321 Electrode, 321M MIG Wire and 321T TIG Wire

321 Electrode
Hi-Performance “E-Z Arc” Alloy

A quality electrode formulated to clean contaminants and produce good base metal penetration. Once welded, it lifts the contaminants into an easy-forming slag while creating a solid, sound, dense weld deposit.

Features/Benefits:
• Revolutionary turbo-arc drive for deep cleaning action and penetration
• Outstanding for poor fit-up joints
• Welds through all types of maintenance contaminants, producing smooth, solid, quality welds
• Low-amperage deposition
• Excellent for thick to thin sections
• Exclusive coating provides bilateral gaseous shield, protecting the weld deposit while chemically cleaning and removing all contaminants from base metal

Applications:
• Sheet, plates, angles, beams, channels and joining of all mild steel structures
• Galvanized sheet
• Support parts and brackets
• Tanks and tank units
• Machinery and machine parts
• Automotive and truck bodies

Method of Application:
AC or DC reverse and straight polarity

Identification:
Printed gray electrode. Labeled spool. Copper-clad wire

Directions for Use:
Maintain a short arc to reduce heat build-up in the base metal and keep distortion to a minimum. Weaving is seldom necessary except when welding vertical-up. Pass-over-pass can be deposited without chipping slag. Slag coverage chips off easily after cooling. Machine or grind to desired dimensions.

Technical Specifications:
Tensile Strength: 76,000 PSI (524 MPa)
Yield Strength: 66,000 PSI (455 MPa)
Hardness: Rb 20 to Rb 25

Technical Tips:
AC or DC reverse polarity will produce deeper penetration, while straight polarity will promote flat weld metal and less penetrating deposits.
321M MIG Wire

For typical operating parameters refer to Product Information Report PIRW010.

Features/Benefits:
- Can be run on all MIG machines
- Non-fuming
- Can be filed or sawed
- Superior flowability
- Excellent where weld deposits must respond as the base metal to plating and machining
- Contains deoxidizers for porosity-free welds
- Welds vertically with exceptional ease

Applications:
- Shafts
- Vats
- Tanks
- Machinery guards
- Frames
- Wire mesh and thin sheet metal

Directions for Use:
Set machine on DC reverse polarity. Use 75% Ar, 25% CO₂ gas. Hold a short arc and weld with stringer beads or a slight weave bead. Weld using the short arc or spray transfer method.

Method of Application: MIG welding machines

Identification: Labeled wire spool

**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>Travel Speed (ipm)</th>
<th>CO₂ (cfh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.023&quot;</td>
<td>80 – 350</td>
<td>30 – 85</td>
<td>14 – 19</td>
<td>10 – 15</td>
<td>20 – 25</td>
</tr>
<tr>
<td>0.030&quot;</td>
<td>110 – 340</td>
<td>40 – 130</td>
<td>15 – 20</td>
<td>12 – 24</td>
<td>20 – 25</td>
</tr>
<tr>
<td>0.035&quot;</td>
<td>100 – 520</td>
<td>60 – 235</td>
<td>16 – 25</td>
<td>11 – 40</td>
<td>20 – 30</td>
</tr>
<tr>
<td>0.045&quot;</td>
<td>70 – 270</td>
<td>90 – 290</td>
<td>18 – 23</td>
<td>12 – 22</td>
<td>25 – 35</td>
</tr>
<tr>
<td>Spray</td>
<td>0.035&quot;</td>
<td>320 – 600</td>
<td>160 – 300</td>
<td>23 – 26</td>
<td>11 – 22</td>
</tr>
<tr>
<td></td>
<td>0.045&quot;</td>
<td>170 – 550</td>
<td>170 – 375</td>
<td>23 – 29</td>
<td>12 – 21</td>
</tr>
<tr>
<td></td>
<td>1/16&quot;</td>
<td>175 – 350</td>
<td>275 – 475</td>
<td>25 – 31</td>
<td>9 – 19</td>
</tr>
</tbody>
</table>

(1) 98% Ar, 2% O₂
# 321T TIG Wire
TIG and Gas, mild alloy steel produces high-tensile-strength welds on medium carbon and low-alloyed steel.

## Features/Benefits:
- For TIG or gas welding
- Non-fuming
- Can be filed or sawed
- Superior flowability
- Excellent where weld deposits must respond as the base metal to plating and machining
- Contains deoxidizers for porosity-free welds
- Welds vertically with exceptional ease

## Applications:
- Shafts
- Vats
- Tanks
- Machinery guards
- Frames
- Wire mesh and thin sheet metal

## Directions for Use:
Base metal must be clean. Remove grease, paint, dirt, rust or moisture before welding operation. Be sure weld beads have complete penetration of joint. Use DC straight polarity (TIG). For gas welding, use neutral flame.

## Technical Specifications:
- Tensile Strength: 76,000 PSI (524 MPa)
- TIG Welding: See chart below
- Gas Welding: Use neutral flame

## Method of Application:
TIG and Gas Torch

## Identification:
Red Tip on .035. Other sizes embossed. Copper-clad wire

### TIG Chart

<table>
<thead>
<tr>
<th>Metal Thickness (Inches)</th>
<th>Amps* (DCSP)</th>
<th>Tungsten Dia. (Inches)</th>
<th>Argon Flow (CFH)</th>
<th>Alloy Dia. (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1/8</td>
<td>50 – 120</td>
<td>1/16</td>
<td>10 – 15</td>
<td>.035 or 1/16</td>
</tr>
<tr>
<td>1/8 to 1/4</td>
<td>100 – 150</td>
<td>3/32</td>
<td>10 – 15</td>
<td>1/16 or 3/32</td>
</tr>
<tr>
<td>Over 1/4</td>
<td>140 – 200</td>
<td>1/8</td>
<td>10 – 15</td>
<td>3/32 or 1/8</td>
</tr>
</tbody>
</table>

*Based on normal current ranges for electrode diameters. Other current values may be used depending on shielding gas, equipment and application.