

OME



- high accuracy
- bi-directional measurement possible
- for high viscosities



OMG



- high accuracy
- bi-directional measurement possible
- for high viscosities



COVOL



- rotating piston
- high accuracy
- easy cleaning
- for high viscosities



07

07

07



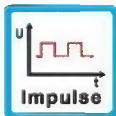
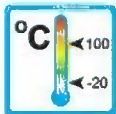
Screw Volumeter

OME



Function

The fluid flow drives a pair of measuring spindles. An exactly defined volume is filled and evacuated with each rotation of the main spindle. By counting the revolutions within a period, the volume flow can be calculated.



Application

The screw volumeters type OME are employed to count volume and to measure volume flow of viscous liquids. Areas of application:

- Fuel consumption measurement
- Test stands
- Hydraulics
- Blending and batching technology

Features

The instruments prove themselves through reliable function and easy handling. Further characteristics of this sturdy type are:

- High reliability
- Self-cleaning metering boxes
- Long working life
- Wide measuring range
- Pulsation-free measuring principle
- High accuracy
- Wide viscosity range
- Bi-directional measurement possible
- Accessories: Digital displays, Measuring transducers and Temperature sensors (see page 6).

Installation hints

The installation of the screw volumeter can be done in any way in the system. The flow direction must be observed.

No flow straightening section necessary.

The instrument must not be used as a supporting part in a pipe construction.

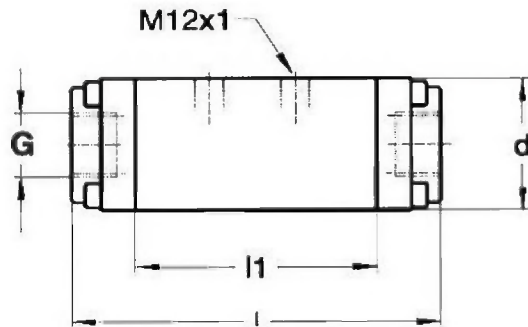
The liquid must not contain any solids.

The operating instructions for OME must be observed under any circumstances.



Dimensions and connections

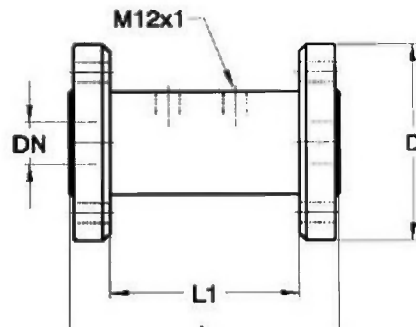
Pipe thread



Dimensions Thread connection

Pipe thread	OME-13	OME-20	OME-24	OME-32
G	1/2"	3/4"	1"	1"
P_{max} [bar]	40	40	40	40
l [mm]	110	145	165	200
d [mm]	45 x 45	55 x 55	60 x 60	70 x 70
l1 [mm]	65	95	105	140
m [kg]	0,6	1,1	1,8	2,7

DIN Flanges



Dimensions Flange connection

DIN Flanges	OME-13	OME-20	OME-24	OME-32
DN	15	20	25	25
PN [bar]	40	40	40	40
L [mm]	105	135	150	185
D [mm]	95	105	115	115
L1 [mm]	65	95	105	140
m [kg]	1,1	1,6	2,2	3,1

Special connections

NPT-threads, ANSI-flanges or customer-specific special connections on request!

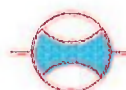


Technical data

Technical data					
Type		OME-13	OME-20	OME-24	OME-32
Connections		see page 2			
Materials		see page 4			
Orientation		any orientation, no straightening section required			
Flow direction		both directions possible			
Liquids		chemically neutral liquids, lubricating properties, non abrasive			
Filtration		max. 0,1 mm mesh size		max. 0,3 mm mesh size	
Viscosity [mm ² /s]		1 to 1x10 ⁶			
Minimum flow:	Q _{min} [l/min]	0,1	0,3	0,5	1
Nominal flow:	Q _{nom} [l/min]	10	30	50	100
Maximum flow:	Q _{max} [l/min]	15	45	75	150
Pressure (max.)	[bar]	40	40	40	40
Temperature	[°C]	-20 ... +100	-20 ... +100	-20 ... +100	-20 ... +100
Pressure drop / Capacitance		see diagram on page 4			
Accuracy		see diagram on page 4			
Metering box volume	[ml/U]	1,65	6,24	10,5	25,6
Revolution n at Q _{min}	[1/min]	61	48	48	39
Revolution n at Q _{nom}	[1/min]	6060	4830	4770	3900
Revolution n at Q _{max}	[1/min]	9120	7260	7170	5850
Number of poles (K1)		2	2	2	2
K-factor (K1)	[Imp/l]	1214	321	191	78
Volume per pulse (K1)	[ml/Imp]	0,824	3,12	5,24	12,8
Pulse frequency					
Pulse frequency f1 at Q _{min}	[Hz]	2,0	1,6	1,6	1,3
Pulse frequency f1 at Q _{nom}	[Hz]	202	161	159	130
Pulse frequency f1 at Q _{max}	[Hz]	304	242	239	195

Measuring sensor

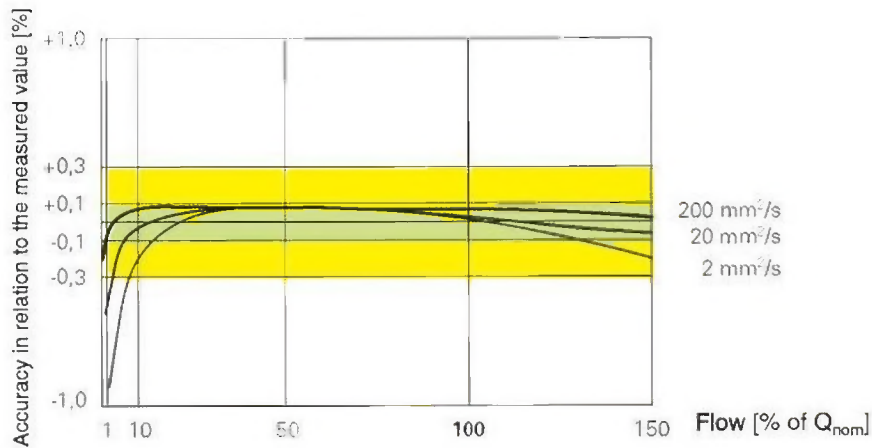
Type	OME-13	OME-20	OME-24	OME-32
Sensor thread 1 (standard)	M 12 x 1			
Sensor thread 2 (optional)	M 12 x 1			
Sensor 1 (standard)	Sensor and Impulse transmitter for flow measurement, see table on page 5			
Sensor 2 (optional)	Sensor and Impulse transmitter for rotation identification, see table on page 5			
Accessories				
Electronics	see table on page 6			
Temperature sensor	see page 6			



Materials, Measuring accuracy and Pressure drop

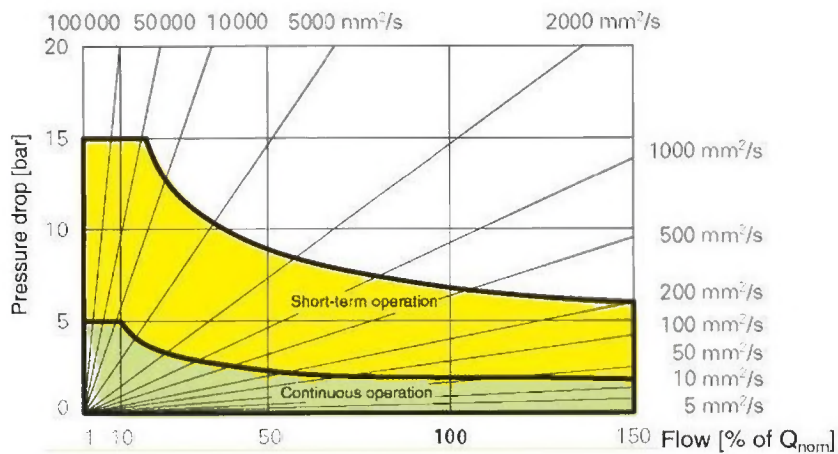
Materials	
Description	Material
Casing	Anodized aluminum (3.0615)
Spindles	Nitrated steel (1.0737)
Endcover	Aluminum (3.0615)
Spacer	Aluminum (3.0615)
Bearings	Roller bearings with metal cage
Screws	8.8
Seals	Viton® 80 Shore
Connecting flanges	Aluminum (3.0615)

Measuring accuracy

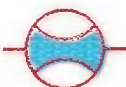


Each volumeter is being calibrated to document the device-specific values!

Pressure drop



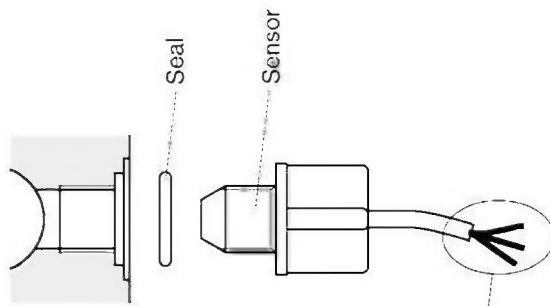
OME 4 0003 04-07 E M



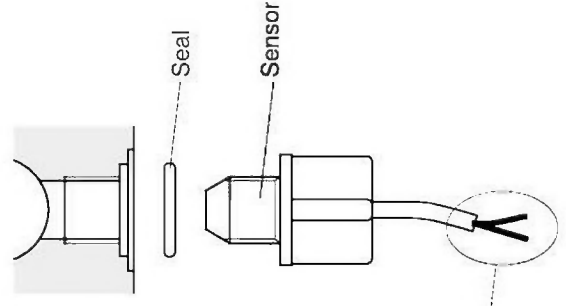
Sensors

Sensors

BEG 40		BEG 41	
Application	Standard	Application	Ex-Area
K-factor	K1	K-factor	K1

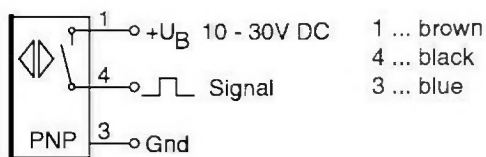


Connection diagram see below

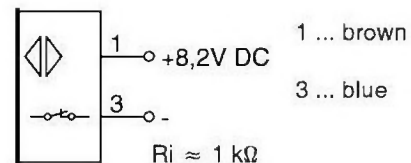


Connection diagram see below

Electrical specification		Electrical specification	
Operation principle	inductive	Operation principle	inductive
Output		Output	
Circuitry	PNP square wave	Circuitry	Namur DIN 19234 sine wave
Maximum load current	50 mA		
		Load resistance	1 kΩ ± 1%
		Load current (active)	< 1 mA
		Load current (inactive)	> 4 mA
Frequency range	0...5000 Hz	Frequency range	0...5000 Hz
Voltage range	10...30 V DC	Voltage range	8,2 V DC ± 0,1V
Voltage drop	≤ 3 V		
		Protection class	EEx ia IIC T6
		PTB-certificate	Zone 1
Connection diagram	see below	Connection diagram	see below

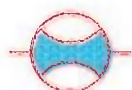


Connection diagram BEG 40



Connection diagram BEG 41

Mechanical specification		Mechanical specification	
Max. Pressure (on sensor face)	40 bar	Max. Pressure (on sensor face)	40 bar
Operating temperature		Operating temperature	
Sensor face	-30 ... +100 °C	Sensor face	-30 ... +75 °C
Cable	-30 ... +80 °C	Cable	-30 ... +80 °C
Connection thread	M12x1	Connection thread	M12x1
Casing material	PBTP	Casing material	PBTP
Cable sheath	PUR (3x0,10 mm ²)	Cable sheath	PUR (2x0,14 mm ²)
Cable length	2 m	Cable length	2 m
Ingress protection	IP 67	Ingress protection	IP 67



Accessories

Electronics

Selection table Electronics for OME

	BEM 300	BEM 500	CUB 5	PAX I
Application	Local indication	Management system	Counter Tachometer	Counter, Tachometer Remote indication
Suitable sensors	BEG 40	BEG 40	BEG 40	BEG 40
	BEG 41	BEG 41	BEG 41	BEG 41
Inputs				
Sensor input	single channel	double channel	double channel	double channel
PT100	—	yes	—	—
Display	4 lines	4 lines	1 line	1 line
Outputs				
Analog output	1	2	—	optional
Pulse output	1	2	—	1
Supply	24 V DC ± 20 %	24 V DC ± 20 %	9 - 28 V DC	12 V DC ± 10 %
Pulsation compensation	—	yes	—	—
Temperature compensation	—	yes	—	—
Linearisation	—	7 points	—	—
Housing				
Installation	Wall mounting, External mounting, Control cabinet		Control panel	Control panel
Material	Plastic	Plastic	Plastic	Plastic
Interface	Modbus RTU by RS 232 or RS 485		—	various (optional)
Relay	—	2	—	optional

Temperature sensors

Temperature sensors for OME

	EET 13			
Suitable for	OME-13			
	OME-20			
	OME-24			
	OME-32			
Connection thread	G 1/4"			
System	PT 100, DIN 43760			
Max. Pressure [bar]	40			
Temperature range [°C]	-50 ... +200			
Materials	1.4571 / Viton			

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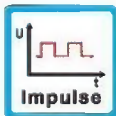
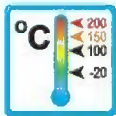
Screw Volumeter

OMG



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No flow straightening section necessary.

The instrument must not be used as a supporting part in a pipe construction.

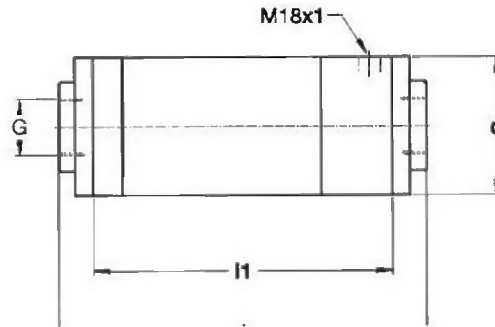
The liquid must not contain any solids.

The operating instructions for OMG must be observed under any circumstances.



Dimensions and connections

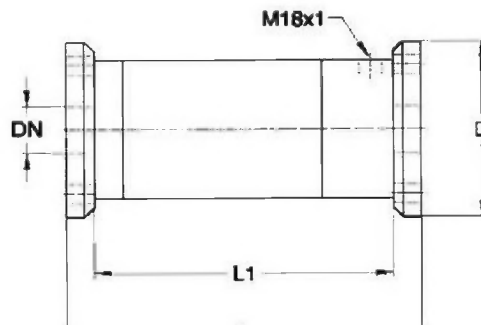
Pipe thread



Dimensions Thread connection

Pipe thread	OMG-13	OMG-20	OMG-32	OMG-52
G	1/2"	3/4"	1"	1 1/2"
p_{max} [bar]	250	250	250	160
l [mm]	145	145	215	295
d [mm]	90	74	104	118
l1 [mm]	94	145	215	240
m [kg]	4,6	4,1	11	18

DIN Flanges

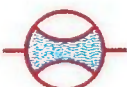


Dimensions Flange connection

DIN Flanges	OMG-13			OMG-20			OMG-32			OMG-52	
DN	15	15	15	20	15	15	32	25	25	40	40
PN [bar]	40	160	250	40	160	250	40	160	250	40	160
L [mm]	145	145	145	185	185	195	265	265	275	285	295
D [mm]	95	105	130	105	105	130	140	140	150	150	170
L1 [mm]	94	94	94	145	145	145	215	215	215	240	240
m [kg]	4,7	4,8	6,0	6,0	6,0	8,1	16	16	19	21	23

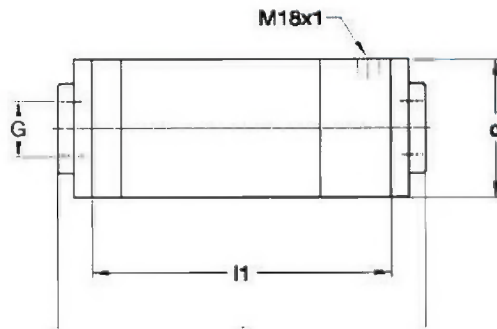
Special connections

NPT-threads, ANSI-flanges or customer-specific special connections on request!



Dimensions and connections

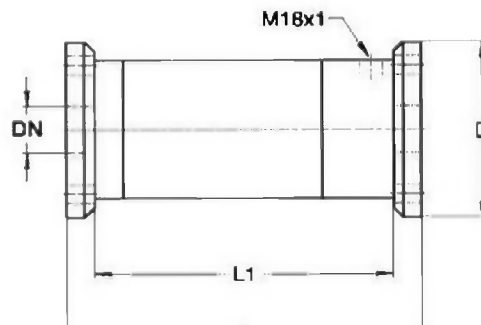
Pipe thread



Dimensions Thread connection

Pipe thread	OMG-68	OMG-100	OMG-140	
G	2"	4"	6"	
p_{max} [bar]	100	40	40	
l [mm]	355	480	645	
d [mm]	138	188	267	
l1 [mm]	295	400	537	
m [kg]	29	70	180	

DIN Flanges



Dimensions Flange connection

DIN Flanges	OMG-68		OMG-100		OMG-140		
DN	50	50	100	100	150	150	
PN [bar]	40	100	16	40	16	40	
L [mm]	340	355	450	460	600	610	
D [mm]	165	195	220	235	285	300	
L1 [mm]	295	295	400	400	537	537	
m [kg]	31	37	65	70	170	180	

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Special connections

NPT-threads, ANSI-flanges or customer-specific special connections on request!



Technical data

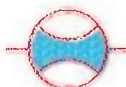
Technical data			OMG-13	OMG-20	OMG-32	OMG-52
Connections	see page 2					
Materials	see page 6					
Orientation	any orientation, no straightening section required					
Flow direction	both directions possible					
Liquids	chemically neutral liquids, lubricating properties, non abrasive					
Filtration	max. 0,1 mm mesh size			max. 0,3 mm mesh size		
Viscosity [mm ² /s]	1 to 1x10 ⁶					
Minimum flow:	Q _{min}	[l/min]	0,1	0,3	1	3,5
Nominal flow:	Q _{nom}	[l/min]	10	30	100	350
Maximum flow:	Q _{max}	[l/min]	15	45	150	525
Pressure (max.)		[bar]	250	250	250	160
Temperature		[°C]	-20 ... +200	-20 ... +200	-20 ... +200	-20 ... +200
Pressure drop	see diagram on page 7					
Accuracy	see diagram on page 6					
Metering box volume		[ml/U]	1,64	6,25	25,6	112,7
Revolution n at Q _{min}		[1/min]	61	48	39	31
Revolution n at Q _{nom}		[1/min]	6090	4800	3900	3105
Revolution n at Q _{max}		[1/min]	9120	7200	5850	4658
Number of poles (K1)			2	4	6	8
Number of poles (K2)			4	8	12	16
Number of poles (K3)*			12	16	26	34
K-factor (K1)		[Imp/l]	1216	640	234	71,0
K-factor (K2)		[Imp/l]	2432	1280	468	142
K-factor (K3)*		[Imp/l]	7296	2560	1014	302
Volume per pulse (K1)		[ml/Imp]	0,822	1,56	4,27	14,08
Volume per pulse (K2)		[ml/Imp]	0,411	0,782	2,14	7,04
Volume per pulse (K3)*		[ml/Imp]	0,137	0,391	0,99	3,31
Pulse frequency f1 at Q _{min}		[Hz]	2,0	3,2	3,9	4,1
Pulse frequency f1 at Q _{nom}		[Hz]	203	320	390	414
Pulse frequency f1 at Q _{max}		[Hz]	304	480	585	621
Pulse frequency f2 at Q _{min}		[Hz]	4,1	6,4	7,8	8,3
Pulse frequency f2 at Q _{nom}		[Hz]	405	640	780	828
Pulse frequency f2 at Q _{max}		[Hz]	608	960	1170	1243
Pulse frequency f3 at Q _{min}		[Hz]	12,2	12,8	16,9	17,6
Pulse frequency f3 at Q _{nom}		[Hz]	1216	1280	1690	1760
Pulse frequency f3 at Q _{max}		[Hz]	1824	1920	2535	2640

*Observe flow range! Minimum flow, when flow falls below Q_{min}: see page 9

Measuring sensor

Type	OMG-13	OMG-20	OMG-32	OMG-52
Sensor thread 1 (standard)	M 18 x 1			
Sensor thread 2 (optional)	M 18 x 1			
Sensor 1 (standard)	Sensor and Impulse transmitter for flow measurement, see page 8 and 9			
Sensor 2 (optional)	Sensor and Impulse transmitter for rotation identification, see page 8 and 9			
Accessories				
Electronics	see table on page 10			
Temperature sensor	see table on page 10			

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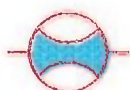
Technical data

Technical data				
Type		OMG-68	OMG-100	OMG-140
Connections		see page 3		
Materials		see page 6		
Orientation		any orientation, no straightening section required		
Flow direction		both directions possible		
Liquids		chemically neutral liquids, lubricating properties, non abrasive		
Filtration		max. 0,3 mm mesh size		
Viscosity [mm ² /s]		1 to 1x10 ⁶		
Minimum flow:	Q _{min} [l/min]	7	20	50
Nominal flow:	Q _{nom} [l/min]	700	2000	5000
Maximum flow:	Q _{max} [l/min]	1050	3000	7500
Pressure (max.)	[bar]	100	40	40
Temperature	[°C]	-20 ... +200	-20 ... +200	-20 ... +200
Pressure drop		see diagram on page 7		
Accuracy		see diagram on page 6		
Metering box volume	[ml/U]	251,3	833,3	2259,9
Revolution n at Q _{min}	[1/min]	28	24	22
Revolution n at Q _{nom}	[1/min]	2784	2400	2214
Revolution n at Q _{max}	[1/min]	4182	3600	3318
Number of poles (K1)		10	14	20
Number of poles (K2)		20	28	40
Number of poles (K3)*		42	48	50
K-factor (K1)	[Imp/l]	39,8	16,8	8,85
K-factor (K2)	[Imp/l]	79,6	33,6	17,7
K-factor (K3)*	[Imp/l]	167	57,6	22,1
Volume per pulse (K1)	[ml/Imp]	25,13	59,52	112,99
Volume per pulse (K2)	[ml/Imp]	12,56	29,76	56,50
Volume per pulse (K3)*	[ml/Imp]	5,98	17,36	45,20
Pulse frequency f1 at Q _{min}	[Hz]	4,6	5,6	7,4
Pulse frequency f1 at Q _{nom}	[Hz]	464	560	738
Pulse frequency f1 at Q _{max}	[Hz]	697	840	1106
Pulse frequency f2 at Q _{min}	[Hz]	9,3	11,2	14,8
Pulse frequency f2 at Q _{nom}	[Hz]	929	1120	1475
Pulse frequency f2 at Q _{max}	[Hz]	1393	1680	2213
Pulse frequency f3 at Q _{min}	[Hz]	19,5	19,2	18,4
Pulse frequency f3 at Q _{nom}	[Hz]	1949	1920	1842
Pulse frequency f3 at Q _{max}	[Hz]	2927	2880	2763

*Observe flow range! Minimum flow, when flow falls below Q_{min}: see page 9

Measuring sensor

Type	OMG-68	OMG-100	OMG-140
Sensor thread 1 (standard)	M 18 x 1		
Sensor thread 2 (optional)	M 18 x 1		
Sensor 1 (standard)	Sensor and Impulse transmitter for flow measurement, see page 8 and 9		
Sensor 2 (optional)	Sensor and Impulse transmitter for rotation identification, see page 8 and 9		
Accessories			
Electronics	see table on page 10		
Temperature sensors	see page 10		

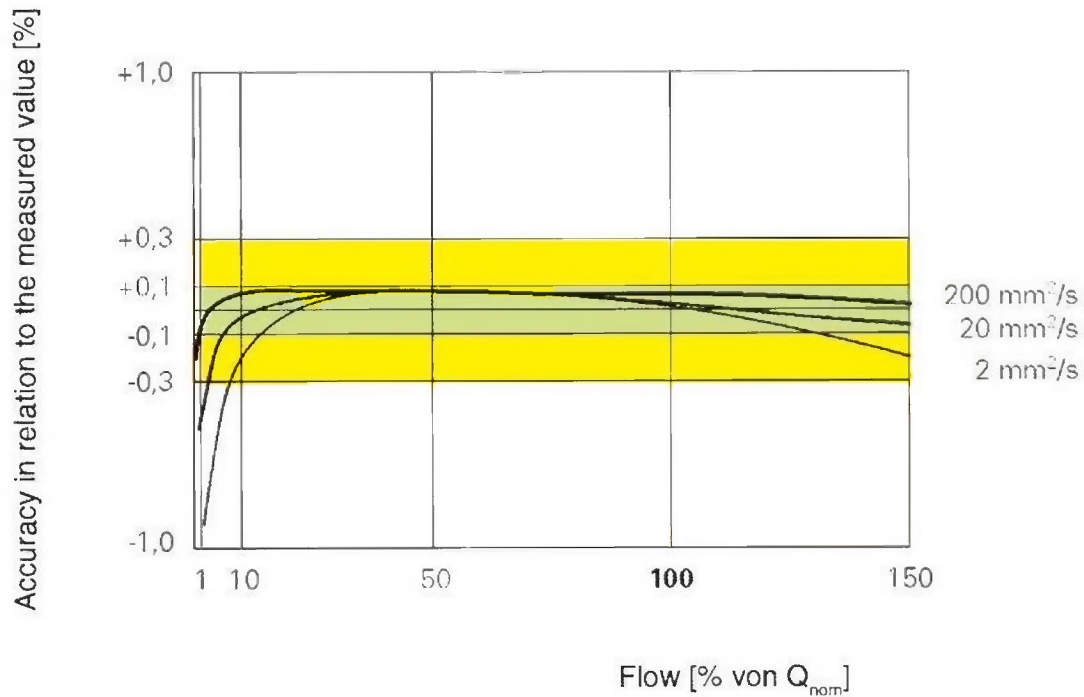


Materials and Measuring accuracy

Materials

Materials	
Description	Materials
Casing	Spheroidal graphite cast iron (0.7040)
Spindles	Nitrated steel (1.0737)
Bearings	Roller bearings with metal cage or PEEK-cage
Screws	8.8
Seals	Viton® 80 Shore

Measuring accuracy



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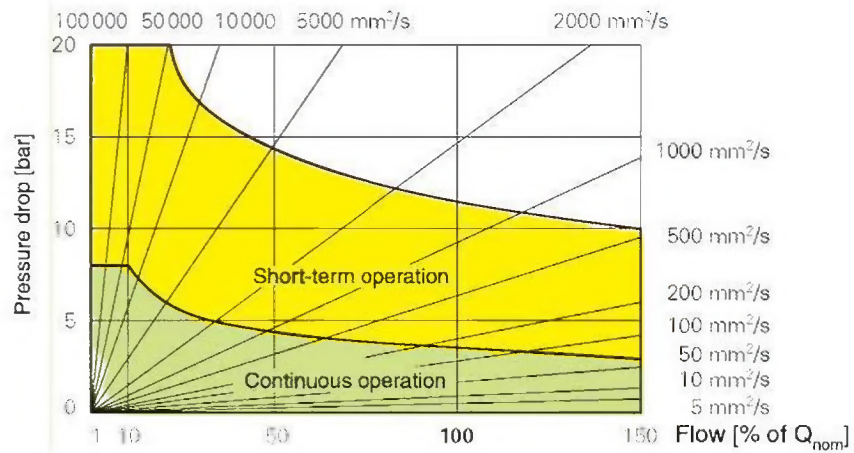
The diagram shows the characteristic of the volumeters OMG.

Each volumeter is being calibrated to document the device-specific values!



Pressure drop and Measuring ranges

Pressure drop



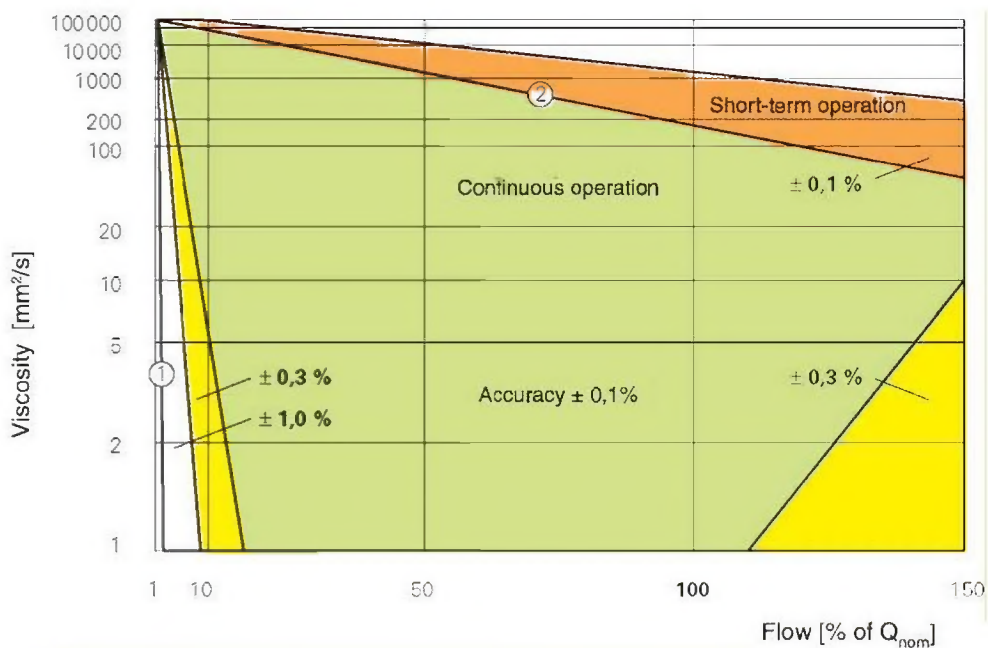
Measuring range diagram

- ① The smooth-running measuring device effects a reliable function, even at very low drive caused by the liquid.
- ② Through the stable mechanics of the volumeters, high flows can be realized even with high-viscous liquids.

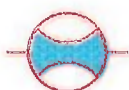
Green area: Precision and operation time are optimally combined.

Yellow area: Instrument can operate continuous and works within the limits of weights and measures ($\pm 0,3\%$)

Orange area: Short-term operation, accuracy within $\pm 0,1\%$



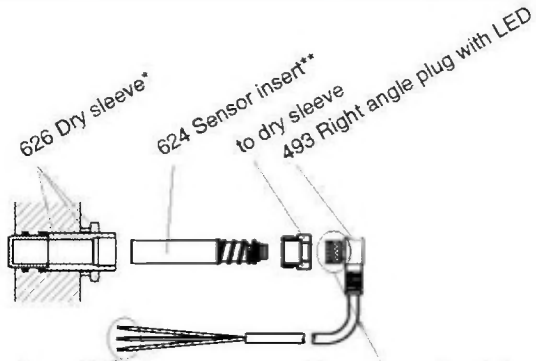
OMG 7 0003 04-07 E M



Sensors

Sensors

BEG 43D		BEG 44	
Application	Standard	Application	High temperature
K-factor	K1	K-factor	K2

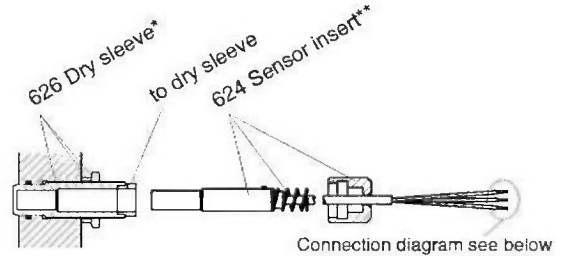


Connection diagram see below

Plug assignment see below

*SW 24, Tightening torque: 50 Nm

**Measuring transducer integrated

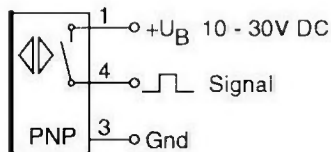


Connection diagram see below

*SW 24, Tightening torque: 50 Nm

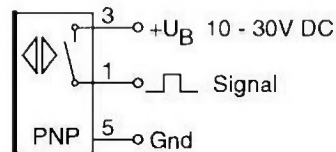
**Measuring transducer integrated

Electrical specification		Electrical specification	
Operating principle	inductive	Operating principle	Hallsensor
Operating switch distance	0,5 mm	Operating switch distance	0,25 mm
Output		Output	
Circuitry	PNP square wave	Circuitry	PNP square wave
Maximum load current	200 mA	Maximum load current	10 mA
Frequency range	0...1000 Hz	Frequency range	0...5000 Hz
Voltage range	10...30 V DC	Voltage range	10...30 V DC
Current consumption without load	≤ 10 mA	Current consumption without load	< 18 mA
Voltage drop	≤ 3 V	Voltage drop	< 4,5 V
Differential protection	yes	Differential protection	up to 50 °C
Reverse voltage protection	yes	Reverse voltage protection	yes
Connection diagram	see below	Connection diagram	see below



1 ... brown
4 ... black
3 ... blue

Plug assignment



3 ... red
1 ... yellow
5 ... black

Mechanical specification		Mechanical specification	
Max. Pressure (on sensor face)	250 bar	Max. Pressure (on sensor face)	420 bar
Operating temperature		Operating temperature	
Sensor face	-20 ... +100 °C	Sensor face	-40 ... +150 °C
Plug	-25 ... +90 °C		
Connection thread	M 18 x 1	Connection thread	M 18 x 1
Casing material (dry sleeve)	Arcap / Ceramic	Casing material (dry sleeve)	Arcap
Connection type	Right angle plug with LED (3-pin)	Connection type	Cable
Cable sheath	PUR (3x0,25 mm ²)	Cable sheath	PTFE (4x0,24 mm ²)
Cable length	3 m	Cable length	3 m
Ingress protection	IP 65	Ingress protection	IP 67

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Accessories

Electronics

Selection table Electronics for OMG

	BEM 300	BEM 500	CUB 5	PAX I
Application	Local indication	Management system	Counter Tachometer	Counter, Tachometer Remote indication
Suitable sensors	BEG 43D	BEG 43D	BEG 43D	BEG 43D
	BEG 44	BEG 44	BEG 44	BEG 44
	BEG 45 + BEV 13	BEG 45 + BEV 13	BEG 45 + BEV 13	BEG 45 + BEV 13
	BEG 47D	BEG 47D		
Inputs				
Sensor input	single channel	double channel	double channel	double channel
PT100	—	yes	—	—
Display	4 lines	4 lines	1 line	1 line
Outputs				
Analog output	1	2	—	optional
Pulse output	1	2	—	1
Supply	24 V DC ± 20 %	24 V DC ± 20 %	9 - 28 V DC	12 V DC ± 10 %
Pulsation compensation	—	yes	—	—
Temperature compensation	—	yes	—	—
Linearisation	—	7 points	—	—
Housing				
Installation	Wall mounting, External mounting, Control cabinet		Control panel	Control panel
Material	Plastic	Plastic	Plastic	Plastic
Interface	Modbus RTU by RS 232 or RS 485		—	various (optional)
Relay	—	2	—	optional

Temperature sensors

Temperature sensors for OMG

	EET 06	EET 13			
Suitable for					
	OMG-13	OMG-13			
	OMG-20	OMG-20			
	OMG-32	OMG-32			
	OMG-52	OMG-52			
	OMG-68	OMG-68			
	OMG-100	OMG-100			
	OMG-140	OMG-140			
Connection thread	G 1/4"	G 1/4"			
System	PT 100, DIN 43760	PT 100, DIN 43760			
Max. Pressure [bar]	400	40			
Temperature range [°C]	-20 ... +200	-20 ... +200			
Materials	1.4571 / Viton	1.4571 / Viton			

OMG 10 0003 04-07 E M



Positive displacement meter

COVOL



Operation

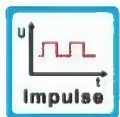
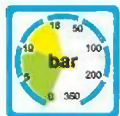
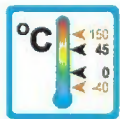
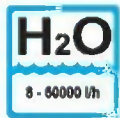
The positive displacement meter COVOL works with an oscillating piston principle. During one rotation a defined volume will be transported and counted.



Application

The COVOL is used for volume counting and flow measurement of viscous liquids. The positive displacement meter is for example used in the following areas:

- Consumption measuring
- Dosing and mixing
- Batching



Features

The positive displacement meter proves itself through reliable function and easy handling. Further characteristics of this type are:

- High accuracy
- Good repeatability
- Easy cleaning
- Used for viscosity's up to 120000 mPas (cP)
- Options:
Totalizer (CIP),
Digital indicator and measuring converter (MC-01, MT-02, CI-420, DFD-2)

Installation hints

The positive displacement meter can be mounted in any orientation in the system. The flow direction must be observed.

No flow straightening section necessary.

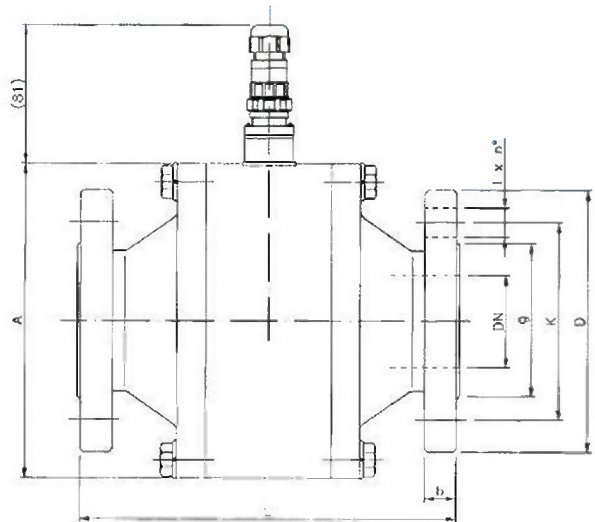
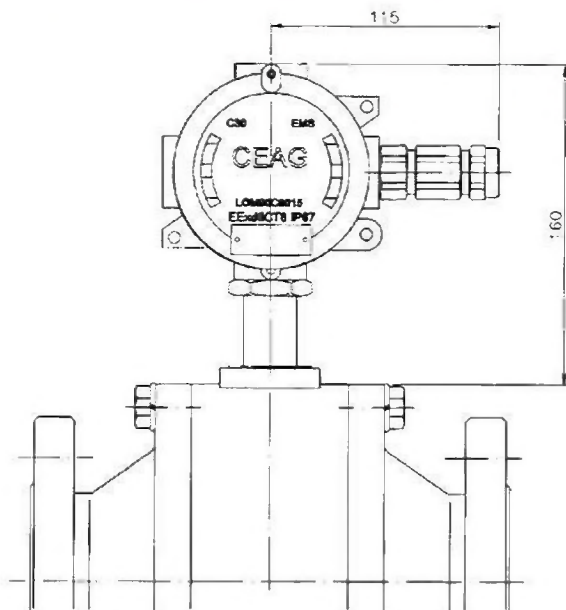
The unit must not be used as a supporting part in a pipe construction.

The liquids must not contain any particles!

The operating instruction for COVOL must be observed under any circumstances!



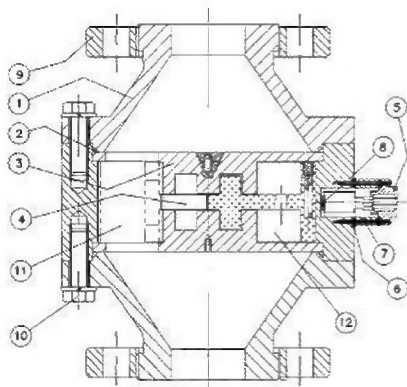
Technical data



Connections, Dimensions and Weights

DN	D	k	g	l x n°	b	L		A		Weight [kg]	
						Stain- less steel	PVC PTFE	Stain- less steel	PVC PTFE	Stain- less steel	PVC PTFE
10	90	60	40	14 x 4	14	180	210	85	125	6	5
15	95	65	45	14 x 4	14	180	210	105	140	9	8
25	115	85	68	14 x 4	16	200	230	140	170	10	9
40	150	110	88	18 x 4	16	220	250	180	200	18	15
50	165	125	102	18 x 4	18	240	270	200	230	26	21
80	200	160	138	18 x 8	20	260	330	250	290	37	30
100	220	180	158	18 x 8	20	340	450	360	420	92	80

Materials



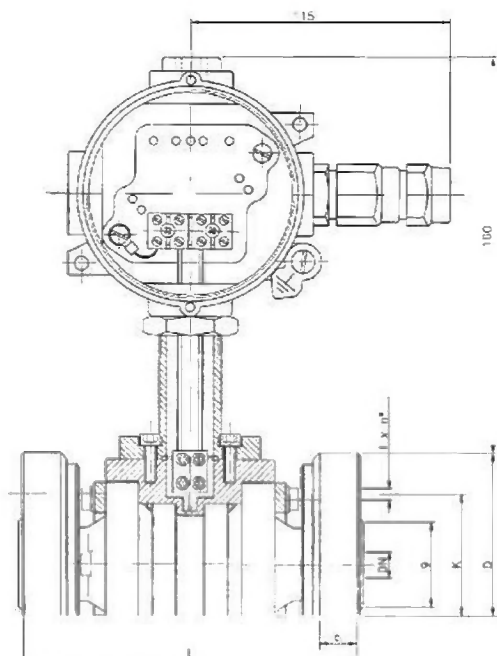
Nr.	Components	Stainless steel	PTFE	PVC / PP
1	Fittings	SS 1.4404	PTFE	PVC / PP
2	O-ring	NBR / Viton	Viton / PTFE	NBR / Viton
3	Disc	SS 1.4404	PTFE	PVC / PP
4	Piston	PTFE graphitized	PTFE graphitized	PTFE graphitized, PVC, PP
5	Connector	brass / plastic	brass / plastic	brass / plastic
6	Gaskets	NBR	NBR	NBR
7	Mounting	SS 1.4404	SS 1.4404 / PTFE	SS 1.4404 / PVC / PP
8	Reed-Contact	glass, 0,3 A / 220 V	glass, 0,3 A / 220 V	glass, 0,3 A / 220 V
9	Flanges	Steel / SS 1.4401	Steel / PTFE	Steel / PVC / PP
10	Screws	SS 1.4401	SS 1.4401	SS 1.4401
11	Seperator	SS 1.4404	PTFE	PVC / PP
12	Measuring chamber	SS 1.4404	PTFE	PVC / PP

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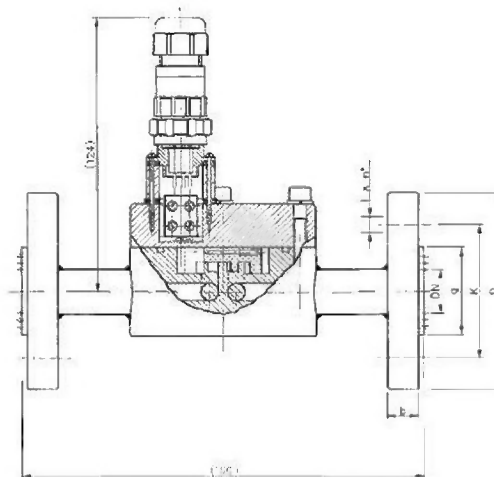


Technical data

Plastic-versions with ADF-housing



DN 10 HZ only for horizontal mounting



Dimensions DN 10 ... DN 100

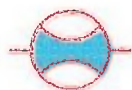
DN	D	k	g	l x n°	b	L
10	95	60	40	10 x 4	25	210
15	100	65	44	12 x 4	45	210
25	120	85	64	12 x 4	45	230
40	150	110	84	16 x 4	45	250
50	175	125	98	16 x 4	45	270
80	230	160	138	16 x 4	55	330
100	250	180	158	18 x 8	65	450

Dimensions DN 10 HZ

DN	D	k	g	l x n°	b
10	90	60	40	14 x 4	14

Technical data	COVOL
Operating pressure stainless steel-version	PN 16
Operating pressure plastic-version	PN 10
Temperature range stainless steel-version	- 40 °C bis +150 °C
Temperature range PTFE-version	- 20 °C bis +130 °C
Temperature range PP-version	- 10 °C bis +80 °C
Temperature range PVC-version	0 °C bis +45 °C
Pressure drop	see diagram on page 4
Viscosity	120000 mPas (cP)
Accuracy	0,8 %
Repeatability	0,3 %
Connections	
Standard	EN 1092-1 flanges, PN 16
On request	Sanitary connections, NPT-thread
Options	Totalizer CIP (see page 5)
	MC-01, MT-02, CI-420, DFD-2 (see separate data sheets)

COVOL 3 0003 05-06 E M



Measuring ranges and pressure drop

Measuring ranges				
DN	min. [l/h]	range max. [m³/h]	intermittent [m³/h]	pulses per litre (± 12 %)
10 HZ	8	0,15	0,5	100
10	20	0,35	0,8	100
15	60	1,5	2,7	20
25	100	4,5	9,0	10
40	200	8,5	15,5	4
50	400	16,0	28,0	2
80	600	28,0	50,0	1
100	800	60,0	104,0	0,2

diagram 1: pressure drop versus flow rate

diagram 2: accuracy

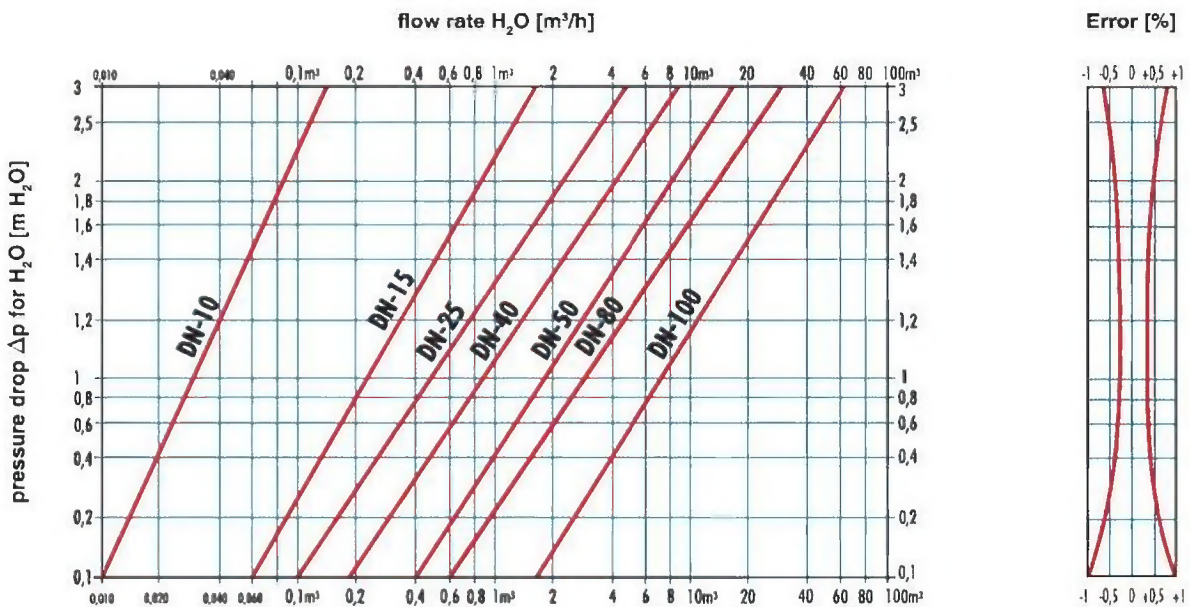
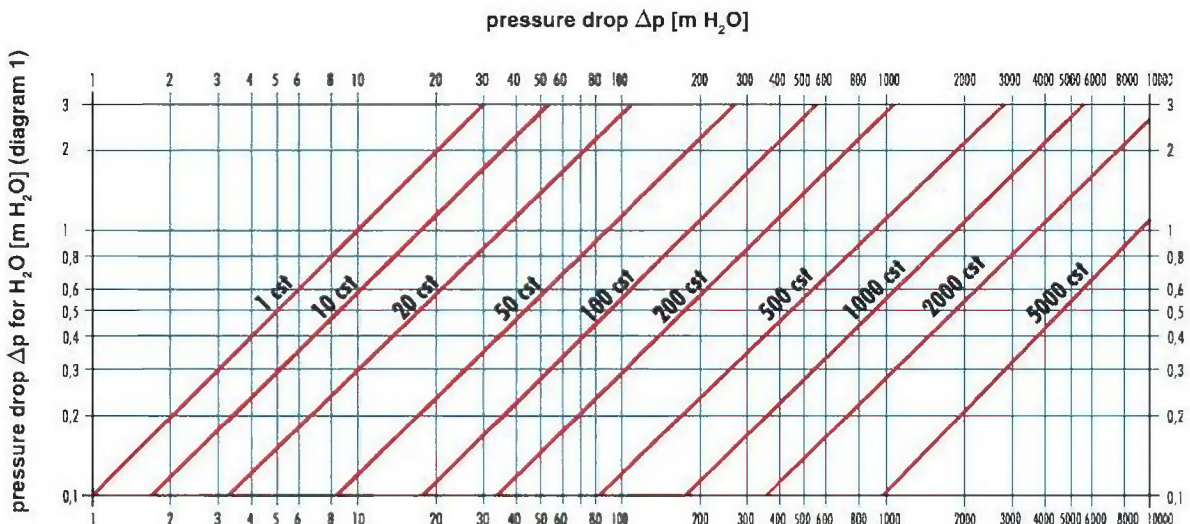
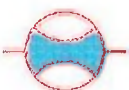


diagram 3: pressure drop versus viscosity of media



COVOL 4 0003 05-06 E M



Options

Electronic counter CIP for Covol

The electronic totalizer CIP is specially designed for the meter type COVOL. The totalizer is battery powered and directly mounted on the meter, so it is possible to show total quantities direct on site..

- Compact construction
- Battery-powered (3 - 4 years lifetime)
- 7-digits display, 9 mm high
- Resetting with a integrated push button or external with magnet
- PTFE coated aluminium housing (IP 65), cover in polycarbonat (UV-protected)

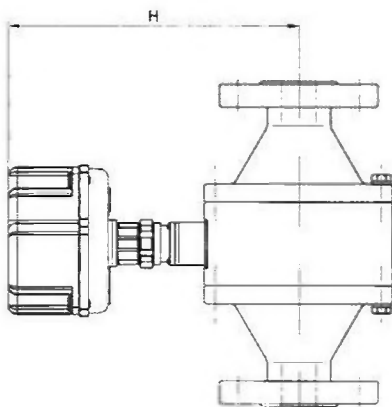


Dimensions DN 10...DN 100

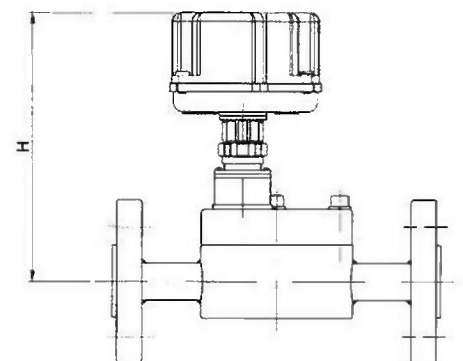
DN	H
10	148
15	161
25	170
40	192
50	202
80	227
100	267

Dimensions DN 10 HZ

DN	H
10	142



DN 10 ... DN 100



DN 10 HZ

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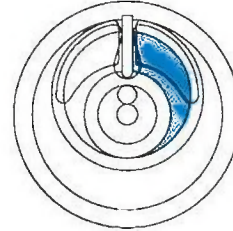


Function Principle

Function principle of the oscillating piston meter

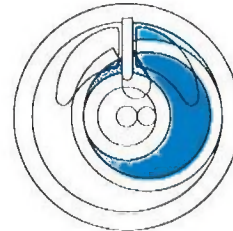
position 1

The liquid flows into the inside of the ring piston and starts the rotation.



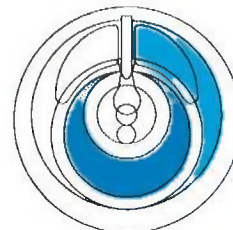
position 2

The liquid starts to fill the cavity between metering chamber and the outside of the piston and continues to fill the inside of the piston.



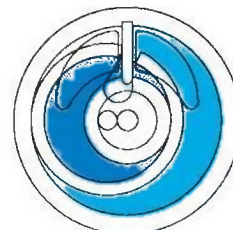
position 3

The piston inside is completely filled. The liquid continues to fill the outside cavity and keep the piston in motion.



position 4

During further filling of the cavity, the inside of the piston will be discharged through the outlet. Then begins a new cycle by filling the pistons inside again.



COVOL 6 0003 05-06 E M

DMI-V1E



- easy installation
- high accuracy
- maintenance-free

DMI-V2E



- easy installation
- high accuracy
- maintenance free

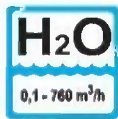


DMI-V1E



Function

The flowmeters type DMI-V1E are electromagnetic flowmeters.



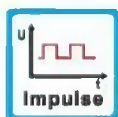
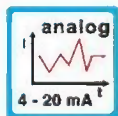
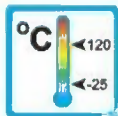
Application

The flowmeters type DMI-V1E are employed to measure volume flow of liquids.

The liquids need to exhibit a conductivity of $5 \mu\text{S} / \text{cm}$ ($20 \mu\text{S} / \text{cm}$ in cold water).

Areas of application:

- Water distribution
- (Waste) water treatment
- Heat- and cooling-systems
- Agriculture
- Fire fighting systems
- Mechanical engineering



Features

The series proves itself through reliable function, easy handling and a favourable price performance ratio. Further characteristics of this sturdy model are:

- Easy installation
- Sandwich mounting
- High chemical resistance
- High accuracy
- Maintenance-free
- Compact or separate version

Installation hints

The installation of the flowmeter can be done in any way in the system. The flow direction must be observed.

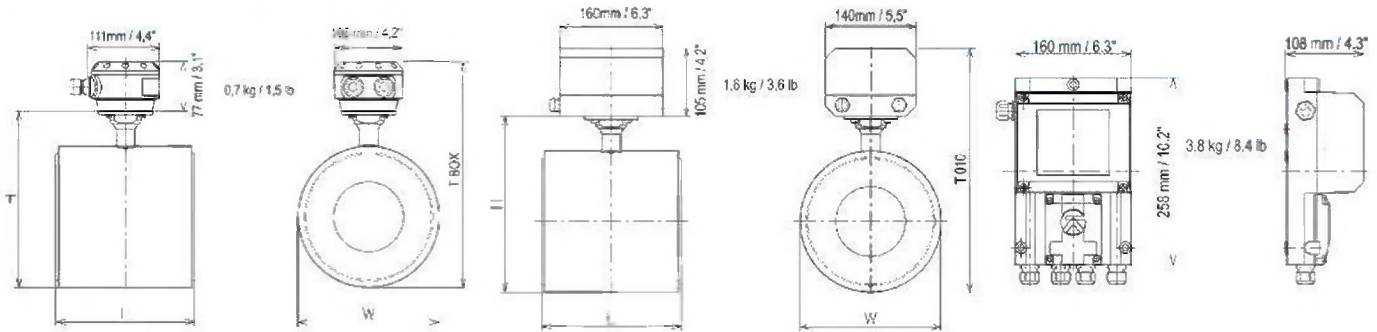
The flowmeter must not be used as a supporting part in a pipe construction.

External magnetic fields influence the measurement. Keep sufficient distance to magnetic fields (e.g. electromotors).

The operating instructions for DMI-V1E must be observed under any circumstances!



Dimensions and Weight, Technical data



Dimensions and weight

Type	Nominal size DN	Dimensions in mm					Weight meter body [kg]	
		L	H	W	T _{Box}	T ₀₁₀		
DMI-V1E DN 10	10	68	137	47	214	242	1,7	
DMI-V1E DN 15	15	68	137	47	214	242	1,7	
DMI-V1E DN 25	25	54	147	66	224	252	1,7	
DMI-V1E DN 40	40	78	162	82	239	267	2,6	
DMI-V1E DN 50	50	100	151	101	228	256	4,2	
DMI-V1E DN 80	80	150	180	130	257	285	5,7	
DMI-V1E DN 100	100	200	207	156	284	312	10,5	
DMI-V1E DN 150	150	200	271	219	348	376	15,0	

Connections and operating pressure

Process connection: Sandwich mounting

Process flange standard:	nominal size DN								Operating pressure [bar]	
	10	15	25	40	50	80	100	150	min.	max.
EN 1092-1 - PN 40	▲	▲	▲	▲	▲	▲	▼	▼	0	16
EN 1092-1 - PN 16	▼	▼	▼	▼	▼	▼	▲	▲	0	16
ANSI B16.5 - 150 lbs RF	▲	▲	▲	▲	▲	▲	▲	▲	0	16
ANSI B16.5 - 300 lbs RF	⊕	⊕	⊕	⊕	⊕	⊕	●	▼	0	16

▲ : standard ⊕ : optional ▼ : on request Note: DN 10 requires DN 15 process flanges

Versions and temperatures

Version	Operating temperature [°C]	Ambient temperature [°C]
Compact version	-25 °C - 120 °C	-25 °C - 40 °C
Separate version	-25 °C - 120 °C	-25 °C - 60 °C

Technical data and Materials measuring transducer

Liner:	PFA	Ingress protection:	
Electrodes:	Hastelloy C4	standard	IP 66 / 67 (eq. NEMA 4/4X / 6)
Grounding rings:		optional	IP 68 (eq. NEMA 6)
DN 10 - DN 15	Integrated St. St. 1.4571 (standard)		
DN 25 - DN 150	Separate St. St. 1.4571 (optional)		
Mounting material:		Insulation class:	E
Rubber centering sleeves	DN 40 - DN 150 (standard)	Approvals:	Not-Ex
Steel centering sleeves	DN 10 - DN 150 (option)	Vacuum load:	0 mbar
Stainless Steel centering sleeves	DN 10 - DN 150 (option)	Conductivity:	
Materials:		Water	20 μS / cm
Measuring tube	Austenitic Stainless Steel	Non-water	5 μS / cm
Housing (polyurethancoated)	GTW-S 38 Steel		
Connection box (polyurethancoated)	Die-cast Aluminium		

DMI-V1E 2 0001 04-05 E M



Ranges, Technical data measuring transducer

Ranges			
Nominal size of sensor	Min. flow (0,3 m/s)	Nominal flow (3 m/s)	Max. flow (12 m/s)
[mm]	[m ³ /h]	[m ³ /h]	[m ³ /h]
10	0,085	0,848	3,393
15	0,191	1,909	7,634
25	0,530	5,301	21,205
40	1,375	13,572	54,278
50	2,121	21,206	84,823
80	5,429	54,288	217,152
100	8,482	84,822	339,288
150	19,085	190,851	763,404

Technical data and materials measuring transducer

Accuracy:	±0,3% of scale value (± 2 mm/s)
Repeatability:	±0,1%
Conductivity:	
Water	≥ 20 µS / cm
Non-water	≥ 5 µS / cm
Solid content:	< 3% (by volume)
Indication:	
standard: local indication	
optional: without indication	
Languages	German, English, French
Output:	Current-, Pulse- and Status- Output (see table on page 4)
Examination:	
Integrated examination- and diagnostic function	
standard	none
optional	Empty pipe indication / stabilization (LA/S3 / LA/S2)
optional	Electrode cleaning (LA/S4)
Custody transfer:	not possible
Power supply:	
standard	230/240 VAC (200...260 VAC)
optional	24 VDC, 24, 48, 100, 115/120, 200 VAC
Capacity:	AC: 5 VA / DC: 4,5 W
Ingress protection:	
Compact version	IP 66 / 67 (eq. NEMA 6)
Seperate version	IP 65 (eq. NEMA 4/4X)
Signal line:	separate DS 5 - 300 m (depends on conductivity)
Cable connection:	
standard	M20 x 1,5
optional	1/2" NPT
optional	PF 1/2
Materials:	
Base plate	Die-cast Aluminium (Polyurethancoated)
Electronics cover	Polyamide-Polycarbonate



Technical data measuring transducer

Input / Output Information (I/O)	
Communication:	
Current output	active / passive
Pulse output / Status output	passive

Technical data measuring transducer	
Overall functionality:	
	Continous measurement of actual flow rate
	Flow direction (forward or reverse)
	Bidirectional flow measurement and totalization
	Direction identified via status output
Current output:	
Functionality	All operating data configurable; galvanically isolated
Settings	
Q = 0 %	0 or 4 mA
Q = 100 %	20 mA
Q > 100 %	22 mA
Error identification	0 / 3,6 / 22 mA
Connection	
active	$I \leq 22 \text{ mA} / R_L \leq 500 \Omega$
passive	$I \leq 0 \dots 500 \Omega / U \leq 15 \dots 20 \text{ VDC}$
	$I \leq 250 \dots 750 \Omega / U \leq 20 \dots 32 \text{ VDC}$
Pulse / Status Output:	
Functionality	All operating data configurable; galvanically isolated
Settings	
Q = 100 %	Standard: 10 Pulses per second, scalable
	100 or 1000 Pulses per second
	10000 Pulses per second, scalable
Pulse range	50, 100, 200, 500, 1000 ms / "Auto" / "symmetrical"
Status	ON or OFF
Connection	
active	Internal voltage: 15 VDC, from current output
	load: $I_{\text{max}} < 23 \text{ mA}$ without current output
	load: $I_{\text{max}} < 3 \text{ mA}$ with current output
passive	Extern voltage:
	$U_{\text{ext}} \leq 30 \text{ VDC} / \leq 24 \text{ VAC}$
	$I_{\text{max}} \leq 150 \text{ mA}$
Low flow cut-off:	
on	1...19 %
off	2...20 %
Time constant:	0,2...99,9 seconds (in 0,1-steps)

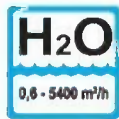
DMI-V1E 4 0001 04-05 E M



DMI-V2E

Function

The flowmeters type DMI-V2E are electromagnetic flowmeters.

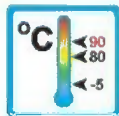


Application

The flowmeters type DMI-V2E are employed to measure volume flow of liquids. The liquids need to exhibit a conductivity of $20 \mu\text{S} / \text{cm}$.

Areas of application:

- Water distribution
- Watering
- Water treatment
- Treatment of sewage effluents (e.g. purification plants, paper factories, metalworking industry)
- Heat- and cooling systems



Features

The series proves itself through reliable function, easy handling and a favourable price performance ratio. Further characteristics of this sturdy model are:

- Easy installation
- Universal mounting
- Flange connection
- International drinking water approvals e.g. KTW, NSF and WRc
- High accuracy
- Maintenance-free
- Compact or separate version



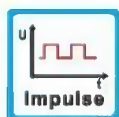
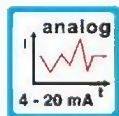
Installation hints

The installation of the flowmeter can be done in any way in the system. The flow direction must be observed.

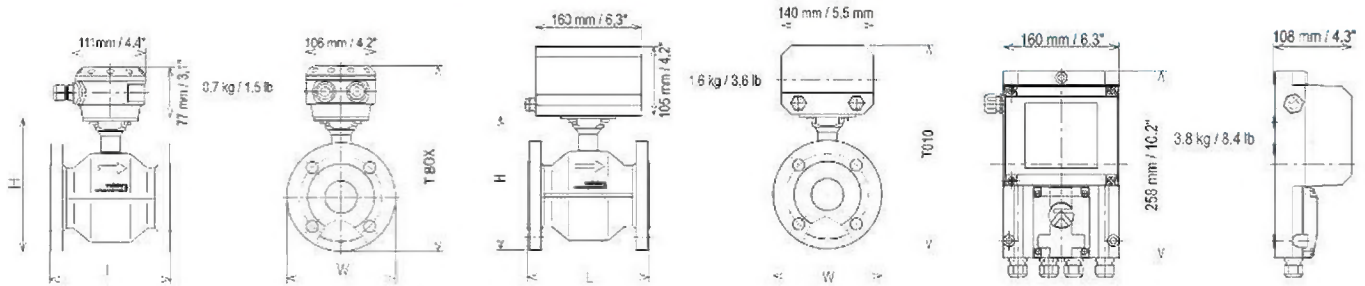
The flowmeter must not be used as a supporting part in a pipe construction.

External magnetic fields influence the measurement. Keep sufficient distance to magnetic fields (e.g. electromotors).

The operating instructions for DMI-V2E must be observed under any circumstances.



Dimensions and Weight, Technical data



Dimensions and Weight with DIN-flanges

Type	Nominal size DN [mm]	Pressure PN [bar]	Dimensions in mm						Weight meter body [kg]
			L*		H	W	T		
			DIN	ISO 13 359			T _{Box}	T ₀₁₀	
DMI-V2E DN 25	25	40	150	200	141	115	218	246	7,0
DMI-V2E DN 32	32	40	150	200	157	140	234	262	8,0
DMI-V2E DN 40	40	40	150	200	166	150	243	271	8,0
DMI-V2E DN 50	50	40	200	200	185	165	262	290	8,0
DMI-V2E DN 65	65	16	200	200	199	185	276	304	10,0
DMI-V2E DN 80	80	40	200	200	209	200	286	314	12,0
DMI-V2E DN 100	100	16	250	250	237	220	314	342	15,0
DMI-V2E DN 125	125	16	250	250	266	250	343	371	19,0
DMI-V2E DN 150	150	16	300	300	299	285	376	404	22,0
DMI-V2E DN 200	200	10	350	350	357	340	434	462	34,0
DMI-V2E DN 250	250	10	400	400	405	395	482	510	48,0
DMI-V2E DN 300	300	10	500	500	455	445	532	560	58,0
DMI-V2E DN 350	350	10	500	550	507	505	584	612	78,0
DMI-V2E DN 400	400	10	600	600	563	565	640	668	98,0

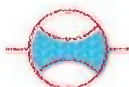
*Total fitting length: Flowmeter supplied with separate grounding rings: Dimension L + 2x 3mm + 2x gasket thickness

Dimensions and Weight with ANSI-flanges

Type	ANSI	Pressure [psig]**	Dimensions in mm						Weight meter body [kg]
			L*		H	W	T		
			L*	H			T _{Box}	T ₀₁₀	
DMI-V2E DN 25	1"	284	150	137	108	214	242	8,0	
DMI-V2E DN 40	1 1/2"	284	150	155	127	232	260	9,0	
DMI-V2E DN 50	2"	284	200	179	152	256	284	8,0	
DMI-V2E DN 80	3"	284	200	204	191	281	309	13,2	
DMI-V2E DN 100	4"	284	250	241	229	318	346	18,1	
DMI-V2E DN 125	5"	284	250	268	254	345	373	x	
DMI-V2E DN 150	6"	284	300	297	279	374	402	26,3	
DMI-V2E DN 200	8"	284	350	363	279	440	468	43,1	
DMI-V2E DN 250	10"	284	400	426	343	503	531	63,5	
DMI-V2E DN 300	12"	284	500	510	406	587	615	95,3	
DMI-V2E DN 350	14"	284	700	526	483	603	631	129,3	
DMI-V2E DN 400	16"	284	800	586	533	663	691	165,6	

*Total fitting length: Flowmeter supplied with separate grounding rings: Dimension L + 2x 3mm + 2x gasket thickness

** at 20 °C, x = Weight on request



Ranges, Technical data

Connections and operating pressure

Process flange standard:	Nominal size DN [mm]													
	25	32	40	50	65	80	100	125	150	200	250	300	350	400
EN 1092-1 - PN 40	▲	▲	▲	▲	●	▲	●	●	●	●	●	●	●	●
EN 1092-1 - PN 25	▼	▼	▼	▼	●	▼	●	●	●	●	●	●	●	●
EN 1092-1 - PN 16	▼	▼	▼	▼	▲	▼	▲	▲	●	●	●	●	●	●
EN 1092-1 - PN 10	▼	▼	▼	▼	▼	▼	▼	▼	▲	▲	▲	▲	▲	▲
ISO Total fitting length	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Process flange standard:	Nominal size ANSI [inch]													
	1	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"
ANSI B16.5 - 150 lbs RF	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
ANSI B16.5 - 300 lbs RF	●	●	●	●	●	●	●	●	●	●	●	●	●	●
▲ : standard	● : optional				▼ : on request									

Versions and temperatures

Version	Coating	Operating pressure	Ambient temperature
Compact version	Hard rubber	-5 °C - 80 °C	-25 °C - 60 °C
Seperate version		-5 °C - 80 °C	-40 °C - 65 °C
Compact version	Polypropylen	-5 °C - 90 °C	-25 °C - 60 °C
Seperate version		-5 °C - 90 °C	-40 °C - 65 °C

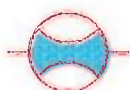
Vacuum load

Coating	Nominal size DN [mm]	Min. operating pressure [mbar] at operating temperature			
		20 °C	40 °C	60 °C	80 °C
Polypropylen	25 - 150	250	250	400	400
	200 - 300	250	250	400	400
Hard rubber	350 - 1000	500	500	600	600
	1200 - 3000	600	600	750	750

Technical data and materials measuring transducer

		Nominal size DN [mm]													
		25	32	40	50	65	80	100	125	150	200	250	300	350	400
Coating	Polypropylen	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▼	▼	▼	▼
	Hard rubber	●	●	●	●	●	●	●	●	●	▲	▲	▲	▲	▲
Electrodes	Hastelloy C4	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
	Stainless Steel 1.4571	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Titan	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Grounding rings	Hastelloy C4	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
	Stainless Steel 1.4571	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Titan	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flanges	Steel 1.0460	▲	▲	▲	▲	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
	Steel 1.0038	▼	▼	▼	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
	Stainless Steel 1.4404	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Stainless Steel 1.4571	●	●	●	●	●	●	●	●	●	●	●	●	●	●
▲ : standard	● : optional				▼ : on request										

DM1-VZE 3 0001 04-05 E M



Technical data measuring transducer, Ranges

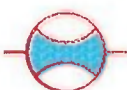
Technical data and Materials measuring transducer

Measuring tube:	Austenitic Stainless Steel	
Housing (Polyurethancoated):	GTW-S 30	Steel
Connection box (Polyurethancoated):	Die-cast Aluminium, option: Stainless Steel	
Ingress protection:		
standard	IP 66 / 67 eq. NEMA 4/4X / 6	
optional	IP 68 eq. NEMA 6	
Isolation class:	E	
Approvals:		
standard	Not-Ex	
optional	EEx Zone 2	
	FM - class I div. 2	
	CSA - GP	
	CSA - class I div. 2	
	SAA - Aus Ex Zone 2	
	TIIS - Zone 2	
Min. conductivity:	20 µS / cm	

Ranges

Nominal size of Sensor	Min. flow (0,3 m/s)	Nominal flow (3 m/s)	Max. flow (12 m/s)
[mm]	[m³/h]	[m³/h]	[m³/h]
25	0,530	5,301	21,205
32	0,869	8,686	34,744
40	1,357	13,572	54,287
50	2,121	21,206	84,823
65	3,584	35,838	143,352
80	5,429	54,288	217,152
100	8,482	84,822	339,288
125	13,254	132,537	530,148
150	19,085	190,851	763,404
200	33,930	339,300	1357,200
250	53,013	530,130	2120,520
300	76,341	763,410	3053,640
350	103,908	1039,080	4156,320
400	135,717	1357,170	5428,680

DMI-VZE 4 0001 04-05 E M



Ranges, Technical Data measuring transducer

Technical data and materials measuring transducer	
Accuracy:	±0,3% of MV (± 2 mm/s)
Repeatability:	±0,1%
Conductivity:	
Water	≥ 20 µS / cm
Non-water	≥ 5 µS / cm
Solid content:	< 3% (Volume)
Indication:	
standard: local indication	
option: without local indication	
Languages	German, English, French
Output:	Power, Pulse and State Output (see chart on page 4)
Examination:	
Integrated examination and diagnostic function	
standard	none
option	Empty pipe indication / stabilization (LA/S3 / LA/S2)
option	Electrode cleaning (LA/S4)
Custody transfer:	not possible
Power supply:	
standard	230/240 VAC (200...260 VAC)
option	24 VDC, 24, 48, 100, 115/120, 200 VAC
Capacity:	AC: 5 VA / DC: 4,5 W
Ingress protection:	
Compact version	IP 66 / 67 (eq. NEMA 6)
Seperate version	IP 65 (eq. NEMA 4/4X)
Signal line:	separate DS 5 - 300 m (depends on conductivity)
Cable connection:	
standard	M20 x 1,5
option	1/2" NPT
option	PF 1/2
Materials:	
bottom plate	Die-cast Aluminium (Polyurethane-coated)
electronics cover	Polyamid-Polycarbonate
Input / Output information (I/O)	
Communication:	
Power output	active / passive
Pulse output / State output	passive

DMI-VZE 5 0001 04-05 E M



Technical data measuring transducer

Technical data measuring transducer	
Operations:	
	Continual measuring of the actual flow rate
	Flow direction (forward or reverse)
	Bidirectional flow measurement and totalization
	Direction identified via status output
Power output:	
Functionality	All operating data configurable; galvanically isolated
Settings	
Q = 0 %	0 or 4 mA
Q = 100 %	20 mA
Q > 100 %	22 mA
Error identification	0 / 3,6 / 22 mA
Connection	
active	$I \leq 22 \text{ mA} / R_L \leq 500 \Omega$
passive	$I \leq 0 \dots 500 \Omega / U \leq 15 \dots 20 \text{ VDC}$ $I \leq 250 \dots 750 \Omega / U \leq 20 \dots 32 \text{ VDC}$
Pulse / State output:	
Functionality	All operating data configurable; galvanically isolated
Settings	
Q = 100 %	Standard: 10 pulses per second, scalable 100 or 1000 pulses per second 10000 pulses per second, scalable
Pulse range	50, 100, 200, 500, 1000 ms / "Auto" / "symmetrical"
State	ON or OFF
Connection	
active	Intern Voltage: 15 VDC, from power output load: $I_{\max} < 23 \text{ mA}$ without power output load: $I_{\max} < 3 \text{ mA}$ with power output
passive	Extern voltage: $U_{\text{ext}} \leq 30 \text{ VDC} / \leq 24 \text{ VAC}$ $I_{\max} \leq 150 \text{ mA}$
Low flow cut-off:	
on	1...19 %
off	2...20 %
Time constant:	0,2...99,9 seconds (in 0,1-steps)

DMI-V2E 6 0001 04-05 E M

UDMS



- ultrasonic
- wide measuring range
- integrated up-/down-stream section
- threaded connection

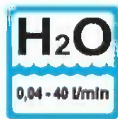


UDMS



Operation

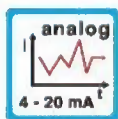
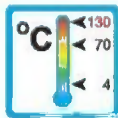
The flowmeters type UDMS are ultra-sonic flowmeters.



Application

The ultra-sonic flowmeters type UDMS are used to measure and monitor volume flow of liquids. The instruments are used for example in the following applications:

- Cooling systems and circuits
- Mechanical engineering e.g. welding machines and laser plants
- Automotive industry



Features

The series proves itself through reliable function and easy handling. Further characteristics of this sturdy series are:

- Wide measuring range (1:250)
- Accuracy: 2,5 % of scale value
- Outputs (optional):
2 switch outputs (DESINA®-version)
or
2 switch outputs and 1 analog output (4 - 20 mA)
- Parameter via foil-keys programmable
- Brass-version
- Integrated up- and downstream section
- Threaded connection

Installation hints

The installation of the flowmeter can be done horizontal or vertical in the system. The flow direction must be observed.

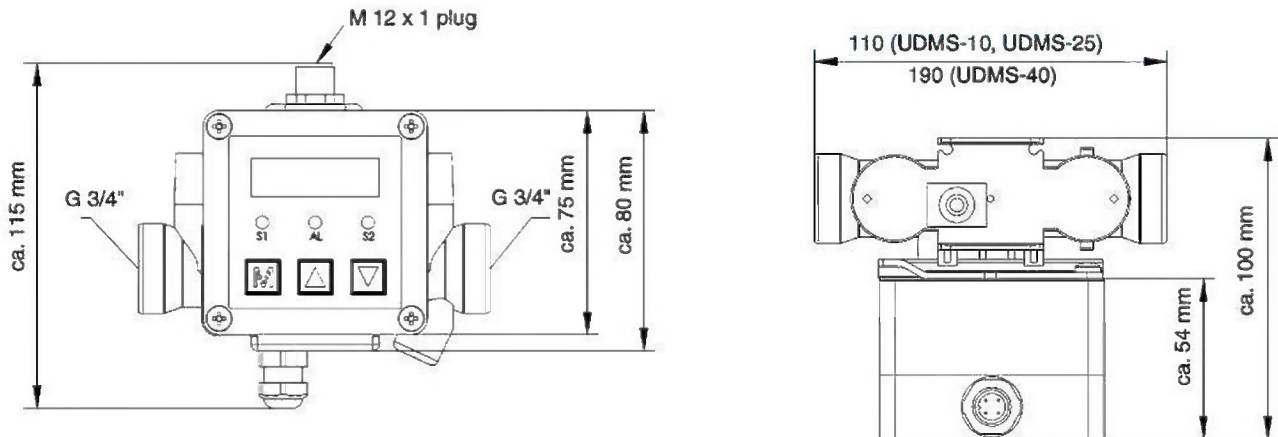
The flowmeter must not be used as a supporting part in a pipe construction.

The medium must not contain any solids!



Technical Data

Dimensions



Versions

Type	Nominal size DN	Process connection Thread, male	Range [l/min]	2 switch outputs Desina®-conform Connection diagram A (see page 4)	2 switch outputs + 1 analog output Connection diagram B (see page 4)
UDMS-10SD	20	G 3/4"	0,04 - 10	▲	
UDMS-10SA	20	G 3/4"	0,04 - 10		▲
UDMS-25SD	20	G 3/4"	0,10 - 25	▲	
UDMS-25SA	20	G 3/4"	0,10 - 25		▲
UDMS-40SD	25	G 1"	0,16 - 40	▲	
UDMS-40SA	25	G 1"	0,16 - 40		▲

Technical Data

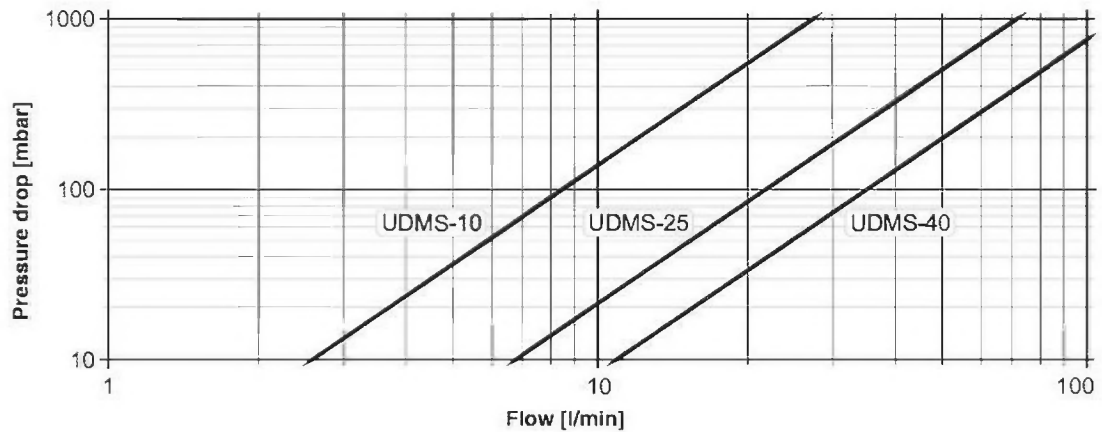
Sensor element:	ultrasonic sensor
Media:	water and waterlike media
Up- and down-stream sections:	integrated in the measuring body
max. pressure:	25 bar
Operating temperature:	
Medium (with separated installation)	+4 °C ... +130 °C
Electronic	-10 °C ... +70 °C
Storage temperature:	-30 °C ... +80 °C
Materials:	
wetted parts	pressed brass
Gaskets (wetted parts)	KLINGERSIL®
Electronic housing	pressure casted aluminum
Key pad	polyester

UDMS 2 0001 10-05 E M



Pressure Drop, Technical Data

Pressure drop



Technical data (continued)

Indication:	4-digit, 7-segment LED-indication, 12 mm digits, red	
Control elements:	3 easy response push buttons	
Ingress protection / Class:	IP65 / III	
Scanning rate:	500 ms (for peak value storage)	
Linearity error:	±2,5 % of scale value at +25 °C	
Temperature influence:	±0,2 % f.s. / 10 K	
Compensated range:	-10 °C... +70 °C	
Repeatability:	±0,1 % f.s.	
Electrical Connection:	plug M 12 x 1, 4- / 5-pole, DESINA®-conform	
Power supply:	15...32 V DC, pole proof	
Indicating:	500 ms	
Error indication:	LED yellow and as clear text on display (diagnostic function according to DESINA®)	
Current consumption:	50 mA (w/o load)	
Transistor-switch outputs:		
Switch function	SPST N.O. / N.C. - adjustable	standard- / window frame technique - adjustable
Adjusting range	0 % ... 125 % f.s.	
Switch return hysteresis	0 % ... 125 % f.s.	
Diagnostic function	SP2 with DESINA®-version	
Switch frequency	max. 100 Hz	
max. current	500 mA, short-circuit safe	
Delay time	0,0...9,9 s adjustable	
Indication(s)	LED(s) green	
Analog output:		
Update rate	500 ms	
Resolution	10 Bit (1024 steps / measuring time)	
Current output	4...20 mA	
Load	max. $R_l = (U_b - 12 V) / 20 mA$, $R_l = 600 \Omega$ at $U_b = 24 V DC$	
Load influence	0,3 % / 100 Ω	

UDMS 3 0001 10-05 E M

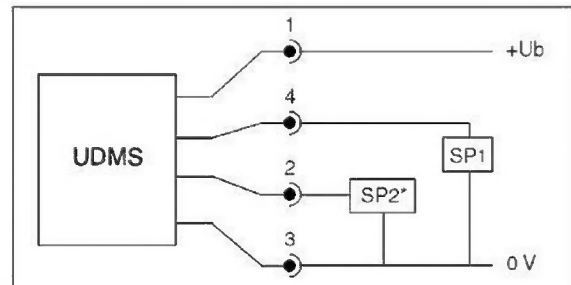


Electrical Outputs

Connection table A

Plug M 12 x 1 4-pole	Version with 2 switch outputs (DESINA®-version)
PIN 1	+Ub (15...32 V DC)
PIN 2	SP2 (0,5 A max.)
PIN 3	0 V
PIN 4	SP1 (0,5 A max.)

Connection diagram A

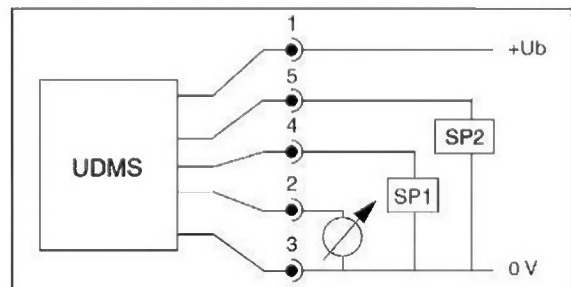


* SP2 = Diagnostic output with (DESINA®-version)

Connection table B

Plug M 12 x 1 5-pole	Version with 2 switch outputs and 1 analog output
PIN 1	+Ub (15...32 V DC)
PIN 2	analog
PIN 3	0 V
PIN 4	SP1 (0,5 A max.)
PIN 5	SP2 (0,5 A max.)

Connection diagram B



Accessories

Connector plug M 12 x 1, 4-pole, with screw clamp, jack-knife type

Connector plug M 12 x 1, 5-pole, with screw clamp, jack-knife type

UDMS 4 0001 10-05 E M

SKT



- calorimetric
- simple programmable
- maintenance free
- mounting via T-Piece



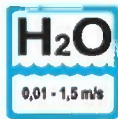
Flow switch

SKT



Operation

The media flow velocity causes a temperature change on the heated sensor. This temperature change will be measured by an electronic and converted into a switch signal. The second sensor allows a temperature compensation.



Application

The SKT flow switch is used for monitoring the flow velocity of low viscous media.

This flow switch is for example used in following areas:

- Cooling systems and cooling circles
- Mechanical engineering
- Research and development



Features

The flow switch proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- No movable parts
- User calibration
- Self diagnostic
- Stainless steel version
- Threaded connection

Installation hints

The unit could be installed in any orientation in the system. It must be made sure, that there is no possible build up of air cushions (bubbles) in the sensor area.

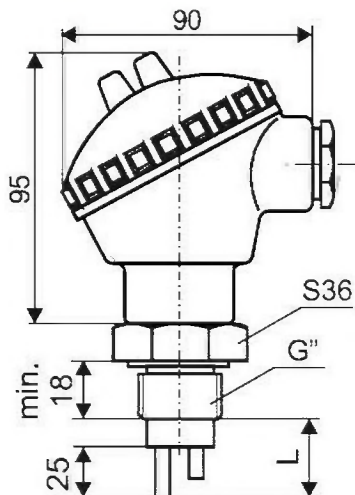
The unit must not be used as a supporting part in a pipe construction.

The liquids must not contain any fibrous particles!

The operating instruction of SKT must be observed under any circumstances!



Technical data



Technical data	
Installation:	Installation via T-piece, any orientation (no air cushions (bubbles) in the sensor area)
Dimensions:	see illustration on the left side
Versions:	
SKT-W	for water and water solutions
SKT-L	for oil and fuel
Sensor-length (L):	40 ... 250 mm (must be specified)
Connections:	
Standard	Thread: G 3/4", G 1"
Optional	Thread: 3/4" NPT, 1" NPT
Max. weight:	500 g

Technical data	
Media:	thin fluids for example water, water solutions, fuel and oil with low viscosity
Max. viscosity:	10 cSt
Flow ranges:	
Measuring range SKT-W	0,01 - 1,5 m/s
Measuring range SKT-L	0,02 - 3 m/s
Media temperature:	0 to 100 °C
Max. operating pressure:	25 bar
Ambient temperature:	-10 bis +65 °C
Humidity:	0 bis 95 % rH
Zero calibration:	programmable through the operator
Measuring range calibration:	programmable through the operator
	Programming with rotary switch and button, red LED for status indication
Output:	
Type	1 change over relay (SPDT)
Switch load	3A / 250 V AC
Function	The output is active, when the flow velocity is higher than the adjusted reference value.
Status indication:	green LED
Reaction time:	approx. 15 s
Switch hysteresis:	≤ 10 % from the measuring range
Time delay:	2 s
Reference value adjustment:	with rotary switch
Temperature drift:	0,25 % / °C
Warm-up time:	max. 45 s
Power supply:	24 V DC ± 10 %
Max. power input:	6 VA
Connection:	terminal strip inside the housing
Materials:	
Thread	Stainless steel 1.4301
Protection tube	Stainless steel 1.4301
Housing	Aluminium, protection: IP 65

SKT 2 0005 09-07 E M