

Coded Note Number: **N3490**

Revision: **C002**

Date: **April 19, 2021**

Title: **Heat Treatment Requirements: ASTM-B366, ASTM-B564, and QQ-N-281**

1.0. This Purchase Order (PO) item shall be heat treated after forming and welding operations (when applicable) are complete with the following exceptions:

- Fittings and flanges machined directly from starting material annealed in accordance with industry standards, meeting the mechanical properties of the invoked specification.
- NICU (UNS N04400) fittings and flanges hot forged in accordance with Penn Machine "Processing Procedure for A400" dated February 22, 2007.

1.1. The temperature of the item shall be as follows. Hold times shall be as necessary to obtain specification compliant mechanical properties.

- NICU (UNS N04400): 1425-1475°F +/- 25°F
- NICRMOCB ALY625 (UNS N06625): 1600°F minimum

1.2. Heat treatment hardware/control equipment shall be in accordance with AMS-H-6875 and shall meet the calibration periodicity requirements in AMS2750.

2.0. Heat treatment documentation including a written procedure, certifications, graphs/charts, and calibration records shall be maintained by the Supplier.

3.0. Cold work operations after heat treatment are prohibited with the exception of slight cold forming operations in way of the weld prep areas on pipe fittings and flanges. Cold forming operations in way of the weld prep area is only allowed where sizing or shaping does not exceed 2% of the outside diameter (OD).

Revision History Table		
Rev	Description	Revision Date
C001	Initial Issue	06/19/2020
C002	Revised: 1) Expanded clarified exception for fittings and flanges machined directly from annealed starting material. Reason: Starting material (e.g. bar) that fittings and flanges are machined from, can be annealed at varying temperatures and holding times as determined by the mill to meet the mechanical properties of the applicable specification. It is not the intent of this Coded Note to require mills produce starting material annealed at the identified temperatures as long as mechanical properties for the applicable specification are met.  Added:	04/19/2021

2) Added exception for NICU (UNS N04400) fittings and flanges hot forged in accordance with Penn Machine "Processing Procedure for A400" dated February 22, 2007.

Reason: Samples provided by Penn Machine were determined to be equivalent to material that had undergone a standard annealing process via NNS lab testing (Dept. O31).