DURAMAX DUPLEX ELECTRODE DM2209-16

Classification: **E2209-16** **AWS A5.4 / ASME SFA 5.4**

Description, Characteristics & Applications:

DURAMAX E2209-16 has a nominal composition (wt.-%) of 22.5 Cr, 9.5 Ni, 3 Mo, 0.15 N. Electrodes of this composition are used primarily to weld duplex stainless steel, such as UNS S31803 and S32205. They are also used for lean duplex stainless steel, such as UNS S32101 and S32304. Weld metal deposited by these electrodes has “duplex” microstructure consisting of an austenite-ferrite matrix. Weld metal deposited by DM2209-16 combines increased tensile strength with improved resistance to pitting corrosive attack and to stress corrosion cracking, especially in environments containing hydrogen sulfide and chlorides. If postweld annealing is required, this weld metal will require a higher annealing temperature than that required by the duplex base metal.
DM2209-16 is designed for applications with service temperatures up to 480°F (250°C) and down to -58°F (-50°C).

Typical Chemical Composition (%)

AWS Spec.	C	Cr	Ni	Mo	Mn	Si	P	S	Cu	N
A5.4	0.04max	21.5-23.5	8.5 - 10.5	2.5 - 3.5	0.5 - 2.5	1.00 max	0.04 max	0.03 max	0.75 max	0.08-0.20
Typical	0.030	22.96	8.95	3.09	1.64	0.72	0.024	0.002	0.055	0.173

Typical Mechanical Properties as Welded

Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Hardness	Ferrite WRC (FN)	CVN Impacts (J) @ °C
690 Min	---	20% Min	-------	-----	-------

Typical Welding Parameters DCEP or AC

Diameter	Current	Amps / Flat	Amps/Out of Position	Voltage Range
3/32"	DCEP or AC	70 - 90	65 - 80	20 - 23
1/8"	DCEP or AC	80 - 110	80 - 100	21 - 24
5/32"	DCEP or AC	120 - 160	100 - 120	22 - 25
3/16"	DCEP or AC	155 - 210	Not Recommended	23 - 26

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