

# UNS S32750 Stud Bolts Fastener

## Specification Sheet

Super Duplex Stainless Steel Bolting The material used for manufacture of these stud bolts, nuts and hexagonal bolts shall be a super duplex stainless steel conforming to one of the following material grades: •UNS S 32750 (eg Sandvik 2507), The material shall have a PREN with a minimum value of 38. This value shall be derived using the following formula:-

$PREN = \% Cr + 3.3 \times \% Mo + 16 \times \% N$ . Super duplex stainless steel bolting shall be supplied as clean finished and free of heat treated scale/oxide.

### 1. Material Designation

Property	Value
UNS Number	S32750
Standard Names	ASTM A276 / ASTM A479 / ASTM A193 Grade B8C (if applicable)
Common Trade Name	Super Duplex 2507
Material Type	Super Duplex Stainless Steel
Standards	ASTM A182, ASTM A479, NACE MR0175 / ISO 15156

### 2. Chemical Composition (% *As per ASTM A479 for UNS S32750*)

Element	Content (%)
Chromium (Cr)	24.0 - 26.0
Nickel (Ni)	6.0 - 8.0
Molybdenum (Mo)	3.0 - 5.0
Nitrogen (N)	0.24 - 0.32
Manganese (Mn)	≤ 1.20
Silicon (Si)	≤ 0.80
Carbon (C)	≤ 0.030
Phosphorus (P)	≤ 0.035
Sulfur (S)	≤ 0.020
Iron (Fe)	Balance

### 3. Mechanical Properties (*A479*)

UNS Designation	Type	Heat Treatment Condition	Tensile Strength, min, ksi [MPa]	Yield Strength, <sup>A</sup> min, ksi [MPa]	Elongation in 2 in. [50 mm] or 4D, min, %	Reduction of Area, min, % <sup>C</sup>
S32750	2 in. and under	annealed	116 [800]	80 [550]	15	—
	over 2 in.	annealed	110 [760]	75 [515]	15	—

#### 4. Thread Type & Dimensions

Parameter	Options
Thread Types	UNC, UNF, Metric Coarse/Fine (as per customer spec)
Standards	ASME B1.1 (Imperial) / ISO 261 / DIN 13 (Metric)
Dimensions	As per ASME B18.2.1 / B18.31.2 (Stud Bolt dimensions)

#### 5. Heat Treatment

- Typically **solution annealed** at 1100° C - 1150° C followed by rapid cooling (water quenching).
- No further hardening treatments; mechanical strength is from duplex microstructure.

#### 6. Corrosion Resistance

- **Excellent resistance** to pitting, crevice corrosion (PREN > 40), and chloride stress corrosion cracking (SCC).
- Compliant with **NACE MR0175/ISO 15156** for sour gas applications.

#### 7. Common Applications

- Offshore platforms and oil rigs
- Seawater systems and desalination plants
- Pressure vessels and heat exchangers
- Chemical processing plants
- Subsea piping systems

## 8. Available Sizes

Parameter	Range
Diameter	1/4" to 2-1/2" (Imperial), M6 to M64 (Metric)
Length	20 mm to 1000 mm or as specified
Thread	Full Threaded / Double Ended Studs with Nuts

## 9. Optional Coatings & Finishes

Type	Purpose
PTFE Coated	Anti-galling, corrosion protection
Xylan Coated	Friction reduction and color-coded identification

## 10. Standards Applicable

ASTM A479 (for bar used to machine bolts)

ASTM A276 (raw bar specification)

ASME B1.1 / B1.13M (Thread standards)

NACE MR0175 (H<sub>2</sub>S resistance)

Hexagon bolts shall have a washer face on the underside of the head.

- Stud bolts shall be threaded on the entire length. The length of the bolt is measured as threaded length excluding the height of the end points.
- Stud bolt thread tolerance shall be Class 2A in accordance with ASME B1.2. • Nuts shall be of heavy hexagonal series in accordance with ASME B18.2.2 with minimum height equal to the diameter of the bolt.
- Nuts shall have a chamfer of 15 degrees to 30 degrees on both faces.
- Nut thread tolerance shall be Class 2B in accordance with ASME B1.2.
- If heat treatment is required to achieve the mechanical properties as stated herein, the threads shall be formed after such heat treatment.
- Unified inch screw threads shall be of 'unified system threads' in accordance with ASME B1.1 and shall be formed by rolling. Machine cut threading is not permitted.
- Unified inch threading shall be Unified Coarse (UNC) finish for stud bolts up to and including 1" diameter. Stud bolts of diameter size greater than 1" shall be 8UN selected finish (equivalent to a constant pitch of 8 threads per inch - TPI)
- Metric screw threads shall be of 'Basic M Thread Profile' in accordance with ASME

B1.13M

CERTIFICATION All materials shall be supplied with EN 10204 type 3.1 specific test certificates for each batch/heat. All the documents relating to quality assurance and quality control including certifications shall be in English and readily legible. Documents provided in other languages or illegible shall not be accepted and shall be referred to Santos before clearing final inspection.

