

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 designed for welding superduplex alloys such as 1.4410 / UNS S32570, 1.4507 / UNS S32550 and 1.4501 / UNS S32760. It can also be used for welding duplex type 2205 if extra high corrosion resistance is required, e.g. in root runs in tubes and pipe. Avesta 2507/P100 provides a ferritic-austenitic weld metal. The resulting microstructure is austenite with 45-55% ferrite. Excellent resistance to pitting and stress corrosion cracking in chloride containing environments. Meets the corrosion test requirements per ASTM G 48 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 X2CrMnNiMoN26-5-4, 1.4468 GX2CrNiMoN25-6-3, 1.4501 X2CrNiMoCuWN25-7-4, 1.4507 X2CrNiMoCuN25-6-3, 1.4515 GX2CrNiMoCuN26-6-3, 1.4517 GX2CrNiMoCuN25-6-3-3
UNS S32750, S32760, J93380, S32520, S32550, S39274, S32950

Typical analysis

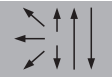
	C	Si	Mn	Cr	Ni	Mo	N
wt.-%	0.02	0.4	0.4	25	9.5	4.0	0.25

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	-40°C
u	660	860	28	190	170

u untreated, as-welded – shielding gas Ar

Operating data

	Dimension mm	Current A	Voltage V
	1.6 × 1000	80 – 120	10 – 13
	2.0 × 1000	100 – 130	14 – 16
	2.4 × 1000	130 – 160	16 – 18
	3.2 × 1000	160 – 200	17 – 20

Suggested heat input is 0.3 – 1.5 kJ/mm, interpass temperature max. 100°C.

Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1100 – 1150°C followed by water quenching.

Shielding gas: Ar, Ar + 2% N₂, Ar + 30% He + 2% N₂. The addition of helium increases the energy of the arc. Nitrogen counteracts nitrogen loss from the weld pool. Gas flow: 8 – 12 l/min (somewhat higher with helium). The corrosion resistance on the rootside may be improved by use of nitrogen-based backing gas.

Polarity: DC-

Approvals

-