

# PSS-3000 Optical Sheet | Fabrication

## PSS-3000 SHEET CUTTING RECOMMENDATIONS

### I. Using a Laser Cutting Tool

All PSS-3000 sheets can be cut to any shape or size using a computer controlled laser with general tolerance of  $\pm 0.1$  mm. See table to the right for laser settings using a Universal<sup>®</sup> Laser Systems ILS 12.150D with two 50W laser tubes and air assist.

### LASER SETTINGS

PSS-3000 SHEET THICKNESS (IN)	CUTTING SPEED (%)
0.030	27
0.040	25
0.060	18
0.080	12
0.118	7.5
0.195	4.8
0.240	4

\*All vector cutting performed at 100% power.

### II. Using a Computer Numerically Controlled (CNC) Cutting Tool

Customers that are used to processing plastic material that is softer than PSS-3000 sheet may have to increase the RPM of their milling machine and adjust milling linear speed depending on the thickness of the sheet. Otherwise, the risk of breaking or chipping the PSS-3000 sheet increases. Specific details are below:

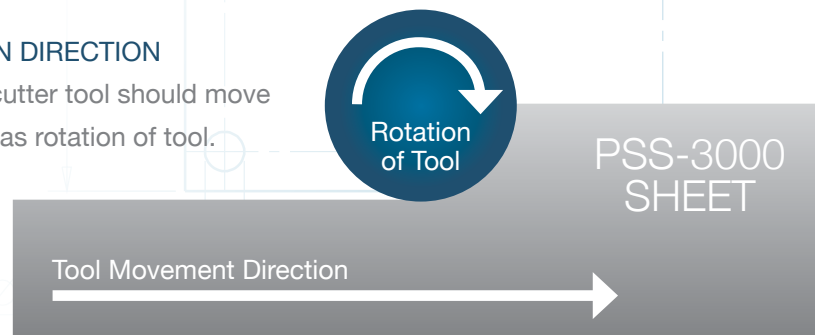
#### 1. CUTTER SPINNING SPEED

The cutter spinning speed can be set as high as possible. In general:

- 5 mm diameter cutter: 25,000 rpm
- 1 mm diameter cutter: 40,000 rpm

#### 2. CUTTER ROTATION DIRECTION

For best results, the cutter tool should move in the same direction as rotation of tool.



3. CUTTER LINEAR DIRECTIONAL SPEED

The X, Y and Z linear speeds will depend on how much material is going to be removed (thickness and size reduction).

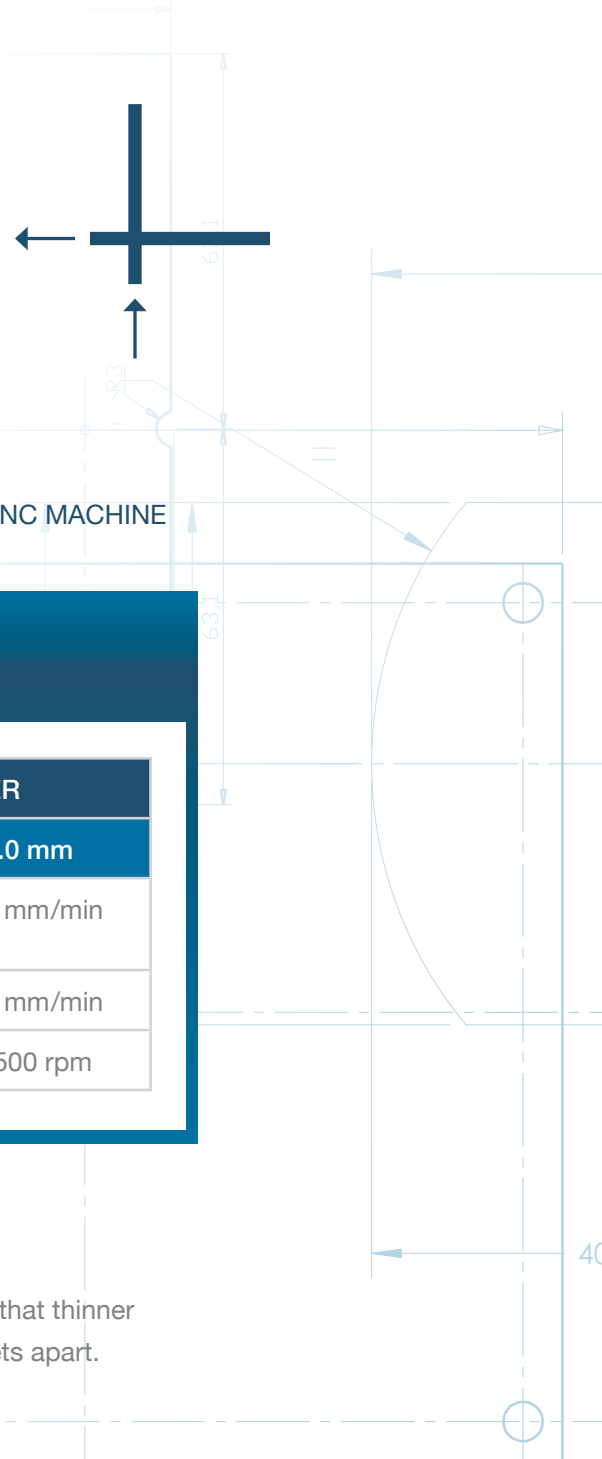
4. CUTTING SQUARE ANGLES

90° tool movement is suggested for cutting square angles and to continue the cutter past the end of the sheet as shown to the right.

5. COOLING REQUIREMENTS

Cooling by liquid is not needed. Air flow to cool the cutter and remove the cut material is recommended.

6. EXAMPLE OF PARAMETERS FOR A 1.0 MM THICK SHEET USING CNC MACHINE



USING A SINGLE CUTTER

	CUTTER DIAMETER	
	5.5 mm	1.0 mm
FZ – linear speed on Z axis (cutter in-out)	1250 mm/min	450 mm/min
FA – linear speed on X and Y axis	2500 mm/min	675 mm/min
S – cutter spinning speed	28000 rpm	38500 rpm

III. Using a Knife Blade to Score PSS-3000 Sheet

A Tantung or Widia blade can be used to score PSS-3000 sheet. Note that thinner sheets (<1.0mm) may chip or crack when attempting to break the sheets apart.