

Machine: Shapeoko3 DWP611 Aluminum - Wrought (6061) More Tool: Carbide Endmill  
 SFM 200% IPT 100% Hardness: 95 BHN ( 6061 T6, T651 ) Crib: <No Crib>

Tool: Tool Dia. 0.25 in Sizes Flutes 3 Geometry Stickout 1 in To Crib

Mfg: Optional Mfg's Data: Sfc Speed 1173 sfm Chipload 0.002 ipt Family: Generic

Cut: Cut Depth 0.03 in Axial Engage.: 12% Cut Width 0.25 in Slot Radial Engage.: 100%

Results: RPM 17500 Feedrate 30 ipm IPR 0.0017 Plunge 10 Normal Simplify

HSM: Shapeoko 3 Speed and Feed from Chart  Use HSM RPM Factor: 1.19 Feedrate Factor: 1.22 Corner Adjust 100% TEA (0-180) 180 Est. TEA

Tips: Use Conventional Milling  
 Coatings: ZrN, TiN, TiAlN  
 3 Tips: Coolant, Mist, or Lubricant Recommended for Aluminum

Cheat Sheet: Conservative Aggressive   
 100%:Rough

Limits: HP Limit 1.25 hp 3% Surface Speed 1145 sfm Deflection 0.00004 4%  
 Feed Limit 200 ipm 15% Chipload 0.0006 ipt MRR (ci) 0.225 **0.225 / 0.225 = 1 Times**  
 RPM Limit 35000 50% Adj. Chipload 0.0006 Eff. Diam.: 0.25 HP 0.048  
 Min RPM 5000 Tool Torque 2.76 **2.76 / 0.125 / 16 = 1.38 lbf**

Mini Calcs: Mini-Calcs Surface Finish Helix Ramp Plunge Vacuum  TSC  PCN

Cut KB: Search Cut KB Add to Cut KB Reset to Defaults

Feeds/Speeds | CAD/CAM | ToDo | Calculator | Geometry | GW Threads | Quick Refs | Setup

**Machine**  
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**Tool**  
 Tool Dia. 0.25 in | Sizes | Flutes 3 | Geometry | Stickout 1 in | To Crib

**Mfg**  
 Optional Mfg's Data: Sfc Speed 1173 sfm | Chipload 0.002 ipt | Family: Generic

**Cut**  
 Cut Depth 0.22 in | Axial Engage.: 88% | Cut Width 0.25 in | Slot | Radial Engage.: 100%

**Results**  
 RPM 10000 | Feedrate 25 ipm | IPR 0.0025 | Plunge 8.3 | Normal | Simplify

**HSM**  
**Cournoyer "1.25hp" March 2017 Speed and Feed**  
 Use HSM | RPM Factor: 1.19 | Feedrate Factor: 1.22 | Corner Adjust 100% | TEA (0-180) 180 | Est. TEA

**Tips**  
 Use Conventional Milling  
 Coatings: ZrN, TiN, TiAlN  
 3 Tips: Coolant, Mist, or Lubricant Recommended for Aluminum  
 Cheat Sheet | Conservative | Aggressive | 100%:Rough

**Limits**

HP Limit 1.25 hp <b>23%</b>	Surface Speed 654 sfm	Deflection 0.000431 <b>43%</b>
Feed Limit 200 ipm <b>12%</b>	Chipload 0.0008 ipt	MRR (ci) 1.375 <b>1.375 / 0.225 = 6 Times</b>
RPM Limit 35000 <b>28%</b>	Adj. Chipload 0.0008	HP 0.293
Min RPM 5000	Eff. Diam.: 0.25	Tool Torque 29.55 <b>29.56 / 0.125 / 16 = 14.8 lbf</b>

**Mini Calcs**  
 Mini-Calcs | Surface Finish | Helix | Ramp | Plunge | Vacuum |  TSC |  PCN

**Cut KB**  
 Search Cut KB | Add to Cut KB | Reset to Defaults

Machine: Shapeoko3 DWP611 Aluminum - Wrought (6061) More Tool: Carbide Endmill  
 SFM 200% IPT 100% Hardness: 95 BHN ( 6061 T6, T651 ) Crib: <No Crib>

Tool: Tool Dia. 0.25 in Sizes Flutes 3 Geometry Stickout 1 in To Crib

Mfg: Optional Mfg's Data: Sfc Speed 1173 sfm Chipload 0.002 ipt Family: Generic

Cut: Cut Depth 0.22 in Axial Engage.: 88% Cut Width 0.25 in Slot Radial Engage.: 100%

Results: RPM 30000 Feedrate 75 ipm IPR 0.0025 Plunge 25 Normal Simplify

HSM: 3X Cournoyer "1.25hp" March 2017 Speed and Feed  
 Use HSM RPM Factor: 1.19 Feedrate Factor: 1.22 Corner Adjust 100% TEA (0-180) 180 Est. TEA

Tips: Use Conventional Milling  
 Coatings: ZrN, TiN, TiAlN  
 3 Tips: Coolant, Mist, or Lubricant Recommended for Aluminum

Cheat Sheet

Conservative Aggressive   
 100% Rough

Limits:

HP Limit 1.25 hp <b>70%</b>	Surface Speed 1963 sfm	Deflection 0.000431 <b>43%</b>
Feed Limit 200 ipm <b>37%</b>	Chipload 0.0008 ipt	MRR (ci) 4.125 <b>4.125 / 0.225 = 18 Times</b>
RPM Limit 35000 <b>85%</b>	Adj. Chipload 0.0008	HP 0.8791
Min RPM 5000	Eff. Diam.: 0.25	Tool Torque: 29.55 <b>29.56 / 0.125 / 16 = 14.8 lbf</b>

Mini Calcs: Mini-Calcs Surface Finish Helix Ramp Plunge Vacuum  TSC  PCN

Cut KB: Search Cut KB Add to Cut KB Reset to Defaults

### 6.3 OTHER SPECIFICATIONS

	STPCRAFT 210	STPCRAFT 300	STPCRAFT 420	STPCRAFT 600	STPCRAFT 840
<b>Clamping surface (X Y)</b>	222 x 290 mm 8.74 x 14.42 inch	222 x 380 mm 8.74 x 14.96 inch	312 x 500 mm 12.28 x 19.69 inch	432 x 680 mm 17.01 x 26.77 inch	612 x 920 mm 24.09 x 36.22 inch
<b>Working space (X Y Z)</b>	210 x 210 x 40 mm 8.27 x 8.27 x 1.57 inch	210 x 300 x 80* mm 8.27 x 11.81 x 3.15 inch	300 x 420 x 140* mm 11.81 x 16.54 x 5.51 inch	420 x 600 x 140* mm 16.54 x 23.62 x 5.51 inch	600 x 840 x 140* mm 23.62 x 33.07 x 5.51 inch
<b>Passage height</b>	95 mm 3.74 inch	115 mm 4.53 inch	175 mm 6.89 inch	175 mm 6.89 inch	175 mm 6.89 inch
<b>Torsional stiffness (20N) (X Y Z)</b>	0,07 mm – 0,12 mm	0,06 mm – 0,11 mm	0,06 mm – 0,11 mm	0,09 mm – 0,13 mm	0,10 mm – 0,14 mm
<b>Repeatability</b>	+/- 0,04 mm	+/- 0,04 mm	+/- 0,04 mm	+/- 0,05 mm	+/- 0,05 mm
<b>Programmable resolution</b>	0,005 mm	0,005 mm	0,005 mm	0,005 mm	0,005 mm
<b>Backlash</b>	approx. 0,08 mm (with software adjustable to 0,00 mm)	approx. 0,08 mm (with software adjustable to 0,00 mm)	approx. 0,08 mm (with software adjustable to 0,00 mm)	approx. 0,08 mm (with software adjustable to 0,00 mm)	approx. 0,08 mm (with software adjustable to 0,00 mm)
<b>Maximum</b>	1.800 mm/min	3.000 mm/min	3.000 mm/min	3.000 mm/min	3.000 mm/min

$$14.8 \text{ lbf} * 4.45 \text{ N/lbf} * 0.14 \text{ mm} / 20 \text{ N} / 25.4 \text{ in/mm} = 0.025 \text{ in}$$