

Sample probe (sample loop)

Brand: APACO

Model:PRB200

Purpose:

The APACO PRB200, Probe is a mechanical device that when inserted into a pipeline, API Loop, or any other flowing line it extracts a slip stream of product from said line.

The PRB200, Probe is a patented sample extraction product engineered to solve the age-old issue of obtaining a sample representative of what is flowing through a pipeline at that specific moment in time.

PRB200, Probe™ extracts a slip stream of product representative of the actual product flowing by in said line to a sample device, densitometer, or any other analytical instrument used to qualitatively and/or quantitatively analyze the chemical makeup or other characteristics of a sample.

The probe is available in two models, Flanged and Threaded, and in three different sizes. This ensures the best possible operating range for your application.

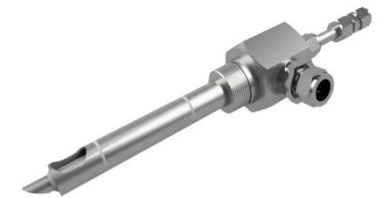
The hydraulics of the pipeline fluid flow, and the application specific design of the probe creates a mechanical flow through the outer tubing of the probe to supply the sample loop with the appropriate amount of fluid for the analytical or sampling device. Any fluid that is not taken from the sample slip stream by the device continues its journey with increase velocity into an inner tubing nested inside of the same probe. Diameter change of the tubing creates and increased velocity of the fluid to reintroduce it to the pipeline. There is a unique effect at the tip of the probe where the fluid is extracted as well as reintroduced. Because fluid is being forced

into the tip of the probe extracting the slip stream, this causes a point of high pressure on the front intake side of the probe but more importantly a low-pressure pocket behind the probe tip. This low-pressure area results in a pulling effect, helping to pull the product back out of the smaller diameter tube returning it back into the pipeline. The mechanical means of flow eliminates the need for a pump resulting in lower install, operation, and maintenance costs. The PRB200, Probe design was established through AutoDesk Inventor parametric modeling and ascertained with

Computational Fluid Dynamic (CFD) analysis. Using a third-party engineering firm, thousands of iterations were modeled using a range of fluid types, pipe sizes, viscosities, flow rates and other critical variables. This data resulted in 3 different probe sizes to accommodate these factors.

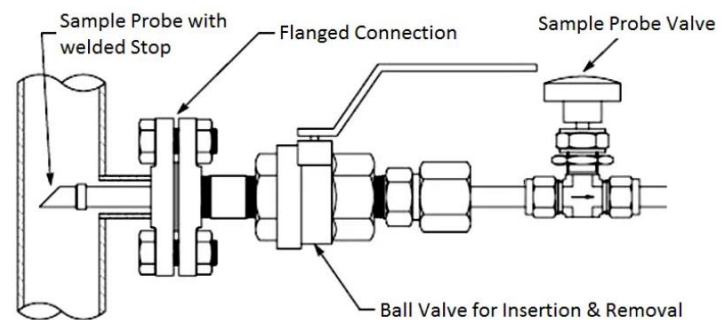
The design is extremely versatile for orientation, where it can be arranged to accommodate almost any existing skid layout or new construction plan. We can orient them for vertical or horizontal applications or right or left-hand orientations to fit the need. The probe tip distance to mounting connection is custom fit for each construction. The connection head and probe tip are machined construction which allows us to inventory these parts so after

award, all our team will have to do is make up the assemblies as needed with custom orientation and installation lengths.



The validity of our theoretical CFD models was then confirmed through actual flow testing yielding results that outperformed the theoretical at higher flow rates. We also offer MTRs, nondestructive X-ray testing upon customer request, and hydro testing. Construction consists of precision machined 316 stainless steel parts fabricated together via strict weld procedures for SS, including eliminating any external fillet welds on tubing. The assembly is then finished with application specific pressure rated components to accommodate the pipeline and analytical instrument requirements.

Contact us with your sampling questions. Using your application specific variables of line size, velocity, density, and viscosity we will use our proprietary calculator to specify an application specific PRB200, Probe Solution.



APACO Recommendation:

APACO MIX120+PRB200

A homogeneous mixture of oil and water is created downstream of the APACO MIX120 multiple action mixer by initial division and optimising the division, coupled with back mixing before exit. This ensures that the oil/water mixture has an even distribution of water/oil which is excellent for custody transfer crude oil samplers and water cut meters.

