

## DURAMAX STAINLESS ELECTRODE DM312-16

**Classification:** E312-16 AWS A5.4 / ASME SFA 5.4

### Description, Characteristics & Applications:

DURAMAX E312-16 has a nominal composition (wt.-%) of 30 Cr, 9 Ni. These electrodes have been found valuable in welding dissimilar metals, especially when one of the base metals is a stainless steel high in nickel. The deposit is a two-phase weld deposit with substantial amounts of ferrite in an austenitic matrix. Even with considerable dilution by austenite-forming elements, such as nickel, the microstructure remains two-phase and thus highly resistant to weld metal cracks and fissures. Applications should be limited to service temperature below 800°F to avoid formation of secondary brittle phases.

DM312-16 is utilized for welding stainless steels to mild steels and for welding high strength steels that are difficult to weld with ferritic electrodes.

DM312-16 electrode is work-hardenable and hot-cracking resistant.

### Typical Chemical Composition (%)

C	Cr	Ni	Mo	Mn	Si	P	S	Cu
0.15 max	28.0-32.0	8.0-10.5	0.75 max	0.5 - 2.5	1.00 max	0.04 max	0.03 max	0.75 max

### Deposited Chemical Composition (%) (Typical)

C	Cr	Ni	Mo	Mn	Si	P	S	Cu
0.12	29.0	9.50	0.23	1.70	0.47	0.02	0.01	0.12

### Typical Mechanical Properties as Welded

Tensile Strength (n/mm <sup>2</sup> )	Yield Strength (n/mm <sup>2</sup> )	Elongation (%)	Hardness	Ferrite WRC (FN)	CVN Impacts (J)	
					@	°C
660 Min	-----	22% Min	-----	-----	-----	-----

### Typical Welding Parameters DCEP or AC

Diameter	Type of Current	Amperage Range		Voltage Range
		Flat	Out of Position	
3/32"	DCEP or AC	70 - 80	65 - 80	20 - 23
1/8"	DCEP or AC	80 - 110	75 - 95	21 - 24
5/32"	DCEP or AC	120 - 160	100 - 120	22 - 25
3/16"	DCEP or AC	170 - 190	Not recommended	23 - 25

NOTE: Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of material being welded.

POLARITY: DCEP or AC

DCEP = DC, Electrode Positive (reverse polarity) has the most weld penetration.

AC: medium weld penetration (can have more spatter)

WELDING POSITIONS: All Positions

USE LESS AMPS ON THIN METAL; MORE AMPS ON THICK METAL