Society of Automotive Engineers, Inc.
485 LEXINGTON AVENUE, NEW YORK, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATION

AMS 7724

Issued 5-1-68
Revised

ALLOY SHEET AND STRIP, POROUS, SINTERED WIRE MESH, CORROSION AND HEAT RESISTANT
Iron Base - 21Cr - 20Ni - 20Co - 3.0Mo - 2.5W - 1.0(Cb + Ta)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for parts, such as filters and transpiration cooling devices, requiring controlled flow of liquids and gases.

3. COMPOSITION:

	min	max
Carbon	--	0.10
Manganese	1.00	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	20.00	22.50
Nickel	19.00	21.00
Cobalt	18.50	21.00
Molybdenum	2.50	3.50
Tungsten	2.00	3.00
Columbium + Tantalum	0.75	1.25
Nitrogen	0.10	0.20
Iron	remainder	

3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.

4. FABRICATION: The product shall be made from one or more layers of wire mesh fabricated into an integral structure by multiple rolling and sintering operations. Wire mesh shall have a smaller number of wires per inch in the warp direction than in the filler direction and shall have weave and wire count selected to yield a product having the required flow rate. Sintering shall be performed in a dry inert or reducing atmosphere at a temperature which will assure uniform bonding of the layers without incipient melting.

4.1 Requirements for construction will be specified by a series of numbers separated by dashes showing the number of plies, the nominal thickness in thousandths of an inch, and the flow rate (See 6.4) in SCFM per sq ft; e.g., 2-33-120 will indicate a two-ply product having nominal thickness of 0.033 in. and flow rate of 120 SCFM per sq foot.

5. CONDITION: The product shall be supplied in the as-sintered condition unless the product is cold rolled after the final sintering operation, in which case the product shall be stress relieved by heating to 2100 F ± 25 (1148.9 C ± 14) in a dry inert or reducing atmosphere, holding at heat for not more than 30 min., and cooling at a rate equivalent to air cool or faster.

6. TECHNICAL REQUIREMENTS: The product shall conform to the following requirements; in computing area on which tensile and yield strengths and modulus of elasticity are based, material shall be considered a solid sheet or strip.

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6.1 Tensile Properties at Room Temperature:

Construction (See 4.1)	Tensile Strength psi, min	Yield Strength at 0.2% Offset psi, min	Elongation % in 2 in., min
2-39-480	36,000	20,000	10
2-33-120	40,000	22,000	10
5-74-120	45,000	30,000	10

6.2 Bending: The product shall withstand, without cracking, bending through an angle of 180 deg around a diameter equal to the bend factor shown below times the nominal thickness, with axis of bend parallel to the warp wires on the outside of the bend.

Construction	Bend Factor
2-39-480	3
2-33-120	3
5-74-120	6

6.3 Grain Size: Shall be predominantly 3 or finer with occasional grains as large as 1 permissible, as determined by comparison of a polished and etched specimen with the chart in the issue of ASTM E112 specified in the latest issue of AMS 2350.

6.4 Flow Rate: Shall be as specified by the construction code (See 4.1) or as otherwise specified on the drawing. Flow rate requirements will be expressed as SCFM per sq ft (cubic feet of air per minute per square foot at standard atmospheric conditions) at a differential pressure of 2 psi. Unless otherwise specified, flow rate shall not vary more than ±15% from the nominal rate specified, measured over any square foot of the product, and not more than ±30%, measured over any 1.5 in. diameter circle.

Note. Flow rate requirements shall apply to the product before forming and fabrication into parts, unless otherwise specified. If flow rates are determined on parts, consideration shall be given to the effects of forming, welding, brazing, and other operations which may alter the original flow characteristics.

6.5 Modulus of Elasticity: Unless otherwise specified, the product shall be capable of showing modulus of elasticity (E) as specified below, determined dynamically by a procedure agreed upon by purchaser and vendor.

Construction	Test Temperature	E psi x 10^6, min
2-39-480	1700 F ± 10 (926.7 C ± 5.6)	8.0
2-33-120	1700 F ± 10 (926.7 C ± 5.6)	10.5
5-74-120	Room	13.0

7. QUALITY: The product shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

8. TOLERANCES: Shall be as specified on the drawing.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each batch in the shipment and the results of tests on each construction from each batch to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, batch number, material specification number, construction, size, and quantity from each batch.