

#### DESCRIPTION

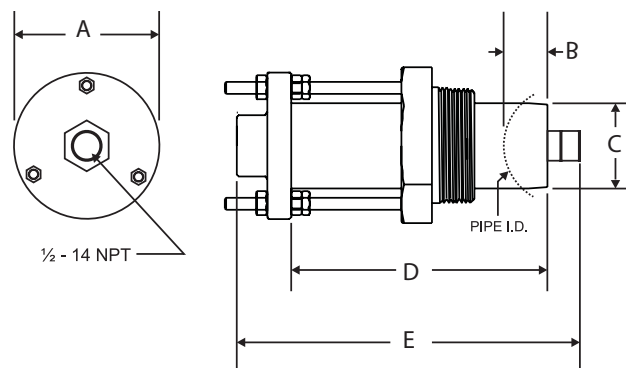
The Data Industrial® Series 200 flow sensors from Badger Meter® feature a six-bladed impeller design with a proprietary non-magnetic sensing mechanism. The forward swept impeller shape provides higher, more consistent torque and is less prone to be fouled by waterborne debris. The forward curved shape coupled with the absence of magnetic drag provides improved operation and repeatability 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 2000 feet between the flow sensor and the display unit without the need for amplification. All sensors except irrigation versions are supplied with 20 feet of Belden type 9320 two-conductor shielded cable.

#### MODEL 220SS (STAINLESS STEEL)

The 220SS sensors are used in most general flow measuring applications in metallic or non-metallic pipes. The sensor mounts in a 2 inch NPT pipe saddle or Thredolet® for installation in pipe sizes from 3 inches to more than 40 inches. Positioning nuts on the three threaded retaining rods allow the sensor to be accurately positioned to a standard insertion depth of 1-1/2 inches into the pipe. When this insertion depth is maintained, and there are at least 10 upstream and 5 downstream diameters of straight uninterrupted flow, an accuracy of  $\pm 1$  percent of full scale can be obtained from flow velocities of 0.5...30 feet/second ( $\pm 4.0$  percent of reading within calibration range).



#### DIMENSIONS



A	B	C	D	E
3 in.	1-1/2 in.	1-3/4 in.	5-1/4 in.	7-1/8 in.
76 mm	38 mm	44 mm	133 mm	181 mm

Figure 1: Dimensions for 220SS

## ORDERING MATRIX

Example: 2	20	SS	00	0	5	-	1	2	1	1
<b><u>STYLE</u></b>										
Standard Flow	20									
<b><u>MATERIAL</u></b>										
Stainless Steel		SS								
<b><u>SIZE</u></b>										
Insert Style for pipe sizes 3" and up			00							
<b><u>ELECTRONICS HOUSING</u></b>										
PPS				0						
<b><u>ELECTRONICS</u></b>										
CSA Approved					4					
Standard Flow (STANDARD)					5					
IR-Irrigation					6					
<b><u>O-RING</u></b>										
Viton®							0			
EPDM (STANDARD)							1			
Buna N							8			
<b><u>SHAFT</u></b>										
Zirconia Ceramic								0		
Tungsten Carbide (STANDARD)								2		
316 Stainless Steel								6		
<b><u>IMPELLER</u></b>										
Nylon (STANDARD)									1	
Tefzel®									2	
<b><u>BEARING</u></b>										
UHMWPE (STANDARD)										1
Tefzel®										2
Teflon®										3

# HIGH TEMPERATURE ORDERING MATRIX

Example: 2		20	SS	00	4	8	-	0	2	2	3
<b><u>STYLE</u></b>											
Standard Flow		20									
<b><u>MATERIAL</u></b>											
Stainless Steel			SS								
<b><u>SIZE</u></b>											
Insert Style for pipe sizes 3" and up				00							
<b><u>ELECTRONICS HOUSING</u></b>											
PEEK					4						
<b><u>ELECTRONICS</u></b>											
High Temperature						8					
<b><u>O-RING</u></b>											
Viton®								0			
<b><u>SHAFT</u></b>											
Tungsten Carbide (STANDARD)									2		
<b><u>IMPELLER</u></b>											
Tefzel®										2	
<b><u>BEARING</u></b>											
Teflon®											3

## SPECIFICATIONS

<b>Wetted Materials for all Sensors</b>	See Ordering Matrix.	
<b>Sensor Sleeve and Hex Adapter</b>	Series 300 stainless steel	
<b>Temperature Ratings</b>	Standard version: 221° F (105° C) continuous service High temperature version: 285° F (141° C) continuous service; 305° F (150° C) peak temperature (limited duration)	
<b>CSA-approved Temperature Rating</b>	180° F (82° C)	
<b>Pressure Ratings</b>	<b>At 100° F</b> 400 psi	<b>At 300° F (High Temperature Version Only)</b> 325 psi
<b>Recommended Design Flow Range</b>	0.5...30 ft/sec (0.5...9 mm/sec) Initial detection below 0.3 ft/sec (0.9 m/sec)	
<b>Accuracy</b>	± 1.0% of full scale over recommended design flow range	
<b>Repeatability</b>	± 0.3% of full scale over recommended design flow range	
<b>Linearity</b>	± 0.2% of full scale over recommended design flow range	
<b>Transducer Excitation</b>	Supply voltage = 8V DC min. 35V DC max.	
	Quiescent current = 600 uA (typical)	
	OFF State ( $V_{High}$ ) = Supply voltage – (600 uA * Supply impedance)	
	ON State ( $V_{Low}$ ) = 1.2V DC @ 40 mA (15 $\Omega$ + 0.7V DC)	
<b>Output Frequency</b>	3.2...200 Hz	
<b>Output Pulse Width</b>	5 msec ±25%	
<b>Electrical Cable for Standard Sensor Electronics</b>	20 ft (6 m) of 2-conductor 20 AWG shielded UL type PTLC wire provided for connection to display or analog transmitter unit. Rated to 221° F (105° C). May be extended to a maximum of 2000 ft (610 m) with similar cable and insulation appropriate for application.	
<b>Electrical Cable for IR Sensor Electronics</b>	48 in. (122 cm) of UL style 116666 copper solid AWG 18 wire with direct burial insulation. Rated to 221° F (105° C).	
<b>Certifications</b>	CSA certified	

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The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400  
 México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882  
 Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787  
 Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtlinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0  
 Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503  
 Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01  
 Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836  
 China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412  
 Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11

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