Marine Products

KRACHT®

Content

Company

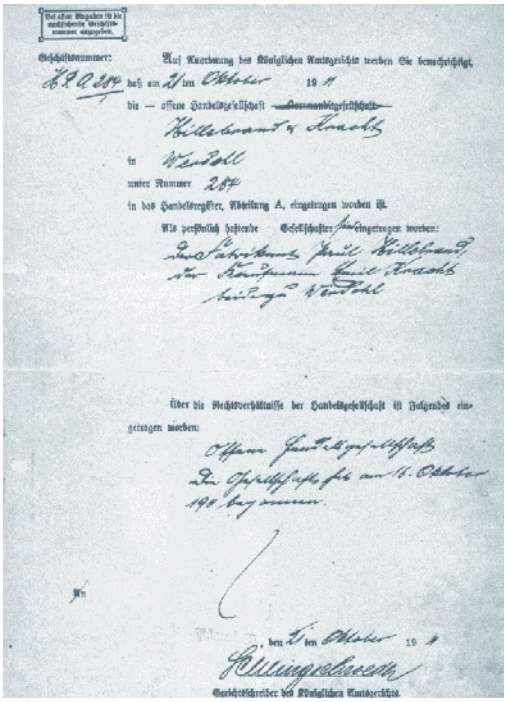
100 years of experience make us stand out as a reliable partner.

We are a leading manufacturer of transfer pumps and flow meters. 270 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



Certificate of incorporation of today's Kracht GmbH

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 Industrievärden 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

2009
Establishment of the subsidiary in Shanghai, China

2011
Opening of the in-house health center on a area of approximately 270 square meters

October 2011
The company KRACHT has existed for 100 years manufacturing robust high quality components

Pumps and Valves for Marine Engineering

Lubricating oil Gear Pumps KF for marine gearboxes
KF main lubrication and pre-lubrication pumps for ship diesel engines

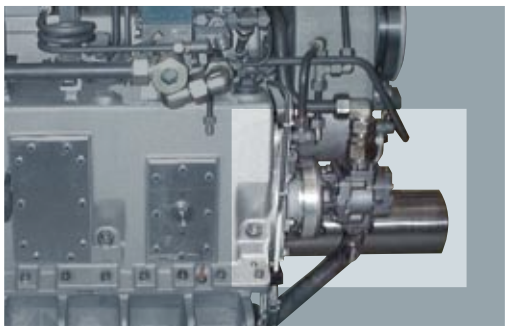


Fig. 1

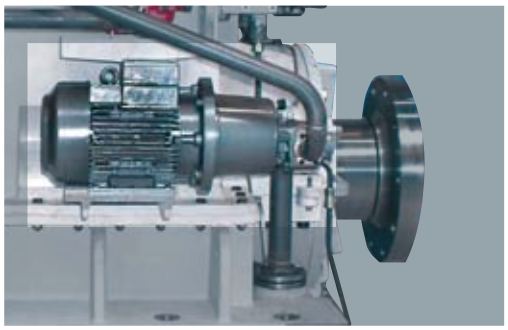


Fig. 2

– noise optimized for air containing oils
– very robust construction for a long life
– high efficiency over large ranges of speed
– version with outboard bearing for direct mounting on the gearbox (Fig. 1)
– pump assembly version with electric motor for standby operation (Fig. 2)
– version in EN-GJL-250 (grey cast iron) or EN-GJS-400-15 (spheroidal cast iron)
– with inspection certificate EN10204-3.2 from all classification authorities upon request
– Utilizing the latest 3D-CAD modeling software to meet customer specific placement solutions
– optionally comes with a flanged pressure relief valve

Pre-lubrication pump
KF 112

Main lubrication oil pump
KF 6/730

Pre-lubrication pump
KF 80 with pressure relief valve (motor-pump assembly)

Characteristics

Displacement	0.5… 730 cm³/r
Working pressure	max. 25 bar / 363 psi
Speed	… 3000 1/min
Viscosity	12… 20 000 cSt (standard pumps)
Option	integrated safety valve

Customised Solutions

We are able to provide client specific individual solutions up to supply volumes of 1300 cm³/r. Give us a call.

Gear pumps KF-F for marine fuels

– for marine diesel (MDO), heavy fuel oil (HFO) and marine gas oil (MGO)
– optional with magnetic coupling for a high level of operational security and a long life
– with inspection certificate EN 10204-3.2 from all classification authorities upon request
– special design configurations for low viscous and low sulphur fuels

Marine fuel pump
KF-F with magnetic coupling (motor-pump assembly)

Characteristics

Material	Housing and Cover: Spheroidal cast iron EN-GJS-400-15
Displacement	2.5… 112 cm³/r
Working pressure	p max = 6 bar / 87 psi at 1.2 cSt p max = 25 bar / 363 psi at 12 cSt
Speed	200… 3600 1/min
Shaft end seals	Rotary shaft lip-type seal FKM
	Mechanical seal FKM
	Magnetic coupling

Properties of fuels

Viscosity	1.2… 20 000 cSt (dependent on pressure, speed and lubricity)
Lubricity HFRR-test * (according to ISO 12156)	WSD ≤ 520 µm (meet the requirements of ISO 8217 for marine fuels)

* The HFRR test acc. ISO 12156 is a recognized method for measuring the lubricity of diesel fuels. The characteristic value determined using this method is referred to as Wear Scar Diameter (WSD) and increases with decreasing lubricity. This characteristic value is stated by the fuel manufacturers and can be included when assessing the stability of components.

Pressure relief valves SPV/SPVF for pressure setting for the protection of lubricating oil and fuel circuits

Characteristics

Materials	Grey cast iron (EN-GJL-250)
	Spheroidal cast iron (EN-GJS-400-15)
Valve cone material	Steel
Connection type	SAE flange (3000 psi) Whitworth thread G ½"
Max. flow rate	40… 800 l/min / 11… 211 gal/min
Working pressure	… 30 bar / 435 psi

Pressure relief valve
SPV / SPVF

Flow Measurement in Maritime Applications

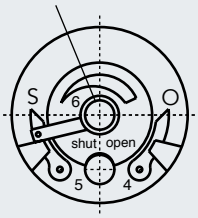
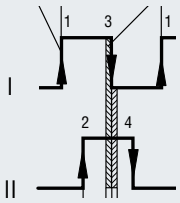
Gear Type Flow Meters VC
Screw-Type Flow Meters SVC
Turbine Flow Meters TM

Flow Meters

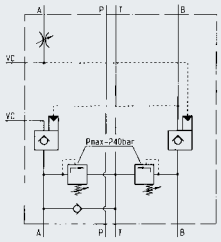
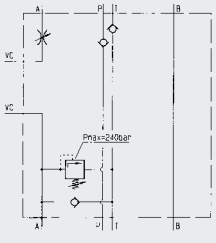
	Gear Type Flow Meters **VC**	Gear Type Flow Meters **VCA / VCN**
		
Materials	VC 0.025… VC 16 Spheroidal cast iron VC 0.025… VC 5 Stainless steel	VCA Aluminum VCN Stainless steel
Measuring range (l/min / gal/min)	0.008 … 700 / 0.002 … 185	0.04 … 200 / 0.1 … 53
Turndown ratio	1 : 300	1 : 200
Working pressure (bar / psi)	… 400 / 5802	… 200 / 2901
Viscosity (cSt)	… 1 000 000	20 … 4 000
Measuring accuracy	up to ± 0.3% deviation from measured value	up to ± 1% deviation from measured value
Temperature (°C / °F)	−30 … 220 / −22 … 428	−10 … 80 / 14 … 176
Option	ATEX	ATEX
Applications	– Consumption measurement – Filling of gear lubricant	– Lubrication oil control

– optimized for individual applications because the series have been rendered media-specific by means of differing clearances, bearing variants and materials
– wide measuring ranges with sizes graduated to meet specific requirements
– measurement independent of viscosity within the specified ranges
– low pressure drop
– high-response measurement
– high resistance to pressure
– low noise emission
– high-precision measurement with outstanding reproducibility
– temperature-independent output signals over a wide temperature range
– high degree of accuracy, even with low flow rates at the bottom end of the measuring range

Gear Type Flow Meters **VCG**	Screw-Type Flow Meters **SVC**	Turbine Flow Meters **TM**
		
Spheroidal cast iron	Spheroidal cast iron	Stainless steel
1.0 … 240 / 0.3 … 63	1.0 … 1500 / 0.3 … 396	4.6 … 9167 / 1.2 … 2422
–	1 : 150	1 : 10
… 315 / 4569	… 250 / 3626	… 400 / 5802
20… 4 000	1… 1 000 000	–
up to ± 2.5% deviation from measured value	up to ± 0.2% deviation from measured value	up to ± 0.5% deviation from measured value
–15 … 120 / 5 … 248	–30 … 150 / –22 … 302	–30 … 120 / –22 … 248
–	ATEX	–
–	– Consumption measurement	– for low viscosity fluids

	Valve Position Indicator **VOLUMEC**	Valve Position Measuring Instrument **VOLUTRONIC®**	Valve Position Indicator with Encoder **VOLUCODEC**
			
Design	Gear type volume counter	Gear type volume counter	Gear type volume counter
max. flow rate	02: 4 l/min / 1.1 gal/min 04: 7 l/min / 1.8 gal/min 5: 150 l/min / 40 gal/min	0.25 up to 10 l/min 0.7 up to 2.6 gal/min	02: 4 l/min / 1.1 gal/min 04: 7 l/min / 1.8 gal/min
max. working pressure	02 / 04: 200 bar / 2901 psi 5: 300 bar / 4351 psi	160 bar / 2321 psi	02 / 04: 160 bar / 2321 psi
Display	mechanical	by downstream electronic possible	LED
Current-independent display	Yes	-	No
Current-independent position detection	Yes	No	Yes
Leakage detection	Yes	by downstream electronic possible	Yes
Reset function	at slipping clutch	by downstream electronic possible	Yes
Calibration to actuator size	by gear reducing	by downstream electronic possible	free programmable
Flow direction	must be defined	A-B / B-A	free programmable
Error message	No	by downstream electronic possible	Yes

Hydraulic Manifolds

	HB 4 0311	**HB 4 0324**
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	– 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
Schematic		

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
Austria
Belgium
Canada
China
Czech Republic
Denmark
Finland
France
Germany
Holland
Hong Kong
Hungary
Italy
Japan
Korea
Luxembourg
Norway
Philippines
Poland
Portugal
Slovakia
Slovenia
South Africa
Spain
Sweden
Switzerland
Turkey
United Kingdom
USA

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.

02/2012 US

KRACHT®

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