METRIC/INCH-POUND

KSC-SPEC-P-0027
Revision B

TUBING, SUPERAUSTENITIC STEEL, CORROSION RESISTANT, UNS N08367 AND UNS S31254, BRIGHT ANNEALED, PASSIVATED, SPECIFICATION FOR

NOT EXPORT CONTROLLED

This document has been reviewed by the KSC Export Control Office and it has been determined that it does not meet the criteria for control under the International Traffic in Arms Regulations (ITAR) or Export Administration Regulations (EAR).

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Engineering Directorate

National Aeronautics and
Space Administration

John F. Kennedy Space Center

KSC FORM 16-12 06/95 (1.0) PREVIOUS EDITIONS MAY BE USED

RECORD OF REVISIONS/CHANGES

REV LTR	CHG NO.	DESCRIPTION	DATE
-		Basic issue.	May 11, 2010
	1	General revision and editorial update.	May 27, 2020
A		Revised Sections 1.0, 2.0, and 2.2, added Sections 2.3 and 7.	June 20, 2023
B		Revised entire document to consolidate requirements.	June 24, 2024

CONTENTS

ABBREVIATIONS, ACRONYMS, AND SYMBOLS

ASTM	American Society for Testing and Materials
KSC	John F. Kennedy Space Center
NASA	National Aeronautics and Space Administration
UNS	Unified Numbering System

1. SCOPE

This specification defines the requirements for pressure tubing suitable for use with standard, 37-degree, flared tube fittings and buttwelding tube fittings in ground systems designed in accordance with KSC-DE-512-SM at the John F. Kennedy Space Center (KSC), NASA.

2. APPLICABLE DOCUMENTS

The following documents form a part of this document to the extent specified herein. When this document is used for procurement, including solicitations, or is added to an existing contract, the specific revision levels, amendments, and approval dates of said documents should be specified in an attachment to the solicitation, statement of work, or contract.

The applicable documents are accessible via the NASA Standards and Technical Assistance Resource Tool at http://standards.nasa.gov or may be obtained directly from the standards developing organizations or other document distributors.

Citations of applicable documents are hyperlinked to their appearance in 2.1.

2.1 Non-Government Documents

ASTM A213	Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
ASTM A249	Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes
ASTM A262	Standard Practice for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
ASTM A269	Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
ASTM A967	Standard Specification for Chemical Passivation Treatments for Stainless Steel Parts

2.2 Order of Precedence

This specification does not supersede or waive established Agency requirements found in other documentation. Conflicts between this specification and applicable documents cited herein will be resolved by the responsible Technical Authorities. The following is the order of precedence:

1. Federal, state, and local laws and regulations
2. Agency and Center Directives
3. Agency mandatory standards

3. GENERAL REQUIREMENTS

3.1 Material

a) Seamless trade name AL6XN (UNS N08367) superaustenitic stainless steel tubing shall be in accordance with ASTM A213 or ASTM A269.

b) Seam-welded trade name AL6XN (UNS N08367) superaustenitic stainless steel tubing shall be in accordance with ASTM A249 or ASTM A269.

c) Seamless trade name 254SMO (UNS S31254) superaustenitic stainless steel tubing shall be in accordance with ASTM A213 or ASTM A269.

d) Seam-welded trade name 254SMO (UNS S31254) superaustenitic stainless steel tubing shall be in accordance with ASTM A249 or ASTM A269.

3.2 Verification of Tensile Properties

Superaustenitic stainless steel tubing tensile properties shall be verified to be in accordance with ASTM A213 or ASTM A249.

3.3 Annealing

After fabrication, superaustenitic stainless steel tubing shall be bright annealed in accordance with ASTM A249 or ASTM A269, supplementary requirement S1.

3.4 Marking

In addition to the marking requirements of the applicable ASTM specification, superaustenitic stainless steel tubing shall be marked with KSC-SPEC-P-0027 Rev. B.

3.5 Additional Requirements for Seam-Welded Tubing

3.5.1 Passivation

Seam-welded superaustenitic stainless steel tubing shall be passivated in accordance with ASTM A967, with verification by Practice D.

3.5.2 Ultrasonic Inspection

Seam-welded superaustenitic stainless steel tubing shall be tested in accordance with ASTM A249, supplementary requirement S9.

3.5.3 Intergranular Corrosion Test

Seam-welded superaustenitic stainless steel tubing shall pass intergranular corrosion tests in accordance with ASTM A262, practice E or F.

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