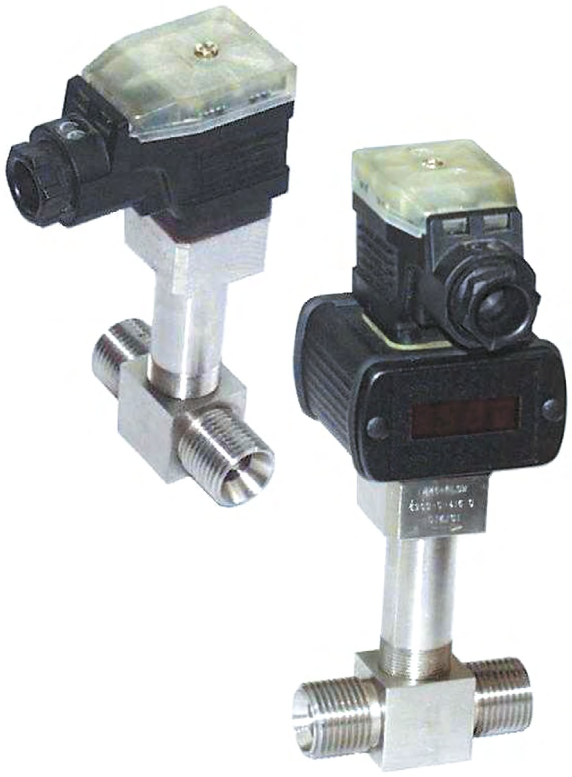


SM-11N

Stainless Steel Turbine Flowmeter

Features

/ Accuracy at ± 0.5% of measured value

/ Operating ranges up to 550 m3/h

/ Suitable for plug-in display SD-01

/ Up to 400 bar

/ Carbide metal or PTFE bearings

/ Flange or tube connection

Description:

The turbine wheel of the flow meter SM-11N is positioned concentrically on both sides and it rotates inside the housing proportionally to the mean flow velocity. An inductive Pick-Up screw-mounted on the housing wall deflects the turbine wheel's rotational movement and outputs a sinus-shaped power signal to the amplifier below the plug connector which in turn generates a square-shaped impulse signal in the PNP 3-wire circuit. Optionally, the bearings for the SM-11N can be made of PTFE or carbide metal, while all other wetted parts are made of stainless steel. This allows the SM-11N to conveniently measure a wide range of low viscosity fluids.

Application:

The turbine flow meter SM-11N is used if flow volumes of low viscosity fluids need to be measured highly accurately. The permissible temperature range up to 120°C and pressure levels up to 400 bar make the device capable of handling a wide range of applications covering the entire industry. Depending on the process, the user can opt for a tube or flange connector. At the output of SM-11N a PNP transistor impulse signal is available which is compatible with most downstream evaluation devices and, if required, can be easily converted into a 4. . .20 mA or 0. . .10 V DC analogue output. Moreover, the Profimess plug-in display SD-01, can be mounted directly between the plug and the cable box of the SM-11N and does not require additional power supply, offering an excellent way to visualize the measured value.

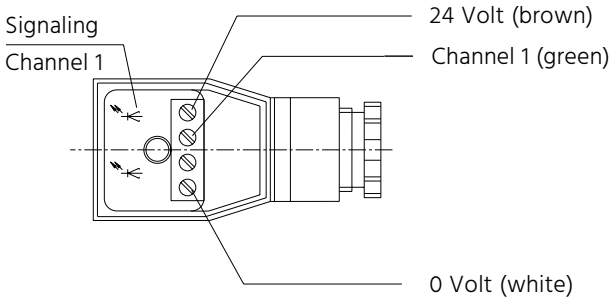
Technical Specifications:

Accuracy /	see table „Bearing types“
Mounting position /	horizontal ±5°
Housing material /	stainless steel 1.4541
Flange material /	steel 1.0566 or stainless steel 1.4541
Bearing material /	PTFE or carbide metal
Pressure /	see table for connector types
Media temperature /	-20°C to +120°C for steel flange connection -30°C to +120°C for stainless steel flange connection or tube connection
Ambient temp. /	-20°C to +60°C for steel flange connection -30°C to +60°C for stainless steel flange connection or tube connection
Required inlet section /	10 x pipe diameter to achieve the specified accuracy
Required outlet section /	5 x pipe diameter to achieve the specified accuracy

Electrical Specifications:

No. of measuring channels /	1
Operating voltage /	Ub = 12. . .30 VDC
Output signal /	voltage impulses PNP
Impulse amplitude /	$U_A \geq 0{,}8\ U_B$
Impulse form /	square
Duty cycle (Channel) /	1:1 ± 15 %
Power requirement /	max. 0.6 W
Output power /	max. 0.3 W short-circuit protected
Protection class /	IP65 DIN40050
Options /	ATEX approval for EX Zone 1, intrinsically safe

Electrical connection /

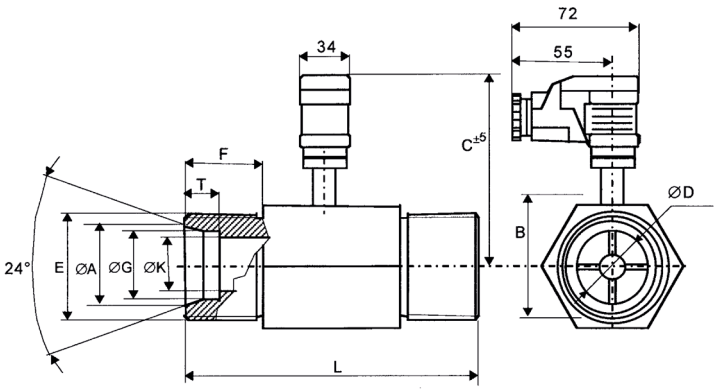


Bearing types:

Type	ND	Carbide metal		PTFE	
		Flow in l/min	Accuracy	Flow in l/min	Accuracy
SM-11N.1	6	0.92. . .4.58	± 1% of m.v.	0.92. . .4.58	± 1% of m.v.
SM-11N.2	6	1.83. . .9.17	± 1% of m.v.	1.83. . .9.17	± 1% of m.v.
SM-11N.3	12	3.67. . .18.3	± 1% of m.v.	3.67. . .18.3	± 1% of m.v.
SM-11N.4	15	7.33. . .36.7	± 0.5% v. MW.	7.33. . .36.7	± 0.5% of m.v.
SM-11N.5	15	13.3. . .66.7	± 0.5% v. MW.	13.3. . .66.7	± 0.5% of m.v.
SM-11N.6	18	26.6. . .133	± 0.5% v. MW.	13.3. . .133	± 0.5% of m.v.
SM-11N.7	25	53.4. . .267	± 0.5% v. MW.	26,7. . .267	± 0.5% of m.v.
SM-11N.8	37	113. . .567	± 0.5% v. MW.	56,7. . .567	± 0.5% of m.v.
SM-11N.9	50	227. . .1133	± 0.5% v. MW.	113. . .1133	± 0.5% of m.v.
SM-11N.10	75	450. . .2250	± 0.5% v. MW.	225. . .2250	± 0.5% of m.v.
SM-11N.11	100	900. . .4500	± 0.4% v. MW.	720. . .4500	± 0.4% of m.v.
SM-11N.12	150	1833. . .9167	± 0.4% v. MW.	1464. . .9167	± 0.4% of m.v.
SM-11N.13	200	3667 - 18333	± 0.4% v. MW.	2933 - 18333	± 0.4% of m.v.
SM-11N.14	250	6333 - 31667	± 0.4% v. MW.	5067 - 31667	± 0.4% of m.v.
SM-11N.15	300	9000 - 45000	± 0.4% v. MW.	7200 - 45000	± 0.4% of m.v.
SM-11N.16	400	13333 - 66667	± 0.4% v. MW.	10667 - 66667	± 0.4% of m.v.

Dimensions tube-connection:

Type	Ø D [mm]	Ø A [mm]	B [mm]	C [mm]	L [mm]	E [mm]	F [mm]	Ø G [mm]	Ø K [mm]	Ø T [mm]
SM-11N.1	6	14.3	25	82	58	M20 x 1.5	12	12	8	7.5
SM-11N.2	6	14.3	25	82	58	M20 x 1.5	12	12	8	7.5
SM-11N.3	12	18.3	36	86	76	M24 x 1.5	14	16	12	8.5
SM-11N.4	15	22.9	41	87	76	M30 x 2	16	20	15	10.5
SM-11N.5	15	22.9	41	87	76	M30 x 2	16	20	15	10.5
SM-11N.6	18	27.9	48	89	130	M36 x 2	18	25	19	12
SM-11N.7	25	38	48	92	155	M52 x 2	16	35	27	10.5



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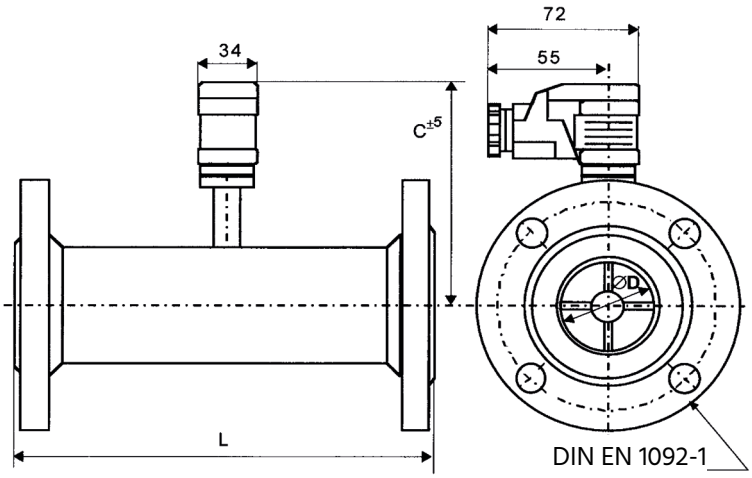
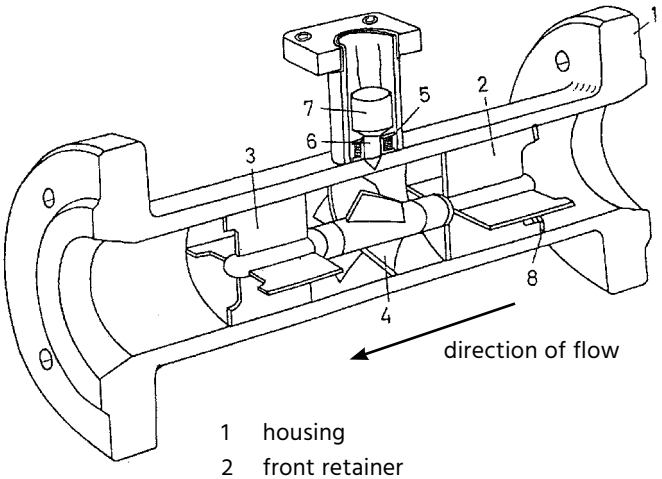
Dim. flange-connection:

Type	Ø D [mm]	L [mm]	C [mm]	Connecting flange
SM-11N.1	6	114	95	DN10
SM-11N.2	6	114	95	DN10
SM-11N.3	12	127	102	DN15
SM-11N.4	15	127	115	DN15
SM-11N.5	15	127	115	DN15
SM-11N.6	18	141	115	DN20
SM-11N.7	25	153.5	126	DN25
SM-11N.8	37	179	126	DN40
SM-11N.9	50	198	132	DN50
SM-11N.10	75	228	140	DN80
SM-11N.11	100	355	154	DN100
SM-11N.12	150	368	180	DN150
SM-11N.13	200	458	236	DN200
SM-11N.14	250	458	265	DN250
SM-11N.15	300	458	290	DN300
SM-11N.16	400	610	345	DN400





1 housing
2 front retainer
3 rear retainer
4 turbine wheel
5 signal emitter coil
6 iron core
7 magnet
8 clamp ring

Connection types:

Type	ND	Available pressure levels in bar	
		Tube connection	flange
SM-11N.1	6	320	40/160/250/320/400
SM-11N.2	6	320	40/160/250/320/400
SM-11N.3	12	320	40/160/250/320/400
SM-11N.4	15	320	40/160/250/320/400
SM-11N.5	15	320	40/160/250/320/400
SM-11N.6	18	320	40
SM-11N.7	25	320	40/160/250/320/400
SM-11N.8	37		40/160/250/320/400
SM-11N.9	50		40/64/100/160/250/320/400
SM-11N.10	75		10/40/64/100/160/250/320/400
SM-11N.11	100		10/40/64/100/160/250
SM-11N.12	150		10/40/64/100/160
SM-11N.13	200		10/16/25/40/64
SM-11N.14	250		10/16/25/40/64
SM-11N.15	300		10/16/25/40/64
SM-11N.16	400		10/16/25/40/64

Ordering Codes:

Order number	SM-11N.	1.	2.	1.	4.

SM-11N Stainless Steel Turbine Flowmeter

Operating range end/

1 = 0,275 m^3/h
2 = 0,55 m^3/h
3 = 1,1 m^3/h
4 = 2,2 m^3/h
5 = 4 m^3/h
6 = 8 m^3/h
7 = 16 m^3/h
8 = 34 m^3/h
9 = 68 m^3/h
10 = 135 m^3/h
11 = 270 m^3/h
12 = 550 m^3/h
13 = 1100 m^3/h
14 = 1900 m^3/h
15 = 2700 m^3/h
16 = 4000 m^3/h

Bearing material /

1 = carbide metal
2 = PTFE

Process connection /

1 = tube connection
2 = stainless steel flange connection
3 = steel flange connection

Pressure levels /

1 = 10 bar
2 = 40 bar
3 = 64 bar
4 = 100 bar
5 = 160 bar
6 = 250 bar
7 = 320 bar
8 = 400 bar

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