

## DUPLEX 2205 (UNS S31803 / S32205) FASTENERS

Manufactured from high quality Duplex 2205 Stainless Steel, these fasteners offer superior strength, excellent corrosion resistance and outstanding resistance to chloride stress corrosion cracking. Ideal for demanding applications in harsh and aggressive environments.

### MATERIAL SPECIFICATION

|                 |                                      |
|-----------------|--------------------------------------|
| Grade           | Duplex 2205<br>(UNS S31803 / S32205) |
| Standard        | ASTM A182 / A276                     |
| Type            | Duplex Stainless Steel               |
| Condition       | Solution Annealed                    |
| Ferrite Content | 30% – 60%                            |
| PREN            | ≥ 35                                 |

### KEY FEATURES

- High Strength:** Nearly twice the yield strength of standard austenitic stainless steels.
- Excellent Corrosion Resistance:** Superior resistance to pitting, crevice corrosion and chloride environments.
- SCC Resistant:** Excellent resistance to chloride stress-corrosion cracking.
- High Durability:** Performs reliably under high loads and demanding operating conditions.
- Cost Efficient:** Higher strength allows optimized fastener sizing without compromising performance.

### APPLICATIONS

- ✓ Oil & Gas and Petrochemical Plants
- ✓ Chemical Processing Equipment
- ✓ Marine and Offshore Structures
- ✓ Desalination and Water Treatment Plants
- ✓ Pulp & Paper Industry
- ✓ Power Generation and Energy
- ✓ Food & Beverage and Pharmaceutical Industry
- ✓ Infrastructure and Bridge Construction

### WHY CHOOSE AANURAJ FASTENERS?

- Specialists in Stainless Steel & Exotic Grade Fasteners
- ISO 9001:2015 Certified Quality Management System
- Advanced Manufacturing: Hot Forging, CNC Machining, Thread Rolling
- Material Traceability with PMI & Documentation
- Customized Solutions as per Drawing / Sample
- Timely Delivery & Reliable Service

**MORE THAN FASTENERS.. WE BUILD RELATIONSHIPS.**

### CHEMICAL COMPOSITION (ASTM A240 / A182)

| Element         | Min (%) | Max (%) |
|-----------------|---------|---------|
| Chromium (Cr)   | 21.0    | 23.0    |
| Nickel (Ni)     | 4.5     | 6.5     |
| Molybdenum (Mo) | 2.5     | 3.5     |
| Nitrogen (N)    | 0.08    | 0.20    |
| Manganese (Mn)  | –       | 2.0     |
| Silicon (Si)    | –       | 1.0     |
| Carbon (C)      | –       | 0.030   |
| Phosphorus (P)  | –       | 0.030   |
| Sulfur (S)      | –       | 0.020   |
| Iron (Fe)       | Balance | Balance |

### MECHANICAL PROPERTIES (TYPICAL)

| Property                    | Metric       | Imperial    |
|-----------------------------|--------------|-------------|
| Tensile Strength            | Min. 620 MPa | Min. 90 ksi |
| Yield Strength (0.2% Proof) | Min. 450 MPa | Min. 65 ksi |
| Elongation                  | Min. 25%     | Min. 25%    |
| Hardness                    | Max. 290 HB  | Max. 30 HRC |

### PHYSICAL PROPERTIES (TYPICAL)

| Property                     | Value       | Unit    |
|------------------------------|-------------|---------|
| Density                      | 7.80        | g/cm³   |
| Modulus of Elasticity        | 200         | GPa     |
| Thermal Conductivity (20°C)  | 16          | W/m·K   |
| Thermal Expansion (20–100°C) | 13.5        | µm/m·°C |
| Melting Range                | 1350 – 1390 | °C      |

### AVAILABLE PRODUCTS

|                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |
| HEX BOLTS                                                                           | STUD BOLTS                                                                           | NUTS                                                                                  | WASHERS                                                                               | ANCHOR FASTENERS                                                                      |

### STANDARDS

Manufactured in accordance with International Standards:

**ASTM | ASME | DIN | ISO | BS | EN**

Other standards & custom specifications available on request.



**QUALITY ASSURED**  
ISO 9001:2015 Certified



**MATERIAL TRACEABILITY**  
PMI & Test Certificates



**PRECISION MANUFACTURING**  
Advanced Technology



**ON-TIME DELIVERY**  
Commitment You Can Trust