# 307Si Welding Wire and Rod

## ALLOY DESCRIPTION AND APPLICATION;

307Si is an austenitic stainless steel with added manganese and silicon compared to the AWS 307 grades. Used for joining and surfacing applications involving work-hardenable steels, armour plate, heat resistant steels and subjected to temperatures up to 1560 F and dissimilar steels such as austenitic manganese steels to carbon steel forgings and castings. Weld deposits are porosity free, crack and corrosion resistant. (Tri-mix gas = 90%He+7.5%Ar+2.5%CO₂)

## TYPICAL GMAW WELDING PROCEDURES; DCEP Short Circuit

<table>
<thead>
<tr>
<th>Wire Diameter</th>
<th>Wire Speed (ipm)</th>
<th>Amps</th>
<th>Volts</th>
<th>Electrical Stick-out</th>
<th>Tri-mix (cfh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.023</td>
<td>180-400</td>
<td>30-85</td>
<td>14-19</td>
<td>3/8-1/2”</td>
<td>20-25</td>
</tr>
<tr>
<td>0.030</td>
<td>150-350</td>
<td>45-125</td>
<td>15-20</td>
<td>3/8-1/2”</td>
<td>20-25</td>
</tr>
<tr>
<td>0.035</td>
<td>120-330</td>
<td>60-150</td>
<td>16-22</td>
<td>3/8-1/2”</td>
<td>20-30</td>
</tr>
<tr>
<td>0.045</td>
<td>100-280</td>
<td>90-210</td>
<td>17-22</td>
<td>3/8-1/2”</td>
<td>25-30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spray</th>
<th>0.030</th>
<th>280-600</th>
<th>160-220</th>
<th>24-28</th>
<th>3/8-1/2”</th>
<th>(1)25-35</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.035</td>
<td>250-470</td>
<td>170-295</td>
<td>23-29</td>
<td>1/2-3/4”</td>
<td>(1)25-35</td>
<td></td>
</tr>
<tr>
<td>0.045</td>
<td>200-385</td>
<td>195-360</td>
<td>24-30</td>
<td>1/2-3/4”</td>
<td>(1)30-35</td>
<td></td>
</tr>
<tr>
<td>1/16”</td>
<td>110-200</td>
<td>210-380</td>
<td>25-31</td>
<td>1/2-3/4”</td>
<td>(1)35-40</td>
<td></td>
</tr>
</tbody>
</table>

## TYPICAL GTAW WELDING PROCEDURES; DCEN with EWT-2 truncated conical tip

<table>
<thead>
<tr>
<th>Filler Wire Size</th>
<th>Tungsten</th>
<th>Amps</th>
<th>Volts</th>
<th>Gas Cup Size</th>
<th>Argon (cfh)</th>
<th>Base thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/16”</td>
<td>1/16”</td>
<td>80-150</td>
<td>12</td>
<td>3/8”</td>
<td>20</td>
<td>1/16-1/8”</td>
</tr>
<tr>
<td>3/32”</td>
<td>3/32”</td>
<td>150-250</td>
<td>12</td>
<td>3/8”</td>
<td>20</td>
<td>1/8- 3/16”</td>
</tr>
<tr>
<td>1/8”</td>
<td>1/8”</td>
<td>200-375</td>
<td>12</td>
<td>1/2”</td>
<td>25</td>
<td>1/4-1/2”</td>
</tr>
</tbody>
</table>

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

## TYPICAL WIRE CHEMISTRY RANGE (%) & WELD METAL PROPERTIES

<table>
<thead>
<tr>
<th>Elemental</th>
<th>Percentage</th>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>0.08</td>
<td>Tensile Strength (psi)</td>
<td>94,000</td>
</tr>
<tr>
<td>Manganese</td>
<td>6.77</td>
<td>Yield Strength (psi)</td>
<td>67,000</td>
</tr>
<tr>
<td>Silicon</td>
<td>0.85</td>
<td>Elongation (%)</td>
<td>41 %</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>0.05</td>
<td>Phosphorus</td>
<td>0.03 max</td>
</tr>
<tr>
<td>Nickel</td>
<td>8.0</td>
<td>Sulfur</td>
<td>0.03 max</td>
</tr>
<tr>
<td>Chromium</td>
<td>18.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## AVAILABLE SIZES:

- TT 307Si= Cut lengths
- Other sizes available – please inquire

## SPECIFICATIONS:

- **ANSI/AWS A5.9** ER307 modified
- **ASME SFA 5.9** ER307 modified

**EAST COAST**

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