

Certified according to DIN EN ISO 9001

Technical Datasheet



HM...TC-NS*

Turbine Flow Meters

for High Pressure Applications up to 4,000 bar

Application

Turbine flow meters serve to accurate measurement of continuous and discontinuous flow rate values. This turbine flowmeter is most suited for liquids with low and middle viscosity, such as for example water, emulsions, mixtures containing glycol and light oils.

The large range of different pipe connections and structural sizes allows using these flow meters in various applications and in various industrial sectors.

Principle and Design

The turbine flow meters KEM are indirect volume counters built on the principle of using the counter with the Woltmann turbine impeller. The energy coming flow the liquid flow sets in motion a centrally and rotatably mounted rotor. The number of the rotor revolutions is directly proportional to the volumetric liquid flow. The speed of rotation of the turbine rotor is contactlessly sensed through the wall of the flow meter body. The impulses generated by each turbine blade correspond to a certain accurate volumetric flow of the measured medium.

The number of pulses for a certain period of time corresponds to the value of the medium flow rate expressed, for example, in litres per minute. The lightweight turbine wheel allows quick response to changes in the value of the medium flow rate (< 50 m/s).

Applications

- Tap and demineralised water
- Fuels
- Liquefied gases
- Pharmaceutical liquids
- Fuel oil
- Solvents
- Hydraulic oil

Features

- Pressure: up to 4,000 bar
- Short response time (< 50 ms)
- Dynamic measuring system
- High resolution
- Holes for pressure release
- Highquality materials 1.3980/ 1.4460
- Bearings made of tungsten carbide resistant to wearing.

Technical Data

Type	Measuring range, l/min		K-Factor, pulses/l ¹⁾	max. Pressure, bar	Frequency, in Hz ¹⁾	Weight, kg
HM 003 TC-NS*	0.3	to 1.5	32,500	4,000	1,000	1.6
HM 004 TC-NS*	0.5	to 4	25,000	4,000	1,250	1.6
HM 005 TC-NS*	0.8	to 6	17,800	4,000	1,740	1.6
HM 006 TC-NS*	1.2	to 10	10,300	4,000	1,750	1.6
HM 007 TC-NS*	2	to 20	5,000	2,000	1,667	2
HM 009 TC-NS*	3.3	to 33	1,930	2,000	2,750	2

1) The data on K-factors and maximum frequencies are average values at 1mm²s. The numbers of pulses and frequencies at higher viscosities may vary. Exact values can be found in individual calibration records.

2) Pressure: up to 1000 bar with material 1.4571 / 1.4404, up to 1400 bar with material 1.3980

* Detailed type code on request

General	
Linearity	± 1.0% of actual flow (1 mm ² /s; up to 0.1% with linearization electronics); HM 009: ± 1.5% of actual flow (1 mm ² /s)
Repeatability	± 0.2%
Materials	Housing: as per DIN 1.3980 Wheels: as per DIN 1.4460 (SS 329) Bearing: Tungsten carbide
Medium temperature	-20°C to +150°C (higher temperatures on request)
Dimensions	See drawing (page 4 to 5)

Pickup Selection

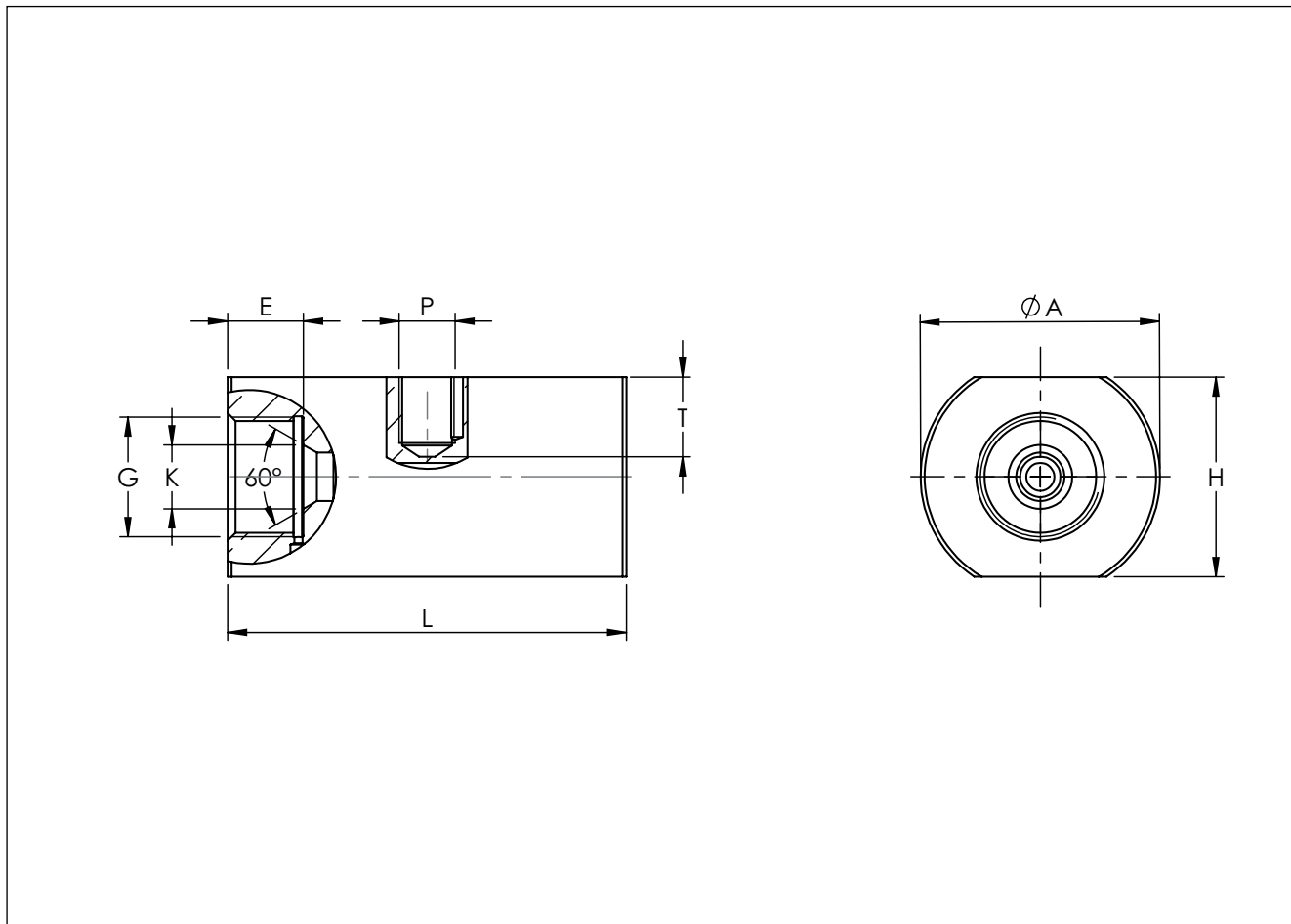
Criteria \ Type		VTE *	WT */ WI*	VIE *	IF */ VIEG	VTC *	VTB *	TD *	VHE	FOP *
Drilling type ¹⁾		E	E	E	E	E	E	D	E	E/F
Medium temperature	≤ +70°C									
	≤ +120°C					✓	✓		✓	✓
	≤ +150°C	✓	✓	✓						
	≤ +350°C				✓					
EX-Approval		✓	✓	✓	✓	✓	✓			✓
Frequency output		✓	✓	✓	✓	✓			✓	✓
Dual frequency output										
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)

HM...TC-NS* Turbine Flow Meters

Dimensional Drawings (mm) - HM...TC-NS*



HM Type	Ø A	E	G ³⁾	H	K	L	P ¹⁾	T ²⁾	Connection
HM 003 TC-NS*	60	19	M30x2.0	50	11	87	E	21,5	9E
HM 004 TC-NS*	60	19	M30x2.0	50	11	87	E	21,5	9E
HM 005 TC-NS*	60	19	M30x2.0	50	11	87	E	21	9E
HM 006 TC-NS*	60	19	M30x2.0	50	11	87	E	21	9E
HM 007 TC-NS*	60	19	M30x2.0	50	16	100	E	20	9E
HM 009 TC-NS*	60	19	M30x2.0	50	16	100	E	20	9E

- 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) Autoclave connection size: SF375CX20
- * Detailed type code on request

KEM Headquarter

Liebigstraße 5
85757 Karlsfeld
Germany

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

info@kem-kueppers.com

KEM Service & Repair

Wetzeller Straße 22
93444 Bad Kötzting
Germany

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*

Your local partner:



www.kem-kueppers.com
info@kem-kueppers.com