

Certified according to DIN EN ISO 9001

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."

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.

Technical Data

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

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

* Detailed type code on request

Applications

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

Features

- Pressures up to 1000 bar
- Short response time
- Large range of viscosity
- Xylan coated screws

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)

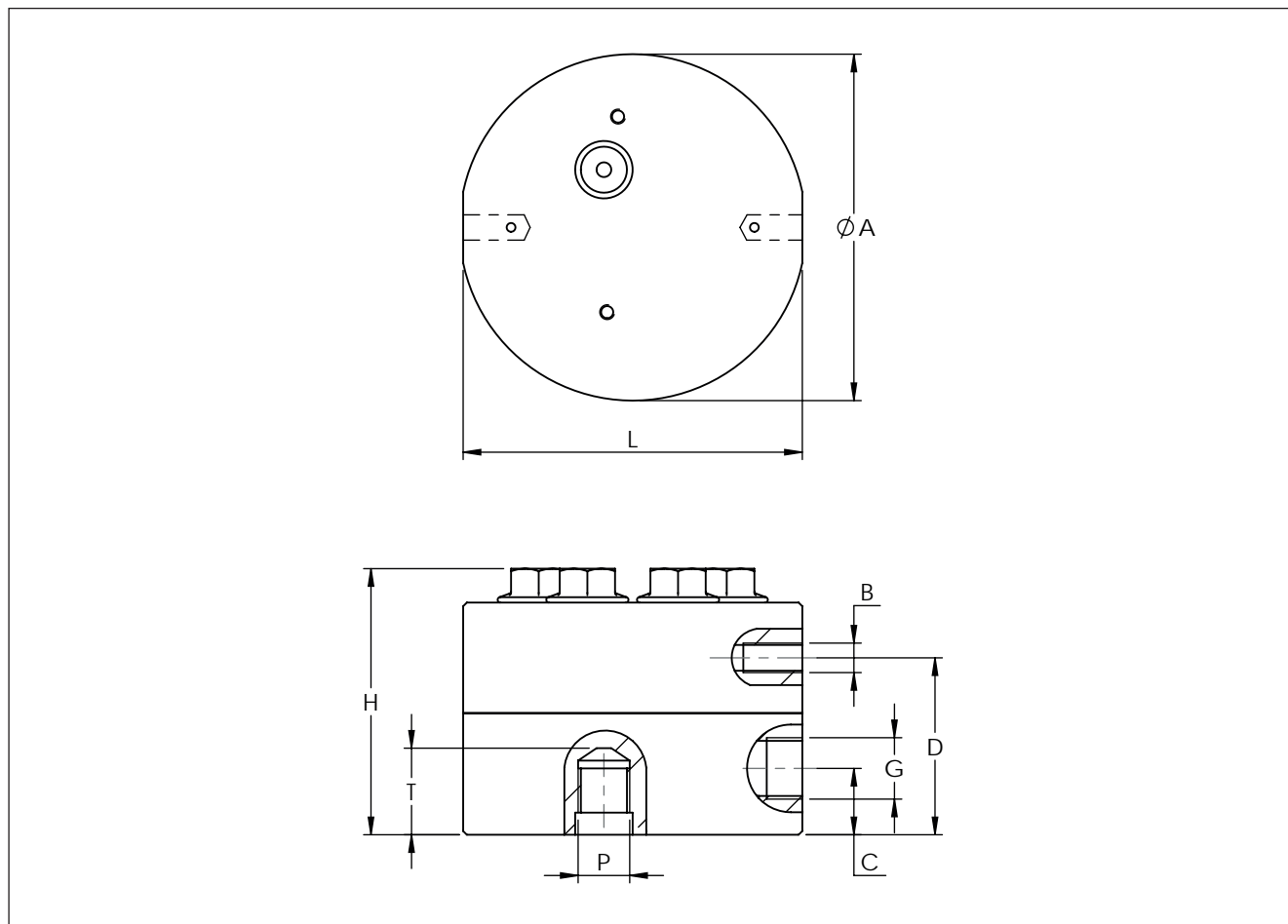
Pickup Selection

Criteria	Type	VTE *	WT */ WI*	VIE *	IF */ VIEG	VTC *	VTB *	TD *	VHE*	FOP *
		Drilling type ¹⁾	E	E	E	E	E	E	D	E
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)

ZHM HP - Gear Flow Meters

Dimensional Drawings (mm) - ZHM 01/1 to 03 HP



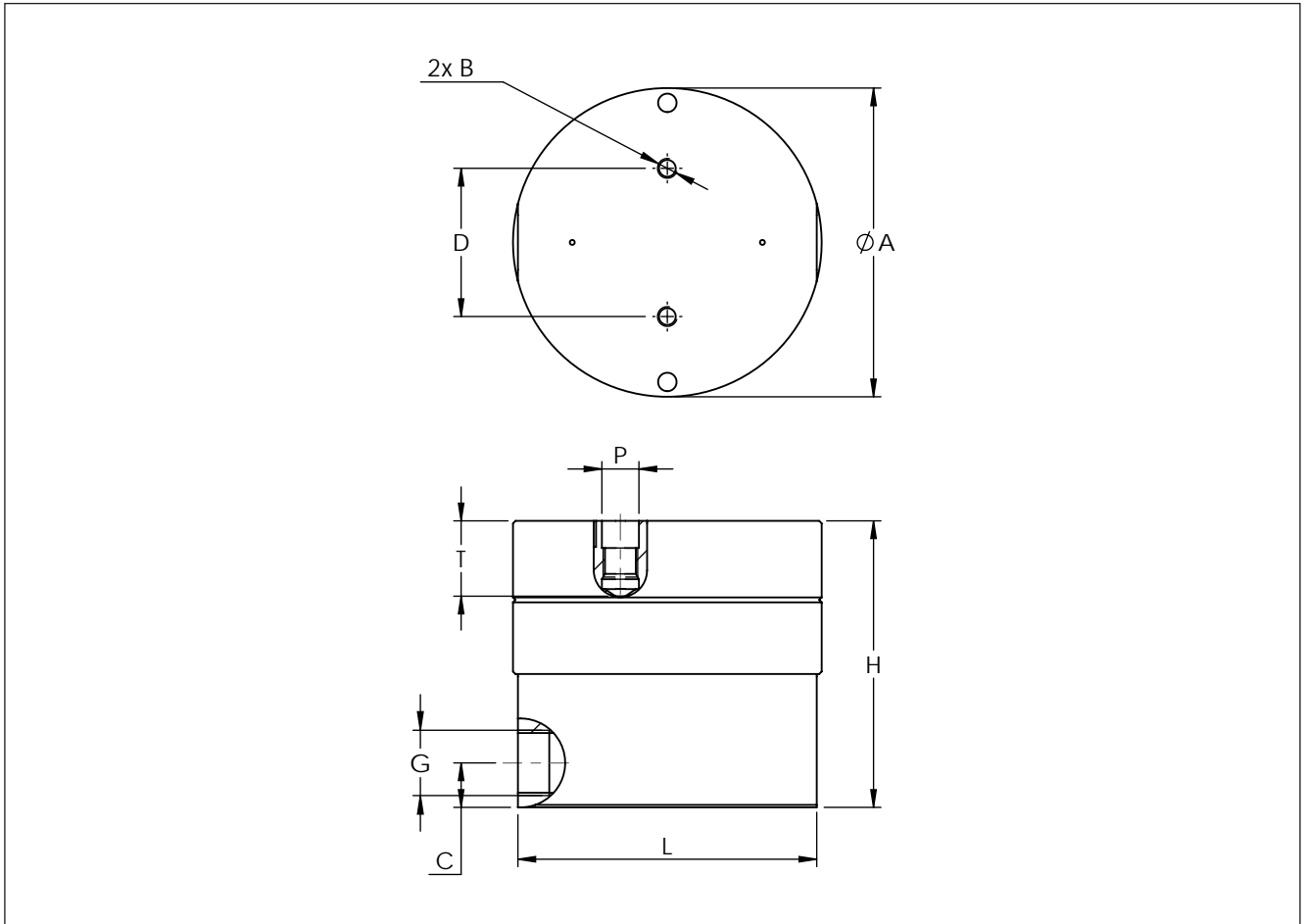
ZHM Type	$\varnothing A$	B	C	D	G	H	L	P ¹⁾	T ²⁾	Autoclave	R ³⁾
ZHM 01/1 HC	94	M8 ∇ 16	18	48	UNf 9/16	72	92	E	23	SF375CX20	3/8"
ZHM 01/2 HP	94	M8 ∇ 16	18	48	UNf 9/16	72	92	B/E	23	SF375CX20	3/8"
ZHM 02 HP	94	M8 ∇ 16	18	48	UNf 9/16	72	92	E/H	23.5	SF375CX20	3/8"
ZHM 03 HP	94	M8 ∇ 16	18	60	UNf 9/16	84	92	E/H/M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

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