

## Pumps and Flow Measurement for the Polyurethane Industry

**KRACHT®**

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# Company

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

We are a leading manufacturer of transfer pumps and flow meters. 290 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.

 **Made in Germany**

**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 Industrierärdén 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)

**2009**

In New York, USA the KRACHT Corporation is founded

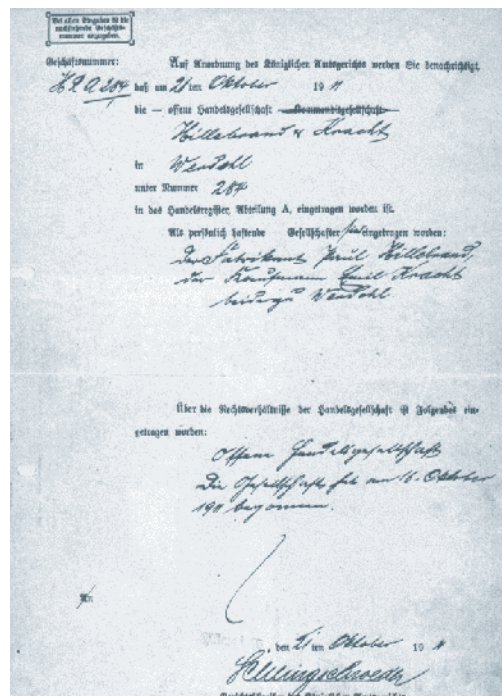
Establishment of the subsidiary in Shanghai, China

**2011**

Opening of the in-house health center on a area of approximately 280 square meters

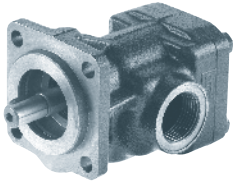
**October 2011**

The company KRACHT has existed for 100 years manufacturing robust high quality components

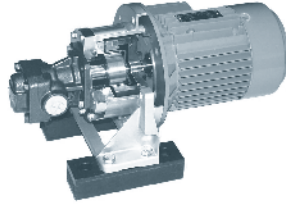


Certificate of incorporation of today's Kracht GmbH

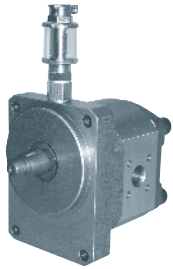
# Gear Pumps



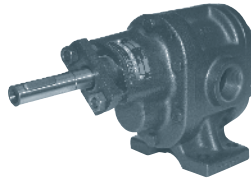
Gear pump  
KF



Gear pump  
KF with magnetic coupling



High-pressure gear pump  
KP



Gear pump  
BT

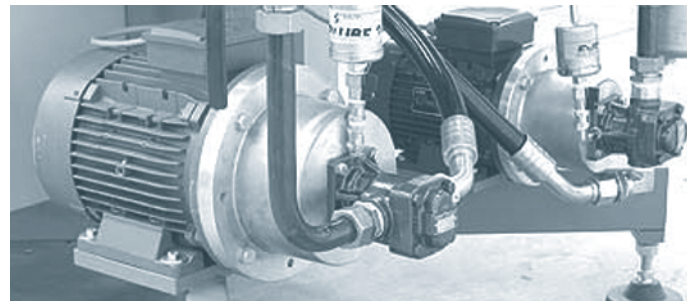


DuroTec gear pump  
DT

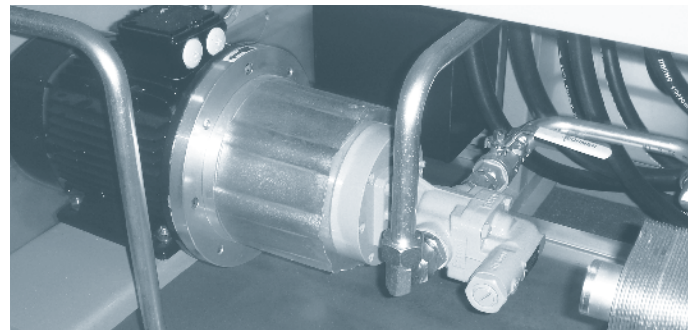
## Characteristics

- Versions for unfilled and filled polyoles, isocyanates (MDI and TDI), silicones, tin etc.
- 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

<b>Displacement</b>	0.5 ... 1056 cm <sup>3</sup> /r
<b>Working pressure</b>	... 200 bar / 2901 psi
<b>Viscosity</b>	4 ... 80 000 cSt
<b>Temperature range</b>	– 30°C ... 220°C / – 22°F ... 428°F
<b>Shaft seals</b>	Double rotary shaft seal with quench tank Mechanical seal with quench tank Magnetic coupling Packing
<b>Used as</b>	Dosing pump in low and high-pressure plants Recirculation pump Filling pump Feed pump for piston pump



Gear pump with double rotary shaft seal and quench tank as dosing pump for polyol and isocyanate in a low-pressure plant



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

## Gear Pumps for the Polyurethane Industry

Max. working pressure (bar / psi)	8 / 116	16 / 232	20 / 290	25 / 363	50 / 725	80 / 1160	100 / 1450	110 / 1595	120 / 1740	150 / 2176
Nominal size (cm <sup>3</sup> /r)										
0.5									<sup>1,2</sup> KF o/0.5	
0.8									<sup>1,2</sup> KF o/0.8	
1.0									<sup>1,2</sup> KF o/1	
1.6									<sup>1,2</sup> KF o/1.6	
2.0									<sup>1,2</sup> KF o/2	
2.5									<sup>1,2</sup> KF o/2.5	
3.0									<sup>1,2</sup> KF o/3	
4.0				<sup>1,2</sup> KF 4	<sup>1</sup> KF 1/4.../130				<sup>1,2</sup> KF o/4	
5.0				<sup>1,2</sup> KF 5						<sup>1</sup> KP 1/5.5.../245 <sup>1</sup> KP 1/5.5.../492
6.0				<sup>1,2</sup> KF 6						<sup>1</sup> KP 1/6.3.../245
8.0				<sup>1,2</sup> KF 8	<sup>1</sup> KF 1/8.../130					<sup>1</sup> KP 1/8.../245
10.0				<sup>1,2</sup> KF 10						
11.0 + 12.0				<sup>1,2</sup> KF 12	<sup>1</sup> KF 1/11.../130					<sup>1</sup> KP 1/11.../245 <sup>2</sup> KP 1/11.../487 <sup>1</sup> KP 1/11.../492
16.0				<sup>1,2</sup> KF 16	<sup>1</sup> KF 1/16.../130					<sup>1</sup> KP 1/16.../245
19.0 + 20.0				<sup>1,2</sup> KF 20	<sup>1</sup> KF 1/20.../130					<sup>1</sup> KP 1/19.../245
22.0										<sup>1,3</sup> KP 1/22.../245
24.0 + 25.0				<sup>1,2</sup> KF 25	<sup>1</sup> KF 1/24.../130					
28.0 + 32.0	<sup>4</sup> BT 1 <sup>4</sup> BT 1.../04			<sup>1,2</sup> KF 32						<sup>1</sup> KP 2/28.../434
40.0	<sup>4</sup> BT 2 <sup>4</sup> BT 2.../04			<sup>1,2</sup> KF 40						<sup>1</sup> KP 2/40.../434
50.0				<sup>1,2</sup> KF 50						
63.0				<sup>1,2</sup> KF 63						<sup>1</sup> KP 3/63.../434
80.0	<sup>4</sup> BT 3 <sup>4</sup> BT 3.../04			<sup>1,2</sup> KF 80						
100.0				<sup>1,2</sup> KF 100						<sup>1</sup> KP 3/100...434 <sup>1,3</sup> DT 3/100
112.0				<sup>1,2</sup> KF 112						
125.0				<sup>1,2</sup> KF 125				<sup>1</sup> KP 3/125.../434		
150.0				<sup>1,2</sup> KF 150			<sup>1</sup> KP 5/150.../434			
180.0				<sup>1,2</sup> KF 180						
200.0	<sup>4</sup> BT 4 <sup>4</sup> BT 4.../04			<sup>1,2</sup> KF 200			<sup>1</sup> KP 5/200.../434			
250.0	<sup>4</sup> BT 5 <sup>4</sup> BT 5.../04		<sup>1,2</sup> KF 5/250			<sup>3</sup> DT 5/250	<sup>1</sup> KP 5/250.../434			
315.0	<sup>4</sup> BT 6 <sup>4</sup> BT 6.../04	<sup>1,2</sup> KF 5/315								
400.0				<sup>1,2</sup> KF 6/400						
500.0	<sup>4</sup> BT 7 <sup>4</sup> BT 7.../04		<sup>1,2</sup> KF 6/500							
630.0		<sup>1,2</sup> KF 6/630								
730.0										

Additional versions on request.

### Versions

- With high wear protection
- With light wear protection
- Stainless steel
- Without protection

### Shaft Seals

- <sup>1</sup> Double rotary shaft seal
- <sup>2</sup> Magnetic coupling
- <sup>3</sup> Mechanical seal
- <sup>4</sup> Gland packing

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

Viscosity	KF / KP / DT	BT
up to 200 cSt	1450 UpM	750 UpM
up to 1.000 cSt	950 UpM	750 UpM
up to 3.000 cSt	750 UpM	500 UpM
up to 5.000 cSt	550 UpM	400 UpM
up to 8.000 cSt	440 UpM	300 UpM
up to 12.000 cSt	350 UpM	300 UpM
up to 25.000 cSt	200 UpM	200 UpM

Please note: The intake line must be designed so that complete filling of the pump is guaranteed. The pressure at the pump inlet must never fall below -0.4 bar / -5.8 psi.

# Pressure Relief Valves



Pressure relief valve  
SPV / SPVF



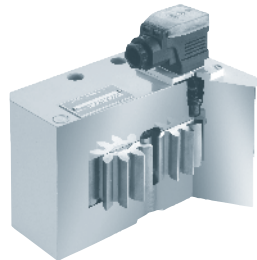
Pressure relief valve  
DBD

Flow rate	max. 800 l/min / 211 gal/min
Working pressure	max. 345 bar / 5004 psi
Temperature range	- 20°C ... 220°C / - 4°F ... 428°F
Used as	pressure relief in low and high-pressure plants

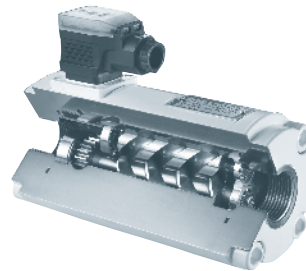
# Flow Measurement



Gear type flow meter  
VC



Gear type flow meter  
VCA/VCN/VCG



Screw type flow meter  
SVC

## Characteristics

- Flow meter optionally with wear-resistant carbide bearing
- With ball bearings
- High-precision flow and volume measurement
- Highly dynamic
- Wide measuring ranges
- Optionally in ATEX version

Housing material	Spheroidal cast iron, stainless steel or aluminium
Flow rate	0.008 ... 3750 l/min / 0.002 ... 991 gal/min (viscosity-dependent)
Working pressure	max. 400 bar / 5802 psi
Temperature range	- 30°C ... 220°C / - 22°F ... 428°F
Measuring accuracy	Precise to high-precision
Used for filled and unfilled medias as	Flow and volume meters in low and high-pressure plants Flow meter for pentane

# Electronics

## On-site display

### SD 1



#### Use as

- Flow rate display for one component

## Display unit

### AS 8



#### Use as

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

## Controller

### ASR 20

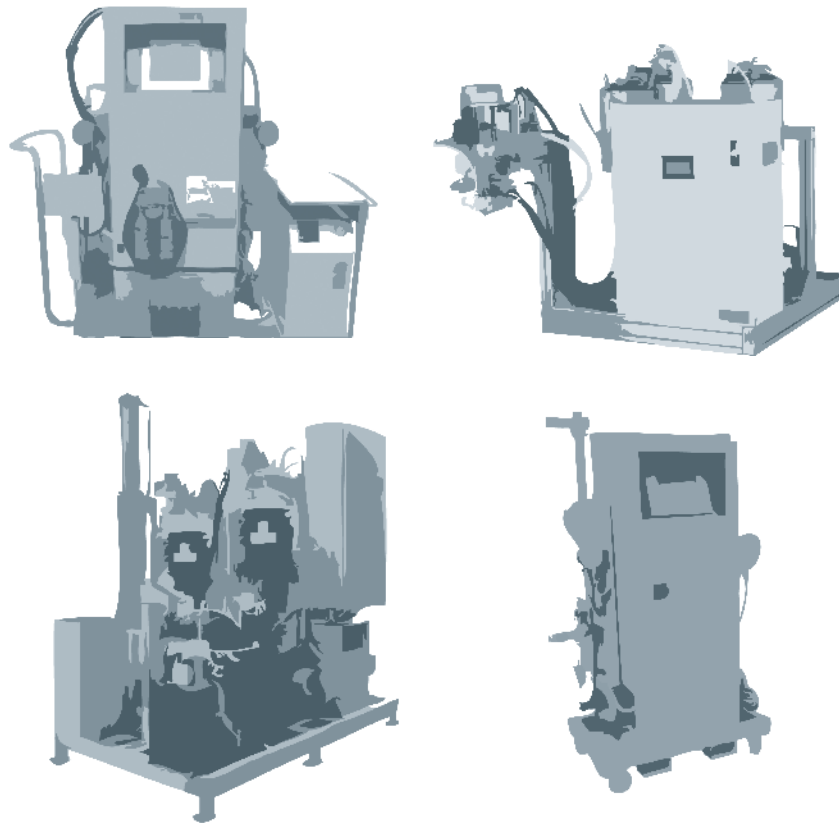


#### Use as

- Flow and mixture ratio display for one or several components + control output for one or several components + shot size measurement

You can find detailed information about the individual products in the corresponding datasheets or feel free to contact us.

# Technical References



Our products prove their reliability in various plants run by leading manufacturers in the polyurethane industry.

We would be happy to personally present our references. Please get in touch with us.

## Pumps and flow measurement for the polyurethane industry

### Applications in:

- Low and high-pressure dosing plants
- Dosing plants for pentane processing
- Slab-stock plants
- Dye proportioning
- Master batching stations



# Quality Assurance at KRACHT

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)

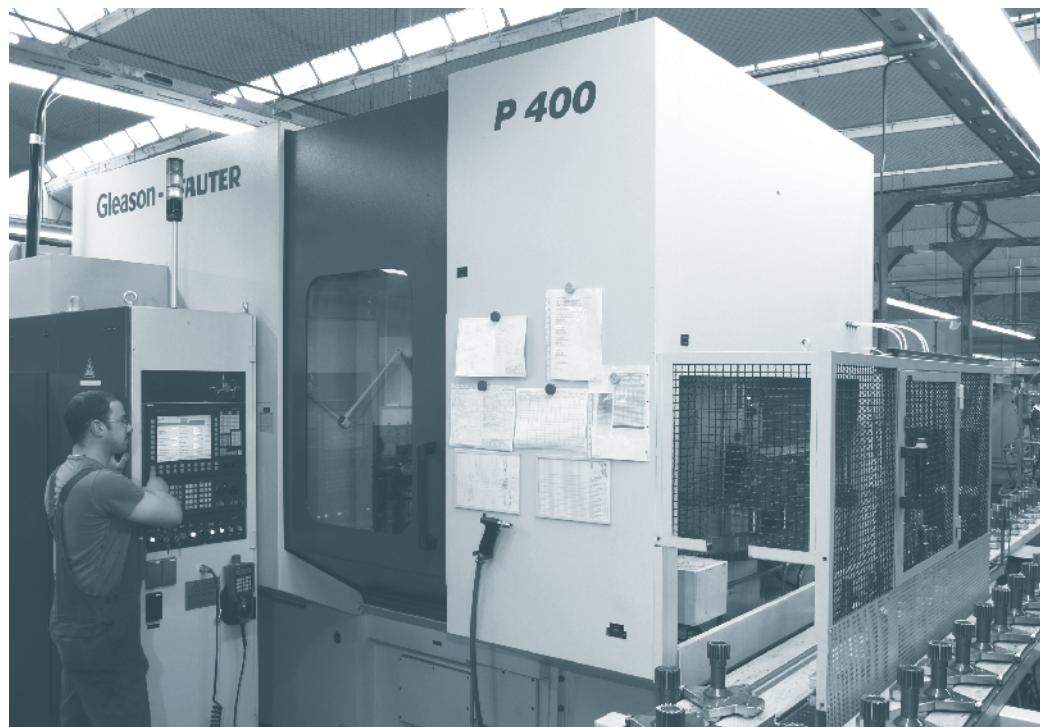
**KRACHT Hidraulik Kft, Budapest**  
according to DIN EN ISO 9002



## Machinery

Our focus is on the latest production machinery acquisitions, and we have significantly improved the age distribution of our machines within our plants.

The current average machine age is 2 years, which allows faster processing with higher finish accuracies. With that, we are achieving substantial quality increases in our products



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

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®

KRACHT CORP. · 8600 S Wilkinson Way Unit A · Perrysburg, OH 43551 · USA  
*phone* +1 419 874 1000 · *fax* +1 419 874 1006  
*mail* pumps@krachtcorp.com | flowmeters@krachtcorp.com  
*web* www.krachtcorp.com