

ASTM A815 UNS S32750 / ASME SA815 WP S32750 Super Duplex Stainless Steel Butt Weld Fittings Specification

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1. ASTM A815 / ASME SA815 Standard Overview

ASTM A815 / ASME SA815 specifies forged ferritic/austenitic (duplex and super duplex) stainless steel butt welding fittings for pressure piping systems. These fittings are designed for high-pressure, high-temperature, and highly corrosive environments. WP S32750 is a super duplex stainless steel grade offering outstanding mechanical strength and superior resistance to localized corrosion.

2. Detailed Description of UNS S32750 Super Duplex Stainless Steel

UNS S32750 is a high-alloy super duplex stainless steel with a dual-phase microstructure consisting of approximately 50% ferrite and 50% austenite. This balanced structure provides an exceptional combination of high strength and excellent corrosion resistance. The alloy contains elevated levels of chromium (Cr), molybdenum (Mo), and nitrogen (N), which significantly improve resistance to pitting corrosion, crevice corrosion, and chloride stress corrosion cracking (SCC). UNS S32750 is specifically developed for severe service conditions where standard duplex or austenitic stainless steels are insufficient.

Key Characteristics of UNS S32750:

- Very high yield and tensile strength (approximately twice that of austenitic stainless steel)
- Excellent resistance to pitting and crevice corrosion in chloride-containing environments
- Outstanding resistance to chloride stress corrosion cracking (SCC)
- High resistance to erosion and corrosion fatigue
- Suitable for offshore, subsea, and sour service applications

3. Chemical Composition of ASTM A815 WP S32750 (wt. %)

Grade	C	Mn	Si	P	S	Cr	Ni	Mo	N
WP S32750	≤0.03	≤1.20	≤0.80	≤0.035	≤0.020	24.0–26.0	6.0–8.0	3.0–5.0	0.24–0.32

4. Mechanical Properties, Hardness & PREN

Property	ASTM A815 WP S32750
Tensile Strength	≥ 800 MPa
Yield Strength (0.2%)	≥ 550 MPa
Elongation	≥ 15 %
Hardness	≤ 310 HB
PREN Value	≥ 40

5. ASTM A815 UNS S32750 Butt Weld Fittings Product Range

ASTM A815 UNS S32750 Elbow

- Long Radius Elbow (LR)
- Short Radius Elbow (SR)

- 45 Degree Elbow (45°)
- 90 Degree Elbow (90°)
- 180 Degree Elbow (Return Bend)

ASTM A815 UNS S32750 Tee

- Equal Tee
- Reducing Tee

ASTM A815 UNS S32750 Reducer

- Concentric Reducer
- Eccentric Reducer

ASTM A815 UNS S32750 Cap

- Butt Weld Pipe Cap

Customized super duplex stainless steel butt weld fittings can be manufactured according to drawings and project specifications.

6. Size Range, Wall Thickness & Dimensional Standards

Size Range: 1/2" NB – 48" NB (DN15 – DN1200)

Wall Thickness: SCH 10 / SCH 20 / SCH 40 / STD / XS / SCH 80 / SCH 160

Dimensional Standards: ASME B16.9, ASME B16.28, MSS SP-43

Manufacturing Process: Hot forming, cold forming, welding, solution annealing

7. Inspection, Testing & Quality Control

- Chemical composition analysis & PMI test
- Mechanical testing
- Hardness testing
- Ferrite content measurement
- Non-destructive testing (UT, RT, PT)
- Dimensional and visual inspection

8. Certification & Documentation

- EN 10204 3.1 / 3.2 Mill Test Certificate (MTC)
- Manufacturer Test Report (MTR)
- Third-party inspection (SGS, BV, TUV, DNV)
- Certificate of Origin (CO)

