Thermanit 23/07

Solid wire, high-alloyed, duplex stainless

Classifications

EN ISO 14343-A	AWS A5.9
G 23 7 N L	ER2307

Characteristics and typical fields of application

Solid wire TIG rod of G 23 7 N L / ER2307 type for welding the lean duplex grade 2304 (1.4362 / UNS S32304) and similar materials. Provides a ferritic-austenitic weldment that combines many of the good properties of both ferritic and austenitic stainless steels. It has a low content of molybdenum, which makes it well suited for nitric acid environments. 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. Over-alloyed with nickel to promote weld metal austenite formation and designed to result in weld metal ferrite levels of 35 – 65%.

Base materials

1.4362 X2CrNiN23-4, 1.4162 X2CrMnNiN21-5-1, 1.4482 X2CrMnNiMoN21-5-3 UNS S32304, S32101, S32001 SAF 2304, LDX 2101®, 2001

Typical analysis

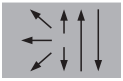
	C	Si	Mn	Cr	Ni	Mo	N	PRE_N	FN
wt.-%	0.02	0.4	0.5	23.5	7.0	< 0.5	0.14	> 26	45

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		Hardness
	MPa	MPa	%	20°C	–40°C	Härte Brinell
u	520 (≥ 450)	710 (≥ 570)	30 (≥ 20)	150	110	240

u untreated, as-welded – shielding gas Ar + 30% He + 2% CO_2

Operating data



Polarity	DC+
Shielding gas (EN ISO 14175)	Ar + 30% He + 2% CO_2 Ar + 1 – 2% O2 Ar + 2 – 3% CO_2

Dimension mm
0.8
1.0
1.2

Suggested heat input is 0.5 – 2.0 kJ/mm and interpass temperature max. 150ºC.
Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1020 – 1080ºC followed by water quenching.

Approvals

-