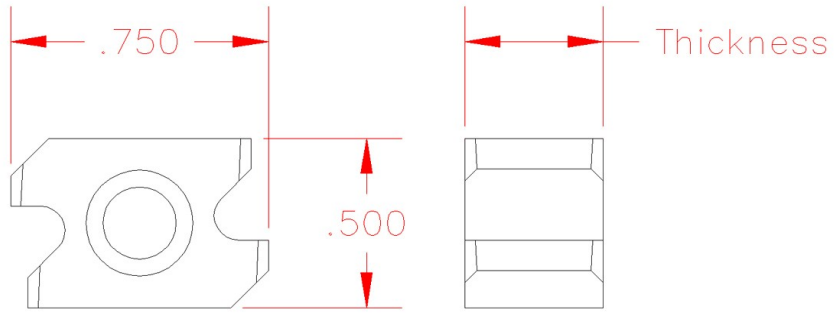


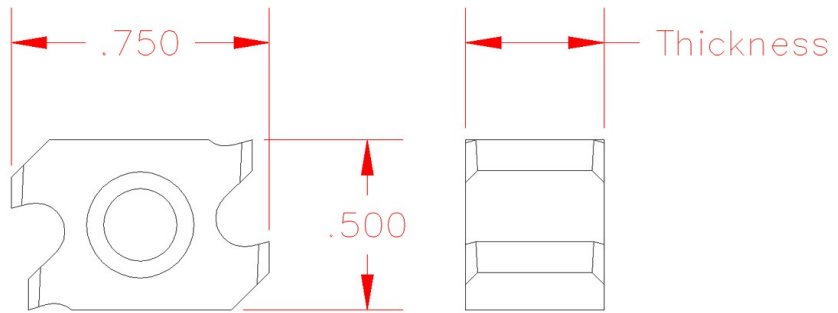
**ADIN**

Dual Edge  
Negative Top Rake



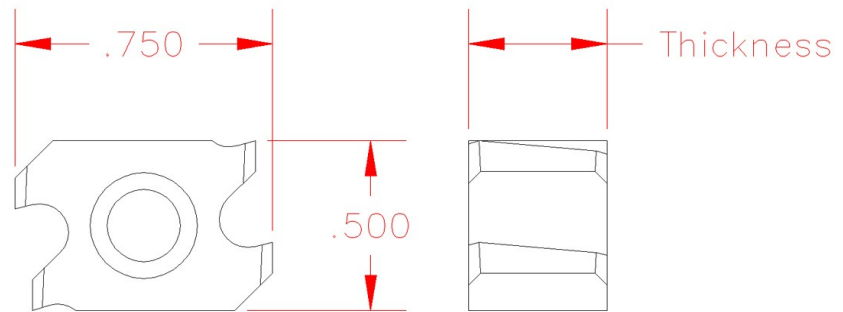
**ADIP**

Dual Edge  
Positive Top Rake



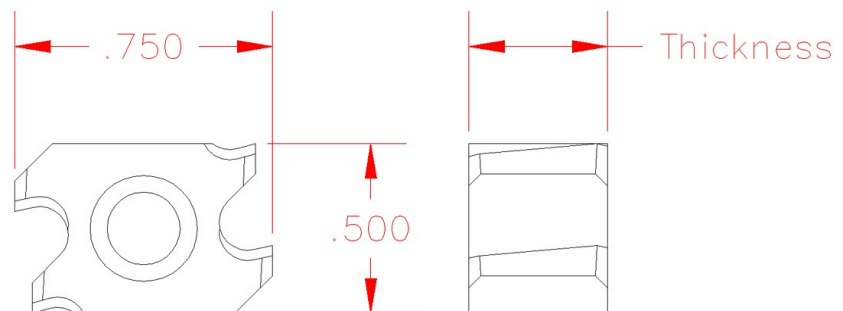
**ADIS**

Dual Edge  
Positive Top Rake  
5Deg Positive Axial Rake  
Right Hand

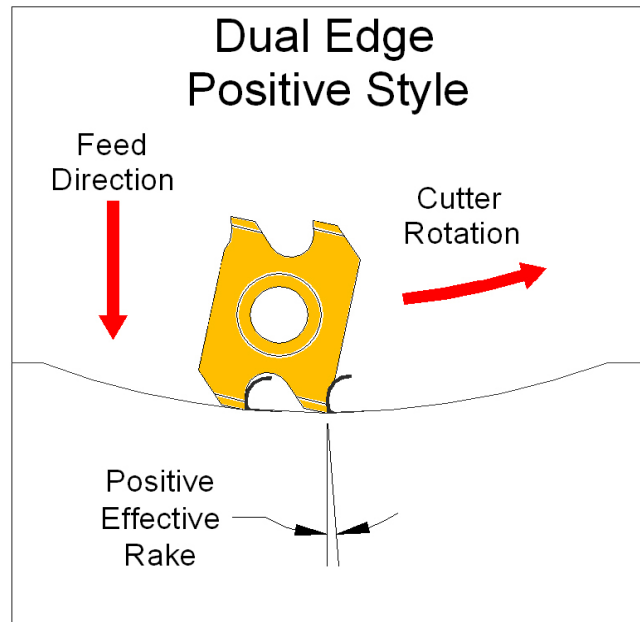
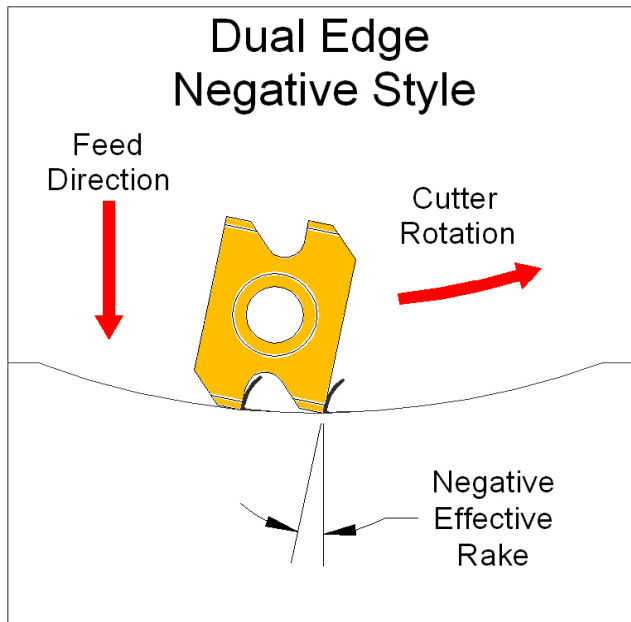


**ADIS**

Dual Edge  
Positive Top Rake  
5Deg Positive Axial Rake  
Left Hand

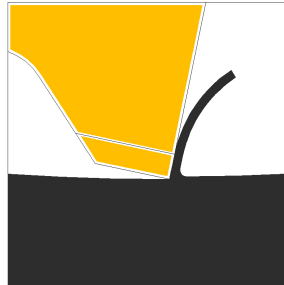


## Dual Edge Insert Rake Geometry



### Negative Rake Insert Styles

ARM Tooling Dual Edge inserts are available with a neutral top rake geometry. When locked in the pocket, the cutting face of the insert produces an effective negative rake cutting angle pocket orientation to the centerline of the milling cutter body. Depending upon the material specified and the rotational diameter of the cutter body, the effective negative rake angle will be from 5 degrees to 10 degrees.

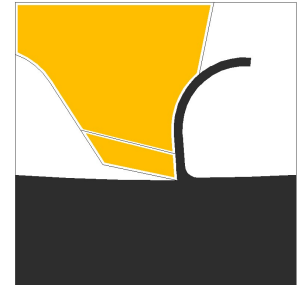


ARM Tooling recommends the use of negative rake Dual Edge inserts for heavy roughing of forgings, interrupted cuts where irregular shapes and slots are encountered.

The material to be milled will dictate the use of negative rake geometry. Cast Iron, Medium to Hard Alloy Steels as well as Tool Steels are best machined with negative rake geometry. Negative rake cutting edges are stronger and allow for heavier feed rates which generally produces shorter cycle times.

### Positive Rake Insert Styles

ARM Tooling Dual Edge inserts are available with a dual positive top rake geometry. Both cutting edges have positive ground top rakes. The first cutting edge produces a higher positive cutting action while the second trailing edge has a less positive rake face. This dual positive format reduces chip loading between the part and the cutter body interface and can produce high quality finishes similar to grinding. Depending upon the material specified and the rotational diameter of the cutter body, the effective positive rake angle will be from 5 degrees to 10 degrees.



ARM Tooling recommends the use of positive rake Dual Edge inserts for producing extremely fine finishes when machining softer materials using medium to light feed rates.

Materials to be machined with the positive style Dual Edge insert; most nonferrous metals, low to high carbon steels under 300 BHN as well as all stainless steels and nickel based alloys.

# Milling Formulas

## Symbol Chart

D = Depth of Cut

d = Diameter of Cutter

T = Number of Teeth in Cutter

W = Width of Cut (in inches)

K = Constant (cubic inches per minute per HPc)

R.P.M. = Revolutions per Minute

S.F.M. = Surface Foot per Minute

F.P.R = Feed per Revolution (in inches)

I.P.M. = Feed (travel in inches per minute)

F.P.T. = Feed per Tooth (in inches)

HPc = Horsepower at the Cutter

### How to Calculate R.P.M.

$$\text{R.P.M.} = (12 \times \text{S.F.M.}) / (3.1416 \times d)$$

or

$$\text{R.P.M.} = (3.82 \times \text{S.F.M.}) / d$$

### How to Calculate S.F.M.

$$\text{S.F.M.} = (3.1416 \times d \times \text{R.P.M.}) / 12$$

or

$$\text{S.F.M.} = .262 \times d \times \text{R.P.M.}$$

### How to Calculate F.P.R.

$$\text{F.P.R.} = \text{I.P.M.} / \text{R.P.M.}$$

### How to Calculate I.P.M.

$$\text{I.P.M.} = \text{F.P.T.} \times T \times \text{R.P.M.}$$

### How to Calculate F.P.T.

$$\text{F.P.T.} = \text{I.P.M.} / (T \times \text{R.P.M.})$$

### How to Calculate HPc

$$\text{HPc} = (D \times W \times \text{I.P.M.}) / K$$

### How to Calculate Number of Teeth

$$T = \text{I.P.M.} / (\text{F.P.T.} \times \text{R.P.M.})$$

### How to Calculate Maximum Number of Teeth

$$T = (K \times \text{HPc}) / (D \times \text{F.P.T.} \times W \times \text{R.P.M.})$$

