



USA 110S-1 Welding Wire and Rod

U.S. ALLOY CO.
dba Washington Alloy
7010-G Reames Rd.
Charlotte, NC 28216
www.weldingwire.com

Quality Management System
in accordance with
ISO 9001:2000
Cert # 05-R0925



ALLOY DESCRIPTION AND APPLICATION;

110S-1 is a alloy steel designed to produce high strengths very tough weld metal for critical applications. Used for a variety of structural applications where tensile strengths may require 100,000 psi with excellent toughness at -60° F. Developed for welding such alloy as HY-80 and HY-100 steels. Mechanical properties from the weld deposit will vary depending on heat input used. Preheat and interpass of 300°F may be required.

TYPICAL GMAW WELDING PROCEDURES; DCEP Short Circuit ⁽¹⁾ 98Ar/2% O₂

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Travel speed (ipm)	75/25 CO ₂ (cfh)
0.023	80-350	30-85	14-19	10-15	20-25
0.030	110-340	40-130	15-20	12-24	20-25
0.035	100-520	60-235	16-25	11-40	20-30
0.045	70-270	90-290	18-23	12-22	25-35
<i>Spray 0.035</i>	<i>320-600</i>	<i>160-300</i>	<i>23-26</i>	<i>11-22</i>	⁽¹⁾ <i>25-35</i>
<i>0.045</i>	<i>170-550</i>	<i>170-375</i>	<i>23-29</i>	<i>12-21</i>	⁽¹⁾ <i>25-35</i>
<i>1/16"</i>	<i>175-350</i>	<i>275-475</i>	<i>25-31</i>	<i>9-19</i>	⁽¹⁾ <i>25-35</i>

TYPICAL GTAW WELDING PROCEDURES; DCEN with EWTh-2 truncated conical tip

Filler Wire Size	Tungsten	Amps	Volts	Gas Cup Size	Argon (cfh)	Base thickness
1/16"	1/16"	100-160	12	3/8"	20	1/16-3/32"
1/16-3/32"	3/32"	120-250	12	3/8"	20	1/8- 3/16"
1/8"	1/8"	150-300	12	1/2"	25	1/4-1/2"

Procedures may vary with change in position, base metals, filler metals, equipment and other changes.

TYPICAL WIRE CHEMISTRY (%) AND WELD METAL PROPERTIES;

	AWS Spec.	110S-S-1		AWS Spec.	Typical
Carbon	0.09 max	0.070	Tensile Strength (psi)	100,000 min.	115,000
Manganese	1.40-1.80	1.60	Yield Strength (psi)	88,000 min.	98,000
Silicon	0.20-0.55	0.45	Elongation in 2"	16% min.	22%
Phosphorus	0.010 max	0.007	Charpy V-notch at -60°F	50 ft-lbs min.	65 ft-lbs
Sulfur	0.010 max	0.009			
Nickel	1.90-2.60	2.30			
Molybdenum	0.25-0.55	0.50			
Chromium	0.50 max	0.30			

AVAILABLE SIZES: TC 110S-1= Spools of .035, .045, 1/16,
TT 110S-1 = Cut lengths of .045, 1/16, 3/32, 1/8

SPECIFICATIONS; ANSI/AWS A5.28 ER 110S-1
ASME SFA 5.28 ER 110S-1

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