rpm |
| up to 25.000 cSt | 200 rpm      | 200 rpm | 80 rpm  |

## Pressure relief valves

### I SPV/SPVF

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 (G).



#### Characteristics

|                    |   |
|--------------------|---|
| Nominal sizes      | 10 · 20/25 · 32/40 · 50 · 80                  |
| Flow range         | 40 ... 800 l/min<br>10.57 ... 211.34 gpm      |
| Operating pressure | 30 bar / 435 psi                              |
| Viscosity          | 1.2 ... 1 000 cSt                             |
| Media temperature  | -40 ... 220 °C / -40 ... 428 °F               |
| Housing            | Gray cast iron<br>Spheroidal cast iron        |
| Applications       | Protection of low-pressure hydraulic circuits |

### I DBD

The DBD pressure relief valve is a directly controlled poppet valve for installation in pipelines or as a cartridge valve. The valve is used for pressure protection of hydraulic systems up to  $p_{max} = 400$  bar / 5802 psi. The housing has two connections with Whitworth pipe threads for pipe mounting. Without the housing, the valve cartridge can also be screwed into the specified bore contour in any body instead.



#### Characteristics

|                    |  |
|--------------------|--|
| Nominal sizes      | 06 · 08 · 10 · 20  |
| Flow range         | 40 ... 200 l/min<br>10.57 ... 52.83 gpm                      |
| Operating pressure | ... 400 bar / 5802 psi                                       |
| Viscosity          | 10 ... 600 cSt   |
| Fluid temperature  | -20 ... 80 °C / -4 ... 176 °F                                |
| Housing            | Steel<br>Gray cast iron<br>Spheroidal cast iron<br>Aluminium |
| Applications       | Pressure relief in pressure plants up to 400 bar / 5802 psi  |

## Flow measurement

### I Gear type flow meters VC

Application-optimized specifications with differing clearances, bearing variants and materials.

#### Characteristics

|                              |   |
|------------------------------|---|
| Measuring range              | 0.001 ... 700 l/min (viscosity dependent)<br>0.00026 ... 184.92 gpm                         |
| Nominal sizes                | 0.025 · 0.04 · 0.1 · 0.2 · 0.4 · 1 ·<br>3 · 5 · 12 · 16                                     |
| Typical measurement accuracy | up to +/- 0.3% of the measured value<br>from a viscosity of 20 cSt                          |
| Measured value resolution    | ... 160 000 Imp/l<br>... 605 666 Imp/gal  |
| Maximum pressure             | 480 bar / 6962 psi  |
| Viscosity                    | ... 2 500 000 cSt   |
| Media temperature            | -60 ... 210 °C / -76 ... 410 °F   |
| Bearing                      | Ball bearing (normal and enlarged clearances), hybrid ball bearings, carbide plain bearings |
| Housing                      | Spheroidal cast iron<br>Stainless steel   |
| Gear                         | Steel<br>Stainless steel  |



#### Product characteristics VC

- High-precision measurement with outstanding reproducibility
- Maximized measured value resolution when using the encoder
- IO-Link technology available
- Wide measuring ranges with sizes graduated to meet specific requirements
- Application-optimized specifications
- Low pressure drop
- No calming sections necessary
- Any flow direction
- Wide temperature range
- High working pressure
- Low noise emission
- High-response measurement
- ATEX/IECEX versions
- Electronics in EMC compliant design
- RoHS compliant

### I Screw type flow meters SVC

Particularly suitable for highly viscous media with abrasive fillers.

#### Characteristics

|                              |   |
|------------------------------|---|
| Measuring range              | 0.01 ... 3 750 l/min (viscosity dependent)<br>0.0026 ... 990.65 gpm |
| Nominal sizes                | 4 · 10 · 40 · 100 · 250   |
| Typical measurement accuracy | up to +/- 0.2% of the measured value<br>from a viscosity of 20 cSt  |
| Measured value resolution    | ... 15 686 Imp/l<br>... 59 378 Imp/gal                              |
| Maximum pressure             | 480 bar / 6962 psi  |
| Viscosity                    | ... 2 500 000 cSt   |
| Media temperature            | -40 ... 210 °C / -40 ... 410 °F                                     |
| Rolling bearing              | Heat-treated steel  |
| Housing                      | Spheroidal cast iron  |
| Screw spindle                | Heat-treated steel  |



#### Product characteristics SVC

- High-precision measurement with outstanding reproducibility
- Pulsation-free measuring principle
- Maximized measured value resolution when using the encoder
- IO-Link technology available
- Very low pressure drop
- Any flow direction  
(Encoder versions with preferred direction)
- Wide temperature range
- High working pressure
- Very low noise emission
- High-response measurement
- ATEX/IECEX versions
- Electronics in EMC compliant design
- RoHS compliant



## Encoder version with maximised measurement resolution

### I Gear type flow meters and Screw type flow meters

Compared with standard sensors, encoders are capable of generating considerably more pulses, thus increasing measurement resolution by orders of magnitude. Encoder-equipped VC and SVC flow meters generate up to 2 500 pulses per revolution and can recognise the direction of flow.

Encoders, like the standard versions, send square-wave signals to the electronics.



#### Characteristics

|                              |   |
|------------------------------|---|
| Measuring range              | 0.004 l/min ... 80 l/min<br>0.001 ... 21.13 gpm                 |
| Nominal sizes                | 0.04 · 0.2 · 1  |
| Typical measurement accuracy | up to +/- 0.3% of the measured value from a viscosity of 20 cSt |
| Measured value resolution    | ... 13 157 896 Imp./l<br>... 49 808 055 Imp./gal                |
| Maximum pressure             | 480 bar / 6962 psi  |
| Viscosity                    | ... 2 500 000 cSt   |
| Media temperature            | -20 ... 80 °C / -4 ... 176 °F                                   |
| Housing                      | Spheroidal cast iron  |
| Gear                         | Steel   |

#### Characteristics

|                              |   |
|------------------------------|---|
| Measuring range              | 0.02 ... 150 l/min<br>0.005 ... 39.63 gpm                       |
| Nominal size                 | 10  |
| Typical measurement accuracy | up to +/- 0.2% of the measured value from a viscosity of 20 cSt |
| Measured value resolution    | ... 247 463 Imp./l<br>... 936 749 Imp./gal                      |
| Maximum pressure             | 250 bar / 3626 psi  |
| Viscosity                    | ... 2 500 000 cSt<br>(depending on flow)                        |
| Media temperature            | -20 ... 80 °C / -4 ... 176 °F                                   |
| Housing                      | Spheroidal cast iron  |
| Measuring spindles           | Heat-treated steel  |

## IO-Link version with internal calculation of measured values

### I General

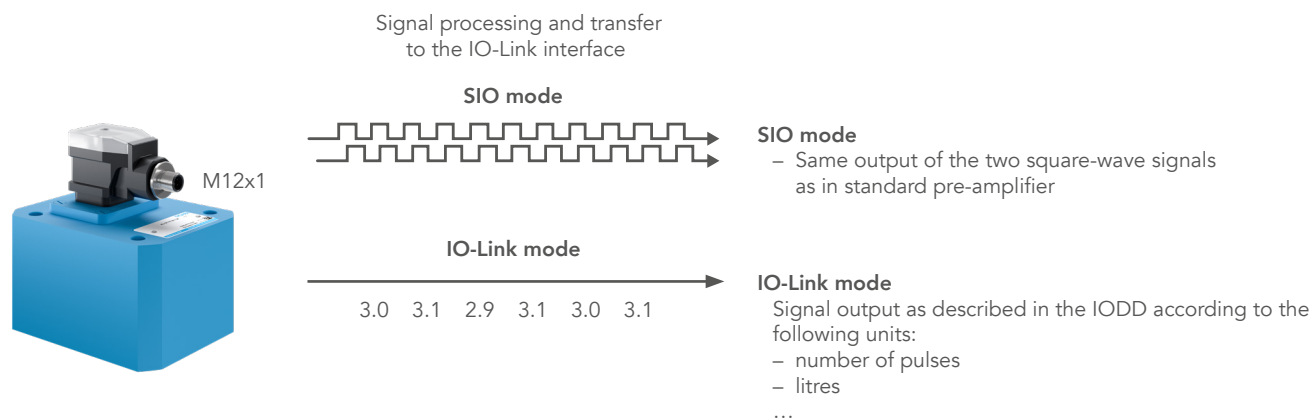
VC/SVC flow meters with IO-Link technology are based on standard flow meters with one or two sensors. Unlike standard or encoder versions which always send a square wave signal to the electronics, IO-Link devices have the added capability of internally computing concrete measurement values. Therefore, these flow meters lend themselves for use in classic PLC and in IO-Link infrastructures.

Thanks to its international standardisation (IEC 61131-9), the IO-Link technology offers point-to-point connectivity with continuous monitoring between any desired control layer and the VC/SVC-IO-Link assembly. Handling and startup is made easy by the associated IODD (IO Device Description) file.

The VC/SVC-IO-Link assembly directly delivers all measured values with units. In the preset SIO mode (standard input output), the volume counter gives squarewave signals if the IO-Link mode is not enabled by an IO-Link master. This provides downward compatibility of the VC-IO-Link assembly with the standard squarewave signal.



### I Communication of the IO-Link assembly



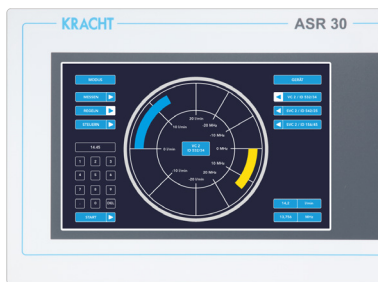
## Electronics

### I Control units and plug-on displays

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 instance, in process technology as a control unit for metering and mixing systems or as flexible measuring and recording electronics for differentiated applications in test bench technology for use.

#### I Control unit 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. Standardised programs are available for various applications. The ASR 30 programming can be optimally adapted to the respective application.



- Flow and mixing ratio display of several components + control output for several components + shot size measurement

#### I Plug-on display SD 1

The SD 1 plug-on display is a universally applicable local display for all volume counter series (VC, SVC, TM) with Hirschmann plugs. The display can show either flow rate or volume.



- Flow display of one component

### Applications

- Flow control
- Metering
- Display and monitoring of added amounts
- Display and monitoring of differential amounts
- Display and monitoring of mixing ratio
- Display and control of mixing ratio

#### I Control unit AS 8

The AS 8 control unit 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.



- Flow and mixing ratio display of two components + monitoring of the mixing ratio
- Flow and mixing ratio display of two components + control output for one component to maintain the mixing ratio

## Your partner since 1911

### I More than 100 years of experience make us stand out as a reliable partner

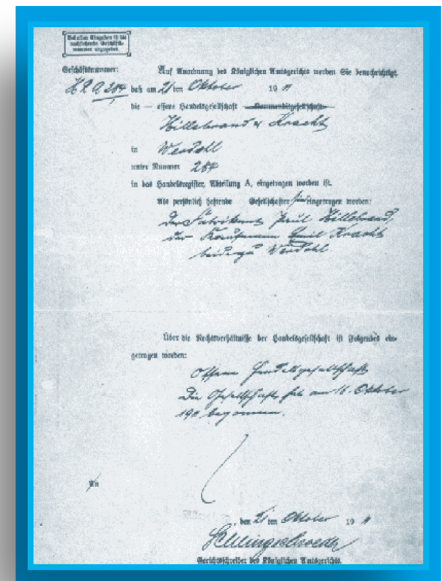
We are a leading German manufacturer of gear pumps, flow measurement, hydraulics and valves. Around 400 employees worldwide develop, produce and sell products in standard versions as well as special solutions tailor-made to customer wishes.

These high-quality components are used for gear lubrication, for instance in wind power plants and marine gearboxes, in metering and mixing plants e.g.

for manufacturing PU foams and in test bench technology. Our hydraulic components are defined by their performance and economic efficiency in stationary and mobile plants.

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

|                     |   |
|---------------------|---|
| <b>1911</b>         | Entry in the commercial register under the name "Hillebrand & Kracht OHG"   |
| <b>1971</b>         | Construction of the current company buildings on a site covering more than 50,000 square metres   |
| <b>1992</b>         | Acquisition of a gearbox manufacturer in Hungary, today's KRACHT Hidraulik KFT.   |
| <b>1995</b>         | First certification according to DIN EN ISO 9001, KRACHT Hidraulik KFT, Budapest according to DIN EN ISO 9002 by Lloyd's Register Quality Company |
| <b>1999</b>         | Mr. Peter Zahn becomes 100% owner of KRACHT GmbH  |
| <b>2000</b>         | First certification according to DIN EN ISO 14001   |
| <b>2002</b>         | Mr. Heiko Zahn is appointed to the Management   |
| <b>2003</b>         | Certification according to the ATEX Directive 2014/34/EU  |
| <b>2008</b>         | The KRACHT CORP. is founded in New York, USA. Moved to Ohio in 2016.  |
| <b>2009</b>         | Foundation of the KRACHT Representative Office in Shanghai, China.  |
| <b>2011</b>         | Opening of the in-house health centre.  |
| <b>October 2011</b> | KRACHT has been in business for 100 years.  |
| <b>2015</b>         | KRACHT becomes AEOF certified and is an authorised economic operator.   |
| <b>2017</b>         | Commissioning of the logistics centre.  |
| <b>2020/21</b>      | Foundation of KRACHT Fluid Technology (Shanghai) Co., Ltd. Expansion of the logistics centre.   |



Commercial register 1911

## Machinery

### I Housing and cover production

The main components of our products comprise the housing and the cover. These components are manufactured in all sizes from casts (GG-25 to GGG40) as well as from stainless steel or aluminium. The dimensional accuracy of the components in the entire material spectrum lies in the µm-range.

All housings and covers are fabricated completely on our 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 and high quality.

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.

### I Quality



KRACHT guarantees the highest product quality. As part of the quality process, the function and working parameters are tested according to DIN EN 10204.

**KRACHT GmbH, Werdohl, Germany**  
 certified according to  
 DIN EN ISO 9001  
 DIN EN ISO 14001  
 ATEX 2014/34/EU

### I Gear production

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

*We are perfectly up to the challenge.*

We manufacture our products on 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.

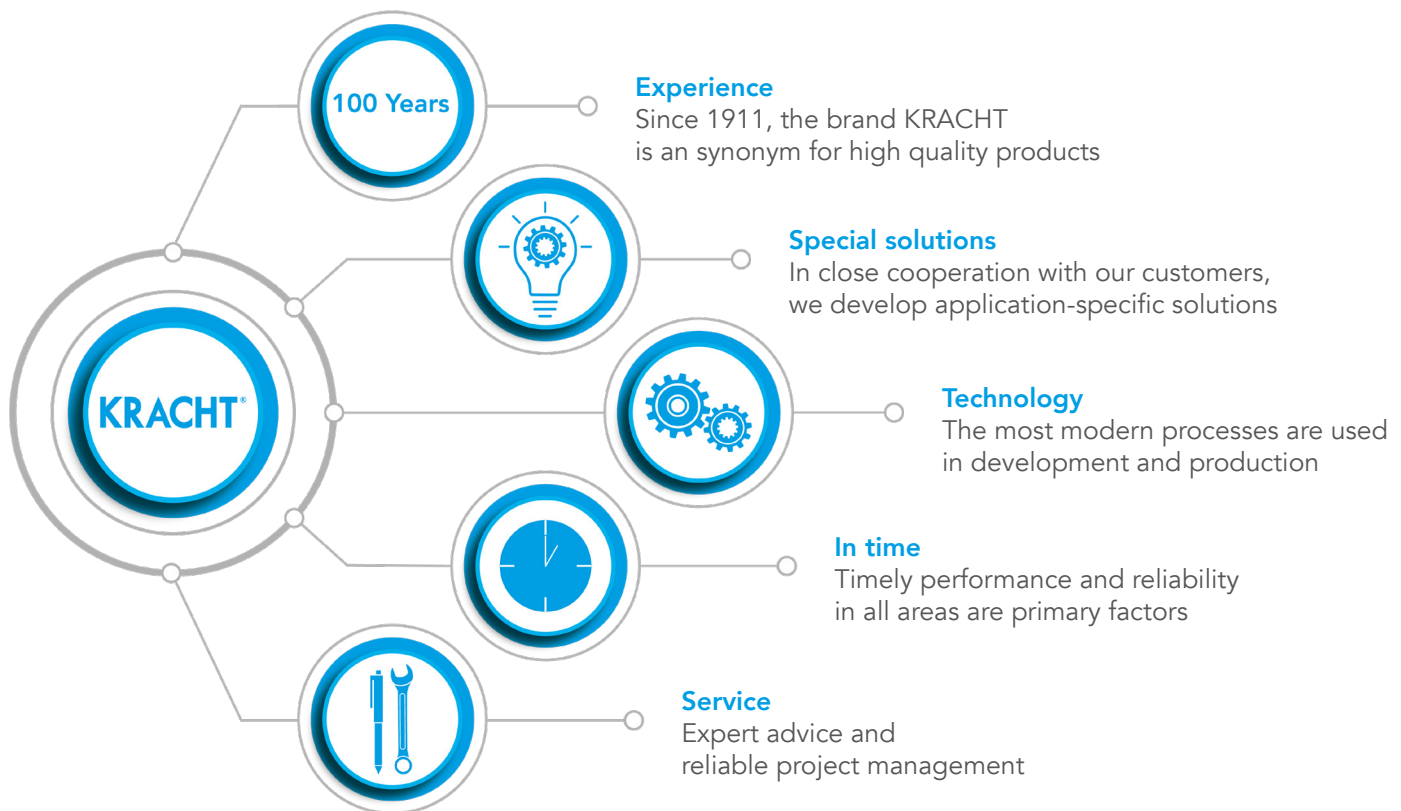
The measuring equipment integrated in the machinery facilitates measuring all relevant tooth dimensions. That greatly reduces the setup times when setting up new machining jobs.



## Main ideas

### I Fair – reliable – competent

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



## Sales

### I International



|           |                |           |           |             |          |              |                |
|-----------|----------------|-----------|-----------|-------------|----------|--------------|----------------|
| Australia | China          | Germany   | Indonesia | Luxembourg  | Portugal | South Africa | Taiwan         |
| Austria   | Czech Republic | Hong Kong | Italy     | Netherlands | Russia   | Spain        | Turkey         |
| Belgium   | Finland        | Hungary   | Japan     | Norway      | Slovakia | Sweden       | United Kingdom |
| Canada    | France         | India     | Korea     | Poland      | Slovenia | Switzerland  | USA            |

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

## I Gear Pumps

Low and high-pressure gear pumps for lubricating oil, hydraulic, process and test bench applications, fuel and metering systems.



## I Flow Measurement

Gear, turbine and screw type flow meters and electronics for volume and flow, metering and consumption in the chemical industry, hydraulic, process and test bench technology.



## I Hydraulics

Single and multistage high-pressure gear pumps, gear motors and valves for construction machinery, municipal vehicles, agricultural vehicles, special vehicles and truck bodies.



## I Valves

Cetop valves for all requirements stationary and mobile applications. Pressure, switching and stop valves with pipe connection for high flow rates. Special valves.



# KRACHT®

KRACHT CORP.

6552 Weatherfield Court · Maumee, OH 43537 · USA  
P +1 419 874 1000 · F +1 419 874 1006  
flowmeters@krachtcorp.com · www.krachtcorp.com