

Flowmeter

SC-250



OVERVIEW

Operation

- Float measuring principle

Application

- Cooling systems and cooling circuits
- Water treatment
- Pharmaceutical industry
- Chemical industry
- Power plants

Features

- High reliability
- Product designated scale at no charge
- EX-version according to ATEX directive available
- Low pressure drop
- Flange connection, special process connection on request

Options:

- Adjustable limit switch contacts
- Analog transmitter
- Damping mechanism
- Fully hygienic design available

Installation information

- The operating instructions for SC-250 must be observed!
- **Download: www.meister-flow.com**

OPERATING DATA

Operating pressure, max.	refer to table on page 6
Pressure drop	refer to tables on pages 7 and 8
Viscosity max.	10 cP
Measuring accuracy ⁽¹⁾	± 2,5 % (optional ± 1,6 %)
Media temperature	refer to table on page 6
Ambient temperature	refer to table on page 6

⁽¹⁾ According to VDI/VDE 3513

MEASURING RANGES

Type	Measuring range for H₂O at 20 °C refer to tables on page 7 and page 8
Type	Measuring range for air at 1 bar abs. & 20 °C refer to tables on page 7 and page 8
	Scale range 10 : 1

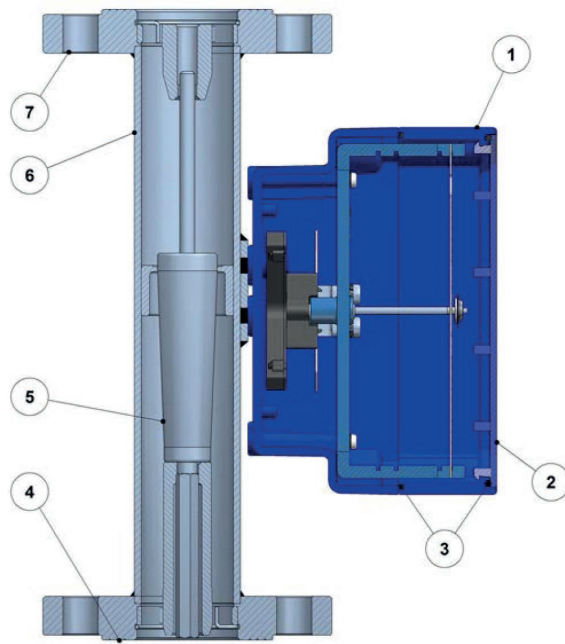
MATERIALS

Description	1.4404	PVC / PP	PTFE
Indicator housing:	Coated aluminum		
Housing cover:	Polycarbonate (UV resistant)		
O-rings:	NBR		
Flange seat:	1.4404	PVC / PP	PTFE
Float:	1.4404	PVC / PP	PTFE
Flow tube:	1.4404	PVC / PP	SS + PTFE ⁽²⁾
Flanges:	1.4404	PVC / PP	1.4404

see also parts description on page 3

⁽²⁾ Stainless steel, PTFE-coated

ASSEMBLY DRAWING



PARTS DESCRIPTION

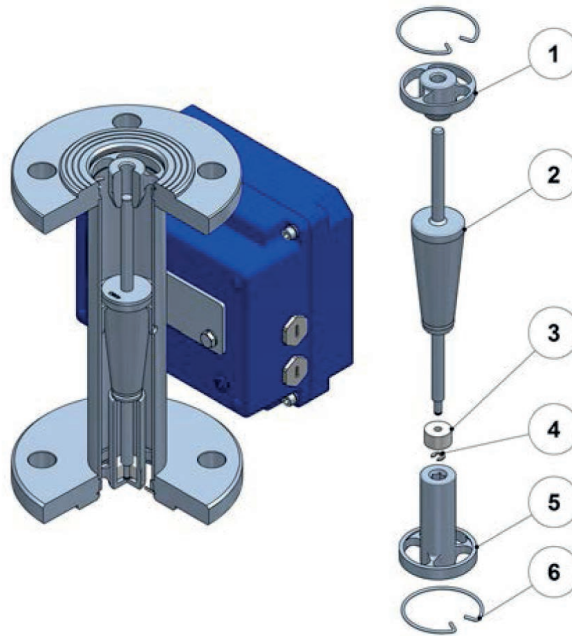
Item	Description	Materials		
		Version	PVC / PP	PTFE
		1.4404		
1	Indicator housing:		Coated aluminum	
2	Housing cover:		Polycarbonate (UV resistant)	
3	O-rings:		NBR	
4	Flange seat:	1.4404	PVC / PP	PTFE
5	Float:	1.4404	PVC / PP	PTFE
6	Flow tube:	1.4404	PVC / PP	SS + PTFE ⁽³⁾
7	Flanges:	1.4404	PVC / PP	1.4404

⁽³⁾ Stainless steel, PTFE-coated

FLOAT DAMPING SYSTEM (FOR GASES AND STEAM APPLICATIONS)

Ceramic, PEEK or metallic piston system to prevent float oscillations in flowmeters for gas and steam service, obtaining stable readings even at very low working pressures and low gas densities.

Available for DN15 ... DN80



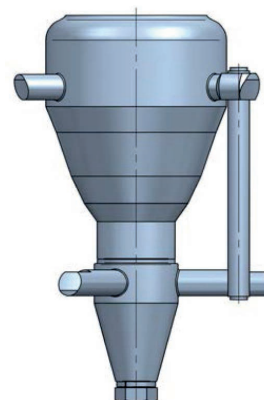
Item	Description
1	Upper float stop
2	Float
3	Piston
4	Piston locking circlip
5	Guide cylinder
6	Circlips for locking upper float stop and guide cylinder

FLOAT TYPES

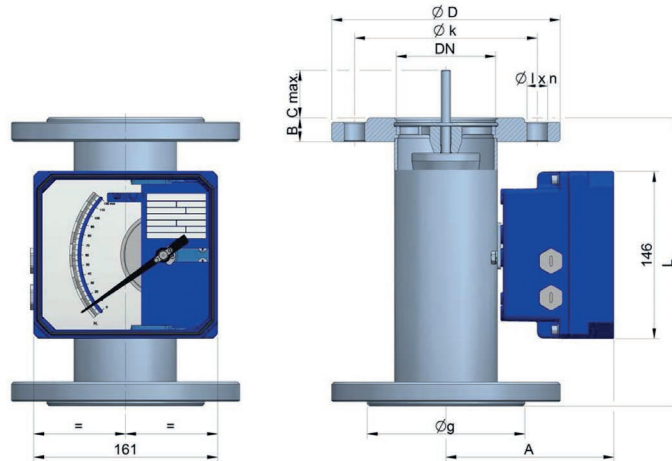
DN15 - DN80



DN100 - DN150



TECHNICAL DRAWING



SUMMARY OF TYPES

Type	EN 1092-1 flanges									Weight approx.
	Overall dimensions (mm)									
DN	D	k	g	l x n	B	PN ⁽⁴⁾	A	C	L	[g]
15	95	65	49	14x4	16	40	133	45	250	3500
25	115	85	68	14x4	18	40	146	45	250	4500
40	150	110	88	18x4	18	40	154	45	250	7300
50	165	125	102	18x4	20	40	167	45	250	8300
65	185	145	122	18x8	18	16	176	45	250	10000
80	200	160	138	18x8	20	16	192	45	250	12000
100	220	180	158	18x8	20	16	211	45	250	15000
125	250	210	188	18x8	22	16	236	45	250	20000
150	285	240	212	22x8	22	16	262	45	300	32000

⁽⁴⁾Stainless steel EN 1.4404 (AISI 316L)

Type	ANSI flanges									Weight approx.
	Overall dimensions (mm)									
DN	D	k	g	l x n	B	Pressure ^{(5) (6)}	A	C	L	[g]
1/2"	88,9	60,3	44,0	15,90x4	11,1	150	122	45	250	3500
3/4"	98,4	69,8	42,9	15,90x4	12,7	150	133	45	250	4500
1"	107,9	79,4	50,8	15,90x4	14,3	150	146	45	250	7300
1 1/4"	117,5	88,9	63,5	15,90x4	15,9	150	146	45	250	8300
1 1/2"	127,0	98,4	73,0	15,90x4	17,5	150	154	45	250	10000
2"	152,4	120,6	92,1	19,05x4	19,1	150	167	45	250	12000
2 1/2"	177,8	139,7	104,8	19,05x4	22,2	150	176	45	250	15000
3"	190,5	152,4	127,0	19,05x4	23,8	150	192	45	250	20000
4"	228,6	190,5	157,2	19,05x8	23,8	150	211	45	250	32000
5"	254,0	215,9	185,7	22,20x8	23,8	150	236	45	250	20000
6"	279,4	241,3	215,9	22,20x8	25,4	150	262	45	300	32000

⁽⁵⁾Stainless steel EN 1.4404 (AISI 316L)

⁽⁶⁾Class lbs

TECHNICAL DATA

MEDIA TEMPERATURE

1.4404	-50 °C – 300 °C
PVC (full material)	0 °C – 50 °C
PTFE (coated)	-20 °C – 150 °C
PP (full material)	-5 °C – 90 °C

AMBIENT TEMPERATURE

1.4404	-20 °C – 80 °C
PVC (full material)	0 °C – 45 °C
PTFE (coated)	-20 °C – 80 °C
PP (full material)	-50 °C – 80 °C

OPERATING PRESSURE

SC-250 with EN 1092-1 flanges

Stainless steel Version (1.4404)	DN-15 – DN-50	PN40
	DN-65 – DN-150	PN16
Stainless steel tube	DN-15 – DN-40	PN40
PTFE-coated	DN-50 – DN-125	PN16
	DN-150	PN10
Full PVC- and PP-version	DN-15 – DN-150	PN16

VISCOSITY

Viscosity max:	10 cP
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CONNECTION

Standard	EN 1092-1 flanges
on request	ANSI flanges
	Threaded connection BSP, NPT
	Sanitary connections according to ISO 2852 SMS 1145 DIN 11851

SCALE

Range	10 : 1
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media customized, various units

e.g.: l/h, m³/h, kg/h

ACCURACY ACCORDING TO VDI / VDE 3513

Standard	± 2,5 % (q _G = 50 %)
Optional	± 1,6 % (q _G = 50 %)

MECHANICAL DISPLAY

Housing material

Standard	coated aluminium, with Polycarbonate cover IP 65
Optional	1.4404 with glass cover IP 67
Cable entry	PG9 - cable gland

MEASURING RANGES

Standard ranges for stainless steel float

DIN (ANSI)	Float Item	Pressure	H ₂ O	Air ^{(7) (8)}
		drop mbar	l/h	Nm ³ /h
DN-15 (1/2")	15025	40	2,5 – 25	0,07 – 0,7
	15040	40	4 – 40	0,12 – 1,2
	15060	40	6 – 60	0,18 – 1,8
	15100	40	10 – 100	0,3 – 3
	15160	50	16 – 160	0,5 – 5
	15250	50	25 – 250	0,7 – 7,5
DN-15 (3/4")	15400	50	40 – 400	1,2 – 12
	15600	50	60 – 600	1,8 – 18
DN-25 (1")	25100	60	100 – 1000	3 – 30
	25160	70	160 – 1600	5 – 50
	25250	90	250 – 2500	7 – 75
	25400	110	400 – 4000	12 – 120
DN-40 (1 1/2")	40400	45	400 – 4000	12 – 120
	40600	55	500 – 6300	15 – 180
	40800	90	800 – 8000	24 – 240
DN-50 (2")	50080	70	800 – 8000	24 – 240
	50100	90	1000 – 10000	30 – 300
	50150	100	1500 – 15000	45 – 450
DN-65 (2 1/2")	65150	70	1500 – 15000	45 – 450
	65200	100	2000 – 20000	60 – 600
DN-80 (3")	80020	80	2000 – 20000	60 – 600
	80025	100	2500 – 25000	75 – 750
	80030	120	3000 – 30000	90 – 900
DN-100 (4")	81040	100	4000 – 40000	120 – 1200
	81050	120	5000 – 50000	150 – 1500
	81060	150	6000 – 60000	180 – 1800
DN-125 (5")	82080	120	8000 – 80000	240 – 2400
	82100	150	10000 – 100000	300 – 3000
	82120	180	12000 – 120000	360 – 3600
DN-150 (6")	83150	220	15000 – 150000	450 – 4500
	83180	220	18000 – 180000	500 – 5400

⁽⁷⁾At 1,013 bar abs., 20 °C

⁽⁸⁾Damping system is recommended (DN-15 to DN-80)

Measuring ranges for other media and operating conditions on request!

Standard ranges for PVC float⁽⁹⁾

DIN (ANSI)	Float	Pressure	H ₂ O	Pressure	Air ⁽¹⁰⁾
	Item	drop mbar	l/h	drop mbar	Nm ³ /h
DN-15 (1/2")	15025	20	2,5 – 25	30	0,1 – 1
	15040	15	6 – 60	25	0,2 – 2
	15060	15	10 – 100	25	0,4 – 4
	15100	15	16 – 160	25	0,6 – 6
	15160	15	25 – 250	25	1 – 10
	15250	15	40 – 400	25	1,6 – 16
DN-15 (3/4")	15400	15	60 – 600	25	2 – 20
DN-25 (1")	25100	10	16 – 160	20	0,6 – 6
	25160	10	25 – 250	20	1 – 10
	25250	10	40 – 400	20	1,6 – 16
	25400	10	60 – 600	20	2,5 – 25
	25101	10	100 – 1000	20	4 – 40
	25161	10	160 – 1600	20	6 – 60
	25251	10	240 – 2400	20	9 – 96
DN-40 (1 1/2")	40400	20	150 – 1500	25	5 – 50
	40600	20	250 – 2500	25	8 – 80
	40800	20	400 – 4000	25	14 – 140
DN-50 (2")	50080	15	250 – 2500	25	9 – 90
	50100	15	400 – 4000	25	15 – 150
	50150	15	600 – 6000	25	20 – 200
	50101	15	1000 – 10000	25	35 – 350
DN-65 (2 1/2")	65150	15	800 – 8000	25	25 – 250
	65200	15	1000 – 10000	25	40 – 400
DN-80 (3")	80020	15	1000 – 10000	25	40 – 400
	80025	15	1600 – 16000	25	60 – 600
DN-100 (4")	81040	20	1600 – 16000	25	60 – 600
	81050	20	2000 – 20000	25	100 – 1000
DN-125 (5")	82080	20	3000 – 30000	30	150 – 1500
	82100	20	4000 – 40000	30	200 – 2000
	82120	20	6000 – 60000	30	220 – 2200
DN-150 (6")	83150	25	8000 – 80000	35	250 – 2500
	83180	25	10000 – 100000	35	300 – 3200

⁽⁹⁾ Up to 40 °C, for higher temperatures a PTFE-float must be used.

⁽¹⁰⁾ At 1,013 bar abs., 20 °C

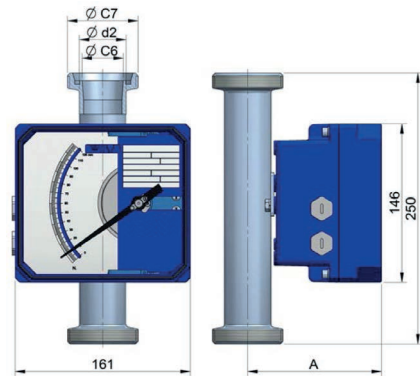
Measuring ranges for other media and operating conditions on request!

SPECIAL CONNECTIONS

Sanitary connection DIN 11851 (EN 1.4404)

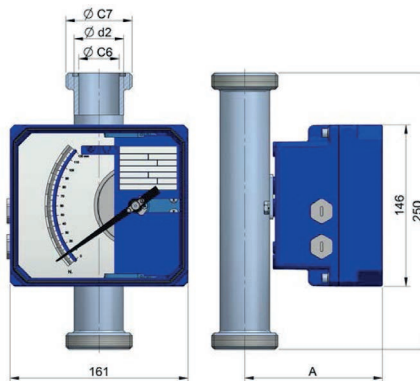
NW-DN	15	25	40	50	65	80	100
	Rd 34	Rd 52	Rd 65	Rd 78	Rd 95	Rd 110	Rd 130
$\varnothing C_7$	x 1/8"	x 1/6"	x 1/6"	x 1/6"	x 1/6"	x 1/4"	x 1/4"
$\varnothing C_6$	17,0	24,8	35,6	45,8	67,0	82,8	100,0
$\varnothing d_2$	21,3	30,0	42,0	51,0	73,0	88,9	108,0
A	114	118	124	129	140	148	157
DIN EQ. 15(PC) ⁽¹¹⁾	15	25	40	50-65	80	100	

⁽¹¹⁾ max. flow rate 250 l/h H₂O



Sanitary connection SMS 1145 (EN 1.4404)

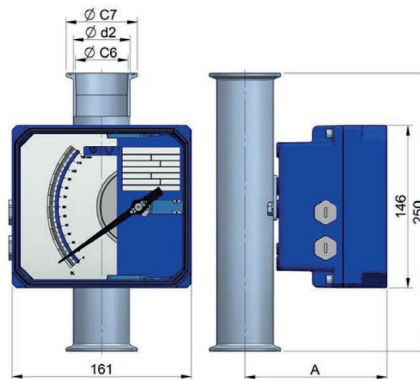
NW-DN	15	25	40	50	65	100
$\varnothing C_7$	40	60	70	85	98	125
$\varnothing C_6$	22,5	35,5	48,5	60,5	72,0	100,0
$\varnothing d_2$	25,0	42,0	51,0	63,5	73,0	108,0
A	115	124	129	135	140	157
DIN EQ.	15	25	40	50	65	100



Sanitary connection CLAMP ISO 2852 (EN 1.4404)

$\varnothing C_7$	34,0	50,5	50,5	64,0	77,5	91,0	106	130
$\varnothing C_6$	17,0	24,8	35,6	45,8	58,3	67,0	82,8	100,0
$\varnothing C_2$	21,3	30,0	42,0	51,0	63,5	73,0	88,9	108,0
A	114	118	124	129	135	140	148	157
DIN EQ. 15(PC) ⁽¹²⁾	15	25	40	50	65	80	100	

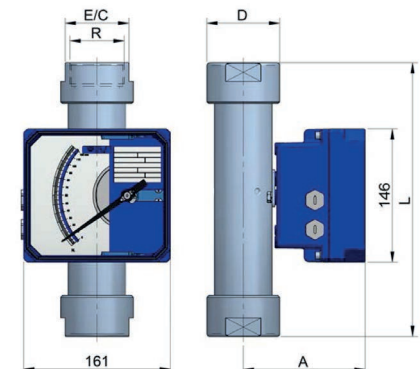
⁽¹²⁾ max. flow rate 250 l/h H₂O



Threaded connection BSP / NPT (EN 1.4404)

R	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"
L	275	275	285	300	300	310	310	310
D	35	40	50	65	80	90	110	130
A	114	118	124	129	135	140	146	156
E/C	30	35	45	60	70	84	104	124
DIN EQ. 15(PC) ⁽¹³⁾	15	25	40	50	65	80	100	

⁽¹³⁾ max. flow rate 250 l/h H₂O

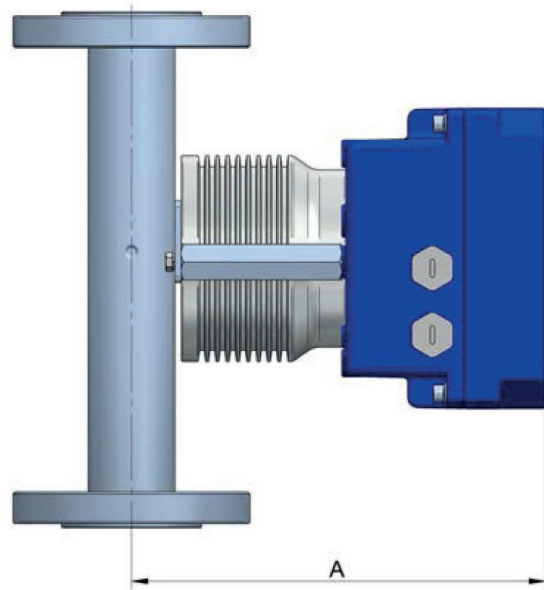


ACCESSORIES

Thermal separator

DN	15	25	40	50	65	80	100	125	150
A	177	183	187	194	198	207	216	228	241

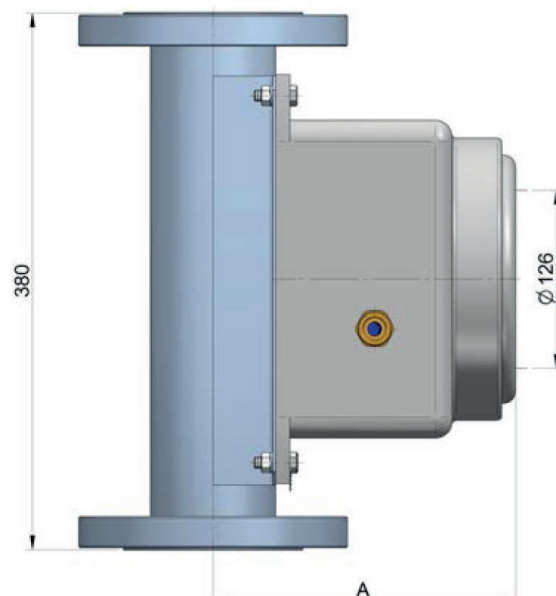
- Standard in aluminum, optional in EN 1.4404 (AISI 316L)
- For application with fluids at high and low temperatures
- With electronics:
 - DN-15 - DN-65: -180 °C - 300 °C
 - DN-80 - DN-150: -180 °C - 260 °C
- Without electronics: DN-15 - DN-150: -180 °C - 400 °C
- Reference ambient temperature: 20 °C



Explosion proof enclosure Ex d IIC T6

DN	15	25	40	50	65	80	100	125	150
A	195	201	205	212	216	224	234	246	260

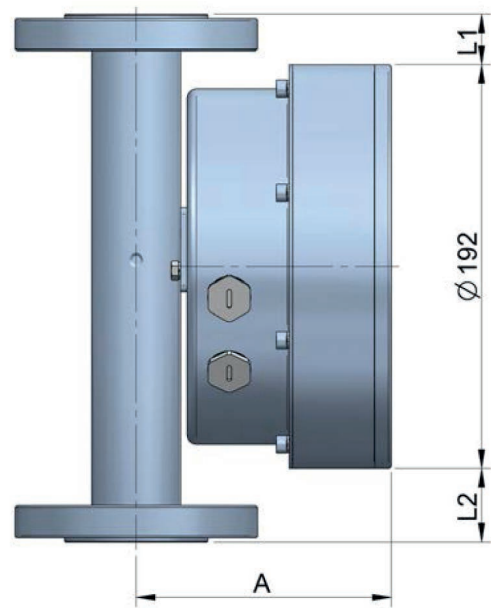
- Porthole with glass for viewing the flow rate
 - Standard limit switches and transmitters can be installed inside the SC-250 housing.
 - Explosion proof protection: Ex d IIC T6
 - Ingress protection: IP65
- (Pending certification)



Stainless steel housing

DN	15	25	40	50	65	80	100	125	150
L1	30	30	30	30	30	30	35	35	60
L2	40	40	40	40	40	40	35	35	60
A	115	121	125	132	137	145	154	167	180

- Particularly suitable within sanitary or sterile installations, saline atmospheres (offshore platforms), etc.
- All stainless steel construction EN 1.4404 (AISI 316L), with glass indicator housing cover
- Can be fitted with standard limit switches and TH transmitters
- Ingress protection: IP67



Heating-cooling chamber

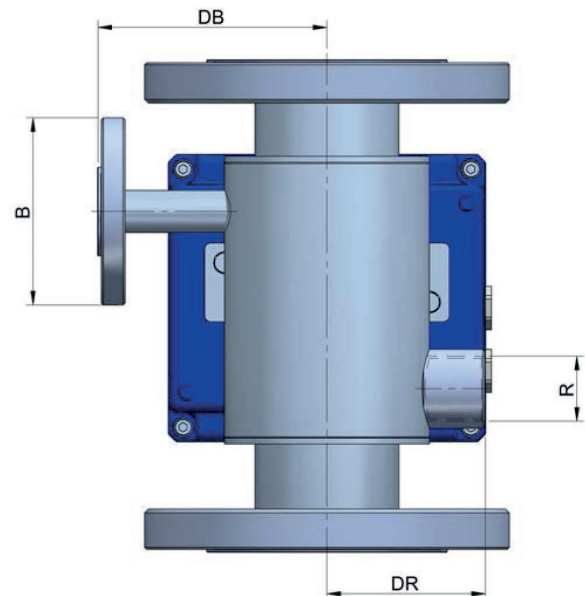
Circulation of heating or cooling media through the double chamber of the flowmeter

DN 15(PC)	15	25	40	50	65	80	100	125	150	
R	1/2"	1/2"	1/2"	3/4"	3/4"	1"	1"	1"	1"	
B ⁽¹⁴⁾	DN 15		DN 20			DN 25				
DR	35	39	45	50	50	56	70	80	91	104
DB	77	77	88	105	112	122	130	140	155	172

For installations that require maintaining a constant process media temperature.

- Without contact with the process media
- Flanged or threaded pipe fittings (BSP, NPT, EN 1092-1)
Other versions on request
- Stainless steel EN 1.4404 (AISI 316L)

Other materials on request



⁽¹⁴⁾ EN 1092-1 PN16 Flange, other connections on request

LIMIT SWITCHES

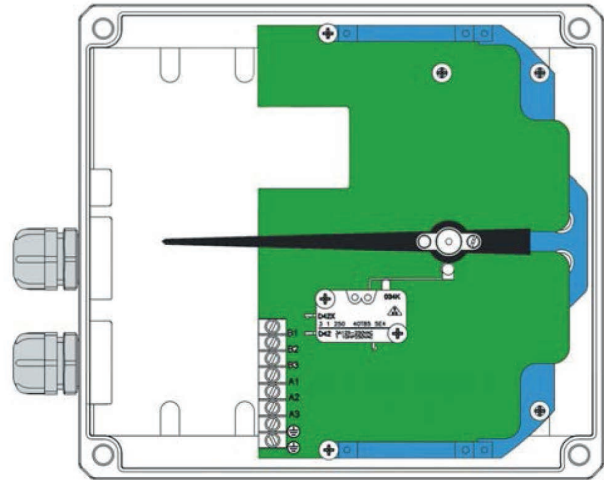
Adjustable limit switch (microswitch) SC-AMM



Electrical microswitch mounted inside the indicator housing

- SC-AMM1: 1 adjustable limit switch
- SC-AMM2: 2 adjustable limit switches
- Ratings: 3(1) A, 250 V (VDE/CEE)
- Hysteresis: $\pm 10\%$ of full scale
- Ambient temperature: $-25\text{ }^{\circ}\text{C} - 80\text{ }^{\circ}\text{C}$
- Mechanical life: 10^7 operations
- ATEX certificate: Ex ia IIC T6

Gold plated contacts on request



Adjustable inductive limit switch SC-AMD

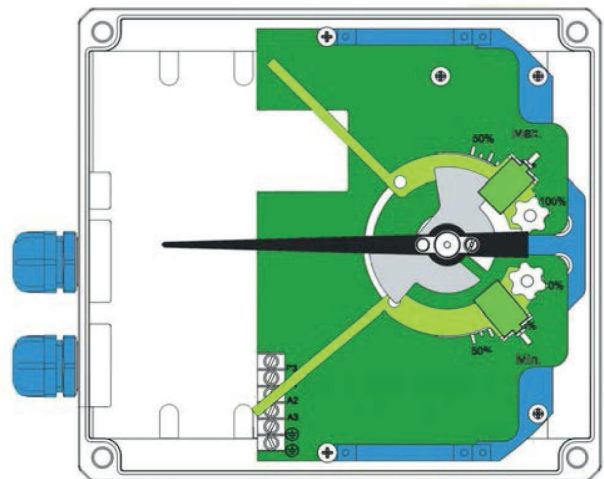


Inductive proximity switch, 3.5 mm (slot type)
NAMUR (EN 60947-5-6) activated by vane, mounted inside the indicator housing

- SC-AMD1: 1 adjustable limit switch
- SC-AMD2: 2 adjustable limit switches
- Power supply: 8 VDC (via amplifier)
- Ambient temperature: $-25\text{ }^{\circ}\text{C} - 70\text{ }^{\circ}\text{C}$
- ATEX certificate: Ex ia IIC T6

Amplifier (on request)

- NAMUR (EN 60947-5-6) for 1 or 2 inductive proximity switches
- Power supply: 24 ... 253 VAC, 50 - 60 Hz
24 ... 300 VDC
- Input: NAMUR Ex ia IIC
- Output: 1 or 2 relay contacts
- Output rating: 2 A / 250 VAC / 100 VA
1 A / 24 VDC
- Ambient temperature: $-20\text{ }^{\circ}\text{C} - 60\text{ }^{\circ}\text{C}$



Modular housing



TRANSMITTERS AND TOTALIZERS

Transmitter TH7

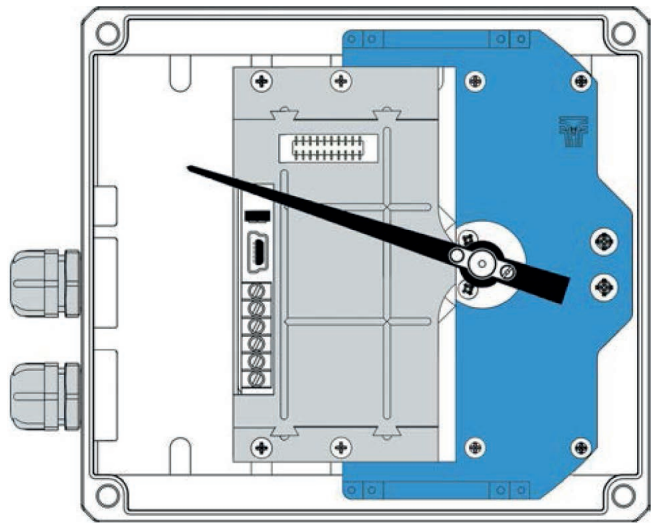
The TH7 electronic transmitters provide an analog output proportional to the flow rate and a digital output selectable either as a pulse or an alarm output (except for the Ex versions). The TH7 can also include a display for volume totalization. The transmitter is based on the Hall-effect and is mounted inside the indicator housing.

- TH7 Transmitter
- TH7T Transmitter + totalizer

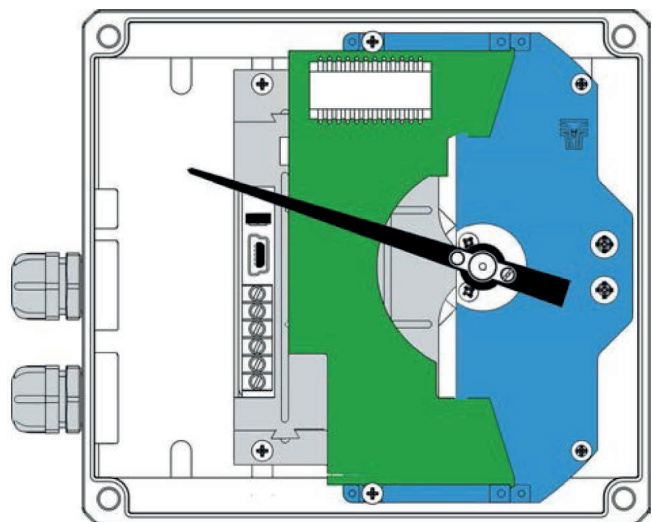
Technical data

- Power supply: 2-wire, 12 - 36 VDC
- Power consumption: 4 - 20 mA for 0 - 100% of scale
- Analog output: 4 - 20 mA
 - Accuracy: < 0,6% of the magnet position
 - Maximum load in 4 – 20mA loop: 1100 Ω (with 36 VDC power supply)
- Digital output: Potential-free N-channel MOSFET
 - I_{max} : 200 mA for either pulse or alarm output
 - Pulse output:
 - max. frequency: 6 Hz
 - Pulse duration: approx. 62.5 ms
 - Alarm output: adjustable on a scale value
 - Programmable by means of Winsmeter TH7 software
- Totalizer: 8 digits, 4.5 mm high
 - Reset by potential-free contact
- Ambient temperature: -5 °C - 70 °C
- Easy programming by means of Winsmeter TH7 software
- **Download: www.tecfluid.com**

TH7



TH7T



ATEX version (Ex ia IIC T4 or T6)



TH7T Ex

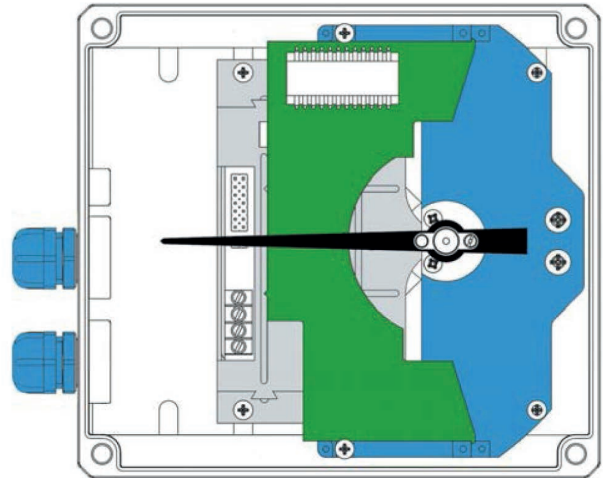
Technical data

- ATEX certificate: Ex II 1 GD
- Power supply: 2-wire, 14 - 30 VDC
- Power consumption: 4 - 20 mA for 0 - 100% of scale

- Analog output: 4 - 20 mA
 - Accuracy: < 0,6% of the magnet position
 - Maximum load in 4 - 20mA loop: 900 Ω
(with 30 VDC power supply)

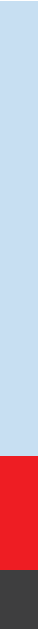
- Totalizer:
 - 8 digits, 4.5 mm high
 - Reset by potential-free contact

- Ambient temperature: -5 °C - 40 °C



Both limit switches AMM or AMD and electronic transmitters TH7 or TH7T can be mounted together in the same housing.

The TH7 Ex and TH7T Ex transmitters belong to group II. They are intended for use in potentially explosive atmospheres, except in mining.



MASTERPIECES MADE IN GERMANY

SC-250 16 0001 12-15 EM

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