

# DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Grade 255-SD40, Ferralium Alloy 255

## Introduction :

Aesteiron continues to expand its product line in UNS S32520 to meet the emerging customer needs, and whereas Aesteiron Steels Pvt. Ltd. is ISO 9001 : 2008 Certified, ASPL has a great Projects in this grade in all parts of the world with renowned suppliers presenting the wide range of services. We pride ourselves in the quality of our products, our competitive pricing and our exceptional customer service. We have been recognized for our outstanding customer service in satisfaction surveys of top- ranked mills in india and all over the world. ASPL, with iron and steel as its main business, manufactures premium steel products with high technologies and a high added value and fosters three major product categories, namely carbon steel, stainless steel and special steel. Through our worldwide marketing network, these premium products not only satisfy the demand on the domestic market but are also exported to more than forty countries and regions in Asia, Africa, Europa and America, extensively applied to various. We are highly qualified by our customers worldwide as a sustainable and trustworthy to meet their request and need at the right time and the right time and the right area. We strive and stand committed to maintain this respectable position by catering to the requirements of our customers in the best possible way leaving no room for complaints.

## Products Available

### in forms :

- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Plates
- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Pipes
- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Round Bar
- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Tube
- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Flanges
- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Wire
- DUPLEX 255-SD40, WNR 1.4507, UNS S32520, Fittings

## Chemical Composition

	DUPLEX 255-SD40	WNR 1.4507	UNS S32520	Grade 255- SD40	Ferralium Alloy 255
Carbon	0.040	0.040	0.040	0.040	0.040
Chromium	24.0-27.0	24.0-27.0	24.0-27.0	24.0-27.0	24.0-27.0
Copper	1.50-2.50	1.50-2.50	1.50-2.50	1.50-2.50	1.50-2.50
Iron	Rem	Rem	Rem	Rem	Rem
Molybdenum	2.90-3.90	2.90-3.90	2.90-3.90	2.90-3.90	2.90-3.90
Manganese	1.50max	1.50max	1.50max	1.50max	1.50max
Nickel	0.10-0.25	0.10-0.25	0.10-0.25	0.10-0.25	0.10-0.25
Nitrogen	4.50-6.50	4.50-6.50	4.50-6.50	4.50-6.50	4.50-6.50
Phosphorus	0.040max	0.040max	0.040max	0.040max	0.040max
Sulfur	0.030max	0.030max	0.030max	0.030max	0.030max
Silicon	1.00max	1.00max	1.00max	1.00max	1.00max

## Standard Available

### in forms :

- ASTM A240 / ASME SA240
- ASTM A479 / ASME SA479
- ASTM A182 / ASME SA182
- ASTM A276 / ASME SA276
- ASTM A473 / ASME SA473
- ASTM A790 / ASME SA790

## Mechanical Properties

	DUPLEX 255-SD40	WNR 1.4507	UNS S32520	Grade 255 SD40	Ferraliu m Alloy 255
Ultimate Tensile :	110(760)	110(760)	110(760)	110(760)	110(760)
0.2% Offset Yield	80(550)	80(550)	80(550)	80(550)	80(550)
Elongation %	15	15	15	15	15
Hardness, Brinell	297	297	297	297	297

## Corrosion Resistance

- Type 255-SD40 has excellent general corrosion resistance, superior to virtually all other stainless steels.
- It has high resistance to intergranular corrosion.
- Because of its high strength, it performs well in abrasion/corrosion conditions.
- It has good pitting and crevice corrosion resistance to warm sea water and other high chloride environments.
- Because of its duplex structure 255-SD40 has excellent resistance to stress corrosion cracking, resistant to all concentrations of chlorides up to over 200°C, and also resists SCC in sulphide (sour gas) environments.
- 255-SD40 is a grade of choice for severe hot sea water environments and for chemical and petrochemical processing, including strong acids.

## Heat Resistance

- Although super duplex grades have good high temperature oxidation resistance they suffer from embrittlement if held for even short times at temperatures above +270°C.
- If embrittled this can only be rectified by a full solution annealing treatment.

## Low Temperature Performance

- 255-SD40 is not generally recommended for use below -50°C because of its ductile-to-brittle-transition, again common to all duplex stainless steels.

## Heat Treatment

### • Solution Treatment (Annealing)

Annealing - heat to 1080 - 1120°C and cool rapidly.

- It cannot be hardened by thermal treatment.

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## Welding

- Weldable by standard methods, without pre-heat.
- Consumables over-alloyed with nitrogen and nickel are generally recommended.
- TIG (GTAW), MIG (GMAW) and all positional manual (MMAW) electrodes are available.
- Post weld annealing increases the corrosion resistance of welds.

## Fabrication

- 255-SD40 is a high strength steel, so high forces will be required for cold forming.
- The ductility of the grade is quite adequate for most operations, but heavy deformation, such as cold forging, is not possible.
- If more than about 20% cold work is required, an intermediate solution anneal is required.

## Applications

- Oil and gas exploration
- Processing and support systems
- Pollution control including flue gas desulphurisation
- Marine and other high chloride environments
- Chemical processing
- Transport and storage
- Pulp and paper processing.



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