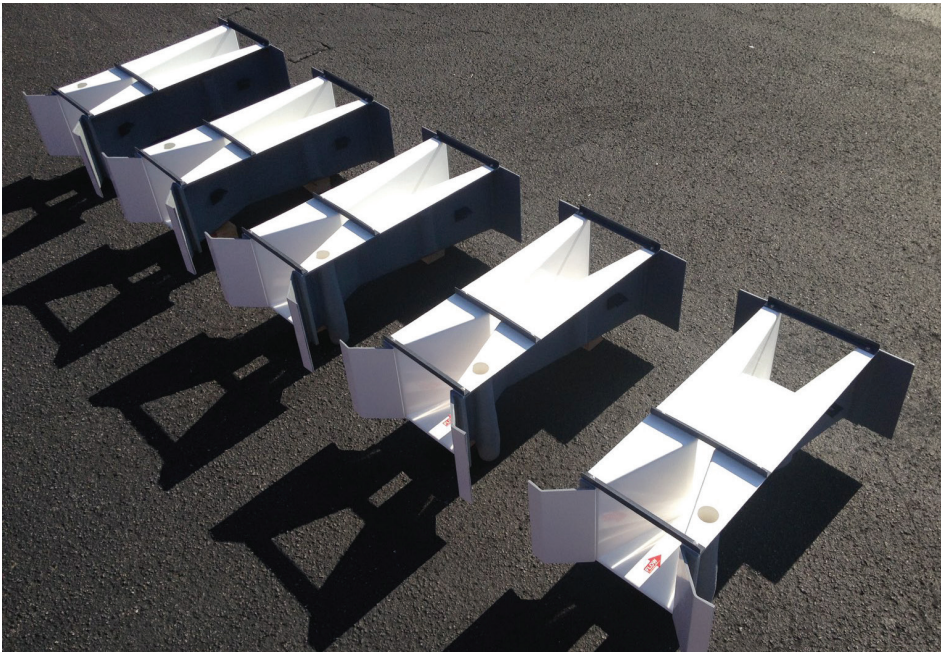


CUTTHROAT FLUMES



In the 1960's, Gaylord Skogerboe, Leon Hyatt, Ross Anderson, and Keith Eggleston, backed by funding from the United States Department of the Interior, Office of Water Resources Research, sought to develop a flume that was suitable to installation on flat gradients that operated under both free and submerged flow.

Building on flat-bottomed design, which was well suited to the flat gradient channels the flume was to be designed for, the developers incorporated a 3:1 inlet convergence ratio with a 6:1 divergence ratio to set the basic shape of the flume.

Cutthroat flumes are available from Openchannelflow in both Rectangular and Trapezoidal styles, with the Rectangular style being the more common of the two.

Rectangular Cutthroat flumes are sized by length and throat width, while Trapezoidal Cutthroat flumes are sized by throat width.

APPLICATIONS

- *Water Rights*
- *Irrigation*
- *Sanitary Flows*
- *Flow Splitting*
- *Industrial Discharge*
- *Stormwater*
- *Landfill Leachate*
- *Acid Mine Discharge*
- *Surface Waters*
- *Mine Dewatering*
- *Dam Seepage Monitoring*
- *Feedlot Runoff*



Rectangular Cutthroat:

- 18-inch [45.74 cm] long
- 36-inch [91.44 cm] long
- 54-inch [137.2 cm] long
- 108-inch [274.3 cm] long

Trapezoidal Cutthroat:

- 6-inch [15.24 cm] wide
- 12-inch [30.48 cm] wide

A wide range of materials and configurations are available.

Dimensionless

Unlike Parshall flumes, Rectangular Cutthroat flumes are scale models of each other. The angles of convergence and divergence of the sidewalls are constant regardless of the length or throat width of the flumes - as is the ratio of the length of the converging section to the length of the diverging section. Similarly, the three sizes of Trapezoidal Cutthroat flumes vary only in the width of the throat section - all other measurements being the same.

Intermediate Sizes

A distinct advantage of Rectangular Cutthroat flumes is the ability to develop intermediate width flumes without the need for laboratory rating. Simply moving the sidewalls of the flume in or out can allow an intermediate throat width flume to be developed.

Submergence

Designed to be use in flat gradient applications, Cutthroat flumes resist the effects well of downstream conditions on the free-flow of water through the flume. Submergence transition, S_t , ranges from 60% to 80% - about 10% higher than similarly sized Parshall flumes.

For Rectangular Cutthroat flumes, the submergence transition increases as the length of the flume increases. While for Trapezoidal Cutthroat flumes, the submergence transition increases as the width of the flume increases.

Materials of Construction

- Aluminum
- Galvanized Steel
- Fiberglass (FRP / GRP)
- Stainless Steel

Customization

Openchannelflow offers a wide range of mounting, connection, and flow / level measurement accessories to help you customize your flume to your specific site needs.

MOUNTING



- Free-Standing
- Earthen Channel
- Packaged Metering Manholes
- Above Grade Enclosures

FLOW/LEVEL



- Staff Gauges
- Stilling Wells
- Bubbler Tubes
- Ultrasonic Sensor Brackets

END CONNECTIONS



- Pipe Stubs
- Flanges
- Caulking Collars
- Wing Walls