



DAIKOFCW 2595



DUPLEX - SUPERDUPLEX
ZERON 100

DESCRIPTION

Rutile flux cored wire for flat and horizontal position 25% Cr superduplex ferritic-austenitic stainless steels

Superduplex rutile flux cored wire matching the proprietary Zeron® 100 alloy. The presence of Cu+W in this alloy provides superior resistance to sulphuric and hydrochloric acids when compared to similar alloys without these additions. Offshore applications exploit the high resistance to pitting and stress corrosion cracking in seawater. It is also highly resistant to caustic alkalis and phosphoric acid. Widely used in oil and gas production and process.

SPECIFICATIONS

ISO 17633-A	T 25 9 4 Cu N L R M21 3	AWS A5.22	E2594T0-4
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	M21
Positions	PA, PB, PC	Current	DC+

ASME QUALIFICATIONS

F-No (QW432)	FERRITE	PREN	HARDNESS
6	% 30-60	41.7	-
A-No (QW442)	-		

CHEM. COMP. %

	DEFAULT
C	0.03
Mn	1.4
Ni	9
Cr	25
N	0.26
P	0.015
S	0.008
Mo	3.8
Si	0.6
Cu	1

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R _m MPa	620	750
Yield strength R _{p0.2} MPa	550	560
Elongation A (L ₀ =5d ₀) %	18	25
Impact Charpy ISO-V	-	30J @ -29°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	1.2 mm	1.6 mm
Ampere	120A - 240A	200A - 350A
Voltage	20V - 28V	28V - 32V
Packaging	Ø 1,2÷1,6mm	Ø 1,2÷1,6mm
Packaging Type	BS300 spool	BS300 spool

V 01/2024



The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit www.daikowelding.com.





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APPLICATION

Zeron® 100 excels in strength and in corrosion and erosion resistance, proving effective in aggressive environments. The Cu+W addition enhances resistance to sulphuric and hydrochloric acids, surpassing alloys without these elements. Notable for its offshore use, it resists pitting and stress-corrosion cracking in seawater and withstands caustic alkalis and phosphoric acid. Its service temperature range is typically -50°C to 280°C, with factors like thermal instability (450°C) and sigma embrittlement influencing the upper limit. Widely applied in oil and gas, it serves in pipework, risers, manifolds, pressure vessels, valves, pumps, desalination plants, and FGD systems. Versatile across mining, chemical, and pharmaceutical industries, Zeron® 100 wires are employed for joining supermartensitic stainless steels, showcasing adaptability across various industrial applications.

ALLOY TYPE

25%Cr ferritic-austenitic superduplex stainless steels matching the proprietary Zeron® 100 alloy.

MICROSTRUCTURE

Austenite-ferrite duplex microstructure in AW or solution annealed condition with an approximate 30- 60% ferrite level, depending on heat cycle conditions.

MATERIALS

EN W.Nr.: 1.4508, 1.4501, 1.4469.

ASTM: A890 6A, A182 F55, A890 5A.

UNS: S32760, J93380, S32750, S32550, S32520, S39274, S32950, J93404.

PROPRIETARY: Zeron 100 (Rolled Alloys) DP3W (Nippon Steel Corporation), 7-Mo Plus (Carpenter), SAF 2507 (Sandvik).

WELDING & PWHT

Preheating is typically unnecessary. Maintain interpass temperature below 150°C. Acceptable heat input falls within the range of 1.0-2.0 kJ/mm, contingent on material thickness; however, many codes impose a maximum limit of 1.5 or 1.75 kJ/mm. While welds in wrought duplex stainless steels are typically preserved in the as-welded state, significant repairs to castings are commonly mandated in the solution-treated condition. Empirical evidence suggests favorable properties following treatment at 1120°C for 3-6 hours, followed by water quenching.

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