

Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550, Grade 255, AFNOR Z3 CNDU 25-07 Az, ALLOY 255

Introduction :

Aesteiron continues to expand its product line in UNS S32550 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 a 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 :

- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Plates
- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Pipes
- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Round Bar
- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Tube
- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Flanges
- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Wire
- Super Duplex Ferralium 255-SD50, WNR 1.4507, UNS S32550 Fittings

Chemical Composition

	WNR	UNS	Grade 255	AFNOR Z3 CNDU 25-07 Az	ALLOY 255
Carbon	0.025max	0.025max	0.025max	0.025max	0.025max
Nitrogen	6.3	6.3	6.3	6.3	6.3
Molyden	3.5	3.5	3.5	3.5	3.5
Copper	1.75	1.75	1.75	1.75	1.75
Nickel	0.23	0.23	0.23	0.23	0.23
Tungste	0.15	0.15	0.15	0.15	0.15
Silicon	0.5	0.5	0.5	0.5	0.5
Mangan	1.00	1.00	1.00	1.00	1.00
Phosphor	0.025max	0.025max	0.025max	0.025max	0.025max
Sulfur	0.005max	0.005max	0.005max	0.005max	0.005max
Chromiu	26.0	26.0	26.0	26.0	26.0

Standard Available

in forms :

- ASTM A240 / ASME SA240
- ASTM A479 / ASME SA479
- ASTM A249 / ASME SA249
- ASTM A269 / ASME SA269
- ASTM A312 / ASME SA312
- ASTM A182 / ASME SA182
- ASTM A403 / ASME SA403
- ASTM A276 / ASME SA276
- ASTM A789 / ASME SA789
- ASTM A790 / ASME SA790

Mechanical Properties

	WNR 1.4507	UNS S32550	Grade 255	AFNOR Z3 CNDU 25- 07 Az	ALLOY 255
Ultimate Tensile Strength N/mm ² (min)	790	110 min	110 min	110 min	110 min
0.20% Proof (min)	570-600	80 min	80 min	80 min	80 min
Elongation %	25 min	25 min	25 min	25 min	25 min
Reduction in Area, %	-	-	-	-	-
Hardness, HB	270max	270max	270max	270max	270max

SPECIFICATION	ASTM	ASME
Bar	A276 / A479	SA276 / SA479
Forging	A182	SA182
Plate	A240	SA240
Pipe	A789 / A790	SA789 / SA790

Applications

- Chemical Process Industry

- Marine Industry and Shipbuilding
- Oil and Gas Industry
- Pollution Control
- Copper Smelting
- Pulp and Paper Industry
- Food Industry
- Agrochemicals
- Civil Engineering

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Features

- Alloy 255 sets a new bench mark for superduplex as the first to state 570N/mm² as the minimum 0.2% Proof Stress
- Excellent corrosion resistance in a wide variety of corrosive chemicals including sulphuric, phosphoric and nitric acids
- Outstanding resistance to pitting and crevice corrosion in seawater and other chloride containing environments, with Critical Pitting Temperature exceeding 50°C
- Excellent ductility and impact strength at both ambient and sub-zero temperatures
- High resistance to abrasion, erosion and cavitation erosion
- Excellent resistance to stress corrosion cracking in chloride containing environments

Corrosion Resistance

- Alloy 255 is extremely corrosion resistant.
- It has high resistance to intergranular corrosion.
- Even in chloride and sulphide environments, it exhibits very high resistance to stress corrosion cracking.
- Alloy 255 (Super Duplex) is more resistant to corrosion, compared to other duplex steels.

Heat Resistance

- The high chromium content of Alloy 255 that protects against corrosion, causes embrittlement at temperatures over about 300°C.
- At low temperatures, it has better ductility than the ferritic and martensitic grades.
- It can readily be used down to at least -50°C.

Fabrication

- Fabrication of Alloy 255 should be done only with tools dedicated to stainless steel materials.
- Tooling and work surfaces must be thoroughly cleaned before use.
- These precautions are necessary to avoid cross contamination of stainless steel by easily corroded metals that may discolour the surface of the fabricated product.

Machinability

- Although machinable, the high strengths of Alloy 255 makes machining difficult. As an example, machining of Alloy 255 is around 20% slower than for 304. Machining can be enhanced by using the following rules:
- Cutting edges must be kept sharp. Dull edges cause excess work hardening.
- Cuts should be light but deep enough to prevent work hardening by riding on the surface of the material.
- Chip breakers should be employed to assist in ensuring swarf remains clear of the work
- Low thermal conductivity of austenitic alloys results in heat concentrating at the cutting edges. This means coolants and lubricants are necessary and must be used in large quantities.

Heat Treatment

- Alloy 255 cannot be hardened by heat treatment. They can however be work hardened.
- Solution treatment or annealing can be done by rapid cooling after heating to around 1100°C.

Weldability

- Alloy 255 have good weldability.
- All standard welding processes can be used.
- They are not quite as easily welded as the austenitic grades but low thermal expansion in duplex grades reduces distortion and residual stresses after welding.





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