



## ER70S-6

### Specification Compliance: AISI/AWS A5.18 & ASME SFA 5.18 ER 70S-6

**Description:** ER70S-6 is a premium mild steel solid wire formulated to provide high quality welds and trouble-free performance from heavy duty, high speed, spray transfer applications all the way to light duty low speed, short-arc applications. ER70S-6 is designed for use with various gas mixtures such as 100% CO<sub>2</sub>, 75/25 Ar/CO<sub>2</sub> or 98/2 Ar/O<sub>2</sub>. Even in the most difficult applications ER70S-6 produces a smooth stable arc with low spatter, producing a weld bead that ties in evenly with the sides and has a smooth finished appearance.

**Applications:** Frame fabrication, automotive structures, farm implements, construction equipment, pressure vessels, pipe fabrication, railcar construction and repair, general fabrication. Widely used in high-speed robotic and automatic welding applications and semi-automatic applications.

### Nominal Composition:

Carbon	.06-.15 %	Copper	.50 % max.	Manganese	1.40-1.85 %
Silicon	.80-1.15%	Sulfur	.035 % max.	Phosphorus	.025 % max.
Nickel	0.15 % max.	Chromium	0.15 % max.	Vanadium	0.03% max.
Molybdenum	0.15 % max.	Iron	Balance	Others Total	.50 % max.

### Physical Properties:

Density lbs/cu in .283

### Typical Mechanical Properties As Welded (Gmaw)

Shielding Gas	CO <sub>2</sub>	75% Ar/25% CO <sub>2</sub>	98% Ar/2% O <sub>2</sub>
Tensile Strength(psi)	80-85,000	85-90,000	85-90,000
Yield Strength(psi)	65-70,000	70-75,000	70-75,000
Elongation % in 2"	28.5%	28%	28%
Reduction of area	55-70%	55-70%	55-70%
Charpy V-notch ft. lbs.	20-30	25-35	30-40

### Recommended Welding Parameters:

#### GMAW(MIG) PARAMETERS (DC REVERSE POLARITY) ELECTRODE POSITIVE SPRAY TRANSFER:

Wire Dia.	Amps	Volts	Argon/ 1-5% O <sub>2</sub>	Wire Feed ipm
.023	85-170	23-27	25	360-620
.030	135-230	24-28	25	390-670
.035	165-300	24-28	30	360-520
.045	200-375	24-30	30-35	210-390
1/16	275-500	24-32	40	150-360
3/32	300-600	24-33	50	75-125

Notice: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for use in the field. The manufacturer disclaims any warranty of merchantability or fitness for any particular purpose with respect to its products.

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### Recommended Welding Parameters (continued):

GTAW (Tig) Parameters (DCSP) 2 % Thoriated Tungsten Electrode negative

<u>Material</u>	<u>Tungsten dia</u>	<u>Filler Wire Size</u>	<u>Amps</u>	<u>Gas Cup</u>	<u>Argon(cfh)</u>
1/16"	1/16"	1/16"	100-140	3/8	20
3/32"	1/16"	1/16"	100-160	3/8	20
1/8"	3/32"	1/16"	125-200	7/16	20
3/16"	3/32"	3/32"	150-250	7/16	25
1/4"	1/8"	1/8"	150-250	1/2	25
3/8"	1/8"	1/8"	150-275	1/2	25
1/2"	1/8"	1/8"	150-300	1/2	25

\* All parameters are suggested as basic guidelines and will vary depending on joint design number of passes, and other factors.

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