# DAIKOWT 2594

GTAW

**DUPLEX - SUPERDUPLEX**
2507

## DESCRIPTION

**Superduplex stainless steel rod for welding 25% Cr ferritic-austenitic stainless steel**

Rod developed for welding superduplex ferritic-austenitic steels, with high tensile strength and toughness, excellent resistance to stress corrosion, pitting, and intergranular corrosion. The service temperature ranges from -50°C to 250°C. For optimal performance, controlled dilution and thorough purging are essential. It offers excellent mechanical properties and ease of use.

## SPECIFICATIONS

| | | | |
|---|---|---|---|
| **EN ISO 14343-A** | W 25 9 4 N L | **AWS A5.9** | ER2594 |
| **Certifications** | CE, TUV | **Shielding** | I1 |
| **Positions** | PA, PB, PC, PD, PE, PF | **Current** | DC- |
| **Packaging Type** | 5kg carton tube | | |

## ASME QUALIFICATIONS

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

## PREN

42.2

## HARDNESS

290HV - 310HV

## CHEM. COMP. %

| | DEFAULT |
|---|---|
| C | 0.01 |
| Mn | 0.55 |
| Ni | 9.3 |
| Cr | 25 |
| N | 0.25 |
| P | 0.02 |
| S | 0.015 |
| Mo | 4 |
| Si | 0.4 |
| Cu | 0.1 |

## MECHANICAL PROPERTIES

| | MIN. PER STANDARD | PRODUCT |
|---|---|---|
| Tensile strength $R_m$ MPa | 620 | 870 |
| Yield strength $R_{p0.2}$ MPa | 550 | 670 |
| Elongation A ($L_0$=5$d_0$) % | 18 | 24 |
| Impact Charpy ISO-V | - | 130J @ -50°C |
| Impact Charpy ISO-V | - | 100J @ -75°C |

## WELDING PARAMETERS

| | 1.6 mm | 2.4 mm |
|---|---|---|
| Ampere | 80A - 100A | 110A - 160A |
| Voltage | - | - |
| Packaging | Ø 1,0÷4,0mm | Ø 1,0÷4,0mm |
| Packaging Type | 5kg carton tube | 5kg carton tube |

# 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.