

## PRECIPITATION HARDENING STAINLESS STEEL

### TYPICAL APPLICATIONS

Mechanical components in Aerospace and Defence.  
High-Tech mechanical applications

### PRODUCT DESCRIPTION

This aerospace grade, precipitation hardening stainless steel combines high mechanical strength with moderate to good corrosion resistance in a variety of media. The steel is melted in air by an electric process. S143 is similar in a number of respects to 17/4 PH stainless steel (UNS S17400 / AISI 630) in its combination of properties.

S143 stainless steel is supplied in the finally heat treated condition (solution heat treated followed by a two stage precipitation hardening treatment) as bright bar (S143D), black bar (S143B) and forgings (S143C).

Material to S144 and S145 shares a common chemical composition with S143. Therefore material to S143 can be precipitation hardened using a different sequence of temperatures to produce material meeting the mechanical property requirements of S144 or S145.

### CORROSION RESISTANCE

S143 stainless steel provides useful corrosion resistance in mildly/moderate corrosion environments and is similar to that of basic 300 series stainless steels.

### STOCK RANGE

**Round Bar : 3/8" to 2" Diameter  
(9.525 to 50.8mm)**

We hold starting stock of large square bar in the softened condition (S143A) to enable us to offer a competitive delivery on forgings.

### MATERIAL SPECIFICATIONS

- BS 2S143:1976
- FV520B (related specification)
- Def Stan 95/14-2 (related specification)

### MACHINABILITY / WELDING

The machining and welding of this grade of stainless steel presents no particular problems. Guidance can be sought from our Technical Dept.

### INSPECTION & TESTING

In accordance with the latest issue of British Standard S100, billets and bars and, where practicable, forgings shall be subjected to ultrasonic examination.

### CHEMICAL COMPOSITION (WEIGHT % )

	C	Mn	Si	S	P	Cr	Ni	Mo	Cu	Nb
Min.						13.2	5.0	1.20	1.20	0.10
Max	0.07	1.00	0.60	0.025	0.035	14.7	5.8	2.00	2.00	0.40

### MECHANICAL PROPERTIES (MINIMA FOR BAR & FORGINGS IN THE FINALLY HEAT TREATED CONDITION)

Ultimate Tensile Strength	930/1,180 MPa
0.2% Proof Strength	780 MPa
Elongation	15 %
Hardness	277/341 HB
Izod Impact *	40 ft. lbf

\* The Charpy U-notch value obtained from a standard test piece may be expected to be not less than 40J.

### TYPICAL PHYSICAL PROPERTIES

Density	7.8	kg/dm <sup>3</sup>
Magnetisable	Yes	

### TECHNICAL SALES ASSISTANCE

Our resident team of qualified metallurgists and engineers will be pleased to assist further on any technical topic.

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