DAIKOFCW 2595

FCAW

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

EN ISO 17633-A	T 25 9 4 Cu N L R M21 3	**AWS A5.22**	E2594T0-4
Shielding	M21	**Positions**	PA, PB, PC
Current	DC+	**Packaging Type**	BS300 spool

ASME QUALIFICATIONS

F-No (QW432)	6
A-No (QW442)	-

FERRITE

% 30-60

PREN

41.7

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. PER STANDARD	PRODUCT
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

NOTES

D200 spool, Ø 1,0 mm and basic flux cored version for improved toughness available upon request.

DAIKO

ZERON 100

DESCRIPTION

APPLICATION

Zeron® 100 stands out for its extraordinary ability to resist corrosion and erosion in a wide range of aggressive environments. The special Cu+W combination significantly improves resistance to sulfuric and hydrochloric acids, compared to similar alloys without such additives. Thanks to its high resistance to pitting and stress corrosion cracking, Zeron® 100 is widely used in offshore applications, especially in seawater contexts. This material also offers excellent resistance to caustic alkalis and phosphoric acid. Its service temperature range generally varies between -50 °C and 280 °C, with the upper limit due to thermal instability (450 °C and sigma phase embrittlement). Zeron® 100 is highly valued in the oil and gas production sector and is used in a wide range of applications, including process piping, risers, manifolds, pressure vessels, valves, pumps, desalination plants, flue gas desulfurization (FGD) systems, and in the mining, chemical, and pharmaceutical industries. Furthermore, Zeron® 100 wires are ideal for joining supermartensitic stainless steels.

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

For welding Zeron® 100, preheating is generally not required. The interpass temperature should not exceed 150 °C. A heat input between 1.0 and 2.0 kJ/mm (based on the material thickness) is considered optimal, though many industrial codes set a maximum limit of 1.5 or 1.75 kJ/mm. While welds in wrought duplex stainless steels are usually left as is, major repairs on castings often require a solution treatment. Field tests confirm that good properties are obtained by following a water quench treatment at 1120 °C for a period between 3 and 6 hours.