

GP 18-03-03	Centrifugally Cast High Alloy Tubes for Fired Heaters Other than Steam Cracking Reactors	February 2002
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Centrifugally Cast High Alloy Tubes for Fired Heaters Other than Steam Cracking Reactors

GP 18-03-03

Scope

- 1) [I] This Global Practice (GP) covers the materials, fabrication, inspection and testing of centrifugally cast, heat resistant high alloy tubes for fired heaters other than steam cracking reactors.
 - 2) [I] An asterisk (*) indicates that a decision by Purchaser is required, or that additional information shall be furnished by Purchaser.
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1. Required References

[I] This Section lists Practices and Standards that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 18-07-01	Welding Procedures
GP 18-10-01	Additional Requirements for Materials
GP 18-12-01	Positive Material Identification
GP 20-01-01	Inspection of Equipment and Materials

1.2. ASME–American Society of Mechanical Engineers

Unless specific references to the ASME Code are listed, an IHS link to the Introduction is provided to facilitate accessing the relevant parts of the Code.

ASME B31.3	Process Piping
ASME B46.1	Surface Texture (Surface Roughness, Waviness, and Lay)
ASME SEC V A-2	Article 2 Radiographic Examination
ASME SEC V A-6	Article 6 Liquid Penetrant Examination
ASME SEC VIII D1 MA APP 4	Appendix 4 Rounded Indications Charts Acceptance Standard for Radiographically Determined Rounded Indications in Welds
ASME SEC VIII D1 MA APP 8	Appendix 8 Methods for Liquid Penetrant Examination (PT)
ASME SEC IX	BPVC Section IX - Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators

1.3. ASTM–American Society for Testing and Materials

ASTM A 488/A 488M	Standard Practice for Steel Castings, Welding, Qualifications of Procedures and Personnel
ASTM A 608	Standard Specification for Centrifugally Cast Iron-Chromium-Nickel High-Alloy Tubing for Pressure Application at High Temperatures
ASTM E 8M	Standard Test Methods for Tension Testing of Metallic Materials (Metric)
ASTM E 112	Standard Test Methods for Determining Average Grain Size
ASTM E 139	Standard Test Methods for Conducting Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials

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ASTM E 433	Standard Reference Photographs for Liquid Penetrant Inspection
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2. Definitions and Documentation

- 1) [I] The term Inspector, as used in this GP, refers to the Owner's Representative.
- 2) [I] Sound wall thickness is defined as the thickness remaining after machining or grinding and the elimination of all unacceptable or injurious defects such as porosity, shrinkage, slag, etc.
- 3) [I] A log of all welds shall be made and kept for each welder, identifying the tube number, heat number, weld number, welding process, consumables used, and date of the weld.
- 4) * [I] A report of the complete chemical analysis of each heat shall be supplied by the foundry to the Inspector.

3. Materials

- 1) * [R] Foundries shall be approved by the Owner's Engineer.
- 2) * [R] Chemical composition of materials shall conform to the specified standard or specification except as follows (wt %):

Copper	0.100 max
Phosphorus	0.025 max
Sulfur	0.025 max
Lead	0.002 max
Tin	0.005 max
Vanadium	0.100 max
Bismuth	0.0001 max

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