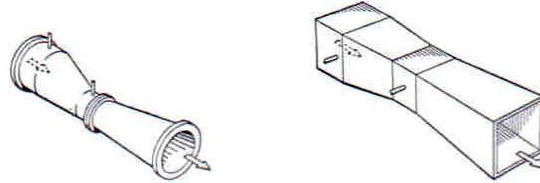


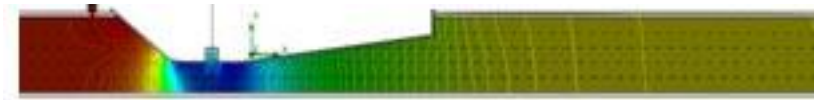
**AMITY FLOW**  
**Eccentric Segmental Venturi**  
 R.W.Miller PhD, PE

A lower cost eccentric Segmental Venturi has being designed by AMITY to replace currently expensive eccentric Venturies used for sand-oil or dirty fluid applications. These meters are designed with improved cladding ability, similar overall pressure loss, and improved accuracy. Laboratory test results over a wide Reynolds number range confirms accuracy with low overall pressure loss.

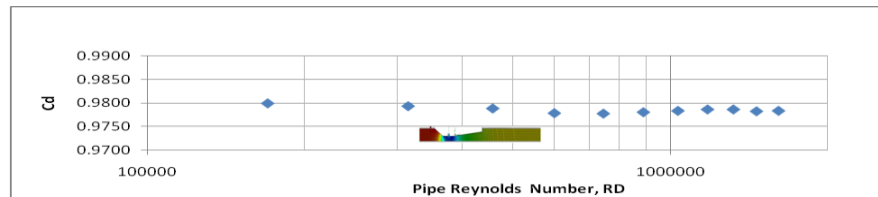


**Figure 1** Eccentric Venturies

A Computational Fluid Dynamics (CFD) pressure plot for the meter tested at Alden hydraulic lab is shown in Figure 1.

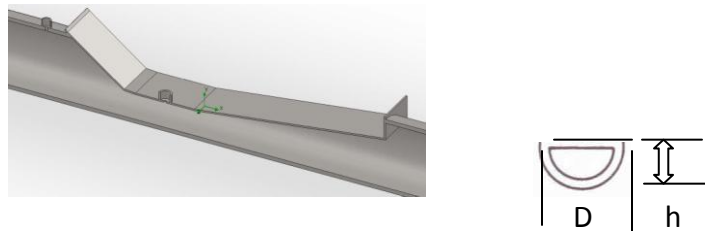


**Figure 1** CFD's for Alden test 4" meter



**Figure 2** Alden laboratories determined discharge coefficients

Shown in Figure 2 is the discharge coefficient data obtained at the Alden hydraulic laboratory. Discharge Coefficients over the calibration range are within  $\pm 0.08\%$ .



**Figure 3** Segmental Venturi a) Geometry b) Throat section

The e-Segmental Venturi has the following advantages over the eccentric Venturi or ASME standard Venturies.

- Discharge coefficients constant over a wider Reynolds number range than eccentric or standard Venturies.
- Overall pressure loss same as an equivalent beta ratio ASME Venturi.
- Substantially lower cost.
- Cladding and improved favorable pressure boundary layer control should extend meter life.