



AEROSPACE MATERIAL SPECIFICATION

AMS7490™**REV. R**

Issued 1950-10
Revised 2020-07
Reaffirmed 2025-09

Superseding AMS7490Q

Rings, Flash Welded
Corrosion and Heat-Resistant Austenitic Steels, Austenitic-Type Iron, Nickel
or Cobalt Alloys, or Precipitation-Hardenable Alloys

RATIONALE

AMS7490R prohibits unauthorized exceptions (3.5), revises reports (4.5.1), and results from a Five-Year Review and update of this specification.

AMS7490R has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

1.1 Form

This specification covers flash welded rings made of corrosion and heat-resistant austenitic steels and austenitic-type iron, nickel, or cobalt alloys, or precipitation-hardenable alloys.

1.2 Application

These rings have been used typically for parts, such as flanged casing and seal rings, requiring both corrosion and heat resistance, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA or Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2371	Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS5665	Nickel Alloy, Corrosion and Heat-Resistant, Bars, Forgings, and Rings, 74Ni - 15.5Cr - 8.0Fe
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

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Full document details: SAE AMS7490R

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS7490R/>

Documents

Document Sharing Hub

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E10 Brinell Hardness of Metallic Materials

ASTM E18 Rockwell Hardness of Metallic Materials

ASTM E103 Rapid Indentation Hardness Testing of Metallic Materials

ASTM E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness

3. REQUIREMENTS

3.1 Material

Shall be as specified on the drawing.

3.2 Fabrication

3.2.1 Forming

Rings shall be formed from rolled, extruded, or forged shapes. Grain flow in the formed rings shall be substantially circumferential.

3.2.2 Preparation for Welding

Formed rings shall be clean and free from foreign materials in the area of electrode contact and at the surface to be welded.

3.2.3 Welding

The ends of the formed rings shall be flash butt-welded together with only one weld on each ring. Welding shall be performed on a machine provided with control of:

Feed of the joint during flashing

Rate and distance of travel of the sections to be welded

Secondary voltage and current magnitude

Timing and current cut off

The flash shall be maintained during the flashing interval of the welding operation. The amount of manual flashing used for preheating shall be limited to 10% of the total flashing distance. The machine shall be capable of repeating the sequence of operations independently of the skill of the machine operator. A record of machine settings and sequence of operations for each part number shall be maintained in accordance with purchaser's requirements.

3.2.4 Solution Heat Treatment

The welded rings shall be solution heat treated, unless otherwise specified by the applicable material specification or part drawing.