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| **Tube Turns Monolithic Insulated Joints Spec** | |
| |  | | --- | | ***Monolithic Insulated Joints are:***   * Prefabricated non-separable unions for buried service * Butt weld construction * **Eliminates** short circuits * **Eliminates** field assembly * **Eliminates** bolted connections * **Eliminates** maintenance | | ***Design Basis***   * ANSI/ASME B31.4, B31.8 * ASME Sec V Inspection & Sec II Materials * ASME Sec. IX welding (all welders and welding) * ASTM applicable material standards A694 F52 * ISO 9001 quality standards * Class rating 600 and 900 at 100F * DF = .50 depends on “Location Class” per B31.4/B31.8 | | ***Design***   * CL600 Pressure tested to 2225 psi 15 min * CL900 Pressure tested 3350 psi 15 min * IJ subjected to same pressures and forces of pipeline * IJ exceeds strength of the pipeline; able to withstand pressure stress/bending moments * Design subjected to externally applied bending load which will produce a max bending   strength of 72% of the min. yield of the attached pipe   * Weld ends preps to match attached pipe   + Beveled to 30 degrees +5 deg/-0 deg   + 1/16 land | | ***Standard Welding Hub Materials:***   * **Pipe** (2 – 6 inch) SA 106 Br. B/C 52K min yield * **Forgings** (8-inch +) SA105/SA350 LF2 CL1 and A694 F52 (dual or triple certified) * **Serialized** * **Heat code identified** * **Test reports** & MTRs w/each shipment * **Higher yield material** available (F60, F65, F70) | | ***Hydrostatic pressure test:***   * 1.5 x design pressure for 15 minutes min. | | ***Electrical testing:***   * Resistance test 25 megohms at 1000 VDC * Dielectric strength test: 5 KV @ 1 min or spec (opt) | | ***Weld examination:***   * UT weld exam of Yoke welds and ends | | ***Data package includes:***   * **Hydrostatic** test report (1.5 x design pressure) * **Electrical** test report (resistance & withstand) * **Weld** test report (UT of closure welds/ends) * **MTRs** w/each shipment | | ***Insulator***   * FR-4 high strength Glass Reinforced Epoxy Resin * Min electrical strength 15,000 Volts | | ***Marking – Forging and Pipe traceability***   * ***Each IJ marked by low stress steel stencil on outside of yoke:*** * Mfg name * Serial # * Pressure Class * Material Heat # * Material Heat # also marked on outside of hub | | ***Beveled weld ends:***   * to match pipe ends per ASME B31.4, B31.8 | | ***Through bored***   * per ANSI B31.4, B31.8 | | **US made** at our ASME facility in Louisville, KY   * With US steel * Complies with “**Buy America**” provisions | | **Approval drawings** furnished as requested   * w/serial # * w/sales order # and customer information * Material for all components -hub, yoke, insulator, etc. | | ***FKM O-rings (Internal seals) are:***   * Under compression and locked into position * Completely sealed to atmosphere | | **Non-conductive Epoxy Coatings** inside/outside used to prevent bridging of the insulating gap   * Each IJ blast cleaned * Coating options:   + Tube Turns std two-part (Akzo Noble), Coal Tar Epoxy, Denso Protal 7200 | |