G-TECH 2595B

SMAW

DUPLEX - SUPERDUPLEX

ZERON 100

DESCRIPTION

Basic coated electrode for Zeron® 100 alloy

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. Service temperature range is usually limited to -50°C to 280°C. It is widely used in oil and gas production and process pipework, risers, manifolds, pressure vessels, valves, pumps, desalination plant, systems for flue-gas desulphurisation (FGD) and also in the mining, chemical and pharmaceutical industries. Its basic coating ensures excellent positional welding characteristics with good gap bridging ability.

SPECIFICATIONS

ISO 3581-A	E 25 9 4 N L B 42	AWS A5.4	E2595-15
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	-
Positions	PA, PB, PC, PD, PE, PF	Current	DC+;

ASME QUALIFICATIONS

F-No (QW432)	5
A-No (QW442)	-

FERRITE

% 30-60

PREN

42.54

HARDNESS

-

CHEM. COMP. %

	DEFAULT
C	0.035
Mn	0.9
Ni	9.5
Cr	25.5
N	0.24
P	0.02
S	0.01
Mo	4
Si	0.7
Cu	0.7

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R_m MPa	620	850
Yield strength $R_{p0.2}$ MPa	550	630
Elongation A (L_0=5d_0) %	18	22
Impact Charpy ISO-V	-	40J @ -40°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	2.5 mm	3.2 mm	4 mm
Ampere	50A - 80A	70A - 110A	100A - 160A
Voltage	-	-	-
Packaging	56 pcs/kg	30 pcs/kg	19 pcs/kg
Packaging Type	Carton box	Carton box	Carton box

ZERON 100

DESCRIPTION

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 -50ºC to 280ºC, with factors like thermal instability (450ºC) 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 150ºC. 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 1120ºC for 3-6 hours, followed by water quenching.

DAIKO