SHARKY FS 473

ULTRASONIC FLOW SENSOR

SAPPEL

APPLICATION

SHARKY FS ultrasonic flow sensor can be used for flow measuring in local and district heating / cooling systems. The measurement principle is static and based on the measurement of the transit time. Ultrasonic technology offers many benefits : no moving parts (avoids wear and tear of the metering components), low pressure loss, large metering dynamics, low start flowrate, insensitiveness to suspended particles...

FEATURES

- Approved according EN 1434 and MID in class 2
- 1st approval in Europe for ultrasonic flow sensor with a dynamic range of 1:250 (q_i:q_p)
- Complete range from DN 15 mm qp 1.5 m³ / h up to DN 100 mm qp 60 m³/h
- Available in threaded or flanged version
- Extreme low power consumption enabling a long battery lifetime (12 years in standard use)
- Applicable for calculators with impulse input
- Temperature range 5°C to 90 °C / 5°C to 105 °C

DIEHL
Metering

smart in solutions

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GENERAL

[1:] The pulse output is with galvanic isolation. The flow sensor has by default a 4 wire impulse cable with a length of 2.5m.
[2:] The output for testing is a combined pulse output. The flow sensor can either emit a high resolution test pulse (standard) or communicate via the same output. By using an adapter the flow sensor can be read via the HYDRO-SET software.

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Application		heating - cooling
Approval		EN1434 class 2: q_p 0.6 ... 6m³/h; MID: q_p 0.6 ... 60m³/h
Ambient class		EN 1434 class C / MID class E1 + M1
Ambient Temperature	°C	5 ... 55
Power supply		3.0 VDC battery - max. 12 years lifetime
Mounting position		any position
Protection class		heating: IP 54; cooling: IP 68
Interfaces		Open Collector pulse output[1] - output for testing and communication[2]

TEMPERATURE RANGE

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Temperature range heating - battery supplied	°C	5 ... 90 / 5 ... 105[1]
Temperature range cooling	°C	5 ... 90 / 5 ... 105[1]

1: Only in rising or falling pipes

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TECHNICAL DATA

Nominal flow rate	q_p	m^3/h	1.5	2.5	6	6	10
Nominal diameter	DN	mm	15	20	25	32	40
Overall length	L	mm	110	130	260	260	300
Starting flow rate		l/h	2.5	4	7	7	20
Minimum flow rate	q_i	l/h	6	10	24	24	40[3]/100
Maximum flow rate	q_s	m³/h	3	5	12	12	20
Overload flow rate		m³/h	4.6	6.7	18.4	18.4	24
Operating pressure	PN	bar	16[1]	16[1]	16[1]	16[1]	16[1]
Pressure loss at q_p	Δp	mbar	75	100	128	128	95
Test pulse value		ml/pulse	10	20	50	50	100
Flow resistance coefficient	Zeta		4.3	4	2.8	7.4	3.8

Nominal flow rate	q_p	m^3/h	15	25	40	60
Nominal diameter	DN	mm	50	65	80	100
Overall length	L	mm	270	300	300	360
Starting flow rate		l/h	40	50	80	120
Minimum flow rate	q_i	l/h	60[3]/150	100[3]/250	160[3]/400	240[3]/600[4]/1200[5]
Maximum flow rate	q_s	m³/h	30	50	80	120
Overload flow rate		m³/h	36	60	90	132
Operating pressure	PN	bar	25[2]	25[2]	25[2]	16/25[2]
Pressure loss at q_p	Δp	mbar	80	75	80	75
Test pulse value		ml/pulse	100	200	250	500
Flow resistance coefficient	Zeta		3.5	3.4	3.4	3.8

1: Also available inb PN 25 bar
2: Also available in PN 40 bar
3: Only for horizontal installation
4: Only in risiing or falling pipes or tilted installation
5: Only up side down installation

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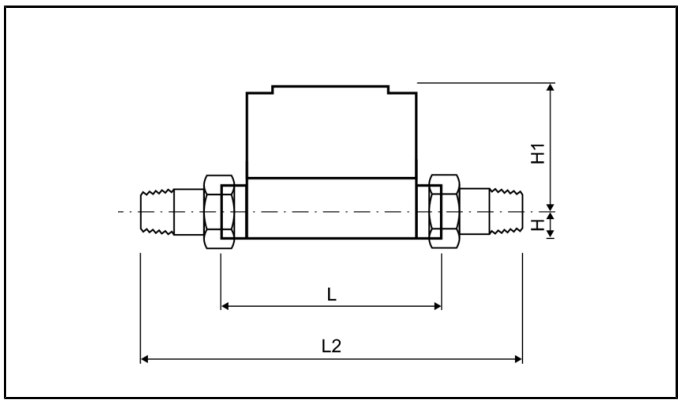
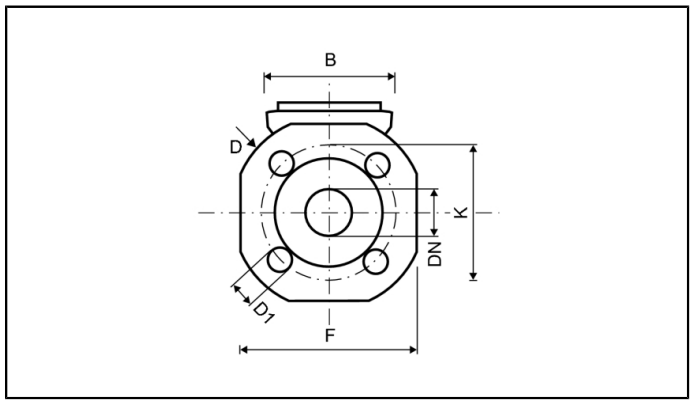
DIMENSIONS THREAD VERSION





Nominal flow rate	q_P	m^3/h	1.5	2.5	6	6	10
Nominal diameter	DN	mm	15	20	25	32	40
Overall length	L	mm	110	130	260	260	300
Overall length with coupling	L2	mm	190	230	380	-	440
Height	H	mm	14.5	18	23	-	33
Height	H1	mm	54.5	56.5	61	-	66.5
Length of electronic	L1	mm	90	90	90	-	90
Width of electronic	B	mm	65.5	65.5	65.5	-	65.5
Connection thread on meter		Inch	G¾B	G1B	G1¼B	-	G2B
Connection thread of coupling		Inch	R½	R¾	R1	-	R1½
Weight		kg	0.6	0.61	1.35	-	3

Nominal flow rate	q_P	m^3/h	15	25	40	60
Nominal diameter	DN	mm	50	65	80	100
Overall length	L	mm	270	300	300	360
Overall length with coupling	L2	mm	-	-	-	-
Height	H	mm	-	-	-	-
Height	H1	mm	-	-	-	-
Length of electronic	L1	mm	-	-	-	-
Width of electronic	B	mm	-	-	-	-
Connection thread on meter		Inch	-	-	-	-
Connection thread of coupling		Inch	-	-	-	-
Weight		kg	-	-	-	-

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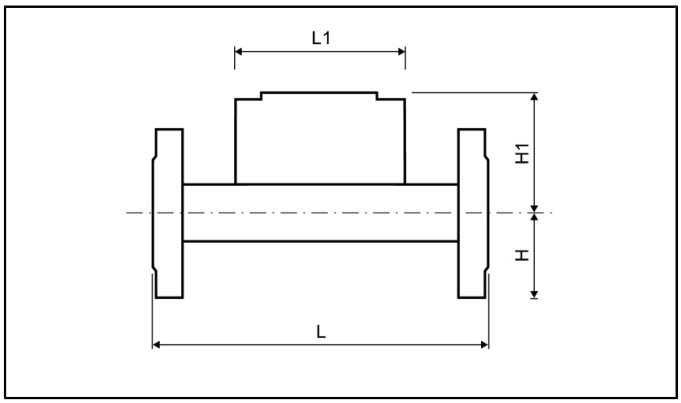
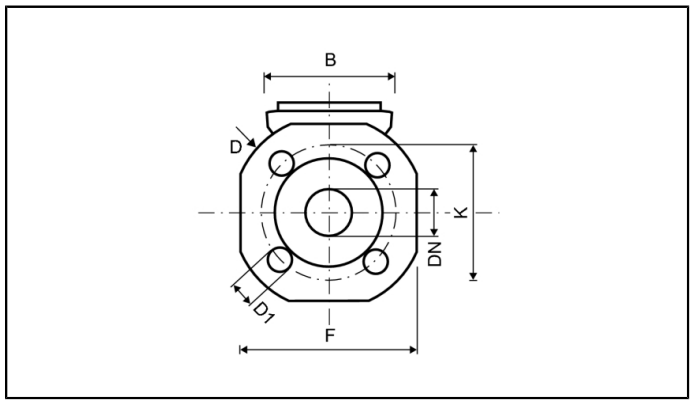
DIMENSIONS FLANGE VERSION





Nominal flow rate	q_P	m^3/h	1.5	2.5	6	6	10
Nominal diameter	DN	mm	15	20	25	32	40
Overall length	L	mm	110	130	260	260	300
Height	H	mm	-	-	50	62.5	69
Height	H1	mm	-	-	61	61	66.5
Length of electronic	L1	mm	-	-	90	90	90
Width of electronic	B	mm	-	-	65.5	65.5	65.5
Flange dimension	F	mm	-	-	100	125	138
Flange diameter	D	mm	-	-	114	139	148
Hole circle diameter	K	mm	-	-	85	100	110
Screwhole diameter	D1	mm	-	-	14	18	18
Number of screwholes		pcs	-	-	4	4	4
Weight		kg	-	-	3.35	4.65	4

Nominal flow rate	q_P	m^3/h	15	25	40	60
Nominal diameter	DN	mm	50	65	80	100
Overall length	L	mm	270	300	300	360
Height	H	mm	73.5	85	92.5	108
Height	H1	mm	71.5	79	86.5	96.5
Length of electronic	L1	mm	90	90	90	90
Width of electronic	B	mm	65.5	65.5	65.5	65.5
Flange dimension	F	mm	147	170	185	216
Flange diameter	D	mm	163	184	200	235
Hole circle diameter	K	mm	125	145	160	180[1] / 190
Screwhole diameter	D1	mm	18	18	19	19[1] / 22
Number of screwholes		pcs	4	8	8	8
Weight		kg	7.8	9.8	11.1	16.9

1: values for PN 16 housing

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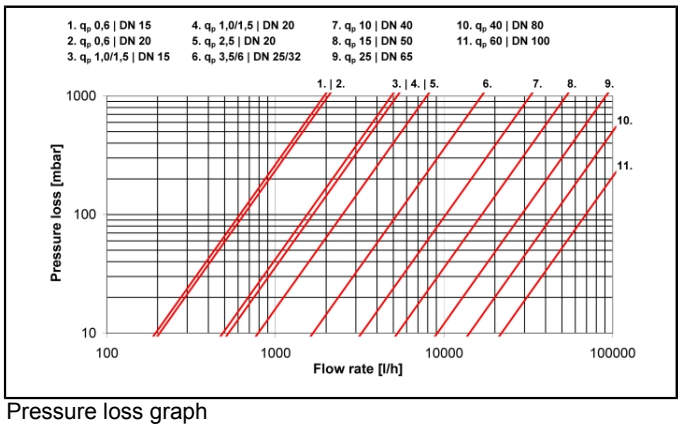
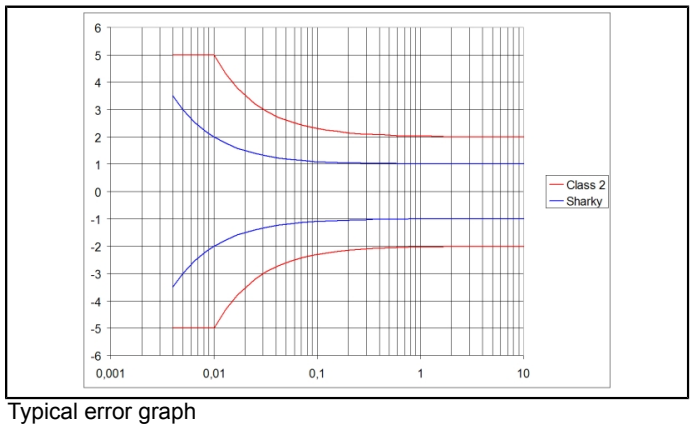
PRESSURE LOSS GRAPH / TYPICAL ERROR GRAPH



Pressure loss graph



Typical error graph