



AEROSPACE MATERIAL SPECIFICATION

AMS7725™**REV. F**

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Superseding AMS7725E

Tungsten Heavy Alloy Shapes, Sintered, High Density

RATIONALE

AMS7725F results from a Five-Year Review and update of this specification that adds controls over compositions (3.1.1, 3.1.2) and prohibits unauthorized exceptions (3.5, 4.5.2, 5.1.1).

1. SCOPE

1.1 Form

This specification covers four classes of tungsten heavy metal in the form of sintered and annealed shapes.

1.2 Application

This material has been used for parts, such as counterbalance weights or projectiles, for which mechanical properties are tested from the sintered and annealed shapes and that require high weight per unit volume, but usage is not limited to such applications.

1.3 Classification

Products covered by this specification are classified as follows:

<u>Class</u>	<u>Tungsten, Nominal %</u>
1	90
2	92.5
3	95
4	97

Type 1 - Non-magnetic (see 8.9)

Type 2 - Magnetic (see 8.9)

1.3.1 If no Class is specified Class 1 shall be supplied. If no Type is specified, Type 2 shall be supplied.

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.

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Documents
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2.1 SAE Publications

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

AMS2750 Pyrometry

ARP1917 Clarification of Terms Used in Aerospace Metals Specifications

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 B311 Density of Powder Metallurgy (PM) Materials Containing Less Than Two Percent Porosity

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E18 Rockwell Hardness of Metallic Materials

3. TECHNICAL REQUIREMENTS

3.1 Composition, Density, and Hardness

Composition, density, and hardness shall be as specified in Table 1.

Table 1 - Composition, density, and hardness properties

Class	Weight Percent Tungsten, Nominal	Density g/cc	Hardness HRC Maximum
1	90	16.85-17.30	32
2	92.5	17.15-17.85	33
3	95	17.75-18.35	34
4	97	18.25-18.85	35

3.1.1 Type 1

Shall have a nominal tungsten percentage corresponding to the Class specified with the balance being primarily an alloy of nickel and/or copper in such proportions as to meet the technical requirements.

3.1.2 Type 2

Shall have a nominal tungsten percentage corresponding to the Class specified with the balance being primarily an alloy of nickel, iron, and other elements as required in such proportions as to meet the technical requirements.

3.2 Condition

Product shall be supplied either as-sintered, or sintered and annealed. If no condition is specified, either condition may be supplied.

3.3 Properties

The product shall conform to the following requirements:

3.3.1 Tensile Properties

Specimens (see 4.3.1) shall conform to the requirements of Table 2 (see 8.2) determined in accordance with ASTM E8/E8M.