G-TECH 2594

SMAW

DUPLEX - SUPERDUPLEX
2507

DESCRIPTION

Rutile-basic coated electrode for Superduplex ferritic-austenitic stainless steels

Offshore applications exploit the high resistance to pitting (typical pitting resistance equivalent number "PREn" of 43) 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. Its rutile-basic coating ensures an excellent combination of welding performance in all positions, except for vertical down, and a high resistance to cracking providing smooth arc transfer.

SPECIFICATIONS

EN ISO 3581-A	E 25 9 4 N L R 42	**AWS A5.4**	E2594-16
Shielding	-	**Positions**	PA, PB, PC, PD, PE, PF
Current	DC+, AC	**Packaging Type**	Carton box

ASME QUALIFICATIONS

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

PREN

42.54

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	0.3

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	620	760
Yield strength $R_{p0.2}$ MPa	550	550
Elongation A (L_0=5d_0) %	18	20
Impact Charpy ISO-V	-	47J @ 20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	2.5 mm	3.2 mm	4.0 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

NOTES

Pcs/kg is indicative, actual number may vary ± 5%.

DAIKO

2507

DESCRIPTION

APPLICATION

Super duplex stainless steel pipes, plates, fittings, and forgings have a microstructure composed of approximately 50% austenite and 50% ferrite matrix. This combination, along with the alloy composition, offers several key benefits: - high strength compared to standard austenitic steels like type 316L; - excellent overall corrosion resistance in a wide range of environments; - high resistance to chloride-induced stress corrosion cracking (CSCC); - remarkable resistance to pitting attack in environments containing chlorides, such as seawater. These characteristics make super duplex alloys ideal for continuously evolving applications in the **offshore oil/gas, chemical, and petrochemical industry.** They are frequently used in piping systems, flow lines, risers, manifolds, and more.

ALLOY TYPE

25%Cr ferritic-austenitic superduplex stainless steels.

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.: 1.4410 (X2CrNiMoN25-7-4)
ASTM: A182 F53, A182 F55, A890 Gr5A, A890 Gr6A
UNS: S32750, S32760, J93404
PROPRIETARY: SAF 2507 (Sandvik), Uranus® 47N (Industeel)

WELDING & PWHT

Generally, preheating is not required. The interpass temperature is set to a maximum of 150 °C. A heat input range of 1.0-2.0 kJ/mm, depending on the thickness of the material, is acceptable, with many codes specifying a maximum limit of 1.5 or 1.75 kJ/mm. Although welds on duplex stainless steels are almost always left as-welded, major repairs on castings are generally carried out in a solution-treated condition. Industry practices suggest that excellent mechanical properties can be obtained through water quenching at 1120 °C, held for 3-6 hours.