



Duplex Stainless Steel (DSS) and Super Duplex Stainless Steel (SDSS)

Duplex Stainless Steels are those with a microstructure of 50% Austenitic and 50% Ferritic. Duplex steel is superior to standard austenitic grades with double in mechanical strength, remarkably high resistance to corrosion cracking and to use in acidic, alkaline and other aggressive environments. The characteristics of Duplex and Super Duplex stainless steels made it more popular for offshore, Oil & Gas, Chemical and Desalination industries.

The excellent yield strength of Duplex family makes it possible for the thinner wall pipings to handle a level of pressure that can be managed only by heavy & thicker pipes from other grades.

Duplex Stainless Steel family is classified primarily into 4 types

1. Lean Duplex Stainless Steel (S32101 / S32202 / S32304)

Lean Duplex is a combination of higher strength, higher corrosion resistance and thin walls; this makes it lighter and withstanding in challenging corrosive atmosphere. Lean Duplex is relatively a new name to the industry and same is yet to get popularised to the set industry standards.

2. Duplex Stainless Steel (DSS S31803 / S32205)

This is the standard Duplex stainless steel grades which accounts to an average of 75% - 80% of global duplex usage. Excellent corrosion resistance properties with a chromium content of 19.5% - 23% and Nickel content of 3% - 6.5%, low cost and availability make it the most preferred choice for certain corrosive environments in Oil & Gas, Chemical, Marine, Desalination, Paper etc.

3. Super Duplex Stainless Steel (SDSS S32750 / S32760)

Super Duplex stainless steel is a higher alloyed grade from Duplex family with all characteristics and benefits of standard duplex stainless steel but with an increased corrosion resistance for the higher content of Chromium between 24% - 30%, nickel between 3.5% - 8% and Molybdenum between 0.8% - 5%.

4. Hyper Duplex Stainless Steel (S32707 / S33207)

This is a more advanced alloyed version with chromium up to 33%, nickel up to 9.5%, and molybdenum up to 5% developed for deep sea application which demands a very high corrosion and pitting resistance. This comes with a remarkably high pitting resistance >48

Chemical and Mechanical properties of DSS and SDSS grades available from our stock programme

Grade	UNS	C %	Cr %	Ni %	Mo %	Tensile	Yield Point	Elongation	Hardness
31803	S31803	0.03	21.00 - 23.00	4.50 - 6.50	2.50 - 3.50	620	450	25	290
32205	S32205	0.03	22.00 - 23.00	4.50 - 6.50	3.00 - 3.50	655	450	25	217
32750	S32750	0.03	24.00 - 26.00	6.00 - 8.00	3.00 - 5.00	795	550	15	310
32760	S32760	0.05	24.00 - 26.00	6.00 - 8.00	3.00 - 4.00	750	550	25	270

Stock available size ranges in DSS and SDSS to ASME B36.10 / ASME B36.19 specifications

Category	Construction	Size Range (DN)	SCH/Ratings	Standard
Pipe	Seamless	015 - 300	10S - XXS	ASTM A790
	Welded	250 - 600		ASTM A928
BW Fittings	Seamless	015 - 300	10S - XXS	ASTM A815
	Welded	200 - 600		
SW Fittings	Forged	015 - 100	CL 3000 - 6000	ASTM A182
Flanges	Forged	015 - 450	CL 150 - 1500	ASTM A182

Stock Certifications, Testings and Reports

All stock available materials from Ferro FPF are coming with full traceability and necessary testing reports along with Material Test Certificates to EN 10204 3.1. Most of our process piping materials from stock is coming with dual certification. This is achieved according to the international standards by controlling the chemical composition and mechanical properties in the permissible ratio meeting different grades and standards. This is an optimal way of providing our customers with a comprehensive range of material grades in the most efficient way suiting the project requirements.

Any client and project requirements over and above the normal standards are achieved with possible additional testings, modifications and inspections using in-house and approved third party facilities. All project confirmed modifications are performed according to relevant international standards and backed with conformity reports.

Ferro Pipe and Fittings is having a demonstrated experience in managing project package supplies of Pipes, Fittings, Flanges and Valves for various national and international projects directly with end users and through international EPC's. [Contact us](#) to discuss on our capacities and custom solutions we can offer to your project piping requirements.

