

# MIJ MANUFACTURING CHECKLIST

## MANUFACTURING

All raw materials on manufacturing floor traceable to MTR's (HT# etc.)	<input type="checkbox"/> YES	<input type="checkbox"/> NO
All WIP inventory uses job routing sheet with in process inspection forms	<input type="checkbox"/> YES	<input type="checkbox"/> NO
All Raw material componenets in WIP have HT#'s recorded on in process inspection forms	<input type="checkbox"/> YES	<input type="checkbox"/> NO
All CNC Machining equipment calibration records up to date, & available	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Press equipment calibration records up to date, & available	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Press equipment ensures parallelism of bed & ram	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pipe has been saw cut & mechanically beveled (No torch cut materials)	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pipe has been blasted & inspected for any defects (Pitting, out of round, etc.)	<input type="checkbox"/> YES	<input type="checkbox"/> NO
MIJ's are permantely marked with unique serial number	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Welding Standard Qualified to (ie. API 1104, ASME sec IX, etc.)	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Welding Procedure Qualified with test specimens	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Hardness Survey taken on qualification specimen base metal, filler metal, and heat affected zone	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Welding Procedure available on the manufacturing floor	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Qualified Welding Repair procedure available on the manufacturing floor	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pre- heating or other strategy is used to mitigate Hydrogen embrittlement on welds	<input type="checkbox"/> YES	<input type="checkbox"/> NO

## QUALITY PROCEDURES

ISO 9001 certified facility	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Readily available Quality Manual	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Established procedures for each critical manufacturing process	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Established procedures for each testing operation	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Defined Inspection & Testing Plan	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Defined Final Inspection prior to shipping	<input type="checkbox"/> YES	<input type="checkbox"/> NO

## TESTING

Machined Forgings are inspected using magnetic particle for surface defects	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Each weld is individually inspected for visual defects	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Each weld is individually inspected using magnetic particle inspection	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Each weld is individually inspected using ultrasonic inspection	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Each MIJ is verified for electrical resistance throughout the assembly process	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Each MIJ manufactured completes a hydrostatic & pneumatic pressure test	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Each MIJ's dielectric strength is verified using a high voltage test 5KV for 1 minute	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Once coated each MIJ is checked for coating holidays & coating thickness (report provided)	<input type="checkbox"/> YES	<input type="checkbox"/> NO

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**DESIGN**

Applicable Design Codes (ie. ASME VIII, B31.8, etc.)

Design Verification Test Data available for review...

Bend Testing	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Torsional Testing	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Compression Testing	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Cyclical testing	<input type="checkbox"/> YES	<input type="checkbox"/> NO

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**RAW MATERIALS**

Isolation Material (ie. Polycarbonate, G10, G11)

Isolation Material upper temperature limit (tg)

Liquid Epoxy (Fill) data sheet available  YES  NO

Liquid Epoxy temperature range

Sealing Element (ie. Nitrile, EPDM, Viton)

Sealing Element maximum operating temperature

Sealing Element D2000 specification available  YES  NO

Chemical compatability rating of sealing element with media  Satisfactory  Fair  Doubtful  Unsatisfactory

1st article forging MTR's verification by 3rd party testing  YES  NO

Pipe Mill (s)

1st article pipe MTR's verification by 3rd party testing  YES  NO

Filler Metal MTR's available  YES  NO

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