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Küppers Elektromechanik GmbH

Certified according to DIN EN ISO 9001

Technical Datasheet

ZHA Series

Aluminium Gear Flow Meters

Application

The Gear Flow Meters of the ZHA series are suitable for all greasing and non-abrasive fluids as oils and emulsions. The units provide low costs of ownership and are made of aluminum and stainless steel.

The ZHA series is suited for standard measurements of consumption as well as for supervision and batching applications.

Application

- Batching systems
- Measurement of consumption
- Control and supervision

Features

- High resolution
- Low pressure drop
- Dynamic response
- Hugh accuracy
- Low weight

Principle and design

Gear Flow Meters are positive displacement meters, similar in design to a gear pump. In the measuring chamber there are two gears, which are engaged with minimum play.

The gear's teeth and the measuring chamber build up sections with equal volume. The medium fills up those sections and rotates the gears when flowing through the meter.

The construction with low friction and small gaps make sure that the rotational speed of the gears is proportional to the flow over a wide range of flow.

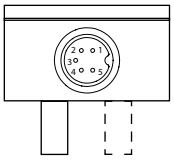
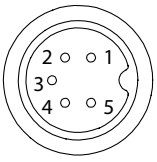
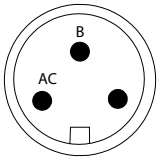
The rotational speed is measured contactless through the housing of the measuring chamber.

Technical Data

Type	**Measuring range,** l/min			**K-Factor,** pulses/l[1)]	**max. Pressure,** bar
ZHA 01/2*	0.02	up to	3	28,000	315
ZHA 02*	0.1	up to	7	8,400	315
ZHA 03*	0.5	up to	25	3,480	315
ZHA 04*	0.5	up to	70	950	315
ZHA 05*	5	up to	150	268	250
ZHA 06*	20	up to	500	106	250

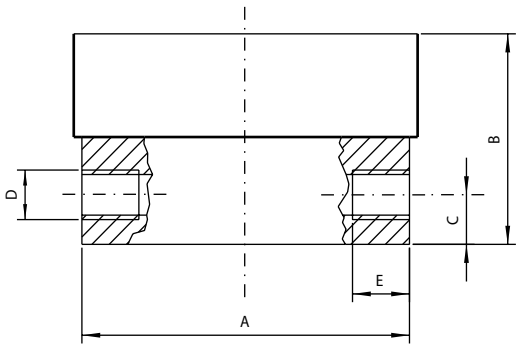
1) Typical values for single channel pickups. For higher resolution and / or forward /backward measurements dual channel pickups are available.

* Contact KEM for the exact ordering code.

General		
Linearity	± 1,5% of actual flow	
Materials	Housing: Aluminium ALCuMgPb Gears: Stainless steel as per DIN 1.4122 (SS303) or 1.4460 (SS329) Shafts, bearings: Stainless steel Sealing: Telfon, Viton	
Weight	ZHA 01/2: 0.30 kg ZHA 02: 0.38 kg ZHA 03: 0.50 kg ZHA 04: 4.00 kg ZHA 05: 12.7 kg ZHA 06: 16.8 kg	
Electrical Data		
VHE and VHD for ZHA 01/2 to ZHA 04		
	VHE Single Hall Effect Sensor	**VHD Dual Hall Effect Sensor**
Supply voltage	12 to 24 V DC, max. 10 mA	12 to 30 V DC, max. 10 mA
Frequency range	1 to 3,000 Hz	1 to 3,000 Hz
Output	Square wave signal	Square wave signal double measuring frequency and reverse-flow detection
Output impedance	approx. 470 Ω	approx. 470 Ω
Temperature range	0 to +70 °C	0 to +70 °C
Electrical connection	5-pin plug 1 = Supply voltage 2 = Output signal 3 = 0V/GND 4 = nc 5 = nc	5-pin plug 1 = Supply voltage 2 = Output signal 1 3 = 0V/GND 4 = Output signal 2 5 = nc
		
IG 03 H for ZHA 05 to ZHA 06		
Supply voltage	12-24 DC, max. 10 mA	
Minimum frequency	1 Hz	
Maximum frequency	1 kHz	
Output signal	squarewave pulses positive, 0.8 V below supply voltage	
Pin connection	A = 12-24 V B = 0 V C = aignal	
Output impedance	approx. 470 Ω	
Ambient temperature	0 to +75 °C during operation, -30 to +90 °C during storage	

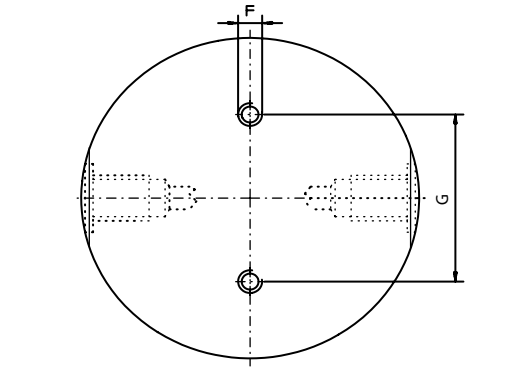
Dimensional drawing (mm) - ZHA 01/2 to ZHA 05

Side view



Type	A	B	C	D	E
ZHA 01/2 KL	72.0	55	12	G ¼“	16
ZHA 01/2 KN	72.0	55	12	¼“ NPT	13
ZHA 01/2 81/DX	72.0	49.7	12	G ¼“	16
ZHA 02 KL	80.5	55	12	G ¼“	16
ZHA 02 KN	80.5	55	12	¼“ NPT	13
ZHA 03 KL	80.5	67	13	G ½“	16
ZHA 03 KN	80.5	67	13	½“NPT	17
ZHA 04 KL	121	107	19	G ½“	16
ZHA 04 KN	121	107	19	¾“ NPT	16
ZHA 04 A5	121	107	19	G ¾“	16
ZHA 05	170	133	22,5	G 1“	18

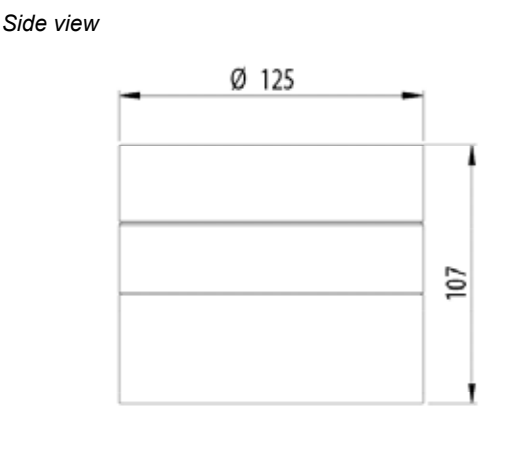
Bottom view



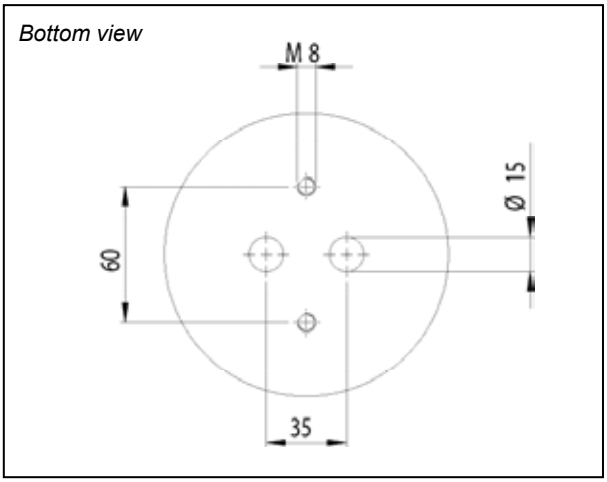
Type	F	G
ZHA 01/2	M6	44
ZHA 02	M6	44
ZHA 03	M6	44
ZHA 04	M8	60
ZHA 05	M8	100

Dimensional drawing (mm) - ZHA 04 KB with bottom in- and outlet

Side view

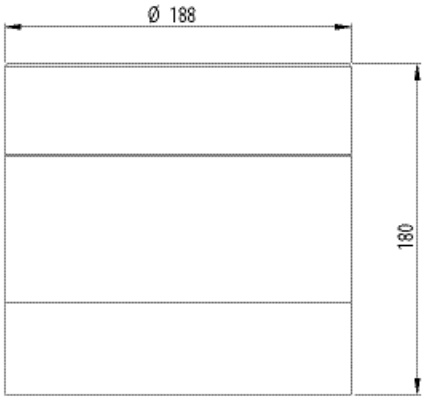


Bottom view

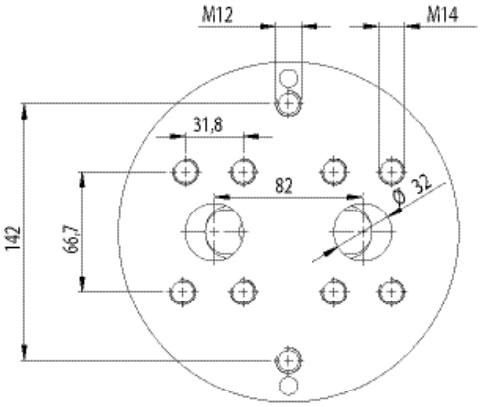


Dimensional drawing (mm) - ZHA 06 with bottom in- and outlet

Side view



Bottom view



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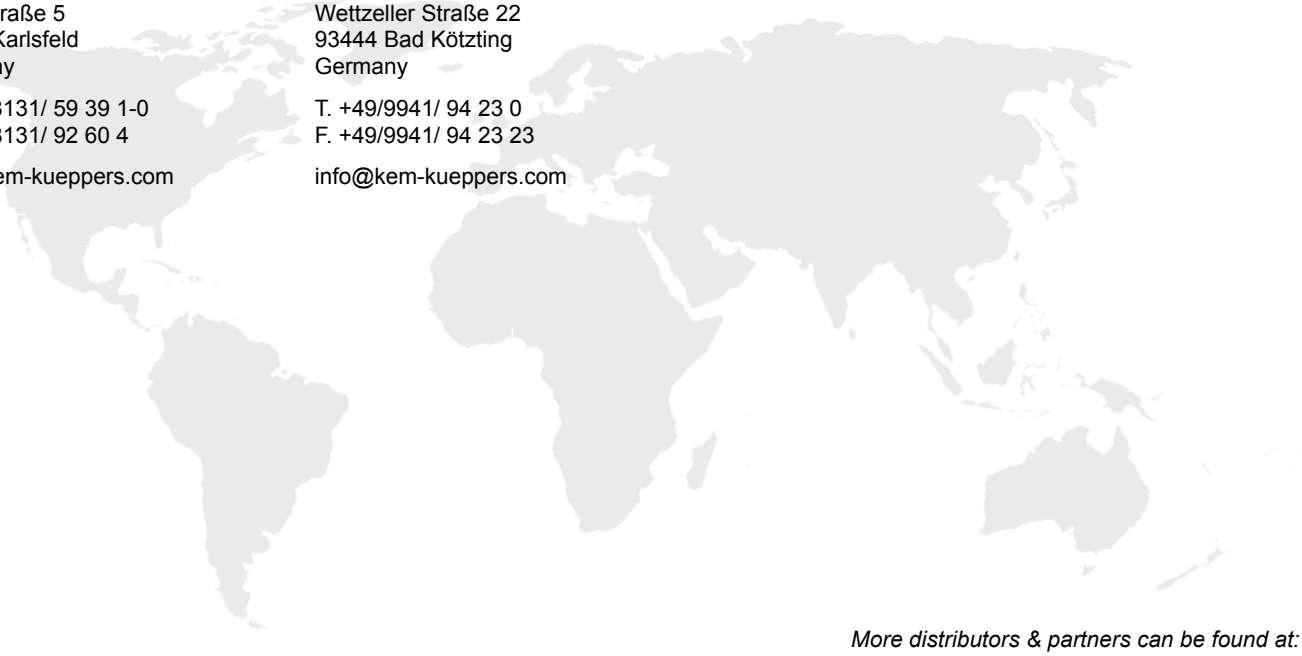

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