

PROLONG 70S-6

ER70S-6 Carbon Steel Welding Wire

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% CO₂, 75/25 Ar/CO₂ or 98/2 Ar/O₂. 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.

APPLICATION

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.

SPECIFICATION COMPLIANCE

AISI/AWS A5.18 & ASME SFA 5.18 ER 70S-6

NOMINAL COMPOSITION

Carbon 0.06-.15%	Chromium 0.15% max
Copper 0.50% max	Vanadium 0.03% max
Manganese 1.40-1.85%	Molybdenum 0.15% max
Silicon 0.80-1.15%	Iron Balance
Sulfur 0.035% max	Others Total 0.50% max
Phosphorus 0.025% max	
Nickel 0.15% max	

PHYSICAL PROPERTIES

Density lbs/cu in 0.283

TYPICAL MECHANICAL PROPERTIES AS WELDED (GMAW)

Shielding Gas	CO ₂	75%Ar/25%CO ₂	98%Ar/2%O ₂
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:

Amps	85-170 Amps	0.023" Dia
	135-230 Amps	0.030" Dia



P.O. Box 10357
College Station, TX 77842

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sales@dynalloyinc.com

	165-300 Amps	0.035" Dia
	200-375 Amps	0.045" Dia
	275-500 Amps	1/16" Dia
	300-600 Amps	3/32" Dia
Volts	23-27 Volts	0.023" Dia
	24-28 Volts	0.030" Dia
	24-28 Volts	0.035" Dia
	24-30 Volts	0.045" Dia
	24-32 Volts	1/16" Dia
	24-33 Volts	3/32" Dia
Argon/ 1-5% O2 (cfh)	25 cfh	0.023" Dia
	25 cfh	0.030" Dia
	30 cfh	0.035" Dia
	30-35 cfh	0.045" Dia
	40 cfh	1/16" Dia
	50 cfh	3/32" Dia
Wire Feed (ipm)	360-620 ipm	0.023" Dia
	390-670 ipm	0.030" Dia
	360-520 ipm	0.035" Dia
	210-390 ipm	0.045" Dia
	150-360 ipm	1/16" Dia
	75-125 ipm	3/32" Dia



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

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

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

SAFETY INFORMATION:

WARNING: PROTECT yourself and others. Read and understand this information.

FUMES AND GASES can be hazardous to your health.

HEAT RAYS (INFRARED RADIATION) from flame or hot metal can injure eyes.

• Before use, read and understand the manufacturer's instructions, Material Safety Data Sheet (MSDS) and your employer's safety practices.

• Keep your head out of fumes.

• Use enough ventilation, exhaust at the flame, or both, to keep fumes and gases from your breathing zone and the general area.

• Wear correct eye, ear, and body protection.

• See American National Standard Z49.1, Safety in Welding, Cutting, and Allied Processes, published by the American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126; OSHA Safety and Health Standards, available from the U.S. Government Office, Washington, DC 20402

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