



## Parshall flumes



### Features

- Accuracy  $\pm 3\%$
- Self-cleaning construction
- Available from DN75 – DN915
- Measuring range from 0,77 l/s to 1841 l/s
- Short delivery time
- Own manufacture

### 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.

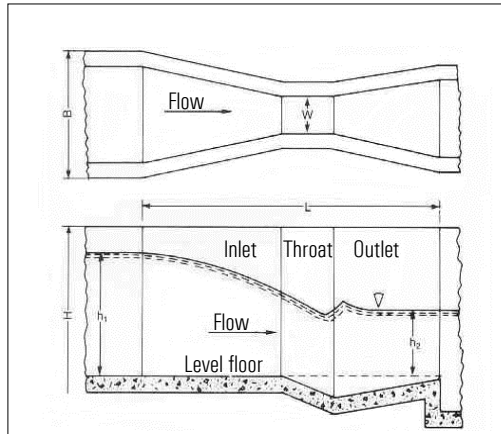
### Calibration

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  $\pm 3\%$  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 insure 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.

## Sizing

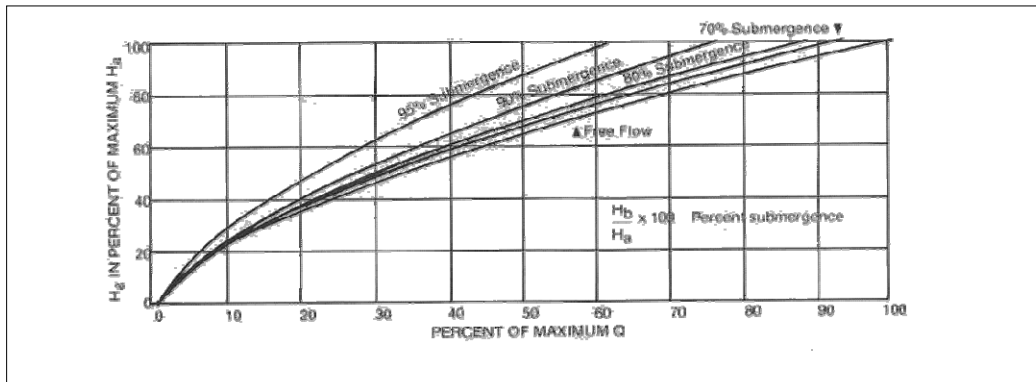


The Parshall flume is an empirically derived and rated measuring device. The discharge capacities are rated for "free flow" conditions. As the downstream depth increases, flow condition is no longer critical, thus two depth measurement readings (at  $H_a$  and  $H_b$ ) are necessary to obtain the correct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

## Performance data and dimensions of standard sizes

Throat		Measuring range	Dimensions		
W			Length	Width	Height
mm	inch	l/s	mm	mm	mm
75	3	0,77-54	915	323	667
150	6	1,50-114	1524	461	724
230	9	2,50-284	1626	639	876
305	12	2,9-598	2867	1000	925
455	18	4,4-898	2943	1200	925
610	24	5,8-1211	3020	1400	925
915	36	8,7-1841	3169	1800	925

Minimum downgrade in the channel: 2 - 5‰



Discharge curves for Parshall flumes with free flow and with submerged conditions.

## Mounting position of the iSonic's ultrasonic sensor

Size	Max. flow	V-Mt	H-Mt
DN/Inch	l/s	mm	mm
75/3	54	780	305
150/6"	114	780	406
230/9"	284	970	572
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

