



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

70S-3 Carbon Steel Welding Wire and Rod



American Welding Society
Sustaining Company Member



ALLOY DESCRIPTION AND APPLICATION;

70S-3 is commonly a copper coated carbon steel that contains well balance levels of manganese and silicon which permits the use of CO₂ and also Argon –Oxygen shielding gases. Yielding almost a slag free quality weld deposit on most steels it provides an excellent welder satisfaction for post weld clean up. Some typical application includes auto frames, sheet metal, ships, barges, railcars, trailers, ornamental iron, furniture storage bins, earthmoving and farm equipment.

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

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.	70S-3		AWS Spec	Typical
Carbon	0.06-0.15	0.10	Tensile Strength (psi)	70,000 min.	75,500
Manganese	0.90-1.40	1.00	Yield Strength (psi)	58,000 min.	62,400
Silicon	0.45-0.75	0.55	Elongation in 2"	22% min.	30.7%
Phosphorus	0.025 max.	0.012	Charpy V-notch at 0°F	20 ft-lbs min.	66 ft-lbs
Sulfur	0.035 max.	0.012	Reduction of area	n/a	59%
Copper contents and coating	0.5 max.		Average Brinell Hardness	n/a	130

AVAILABLE SIZES: TC 70S-3 = Spools of .023, .030, .035, .045, .052

TT 70S-3 = Cut lengths of .030, .035, .045, 1/16, 3/32, 1/8, 5/32

Drums (PAIL PACK) and Other sizes available – please inquire

SPECIFICATIONS; ANSI/AWS A5.18 ER 70S-3

ASME SFA 5.18 ER 70S-3



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