AMS 5643 (17/4 PH)

Technical Datasheet

Precipitation Hardening Stainless Steel Bar Service. Quality. Value.

Typical Applications

Used where high strength and good corrosion resistance are required as well as for applications requiring high fatigue strength, good resistance to galling and stress corrosion resistance. It is suitable for intricate parts requiring machining and welding and where freedom for distortion is a requirement. Used in aerospace, defence and offshore oil & gas industries. For missile components, motor shafts, valve stems, gears and other mechanical components.

Product Description

An American aerospace grade stainless steel that contains 4% copper and may be hardened by a single low-temperature precipitation hardening heat treatment, producing excellent mechanical properties at a high strength level.

Condition:
Can be supplied in the annealed condition (Condition A) or heat treated as follows:-

Condition H900 (900°F) Condition H925 (925°F)
Condition H1025 (1025°F) Condition H1075 (1075°F)
Condition H1100 (1100°F) Condition H1150 (1150°F)

The material should not be used in the annealed condition. This grade of stainless steel has a typical density of 7.75kg/dm³ and can be magnetised.

Machinability

In annealed condition surface cutting speed of 80 ft/min and a machinability rating of 50% of B-112 rated at 100%. Over-aged condition, 130 ft/min and 75% of B-1112 rated at 100%.

Corrosion Resistance

Superior to straight chromium grades like 410, approaching corrosion resistance of the chromium nickel grades. In many corrosive media it is equal to such grades as 302. Corrosion resisting properties will be affected by surface finish and aging heat treatment.

Weldability

Excellent and is readily weldable by all commercial processes. Pre-heating and post-heating practices used for standard hardenable stainless grades are not required.

Production Tolerances

Manufacturing limits are as stated in the Table AMS 2241. For further assistance please contact our Sales Dept. / Laboratory.

Related Specifications

• AISI 630 • UNS S17400 • ASME SA-564 Type 630

Chemical Composition (weight %)

Weight (%)	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	Nb
Min						15.00	3.00	3.00		5XC
Max	0.07	1.00	0.04	0.03	1.00	17.50	5.00	5.00	0.50	0.45

Typical Mechanical Properties

Condition	Tensile Strength (MPa)	0.2% Proof Stress(MPa)	Elongation on 4D G.L. (%)	Hardness (HB)
H900	1,310	1,172	10	388 / 444
H925	1,172	1,069	10	375 / 429
H1025	1,069	1,000	12	331 / 401
H1075	1,000	862	13	311 / 375
H1100	965	793	14	302 / 363
H1150	931	724	16	277 / 352

Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

UK Service Centres:

Smiths Belfast 02895 908 897
Smiths Biggleswade 01767 604 704
Smiths Birmingham 0121 728 4940
Smiths Bristol 0117 971 2800
Smiths Chelmsford 01245 466 664
Smiths Gateshead 0191 469 5428
Smiths Horsham 01403 261 981
Smiths Leeds 0113 307 5167
Smiths Manchester 0161 794 8650
Smiths Norwich 01603 789 878
Smiths Nottingham 0115 925 4801
Smiths Redruth 01209 315 512
Smiths Verwood 01202 824 347
Main Office 0845 527 3331

Quality & Testing:

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