

FV520B, UNS S45000, X5CrNiMoCuNb14-5, 1.4594, B.S. S143, - Special steels Datasheet

FV520B, UNS S45000, X5CrNiMoCuNb14-5, 1.4594, B.S. S143, is a martensitic precipitation-hardening stainless steel that can be hardened through low-temperature treatment. Compared to standard martensitic grades, this alloy offers superior corrosion resistance. Its corrosion resistance is comparable to that of 304 stainless steel, making it commonly used in marine atmospheric environments due to its relatively low susceptibility to rusting. Compared to 17-4PH, FV520B provides better corrosion resistance in specific environments, as well as improved resistance to intergranular and pitting corrosion. Although this alloy is difficult to machine, it has good weldability, and the use of matching welding consumables is recommended.

Corrosion Resistance

FV520B has useful corrosion resistance in modest corrosion environments having similar characteristics to that of austenitic stainless steel grades. It has useful resistance to some acid conditions and has low rusting rate in marine and industrial atmospheres.

Impellers and turbine blades

Fasteners

Pumps .valves and hydraulic equipment

Aerospace applications

Chemical Composition

Grade	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	Nb
BS S 143, FV520B, 1 .4594, X5 CrNiMoCu Nb14-5	0.07 max	0.60 max	1.00 max	0.035 max	0.025 max	13.2~14. 7	5.0~8.0	1.2~2.0	1.2~2.0	0.1~0.4

Mechanical Properties

Primary Hardened 1050°C +2 hours 750-850°C

Stress	2	Elongation	(HB)	min
2		%min		
-	-	-	341	-

Double Overaged 1050°C +2 hours 750-850°(+2 hours 550°C

0.2% Proof Stress N/mm ²	Tensile Strength N/mm ²	Elongation	(HB)	min
		%min		
800	1090	15	341	54



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Physical Properties

Heat Treatment

For increase resistance to surface wear, with a slight reduction in corrosion resistance, FV520B can be nitrided. When nitrided at 540°C an approximate hardness of 64-67 HRC is achievable, with a surface hardness depth of up to 0.15mm. The steel maintains a high core strength.

Welding Properties

FV520B has good weldability characteristics when using standard techniques. Oxy-acetylene welding is not recommended due to the possible pick up of carbon. We recommend you contact your welding consumables supplier who should provide you full assistance and information on welding FV520B stainless steel.

Machining Properties

Similar or Equivalents Steel Grade

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