



Badger Meter Europa

Insert flow sensors Model 220BR & 220SS

The series 200 flow sensors feature a six bladed impeller design with a proprietary non-magnetic sensing mechanism. The forward swept impeller shape provides higher, more consistent torque and is less prone to be fouled by water borne debris. The forward curved shape coupled with the absence of magnetic drag provides improved operation and repeatability even at lower flow rates. This is especially true where the impeller is exposed to metallic or rust particles found in steel or iron pipes. As the liquid flow turns the impeller, a low impedance square wave signal is transmitted with a frequency proportional to the flow rate. The signal can travel up to 600 m between the flow sensor and the display unit without the need for amplification. All sensors except irrigation versions are supplied with 6 m of Belden type 9320 two conductor shielded cable.

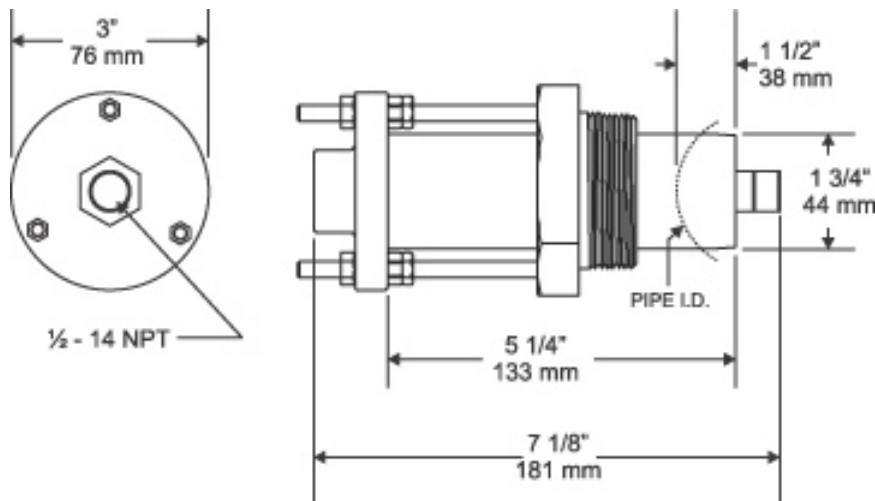


Model 220SS

Model 220BR (brass) and 220SS (stainless steel) sensor

The model 220B and 220SS sensors are used in most general flow measuring applications in metallic or non-metallic pipes. The sensor mounts in a 2" NPT pipe saddle or Threadolet® for installation in pipe sizes from 3" to over 40". Positioning nuts on the three threaded retaining rods allow the sensor to be accurately positioned to a standard insertion depth of 1 1/2" into the pipe. When this insertion depth is maintained and there is at least 10 upstream and 5 downstream diameters of straight uninterrupted flow, an accuracy of $\pm 1\%$ of full scale can be obtained from flow velocities of 0,15 to 9 m/s ($\pm 4.0\%$ of reading within calibration range).

Dimensions 220BR, 220SS



IMP_220BR_220SS_Eintauchdurchflusssensoren_Datenblatt_0610_e.doc 06/10

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Specifications

Wetted materials for all parts	<ul style="list-style-type: none"> • See ordering matrix 		
Sensor sleeve and hex adapter for 220BR	<ul style="list-style-type: none"> • Sleeve: Admiralty brass, UNS C44300; hex adapter: valve bronze, UNS C83600 		
Sensor sleeve and hex adapter for 220SS	<ul style="list-style-type: none"> • 316 series stainless steel 		
Temperature ratings	<ul style="list-style-type: none"> • Standard version: 105°C (221°F) continuous service • Irrigation version: 66°C (150°F) continuous service • PVC version: 60°C (140°F) continuous service • High temperature version: (not available in PVC) 140.6°C (285°F) continuous service, 150°C (305°F) peak temperature (limited duration) 		
Pressure ratings	Metallic sensor	At 24°C	At 135°C
	220BR	27 bar	22 bar
	220SS	27 bar	22 bar
Recommended design flow range	<ul style="list-style-type: none"> • 0,15 to 9 m/s • Initial detection below 0,1 m/s 		
Accuracy	<ul style="list-style-type: none"> • ± 1.0% of full scale over recommended design flow range • ±4.0% of reading within calibration range 		
Repeatability	<ul style="list-style-type: none"> • ±0.3% of full scale over recommended design flow range 		
Linearity	<ul style="list-style-type: none"> • ±0.2% of full scale over recommended design flow range 		
Transducer excitation	<ul style="list-style-type: none"> • Quiescent current 600uA@8 VDC to 35 VDC max. • Quiescent voltage (V_{high}) supply voltage-(600uA*supply impedance) • ON state (V_{low}) max. 1.2 VDC@40 mA current limit (15 Ω+ 0.7 VDC) 		
Output frequency	<ul style="list-style-type: none"> • 3.2 Hz to 200 Hz 		
Output pulse width	<ul style="list-style-type: none"> • 5 msec ±25% 		
Electrical cable for standard sensor electronics	<ul style="list-style-type: none"> • 70 cm of 2-conductor 20 AWG shielded U.L. type PTLC wire provided for connection to display or analog transmitter unit. Rated to 105°C. May be extended to a maximum of 600 m with similar cable and insulation appropriate for application. 		
Electrical cable for IR sensor electronics	<ul style="list-style-type: none"> • 1,2 m of U.L. style 116666 copper solid AWG 18 wire with direct burial insulation. Rated to 105°C. 		

200 series insert style matrix (sizes 3" and up)

	Example: 2	20	BR	00	0	5	--	1	2	1	1
Style											
	Short insert	20									
Material											
	Brass		BR								
	Stainless steel		SS								
	PVC sleeve with stainless steel trim		PVS								
Size											
	Insert style			00							
Electronics housing											
	PPS				0						
Electronics											
	Magnetic					2					
	FM/CSA approved					4					
	Standard					5					
	IR-irrigation					6					
	High temperature					8		0	2	2	3
O-ring											
	Viton							0			
	EPDM							1			
	Kalrez							2			
	Food grade silicone							3			
	Neoprene							4			
	Chemraz							5			
	Teflon encapsulated Viton							6			
	Teflon encapsulated Silicone							7			
	Buna N							8			
Shaft											
	Zirconia ceramic								0		
	Hastelloy C								1		
	Tungsten carbide								2		
	Titanium								3		
	Monel								5		
	316 stainless steel								6		
	Tantalum								7		
Impeller											
	Nylon									1	
	Tefzel									2	
Bearing											
	Pennlon										1
	Tefzel										2
	Teflon										3