



USA 80S-D2 Welding Wire and Rod

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American Welding Society
Sustaining Company Member



ALLOY DESCRIPTION AND APPLICATION;

80S-D2 is a low alloy designed to produce high strengths on a wide range of base metals such as problem steels containing high sulfur to the basic carbon and low alloy Cr-Mo base metals. Its silicon level with molybdenum and manganese gives you excellent arc stability, low spatter, yielding a flat bead with excellent impact values and high ductile tensile strengths in the 100,000 psi range. 80S-D2 produces X-ray quality and porosity free welds even over poor cleaned base metals – widely use out of position .

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

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Travel speed (ipm)	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; 100% CO₂

	AWS Spec.	80S-D2		AWS Spec	Typical
Carbon	0.07-0.12	0.080	Tensile Strength (psi)	80,000 min.	99,000
Manganese	1.60-2.10	1.95	Yield Strength (psi)	68,000 min.	84,000
Silicon	0.50-0.80	0.60	Elongation in 2"	17% min.	22%
Phosphorus	0.025 max	0.012	Charpy V-notch at -20°F	20 ft-lbs min.	30 ft-lbs
Sulfur	0.025 max	0.012	Reduction of area	n/a	55%
Nickel	0.15 max	0.020			
Molybdenum	0.40-0.60	0.50			
Copper	0.50 max	0.10			

AVAILABLE SIZES: TC = Spools and rods of .030, .035, .045, 1/16,

TT = Cut lengths of .025, .030, .035, .045, 1/16, 3/32, 1/8, 5/32, 3/16

SPECIFICATIONS; ANSI/AWS A5.28 ER 80S-D2

ASME SFA 5.28 ER 80S-D2 ; A-2, F-6

EAST COAST

GULF COAST

WEST COAST

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