

## Cutting Tolerances

### 0.1 TOLERANCE TABLE 1 – RIBBON STEEL AND SOLID STEEL CUTTERS

Ribbon Steel & Steel Tool Cut Tolerances	Sample Dimension					
	0 - .5"	.51"-1"	1"-3"	3"-6"	6"-12"	12"-24"
Thickness						
.001"-.010"	± .005"	± .008"	± .010"	± .015"	± .020"	± .030"
.011"-.060"	± .008"	± .010"	± .015"	± .015"	± .020"	± .030"
.061"-.120"	± .010"	± .010"	± .015"	± .015"	± .030"	± .040"
.121"-.250"	± .015"	± .015"	± .020"	± .020"	± .030"	± .040"
.251"-.500"	± .020"	± .020"	± .020"	± .030"	± .040"	± .050"
.510"-.750"	± .030"	± .030"	± .040"	± .040"	± .050"	± .060"
.760"-1.00"	± .040"	± .040"	± .050"	± .050"	± .060"	± .080"

### 0.2 TOLERANCE TABLE 2 – MACHINED ITEMS

For trepanning, drilling or lathe operations, the following general tolerances should be applied.

Machined Item Tolerances	Sample Dimension				
	.25"-.50"	.51"-1.00"	1"-2"	2"-4"	4"-6"
Thickness					
.060"-.120"	± .008"	± .010"	± .015"	± .015"	± .020"
.121"-.250"	± .010"	± .015"	± .015"	± .020"	± .020"
.251"-.500"	± .010"	± .015"	± .020"	± .025"	± .025"
.510"-.750"	± .015"	± .020"	± .030"	± .030"	± .030"
.750"-1.00"	± .020"	± .020"	± .030"	± .035"	± .040"

### 0.3 TOLERANCE – SLITTING

Tolerances held by slitting are again dependant on the hardness and thickness of the material being processed. In general the tolerance table 3 should be used as a guide when applying tolerances, as this operation is often accredited to hand fabrication.

## 0.4 TOLERANCE TABLE 4 – HAND FABRICATION

Hand Fabrication Tolerances	Sample Dimension				
	0"-2"	2.1"-4"	4.1"-6"	6.1"-10"	10"-20"
Thickness					
<b>0" - 0.0.30"</b>	± .015"	± .020"	± .030"	± .050"	± .070"
<b>0.031" - 0.120"</b>	± .020"	± .030"	± .040"	± .060"	± .100"
<b>0.121" - 0.375"</b>	± .030"	± .040"	± .050"	± .080"	± .120"
<b>0.376" - 0.625"</b>	± .040"	± .050"	± .060"	± .100"	± .150"
<b>0.626" - 1"</b>	± .050"	± .060"	± .080"	± .120"	± .180"

## 0.5 TOLERANCE TABLE 5 – AUTO-KNIFE & OSCILLATING KNIFE

Auto and Oscillating Knife Tolerances	Sample Dimension					
	0 - .5"	.51"-1"	1"-3"	3"-6"	6"-12"	12"-24"
Thickness						
Solids & Foams						
<b>.001"-.010"</b>	± .005"	± .010"	± .012"	± .015"	± .020"	± .030"
<b>.011"-.060"</b>	± .005"	± .010"	± .015"	± .020"	± .025"	± .030"
<b>.061"-.120"</b>	± .010"	± .010"	± .015"	± .020"	± .030"	± .040"
<b>.121"-.250"</b>	± .015"	± .015"	± .020"	± .025"	± .030"	± .040"
<b>.251"-.375"</b>	± .015"	± .015"	± .020"	± .030"	± .040"	± .050"
FOAMS ONLY						
<b>.510"-.750"</b>	± .025"	± .030"	± .040"	± .040"	± .050"	± .060"
<b>.760"-1.00"</b>	± .030"	± .040"	± .050"	± .050"	± .060"	± .080"

## 0.6 TOLERANCE – WATER-JET

In general we work with  $\pm 0.2$  mm tolerance over dimensions up to 2m on X and Y coordinates. Dimensional tolerance through Z axis (thickness) will vary according to the type of material, but can be made finer by slower cutting, or the use of additional abrasive.

To ascertain exact working tolerances on each part, it is advisable for us to provide sample cuts prior to production, but the tolerances achievable will be far better than from any other automatic production method we have available.

Flexibles and Semi-Flexibles up to 250mm (300mm in some instances) – Rigids (metals etc) are cut up to 200mm (250mm in some cases).

### Summary

Although these tolerances can be used as a general guide, tolerances should be agreed against sample production, taking into account the fluctuations that might occur in materials due to factors such as the hydroscopic properties, hardness, etc.

At tender, the person responsible for the tender shall have the item reviewed by production to confirm tolerances and samples may be cut from similar tooling, material and method to ascertain tolerances that should be offered.