



AESTEIRON
STEELS LLP



DUPLIX AND SUPER DUPLEX [FITTINGS AND FLANGES]

9/A, 9th Floor, Mehta Mehal, 15th Mathew Road, Opera House, Charni Road, Mumbai - 400 004, India.

web: www.aesteiron.com

email: info@aesteiron.com

Tel: +91-22-67776700 - 6799 - 6777

DUPLEX AND SUPER DUPLEX [FITTINGS AND FLANGES]:

Story:

At Aesteiron Steels, we specialize in the manufacturing of **duplex steel butt weld fittings**, and today we are one of the top manufacturers in this space in India.

We only use premium materials to manufacture the duplex and super duplex - flanges and fittings in different shapes and sizes, dimensions, thickness, and length according to clients' needs and specifications.

As we are having a Factory in India - **UNS S31803 / UNS S32205, 2205 Duplex** and being the **Fittings & Flanges Manufacturers**, we make these at our manufacturing unit, using high-end technology and establishing proper procedures to meet our clients need and specifications.

Aesteiron steels LLP offers a range of **duplex stainless steel pipe fittings** such as **reducers, elbows, tees, crosses, pipebends, and stubends**.

Suppose you are looking out for **Top Quality Duplex Pipe Fittings**.

In that case, we have a team filled with experts in this space who possesses enough manufacturing experience for manufacturing these **super duplex fittings, duplex fittings, and super duplex flanges and duplex flanges**.

We possess high-quality expertise in **Duplex Butt weld Welded Fittings, ASME SA 815 Pipe Fittings, S32750 Blind Flanges, ASME SA182 SORF Flange, S31803 RTJ Flanges, ASMESA182 Gr 2205 SORF Flange, 2205 Slip-on Flanges** and others.

History, essentials and comparisons:

Duplex stainless steel:

An extension of the family of stainless steels is duplex steel. This duplex steel is also called austenitic-ferritic grades as their metallurgy has 2 phases i.e, [1] Austenite and [2] ferrite which is present in equal proportion. Corrosion resistance, chloride stress corrosion resistance, chloride pitting corrosion resistance and high strength are the key properties that it has to offer higher than the standard stainless steel such as Type 316 or 304.

The key difference between austenitic stainless steel and duplex steel in composition is that the duplex steels have -

Chromium content - 20 to 28%

Molybdenum - 5%

Nickel - Up to 9% and

Nitrogen - 0.05 to 0.50%.

The cost benefits arise from lower nickel content and higher strength.

Duplex stainless steels grades:

Duplex stainless steels are divided into 3 broad categories on the basis of its pitting corrosion resistance:

Standard duplex (PREN range: 28 to 38)

[1] Typically Grade EN 1.4462 [2205].

[2] It is most commonly used today and it is mid-ranged in terms of properties.

Super Duplex (PREN range: 38 to 45)

- [1] EN 1.4410 or hyper duplex grades with PREN is greater than 45 was developed to meet specific demands of the oil & gas and chemical industry.
- [2] It contains higher contents of chromium, nickel, molybdenum, nitrogen and tungsten which act as a catalyst to the formation of intermetallic phases which decreases steel impact resistance.
- [3] Though it is difficult to process it offers superior quality of corrosion resistance and higher strength. Deep water offshore oil production is one of the applications of super duplex.

Lean Duplex grades (PREN range: 22 to 27)

- [1] EN 1.4362, have been more recently developed and it useful for applications pertaining to the construction and building industry.
- [2] It offer corrosion resistance which aligns closely to EN 1.4401 (austenitic) grade which possesses resistance to stress, corrosion cracking and high degree of mechanical properties.
- [3] It is useful for making bridges and vessels and other the important places for application where strength is required.

Difference between duplex stainless steel and super duplex stainless steel -

- [1] The duplex stainless steel possesses low chromium of 22% whereas super duplex stainless steels possess high chromium of 25%.
- [2] The pitting corrosion resistance is directly proportional to increases or decreases in chromium. But in order to maintain the balance of ferritic and austenitic micro-structures, it becomes important to increase the content of nickel and other relevant elements.
- [3] The recent developments include hyper duplex stainless steel which contains around 27% to 29% of chromium but they are not made available in form of bar or plate due to the difficulty in rolling and forging. Hence is made available only in tube form.

Duplex stainless steel applications:

- [1] Infrastructure
- [2] Oil and gas industries
- [3] Paper and pulp industries
- [4] Chemical industries
- [5] Renewable energy
- [6] Engineering industries and others

Duplex Stainless Steel is widely known for its high degree of corrosion resistance and high strength

UNS S32205 / DIN W.Nr. 1.4462 is an austenitic & ferritic [1:1 ratio] Cr-Mo-Ni alloy stainless steel.

Duplex 2205 / UNS S31803 is the most commonly used duplex stainless-steel grade as it exhibits the properties of high yield strength and resistance from corrosion.

These Duplex Steel Buttweld Fittings are resistant to sulfidation and carburization occurrence.

➤ Duplex Pipe Fittings production range:

- **Specifications** - ASTM A 815, ASTM A 182, ASME SA 182, ASME SA 815
- **Types** - Seamless / Welded / Fabricated
- **Range** - 1/2"NB - 24"NB in Sch 10S, 40S, 80S, 160s, XXS
- **Dimension** - B16.28, MSS-SP-43, ANSI/ASME B16.9

➤ **Stainless Steel Duplex Flanges:**

Forged & Plate Flanges:-

- **Specification** - ASTM A182 / ASME SA182 F51 / F55 / F57 / F59 / F60 / F61 / F52 / F53 / F54.
- **UNS Grade** - UNS S31803, S32550, S32750, S32760 S32205, S2205.
- **Standard** - ANSI Flanges, BS Flanges, DIN Flanges, ASME Flanges, EN Flanges and others.
- **Size** - 1/2" - 24"
- **Dimensions** - ANSI/ASME B16.5, BS4504, BS 10, EN-1092, DIN, B 16.47 Series A & B, B16.48 and others.
- **Class / Pressure** - 150#, 300#, PN25, PN40, PN64, 600#, 900#, 1500#, 2500#, PN6, PN10, PN16, and others.

ASTM A182 Duplex and Super Duplex Steel Flanges Equivalent Grades

STANDARDS	WERKSTOFF NR.	UNS
Duplex 2205	1.4462	S31803 / S32205
Super Duplex 2750	1.4410	S32750 / S32760

Type of Products	Size Range
Duplex Socket Weld Flanges	1/8* to 36* Flat face or Raised face
Duplex Slip-On Flanges	
Duplex Threaded Flanges	
Duplex Reducing Flanges	

➤ **Duplex Steel Flanges Availability**

- Duplex Stainless Steel S32760 Orifice Flanges
- Duplex Steel 1.4410 RTJ Flange
- Duplex Steel S31803 Weld Neck Flange [WNRF]
- ASTM A182 Super Duplex Steel S32205 Blind Flange
- Super Duplex 1.4410 Forged or Socket Weld Flanges [SORF]
- ANSI B16.11 Super Duplex Steel S32205 Blind Flange
- ASME B16.11 Super Duplex Steel S32205 Flange
- S32760 Super Duplex Steel Weld Neck Flanges
- Duplex / Super Duplex Steel S31803 Threaded / Socket Weld flanges
- Duplex S31803 Slip On Flanges
- S32750 Duplex Steel Blind
- Super Duplex S32205 Flanges
- ASME SA182 Super Duplex Steel S32750 Flanges
- Super Duplex S31803 Plate Flanges
- Duplex S32205 Forged Flanges
- Duplex Steel S31803 Flanges
- A182 Super Duplex Steel 1.4410 Socket weld Flanges
- Super Duplex Stainless Steel S32760 Flanges
- Duplex Steel S32760 Blind Flanges
- Duplex Steel S31803 Steel Plate Flanges
- Duplex Steel S32750 Lap Joint Flanges
- Duplex Steel 1.4462 Blind Flange
- Duplex Steel S32750 Socket weld Flanges
- Duplex Steel S32205 Threaded Flanges

Duplex Steel UNS S31803 other product categories:

- [1] ASTM A815 UNS S31803 Elbow
- [2] AISI UNS S31803 90 Degree elbow
- [3] UNS S31803 Equal and unequal [reducing] tees
- [4] UNS S31803 Concentric and eccentric reducer
- [5] Duplex Steel UNS S31803 Long and Short stubends
- [6] UNS S31803 Welded Butt Weld pipe fittings
- [7] Duplex steel UNS S31803 Reducing Nipple
- [8] Duplex steel UNS S31803 Long radius elbow
- [9] Duplex Steel UNS S31803 45 degree elbow
- [10] ASTM A815 duplex steel UNS S31803 bends
- [11] UNS S31803 Equal and unequal [reducing] cross
- [12] Duplex steel UNS S31803 End pipe cap
- [13] UNS S31803 Seamless butt weld pipe fitting
- [14] Duplex steel UNS S31803 Swage Nipple
- [15] Duplex steel UNS S31803 Long radius bend
- [16] UNS S31803 Short radius elbow

Duplex 2205 / UNS S31803 Duplex steel buttweld fitting standards:

STANDARDS	Duplex 2205
WERKSTOFF NR.	1.4462
UNS	S31803

Buttweld Duplex Pipe Fittings Products:

Products		Size
Duplex Elbows - Long Radius	Duplex Elbows - Short Radius	1/2" - 48" for the above products
Duplex Elbows - Long Radius	Duplex Crosses	
Duplex Stub Ends	Duplex Reducing Elbows	
Duplex Forged/Plate Cut Rings	Duplex Reducing Crosses	
Duplex 3D Elbow	Duplex 45° Elbows	
Duplex End Caps	Duplex 180° LR Return Bends	
Duplex 5D Elbow	Duplex Tees	
Duplex Forged / Plate Circles	Duplex 180° SR Return Bends	
Duplex Fabricated Tees	Duplex Concentric Reducers	
Duplex Pipe Bends / Piggable Bends	Duplex Pipe Nipples	
Duplex Reducers, Duplex Couplings	Duplex Eccentric Reducers	

**High pressure products for forged duplex pipe fittings:
[Socket weld and threaded duplex pipe fittings]**

Products		Size
Duplex 90 degree elbows	Duplex couplings	2000 LBS, 3000 LBS, 6000 LBS, 9000 LBS 1/8* to 4*
Duplex 45 degree elbows	Duplex reducers	
Duplex street elbows	Duplex inserts	
Duplex tees	Duplex caps	
Duplex crosses	Duplex unions	

Wrought ferritic / austenitic super duplex butt weld fitting Availability in

Super duplex steel 2507 butt weld pipe fittings	Super duplex steel S32750 seamless pipe fittings
Super duplex steel S32760 Welded pipe fittings	Super duplex steel UNS S32750 pipe elbow
Super duplex steel Butt weld tee	2507 Super duplex butt weld reducer suppliers
ANSI Super duplex Steel pipe fittings	Super duplex stainless stubends dealer
Ferritic / Austenitic super duplex pipe fittings exporter	Super duplex butt weld fittings stockholder
2507 super duplex steel pipe end cap distributors	Super duplex steel UNS S32760 45 degree elbow
Super duplex steel 90 degree LR Elbow Manufacturer	Super duplex steel DIN 1.4410 pipe tee
Super duplex steel 2507 cross	Super duplex steel 2507 butt weld reducing nipple
Super duplex steel short radius elbow	ANSI B16.9 super duplex butt weld fitting
ASME SA815 Super duplex pipe fittings	ASTM A815 super duplex steel welded pipe fittings

ASTM A815 Super duplex mechanical properties:

For Grades	S32750/S32760
Melting point [Degree Celsius]	1350
Melting point [Degree Fahrenheit]	2460
Density [in g/cm ³]	7.8
Density [in lb/ in ³]	0.281

Super duplex Chemical Composition:

Grades	S32760	S32750	Grades	S32760	S32750
C	0.05 Maximum	0.030 Maximum	Cr	24.00 - 26.00	24.00 - 26.00
Mn	1.00 Maximum	1.20 Maximum	Mo	3.00 - 4.00	3.00 - 5.00
Si	1.00 Maximum	0.80 Maximum	Ni	6.00 - 8.00	6.00 - 8.00
P	0.030 Maximum	0.035 Maximum	N	0.20 - 0.30	0.24 - 0.32
S	0.010 Maximum	0.020 Maximum	Fe	57.61 Minimum	58.095 Minimum

Super duplex fittings applications:

ATSM A815 super duplex pipe fitting is known to deliver exceptional performance in the following stated industries, and we are known to offer a broad range of ASTM A815 super duplex steel S32750 or S32760 butt weld pipe fittings to our clients in India:

- The Super duplex steel 2507 butt weld pipe fitting uses in oil & gas pipeline
- The ASME SA815 super duplex S32750 pipe fittings uses in fabrication industry
- The ASTM A815 super duplex steel butt weld pipe fittings uses in chemical industry
- The Grade S32750 super duplex steel pipe fittings uses in plumbing
- The Super duplex steel ASTM A815 S32760 butt weld pipe fittings uses in heating
- The Super duplex steel 2507 butt weld fittings uses in food processing industry
- The ASTM A815 2507 super duplex pipe fittings uses in water supply systems
- The ASTM A815 super duplex steel butt weld fittings uses in power plant
- The 2507 super duplex butt weld pipe fittings uses in paper and pulp industry
- The Super duplex butt weld pipe fittings uses in structural pipe
- The UNS S32760 butt weld pipe fittings uses in general purpose applications

