

Classifications

EN ISO 14343-A

G 22 9 3 N L

Characteristics and typical fields of application

Solid wire of G 22 9 3 N L / ER2209 type designed for welding 22Cr duplex grades such as 1.4462 / UNS S32205 and S31803 used in offshore, shipyards, chemical tankers, chemical/petrochemical, pulp + paper, etc. Provides a ferritic-austenitic weld metal. The welding can be performed using short, spray or pulsed arc. Welding using pulsed arc provides good results in both horizontal and vertical-up positions. Over-alloyed in nickel. The resulting microstructure is austenite with 45 – 55% ferrite. The weld metal has very good resistance to pitting and stress corrosion cracking in chloride containing environments.

Base materials

1.4462 X2CrNiMoN22-5-3, 1.4362 X2CrNiN23-4, 1.4162 X2CrNiMoN21-5-1
UNS S32205, S31803, S32304, S32101
2205, 2304, LDX 2101®, SAF 2205, SAF 2304

Typical analysis

	C	Si	Mn	Cr	Ni	Mo	N	PRE _N	FN
wt.-%	0.02	0.5	1.6	22.8	8.5	3.1	0.17	> 35	50


Structure: Austenite/Ferrite

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	560 (≥ 450)	780 (≥ 550)	30 (≥ 20)	150 (≥ 47)	100 (≥ 47)

u untreated, as-welded – shielding gas Ar + 2% CO₂

Operating data

	Polarity	DC +	Dimension mm	
	Shielding gas (EN ISO 14175)	Ar + 2% O ₂		0.8
		Ar + 2 – 3% CO ₂		0.9
		I1 (TIG mech.)		1.0
				1.2
				1.6

Suggested heat input is 0.5 – 2.5 kJ/mm and interpass temperature max. 150°C. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1100 – 1150°C followed by water quenching.

Approvals

TÜV (03342), DB (43.132.36), DNV, CE