

Certified according to DIN EN ISO 9001

## Technical Datasheet



## HM...TC-AC\*

### Turbine Flow Meters

for High Pressure Applications up to 1,400 bar

## Application

Turbine flow meters serve to accurate measurement of continuous and discontinuous flow rate values. This turbine flow meter is most suited for liquids with low viscosity, such as for example water, solvents, cleaning agents and light oils.

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

### Applications

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

## 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 from the flow of the liquid 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 flowmeter 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)

### Features

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

## Technical Data

Type	Measuring range, l/min		K-Factor, pulses/l <sup>(1)</sup>	max. Pressure, bar	Frequency, in Hz <sup>(1)</sup>	Weight, kg
HM 003 TC-AC*	0.3	to 1.5	32,500	1,400	1,100	1.9
HM 004 TC-AC*	0.5	to 4	25,000	1,400	1,700	2
HM 005 TC-AC*	0.8	to 6	17,800	1,400	1,740	2.2
HM 006 TC-AC*	1.2	to 10	12,000	1,400	2,100	2.2
HM 007 TC-AC*	2	to 20	5,000	1,400	1,667	2.3
HM 009 TC-AC*	3,3	to 33	5,000	1,400	2,750	2.4
HM 011 TC-AC*	6	to 60	1,300	1,400	1,350	2.4
HM 013 TC-AC*	8.5	to 85	920	1,034	1,300	2
HM 017 TC-AC*	12	to 120	380	1,034	840	5.5

1) The data on K-factors and maximum frequencies are average values at 1mm<sup>2</sup>/s. 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 and 1.4404, up to 1400 bar with material 1.3980

\* Detailed type code on request

General	
Linearity	± 1.0% of actual flow (1 mm <sup>2</sup> /s); HM 009: ± 1.5% of actual flow (1 mm <sup>2</sup> /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)

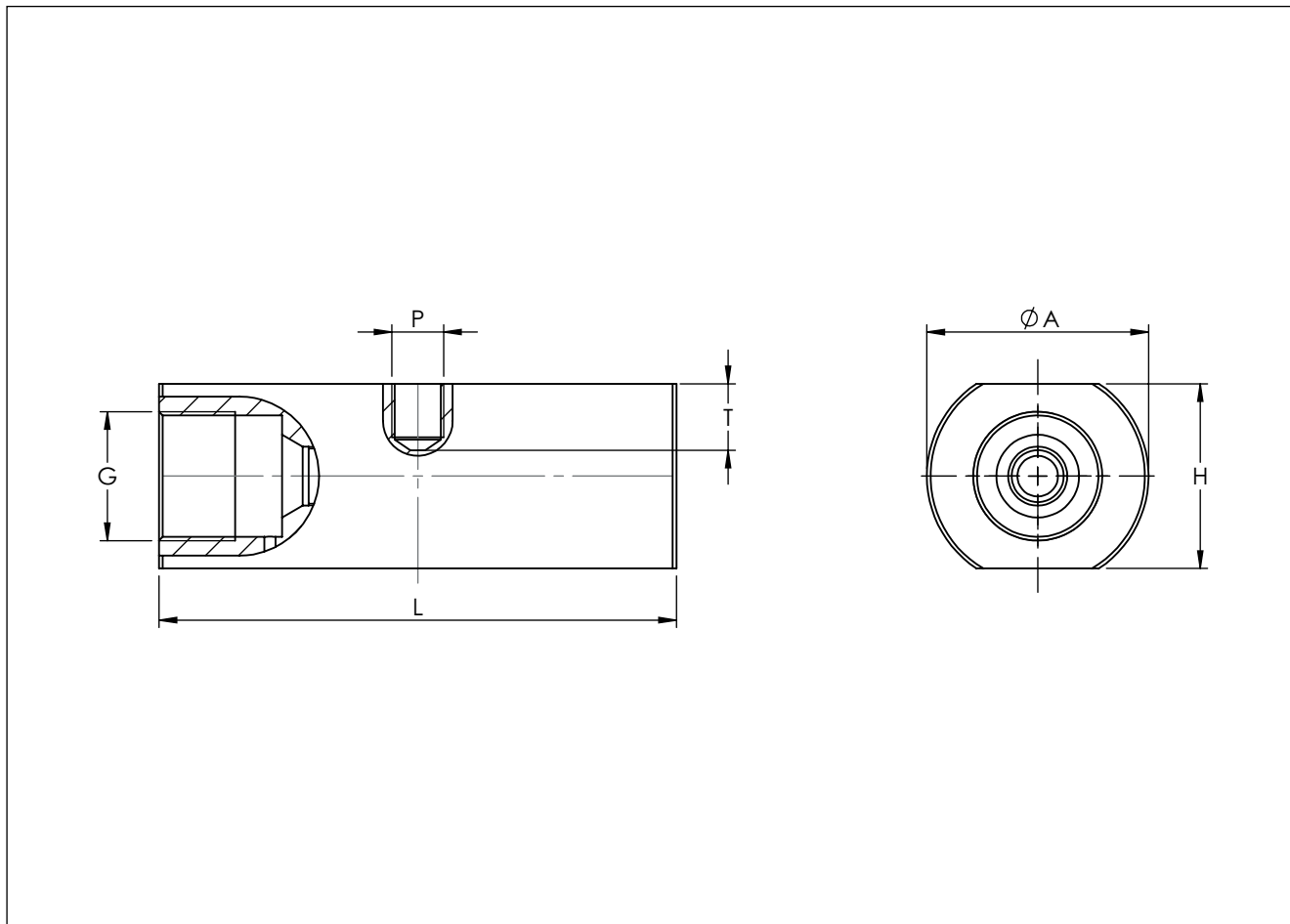
## Pickup Selection

Criteria	Type	VTE *	WT */ WI*	VIE *	IF */ VIEG	VTC *	VTB *	TD *	VHE *	FOP *
Drilling type <sup>1)</sup>		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) - HM...TC-AC/\*



HM Type	Ø A	G	H	L	P <sup>1)</sup>	T <sup>2)</sup>	Rohrgröße	Autoclave
HM 003 TC-AC*	60	13/16"-16 UNF	50	90	E	21	9/16"	SF562CX20
HM 004 TC-AC*	60	13/16"-16 UNF	50	90	E	21	9/16"	SF562CX20
HM 005 TC-AC*	60	3/4" NPS	50	105	E	21	3/4"	SF750CX20
HM 006 TC-AC*	60	3/4" NPS	50	105	E	21	3/4"	SF750CX20
HM 007 TC-AC*	60	1-3/8"-12 UNF	50	135	E	20	1"	SF1000CX20
HM 009 TC-AC*	60	1-3/8"-12 UNF	50	135	E	20	1"	SF1000CX20
HM 011 TC-AC*	60	1-3/8"-12 UNF	50	140	E	18	1"	SF1000CX20
HM 013 TC-AC*	80	1-7/8"-12 UNF	70	175	E	27	1 1/2"	SF1500CX
HM 017 TC-AC*	80	1-7/8"-12 UNF	70	178	E	25	1 1/2"	SF1500CX

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)

\* 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 & Repairs**

Wetzeller Straße 22  
93444 Bad Kötzting  
Germany

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

info@kem-kueppers.com



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[www.kem-kueppers.com](http://www.kem-kueppers.com)*

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[www.kem-kueppers.com](http://www.kem-kueppers.com)  
info@kem-kueppers.com