



312 AC-DC

AWS E312-16

Replaces 020520

160-F, INDEX: 060213

DESCRIPTION:

Ideal for new fabrication or repair maintenance applications, **312 AC-DC** is designed for welding dissimilar joints of Type 312 metals. 312 AC-DC can be used on hardenable steels, steel armor and generally hard-to-weld steels, offering outstanding performance with a directional arc and self-detaching slag. With capabilities considered equal to “special maintenance” electrodes, 312 AC-DC is available at much less than the “special maintenance” price. It has a smooth running arc that results in a uniform bead that is flat to slightly convex.

Features	Benefits
<ul style="list-style-type: none"> Spray-like arc transfer Electrode doesn't overheat Directional arc Easy strike and re-strike All-position 	<ul style="list-style-type: none"> Low spatter and less clean-up Less stub loss, cost-effective Metal goes where directed Easy to use, less chance of starting defects Welds extremely well in flat, horizontal, vertical (up) and overhead positions Less chance of slag inclusions Extends shelf life of product in open environment
<ul style="list-style-type: none"> Easy slag release Extremely high moisture resistance 	

TYPICAL WELD METAL PROPERTIES* (CHEM PAD):

Weld Metal Analysis		AWS Spec
Carbon (C)	0.07	0.15 max
Manganese (Mn)	0.80	0.5 to 2.5
Phosphorus (P)	0.015	0.04 max
Sulphur (S)	0.017	0.03 max
Silicon (Si)	0.40	0.90 max
Copper (Cu)	0.15	0.75 max
Chromium (Cr)	28.50	28.0 to 32.0
Nickel (Ni)	9.10	8.0 to 10.5
Molybdenum (Mo)	0.11	0.75 max

TYPICAL MECHANICAL PROPERTIES* (AS WELDED):

		AWS Spec
Tensile Strength	115,000 psi (794 MPa)	95,000 psi
Yield Strength	95,000 psi (656 MPa)	not required
Elongation % in 2"	25%	22%
DeLong Ferrite Number Range	25-80	not required
Schaeffler Number Range	25-80	not required
WRC Number Range (1992)	25-80	not required

CONFORMANCES AND APPROVALS:

- AWS Spec A5.4, Class E312-16 • ASME SFA5.4

*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and McKay expressly disclaims any liability incurred from any reliance thereon. Typical data are obtained when welded and tested in accordance with AWS A5.4 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by McKay.



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RECOMMENDED WELDING PROCEDURES:

- GENERAL:** DCEP (electrode positive, work negative) or AC
- ARC LENGTH:** Short (less than half the diameter of the electrode)
- FLAT & HORIZONTAL:** Angle electrode 10-15° from 90°
- VERTICAL-UP:** Use weaving techniques. Reduced amperage compared to flat position setting
- OVERHEAD:** Use slight weaving motion within the puddle
- STORAGE:** AC-DC electrodes have a high degree of moisture resistance; however, for critical applications, the electrodes should be held at 225° F after opening.
- RECONDITIONING:** If exposed to atmosphere for extended periods, recondition at 500°F for 1 hour

RECOMMENDED OPERATING PARAMETERS:

Diameter		Type of Power	Minimum Amps	FLAT & HORIZONTAL	
Inches	mm			Optimum Amps	Maximum Amps
3/32	2.4	DCEP or AC	45	65	80
1/8	3.2	DCEP or AC	55	105	120
5/32	4.0	DCEP or AC	65	140	170
3/16	4.8	DCEP or AC	160	170	205

AVAILABLE DIAMETERS AND PACKAGES:

Diameter		Length		6-lb. Can	10-lb. Can
Inches	mm	Inches	mm		
3/32	2.4	10	254	S480630-032	—
1/8	3.2	14	355	—	S480644-033
5/32	4.0	14	355	—	S480651-033
3/16	4.8	14	355	—	S480658-033

Material Safety Data Sheets on any McKay products may be obtained from McKay Customer Service.

Because McKay is constantly improving products, McKay reserves the right to change design and/or specifications without notice.