WELDING PROCEDURE DATA SHEET (WPDS)

WPDS No.: SMAW - SKEW- 1
Date: Sept. 02, 2019
Ref. WPS: SMAW-CS
Ref. Standards: CSA W47.1

RC Technical Services
512 MacDougall Road
MacDougall Settlement, N.B.

Base Metal:
CSA W59: Table 11.1 groups 1, 2, 3
CSA G40.21: 300W (44W), 350W (50W)

Filler Metal / Classification
CSA W48: E4918-H8 or -H4, E4918-1-H8 or -H4
AWS A5.1: E7018-H8 or -H4, E7018-1-H8 or -H4

Thickness Range: 3 mm (1/8") to UNLIMITED

Position: FLAT, HORIZONTAL
Joint Type: SKEWED TEE

Eff. Throat Thickness: SEE SKETCH
Preheating Temp.: 10°C & Table 5.3 W59

Penetration: N.A.
Interpass Temp.: 260ºC (500ºF) MAX

SMAW

<table>
<thead>
<tr>
<th>Angle</th>
<th>Equivalency Factor F</th>
<th>Angle</th>
<th>Equivalency Factor F</th>
</tr>
</thead>
<tbody>
<tr>
<td>60°</td>
<td>0.71</td>
<td>75°</td>
<td>0.86</td>
</tr>
<tr>
<td>65°</td>
<td>0.76</td>
<td>80°</td>
<td>0.91</td>
</tr>
<tr>
<td>70°</td>
<td>0.81</td>
<td>85°</td>
<td>0.96</td>
</tr>
<tr>
<td>75°</td>
<td>0.86</td>
<td>90°</td>
<td>1.00</td>
</tr>
<tr>
<td>80°</td>
<td>0.91</td>
<td>95°</td>
<td>1.03</td>
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<tr>
<td>85°</td>
<td>0.96</td>
<td>100°</td>
<td>1.08</td>
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<tr>
<td>90°</td>
<td>1.00</td>
<td>105°</td>
<td>1.12</td>
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<tr>
<td>95°</td>
<td>1.03</td>
<td>110°</td>
<td>1.16</td>
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<td>1.08</td>
<td>115°</td>
<td>1.19</td>
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<td>125°</td>
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<td>130°</td>
<td>1.28</td>
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<tr>
<td>135°</td>
<td>1.31</td>
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</table>

S = Weld size for skewed joint. S = (Seq x F) + R
Seq = Fillet weld size when plates are at 90°
θ = angle between plates (fusion faces)
F = Equivalency factor to provide same theoretical throat when θ = 90°
T = Theoretical throat of skewed joint
R = Root opening, maximum 5 mm (3/16")

Example #1: 1/4" Fillet required at 90° = Seq
At 135°
135° angle: F = 1.31
R = 0.176"

S = (Seq x F) + R
S = (1/4" fillet x 1.31) + 0.176
S = 0.25 x 1.31 + 0.176 = 0.503"
S = 1/2" fillet weld required at 135°

Example #2: 1/4" Fillet required at 90° = Seq
At 60°
60° angle: F = 0.71
R = 0

S = (Seq x F) + R
S = (1/4" fillet x 0.71) + 0
S = (0.25 x 0.71) + 0 = 0.177"
S = 3/16" fillet weld required at 60°

<table>
<thead>
<tr>
<th>Side</th>
<th>Layer</th>
<th>Pass</th>
<th>Diameter</th>
<th>Current</th>
<th>Amperes</th>
<th>Wire</th>
<th>Volts</th>
<th>Arc Travel</th>
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<tbody>
<tr>
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<td>1</td>
<td>1</td>
<td>5/32</td>
<td>DCEP</td>
<td>160</td>
<td>(+/-10%)</td>
<td>(+/-7%)</td>
<td>(+/-15%)</td>
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<td>3/16</td>
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<tr>
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<td>-L</td>
<td>1 - P</td>
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<td>(+/-10%)</td>
<td>(+/-7%)</td>
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Notes:
See CSA W59, Table 4.4 for minimum fillet size or WPS SMAW-CS.
See CSA W59, Table 10.1 for maximum one pass fillet size or WPS SMAW-CS.
For angles over 135°, fillet shall not carry calculated loads.
For angles under 60°, a partial groove shall be used.

Questions or Tech. support? email: raycormier@rogers.com