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| **Tube Turns Monolithic Insulated Joints Spec** |
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| ***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
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| ***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)
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| ***Hydrostatic pressure test:*** * 1.5 x design pressure for 15 minutes min.
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| ***Electrical testing:*** * Resistance test 25 megohms at 1000 VDC
* Dielectric strength test: 5 KV @ 1 min or spec (opt)
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| ***Weld examination:**** UT weld exam of Yoke welds and ends
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| ***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
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| ***Insulator**** FR-4 high strength Glass Reinforced Epoxy Resin
* Min electrical strength 15,000 Volts
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| ***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
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| ***Beveled weld ends:**** to match pipe ends per ASME B31.4, B31.8
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| ***Through bored**** per ANSI B31.4, B31.8
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| **US made** at our ASME facility in Louisville, KY * With US steel
* Complies with “**Buy America**” provisions
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| **Approval drawings** furnished as requested* w/serial #
* w/sales order # and customer information
* Material for all components -hub, yoke, insulator, etc.
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| ***FKM O-rings (Internal seals) are:**** Under compression and locked into position
* Completely sealed to atmosphere
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| **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
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