A baseline weld was made using automated welding equipment. Voltage, Wire Feed Speed, Travel Speed and Contact-Tip-to-Work Distance were then adjusted individually from baseline weld settings to illustrate how each parameter affects a fillet weld when raised and lowered. Icons in grey indicate the specific parameter adjusted; in the case of amperage, the icon represents the value measured.

**Baseline Weld Variables**

- **Wire Type:** 0.035 ER70S-6 (Quantum Arc 6)
- **Shielding Gas:** 75% Argon / 25% Carbon Dioxide
- **Base Metal:** 1/8 in. Cold Rolled Carbon Steel
- **Transfer Mode:** Short Circuit (SCMT)
- **Travel Direction:** Forehand (Push)
- **Nozzle Diameter:** 5/8 in.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baseline</th>
<th>Decreased</th>
<th>Increased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>220 V</td>
<td>15.3 V</td>
<td>20.7 V</td>
</tr>
<tr>
<td>Wire Feed Speed</td>
<td>10.5 IPM</td>
<td>187 IPM</td>
<td>253 IPM</td>
</tr>
<tr>
<td>Travel Speed</td>
<td>+10°</td>
<td>-9°</td>
<td>+13°</td>
</tr>
<tr>
<td>Contact Tip to Work</td>
<td>1/2”</td>
<td>3/8” (Flush Tip Recess)</td>
<td>5/8”</td>
</tr>
</tbody>
</table>

**Sample Images**

- **Voltage:**
  - Decreased: 15.3 V
  - Increased: 20.7 V
- **Wire Feed Speed:**
  - Decreased: 187 IPM
  - Increased: 253 IPM
- **Travel Speed:**
  - Decreased: 9 IPM
  - Increased: 13 IPM
- **Contact Tip to Work:**
  - Decreased: 1/2” (Flush Tip Recess)
  - Increased: 5/8”

**Notes:**

- Decrease in each parameter results in a visually different weld compared to the baseline.
- Increase in each parameter results in a visually different weld compared to the baseline.