

DM10

Magnetic-Inductive Flow Meter

- For nominal sizes from DN25 to DN600
- Linings of polyurethane, hard rubber or PTFE
- Minimum fluid conductivity: 50 $\mu\text{S}/\text{cm}$
- Maximum fluid temperature: 130°C
- Maximum fluid pressure: 40 bar
- Compact or split systems available
- Measuring accuracy: 0.5% of measured value



Description:

Model series DM10 magnetic-inductive flow meters are intended to measure the flow and volumes of all types of fluids with a minimum conductivity of 50 $\mu\text{S}/\text{cm}$. They are designed for absolute reliability and economical service. According to Faraday's Law of Induction, voltage is induced in a wire moving through a magnetic field. With the magnetic-inductive principle of fluid measurement, the flowing liquid corresponds to the moving wire. The voltage thus induced is proportional to the flow velocity. This voltage is connected through two electrodes to a measurement amplifier. The flow volumes are calculated based on the pipe cross-section. The constant magnetic field is generated by a DC current of alternating polarity.

Applications:

The full-bore flow passage and the various lining and electrode materials available make the DM10 flow meter suitable for almost all fluids with the specified minimum conductivity of 50 $\mu\text{S}/\text{cm}$. Fluid viscosity, contaminants and variations in fluid density have no effect on flow measurements. The DM10 is commonly used in the following application areas:

- Potable water
- Waste/grey water
- Sewage sludge
- Acids and alkalis
- Paints

Designs:

Standard design for non-caustic/non-corrosive fluids with polyurethane lining for fluid temperatures of up to 60 °C, or with hard rubber lining for fluid temperatures of up to 80 °C

Special design for caustic/corrosive fluids with PTFE lining for fluid temperatures of up to 130 °C

Compact: Transducer with integrated transmitter
Split system: Transducer and transmitter physically separated and connected by coil-and-signal cable

Measuring Ranges and Process Connections:

Nominal size DN	Measuring Range		Process Connection			
	Minimum	Maximum	Flanges as per DIN 2501, ST37-2			ANSI B16.5 A105 Cl. 150
			PN40	PN16	PN10	
25	1 - 9 l/min	1 - 300 l/min	A	-	-	L
32	2 - 15 l/min	2 - 500 l/min	A	-	-	-
40	3 - 25 l/min	3 - 700 l/min	A	-	-	L
50	5 - 35 l/min	5 - 1100 l/min	A	-	-	L
65	8 - 60 l/min	8 - 2000 l/min	-	C	-	-
80	12 - 90 l/min	12 - 3000 l/min	-	C	-	L
100	20 - 145 l/min	20 - 4700 l/min	-	C	-	L
125	30 - 220 l/min	30 - 7500 l/min	-	C	-	-
150	2.5 - 20 m³/h	2.5 - 600 m³/h	-	C	-	L
200	5 - 35 m³/h	5 - 1100 m³/h	-	-	D	L
250	7.5 - 55 m³/h	7.5 - 1700 m³/h	-	-	D	L
300	10 - 80 m³/h	10 - 2400 m³/h	-	-	D	L
350	15 - 110 m³/h	15 - 3300 m³/h	-	-	D	L
400	20 - 140 m³/h	20 - 4200 m³/h	-	-	D	L
450	25 - 180 m³/h	25 - 5400 m³/h	-	-	D	L
500	30 - 220 m³/h	30 - 6600 m³/h	-	-	D	L
600	40 - 310 m³/h	40 - 9600 m³/h	-	-	D	L

Electrodes:

Measuring, reference and media monitoring electrodes

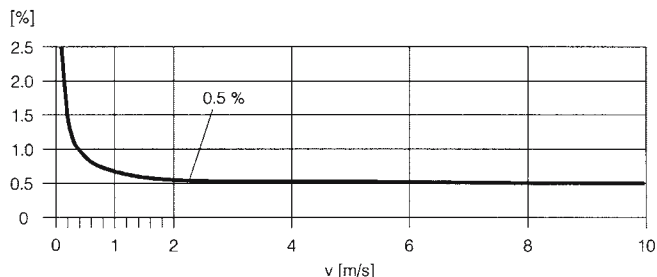
Material:

Stainless steel 1.4435 or C-22 alloy

Measuring Accuracy:

Standard Accuracy:

0.5% of measured value for laminar (streamline) flow (recommended inlet pipe section > 5x DN, outlet pipe section > 2 x DN).



Model Coding:

Order number: DM10. 125. UC. 0A. 1A. A0. A.4. AA. 0.

Magnetic-Inductive Flow Meter

Nominal size:

025 to 600 = Nominal pipe size as given in the "Measuring Ranges and Process Connections" table

Linings / Process Connections:

UA = Polyurethane lining, flange DIN PN40
 UC = Polyurethane lining, flange DIN PN16
 UD = Polyurethane lining, flange DIN PN10
 UL = Polyurethane lining, flange ANSI 150 lbs.
 HA = Hard rubber lining, flange DIN PN40 (only as of DN65)
 HC = Hard rubber lining, flange DIN PN16 (only as of DN65)
 HD = Hard rubber lining, flange DIN PN10 (only as of DN65)
 HL = Hard rubber lining, flange ANSI 150 lbs. (only as of DN65)
 EA = PTFE lining, flange DIN PN40
 EC = PTFE lining, flange DIN PN16
 ED = PTFE lining, flange DIN PN10
 EL = PTFE lining, flange ANSI 150 lbs.

Electrodes / Calibration:

0A = Stainless steel electrodes, calibration 0.5%
 1A = C-22 alloy electrodes, calibration 0.5%
 9A = Special electrodes, calibration 0.5%

Certifications / Approvals:

1A = None
 PA = as per PED*, Cat. II / III (not for DN25)
 1R = Ex area, Class I D iv. 2, NT / FM / CSA
 *European Union "Pressure Equipment Directive"

Protection Type / Construction:

A0 = Compact design, IP67
 G2 = Split design, IP67 with 10 m coil-and-signal cable
 G4 = Split design, IP67 with x m coil-and-signal cable
 N2 = Split design, IP68 with 10 m coil-and-signal cable
 N4 = with x m coil-and-signal cable

Electrical Connection:

A = M20x1.5 cable gland nut
 B = 1/2" NPT screw threads for cable gland nut
 C = G 1/2 screw threads for cable gland nut

Display / Auxiliary Power / Operation:

0 = Without display, remote parameter assignment, 85 to 250 VAC
 1 = Without display, remote parameter assignment, 20 to 28 VAC, 11 to 40 VDC
 4 = With display, push-button operation, 85 to 250 VAC
 5 = With display, push-button operation, 20 to 28 VAC, 11 to 40 VDC

Software / Outputs:

AA = Standard software, current output, pulse output, HART protocol

Options:

0 = None
 1 = Grounding Rings
 9 = Please specify in writing

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Output Signals:

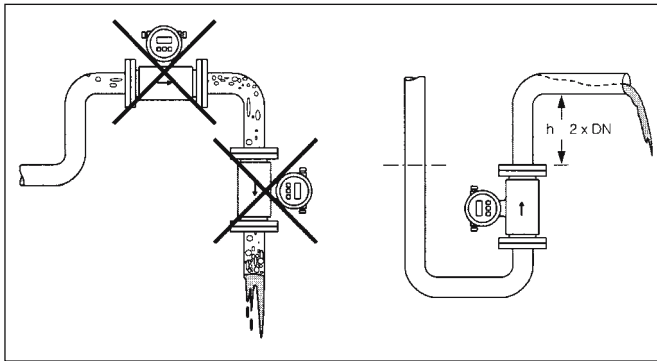
Pulse/status output, passive, programmable
 Open collector, maximum 30 VDC, 250 mA,
 maximum pulse frequency: 100 Hz
 Current output 4 to 20 mA, active, maximum load: 700 ohm,
 HART: > 250 ohm, programmable
 Programming by means of push buttons on transmitter or
 through remote parameter assignment with HART protocol.

Grounding:

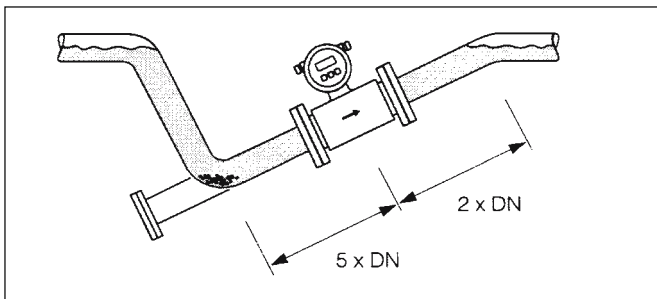
In metallic pipework, through the reference electrode in the
 measuring tube
 In non-metallic or lined pipework, through optional ground-
 ing rings

Installation:

When installing the DM10, the piping should always be
 completely filled.

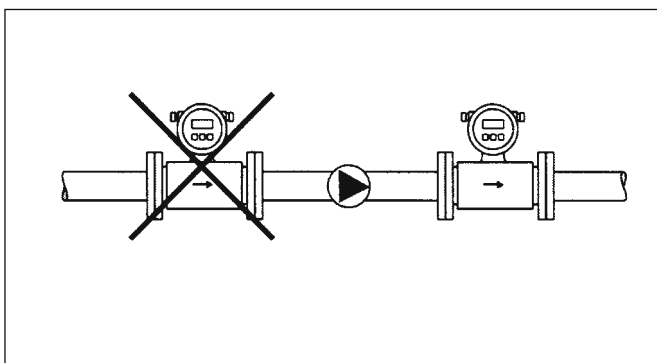


Do not install in a downpipe



Installation in partially filled piping

If at all possible, the DM10 should not be installed on the
 inlet side of pumps since the resulting vacuum pressure
 may damage the measuring pipe lining.



Installation on the delivery side of pumps

Weight:

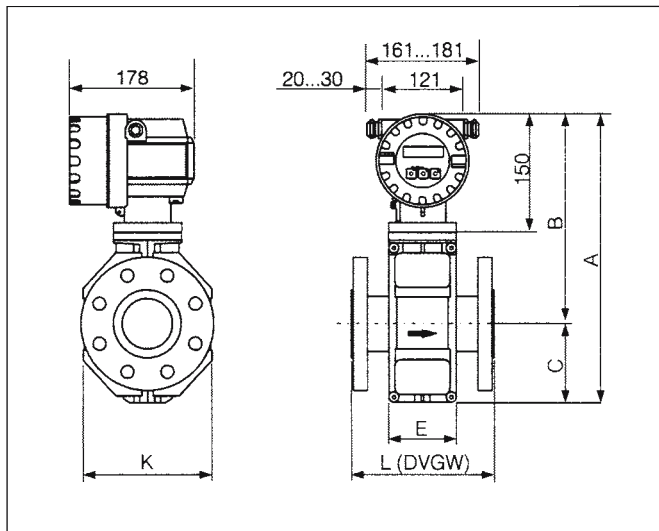
Nominal size (DN)	Compact Design (kg)		Split Design (kg)		
	DIN flange	ANSI flange	Transducer		Transmitter
			DIN flange	ANSI flange	
25	5.7	5.7	5.3	5.3	3.1
32	6.4	-	6	-	3.1
40	7.8	7.8	7.4	7.4	3.1
50	9	9	8.6	8.6	3.1
65	10.4	-	10	-	3.1
80	12.4	12.4	12	12	3.1
100	14.4	14.4	14	14	3.1
125	19.9	-	19.5	-	3.1
150	23.9	23.9	23.5	23.5	3.1
200	43.4	43.4	43	43	3.1
250	63.4	73.4	63	73	3.1
300	68.4	108.4	68	108	3.1
350	113.4	173.4	113	173	3.1
400	133.4	203.4	133	203	3.1
450	173.4	253.4	173	253	3.1
500	173.4	283.4	173	283	3.1
600	233.4	403.4	233	403	3.1

Technical Details:

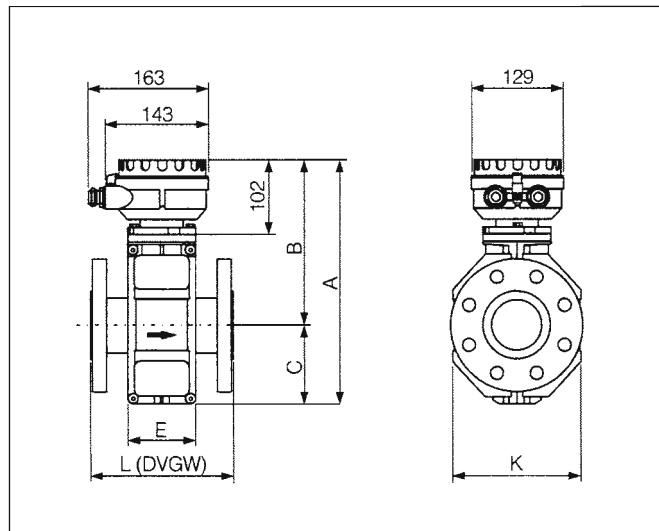
- Measuring range:** $v = 0.01 \dots 10 \text{ m/s}$
- Dynamic response:** to 10,000:1
- Auxiliary power:** 85...250 VAC, 45...60 Hz
20...28 VAC, 45...60 Hz
11...40 VDC
- Measuring accuracy:** $\pm 0.5\%$ of measured value
- Repeatability:** $\pm 0.2\% \pm 2 \text{ mm/s}$
- Ambient temperature:** $-20 \dots +60 \text{ }^\circ\text{C}$
- Liquid temperature:** Polyurethane: $-20 \dots +60 \text{ }^\circ\text{C}$
Hard rubber: $0 \dots +80 \text{ }^\circ\text{C}$
PTFE: maximum $-20 \dots +130 \text{ }^\circ\text{C}$
- Maximum pressure:** DN25...DN50: 40 bar
DN65...DN150: 16 bar
DN200...DN600: 10 bar
ANSI 1"..."24": Class 150
- Conductivity:** Minimum $50 \mu\text{S/cm}$
For split design, dependent on length of connecting cable
- Materials:**
 - Transmitter: Housing: aluminum casting
 - Transducer: up...DN300: aluminum casting
>DN300: carbon steel, painted
 - Measuring tube: Stainless steel 1.4301/1.4306
 - Flanges: DIN: St37-2
ANSI: A105
 - Grounding rings: Stainless steel 1.4435 or C-22 alloy (optional)
- Display:** LED, 2-line, 16 characters each, showing flow rate and sum total
- Operation:** 3 push buttons

Dimensions:

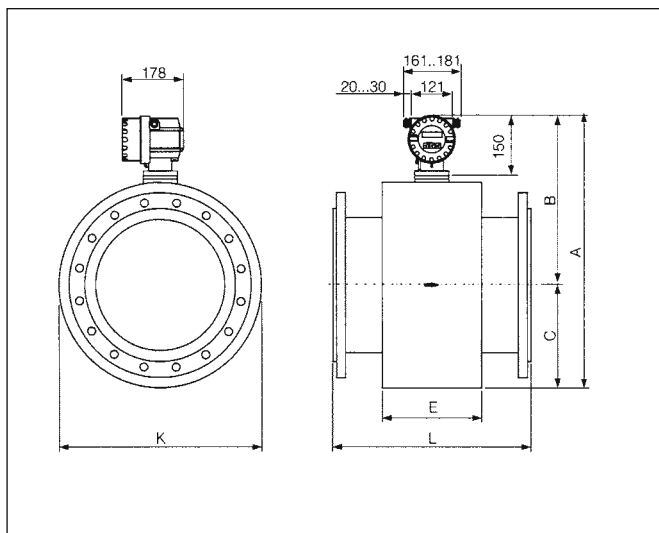
Compact design DN25...DN300:



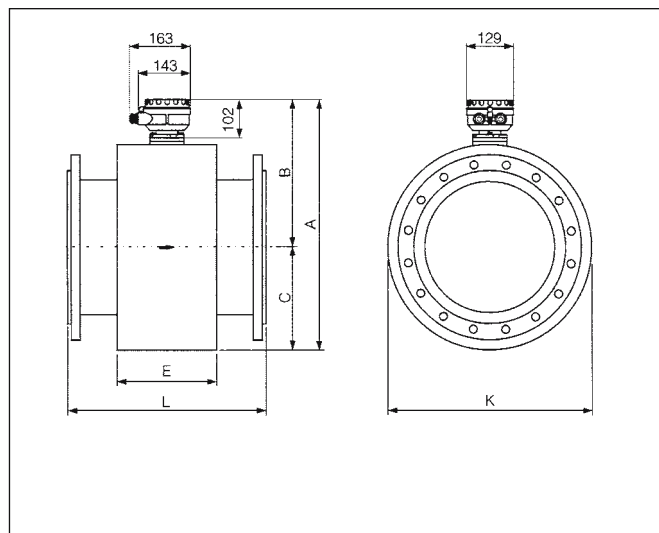
Split design DN25...DN300:



Compact design DN350...DN600:



Split design DN350...DN600:



DN		L	A	B	C	K	E
DIN	ANSI	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
25	1"	200	381	247	84	120	94
32	-	200	381	247	84	120	94
40	1 1/2"	200	381	247	84	120	94
50	2"	200	381	247	84	120	94
65	-	200	381	272	109	180	94
80	3"	200	381	272	109	180	94
100	4"	250	381	272	109	180	94
125	-	250	462	312	150	260	140
150	6"	300	462	312	150	260	140
200	8"	350	517	337	180	324	156
250	10"	450	567	362	205	400	156
300	12"	500	617	387	230	460	166
350	14"	550	728.5	446.5	282	564	276
400	16"	600	780.5	472.5	308	616	276
450	18"	650	830.5	497.5	333	666	292
500	20"	650	881.5	523	358.5	717	292
600	24"	780	985.5	575	410.5	821	402

DN		L	A	B	C	K	E
DIN	ANSI	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
25	1"	200	286	202	84	120	94
32	-	200	286	202	84	120	94
40	1 1/2"	200	286	202	84	120	94
50	2"	200	286	202	84	120	94
65	-	200	336	227	109	180	94
80	3"	200	336	227	109	180	94
100	4"	250	336	227	109	180	94
125	-	250	417	267	150	260	140
150	6"	300	417	267	150	260	140
200	8"	350	472	292	180	324	156
250	10"	450	522	317	205	400	156
300	12"	500	572	342	230	460	166
350	14"	550	683.5	401.5	282	564	276
400	16"	600	735.5	427.5	308	616	276
450	18"	650	785.5	452.5	333	666	292
500	20"	650	836.5	478	358.5	717	292
600	24"	780	940.5	530	410.5	821	402

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