Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Screw-Type Volumetric Flow Meter

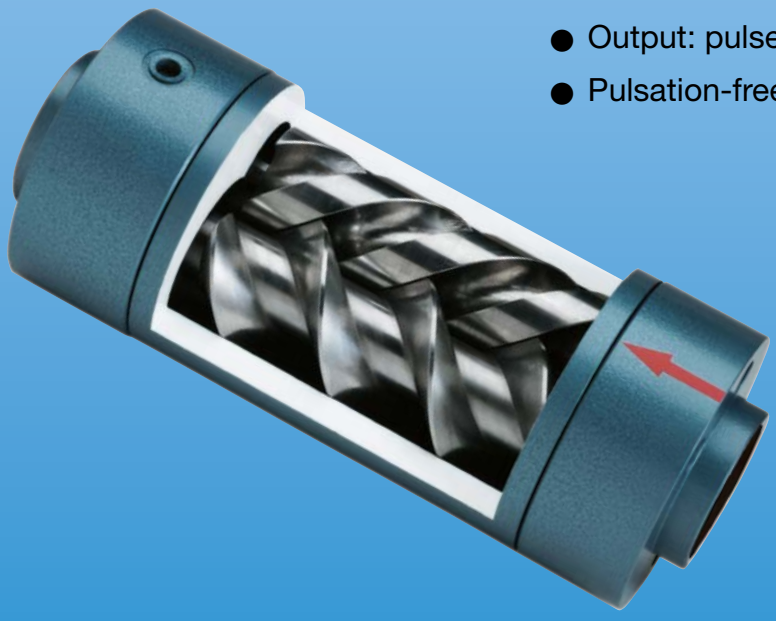
for Viscous Media

measuring • monitoring • analysing

OM...

Model: ADI-1...

- Measuring ranges: 0.1-10 ... 50-5000 l/min liquid
- Measuring accuracy: ± 0.1% of span 1 : 100 ± 0.3% of span 1 : 50
- p_{max}: 420 bar; t_{max}: 200 °C
- Viscosity range: 1 ... 1 x 10^6 mm^2/s
- Connection: G ½ ... G 6 female, flange DN 15 ... DN 150
- Material: ductile iron or stainless steel
- Output: pulses
- Pulsation-free principle of measurement



Model: OMG...

S4

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Description

The KOBOLD screw-type volumetric flow meter based on the principle of positive displacement was developed in response to the need to measure and control viscous media.

It was specially designed to measure viscous media with non-abrasive properties. Variations in viscosity in the range 1 to 5000 mm^2/s have no effect on measurement results within the measuring accuracy.

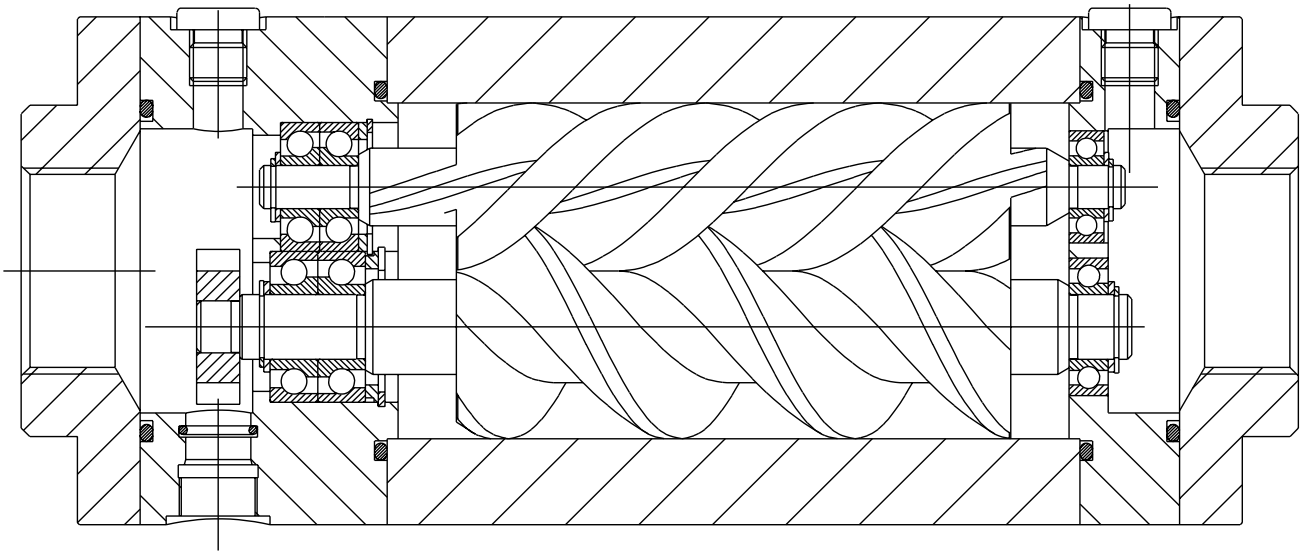
The KOBOLD screw-type volumetric flow meter satisfies the stringent demands for greater accuracy, reliability and economic efficiency. Two spindles with cycloidal profiles form the basis of the screw-type volumetric flow meter.

Spindles manufactured with extreme precision are supported at each end with a ball bearing.

The axially forced measuring medium causes the spindles to rotate uniformly.

The rotary motion is picked off with inductive proximity sensors or Hall-effect sensors and converted to a frequency signal. An exact measurement of the delivered flow volume is obtained with the volumetrically defined measuring chambers.

Combined with downstream evaluation electronics, the KOBOLD screw-type volumetric flow meter becomes a flexible measurement and control system for viscous media.



Benefits

- Greater viscosity range (1 ... 1 x 10^6 mm^2/s)
- Greater measuring accuracy (max. 0.3% of span)
- Greater measuring span: (1:100 with 0.1% accuracy)
  (1:150 with 0.3% accuracy)
- Almost completely insensitive to viscosity
- Greater flow rate combined with minimum space requirements
- High degree of operational reliability and long service life
- Pulsation-free principle of measurement
- Self-cleaning measuring chambers
- Choice of installation position

Areas of Application

- **Furnaces**
  EL heating oil, S heating oil, diesel oil
- **Hydraulics, test stands**
  Hydraulic oil, lubricating oil, gear oil
- **Mixing and dosing systems**
  Polyhydroxy alcohol, isocyanate
  Additives for gasoline, cement...
- **Lacquers and fills, printing inks**
- **Chemical industry**
  Acids and lyes, ethyl alcohol, freon
- **Food industry**
  Margarine, fats, liqueur, oils

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Material

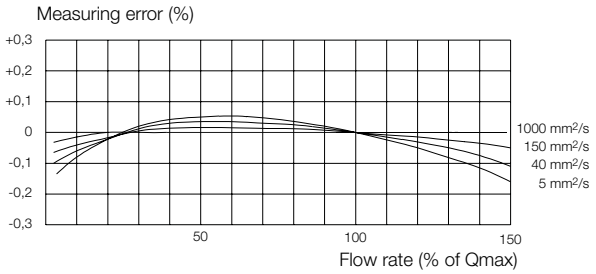
Housing:	ductile iron EN-GJS-400
Spindles:	steel nitrated
O-rings:	FPM
Bearings:	steel or hybrid ball bearing
Thread for sensors:	M 18 x 1 with O-ring in the case
Viscosity range:	1 - 5000 mm²/s
Flange:	steel (material no. 1.7139)
Pole wheel:	steel
Operating temperature:	-20 ... +200 °C (Please note limitation due to pulse generator.)

Order Details (Example: **OMG-15F1516/xx**) xx = pulse generator see page 7

				Threaded connection		Flange connection Sealing face form C, according to DIN 2526		
Flow rate [l/min]	**p_{max} [1] [bar]**	**Pulses/L [2]**	**Frequency [2] [Hz]**	**Order No.**	**G**	**Order No.**	**DN**	**p_{max} [1][3] [bar]**
0.1 - 10	250	1216	2.0 - 203	**OMG-15R15**	½	**OMG-15F15**	15	**16/40/64/100/160/250**
0.3 - 30	250	640	3.2 - 320	**OMG-20R20**	¾	**OMG-20F15** **OMG-20F20**	15 20	**64/100/160/250** **16/40**
1 - 100	250	234	3.9 - 390	**OMG-25R25**	1	**OMG-25F25** **OMG-25F32**	25 32	**64/100/160/250** **16/40**
3.5 - 350	160	71	4.1 - 414	**OMG-40R40**	1½	**OMG-40F40**	40	**16/40/64/100/160**
7 - 700	100	39.8	4.6 - 464	**OMG-50R50**	2	**OMG-50F50**	50	**16/40/100**
20 - 2000	40	16.8	4.6 - 560	**OMG-1HR1H**	4	**OMG-1HF1H**	100	**16/40**
50 - 5000	40	8.85	7.4 - 738	**OMG-1FR1F**	6	**OMG-1FF1F**	150	**16/40**

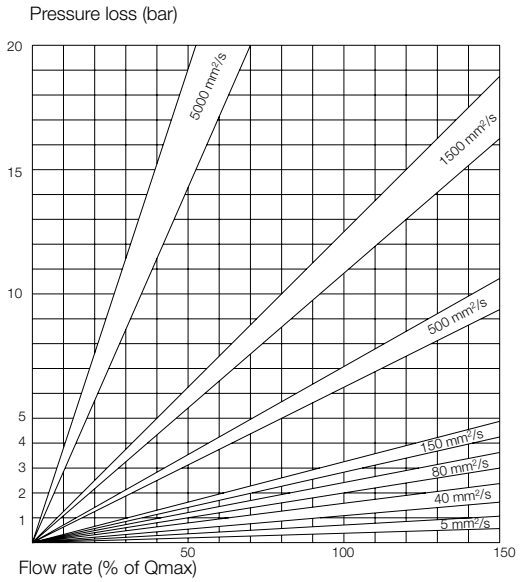
[1] Please note limitations due to pulse generator
[2] Pulse generator 44 and 45 have higher Pulse/l and output frequency (for values see type plate and on request)
[3] Please specify the desired nominal pressure when placing your order (e.g. F15/16 = flange DN 15 PN 16)

Accuracy Diagram



The measuring error refers to the actual flow rate.
The diagram shows the characteristic for the OMG-... screw-type volumetric flowmeter.
A test certificate is available because every device delivered is different.

Pressure Loss Diagram



Material

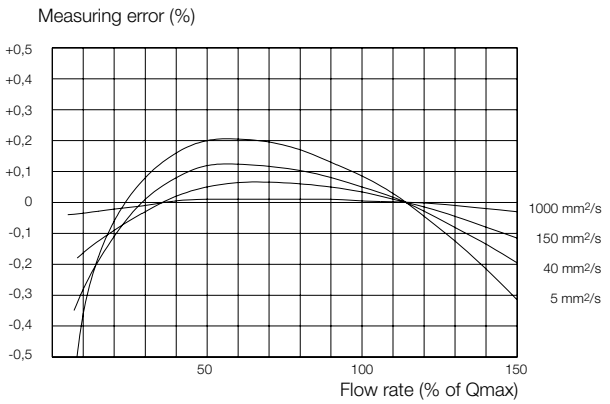
Housing:	standard: st. steel (material no. 1.4301) option: st. steel (material no. 1.4401)
Spindles:	PTFE
O-rings:	FPM or silicone with FEP jacket
Bearings:	sliding-contact bearings between spindle and case
Thread for sensors:	M 18 x 1 with O-ring in the case
Measuring accuracy:	± 0.3% of span 1 : 100
Viscosity range:	1 - 5000 mm²/s
Flange:	st. steel (material no. 1.4301 or 1.4401)
Pole wheel:	steel, chemically nickel-plated, option: st. steel 1.4401
Operating temperature:	-20 ... +40 °C or (-20 ... +100 °C on request) (Please note limitation due to pulse generator)

Order Details (Example: **OMK-15F1516/xx**) xx = pulse generator see page 7

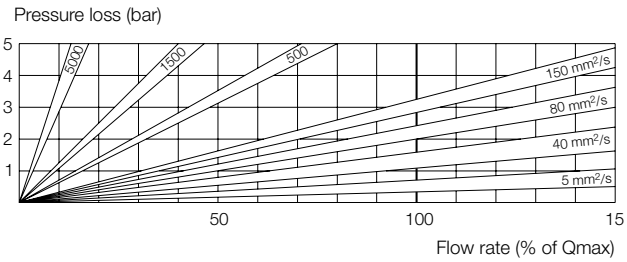
				Threaded connection		Flange connection[1)] Sealing face form C, according to DIN 2526		
Flow rate [l/min]	**p_{max} [bar]**	**Pulses/l**	**Frequency [Hz]**	**Order no.**	**G**	**Order no.**	**DN**	**p_{max} [bar]**
0.2 - 10	40	1200	4.0 - 200	**OMK-15R15**	½	**OMK-50F50**	15	**16/40**
0.6 - 30	40	640	6.4 - 320	**OMK-20R20**	¾	**OMK-20F20**	20	**16/40**
2 - 100	40	230	7.7 - 383	**OMK-25R25**	1	**OMK-25F25**	25	**16/40**

[1)] Please specify the desired nominal pressure when placing your order (e.g. F20/16 = flange DN 20 PN 16).

Accuracy Diagram



Pressure Loss Diagram



The measuring error refers to the actual flow rate.
The diagram shows the characteristic for the OMK-... screw-type volumetric flowmeter.
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Material

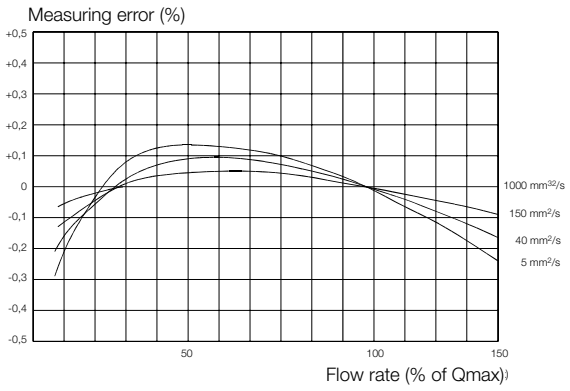
Housing:	ductile iron or stainless steel
Spindles:	st. steel or nitrated
O-rings:	FPM or silicone with FEP jacket
Bearings:	stainless steel ball bearing
Thread for sensors:	M 18 x 1 with O-ring in the case
Viscosity range:	1 ... 1 x 10^6 mm²/s
Flange:	st. steel (material no. 1.4301 or 1.4401)
Pole wheel:	steel
Operating temperature:	-25 ... +200 °C
Pressure:	up to 630 bar

Order Details (Example: **OMK-40F4016/xx**) xx = pulse generator see page 7

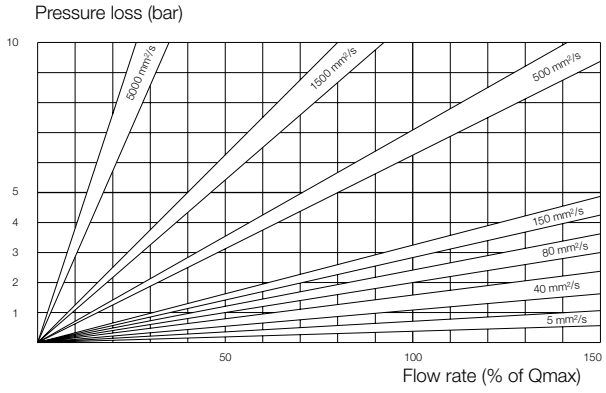
				Threaded connection		Flange connection[1)] Sealing face form C, according to DIN 2526		
Flow rate [l/min]	**p_{max} [bar]**	**Pulses/l**	**Frequency [Hz]**	**Order no.**	**G**	**Order no.**	**DN**	**p_{max} [bar]**
3.5 - 350	40	71	4.1 - 414	**OMK-40R40**	1½	**OMK-40F40**	40	**16/40**
7 - 700	40	40	4.7 - 467	**OMK-50R50**	2	**OMK-40F20**	50	**16/40**

[1)] Please specify the desired nominal pressure when placing your order (e.g. F40/16 = flange DN 40 PN 16).

Accuracy Diagram



Pressure Loss Diagram



The measuring error refers to the actual flow rate.
The diagram shows the characteristic for the OMK-... screw-type volumetric flowmeter.
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Material

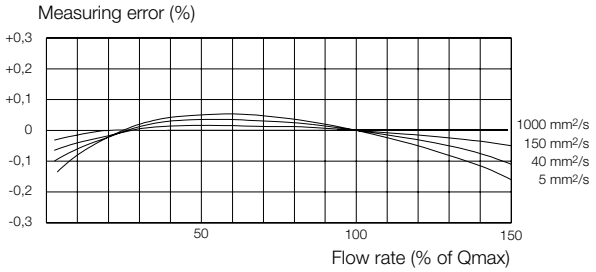
Housing:	ductile iron
Spindles:	nitrated steel
O-rings:	FPM
Bearings:	deep-grooved ball bearings with metal retainers
Thread for sensors:	M 18 x 1 with O-ring in the case
Viscosity range:	1 ... 1 x 10^6 mm²/s
Flange:	steel (material no. 1.7139)
Operating temperature:	-20 ... +200 °C (Please note limitation due to pulse generator.)

Order Details (Example: **OMH-15F1515/xx**) xx = pulse generator see page 7

				Threaded connection		Flange connection[3] Sealing face form C, according to DIN 2526		
Flow rate [l/min]	**p_{max}[1] [bar]**	**Pulses/l[2]**	**Frequency[2] [Hz]**	**Order no.**	**G**	**Order no.**	**DN**	**p_{max}[1] [bar]**
0.1 - 10	420	2432	4.1 - 405	**OMH-15R15**	½	**OMH-15F15**	15	**400**
0.3 - 30	420	1280	6.4 - 640	**OMH-20R20**	¾	**OMH-20F15**	15	**400**
1 - 100	420	468	7.4 - 780	**OMH-25R25**	1	**OMH-25F25**	25	**400**
3.5 - 350	420	142	8.3 - 828	**OMH-40R40**	1½	**OMH-40F40**	40	**400**
7 - 700	420	79,6	9.3 - 929	**OMH-50R50**	2	**OMH-50F50**	50	**400**
20 - 2000	250	33,6	11.2 - 1120	**OMH-1HR1H**	4	**OMH-1HF1H**	100	**250**

[1] Please note limitations due to pulse generator.
[2] Pulse generator 45 has higher Pulse/l and output frequency (for values see type plate and on request)
[3] Please specify the desired nominal pressure when placing your order (e.g. F40/16 = flange DN 40 PN 16).

Accuracy Diagram



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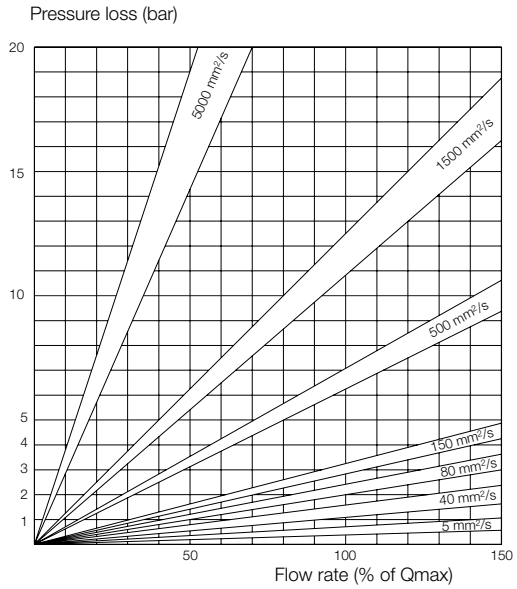
Pressure Loss Diagram



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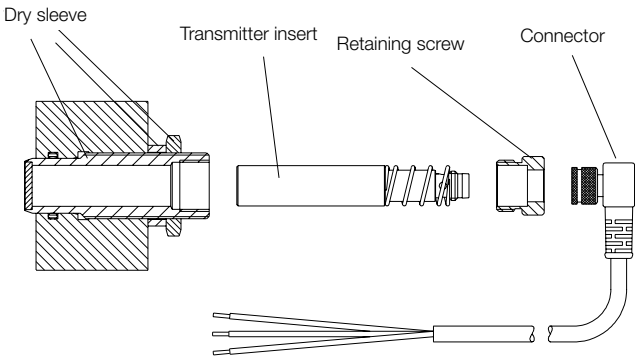
Method of Operation

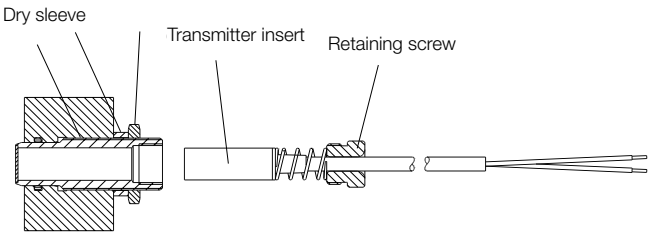
The rotor of the screw-type volumetric flow meter rotates at a precisely defined distance in front of the pulse generator. The pulse generator generates a pulse for every pole that moves past it.

The screw-type volumetric flow meter is checked and delivered with a built-in dry sleeve. The transmitter insert for the pulse generator can be replaced online in a full line, without having to re-adjust the clearance to the rotor.

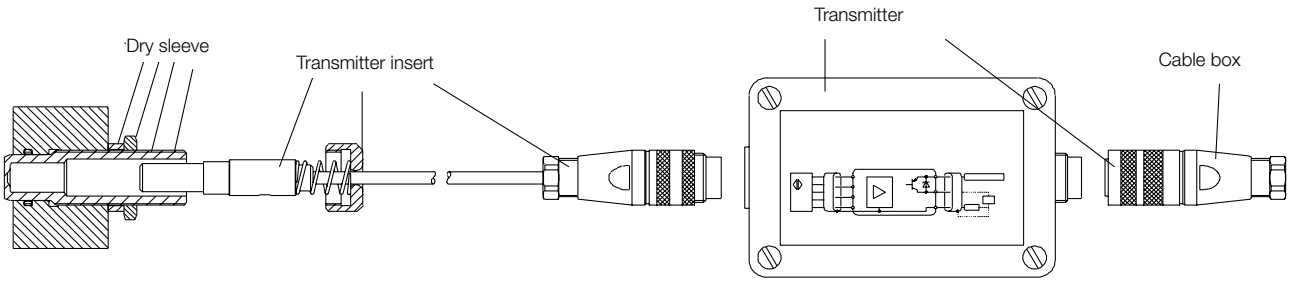
OM.../43 and OM.../46



OM.../44 and OM.../47



OM.../45



Selection Table for Pulse Generators

Order No.	System	Voltage	t_{max}	p_{max} face	Material dry sleeve	Electrical connection	Protection
OMG.../43	induktive PNP	10 ... 30 V_{DC}	-20 ... +100 °C (-25 ... +90 °C)[1]	250 bar	arcap/ ceramics	right-angle plug with LED and 3 m cable	IP 65
OMK.../46	induktive PNP	10 ... 30 V_{DC}	-20 ... +100 °C (-25 ... +90 °C)[1]	40 bar	1.4401/ ceramics	right-angle plug with LED and 3 m cable	IP 65
OMG.../44 OMH.../44	Hall-effect PNP	10 ... 30 V_{DC}	-40 ... +150 °C	420 bar	arcap	3 m PTFE cable	IP 67
OMG.../45 OMH.../45	magnetic PNP	10 ... 30 V_{DC}	-40 ... +250 °C (0 ... +50 °C)[2]	420 bar	arcap	cable box/ 1 m PTFE cable	IP 65
OM.../47	induktive Namur	5 ... 25 V_{DC}	-25 ... +100 °C	40 bar	1.4401/ ceramics	2 m PVC cable EEx ia IIC T6	IP 68

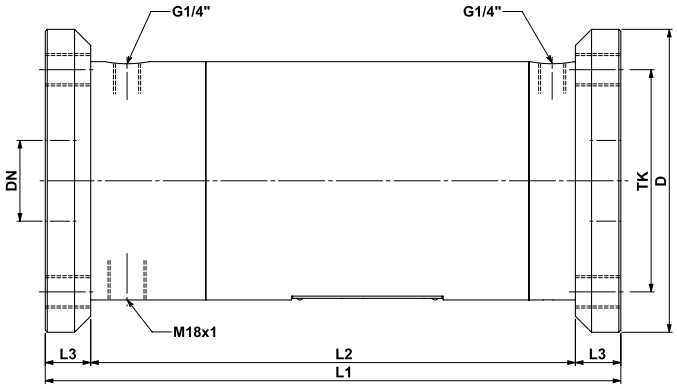
[1] connector

[2] transmitter

Dimensions

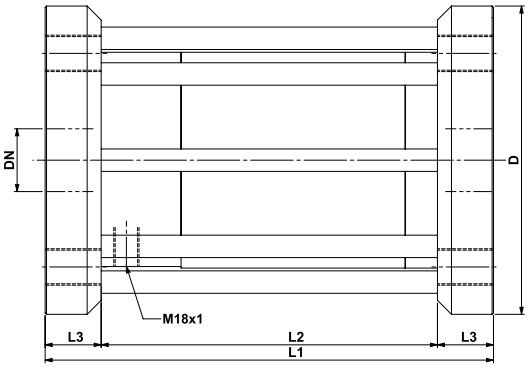
OMG

Model	Pipe thread						
	DN [inch]	Pressure stage [bar]	L [mm]	D [mm]	L1 [mm]	TK [mm]	Weight [kg]
OMG 15	½	250	145	130	94	90	6.0
OMG 20	¾	250	195	130	145	90	8.1
OMG 25	1	250	275	150	215	105	19.0
OMG 40	1½	160	295	150	240	125	23.0
OMG 50	2	100	355	195	295	145	37.0
OMG 100	4	40	460	235	400	190	70.0



OMH

Model	Pipe thread					
	DN [inch]	Pressure stage [bar]	L [mm]	D [mm]	L1 [mm]	Weight [kg]
OMH 15	½	400	150	145	94	7
OMH 20	¾	400	185	145	115	13
OMH 25	1	400	255	180	175	27
OMH 40	1½	400	320	220	240	57
OMH 50	2	400	385	235	295	76
OMH 100	2	250	500	300	400	155



OMK

Model	Pipe thread					
	DN [inch]	Pressure stage [bar]	L [mm]	D [mm]	L1 [mm]	Weight [kg]
OMK 15	½	40	110	95	94	3.2
OMK 20	¾	40	115	145	105	4
OMK 25	1	40	160	180	115	10