



Tube-Alloy[®] 219-O

OPEN ARC HARD SURFACING WIRE

Build-Up

REPLACES HS-139A

260-K, INDEX 990129

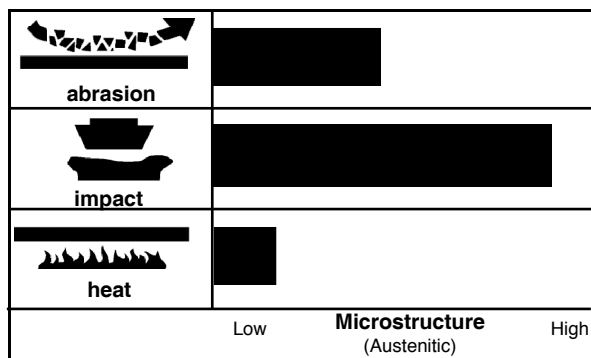
DESCRIPTION:

Tube-Alloy 219-O is a work-hardening austenitic manganese steel alloy. Deposits are extremely tough and work hardens under high impact. It can be used for most railroad track maintenance applications.

OPERATIONAL CHARACTERISTICS:

Tube-Alloy 219-O has excellent slag removal and bead shape. It has a steady arc with globular transfer. Spatter and noise levels are minimal. It operates well in automatic applications, without slagging between passes. Out-of-position welding is limited to a horizontal shelf technique.

RELATIVE WEAR RESISTANCE:



TYPICAL WELD METAL PROPERTIES* (CHEM PAD):

Weld Metal Analysis

Carbon (C)	1.00
Manganese (Mn)	20.00
Silicon (Si)	0.60
Chromium (Cr)	4.50
Iron (Fe)	Bal.

TYPICAL MECHANICAL PROPERTIES* (AS WELDED):

Tensile Strength	137,000 psi (945 MPa)
Yield Strength	91,000 psi (628 MPa)
Elongation % in 2"	34%
Hardness	
As Deposited	16—23 Rc
Work Hardened	50—55 Rc
Abrasion resistance	Fair
Impact resistance	Excellent
Machinability	Difficult
Flame cutting	Difficult

*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. No data is to be construed as a recommendation for any welding condition or technique not controlled by McKay.



Tube-Alloy® 219-O

RECOMMENDED OPERATING PARAMETERS:

Diameter		Type of Power	Stick-out		Optimum Amps	Volts	Deposition Rate	
Inches	mm		Inches	mm			Amps	lb/hr ¹
1/16	1.6	DCEP	1 1-1/2	25-38	225-275	23-25	200	6
					275-350	24-27	250	10
					350-400	26-29	300	14
7/64	2.8	DCEP	1 - 1/2 - 2	38-51	350 - 400	24 - 27	300	11
					400 - 450	26 - 29	350	14
					450 -500	28 - 32	400	18

Start with **middle ranges** and adjust accordingly. Higher amperages will increase deposition rate, dilution, and heat input to base metal, increasing voltage will widen and flatten bead profile, but excessive voltage will result in porosity. Too much electrical stick-out may result in increased spatter, too little may result in internal porosity.

AVAILABLE DIAMETERS AND PACKAGES:

Diameter		25-lb. Spool	60-lb. Coil
Inches	mm		
1/16	1.6	S602919-029	--
7/64	2.8	--	S602939-062

APPLICATIONS:

- Similar to Tube-Alloy 218-O, except that it is slightly harder in the “as deposited” condition and work hardens quicker
- Manganese Steel Railroad Crossovers and Frogs

Material Safety Data Sheets on any McKay product 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.

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