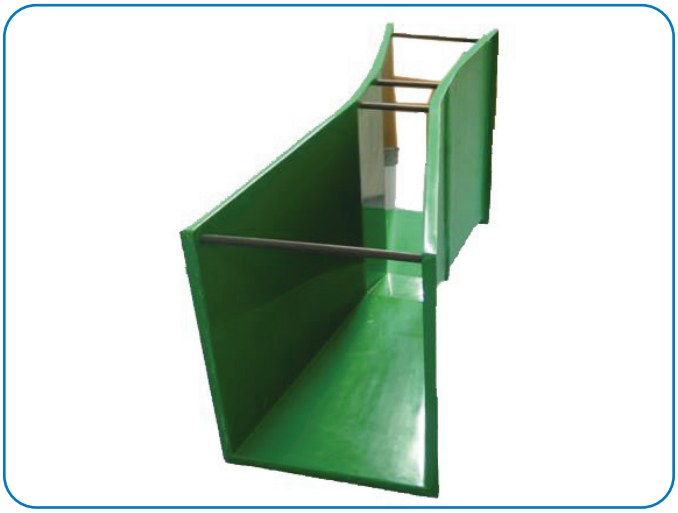
Dynasonics®
Ultrasonic Flow Meters

Parshall Flumes

DESCRIPTION

The Parshall flume is one of a large class of open channel primary elements known as critical flow venturi flumes. A distinguishing characteristic of the Parshall flume is the downward sloping invert of the throat. This feature gives the Parshall flume its ability to operate at higher ratios of downstream to upstream head than any other such device.

The Parshall flume is a monolithic fiberglass reinforced polyester structure to assure maximum strength and accuracy of dimension while minimizing installation time. Its weight is light, the installation easy and there is no need for special tools. Its short length makes the installation possible in areas where further constructions are limited.



APPLICATION

The Parshall is recommended for those applications in which moderate concentrations of sand, grit or other heavy solids exist and fluid velocities entering the flume are subcritical.

The flume operates with a small energy loss or change in channel grade, about one-fourth that of weirs having the same crest length. The flume is ideally suited for fluid measurement in irrigation channels or sewers.

FEATURES

- Accuracy ±3%
- Self-cleaning construction
- Available from DN75 – DN915
- Measuring range from 0.77 l/s to 1841 l/s
- Short delivery time
- Own manufacture

CALIBRATION

The Parshall flume exhibits reproducible head rise/flow rate characteristics throughout its size range. In order to assure the accuracy of the device, adherence to all dimensions for construction as well as free flow hydraulic conditions are required. Factory made Parshall flumes can be calculated with an accuracy of ±3% of nominal value.

SIZING

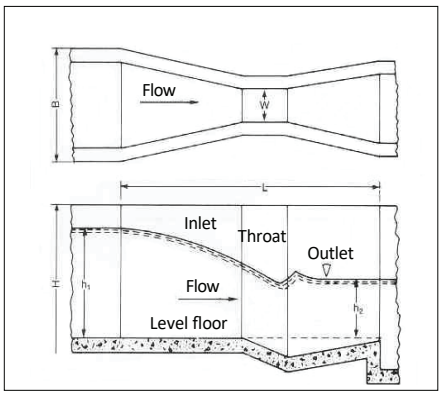
Selection of a Parshall flume should be made on expected flow rates or on the maximum flow rate and on the width of influent and effluent channel, which must at least have the dimensions mentioned in column B (see table on back side). For single point measurement to be valid, the design hydraulic gradient must make sure that free flow conditions exist at all flow rates. Thus, the downstream fluid level must not exceed the values in figure 2 or single point measurement will not produce acceptable values.

Badger Meter®

HYB-DS-03754-EN-04 (July 2023)

Product Data Sheet

SIZING



The Parshall flume is an empirically derived and rated measuring device. The discharge capacities are rated for "free flow" conditions. As the downstream depth increases, flow condition is no longer critical, thus two depth measurement readings (at Ha and Hb) are necessary to obtain the correct discharge under these conditions. The following graph presents these corrections necessary for true discharge values.

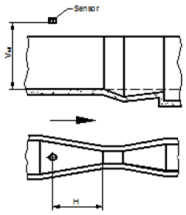
PERFORMANCE DATA AND DIMENSIONS OF STANDARD SIZES

Throat		Measuring range	Dimensions					
W			Length (L)		Width (B)		Height (H) max.	
mm	inch	l/s	mm	inch	mm	inch	mm	inch
75	3	0.77…54	915	36	323	13	667	26
150	6	1.50…114	1524	60	461	18	724	28
230	9	2.50…284	1626	64	639	25	876	34
305	12	2.9…598	2867	113	1000	39	1144	45
455	18	4.4…898	2943	116	1200	47	1144	45
610	24	5.8…1211	3020	119	1400	55	1144	45
915	36	8.7…1841	3169	125	1800	71	1144	45

Minimum downgrade in the channel: 2…5%

MOUNTING POSITION OF THE ISONIC ULTRASONIC SENSOR

Size		Max. flow	V-Mt		H-Mt	
DN	inch	l/s	mm	inch	mm	inch
75	3	54	780	31	305	12
150	6	114	780	31	406	16
230	9	284	970	38	572	23
305	12	598	contact factory		contact factory	
455	18	898	contact factory		contact factory	
610	24	1211	contact factory		contact factory	
915	36	1841	contact factory		contact factory	



Control. Manage. Optimize.

Dynasonics is a registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2023 Badger Meter, Inc. All rights reserved..

www.badgermeter.com