Model 660C Tapping Machines can be either air or hydraulically operated and are used for making pipe and tank taps from 3" to 12" (DN 80 to DN 300). Its maximum working pressure is 1,480 psi (100 bar) at 100°F (38°C). Its operating temperature is -20°F (-29°C) to 700°F (371°C) at 700 psi (48 bar) for intermittent service. Its maximum continuous rating is 350°F (177°C) at 1,025 psi (70 bar).

This model features a split-frame for lower maintenance costs and ease of packing replacement.

### Features

The basic machine includes:

- Lower-in crank
- Measuring rod
- Retainer rod pusher
- Ring gasket
- Bleeder valve and nipple
- Motor adapter
- Set of bolts and nuts
- LOCK-O-RING® bypass gauge
- Capability to set LOCK-O-RING® and LOCK-O-RING® Plus completion plugs

### Options*

T.D. Williamson is committed to providing you with the exact product to assist you in planning, budgeting and meeting the specifications for your individual application needs. The following options are available:

- Model 660c Tapping Machine can be either air or hydraulically operated with optional dual drive.
- A flywheel can be installed on the tapping machine. It enhances performance of the tapping machine due to inertia and reduced stress on the gears.
- Hydraulic feed system can be installed as an option. It will assist technician to lower the completion plug during plug setting process.

* For design code options not listed and additional sizes, consult your sales representative.
### Dimensions and Part Numbers

**660 Tapping Machine** Model 660C

#### Operating Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boring Bar Travel</td>
<td>42” (1,067 mm)</td>
</tr>
<tr>
<td>Tank Taps*</td>
<td>3’ through 12’ (80-300 mm)</td>
</tr>
<tr>
<td>Pipe Taps*</td>
<td>3’ through 12’ (80-300 mm)</td>
</tr>
<tr>
<td>LOCK-O-RING® and LOCK-O-RING® Plus Completion Plugs</td>
<td>4’ through 12’ (100-300 mm)</td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>1,480 psi (100 bar) at 100°F (38°C)</td>
</tr>
<tr>
<td>Max. Operating Temperature</td>
<td>700°F (371°C) at 700 psi (48 bar)**</td>
</tr>
<tr>
<td>Power</td>
<td>Hydraulic or Air Motor</td>
</tr>
<tr>
<td>Feed Rate</td>
<td>Standard .005” (.127 mm) per revolution/optional .003” (.076 mm) per revolution</td>
</tr>
<tr>
<td>Lower-In Crank</td>
<td>4-1/2 turns per inch (5.6 mm per turn)</td>
</tr>
<tr>
<td>Length without measuring rod</td>
<td>64-1/2” (1,638 mm)</td>
</tr>
<tr>
<td>Length with measuring rod</td>
<td>110-1/2” (2,087 mm)</td>
</tr>
<tr>
<td>Meets NACE specification</td>
<td>MR0175</td>
</tr>
</tbody>
</table>

* See note 5 in "Recommended Power Options" chart.  ** For intermittent service only. Maximum continuous rating is 350°F (177°C) at 1,025 psi (70 bar).

#### Range of Tapping Machines

Operating options of the machine according to configuration by feed rate, type of drive and flywheel. For example, the tapping machine PN 12300061 will have standard feed rate, air motor drive and flywheel.

<table>
<thead>
<tr>
<th>Tapping Machine Part Number</th>
<th>Slow (.003” / Revolution)</th>
<th>Standard (.005” / Revolution)</th>
<th>Air Motor Drive</th>
<th>Single Motor Drive</th>
<th>Tandem Motor Drive</th>
<th>Flywheel</th>
</tr>
</thead>
<tbody>
<tr>
<td>12300041</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300001</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300046</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300047</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300057</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300058</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300059</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300061</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300062</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300063</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300064</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
<tr>
<td>12300065</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td>·</td>
<td></td>
</tr>
</tbody>
</table>
### Basic Machine Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapping machine body (standard feed)</td>
<td>490</td>
<td>227</td>
<td>05-1394-0000</td>
</tr>
<tr>
<td>Tapping machine body (slow feed)</td>
<td>490</td>
<td>227</td>
<td>05-1392-0000</td>
</tr>
<tr>
<td>Air motor drive unit*</td>
<td>40</td>
<td>18</td>
<td>05-2327-0000</td>
</tr>
<tr>
<td>Single drive unit &amp; control valve*</td>
<td>45</td>
<td>20</td>
<td>05-2508-0000</td>
</tr>
<tr>
<td>Tandem drive unit &amp; control valve*</td>
<td>100</td>
<td>46</td>
<td>05-1379-0000</td>
</tr>
</tbody>
</table>

* These options will work with both feed rate tapping machines (slow and standard).

### Additional Equipment

<table>
<thead>
<tr>
<th>Component</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skid*</td>
<td>179</td>
<td>81</td>
<td>05-1370-0000</td>
</tr>
<tr>
<td>Hydraulic Power Unit and 50' Hose (with oil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual Start/Diesel</td>
<td>585</td>
<td>266</td>
<td>05-2017-0000</td>
</tr>
<tr>
<td>Electric Start/Diesel</td>
<td>600</td>
<td>272</td>
<td>12303420</td>
</tr>
<tr>
<td>Manual Start/Gas</td>
<td>533</td>
<td>242</td>
<td>05-2351-0000</td>
</tr>
<tr>
<td>Electric Start/Gas</td>
<td>550</td>
<td>250</td>
<td>05-2354-0000</td>
</tr>
<tr>
<td>Hydraulic feed system for completion plug installation</td>
<td>45</td>
<td>21</td>
<td>05-1366-0000</td>
</tr>
<tr>
<td>Flywheel</td>
<td>46</td>
<td>21</td>
<td>05-2376-0000</td>
</tr>
</tbody>
</table>

* If skid is not purchased with the tapping machine, there will be an additional crating charge; consult factory.
### Dimensions and Part Numbers

#### **660 Tapping Machine** Model 660C

**Standard Adapters for Gate Valves**

<table>
<thead>
<tr>
<th>Inches</th>
<th>mm</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>80</td>
<td>54</td>
<td>24</td>
<td>06-6102-0003</td>
<td>55</td>
<td>25</td>
<td>06-6103-0003</td>
<td>57</td>
<td>26</td>
<td>06-6105-0003</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>57</td>
<td>29</td>
<td>06-6102-0004*</td>
<td>65</td>
<td>29</td>
<td>06-6103-0004</td>
<td>80</td>
<td>36</td>
<td>06-5091-0004</td>
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<tr>
<td>6</td>
<td>150</td>
<td>70</td>
<td>32</td>
<td>06-5088-0006*</td>
<td>95</td>
<td>43</td>
<td>06-6103-0006</td>
<td>146</td>
<td>66</td>
<td>06-5091-0006</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>85</td>
<td>39</td>
<td>06-6102-0008*</td>
<td>100</td>
<td>45</td>
<td>06-6103-0008</td>
<td>150</td>
<td>68</td>
<td>06-6105-0008</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>115</td>
<td>42</td>
<td>06-6102-0010*</td>
<td>155</td>
<td>70</td>
<td>06-6103-0010</td>
<td>200</td>
<td>91</td>
<td>06-6105-0010</td>
</tr>
<tr>
<td>12</td>
<td>300</td>
<td>170</td>
<td>77</td>
<td>06-6102-0012*</td>
<td>215</td>
<td>98</td>
<td>06-6103-0012</td>
<td>315</td>
<td>143</td>
<td>06-6105-0012</td>
</tr>
</tbody>
</table>

*Will work on SHORTCUTT® Valves, Bulletin 2010.000.00

**Adapters for SANDWICH® Valves & Ball Valves**  
(Compatible to set LOCK-O-RING® and LOCK-O-RING® Plus Completion Plugs)

<table>
<thead>
<tr>
<th>Inches</th>
<th>mm</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>100</td>
<td>65</td>
<td>29</td>
<td>26-3205-0415</td>
<td>75</td>
<td>34</td>
<td>26-3205-0430</td>
<td>85</td>
<td>39</td>
<td>26-3205-0460</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>80</td>
<td>36</td>
<td>26-3205-0615</td>
<td>100</td>
<td>45</td>
<td>26-3205-0630</td>
<td>130</td>
<td>59</td>
<td>26-3205-0660</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>100</td>
<td>45</td>
<td>26-3205-0815</td>
<td>125</td>
<td>57</td>
<td>26-3205-0830</td>
<td>170</td>
<td>77</td>
<td>26-3205-0860</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>170</td>
<td>77</td>
<td>26-3205-1015</td>
<td>210</td>
<td>95</td>
<td>26-3205-1030</td>
<td>285</td>
<td>129</td>
<td>26-3205-1060</td>
</tr>
<tr>
<td>12</td>
<td>300</td>
<td>250</td>
<td>113</td>
<td>26-3205-1215</td>
<td>300</td>
<td>136</td>
<td>26-3205-1230</td>
<td>375</td>
<td>170</td>
<td>26-3205-1260</td>
</tr>
</tbody>
</table>

**Cutter Holders**

<table>
<thead>
<tr>
<th>Inches</th>
<th>mm</th>
<th>Lbs.</th>
<th>Kg.</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 &amp; 4</td>
<td>80 &amp; 100</td>
<td>2.5</td>
<td>1</td>
<td>05-0054-0001</td>
</tr>
<tr>
<td>6-12</td>
<td>150-300</td>
<td>8</td>
<td>4</td>
<td>05-0054-0002</td>
</tr>
</tbody>
</table>

**Completion Plug Holders**

<table>
<thead>
<tr>
<th>LOCK-O-RING® Completion Plugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-16*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCK-O-RING® Plus Completion Plugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6</td>
</tr>
<tr>
<td>8-16*</td>
</tr>
</tbody>
</table>

*Plug holder up to 16 inch can also be used with 760c Tapping Machine
### Dimensions and Part Numbers

**660 Tapping Machine Model 660C**

#### Standard Cutters & Pilot Drills

<table>
<thead>
<tr>
<th>Nominal Tap Size</th>
<th>Actual Tap Size</th>
<th>Cutters</th>
<th>Pilot Drills</th>
<th>Spare U-Rods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>mm</td>
<td>Inches</td>
<td>mm</td>
<td>Wt./Lbs.</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>2-7/16</td>
<td>61.9</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>3-7/16</td>
<td>87.3</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>5-15/32</td>
<td>138.9</td>
<td>5-3/4</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>7-5/16</td>
<td>185.8</td>
<td>14-1/2</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>9-1/2</td>
<td>241.3</td>
<td>22-1/2</td>
</tr>
<tr>
<td>12</td>
<td>300</td>
<td>11-1/2</td>
<td>292.1</td>
<td>36</td>
</tr>
</tbody>
</table>

#### SHORTSTOPP® Cutters & Pilot Drills

<table>
<thead>
<tr>
<th>Nominal Tap Size</th>
<th>Actual Tap Size</th>
<th>Cutters</th>
<th>Pilot Drills</th>
<th>Spare U-Rods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>mm</td>
<td>Inches</td>
<td>mm</td>
<td>Wt./Lbs.</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>3-7/8</td>
<td>98.4</td>
<td>3-1/4</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>5-7/8</td>
<td>149.2</td>
<td>8-3/4</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>7-3/4</td>
<td>196.9</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>9-3/4</td>
<td>247.7</td>
<td>23</td>
</tr>
<tr>
<td>12</td>
<td>300</td>
<td>11-3/4</td>
<td>298.5</td>
<td>40</td>
</tr>
</tbody>
</table>

#### STOPPLE® Cutters & Pilot Drills

<table>
<thead>
<tr>
<th>Nominal Tap Size</th>
<th>Actual Tap Size</th>
<th>Cutters</th>
<th>Pilot Drills</th>
<th>Spare U-Rods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>mm</td>
<td>Inches</td>
<td>mm</td>
<td>Wt./Lbs.</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>3-15/16</td>
<td>100</td>
<td>3-1/2</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>5-15/16</td>
<td>150.8</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>7-7/8</td>
<td>200</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>9-7/8</td>
<td>250.8</td>
<td>27</td>
</tr>
<tr>
<td>12</td>
<td>300</td>
<td>11-13/16</td>
<td>300.1</td>
<td>40-1/2</td>
</tr>
</tbody>
</table>

■ **Split-frame Feature**

The frame assembly is split at the lower end so the lower section can be unbolted and removed over the drive tube and boring bar, and the packing replaced.
### Recommended Power Options for Tapping Size-On-Size

<table>
<thead>
<tr>
<th>Cutter Size</th>
<th>Feed Rate 3&quot; (0.003&quot;/REV) AIR/HYD</th>
<th>Feed Rate 4&quot; (0.003&quot;/REV) AIR/HYD</th>
<th>Feed Rate 6&quot; (0.003&quot;/REV) AIR/HYD</th>
<th>Feed Rate 8&quot; (0.003&quot;/REV) AIR/HYD</th>
<th>Feed Rate 10&quot; (0.003&quot;/REV) AIR/HYD</th>
<th>Feed Rate 12&quot; (0.003&quot;/REV) AIR/HYD</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>4&quot;</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>6&quot;</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>8&quot;</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>10&quot;</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>E</td>
</tr>
<tr>
<td>12&quot;</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>

**Notes:**

1. The following letters represent:
   - A = Carbon steel pipe SMYS (Specified Minimum Yield Strength) 30,000 to 50,000 psi maximum, tensile strength of 70,000 psi.
   - B = Carbon steel pipe SMYS 50,000 to 70,000 psi maximum, tensile strength of 90,000 psi.
   - C = Cast iron pipe. Cutting characteristics vary widely; hard to predict.
   - D = Chrome-moly, high temperature, steel pipe.
   - E = 300 series stainless steel pipe.
   - F = Flat-plate cuts using special cutters on the materials listed above (refer to Notes 3 and 4). Pilot drill must be through before cutter tooth engages material.

2. The dual hydraulic drive features an ability to shift from high speed/low torque to low speed/high torque when tapping the larger diameter pipes and/or the more difficult cutting steels.

3. The table for selecting power options (above) is based on the latest TDW designs and past experience. The data should be used as a guideline. There have been, and will be, conditions which will not strictly follow the guidelines.

4. Special cutters are available for flat plates, stainless steel pipe, cast iron pipe and other special conditions.

5. When tapping a larger pipe or tank, the cutter will sometimes go through the flat-plate condition. For example, all teeth are cutting at the same time. This is the most power-consuming condition possible and special cutters may be required. Considering cutter size, diameter of cylinder, wall thickness, feed rates, different materials of construction, etc., there are many possibilities. The following table gives some examples of flat-plate conditions. Any pipe or tank with wall thicknesses greater than those shown will also be considered flat-plate.

<table>
<thead>
<tr>
<th>Cutter Size</th>
<th>Nom. Pipe x Wall</th>
<th>Nom. Pipe x Wall</th>
<th>Nom. Pipe x Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>4&quot; x .359&quot;</td>
<td>6&quot; x .232&quot;</td>
<td>8&quot; x .176&quot;</td>
</tr>
<tr>
<td>4&quot;</td>
<td>6&quot; x .481&quot;</td>
<td>8&quot; x .357&quot;</td>
<td>10&quot; x .282&quot;</td>
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<tr>
<td>6&quot;</td>
<td>10&quot; x .748&quot;</td>
<td>12&quot; x .616&quot;</td>
<td>14&quot; x .556&quot;</td>
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<td>18&quot; x .776&quot;</td>
<td>20&quot; x .692&quot;</td>
<td>24&quot; x .571&quot;</td>
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<tr>
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<td>24&quot; x .980&quot;</td>
<td>30&quot; x .772&quot;</td>
<td>48&quot; x .475&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>36&quot; x .943&quot;</td>
<td>48&quot; x .699&quot;</td>
<td>60&quot; x .556&quot;</td>
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