

RAY FS MT | HORIZONTAL

FLOW SENSOR | MECHANICAL

DIEHL
Metering



APPLICATION

Volume measuring component for measuring heat for billing hot water consumption.

FEATURES

- ▶ Multi-jet impeller meters designed to the latest technical standards with completely dry running operation and magnetic coupling
- ▶ The roller counter is dustproof and condensation-proof and can be rotated for easier reading
- ▶ For horizontal installation
- ▶ The built-in pulse transmitter is cast in a waterproof enclosure and is easily replaceable
- ▶ The pulse transmitter (24 V, 0.2 A) for volume measuring components is fitted with a 100 Ω , 1/4 W protective resistor (cable length 3 m)
- ▶ Facility for remote transmission of flow rates
- ▶ The compact design in subassemblies simplifies maintenance and repair
- ▶ Only the impeller operates in the wet chamber to prevent faults due to sediment
- ▶ The meters are equipped with a sealed shield for protection against magnetic interference
- ▶ Please note: Flow sensor for heat measurement

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GENERAL

RAY FS MT HORIZONTAL 413/414		
Medium temperature range	°C	0 ... 120
Nominal pressure	PN bar	16
Display range		0.05 l ... 100,000 m ³
Pulse value	l/pulse	1 / 10 / 100 / 1000 (other pulse rates on request)
Bearing		Carbide or plastic
Approval		National 22.16 / 80.07 ¹ , MID DE-07-MI004-PTB023 ²
Metrological class		B•H
Protection class		IP 54

¹ With plastic or carbide bearing

² Only with carbide bearing

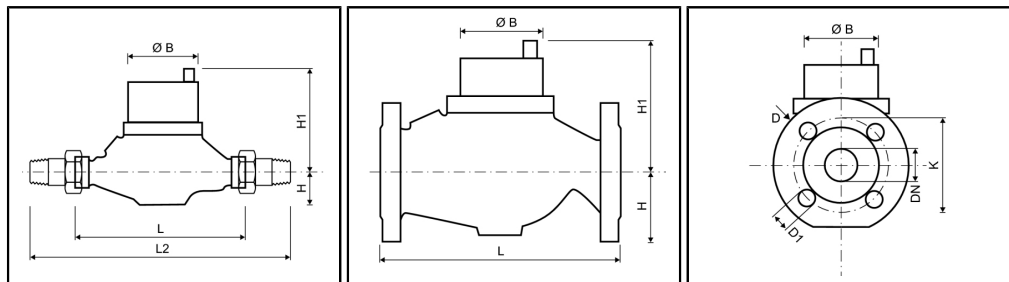
TECHNICAL DATA - NATIONAL APPROVAL

Nominal diameter	DN	mm	15	15	20	20	20
Nominal flow rate	Q_n / q_p	m ³ /h	1	1.5	1	1.5	2.5
Maximum flow rate (short-term)	Q_{max} / q_s	m ³ /h	2	3	2	3	5
Transition flow rate	Q_t	l/h	80	120	80	120	200
Minimum flow rate	Q_{min}	l/h	25	30	25	30	50
Starting flow rate		l/h	10	10	10	12	19
Flow rate at 0.1 bar pressure loss		m ³ /h	0.6	1.0	0.6	1.0	1.6
Nominal diameter	DN	mm	25	25	32	40	50
Nominal flow rate	Q_n / q_p	m ³ /h	3.5	6	6	10	15
Maximum flow rate (short-term)	Q_{max} / q_s	m ³ /h	7	12	12	20	30
Transition flow rate	Q_t	l/h	280	480	480	800	1200
Minimum flow rate	Q_{min}	l/h	65	90	120	160	600
Starting flow rate		l/h	25	35	35	60	90
Flow rate at 0.1 bar pressure loss		m ³ /h	2.2	3.8	3.8	6.3	9.5

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DIMENSIONS



Nominal diameter	DN	mm	15	15	20	20	20
Nominal flow rate	Q_n / q_p	m ³ /h	1	1.5	1	1.5	2.5
Overall length	L	mm	165	165	190	190	190
Diameter	Ø B	mm	81	81	81	81	81
DIMENSIONS - THREAD							
Overall length with coupling	L2	mm	245	245	288	288	288
Connection thread on meter		Inch	G $\frac{3}{4}$ B	G $\frac{3}{4}$ B	G1B	G1B	G1B
Connection thread of coupling		Inch	R $\frac{1}{2}$	R $\frac{1}{2}$	R $\frac{3}{4}$	R $\frac{3}{4}$	R $\frac{3}{4}$
Height	H	mm	32	32	32	32	32
Height	H1	mm	138	138	138	138	138
Weight without coupling		kg	1.7	1.7	1.9	1.9	1.9
Weight with coupling		kg	2.1	2.1	2.3	2.3	2.3
Nominal diameter	DN	mm	25	25	32	40	50
Nominal flow rate	Q_n / q_p	m ³ /h	3.5	6	6	10	15
Overall length	L	mm	260	260	260	300	270
Diameter	Ø B	mm	81	81	81	81	81
DIMENSIONS - THREAD							
Overall length with coupling	L2	mm	378	378	378	438	430
Connection thread on meter		Inch	G1 $\frac{1}{4}$ B	G1 $\frac{1}{4}$ B	G1 $\frac{1}{2}$ B	G2B	G2 $\frac{1}{2}$ B
Connection thread of coupling		Inch	R1	R1	R1 $\frac{1}{4}$	R1 $\frac{1}{2}$	R2
Height	H	mm	45	45	45	55	83
Height	H1	mm	150	150	140	155	180
Weight without coupling		kg	2.9	2.9	2.9	5.1	7.1
Weight with coupling		kg	3.5	3.5	3.5	6.3	-

* at PN 16

NOTE

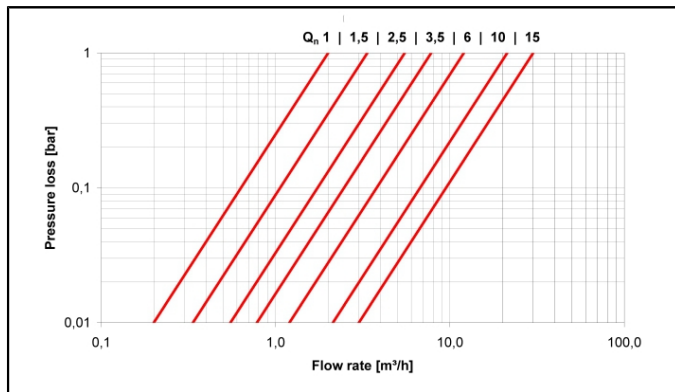
When using the contact water meters as volume measuring component, we recommend that the meters are selected so that the pressure loss of 0.1 bar is not exceeded at maximum load.

Order the pulse output without resistor for a low-resistance load, e.g. mechanical roller counters.

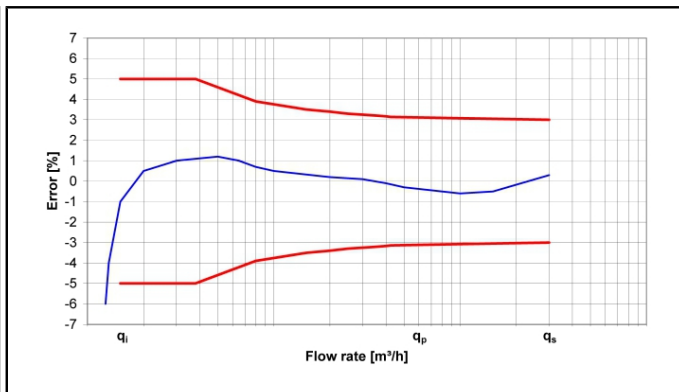
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PRESSURE LOSS GRAPH / TYPICAL ERROR GRAPH



Pressure loss graph



Typical error graph