

IsoFLOW Probe™

Patent Pending Device for improved isokinetic flow

MARKET

Energy Infrastructure

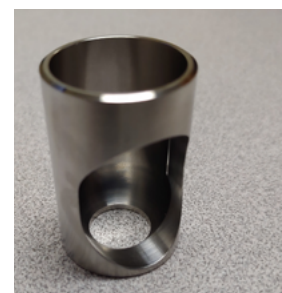
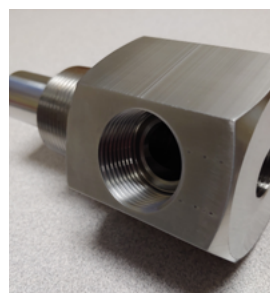
AVAILABLE

Worldwide

The **Chemtec IsoFLOW Probe** is a mechanical device inserted into a pipeline, API Loop, or any other flowing line in order to provide a mechanical means for flow. This flow is representative of the actual product flowing by in said line to produce a sample transport line or slipstream in order to utilize a sample device, densitometer, or any other analytical instrument used to qualitatively and/or quantitatively analyze samples or the chemical makeup of a sample and the quantity of each component within a sample.

The IsoFLOW Probe is a device with a designed machined probe tip to introduce isokinetic flow through the probe. This probe tip is welded to a section of outer tubing to allow probe tip to be located in the middle portion of the main line. On the other end of the tubing, a machined connection head with a built-in attachment method of threads or flange to install on the main flowing line. A smaller diameter return tubing is located in the center of the larger outer tubing, machined connection head, and machined probe tip. This allows a sample transport line or slipstream to be created by connecting the outlet of the connection head to the return tubing with piping, tubing, equipment, and compression or pipe fittings. This mechanical probe design has no moving pieces allowing for an extended life of slip stream delivery and return.

Its engineered design is also supported by third party engineering and CFD testing to ensure sizing for your application will support the wake frequency, flow and pressure requirements you desire.



FEATURES & BENEFITS

- Isokinetic – No Dead legs
- Robust Machined Construction
- Custom Built to Suit Piping Arrangement
- Push / Pull Venturi Effect
- No Rust - Stainless Steel Construction
- No External Welds on Tubing

SPECIFICATIONS

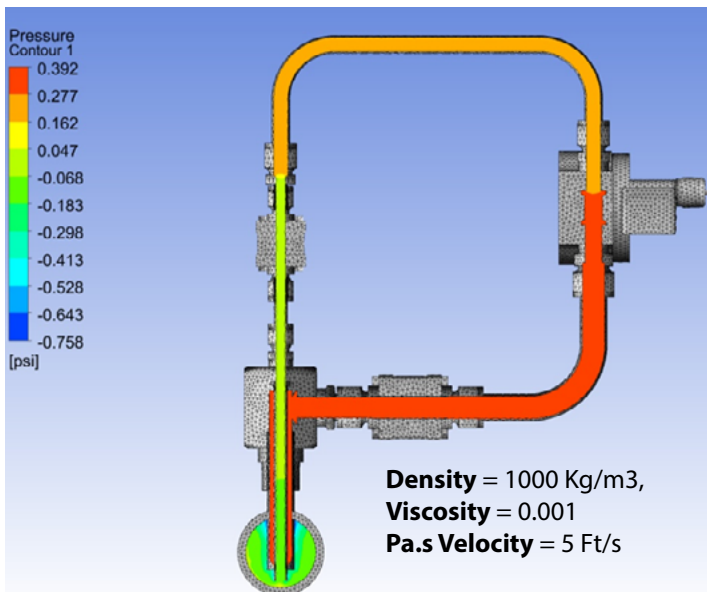
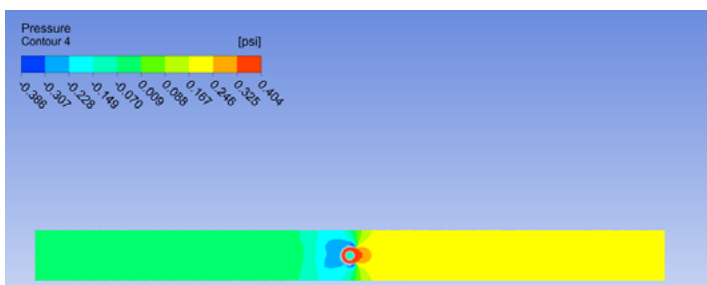
- 316 SS Construction
- Max. Working Pressure: 1480 PSI
- Sized per Application
- Size A - ¾" x 3/8"
 - 2" thru 8" Main Line Size
 - Flow in Loop: .01 GPM to 4 GPM
 - Std Connection: 3/4" MNPT (Others Available)
- Size B – 1" x ½"
 - 8" thru 20" Main Line Size
 - Flow in Loop: .02 GPM to 5.3 GPM
 - Std Connection: 1-1/4" MNPT (Others Available)
- Size C – 1-1/2" x ¾"
 - 20" thru 42" Main Line Size
 - Flow in Loop: .1 GPM to 10.4 GPM
 - Std Connection: 1-1/2" MNPT (Others Available)

Probe Cut-plane

The return tubing engineered design reintroducing the fluid back into the main flow creates a venturi effect at the probe tip. This results in a higher pressure area in front of the probe and a low pressure area behind the probe as seen in the **Probe Cut-plane Graphic**. As product is forced into the larger inlet facing upstream, the low-pressure pocket created behind the probe pulls the return flow out of the return line facing downstream.

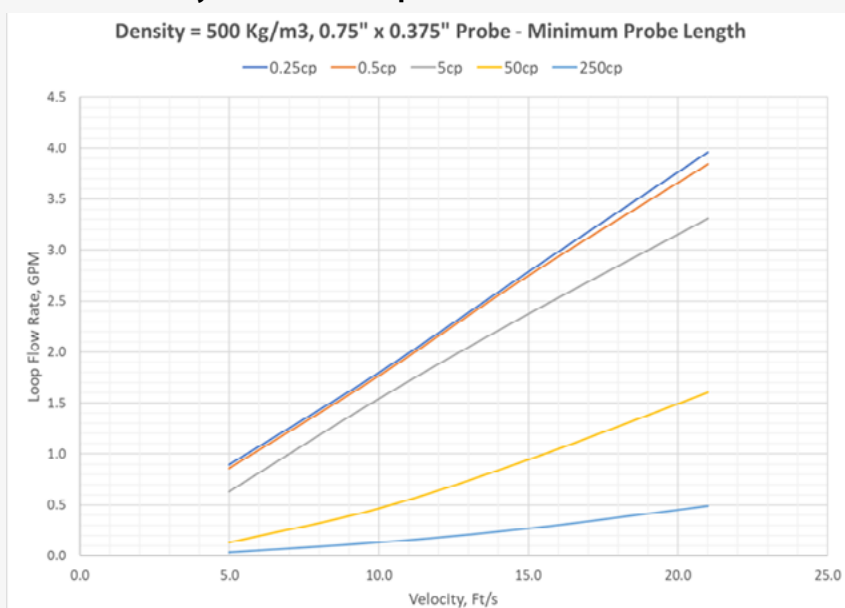
The Patent Pending design provides improved flow and eliminates dead-legs, a design flaw that plagued the previously used single probes. These widely used single probes do not allow product to have isokinetic flow to the sampler or analytical instrument which impedes representative sampling recommended by *API Section 8.2 – Standard Practice for Automatic Sampling of Petroleum and Petroleum Products*. In most cases, the IsoFLOW Probe is a direct replacement for these outdated single probes.

Full CFD Flow Models and Calculations were created for each probe size range enabling the critical design attributes of IsoFLOW Probe (Pressure, Flow, Density, Viscosity, Wake Frequency, and Structural Rigidity). Chemtec also developed a Proprietary Calculator to help select sizing based on these characteristics based on your specific application. The data is available through your Chemtec Rep.



Note: Pressure contours shown as pressure loss due to flow through the loop. In order to find actual pressure in the loop add the main line pressure to the pressure shown in the contour.

Mainline Velocity vs Flowrate Graphic



NOTE: Velocity vs. Flowrate Graphic is representation of data gathered for each size at several Mainline Flowrate and Densities of Products. For full report and information, contact your Chemtec Rep.



Probe Example: This construction utilizes no external welds on tubing. The welds are all internal to the pipeline and verified through Wake Frequency and Critical Velocity Calculations to be sufficient for the service they are to be installed in based on pressure, flow, viscosity, and product density.