

# ISOKINETIC SAMPLE PROBE FOR PARTICULATE SAMPLING



DON'T ALLOW DEEP PENETRATING WELDS. INTERNAL WELD BEADS COULD CAUSE PARTICULATE TO COLLECT

DON'T LOCATE SAMPLE NOZZLES NEAR TO BENDS IN DUCTS OR OTHER ITEMS WHICH COULD CAUSE TURBULENCE E.G. VALVES, DAMPERS (PARTICULARLY MODULATING DAMPERS)

DO NOT USE PLUG/NEEDLE VALVES TO ISOLATE SAMPLE LINES, VALVES MUST BE FULL-BORE BALL VALVES

The purpose of a sample probe is to remove a small amount of air from an extract system, at a given draw-off rate.

With an Isokinetic probe, the velocity of the sample entering the sample nozzle should be the same as that flowing within the extract duct. This method of sampling is for particulate only.

## NOZZLE INLET VELOCITY

To ensure that the system is sampling isokinetically the velocity of the air entering the sample nozzle has to be the same as the air velocity in the duct. If the entry velocity is greater, the system would be over sampling, and if the velocity is lower the system would be under sampling.

If the velocity in the duct is not constant, the sample flow rate will need to be modulated, so that the nozzle inlet velocity tracks the duct velocity.

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.

## ISOKINETIC SAMPLE PROBE FOR PARTICULATE SAMPLING

**PART NUMBERS FOR LAB IMPEX SYSTEMS ISOKINETIC SAMPLE PROBE**

Sample Rate: -37 = Draw-off rate to which the nozzle bore is sized, in Lt/sec.

Velocity Probe: - 5 = The duct/stack velocity in m/sec.

Fixing: - F = Fixed probe length  
- A = Adjustable Probe Length

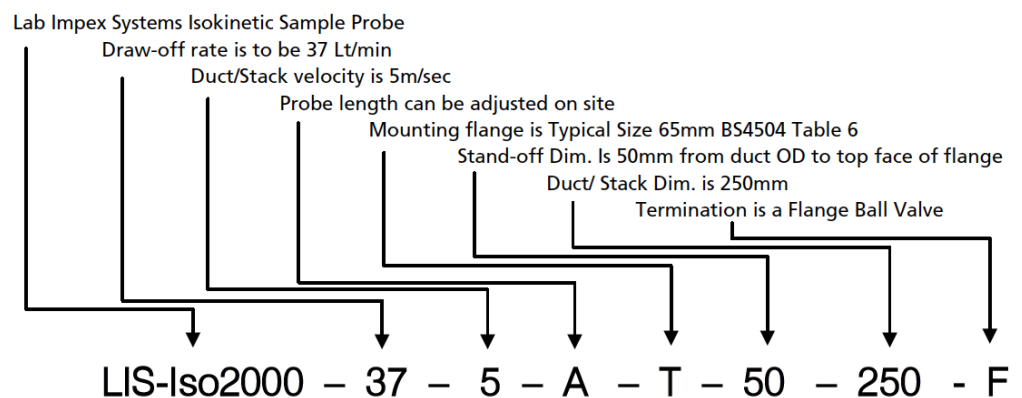
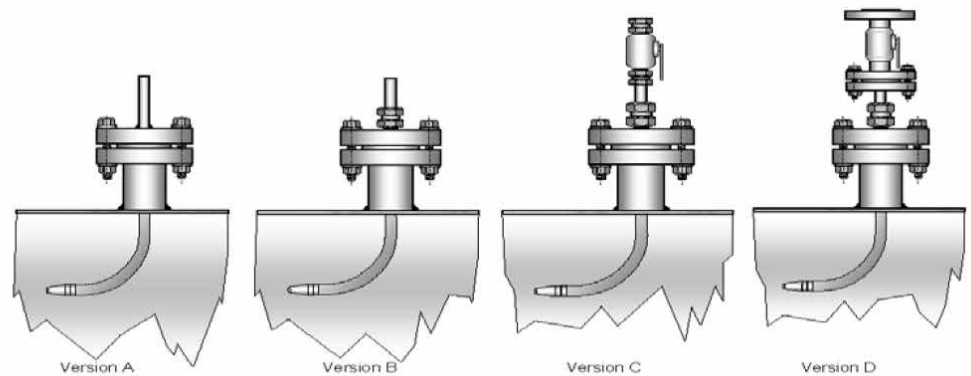
Mounting Flange size: - T = Typical size, 65mm BS4504 Table 6  
- S = Special, to be specified.

Stand-off dimension: - 50 = Dimension from outer face of duct to top of flange raised face.

Duct Dimension: -250= The probe is to be mounted in a duct 250mm Dia. or Wide.

Probe: - S = Square cut end.

Termination: - F = Flanged ball valve (25mm BS4504 Table 6)  
- C = Compression fitting Ball valve for 25mm OD tube.



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## CMS ION: ION CHAMBER BASED INTERLOCK SYSTEM

## PERFORMANCE SPECIFICATION

<b>Ion Chamber Options</b>	ICD-1: 100 $\mu$ Sv/h to 50 Sv/h ICD-2: 1 $\mu$ Sv/h to 100 mSv/h	<b>Operating environment</b>	Indoor use (or suitably enclosed); designed to IP54 Operating temperature range -10 to 50°C (14°F to 122°F) Maximum relative humidity 95% (up to 30°C)
<b>Detector Interface</b>	Ion Chamber Interface (ICI-1) Current to frequency convertor designed to produce a digital voltage pulse output that is directly proportional to the ionisation activity.	<b>Power details</b>	Mains AC single phase connection (110-230 Vac) Frequency: 50 to 60 Hz Max. Current: 100mA Internal 1A anti surge fuse
<b>Alarm facilities</b>	Fast, valid warning of high activity or fault. Three activity alarm thresholds and other parameters can be set by the user and passcode protected.	<b>Dimensions</b>	ICD-1: $\varnothing$ 60 mm x 180 mm ICD-2 : $\varnothing$ 186 mm x 551 mm ICI-1 : 141 mm (W) x 187 mm (H) x 73 mm (D)
<b>Communication (non SIL)-optional</b>	1 x RS232 port (LIS protocols). 1 x RS485 port (LIS protocols). Ethernet 10baseT (LIS protocols, HTTP, FTP). Detector Interface RS-422 (balanced differential line).	<b>Visual Display</b>	Large LCD graphic display (114mm x 64mm (4.5" x 2.5")) with backlight. Fully sealed membrane keypad Both digital and analogue display Key switch.
<b>Outputs</b>	Fail-safe relay contacts for faults and alarms. Ethernet 10baseT (LIS protocols, HTTP, FTP).	<b>Security</b>	The following actions may be passcode/keyswitch protected: <ul style="list-style-type: none"> <li>• Change Parameters</li> <li>• Clear Historic Count Data</li> <li>• Clear Event Log</li> <li>• Reset Pass Codes</li> <li>• Modify Pass Codes</li> <li>• Reset Instrument.</li> <li>• Test / Calibrate Analogue I/O</li> <li>• Test Digital Outputs</li> </ul>
<b>Data storage</b>	Non-volatile data capability for 7 days count history at minimum 5-minute data log intervals with historical review on LCD display. Non-volatile data capability for event history (last 100 events). Non-volatile storage for operating parameters.	<b>Self test facilities</b>	The CMS INTERLOCK SIL continuously selfmonitors or faults. Conditions checked include:- <ul style="list-style-type: none"> <li>• Detector Failure</li> <li>• Power Failure</li> <li>• Detector Over range</li> </ul>
<b>Environmental</b>	IP54 (IP65 detector option available).	<b>Approvals &amp; Standards</b>	IEC 61508 Safety Integrity Systems. Compliant with 73/23/EEC-EMC Directive Type approval at HPA to IEC60532. Compliant with 93/68/EEC Low Voltage Directive.



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