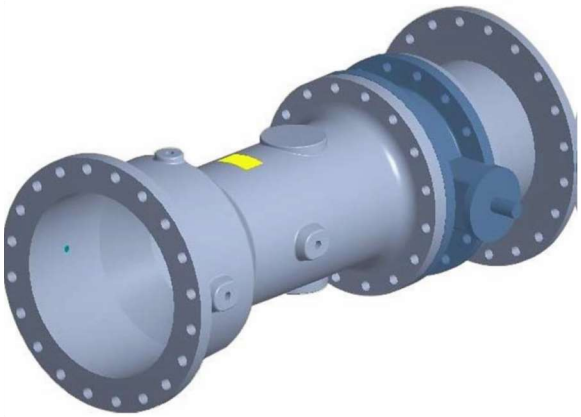
Metering Flow... Naturally!

BIF Model 20612 Rate of Flow Controller



The BIF Model 20612 is a Rate of Flow Controller designed to fit into the same flange to flange length as the existing BIF Model 0610 and Model 20610.The BIF Model 20612 combines the high metering accuracy of the BIF Universal Venturi Tube (UVT®) and the long life of a Flanged AWWA C504 compliant Butterfly valve.

The Universal venturi Tube is a multipurpose, short laying length, efficient and economical primary element device. The UVT is time proven and its performance is unmatched in the industry. It is the clear and outstanding leader for proven, substantiated and documented performance.

The Model 20181 with its enduring uncalibrated accuracy of ±0.5% of actual flow rate, has been established and proven by hundreds of laboratory trials, and is ensured by it's rugged, durable and self-scouring construction. Wide flow ranges are possible because of the constant discharge coefficient (C).

Enduring uncalibrated accuracy of ±0.5% of actual flow rate

The proven UVT Hydraulic profile conditions the flow profile as it enters the venturi so that differential signal is stable and predictable. This profile is also responsible for the overall performance of the Universal Venturi Tube.

Annular chambers at the high and low pressure taps are no longer needed thus avoiding concerns about collection of solids and sediments and their associated maintenance concerns. No in-line or on-line calibration is ever required for this primary element.

Typical Applications

Raw Water

Gravity Filter Effluent

Backwash or Washwater

Final effluent rate control

Engineering Specification

The metering design shall be a differential pressure producing type, utilizing pure static pressure sensed at the inlet and throat. The differential pressure shall indicate static pressure change only.

The entrance section shall be a cylindrical section of similar diameter as the pipe in which the meter is being installed. The high-pressure tap shall be installed in this entrance section. Vent and drain ports shall be included in the

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venturi entrance section on a 90 degree plane to metering taps.

The entrance section shall incorporate a hydraulic shape employing at least two-vena contractae.

The throat section shall be a cylindrical section with a length at least 0.50 times the throat diameter. The low-pressure tap shall be installed in the throat section.

The pressure recovery section shall be truncated and have an included angle of 10 degrees or that which allows the proper flange to flange length

The metering element shall not have debris collecting cavities or annular chambers, and shall have a single pressure connection at the inlet and throat on the horizontal centerline.

The flow meter body shall be constructed of cast iron ASTM A536 Grade 65-45-12. The throat liner and pressure tap bushings shall be Type 316 Stainless Steel. The flow meter flanges shall be ANSI Class 125 Flat Faced.

.The flow meter shall be hydrostatically tested at twice the flange rating for a period of not less than 10 minutes. Hydrostatic testing of venturi shall be performed at the factory by placing the body in tension using blind flanges to seal the ends of the venturi. Hydrostatic testing by the use of internal presses to simulate hydrostatic pressure is prohibited.

The entire flow meter except the throat liner, flange faces and pressure tap bushings shall be coated with epoxy paint that meets the requirements of the United States EPA, and is NSF 61 approved for potable water applications.

Coefficient values and tolerances shall be based on actual calibrations, performed by a hydraulic laboratory, with standards traceable to NIST and in conformance with standard calibration protocol

The substantiation data shall indicate that the venturi meter discharge coefficient is independent of line size and beta ratio. In addition, the test data shall prove that the coefficient remains constant over the range of Reynolds Numbers and down to 75,000.

Test results from the calibration of at least 30 hydraulically similar meters used for this substantiation shall show that the discharge coefficient 2 times standard deviation is no greater than ±0.5 percent.

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Effects of upstream piping configuration shall be known and based on testing performed by a recognized hydraulic laboratory.

Substantiation shall show headloss as a function of the velocity head expended.

The venturi section shall be close coupled to an AWWA C504 Compliant Butterfly valve. The butterfly valve shall have a cast iron body, cast or ductile iron disc with stainless steel disc edge or ductile iron disc with stainless seat ring in the body. The valve's shafts shall be stainless steel with proper bushings and bearings designed for long service live in a modulating service environment. The valve shall be packed with Chevron style valve packing to assure long life and leak free operation.

The valve seat shall be a one piece elastomeric material with through the body design that is

bonded into the full length of the body, or shall be an elastomeric material bolted to the valve disc.

All portions of the valve body except the seat and stainless trim shall be coated with a high quality fusion bonded epoxy coating.

The valve shall typically be sized such that it is 80% to 100% of venturi inlet diameter. This assures proper throttling action and operation in the 'sweet spot' of the valves coefficient curve.

There shall be a flange adapter close coupled to the Butterfly valve on the downstream side to recover the valve flange to full line size. This flange adapter shall be manufactured from Cast Iron or Carbon Steel materials and coated both internally and externally with NSF-61 rated epoxy coatings to assure long service life.

Venturi section, butterfly valve section and adapter plate will be factory assembled and shipped to project site as a complete rate of flow controller assembly.

Metering accuracy is substantiated at ±0.5% of actual flow rate, control accuracy is stated as ±3% at a 4:1 turndown from the maximum flow rate due to the less than adequate piping arrangements found in most rate of flow controller applications.

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BIF®

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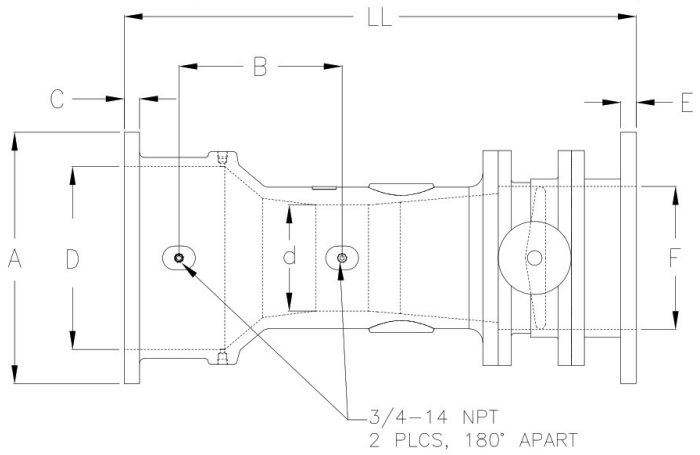

Nominal Inlet Diameter	Throat Diameter	'A' Flange Outside Dia.	'B' Distance Between Taps	'C' Inlet Flange Thickness	'D' Inlet Diameter	'E' Outlet Flange Thickness	'F' Valve Diameter	'LL'
8"	A-3.600"	13 ½"	6.5	1 1/8"	8.00"	1 1/8"	6"	26"
	B-4.800"		7.2					
	C-5.800"		7.7				8"	29"
10"	A-4.800"	16"	8.3	1 3/16"	10.00"	1 3/16"	8"	30"
	B-5.800"		8.9				8"	30"
	C-7.250"		9.7				10"	32"
12"	A-5.800	19"	10.0	1 1/4"	12.00"	1 1/4"	8"	31"
	B-7.250"		10.9				10"	35"
	C-8.700"		11.6				12"	39"
14"	A-6.300"	21"	11.4	1 3/8"	14.00"	1 3/8"	10"	34"
	B-8.700"		12.8				12"	41"
	C-10.150"		13.5				14"	46"
16"	A-7.250"	23 1/2"	13.1	1 7/16"	16.00"	1 7/16"	12"	41"
	B-10.150"		14.8				14"	46"
	C-11.600"		15.5				14"	49"
18"	A-8.700"	25"	15.1	1 9/16"	18.00"	1 9/16"	14"	47"
	B-10.150"		15.9				16"	49"
	C-11.600		17.4				18"	55"
20"	A-10.150"	27 1/2"	17.0	1 11/16"	20.00"	1 11/16"	16"	49"
	B-11.600"		17.9				18"	54"
	C-14.500"		19.3				18"	60"
24"	A-11.600"	32"	20.1	1 7/8"	24.00"	1 7/8"	18"	56"
	B-14.500"		21.8				20"	63"
	C-17.400"		23.2				20"	69"

Note: Inlet Flange has Outside Diameter, Bolt Circle, number of Holes and hole diameter In accordance with AWWA C115 Class 125/150 and ASME B16.1

Note: Outlet Flange has Outside Diameter Bolt Circle and number of holes and hole diameter in accordance with AWWA C207

Note: All Flanges are Flat Faced with phonographic finish of 24-40 grooves per inch resulting in a 250-500 RMS.

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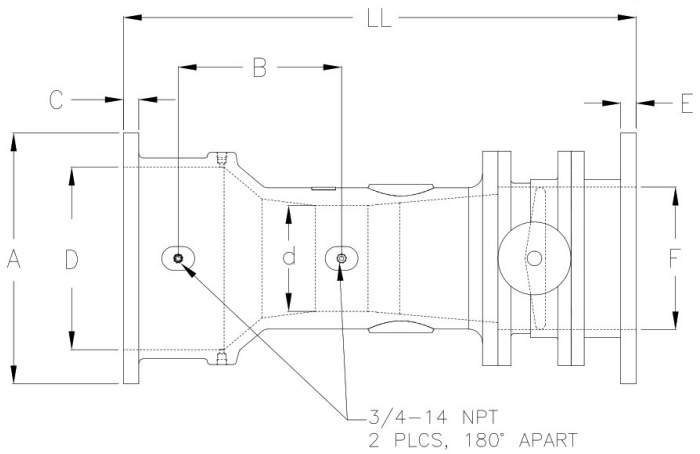

Nominal Inlet Diameter	Throat Diameter	'A' Flange Outside Dia.	'B' Distance Between Taps	'C' Inlet Flange Thickness	'D' Inlet Diameter	'E' Outlet Flange Thickness	'F' Valve Diameter	'LL'
30"	A-13.050"	38 3/4 "	24.1	2 1/8"	30.00"	2 1/8"	20"	66"
	B-17.400"		26.9				24"	77"
	C-21.750"		29				24"	86"
36"	A-17.400"	46"	30.1	2 3/8"	36.00"	2 3/8"	24"	81"
	B-21.750"		32.7				30"	94"
	C-26.100"		34.8				30"	103"
42"	A-18.900	53"	34.2	2 5/8"	42.00"	2 5/8"	30"	93"
	B-26.100		38.5				36"	110"
	C-30.450"		40.6				36"	119"
48"	A-21.750"	59 1/2"	39.1	2 3/4"	48.00"	2 3/4"	36"	104"
	B-30.450"		44.3				42´	125"
	C-34.800"		46.4				42"	134"

Note: Inlet Flange has Outside Diameter, Bolt Circle, number of Holes and hole diameter In accordance with AWWA C115 Class 125/150 and ASME B16.1

Note: Outlet Flange has Outside Diameter Bolt Circle and number of holes and hole diameter in accordance with AWWA C207

Note: All Flanges are Flat Faced with phonographic finish of 24-40 grooves per inch resulting in a 250-500 RMS

TOLERANCE FOR "LL" IS: (1/8") 8"-12", (1/4") 14" - 24", (3/8") 30" - 48" LINE SIZES

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