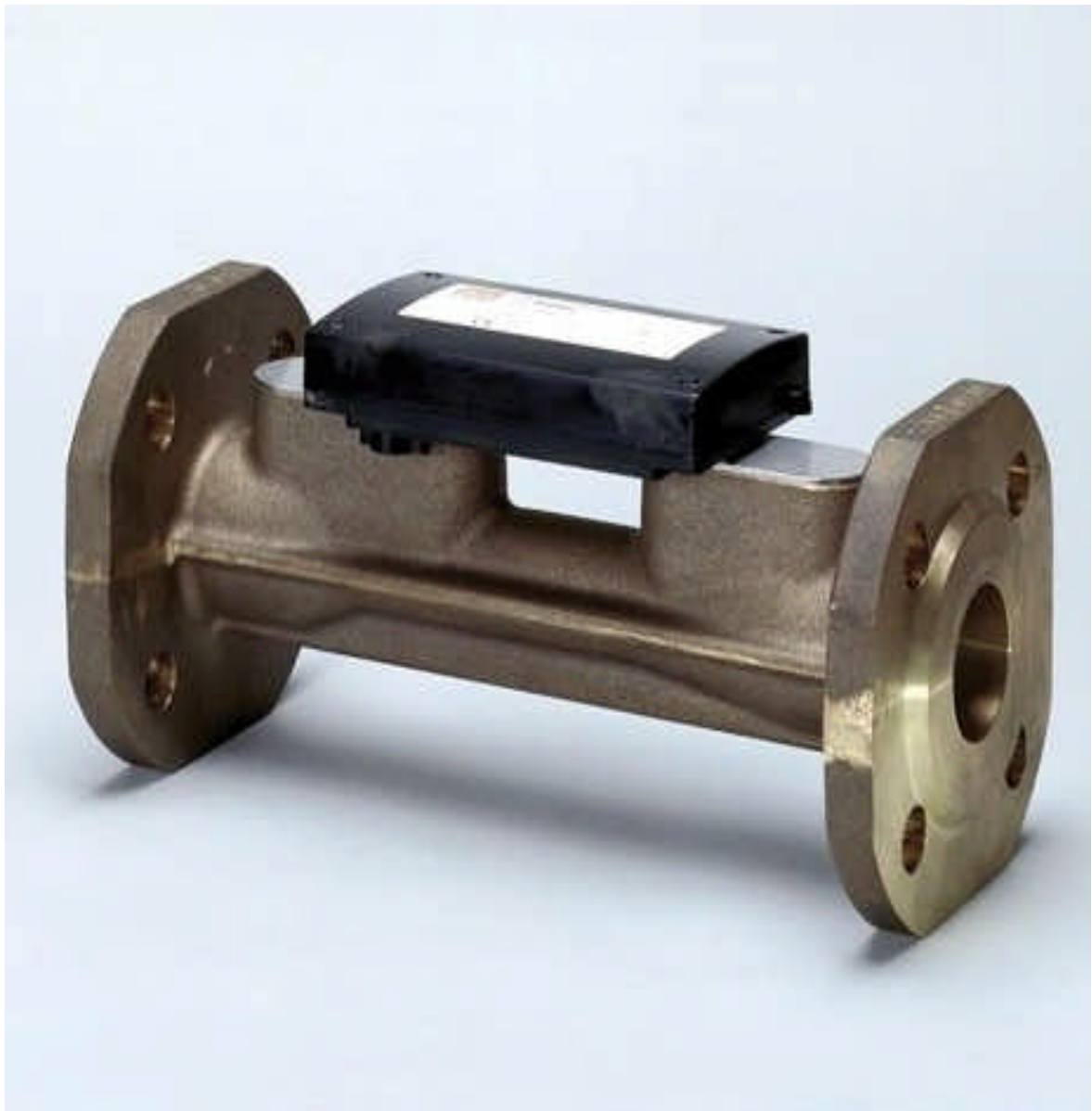


Flow sensor ABB U2500 data sheet

An ultrasonic flow sensor with high accuracy.



Ultrasonic Flow Sensor ABB U2500

Q _p , m³/h:	6	6	10	15	25	40
Size:	G1¼B	DN25	DN40	DN50	DN65	DN80

Advantage

- Measuring of hot water up to 150°C.
- Transducers well protected.
- Not influenced with magnetite.
- Large dynamic range and low head loss.
- Mains or battery supply.
- Long term stability.

Ultra sonic type

The ABB U2500 is a flow sensor that uses the ultra sonic principle. The flow sensor can be used together with temperature sensors and a calculator from ABB Metering, as an electronic heat meter. The design meets all known standards including the EN 1434.

Operation

Two ultrasonic transducers functioning as both transmitters and receivers (piezo-electric crystals) are positioned opposite of each other inside the flow sensor. Ultrasonic signals are transmitted between the two transducers, in the flow direction and against. Due to the flow velocity of the water, a time difference between the signals occur. The flow velocity can then be determined by:

$$v = K \frac{t_{up} - t_{down}}{t_{up} \times t_{down}} = K \frac{\Delta t}{t^2}$$

t_{down} = Time in the flow direction
 t_{up} = Time against the flow direction
 v = Average flow velocity
 t = Transit time
 K = Proportional factor

The advantage of this measuring principle is that it is independent of variations in the sound velocity of the water. The robust design of the transducers, with a wall thickness of 2,8 millimetres, make them resistant to vacuum and pressure peaks in the pipe system. They are also resistant to particles in the fluid.

Mains operated flow sensor

The standard version of the flow sensor is power supplied from the mains, and can be used together with the calculator F3 / F4. An adaptation board to be connected to slot C in the calculator F3 / F4, adapts the pulse width and the operating voltage of the flow sensor to 3,6 volts.

If a different calculator is to be used, the flow sensor can be equipped with a separate pulse converter to replace the adaptation board. The converter is power supplied from the mains, and may be mounted on a wall or directly on the flow sensor.

Battery operated flow sensor

This version is equipped with a separate pulse converter, containing a battery, and may be used together with all calculators from ABB Metering. The pulse converter adapts the pulse width and the operating voltage of the flow sensor to 3,6 volts. The lifetime of the battery is max. 5 years. The pulse converter may be mounted on a wall, or directly on the flow sensor. When mounted on the flow sensor, the maximum water temperature is limited to +120° C.

Installation

The flow sensor can be installed horizontally or vertically. When horizontally mounted the maximum water temperature is 150°C. However, if the electronic (black enclosure) is turned upwards, the maximum temperature is reduced to 120°C. When the sensor is vertically mounted, or equipped with a pulse module, the maximum water temperature is also limited to 120°C.

Before the sensor, a clear and straight inlet pipe of minimum 5xDN is required. After the sensor no straight pipe is required. See also the manual 5-08-01ME for U2500.

Technical data

ABB U2500

Size:

Flange, DN:

Thread:

Flow in m³/h:

Nominal flow, Q_p:

Max flow, Q_s:

Min flow, Q_i (l/h):

Start flow, Q_{start} (l/h):

Pressure loss at Q_p (Q_n), bar*:

*(acc. to EN1434 vid 50° C)

Length L (mm):

Diameter D (mm):

Diameter d (mm):

Height H (mm):

Height h (mm):

Weight in kg:

Approvals:

Protection class:

Accuracy class:

Environmental class:

Power supply:

Max cable length:

Max temperature:

Pressure class:

Materials:

Pipe:

Transducers:

Flange gaskets:

O-ring:

	06G	06F	08G	08F	09F	10F	11F
Flange, DN:	-	25	-	40	50	65	80
Thread:	G1¼B"	-	G2B	-	-	-	-
Nominal flow, Q _p :	6	6	10	10	15	25	40
Max flow, Q _s :	9	9	20	20	30	50	80
Min flow, Q _i (l/h):	60	60	100	100	150	250	400
Start flow, Q _{start} (l/h):	12	12	20	20	30	50	80
Pressure loss at Q _p (Q _n), bar*:	0,1	0,09	0,05	0,05	0,07	0,07	0,1
Length L (mm):	260	260	300	300	270	300	300
Diameter D (mm):	-	114	-	148	163	184	198
Diameter d (mm):	-	85	-	110	125	145	160
Height H (mm):	78	78	78	78	91	91	91
Height h (mm):	31	31	31	31	31	31	31
Weight in kg:	3,1	4,9	3,5	7,9	8,5	10,8	12,6

PTB 22.56/99.03; EN 1434.

IP 65.

2.

C.

230VAC or 3,6V battery.

2,5 meters between flow sensor and calculator.

150° C.

PN 25.

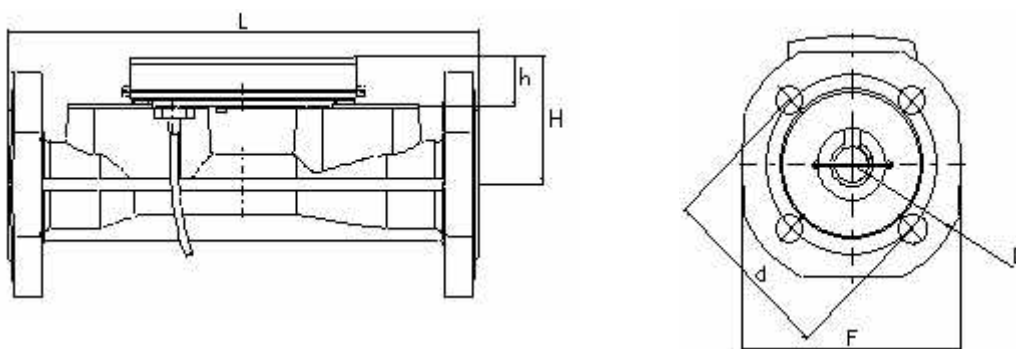
Red brass.

Stainless steel.

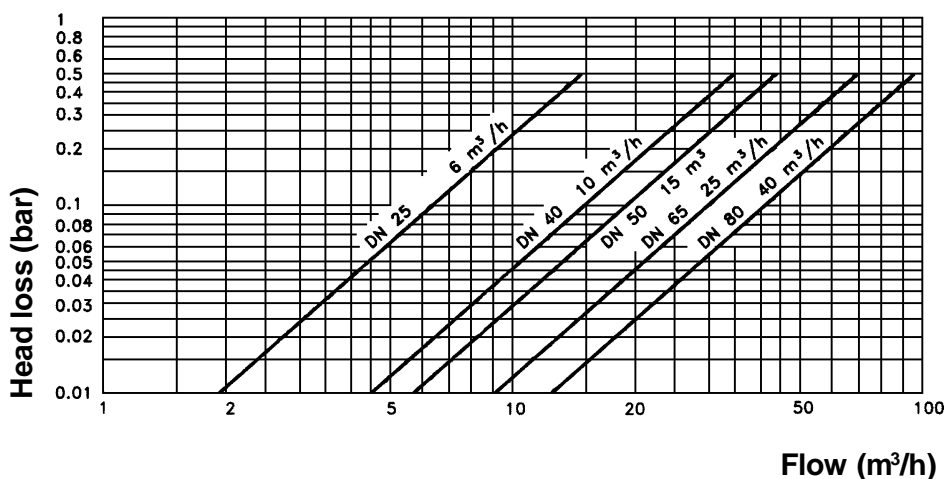
Fibre gasket.

EPDM.

Dimensions



Pressure drop



Ordering key ABB U2500								
U2500 -				1	2			
Nominal size								
Thread 1 1/4", Q _p 6 m ³ /h	0	6	G					
Flange DN 25, Q _p 6 m ³ /h	0	6	F					
Thread G2B, Q _p 10 m ³ /h	0	8	G					
Flange DN 40, Q _p 10 m ³ /h	0	8	F					
Flange DN 50, Q _p 15 m ³ /h	0	9	F					
Flange DN 65, Q _p 25 m ³ /h	1	0	F					
Flange DN 80, Q _p 40 m ³ /h	1	1	F					
Pulse output								
2,5 literes/pulse, Q _p 6-15 m ³ /h						1		
10 literes/pulse, Q _p 25-40 m ³ /h						6		
Other pulse values on request								
Approval PTB, EN 1434							2	
Type								
Mains operated, with adaptation board								0
Battery operated, with pulse converter								1
*Mains operated, with pulse converter								2
Special								S

*) Not in stock.



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