

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9
W 25 9 4 N L	ER2594

Characteristics and typical fields of application

TIG rod of W 25 9 4 N L / ER2594 type with intentionally added W and Cu for welding superduplex steel and equivalent steel grades such as 1.4410 / UNS S32750, 1.4507 / UNS S32550 and 1.4501 / UNS S32760. Can also be used for joints between superduplex and austenitic alloys or carbon steels. For welding of duplex type 1.4462 / UNS S32205 if extra high corrosion resistance is required. The properties of the weld metal match those of the parent metal, offering excellent resistance to stress corrosion cracking and localized corrosion in chloride containing environments. Pitting resistance is in accordance with ASTM G48A Methods A, B and E (> 40°C). Welding without filler metal (i.e. TIG-dressing) is not allowed since the ferrite content will increase drastically and both mechanical and corrosion properties will be negatively affected.

Base materials

1.4410 X2CrNiMoN25-7-4, 1.4467 X2CrMnNiMoN 26-5-4, 1.4468, GX2 CrNiMoN 25-6-3, 1.4501 X2CrNiMoCuWN25-7-4, 1.4507 X2CrNiMoCuN 25-6-3, 1.4515 GX2CrNiMoCuN 26-6-3, 1.4517 GX2CrNiMoCuN 25-6-3-3
UNS S32750, S32760, J93380, S32520, S32550, S39274, S32950

Typical analysis


	C	Si	Mn	Cr	Ni	Mo	W	N	Cu	PRE _N	PRE _W	FN
wt.-%	0.02	0.35	0.9	25.5	9.5	3.8	0.6	0.22	0.5	> 41.5	43	45

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _{p0.2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact energy ISO-V KV J	
	MPa	MPa	%	20°C	-50°C
u	630 (≥ 600)	780 (≥ 760)	28 (≥ 25)	100 (≥ 80)	60 (≥ 47)

u untreated, as-welded

Operating data

	Polarity	DC-	Dimension mm
	Shielding gas (EN ISO 14175)	Ar Ar + 2% N ₂ Ar + 30% He + 2% N ₂	
Rod marking	+ W 25 9 4 NL		

Suggested heat input is 0.3 – 1.5 kJ/mm, interpass temperature max. 100°C. Weld the cold pass (second layer) with 70 – 80% of the heat input used for the root pass. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1100 – 1150°C followed by water quenching.

The root side corrosion resistance may be improved by use of nitrogen-based backing gas.

Approvals

TÜV (18929), DNV, CE