Thermanit 20/10 W 140 K

Stick electrode, high-alloyed, stainless, rutile

Classifications		
EN ISO 3581-A	AWS A5.4	Mat. No.
E 20 10 3 R 5 3	E308Mo-17 (mod.)	1.4431

Characteristics and typical fields of application

Rutile covered electrode with high deposition rate.
Stainless; resistant to intercrystalline corrosion – wet corrosion up to 300 °C (572 °F). For joining of stainless Cr and similar austenitic CrNiMo steels/cast steel grades. For joining of dissimilar materials. For tough joints on high manganese steel (steel castings), CrNiMn steels and armour steels. For surfacing and repair welding on wear parts: rotors, rails.
Especially suited for austenitic ferritic joints at max. application temperature 300 °C (572 °F).
Particularly for tough joints between unalloyed/low alloy steels/ cast steel grades or stainless/heat resistant Cr steels/cast steel grades to austenitic steels/cast steel grades.
Unsuited for buffer layers on weld claddings or clad plates.

Base materials

Combinations of austenitic steels with ferritic steels

Typical analysis of all-weld metal (wt.-%)

	C	Si	Mn	Cr	Mo	Ni
wt-%	0.05	0.9	0.8	20.0	3.3	10.5

Structure: Austenite with increased amount of ferrite

Mechanical properties of all-weld metal

Heat-treatment	Yield strength $R_{p0.2}$	Yield strength $R_{p1.0}$	Tensile strength R_m	Elongation A (L_0=5d_0)	Impact work ISO-V KV J
	MPa	MPa	MPa	%	+20 °C
aw	400	450	650	25	50

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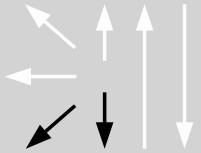
Operating data

	**Polarity:**	**ø (mm)**	**L mm**	**Amps A**
	DC (+) / AC	3.2	350	90 – 120
		4.0	350	130 – 160

Welding instruction

Materials	Preheating	Postweld heat treatment
Stainless CrNi steels	None; if necessary solution annealing at 1050 °C (1922 °F)	None
Stainless CrNi steels; unalloyed / low alloy structural steels of elevated strength (surfacing and repair welding)	According to parent metal mostly not necessary	No stress relieving (risk of carbide precipitation in weld fusion zone, loss of toughness, fracturing)
Joining CrNi(MoN) austenitic to unalloyed / low alloy steels	According to parent metal mostly not necessary	Max. temperature 200 °C (392 °F) – carbide precipitation in weld fusion zone
Joining CrNi(MoN) austenitic to stainless and heat resistant steels/cast steel grades	According to ferritic parent metal	According to parent metal. Attention must be paid to intercrystalline corrosion and susceptibility to embrittlement
High manganese steel	None	As this steel becomes very brittle at 400 – 600 °C (752 – 1112 °F), weld as cold as possible. Cooling possibly with compressed air, or dip workpiece in water. No postweld heat treatment, quench if possible