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AEROSPACE MATERIAL SPECIFICATION

AMS 7821

Issued 3-15-66
Revised 10-1-82

MOLYBDENUM ALLOY FORGINGS
0.5Ti - 0.08Zr
Arc Cast, Stress Relieved

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of 3-28-73. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to the initial issue of the subject specification.

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This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of 10-1-82. By this action, subject specification number and title will be deleted from the active specification index of Aerospace Material Specifications.

This specification is under the jurisdiction of AMS Committee "G".

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AEROSPACE MATERIAL SPECIFICATIONS

AMS 7821

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

4 5 Lexington Ave., N w York, N.Y. 10017

Issu d 3-15-66
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MOLYBDENUM ALLOY FORGINGS

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Arc Cast, Stress Relieved

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Forgings and forging stock.
3. **APPLICATION:** Primarily for forged parts requiring high modulus and uniform strength characteristics up to at least 2100 F (1149 C). This material is not recommended for use in oxidizing atmosphere at 1000 F (538 C) and above unless protected by a suitable coating.

4. **COMPOSITION:**

	min	max	Check Analysis	
			Under min	Over max
Molybdenum (1)	99.25	--	--	--
Titanium	0.40	- 0.55	0.05	0.05
Zirconium	0.06	- 0.12	0.02	0.02
Carbon	0.010	- 0.030	0.005	0.005
Iron	--	0.020	--	0.002
Silicon	--	0.010	--	0.002
Nickel	--	0.010	--	0.001
Oxygen	--	0.0030 (30 ppm) (2)	--	--
Nitrogen	--	0.0010 (10 ppm) (2)	--	0.0005 (5 ppm)

- (1) Determination not required for routine acceptance.
- (2) Pending establishment of approved methods of analysis, deviation from these limits alone shall not be cause for rejection.

5. **CONDITION:**

- 5.1 **Forgings:** Hot-cold forged, descaled, and stress relieved.
- 5.2 **Forging Stock:** Unless otherwise specified, material shall be extruded, or extruded and subsequently rolled to specified size, with a minimum of 50% reduction in ingot cross-sectional area, and shall be recrystallized.

6. **TECHNICAL REQUIREMENTS:**

- 6.1 **Forgings:** The product shall conform to the following requirements and shall be capable of meeting these requirements after being heated to 2100 F $\pm$ 25 (1148.9 C $\pm$ 14), held at heat for 30 min. in a suitable, controlled atmosphere, and cooled rapidly.
 - 6.1.1 **Hardness:** Not higher than Brinell 285 (1500 kg) or equivalent.