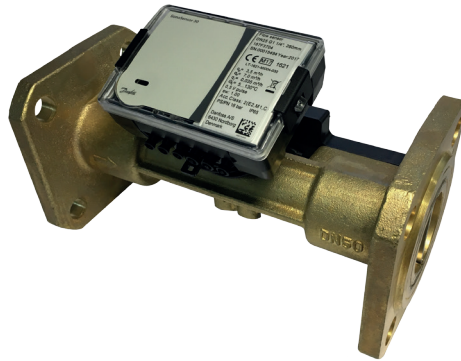


Data Sheet

SonoSensor 30

Ultrasonic flow sensor

Description



MID examination certificate no.: LT-1621- MI004 - 030

SonoSensor 30 is an ultrasonic flow sensor especially designed for heating, cooling or combined heating/cooling application in local and district energy systems. It can be used in conjunction with the type approved heating/cooling energy calculator (e.g. Infocal 9) to form combined heating/cooling energy meter. SonoSensor 30 has been approved according to MID in accuracy class 2. The flow sensor can be mounted in both flow and return pipe.

Features

- Available in nominal flow rates q_p 0.6, 1.0, 1.5, 2.5, 3.5, 6.0, 10.0, 15.0, 25.0, 40.0, and 60.0 m^3/h
- Housings with thread (G3/4 to G2) or flange (DN20 to DN100) connections
- MID approval for ultrasonic flow meter with dynamic range of 1:100 ($q_i:q_p$) in class 2
- Optional dynamic range of 1:250 in class 2 (with the exceptions of sensors q_p 0.6 m^3/h , 1.0 m^3/h and 3.5 m^3/h)
- Temperature range: 5 - 130 °C
- Operating pressure PN 16 or PN 25 bar
- Flow sensor with IP65 protection class and IP67 for heating/cooling application.
- Battery lifetime not less than 12 years
- Low pressure loss, insensitive to dirt
- No inlet or outlet restrictions up to DN50
- Short overload temperature up to 150 °C

Ordering

Heating application SonoSensor 30 standard codes:

Flow sensor application	Nominal flow rate, size and connection type	Cable length of flow sensor	Nominal pressure	Code no.
Heating	DN15 / G $\frac{3}{4}$ / qp 0.6 m ³ /h / 110mm thread	1.2m	PN16	187F3700
Heating	DN15/ G $\frac{3}{4}$ / qp 1.5 m ³ /h / 110mm thread	1.2m	PN16	187F3701
Heating	DN20 / G1 / qp 2.5 m ³ /h / 130mm thread	1.2m	PN16	187F3702
Heating	DN20 / G1/ qp 2.5 m ³ /h / 190mm thread	1.2m	PN16	187F3703
Heating	DN25 / G1 $\frac{1}{4}$ / qp 3.5 m ³ /h / 260mm thread	1.2m	PN16	187F3704
Heating	DN32 / qp 3.5 m ³ /h / 260mm flange	1.2m	PN25	187F3705
Heating	DN25 / G1 $\frac{1}{4}$ / qp 6.0 m ³ /h / 260mm thread	1.2m	PN16	187F3706
Heating	DN32 / qp 6 m ³ /h / 260mm flange	1.2m	PN25	187F3707
Heating	DN40 / G2 / qp 10 m ³ /h / 300mm thread	2.5m	PN25	187F3708
Heating	DN40 / qp 10 m ³ /h / 300mm flange	2.5m	PN25	187F3709
Heating	DN50 / qp 15 m ³ /h / 270mm flange	2.5m	PN25	187F3710
Heating	DN65 / qp 25 m ³ /h / 300mm flange	2.5m	PN25	187F3711
Heating	DN80 / qp 40 m ³ /h / 350mm flange	2.5m	PN25	187F3712
Heating	DN100 / qp 60 m ³ /h / 350mm flange	2.5m	PN25	187F3713

All flow sensors are battery powered, minimum lifetime 12 years

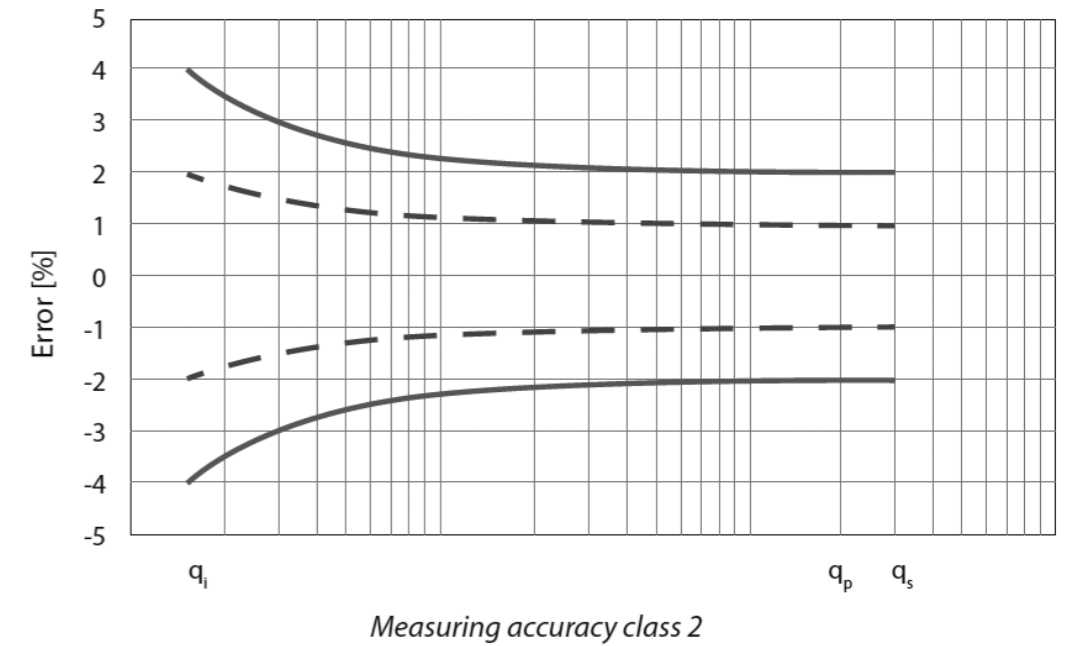
Accessories

Product	Designation	Quantity	Code No.
Optical head	Optical head	1 pc.	187F3112
Power supply	Battery 3.6 V DC (AA cell)	1 pc.	187F3113
Power supply	Mains unit 230 V AC (external module)	1 pc.	187F3114
Power supply	Mains unit 24 V AC	1 pc.	187F3115

Technical specifications

Diameter	DN15	DN20				DN25, DN32		DN40	DN50	DN65	DN80	DN100									
Connection type	G3/4	G1				G1 1/4		G2	FL	FL	FL	FL									
Overall length, mm	110	110; 165	190		130		260	300	270	300	350	350									
Flow rate:																					
Nominal, m ³ /h	0.6	1.5	0.6	1.5	2.5	1.5	2.5	3.5	6.0	10	15	25	40	60							
Maximum, m ³ /h	1.2	3.0	1.2	3.0	5.0	3.0	5.0	7	12	20	30	50	80	120							
Minimum, l/h	6	6	15	6	6	15	10	25	15	10	25	35	24	60	40	100	60	150	25	40	60
Starting flow rate, l/h	3	3	3		5	5		17	12	20	30	120	200	300							
Pressure loss at qp, mbar	70	171	90	58	94	72	198	40	100	180	120	200	180	180							
Pulse value, litres/pulse	1								10												
Max. operating pressure	Thread 16 bar Flange 25 bar								25 bar												
Flow sensor temp. range	5 to 130°C (short overload 150°C)																				
Flow sensor to electronic box cable length	1.2m up to DN32 2.5m up to DN40 to DN100																				
Medium	Water quality with pH 7 to 9.5																				
Volume measuring cycles	1 second																				
Supply voltage	3.6V DC Lithium battery (AA-cell)/ Mains supply 24V AC/DC Mains supply 230V AC (with external 230V to 24V AC transformer)																				
Battery lifetime	Not less than 12 years																				
Approval	EN1434 class 2																				
Environmental class	class C																				
Ambient class	E2 + M1																				
Protection class	IP65 (IP67 for heating/cooling)																				
Ambient operating temp.	+5°C to +55°C																				
Max. ambient humidity	<93% rel. humidity																				

Accuracy graph



Design and function

Power supply

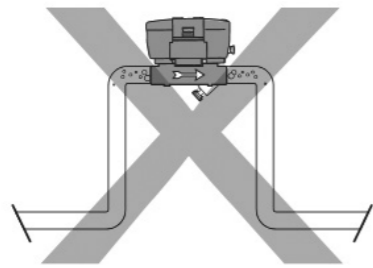
Standard version contains AA cell 3,6V, 2,4 Ah lithium battery with a lifetime not less than 12 years. It is also possible to have two internal lithium batteries (same type) with lifetime not less than 16 years. Optionally external power supply (12V...42V DC or 12C...36V, 50/60Hz AC, 10mA) + internal backup battery is available as accessory. External power supply module is mounted inside in the meter.

Pulse output

Measured flow rate is converted into the volume pulses which are transferred through pulse output terminal. Pulse output class of flow output device: OD according to EN1434-2 + AC:2007. Maximum flow cable length (from electronic box to energy calculator or pulse reading device) is up to 100m.

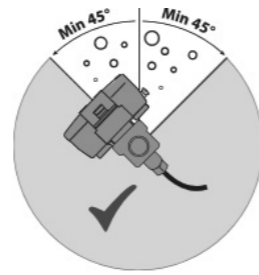
Nominal (permanent) flow rate q_p	Pulse value, litres/pulse
0,6, 1,5, 2,5, 3,5 and 6,0	1
10, 15, 25, 40 and 60	10

Mounting



Pipe position:

No limitations but avoid positions where air can be collected.

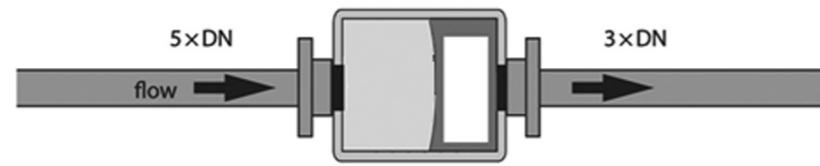


Rotation in pipe axis:

Flow sensor should be angled in 45 to 315° to avoid air collection in flow sensor.

Inlet/outlet conditions

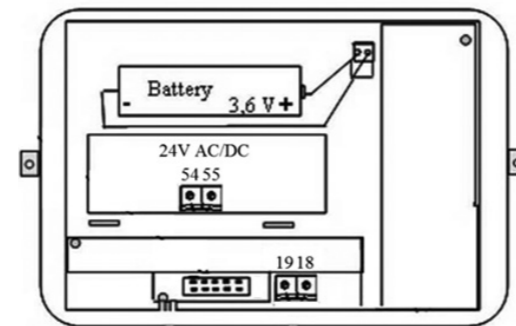
SonoSensor 30 sizes from DN15 to DN50 don't need any calming sections before and after the flow sensor. To secure optimal conditions for flow measurement for sizes DN65, DN80 and DN100 it is necessary to have straight inlet and outlet flow conditions 5xDN before and 3xDN after the flow sensor.



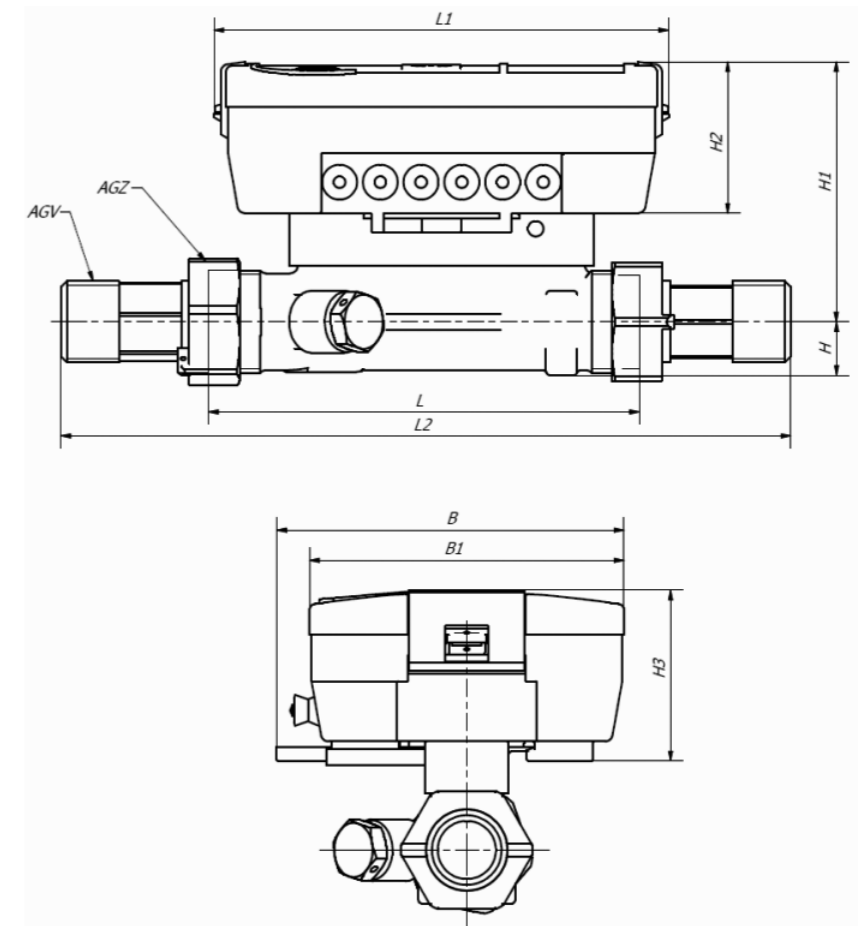
Wiring of flow sensor

SonoSensor 30 in return pipe	Infocal 9 terminal
18 (flow pulse)	52 (q2+)
19 (ground)	11 (q2-)

SonoSensor 30 in supply pipe	Infocal 9 terminal
18 (flow pulse)	10 (q1+)
19 (ground)	11 (q1-)

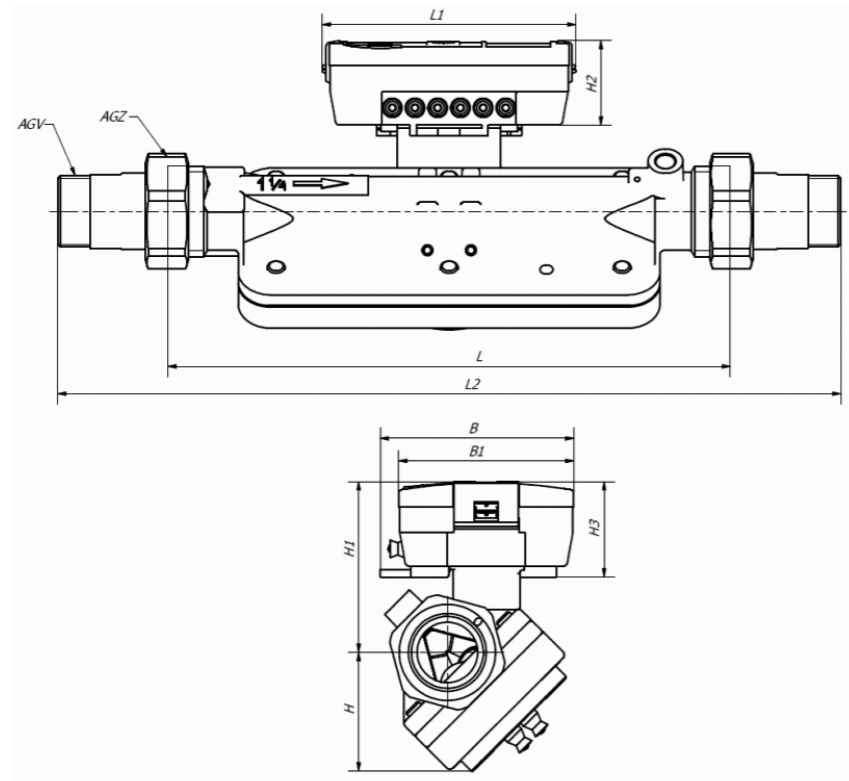


Dimensions DN15, DN20 thread



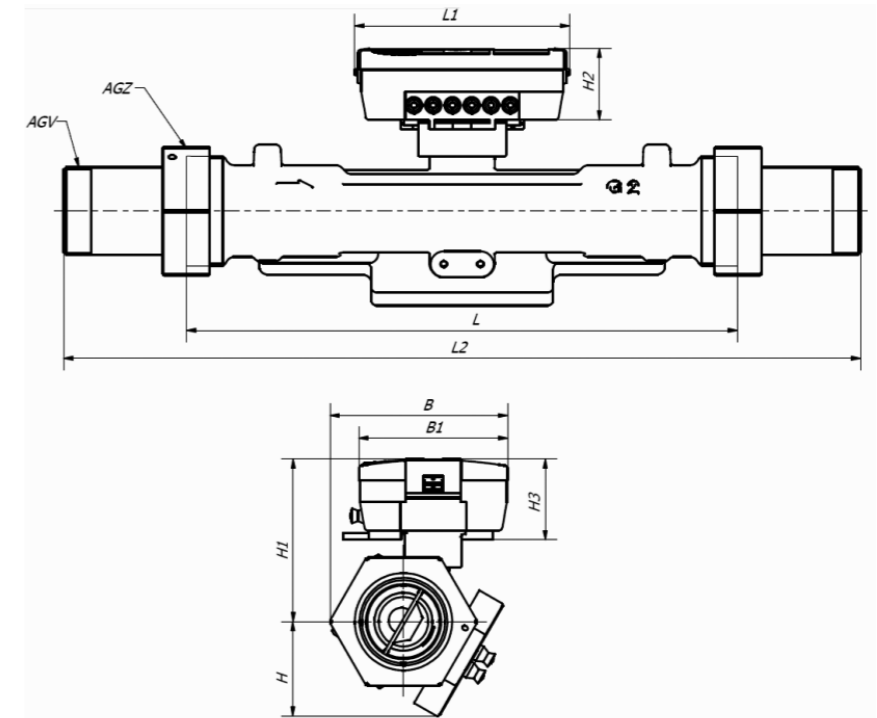
Nominal flow rate	q_p	m^3/h	0,6/1/1,5	1,5/2,5	0,6/1/2,5
Nominal diameter	DN	mm	15	20	20
Overall length	L	mm	110	130	190
Overall length with coupling	L2	mm	185	224	284
Length of calculator	L1	mm	117	117	117
Height	H	mm	14	18	18
Height	H1	mm	67	67	68
Height of calculator	H2	mm	39	39	39
Height of calculator	H3	mm	44	44	44
Width	B	mm	90	90	90
Width of calculator	B1	mm	81	81	81
Connection thread of meter	AGZ	inch	G 3/4B	G1B	G1B
Connection thread of coupling	AGV	inch	G 3/4B	G 3/4B	G 3/4B
Weight		kg	0,8	0,9	1,0

Dimensions DN25 thread



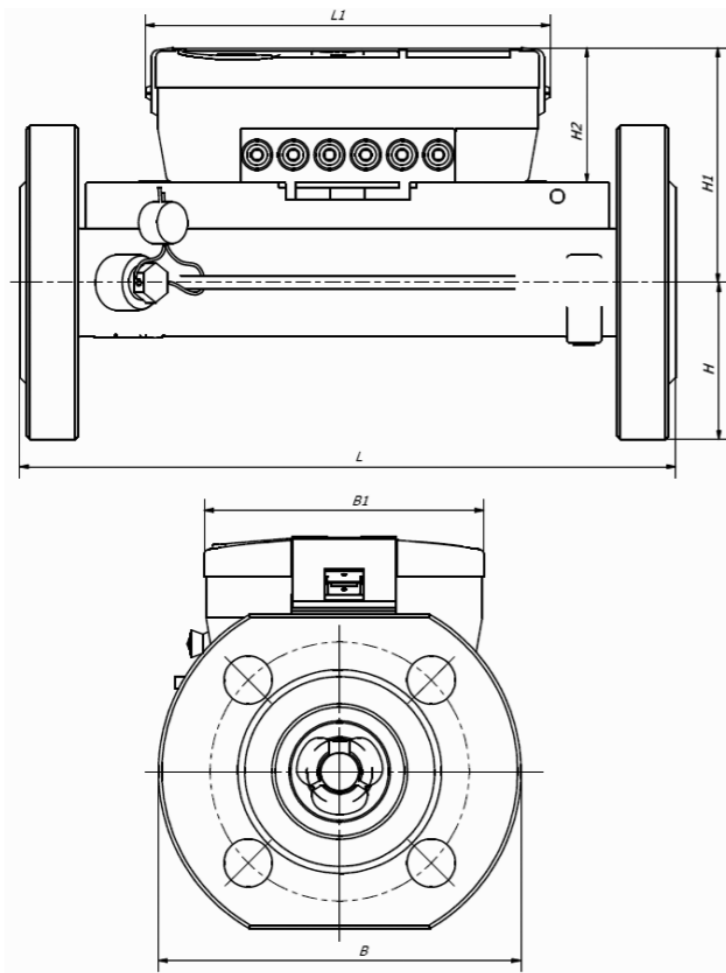
Nominal flow rate	q _p	m ³ /h	3.5/6
Nominal diameter	DN	mm	25
Overall length	L	mm	260
Overall length with coupling	L2	mm	360
Length of calculator	L1	mm	117
Height	H	mm	55
Height	H1	mm	79
Height of calculator	H2	mm	39
Height of calculator	H3	mm	44
Width	B	mm	90
Width of calculator	B1	mm	81
Connection thread of meter	AGZ	inch	G1 1/4B
Connection thread of coupling	AGV	inch	G1 B
Weight		kg	3.6

Dimensions DN40 thread



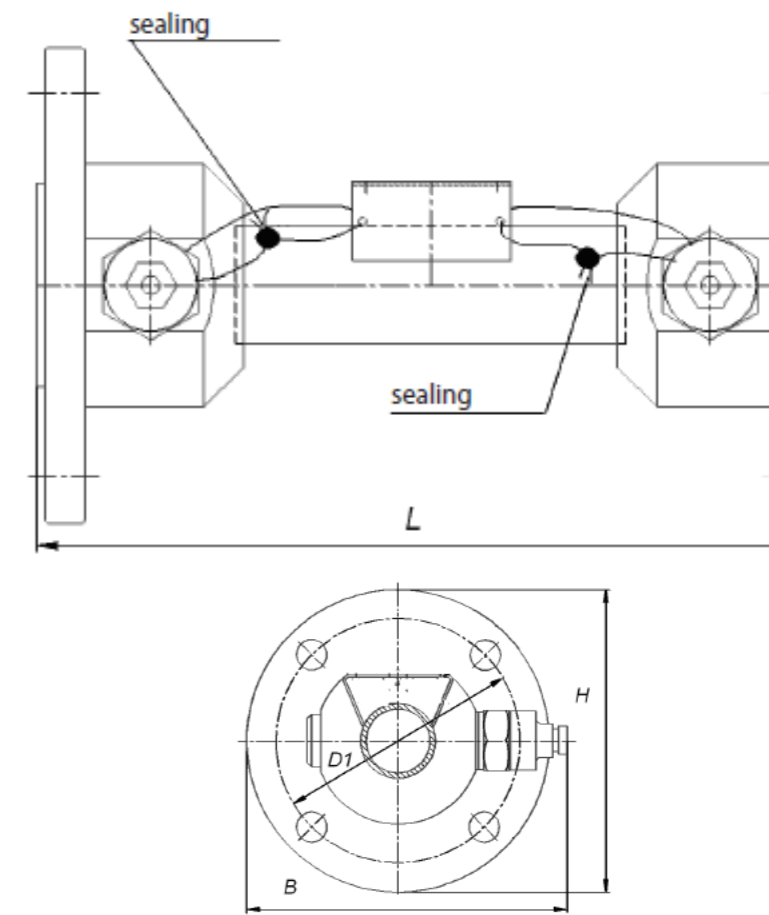
Nominal flow rate	q _p	m ³ /h	10
Nominal diameter	DN	mm	40
Overall length	L	mm	300
Overall length with coupling	L2	mm	437
Length of calculator	L1	mm	117
Height	H	mm	51
Height	H1	mm	89
Height of calculator	H2	mm	39
Height of calculator	H3	mm	44
Width	B	mm	97
Width of calculator	B1	mm	81
Connection thread of meter	AGZ	inch	G2B
Connection thread of coupling	AGV	inch	G1 1/2 B
Weight		kg	7.2

Dimensions DN20, DN25, DN40, DN50 flange



Nominal flow rate	q _p	m ³ /h	0.6/1/1.5/2.5	3.5/6	10	15
Nominal diameter	DN	mm	20	25	40	50
Overall length	L	mm	190	260	300	270
Length of calculator	L1	mm	117	117	117	117
Height	H	mm	46	58	73	79
Height	H1	mm	68	78	91	90
Height of calculator	H2	mm	39	39	39	39
Width	B	mm	105	116	150	159
Width of calculator	B1	mm	81	81	81	81
Connection flange of meter	DN _{FL}	mm	20	25	40	50
Weight	B1	kg	2.5	5.6	6.8	8.5

Dimensions DN65, DN80, DN100 flange



	DN65/PN16	DN65/PN25	DN80	DN100
L	300	300	350	350
D	185	185	200	220
H	185	185	200	220
D1	145	145	160	180
B	200	200	215	235
n	4	8	8	8

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