



## TECHNICAL SPECIFICATION SHEET

ER70S-6 CARBON STEEL WELDING WIRE

**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        |



**\* 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.**

**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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