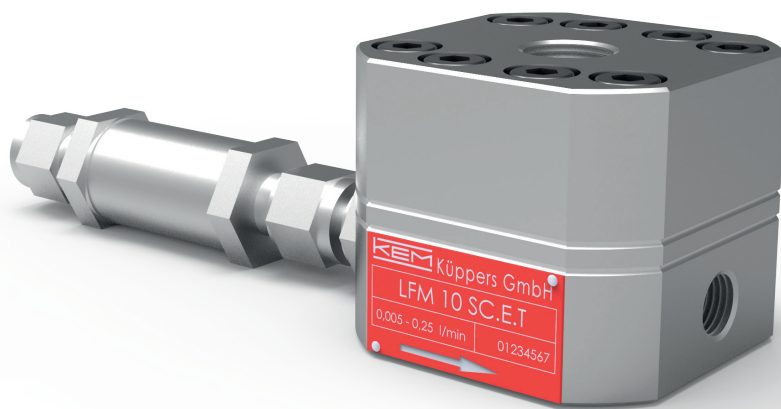


# Technical datasheet



## LFM 10

### Micro Flow Meter

for low-viscosity fluids in dosing and filling systems

# Micro Flow Meters – LFM 10

## Application

The flow meter LFM is designed for low-viscosity fluids of all types, especially for use in dosing and filling devices. It is designed for low volume flows from 0.005 l/min. and shall be applied wherever small amounts of additives are dosed or injected.

Due to having large resolution it is guaranteed optimal dosing accuracy even in case of the smallest liquid volumes. The values of self-pulsing flows are reproducible with the repeated accuracy of +/- 0.1%. Due to its small compact design the LFM may be used without problems even in a very confined space for installation.

## Principle and Design

The measuring device consists of a double ring swinging piston which produces oscillating rotary and swinging motion due to alternating filling and emptying the measuring chambers.

Thanks to a small weight of the pendulum and the minimum losses arising from friction the flow meter LFM reacts even to the smallest volume flows. At a constant flow, the cycle described above is repeated proportionally to the flow approx. 5 to 300 times per one second. In the process, for each one cyclic revolution a volume of approx. 0.01 cm<sup>3</sup> is pressed out and thereby one pulse. In addition, the piston design minimizes losses due to leakage and this guarantees good linearity and repeatability of the measured values.

A suitable frequency-and pickup system records oscillation motions in a contactless manner through the body wall and transmits output signals at a frequency which is proportional to the volumetric flow.

The flow meter LFM 10 is compact and its weight, including the integrated sensor (VTE-CM-S) is only 650 g. This flow meter is made of stainless steel, like other KEM flow meters. In order to achieve a faultless operation it is recommended to equip the flow meter LFM with a filter of aperture size < 40µm.

## Applications

- Additives
- Pharmaceuticals
- Aromatic substances/perfumes
- Tap-water and demineralized water
- Liquefied gases
- Fluid food
- 2- and 3-component-applications

## Features

- Low weight
- Compact Version
- Applicable for flow rates from 0.005 l/min
- Good purging qualities

## Technical Data

Type	Measuring range, l/min			K-Factor, pulses/l <sup>1)</sup>	max. Pressure, bar/psi	Weight, kg
LFM 10*	0.005	to	0.25	75,000	100 [1,450]	0.7

## General

Linearity	± 2.5 % of actual flow (≤ 6 mm <sup>2</sup> /s)
Repeatability	± 0.1 %
Viskositätsbereich	0.6 to 6 mm <sup>2</sup> /s
Materials	Housing: as per DIN 1.4435 (SS316L) Pendulum: as per DIN 1.4122 Sealing: FKM, PTFE, FFKM
Medium temperature	-20 °C to +120 °C [-4 °F bis +248 °F], higher temperatures on request
Dimensions	See drawing (page 4 to 5)

<sup>1)</sup> Average values with single-pickup TYP VTE\*/P.

\* Detailed type code on request

## Filter Element (optional)

Type	SS-6F-MM
Mounting position	Horizontal/vertical
Pressure	Max. 160 bar (at +120 °C [+248 °F])
Material	As per DIN 1.4401 (SS316L)
Mesh size	40 µm
Pressure drop	Approx 300 mbar (at 0,5 l/min and 2 mm <sup>2</sup> /s)
Mounting length	Approx. 80 mm/SW 19
Connection	6 mm pipe

## Pickup Selection

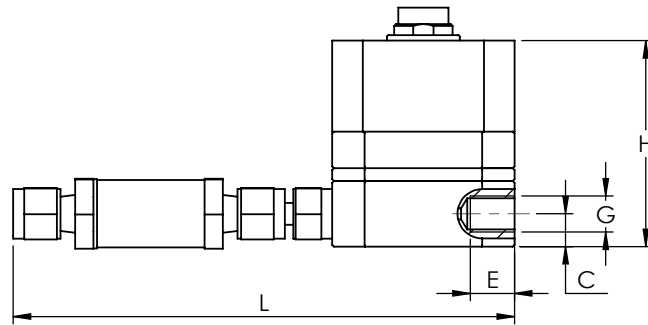
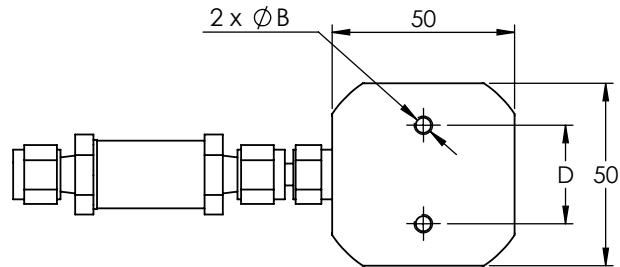
Criteria \ Type	VTE *	WT * / WI*	VIE *	IF * / VIEG	VTC *	VTB *	TD *	VHE*	FOP *
Drilling type <sup>2)</sup>	E	E	E	E	E	E	D	E	E/F
Medium temperature	≤ +70 °C [+158 °F]								
	≤ +120 °C [+ 248 °F]				✓	✓		✓	✓
	≤ +150 °C [+302 °F]	✓	✓	✓					
	≤ +350 °C [+662 °F]				✓				
EX-Approval	✓	✓	✓	✓	✓	✓			✓
Frequency output	✓	✓	✓	✓	✓			✓	✓
Dual frequency output									
Analogue output 4 - 20 mA		✓			✓				
Forward / backward recognition									
Local Display					✓	✓			
Linearization		✓			✓				
Supply 12 - 24 V	✓	✓	✓	✓	✓			✓	
Supply battery						✓			✓
Interface		✓			✓				

<sup>2)</sup> Thread types: E: single pickup / D: dual pickup / F: FOP-pickup

\* Ordering code (please see separate datasheet)

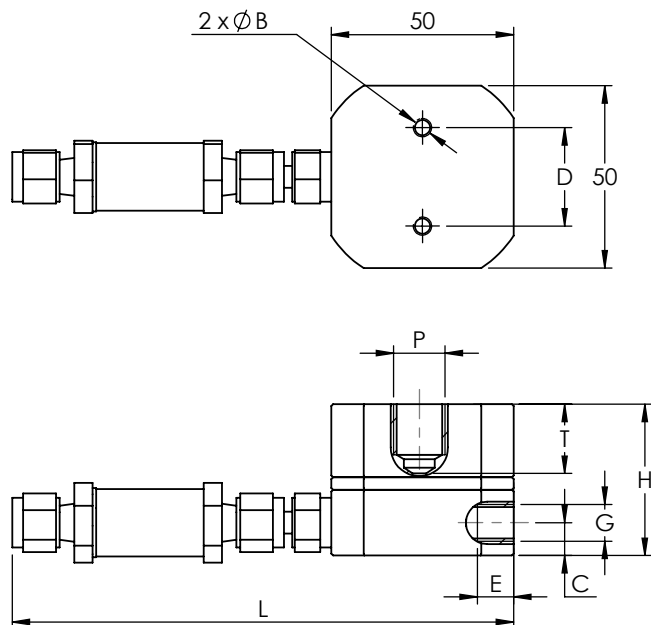
# Micro Flow Meters – LFM 10

## Dimensional Drawings – LFM 10.\*.F.\* incl. Compact Pickup (VTE-CM-X)



LFM Type	B	C	D	E	G	H	L
LFM 10 SC*	-	9 mm [0.35 in]	-	13 mm [0.51 in]	G $\frac{1}{8}$ "	57 mm [2.24 in]	138 mm [5.43 in]
LFM 10 01.F.*	M5 $\nabla$ 10	12.5 mm [0.49 in]	35 mm [1.38 in]	14 mm [0.55 in]	G $\frac{1}{4}$ "	64 mm [2.52 in]	138 mm [5.43 in]
LFM 10 03.F.*	M5 $\nabla$ 10	9 mm [0.35 in]	27 mm [1.06 in]	8 mm [0.31 in]	G $\frac{3}{8}$ "	57 mm [2.24 in]	138 mm [5.43 in]
LFM 10 04.F.*	M5 $\nabla$ 10	9 mm [0.35 in]	27 mm [1.06 in]	9 mm [0.35 in]	$\frac{1}{8}$ "NPT	57 mm [2.24 in]	138 mm [5.43 in]

## Dimensional Drawings – LFM 10.\*-E



LFM Type	B	C	D	E	G	H	L	P <sup>3)</sup>	T <sup>4)</sup>
LFM 10 04.E.*	M5 $\nabla$ 10	9 mm [0.35 in]	27 mm [1.06 in]	9 mm [0.35 in]	$\frac{1}{8}$ " NPT	41.5 mm [1.63 in]	138 mm [5.43 in]	E	19 mm [0.75 in]

<sup>3)</sup> See "Pickup Selection" table (page 3)

<sup>4)</sup> 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)

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