AERONAUTICAL MATERIAL SPECIFICATION

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STEEL, CORROSION AND MODERATE HEAT RESISTANT
13Cr - 2Ni - 3W

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

2. FORM: Bars, billets, and forgings.

3. APPLICATION: Parts and assemblies, such as compressor wheels and blades, requiring oxidation resistance up to 1000 F. Strength at the higher temperatures is superior to that of the standard 12Cr type.

4. COMPOSITION

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.12 - 0.17	0.01	0.01
Manganese	0.50 max	--	0.03
Silicon	0.50 max	--	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	12.00 - 14.00	0.15	0.15
Nickel	1.80 - 2.20	0.07	0.07
Tungsten	2.50 - 3.50	0.10	0.10
Molybdenum	0.50 max	--	0.03
Copper	0.50 max	--	0.03
Tin	0.05 max	--	--
Aluminum	0.15 max	--	--

5. CONDITION:

5.1 Bars: Annealed, in a machinable condition, having hardness not higher than Brinell 277 or equivalent. Bars 2.75 in. and less in diameter or distance between parallel sides and all hexagons shall be cold finished.

5.2 Forgings: As ordered.

5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENT:

6.1 Hardenability: Material shall be capable of meeting the following test:

6.1.1 Specimens with sections 0.375 in. in thickness, cut from a bar or forging, shall be placed in a furnace which is at 1750 F + 10, allowed to heat to 1750 F + 10, held at heat 25 min., and quenched in commercial paraffin oil (100 SUS at 100 F) at room temperature. Hardness of such specimens shall be not lower than Rockwell C 42.