AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5738

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STEEL, CORROSION RESISTANT
18Cr - 9Ni (SAE 30303F)
Free Machining, High Yield Strength

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

2. FORM: Cold drawn bars.

3. APPLICATION: Primarily for parts such as bolts requiring high strength, on which the amount of machining warrants use of a free machining grade of steel, requiring corrosion resistance similar to the 18-8 type of steel but not subjected to temperatures exceeding 700 F during fabrication or in service.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.12 max	--	0.01
Manganese	0.20 - 2.00	--	0.04
Silicon	1.00 max	--	0.05
Phosphorus	0.17 max	--	0.010
Sulfur	0.10 max	--	0.010
Chromium	17.00 - 19.00	0.20	0.20
Nickel	8.00 - 10.00	0.10	0.10
Molybdenum	0.75 max	See Note	
Selenium	0.15 - 0.35	0.03	0.03
Copper	0.50 max	0.03	0.03

Note. Check analysis for molybdenum shall be 0.050 over max, but substitution of the same limits for zirconium in place of molybdenum is optional with the manufacturer.

5. CONDITION: Solution heat treated free from continuous carbide network, and cold finished.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Nominal Diameter or Distance Between Parallel Sides Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 29,000,000) psi, min	Extension Under Load in. in 2 in.	Elongation % in 4D min	Reduction of Area %, min
0.750 and under	125,000	100,000	0.0109	12	35
Over 0.750 to 1.000, incl	115,000	80,000	0.0095	15	35
Over 1.000 to 1.250, incl	105,000	65,000	0.0085	20	35
Over 1.250 to 1.750, incl	95,000	45,000	0.0071	28	45