SAMPLE SPECIFICATION
INSTRUMENT ENCLOSURES

1.1 The enclosures shall be designed to protect instrumentation from freezing, over-temperature, corrosion and mechanical abuse. The enclosures shall give total protection of the instrumentation, leaving no parts of the instrumentation exposed to atmosphere and weather.

1.1.1 Enclosure style shall be selected from the following:

1.1.1.1 Enclosure shall have a diagonal opening with lid support.
1.1.1.2 Enclosure shall have a horizontal opening with a hinged top.

1.1.1.3 Enclosure shall have a vertical opening with a front door suitable for case type instruments, sample conditioning assemblies, etc.

1.1.2 Minimum U factor shall be 0.052 W/m-K (0.36 Btu/Hr-ft-F).

1.1.3 The enclosure shall not rot, rust, and may not absorb water even if the outer surface is ripped or scarred.

1.1.4 The enclosure shall be weather proof with an IP65 rating or better and impact resistant.

1.2 Materials of Construction

1.2.1 The enclosure shall have an outer ABS shell with integral foamed-in-place urethane insulation with a total thickness of 25mm (1”). Glued in or laminated insulation is not acceptable.

1.2.2 Latches and hinges shall be 300 series stainless steel. Latches and hinges shall be used to allow easy access to the enclosure. Latches are to be cam-acting with adjustable tension. Hinges are to be two point with self cleaning and non-binding pivot. Hinge shall allow lid / door of enclosure to be disengaged without removing mounting screws or bolts.

1.2.3 Enclosure gasket shall be closed cell EDPM and suitable for a temperature range from -50°C to 80°C (-60°F to 175°F).

1.2.4 Exterior plates and mounting hardware shall be carbon steel with an electrostaticly applied polyester TGIC black powder coating similar to that used on instrument topworks.

1.3 Instrument Mounting

1.3.1 Interior instrument supports shall be directly connected to the exterior support by metal to metal support provided by metal spacers through the wall of the enclosure.

1.3.2 The interior of diagonal and horizontal opening enclosures will be fitted with an integral adjustable rail mounting system that will allow the instrument mounting brackets to be relocated on the bottom of the enclosure without the necessity of drilling additional mounting holes.

1.3.3 Instruments and entry of pre-insulated heat traced tubing shall be positioned so that slopes to or from process connections is maintained. Configurations that create loops and low points in the impulse tubing are not acceptable.

1.4 Electric Heaters

1.4.1 Electric heaters shall be approved to applicable ATEX Directive, NFPA/NEC or CSA standards for the correct area classification.

1.4.2 Electric heaters shall have an integral factory set temperature thermostat to measure air temperature inside the enclosure.

1.4.3 Electric heaters shall have an integral temperature fuse to protect against overheating.

1.4.4 Egress of electrical power shall be provided.

1.5 Steam Heaters

1.5.1 Freeze Protection: Steam heaters shall be sized for operating conditions and shall maintain a temperature span will not allow either freezing or overheating of the instrumentation at both winter and summer ambient conditions.

1.5.2 Temperature Maintenance: Steam heaters shall be sized for the most severe conditions and the enclosure temperature shall be controlled using the enclosure manufactures heater control valve.

1.6 Power Connections

1.6.1 Instrument enclosures shall be designed to accommodate preinsulated heat traced tubing bundles for instrument impulse lines.

1.6.2 With the use of pre-traced tubing bundles, an electrical termination approved for the heating cable and electrical area classification shall be used. The power supply for the pre-insulated tubing bundles and enclosures shall be integrated into a single location at the enclosure.

1.7 Options

1.7.1 For instruments with local indicators a safety glass viewing window is to be provided. A minimum 150mm (6”) diameter viewing area is required.

1.7.2 Heat shrink entry seals or surface plates with the appropriate hole sizes for process entry lines are required. Grommets are not acceptable.

1.7.3 Mechanical seals that maintain the IP rating of the instrument heating box shall be used to provide egress for all tubing, instrument and electrical connections.

1.7.4 Sealant for field penetrations or drain tubing to be provided.

1.7.5 Drainage for the enclosure to be provided in the event of a leak or spill.

1.7.6 The enclosures shall have exterior tagging that contains as a minimum the enclosure model number and a traceable serial number. Additional tag information may be added at customers’ request.

1.7.7 A 50 x 150mm (2” x 6”) white phenolic tag with 12mm (1/2”) black lettering is to be affixed to the outside of the enclosure containing the instrument tag number.

1.7.8 All enclosure mounts, brackets, entry plates, and accessories are to be factory located and installed.

1.7.9 Customer supplied instruments, manifolds, and valves to be installed by the enclosure manufacturer. Leak testing of the final assembly to be performed prior to shipment. All enclosures to be placed in individual cartons and palletized to minimize damage during shipment.

1.8 Approval drawings showing instrument layouts and corresponding preinsulated and traced impulse lines is required.

2.0 Suppliers

2.1 Supplier of instrument enclosures shall be the same as supplier of tubing bundle to insure compatibility of the completed instrument system.

2.2 Enclosure shall be O’Brien VIPAK enclosure system or approved equal.

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