



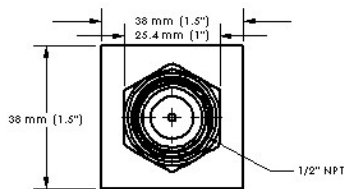
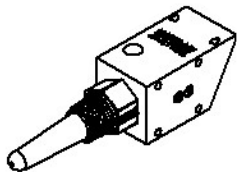
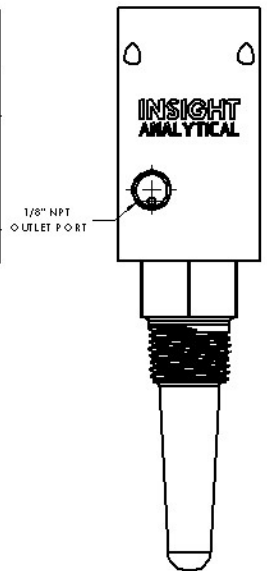
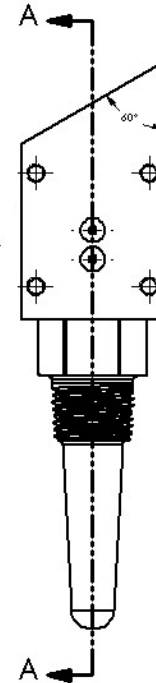
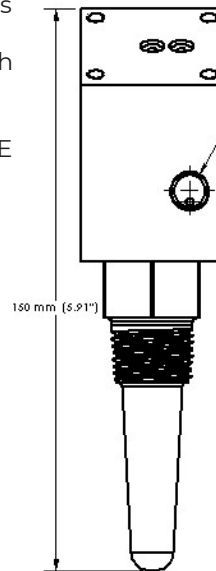
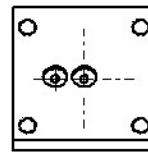
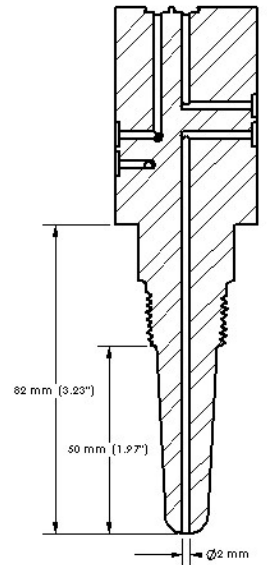
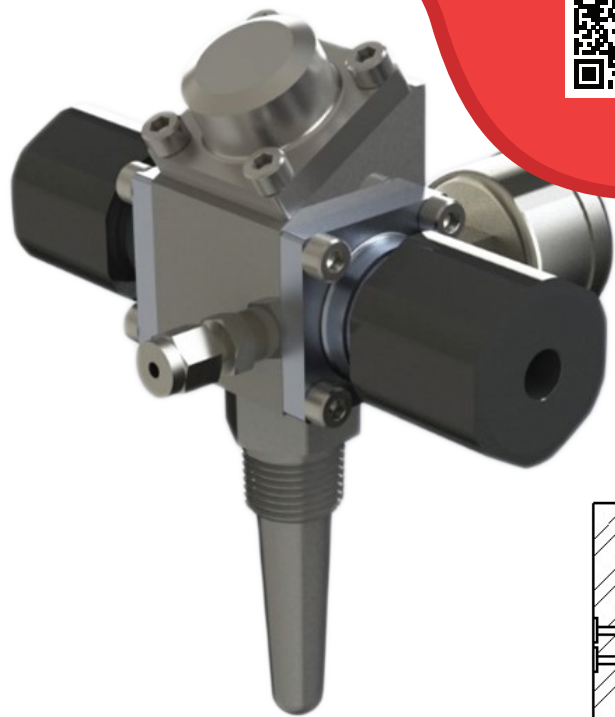
Half Inch NESSI Probe

The Insight Analytical 1/2" NPT NESSI Sample probe is a modular, configurable and economic solution for providing sample conditioning at the process connection.

The Insight Analytical 1/2" NPT NESSI Sample probe is an enhanced version of the standard 1/2" NPT quill probe, where an upper section has been added to allow up to three NESSI/SP76 compliant sample system components to be mounted and connected in series.

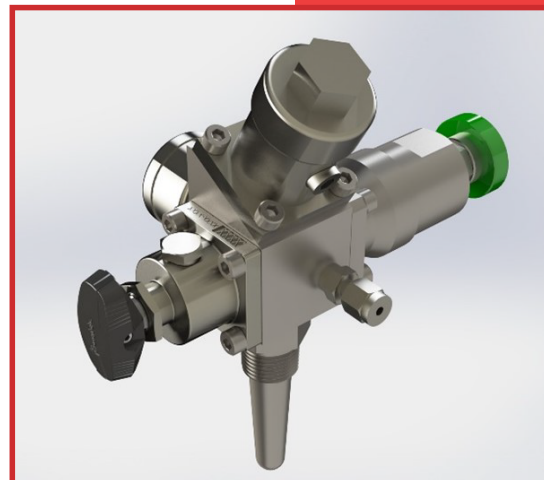
The quill section of the probe has a 2 mm bore for fast response time, a hemispherical tip to reject particulates and liquid aerosols, and follows the Insight Analytical philosophy of eliminating excessive probe insertion length. Minimizing the sample probe insertion length allows a standard probe length to be used for most gas phase application with a 1/2" NPT threadolet connection. This probe has an insertion length of 50 mm from the base of the NPT thread, or about 25 to 38 mm (1 to 1.5 inches) as measured from the inside wall of the process pipe, which is sufficient to obtain a representative sample in most applications.

The elimination of excess sample probe length lowers cost, improves response time, makes plugging less likely, reduces pressure drop and flow disturbances in the process pipe, and makes it possible to design the probe to withstand high process gas velocity without failure caused by vortex shedding induced vibration. This probe has been designed to meet the vortex shedding safety calculations in the ASME PTC 19.3 TW-2010 thermowell design standard for fluid velocities up to 100 m/s and fluid densities up to 400kg/m³.



Incorporating three NESSI/SP76 sample system component mounting locations allows for application customization through various combinations of these components. In addition to eliminating dead volume from tubing and fittings, this arrangement also reduces the possibility of leaks since the sealing and interconnection of these extra components is accomplished with o-rings rather than NPT taper pipe threads. Various NESSI/SP76 components are commercially available including manual and pneumatic 2-way valves, pressure regulators, coalescing filters, membrane filters, check valves, metering valves, proportional pressure relief valves and excess flow shut-off valves. Possible component configurations include:

- A 2-way ball valve, membrane filter and pressure regulator in series, allowing any liquid separated by the filter to drain back down through the 2-way ball valve into the process, and having a first cut pressure regulation done right on the probe.
- Either one or two pneumatically actuated valves in series, functioning as safety shut off valves. These can be actuated by a solenoid valve controlled by the alarm contacts of an LEL detector to shut in the probe if a leak is detected. This arrangement can also be used to provide fail-safe shut-off of the sample gas at the probe in the event of system failure or power loss.
- Two 2-way ball valves in series with a vent connection in between to implement double block and bleed shut-off.
- A 2-way ball valve and two pressure regulators in series for 2 stage pressure reduction.



Technical Specifications

Maximum Pressure Rating	20700 kPag (3000 psig) for probe, but limited by pressure rating of NESSI components selected.
Temperature Range	-45°C to 149°C (-49°F to 300°F) for probe, but limited by temperature rating of NESSI components and o-rings selected.
Internal Volume	<1.5 cm ³ (0.092 in ³)
Outlet Port Size	1/8" NPT male thread plus 1/8" NPT pressure gauge port
Process Connection Size	1/2" NPT male thread
Threadolet Process Connection Required	1/2" NPT Female thread. Minimum opening ID of 16.5 mm (0.65").
Wetted Materials	Electropolished 316L Stainless Steel
NACE compliance	NACE MR0175/ISO 15156 and MR0103 Compliant.
Compliance with ASME PTC 19.3 TW-2010	Passes calculations for process velocities up to 100 m/s and maximum density of 400 kg/m ³