

Technical Datasheet



ZHM...HP Series

Gear Flow Meters
for High-Pressure Applications

Application

Thanks to their robust design the gear flowmeters are suited for application at high medium pressure; they are specifically suitable in hard environment conditions, e.g. the applications of the type Offshore- und SubSea.

Generally, wherever people work with additives, hydraulic liquids and injection applications, where measuring or dosing under high pressure is required; the flowmeters ZHM HP have their utilization.

Various design sizes allow a wide range of applications. Gear flowmeters enable high accuracy of measurement and short response time at different medium viscosities. With the connecting thread AUTOCLAVE 3/8" _SF-375-CX the realizable pressure range is up to 1000 bar. Our certified frequency amplifiers ATEX are also approved for use in explosive "EX-zones."

Applications

- Hydraulic oil
- Corrosion protection materials
- Demulsifiers
- DRA (Drag Reducer Additives)
- Water hydraulic systems
- Other additives
- Coatings

Principle and Design

Gear flowmeters are volumetric counters that have internal design similar to gear pumps. There are two gear wheels inside the flowmeter body; they have mutual engagement with a minimum backlash.

Between the teeth and walls of the flowmeter body closed chambers arise into which medium forced-flows and it puts thereby the gear wheels in motion.

The gear wheels move freely and do not brake the medium flow. Their number of revolutions is proportional to the flow rate and is sensed using contactless sensors through the body wall.

Features

- Pressures up to 1035 bar
- Short response time
- Large range of viscosity
- Xylan coated bolts

Technical Data

Type	Measuring range, l/min			K-Factor, pulses/l ¹⁾	max. Pressure, bar/psi	Frequency, in Hz ¹⁾			Weight, kg
	0.002	up to	0.5			1.3	up to	330	
ZHM 01/3 HP	0.002	up to	0.5	40,000	517 bar / 7,500 psi	1.3	up to	330	3.4
ZHM 01/1 HC*	0.005	up to	2	26,500	1,035 bar / 15,000 psi	2.2	up to	880	3.4
ZHM 01/2 HP*	0.02	up to	3	14,000	1,035 bar / 15,000 psi	4.6	up to	700	3.4
ZHM 02 HP*	0.1	up to	7	4,200	1,035 bar / 15,000 psi	7	up to	490	3.4
ZHM 03 HP*	0.5	up to	25	1,740	1,035 bar / 15,000 psi	14	up to	730	3.9
ZHM 04 HP*	0.5	up to	70	475	1,000 bar / 14,500 psi	4	up to	560	11.1

1) Average values with single-pickup TYP VTE. Use twin-pickup for higher resolution.

* Detailed type code on request

General

Linearity	± 0.5% of actual flow (≥ 30 mm ² /s; up to 0.1% with linearization electronics)
Repeatability	± 0.1%
Materials	Housing: as per DIN 1.4404 (SS316L) Gears: as per DIN 1.4122, 1.4501 Bearing: Carbide (ZHM 01/1), ball bearings Sealing: FKM
Medium temperature	-20 to +150°C (higher temperatures on request)
Dimensions	See drawing (page 4 to 5)

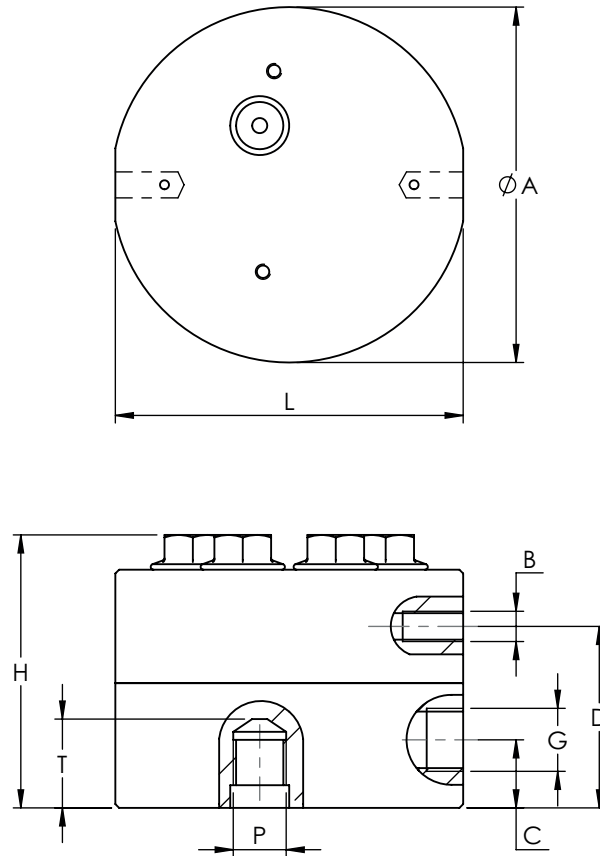
Pickup Selection

Criteria \ Type	VTE *	WT */ WI*	VIE *	IF */ VIEG	VTC *	VTB *	TD *	VHE*	FOP *
Drilling type ¹⁾	E	E	E	E	E	E	D	E	E/F
Medium temperature	≤ +70°C								
	≤ +120°C				✓	✓		✓	✓
	≤ +150°C	✓	✓	✓					
	≤ +350°C				✓				
EX-Approval	✓	✓	✓	✓	✓	✓			✓
Frequency output	✓	✓	✓	✓	✓			✓	✓
Dual frequency output									
Analogue output 4 - 20 mA		✓			✓				
Forward / backward recognition									
Local display					✓	✓			
Linearization		✓			✓				
Supply 12 - 24 V	✓	✓	✓	✓	✓			✓	
Supply battery						✓			✓
Interface		✓			✓				

1) Thread types: E: single pickup / D: dual pickup / F: FOP-pickup

* Ordering code (please see separate datasheet)

Dimensional Drawings (mm) - ZHM 01/3 to 03 HP



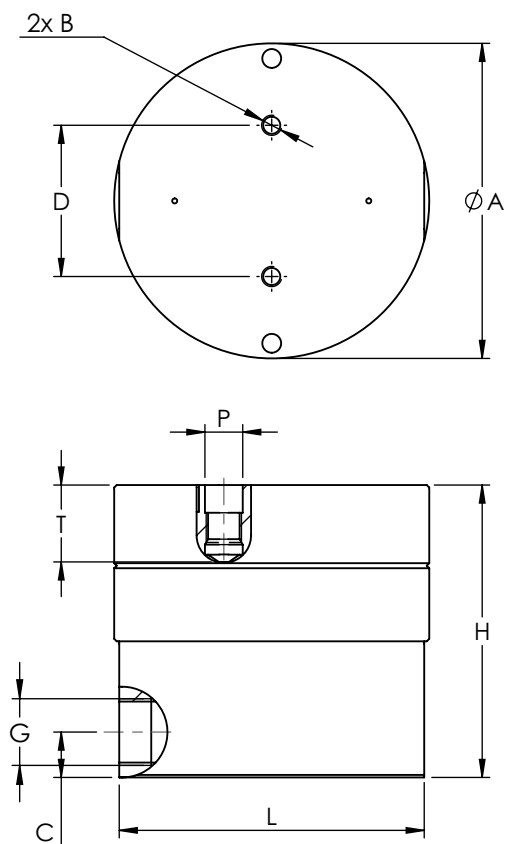
ZHM Type	$\varnothing A$	B	C	D	G	H	L	P ¹⁾	T ²⁾	Autoclave	R ³⁾
ZHM 01/3 HP	94	M8 ∇ 16	18	48	UNF 9/16"	72	92	E	23	SF375CX20	3/8"
ZHM 01/1 HC	94	M8 ∇ 16	18	48	UNF 9/16"	72	92	E	23	SF375CX20	3/8"
ZHM 01/2 HP	94	M8 ∇ 16	18	48	UNF 9/16"	72	92	B/E	23	SF375CX20	3/8"
ZHM 02 HP	94	M8 ∇ 16	18	48	UNF 9/16"	72	92	E/H	23.5	SF375CX20	3/8"
ZHM 03 HP	94	M8 ∇ 16	18	60	UNF 9/16"	84	92	E/H/M	23.5	SF375CX20	3/8"

1) See "Pickup Selection" table (P. 3)

2) Please notice: total height is calculated by adding up the height (H) and the height of the pickup (separate data sheet) and subtract the bore hole depth (T)

3) R= pipe diameter

Dimensional Drawings (mm) - ZHM 04 HP



ZHM Type	Ø A	B	C	D	G	H	L	P ¹⁾	T ²⁾	Autoclave	R ³⁾
ZHM 04 HP	125	M8 ↓ 16	18	60	3/4" 14 NPS	116	121	E	30.5	SF750CX20	3/4"

1) See "Pickup Selection" table (P. 3)

2) Please notice: total height is calculated by adding up the height (H) and the height of the pickup (separate data sheet) and subtract the bore hole depth (T)

3) R= pipe diameter

KEM Headquarter

Liebigstraße 5
85757 Karlsfeld
Deutschland

T. +49 8131 59391-0
F. +49 8131 92604

info@kem-kueppers.com

KEM Service & Repairs

Wetzeller Straße 22
93444 Bad Kötzting
Deutschland

T. +49 9941 9423-0
F. +49 9941 9423-23

info@kem-kueppers.com

*More distributors & partners can be found at:
www.kem-kueppers.com*