

SPECIFICATION FOR STEEL FASTENERS

Clause	Area	Description	Requirements/ Remarks
1.0	Scope	<ul style="list-style-type: none"> ▪ Design, manufacture, testing, inspection and supply of alloy steel bolting materials, nuts and washers for valves, flanges etc. ▪ Each bolt shall be supplied with matching two nuts and two washers. 	Nominal size (Diameter & Length) as per specific requirement of the project.
2.0	Service	Liquid Hydrocarbon	
3.0	Design and Codes	Stud Bolts: ASTM A 193 (Gr.B 7)	Dimensions of stud bolts and nuts: ANSI B 18.2.1/ANSI B 18.2.2
		Nuts: ASTM A 194 (Gr. 2H)	Threading for stud bolts and nuts and tolerance of threads: ANSI B 1.1
		Washers: Toughened mild steel	Testing of steel fasteners (All supplements included): ASTM A 370, A 193, A 194.
		Tolerance for material: ASTM A 29 and ANSI B 1.1	Proof load test on nuts: ASTM A 194
		Bolting details: ANSI B 16.5	
4.0	Provisions	<ul style="list-style-type: none"> ▪ Bolting material covers studs, nuts and washers. ▪ Nuts shall be of hexagonal shape. 	<ul style="list-style-type: none"> ▪ For 1 inch and smaller in diameter, all stud bolts and nuts threaded in accordance with coarse series (UNC) and for 1 1/8 inch and larger in diameter with 8 pitch thread series (8 UN) of the Code ANSI B 1.1 Class 2 A fit.
5.0	Inspection & Testing	i) Check of chemical analysis and certificate.	R
		ii) Check of mechanical analysis and certificate.	R
		iii) Physical Dimensional Check (W- Random)	R
		iv) Final documentation check	R
			<ul style="list-style-type: none"> ▪ All test as specified in code shall be carried out by manufacturer at their works with inspection by owner's authorised representative / third party. ▪ Test certificates including records/results of ladle analysis to be supplied just after testing but not later than despatch of the material. ▪ By Owner or TPI (third party Inspection) <p>R - Review, W - Witness</p>
6.0	Painting	Brush Cleaning + Rust Preventive Coating	
7.0	Marking	Stud Bolts	Material & manufacturer's identification mark stamped as per ASTM A 193.
		Nuts	Material & manufacturer's identification mark stamped as per ASTM A 194.