



Shrouded Probe

ANSI N13.1 Particulate Sampling Probe

The Shrouded Sampling Probe is an anisokinetic probe manufactured by Ultra NCS Lab Impex Systems under licence from Texas A & M University. The probe is designed for high efficiency extraction of aerosols from ventilation stacks, and for the nuclear industry is most commonly used in radioactive effluent sampling and measurement systems.

Features

- Meets requirements for ANSI N13.1-1999 and ISO 2889-2010
- Available for 25mm, 1.0" or 1.5" sample lines
- Improved transmission efficiency over a range of velocities
- Improved transmission efficiency over a range of flow angles
- Lower internal wall losses than isokinetic sample probes
- Less sensitive to flow turbulence
- Use in fixed or variable sample flow systems

This probe design has several advantages over non-shrouded probes (such as the traditional isokinetic variety): lower internal wall losses, better off-angle performance, lower sensitivity to flow stream turbulence, and the ability to operate in either a fixed flow or variable flow rate mode.

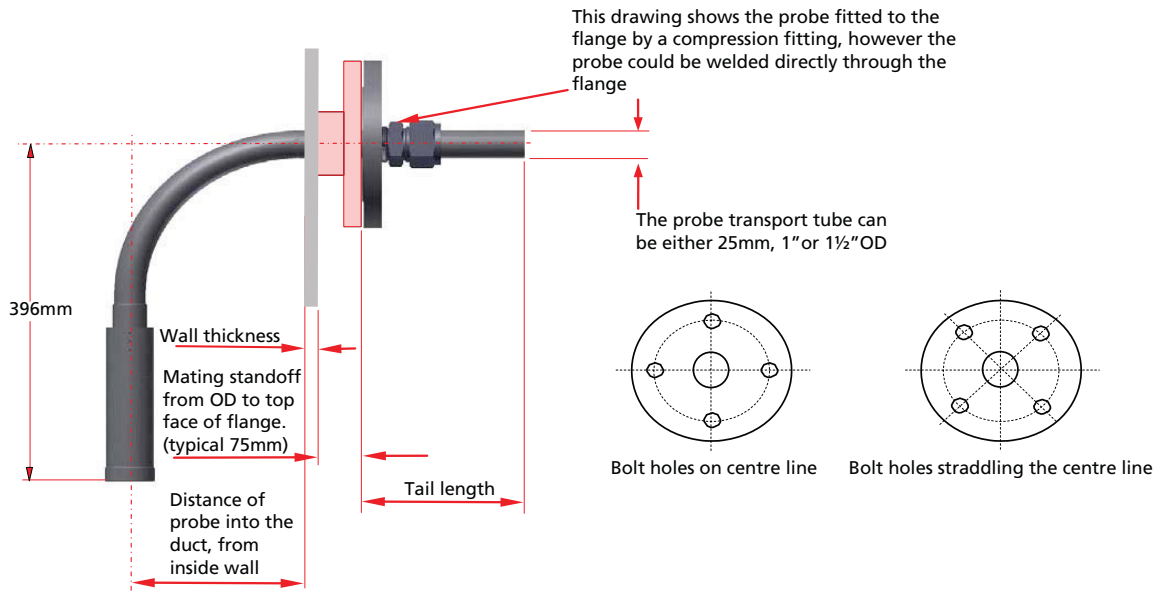
Another significant benefit is that a single probe design may be used for a range of stack velocities and geometries, thereby allowing a single shrouded sampling probe design to be used for a variety of different stack applications (diameters and flow rates). Shrouded probes are typically less expensive than a custom sampling rake designed for a similar stack.

Optimal Efficiency

In a stack installation, the shrouded probe will be used with a transport system specifically designed to ensure that aerosol losses within the sample probe and transport lines are kept to a minimum. Typically a system will comprise a shrouded probe, an in-stack transport line, a mounting flange, and an external transport line that conveys the aerosol sample from the stack to the sampling or monitoring system.

Transport system design is an important step in optimising overall sampling efficiency, and Lab Impex Systems can assist clients in the design process by using software modelling to determine the transmission efficiency of aerosol through the transport system.

Nuclear Control Systems



Shrouded Probe Model

	Transport Pipe Size	Stack Velocity Range	Optimum Stack Velocity***	Sample Draw-off Rate
1	RF2-111 1.5" tube	0-24 m/sec	13 m/sec	2CFM
2	RF2-112 1.5" tube	0-16 m/sec	4.5 m/sec	2CFM
3	RF37-MM 25mm tube	5-15 m/sec	10 m/sec	37-50 Lt/min
4	RF37-IN 1" tube	5-15 m/sec	10 m/sec	37-50 Lt/min

Part Number example SP2000-1-450-5-75-190-2-C

Probe dimensions

- Probe depth into duct (e.g. 450mm)
- Wall thickness of duct/stack (e.g. 5mm)
- Mating flanged stand-off - duct OD to top face of flange (e.g. 75mm)
- Straight length of "tail", flange face to end of tube (Typical length 190mm)

Mounting flange

- 0 DIN 2527 PN6 100mm flange welded to the probe. (Specify bolt hole position**)
- 1 DIN 2527 PN6 100mm flange fitted with locking gland. (Adjustable probe length)
- 2 BS4504 Table 6 Class 150lb 4" flange welded to the probe. (Specify bolt hole position**)
- 3 BS4504 Table 6 Class 150lb 4" fitted with locking gland. (Adjustable probe length)
- 4 ANSI B16.5 Class 150lb 4" flange welded to the probe. (Specify bolt hole position**)
- 5 Universal Mounting Flange for 25mm probe. (Adjustable probe length)
- 6 Universal Mounting Flange for 1" probe. (Adjustable probe length)

Please note that the Universal Mounting flange option is not available for a 1 1/2" probe.

Bolt Hole orientation

- C On centreline **
- S Straddle centreline**
- N Not applicable

***Note – Optimum velocity is where the transmission ration = 1



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