

### **22.5 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(22.5))^2}))^2 - (381+27-97 \times \cos(22.5))^2)} = 12 \text{ mm}$$

### **45 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(45))^2}))^2 - (381+27-97 \times \cos(45))^2)} = 47 \text{ mm}$$

### **67.5 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(67.5))^2}))^2 - (381+27-97 \times \cos(67.5))^2)} = 102 \text{ mm}$$

### **90 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(90))^2}))^2 - (381+27-97 \times \cos(90))^2)} = 165 \text{ mm}$$

### **112.5 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(112.5))^2}))^2 - (381+27-97 \times \cos(112.5))^2)} = 222 \text{ mm}$$

### **135 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(135))^2}))^2 - (381+27-97 \times \cos(135))^2)} = 264 \text{ mm}$$

### **157.5 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(157.5))^2}))^2 - (381+27-97 \times \cos(157.5))^2)} = 290 \text{ mm}$$

### **180 degree center line cut back calculation**

$$\sqrt{((381+137)^2 - ((381+27)-97)^2) - \sqrt{((381 + \sqrt{(137^2 - (97 \times \sin(180))^2}))^2 - (381+27-97 \times \cos(180))^2)} = 299 \text{ mm}$$

[fabricatorguide.com](http://fabricatorguide.com)