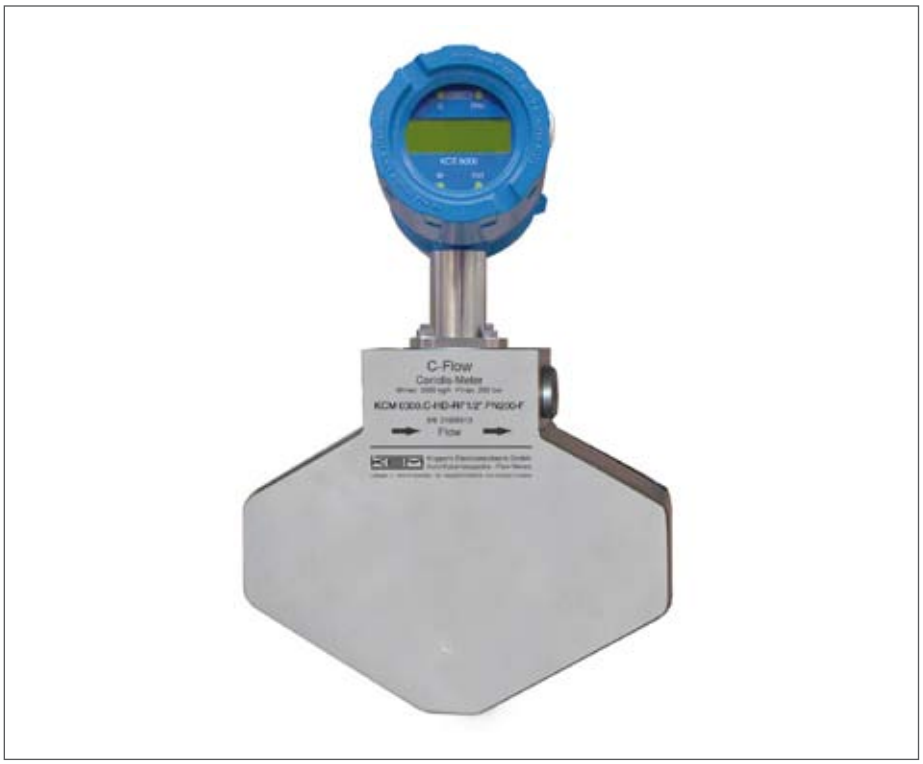
www.kem-kueppers.com
info@kem-kueppers.com

Küppers Elektromechanik GmbH

Certified according to DIN EN ISO 9001

Technical Datasheet



C-Flow Coriolis - KCE 5000 Series

Mass Flow Meters

Principle

Two parallel flow tubes inside the KCM flow meter are vibrating at their resonant frequency in opposite direction. Any mass flow passing through the tubes will delay the vibration at the incoming side and accelerate the vibration at the outgoing side. This causes a small time delay between both ends of the tube. This time delay is measured and used to calculate the mass flow through the tubes.

By measuring the resonant frequency of the tubes the mass of the medium and - given a constant volume inside the tubes - the specific gravity of the medium can be calculated.

As both effects are temperature dependent, the temperature is measured via a precise sensor for correcting the temperature effects of flow and density measurement.

As a consequence a coriolis mass flow meter measures directly mass flow, specific gravity and temperature of the medium. Knowing the mass flow and the specific cravity, also the volume flow can be calculated.

Application

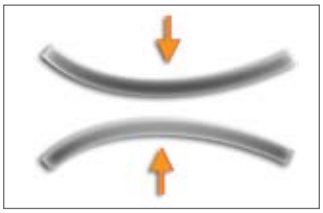
- For fluids (e.g. PU components, paints)
- Suitable for aggressive and contaminated media
- Measurement of mass flow, density, temperature and volume flow
- Excellent puring and sterilization qualities due to a construction free of dead spots
- Up to +125°C medium temperature
- Individual 8-point-calibration including report
- Ex protected as per ATEX and EMC tested

Besonderheiten

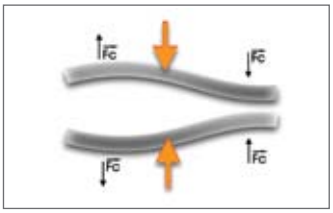
- Pmax. 350 bar
- Short response time
- DKD calibration

Cycle of excursion (simplified)

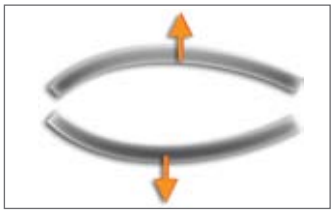
Rotation and deformation of two parallel looped pipes by the coriolis force Fc.



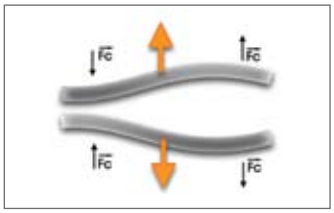
Movement to the inside
no flow



Movement to the inside
and FC direction with flow



Movement to the ouside
no flow



Movement to the outside
and Fc direction with flow

The C-Flow

The C-Flow Coriolis Mass Meters consist of two components:

KCE Transmitter

KCM Transducer

Technical Data - KCM Transducer with KCE 5000 Electronic

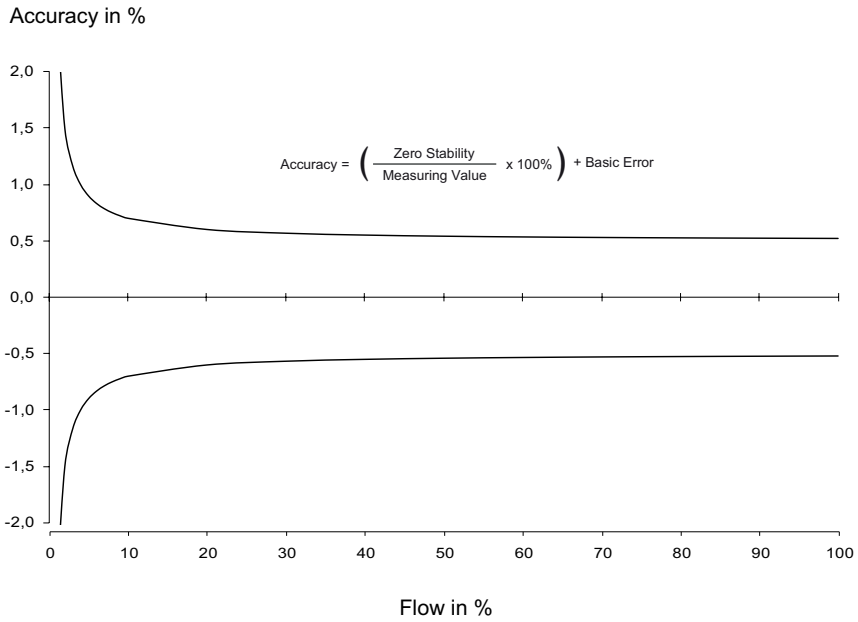
	KCM0300	KCM0600	KCM1500	KCM3000
Max. flow (kg/h)	300	600	1500	3000
Min. flow (kg/h)	3	6	15	30
Max. flow (lb/min)	11.0	22.1	55.2	110
Min. flow (lb/min)	0.11	0.22	0.55	1.10
Basic Accuracy (% of flow reading)	0.5	0.5	0.5	0.5
Zero Stability (% of full scale)	0.02	0.02	0.02	0.02
Zero Drift (% f.s. per °C)	0.002	0.002	0.002	0.002
Repeatability (% of flow)	0.2	0.2	0.2	0.2
Density measuring range	0 - 4500 kg/m³			
Density accuracy	± 0.002 kg/ltr			
Temperature accuracy	±1°C ±0.5% of reading			
Process and Ambient				
Process connections	female thread 1/2" adaptors for flanges, diary and tri-clamp			
Max. pressure	200 bar			
Max. pressure (Option)	350 bar			
Pressure Drop at max. flow H_20	see diagramm			
Operating Density range	500 - 2500 kg/m³			
Process temperature	-40 ... +125°C			
Ambient temperture	-20 ... +70°C			
Storage temperature	-40 ... +70°C			
Electr. connections remote	screw type terminals			
Electr. connections compact.	none (internally connected to the electronics)			
Ingress Protection	IP67			
General				
Tube arrangement	2 serial	2 parallel	2 serial	2 parallel
tube inner diameter	4mm	4mm	8mm	8mm
tube material	stainless steel DIN 1.4571			
housing material	stainless steel DIN 1.4571			
Dimensions	see drawings			

Technical Data - KCE 5000 Transmitter

General	
Display:	Graphic, 128 x 32 dot
Supply votage:	24 VDC, ± 15%
Programming:	via front keyboard and with magnet
Interface:	RS 485
EMC:	according to EN 50 081-2 and EN 50 082-2
Power consumption:	max. 2.5 W
Exd housing:	
Dimensions:	see drawing
Connections:	internal clamp terminals ½“ female NPT cable gland
Material:	aluminium diecast
Protection class	IP 68
Weight:	approx. 2 kg
Temperature:	operating:- 20 up to 50°C storage and transport: -20 up to 70°C
Analog Outputs	
Two current outputs:	4-20 mA passive, two-wire isolated
Resolution:	14 bit
Linearity:	± 0.05% of full scale
Temperature drift:	0.05% per 10K
Load:	< 800 Ω
Output value:	programmable: flow, total, density, temperature
Pulse Output	
Frequency range:	0.5-5,000 Hz
Output signal:	active push pull output for flow rate
Status In-and Output	
Status output	fault out info (push pull)
Control input	programmable

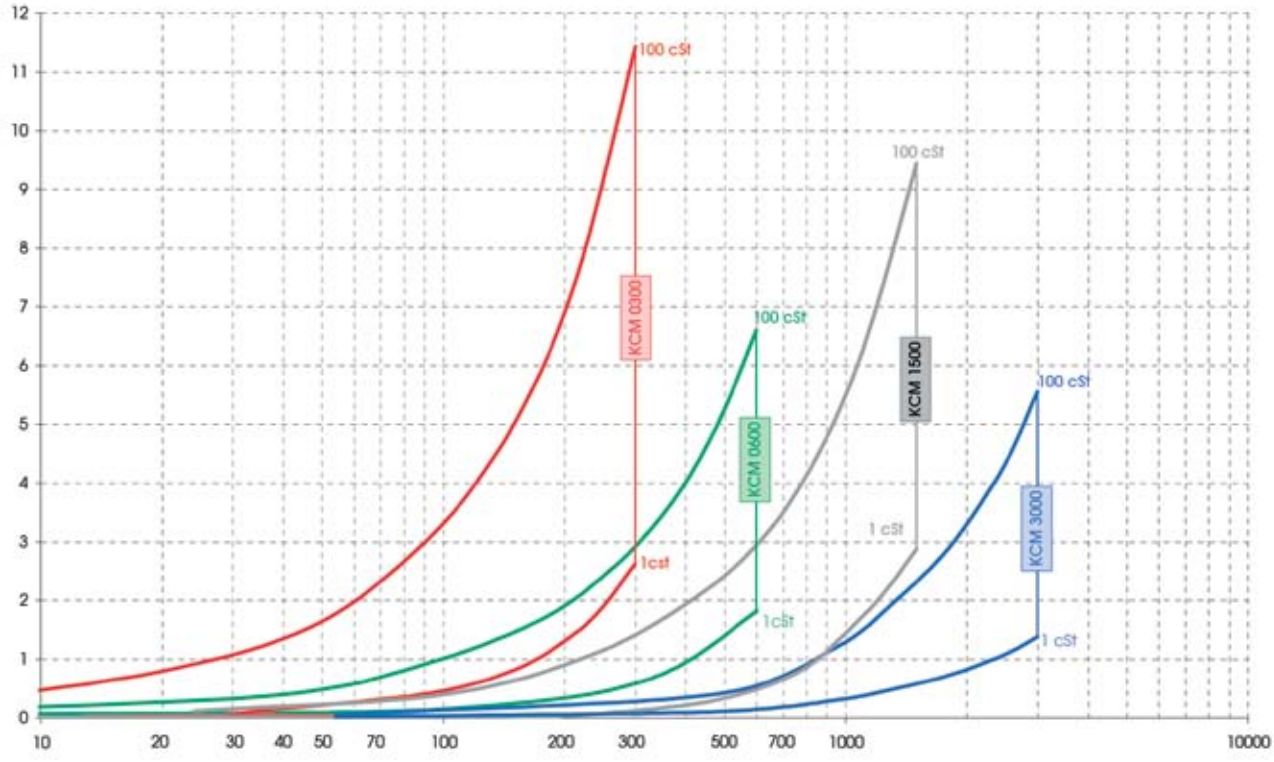
EX-Protection

For KCM 0300 through KCM 3000 an ATEX certification is aviable for the compact version.
EX II 2G EEx Exd (ib) IIC T2-T4 TPS 07 ATEX, 282x

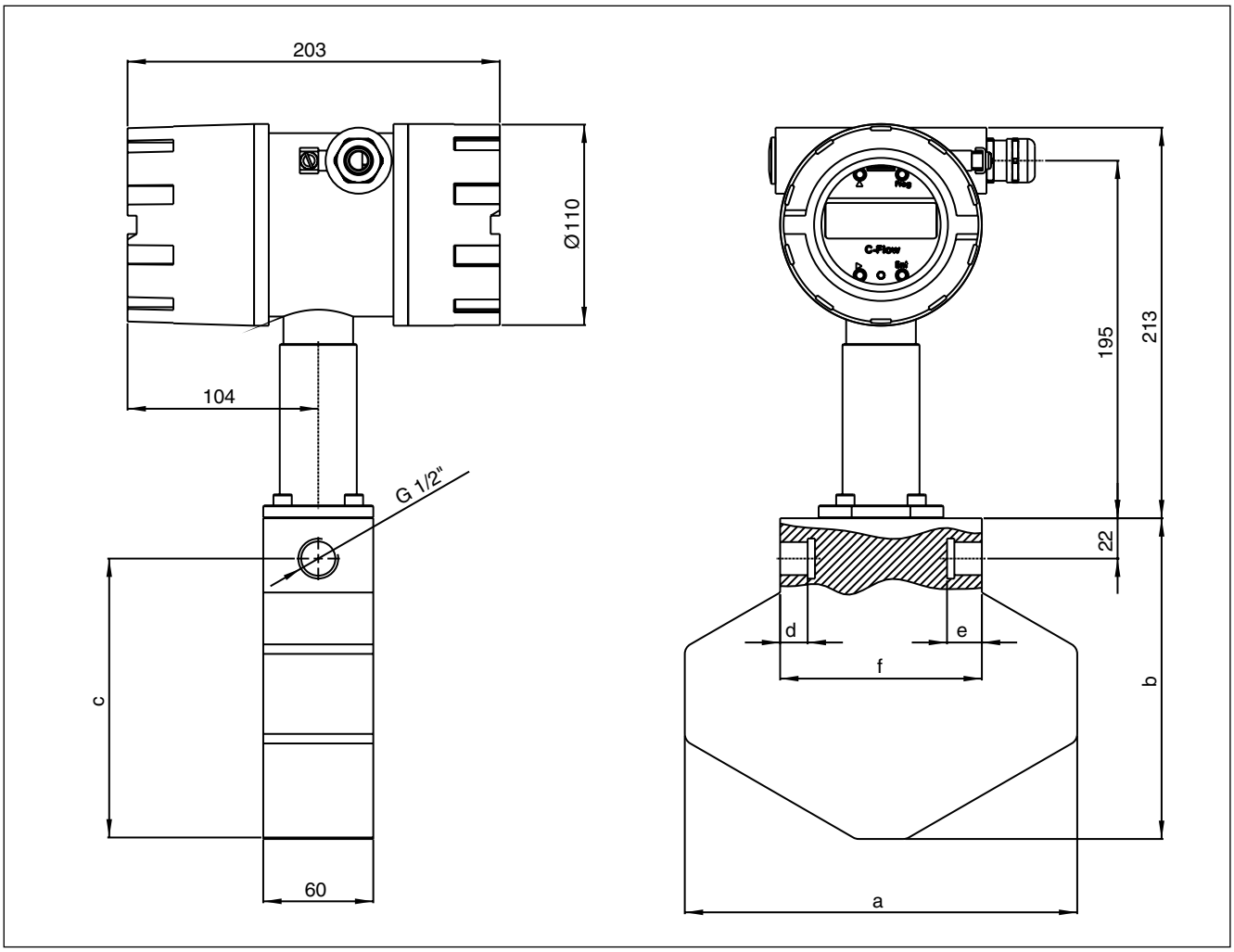


The diagram shows typical values. Individual values may be taken from the calibration records supplied with each meter.

Pressure drop in bar



Dimensional drawing (mm) KCM 0300 to KCM 3000



Type	a	b	c	d	e	f
KCM 0300	214	182	160	15	19	110
KCM 0600	214	182	160	15	19	110
KCM 1500	350	280	258	18	21	140
KCM 3000	350	280	258	18	21	140

Contact

KEM Headquarter

Liebigstraße 5
85757 Karlsfeld
Germany

T. +49/8131/ 59 39 1-0
F. +49/8131/ 92 60 4

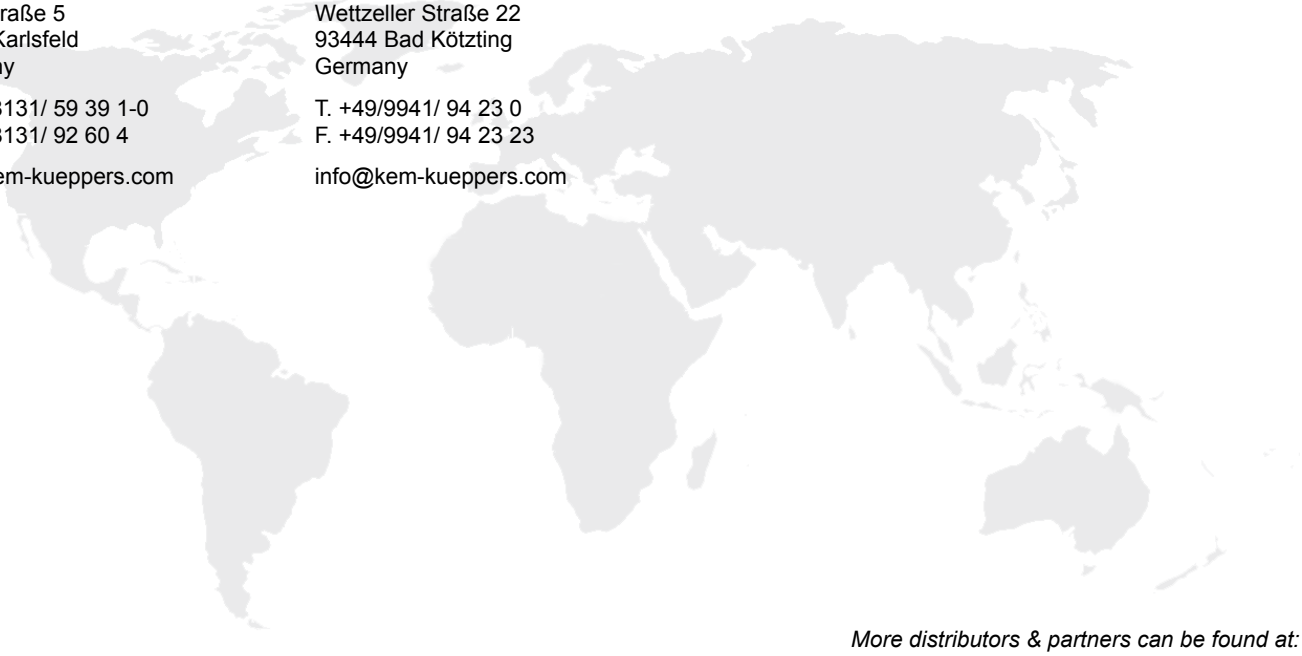
info@kem-kueppers.com

KEM Service & Repairs

Wettzeller Straße 22
93444 Bad Kötzting
Germany

T. +49/9941/ 94 23 0
F. +49/9941/ 94 23 23

info@kem-kueppers.com



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