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# 70S-6 Carbon Steel Premium Copper Coating

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**American Welding Society**  
Sustaining Company Member



## ALLOY DESCRIPTION AND APPLICATION;

70S-6 Premium Copper Coating carbon steel that contains high levels of manganese and silicon for stronger deoxidizing power and has excellent welding results on mild steels where poor fit-up, rust and oils may be present. The single sourcing of the green rod with ultra-concise premium copper coating yields unsurpassed arc and feeding with extended wear on tips and liners. Often used on mild/low alloy steels in applications not limited to: sheet metal, bridges/pipes, shipbuilding, auto industry/repair and all industries/fabrications of mild steels. Manual, semi-automatic or automatic welding using pulse, spray transfer, short circuit transfer with many gases such as 100% CO<sub>2</sub>, 75-95 Ar/15-25 CO<sub>2</sub> and 95-98 Ar/ 2-5 O<sub>2</sub>.

### TYPICAL GMAW WELDING PROCEDURES; DCEP Short Circuit

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Travel speed (ipm)	CO <sub>2</sub> (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>	<sup>(1)</sup> 25-35
<i>0.035<sup>(2)</sup></i>	<i>360-600</i>	<i>180-280</i>	<i>23-30</i>	<i>11-22</i>	<sup>(2)</sup> 25-35
<i>0.045</i>	<i>170-550</i>	<i>170-375</i>	<i>23-29</i>	<i>12-21</i>	<sup>(1)</sup> 25-35
<i>0.045<sup>(2)</sup></i>	<i>330-510</i>	<i>280-350</i>	<i>26-30</i>	<i>11-22</i>	<sup>(2)</sup> 25-35
<i>0.052</i>	<i>170-480</i>	<i>220-425</i>	<i>24-30</i>	<i>10-20</i>	<sup>(1)</sup> 25-35
<i>1/16"</i>	<i>175-350</i>	<i>275-475</i>	<i>25-31</i>	<i>9-19</i>	<sup>(1)</sup> 25-35

<sup>(2)</sup> 85-90Ar\10-15 CO<sub>2</sub>

<sup>(1)</sup> 98-95Ar\2-5O<sub>2</sub>

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

### TYPICAL WIRE CHEMISTRY (%) AND WELD METAL PROPERTIES; 100% CO<sub>2</sub>

	AWS Spec.	70S-6		AWS Spec	Typical
Carbon	0.06-0.15	0.074	Tensile Strength (psi)	70,000 min.	80,380
Manganese	1.40-1.85	1.522	Yield Strength (psi)	58,000 min.	66,587
Silicon	0.80-1.15	0.953	Elongation in 2"	22% min.	24.2%
Phosphorus	0.025 max.	0.018	Charpy V-notch at -20°F	20 ft·lbs min.	28 ft·lbs
Sulfur	0.035 max.	0.019	Reduction of area	n/a	58%
Copper contents and coating	0.5 max.		Average Brinell Hardness	n/a	171

**AVAILABLE SIZES:** TC 70S-6 = Spools of .030, .035, .045, .052, 1/16

Drums and Other sizes available – please inquire

**SPECIFICATIONS; AWS A5.18**

**ER 70S-6**

**ASME SFA 5.18**

**ER 70S-6**

**EAST COAST**

**GULF COAST**

**WEST COAST**

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