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% 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.

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: 0.06-.15 %
- Copper: .50 % max.
- Manganese: 1.40-1.85 %
- Silicon: .80-1.15% max.
- 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: 0.283

TYPICAL MECHANICAL PROPERTIES AS WELDED (GMAW)
- Shielding Gas: CO₂, 75%Ar/25%CO₂, 98%Ar/2%O₂
- 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%

*RECOMMENDED WELDING PARAMETERS:

GMAW(MIG) Parameters (DC Reverse Polarity) Electrode Positive Spray transfer:

<table>
<thead>
<tr>
<th>Wire Dia.</th>
<th>Amps</th>
<th>Volts</th>
<th>Argon/ 1-5% O2</th>
<th>Wire Feed ipm</th>
</tr>
</thead>
<tbody>
<tr>
<td>.023</td>
<td>85-170</td>
<td>23-27</td>
<td>25</td>
<td>360-620</td>
</tr>
<tr>
<td>.030</td>
<td>135-230</td>
<td>24-28</td>
<td>25</td>
<td>390-670</td>
</tr>
<tr>
<td>.035</td>
<td>165-300</td>
<td>24-28</td>
<td>30</td>
<td>360-520</td>
</tr>
<tr>
<td>.045</td>
<td>200-375</td>
<td>24-30</td>
<td>30-35</td>
<td>210-390</td>
</tr>
<tr>
<td>1/16</td>
<td>275-500</td>
<td>24-32</td>
<td>40</td>
<td>150-360</td>
</tr>
<tr>
<td>3/32</td>
<td>300-600</td>
<td>24-33</td>
<td>50</td>
<td>75-125</td>
</tr>
</tbody>
</table>
* RECOMMENDED WELDING PARAMETERS (continued):

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

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

* 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.


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