Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 7325D
Superseding AMS 7325C

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UNS S32100

RINGS, SEALING, TUBULAR METAL, CORROSION AND HEAT RESISTANT STEEL

1. SCOPE:

1.1 Type: This specification covers sealing rings, commonly called hollow metal O-rings, made from corrosion and heat resistant steel.

1.2 Application: Primarily for seals in fluid systems at temperatures above or below those at which elastomeric or plastic materials may be used.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 2635 - Radiographic Inspection
AMS 5570 - Steel Tubing, Seamless, Corrosion and Heat Resistant, 18.5Cr - 11Ni - Ti (SAE30321)
AMS 5576 - Steel Tubing, Welded, Corrosion and Heat Resistant, 18Cr - 10Ni - Ti (SAE 30321)

2.2 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.2.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be AMS 5570 or AMS 5576 steel tubing.

3.2 Fabricating:

ø 3.2.1 Forming: Rings shall be formed from suitably rolled or formed tubing.

3.2.2 Preparation for Welding: Formed rings shall be clean and free from foreign materials at the ø surfaces to be welded.

3.2.3 Welding: The ends of the formed rings shall be welded together by flash butt welding or resistance welding. The welding process shall be so performed and controlled as to prevent formulation of excessive internal flash.

3.2.4 Final Forming: The welded rings may be formed to final dimensions by rolling or coining. OD welding flash shall be removed with a smooth blend to adjacent surfaces. If the drawing specifies a maximum reduction in OD of the tube in the flash removal area, the reduction from the actual measured tube OD away from the flash removal area shall be not greater than shown on the drawing. If the drawing specifies a minimum wall thickness after flash removal, the wall thickness shall not be reduced below that value.

3.3 Properties:

3.3.1 Compression Deflection: The load required to produce, at the weld, the minimum gland depth shown below shall not exceed the average of the loads required to produce the same gland depth at two points away from the weld by more than the specified maximum load increase. Only one determination of load away from the weld shall be made on rings less than 4 in. (102 mm) in circumference. Determinations shall be made as in 3.3.1.1.

Nominal Tube OD		Nominal Wall Thickness		Gland Depth min		Load Increase
Inch	mm	Inch	mm	Inch	mm	% max
0.035	0.89	0.006	0.15	0.023	0.58	50
0.062	1.57	0.006	0.15	0.042	1.07	40
		0.010	0.25	0.042	1.07	50
0.094	2.39	0.006	0.15	0.074	1.88	35
		0.010	0.25	0.074	1.88	40
0.125	3.18	0.010	0.25	0.105	2.67	35

3.3.1.1 A specimen embracing at least 4 in. (102 mm) of the circumference shall be cut from a ring or an entire ring shall be used as the specimen. The specimen shall be held flat on the support plate while being compressed. The support plate be so designed that the area of the ring being compressed rests on a 0.250 in. ±0.010 (6.35 mm ±0.25) diameter surface. The specimen shall be compressed to the minimum gland depth at two points, when size permits, at least 1 in. (25 mm) on either side of the weld and the average load determined. The specimen shall then be compressed to the minimum gland depth at the weld. Load shall be applied through the end of a 0.250 in. ±0.010 (6.35 mm ±0.25) diameter rod.

3.4 Quality: Rings shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external imperfections detrimental to their performance. Weld shall show complete fusion through the joint.

3.4.1 ø Rings shall be produced under radiographic control, unless otherwise specified. This control shall consist of radiographic examination of the weld joint in accordance with AMS 2635 until proper welding technique, which will produce rings with weld joints free from harmful imperfections, is established for each part number and of production rings as necessary to ensure maintenance of satisfactory quality.

3.4.1.1 To assist in locating the weld, each ring 2.500 in. (63.50 mm) and over in OD shall bear a mark of yellow paint or ink on the OD located 180 deg ±10 (3.14 rad ±0.175) from the weld.

4. QUALITY ASSURANCE PROVISIONS:

4.1 ø Responsibility for Inspection: The vendor of rings shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the rings conform to the requirements of this specification.