KRACHT®
FLUID TECHNOLOGY AND SYSTEMS

VC 0.01
GEAR TYPE FLOW METERS

EN

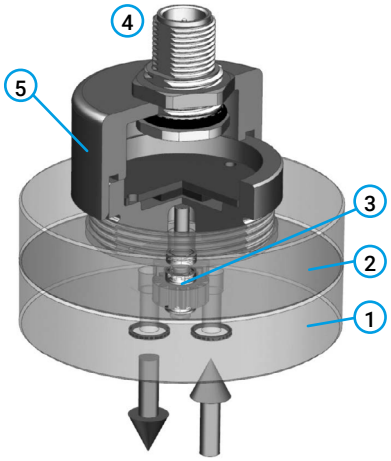
KRACHT®

FLUID TECHNOLOGY AND SYSTEMS

Content

General

Construction



1 Housing
2 Cover
3 Gears
4 Plug
5 Sensor electronics

Product characteristics

- Any flow direction
- High measuring resolution
- Measurement independent of viscosity within the specified ranges
- Low pressure drop
- High-response measurement
- Low measuring starting point
- Low noise emission
- Highly-accurate measurements with outstanding reproducibility
- High degree of accuracy, even with low flow rates at the bottom end of the measuring range
- High working reliability of the electronics

Application examples

Measurement of extremely small volumes and micro-dosing of lubricating fluids or diesel fuels.

Function

Consisting of two high-precision gears, the measuring unit is driven by the liquid flow based on the displacement principle. The gears run in an almost contactless manner in the measuring chamber. The bearing consists of ball bearings.

This encoder version offers a maximum measurement resolution. Compared with standard sensors, encoders are capable of generating considerably more pulses, thus increasing measurement resolution by orders of magnitude. Encoder-equipped VC 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.

Technical data

General characteristics

Connection type	Plate mounting
Mounting position	Any
Flow direction	Any
Filter fineness	< 6 µm
Permissible media	Lubricating fluids in the range of the operating parameter (in case of doubt please consult)

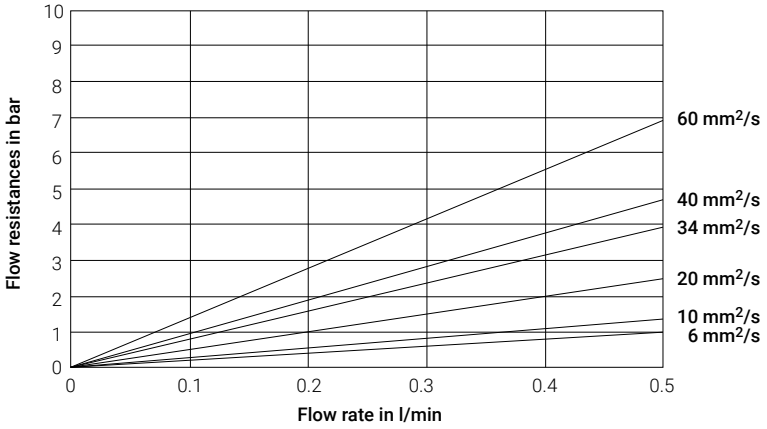
Technical characteristics

Displacement volume	0.138995 cm^3/rev	
Sensor resolution	512 Imp/rev	
Measuring resolution	Theoretically: 3 684 Imp/ml	(Exact data can be found in the respective test report)
Measuring resolution by 4-x evaluation	Theoretically: 14 734 Imp/ml	(Exact data can be found in the respective test report)
Impulse volume	Theoretically: 271.47 x 10^{-6} ml/Imp	(Exact data can be found in the respective test report)
Measuring range	0.5 ... 500 ml/min	
Repeat accuracy	< ±0.1 ml/min	
Viscosity	0.8 ... 60 mm^2/s	
Maximum working pressure	120 bar	
Pressure drop	7 bar	
Media temperature	30 ... 100 °C	
Ambient temperature	-15 ... 80 °C	

Materials

Housing	Stainless steel (1.4404)
Gears	Steel
Ball bearing	Steel

Flow resistances



Type key

VC	0.01	K	6	F	3	P	5	E		512
1	2	3	4	5	6	7	8	9	10	11

1 Product	
VC	Gear type flow meter

2 Nominal size	
0.01	

3 Bearing	
K	Ball bearing

4 Materials	
6	Housing: Stainless steel Gears: Steel

5 Sealing	
F	FKM

6 Surface	
3	Without paint

7 Connection type	
P	Plate mounting

8 Sensor technology	
5	Encoder

9 Electronic versions (pre-amplifier)	
E	Encoder

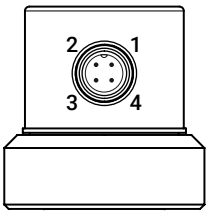
10 Cable length	
	No cable between flow meter and electronics

11 Electrical connection (plug and pre-amplifier housing)	
512	Encoder with 512 Imp/rev

Electronics

Electrical connections

Connection plug arrangement (M12x1 metal / 4-pole round connector)



1: U_B
2: Channel A
3: 0 Volt
4: Channel B

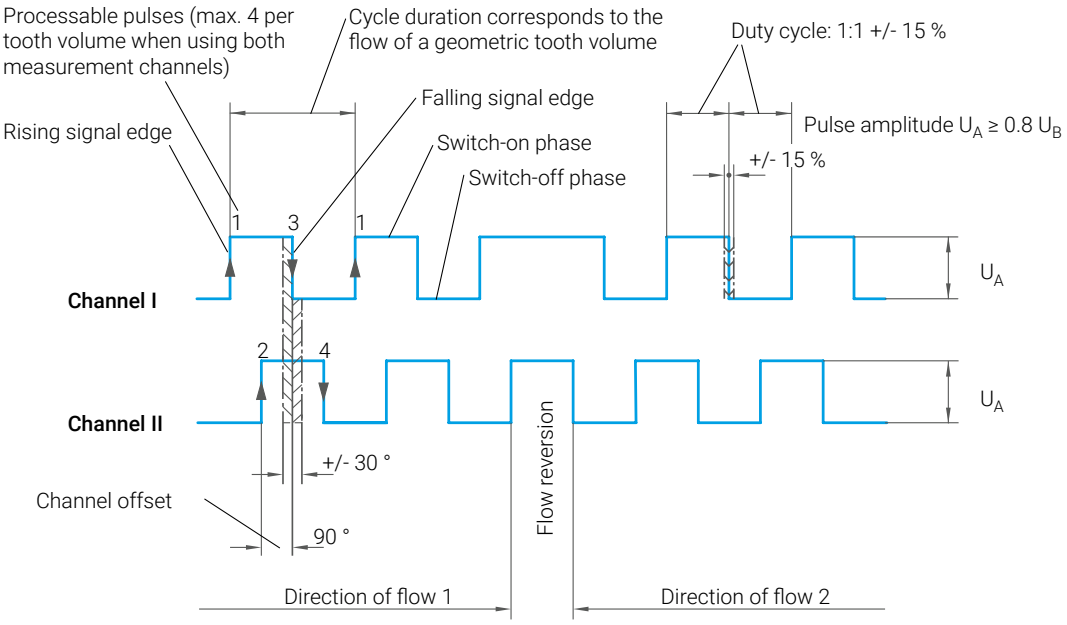
Electrical parameters

Number of measuring channels	2 (A, B)
Working voltage	5 ... 30 V DC
Signal output	Push-Pull
Short-circuit protection	Yes
Reverse-polarity protection	Yes
Connection	Axial plug M12x1 (4-pin)
Protection rating	IP 65

Signal characteristics

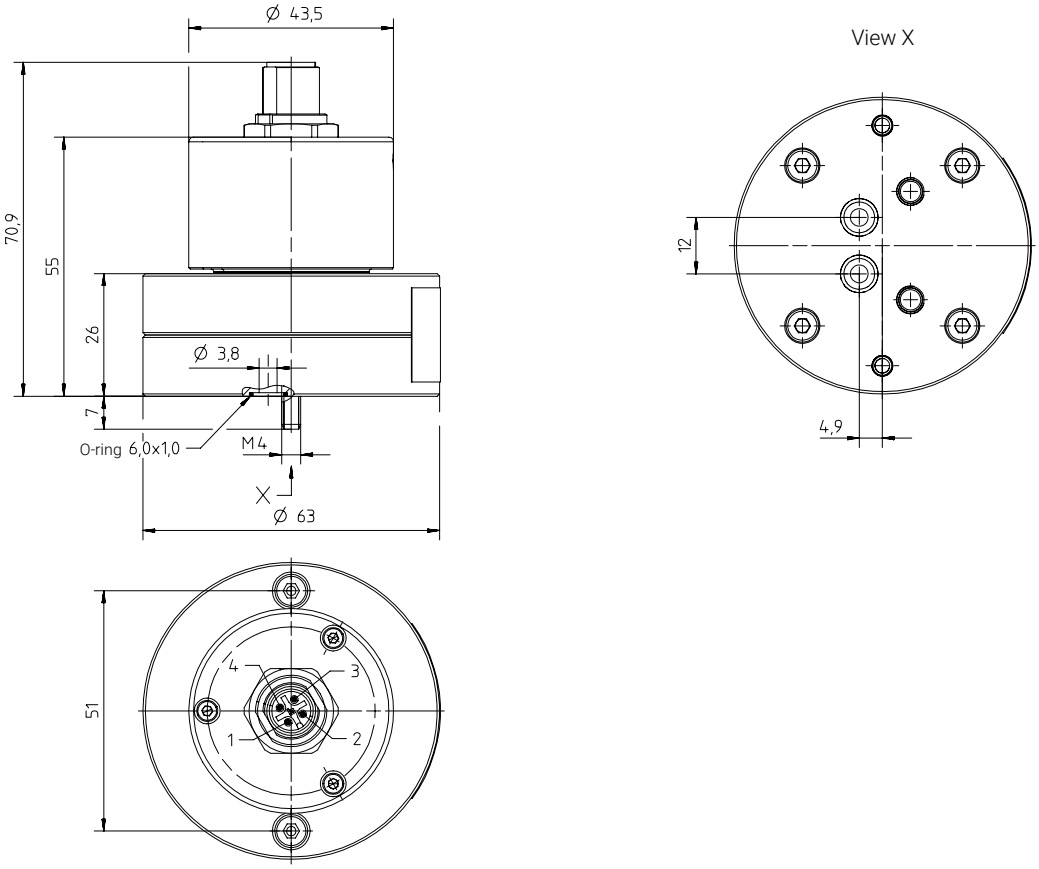
Signal behaviour

The pre-amplifier generated square-wave signal enables application specific resolutions. Standard resolution means that the electronics will process one pulse from a channel/sensor per cycle time (rising signal edge in channel I). In contrast, the 4-fold evaluation uses the maximal pulse rate per cycle time, allowing for a resolution that is four time as high as in the standard evaluation. All characteristics of the signal (rising and falling signal edge of both sensors/channels) are exploited in the evaluation.

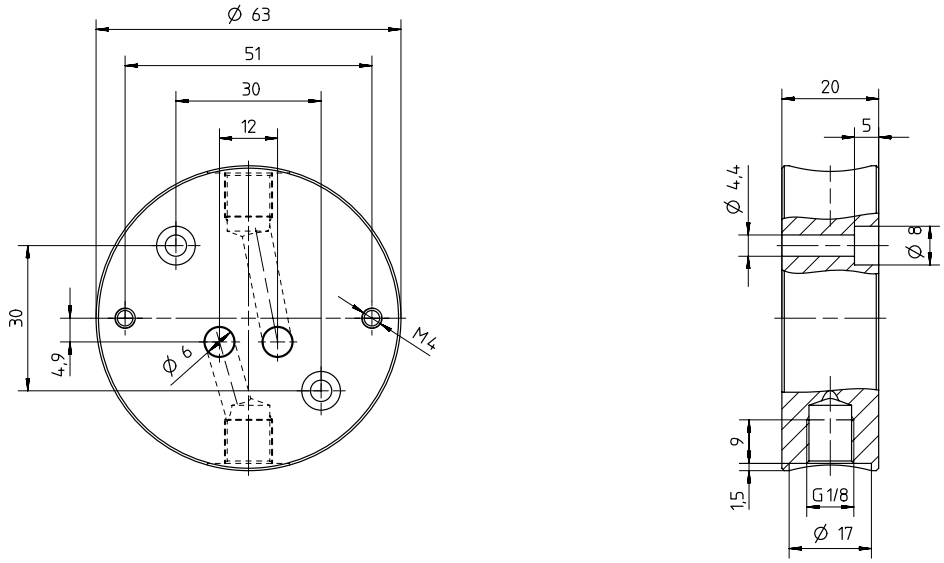


Dimensions

Gear type flow meter



Connection plate (stainless steel) with G¹⁄₈ side threaded connection



Dimensions in mm

Notes

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

kracht.eu

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