



WASHINGTON ALLOY'S Quality Management System is Certified to ISO 9001:2008 Cert # 05-R0925

USA 100S-1 Welding Wire and Rod

U.S. ALLOY CO.
dba Washington Alloy
7010-G Reames Rd.
Charlotte, NC 28216
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American Welding Society
Sustaining Company Member



ALLOY DESCRIPTION AND APPLICATION;

USA 100S-1 was developed for welding high strength low alloy steel plates such as HY80, HY100 and other similar steels. This wire produces high tensile strength, high impact resistant weld deposits that retain their toughness to -70F making it suitable for low temperature and critical applications. USA 100S-1 can be welded at an interpass temperature as low as 300F. HY80 and HY100 steels, military vessels, all-position welding

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.	100S-S-1		AWS Spec	Typical
Carbon	0.08 max	0.060	Tensile Strength (psi)	100,000 min.	105,000
Manganese	1.25-1.80	1.65	Yield Strength (psi)	88,000 min.	92,000
Silicon	0.20-0.55	0.35	Elongation in 2"	15% min.	17%
Phosphorus	0.010 max	0.007	Charpy V-notch at -60°F	50 ft-lbs min.	60 ft-lbs
Sulfur	0.010 max	0.008			
Nickel	1.40-2.10	1.75			
Molybdenum	0.25-0.55	0.35			
Chromium	0.30 max	0.10			

AVAILABLE SIZES: TC 100S-1= Spools of .035, .045, 1/16,
TT 100S-1 = Cut lengths of .035, .045, 1/16, 3/32, 1/8

SPECIFICATIONS; ANSI/AWS A5.28 ER 100S-1
ASME SFA 5.28 ER 100S-1

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