

MMA Electrodes Stainless and Heat resistant steels

Fume reduced, rutile coated MMA electrode for joining dissimilar steels (austenitic steels to ferritic steels) and for austenitic cladding. The reduced fume formation contributes to an improved working environment for welders and in workshops. The welding fume deposited in the welding zone and on the work piece is considerably lower than with standard electrodes. Weld metal consists of austenite with approx. 15 % delta-ferrite. Cladding on unalloyed and low-alloy steels is already corrosion resistant in the first layer. Highest operating temperature for joints between dissimilar steels is +300 °C. In case of higher temperatures, use SUPRANEL 600 electrodes. Fine metal droplet transfer, good fusion of joint faces, finely rippled bead surface, easy slag removal, excellent arc striking and restriking. Vacuum packaging: no redrying or special storage conditions.

Classification	
AWS	A5.4: E 309L-17
EN	1600: E 23 12 L R 22

Approvals	Grades
DB	
TÜV	

see Appendix, Classification Society Approvals, for details pag. 521

Analysis of all-weld metal (Typical values in %)

C	Mn	Si	P	S	Cr	Ni	Mo	Nb	Cu	N	Ferrite
≤ 0.03	0.80	0.90	≤ 0.025	≤ 0.020	23	12.50	-	-	-	-	10-20

All-weld metal Mechanical Properties

Heat Treatment	Yield Strength N/mm ²	Tensile Strength N/mm ²	Elongation A5 (%)	Impact Energy ISO - V (J) + 20 °C	Hardness
As Welded	≥ 320	≥ 520	≥ 30	≥ 50	-

Materials

A312 TP309S; carbon steel to stainless steels joint

Storage and redrying

Keep dry and avoid condensation.

Re-drying not generally required

If necessary: 250-300 °C for 2 hours, 5 times max

Current condition and welding position

DC+



Packaging data

Diameter (mm)	Length (mm)	Current (A)	Electrode average weight (g)	Weld metal weight per electrode (g)
2,5	300	70-80	18,3	11,0
3,2	350	110-120	34,2	20,5
4,0	350	125-135	53,3	32,0