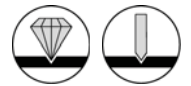




Cutters





## Cutters categories

The cutters used for engraving are available in hard metal.

## Rotation speed

Cutters with low cutting bases should rotate faster to achieve the same results as those with high cutting bases. Rotation speed depends on the material to be engraved.

The table below gives useful information for selecting the most suitable cutter for your needs.

Material	Engraving width							
	0,25 mm	0,32 mm	0,75 mm	1,5 mm	2,5 mm	3,0 mm	4,5 mm	6,0 mm
Plastic engraving panels	15.000 - 20.000 rpm						12.000 rpm	10.000 rpm
Engraving brass	10.000 - 15.000 rpm				13.500 rpm	9.500 rpm	6.500 rpm	5.000 rpm
Aluminium	15.000 - 20.000 rpm					14.000 rpm	10.000 rpm	7.500 rpm
Soft steel	15.000 rpm	15.000 rpm	10.000 rpm	5.000 rpm	3.500 rpm	2.500 rpm	1.500 rpm	1.200 rpm
Hard metal/VA steel	12.000 rpm	12.000 rpm	6.000 rpm	3.000 rpm	2.000 rpm	1.500 rpm	1.000 rpm	750 rpm
Wood	20.000 rpm							

## Axis advancement

Axis advancement should be chosen according to rotation speed and depends on the characteristics of the material.

With slower advancement the lines are thinner and edges more precise, with faster advancement the lines are less precise and wider.

With each revolution the cutter edge touches the material and with hard materials loses its edge more quickly. For this reason we recommend slower advancement.

## Cutting fluid

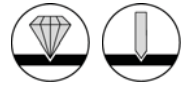
Cutting fluid cools the cutter and makes it easier to achieve cleaner lines.

Many materials do not need cutting fluid, for example flexible ones and engraving brass. All the others require cutting fluid to improve engraving and prolong the cutter's life.

Aluminium should be cut with suitable fluid (e.g. Survol®) to enhance engraving and prolong the cutter's life.

Plastic, which melts easily, can often be engraved successfully using a hydrosoluble oil (e.g. Survol®).

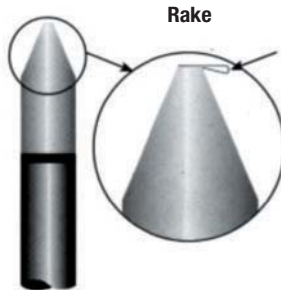
For VA metals use special cutting oil (e.g. VA oil) because the cutter gets very hot.



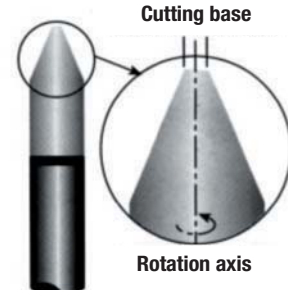
## Cutting angle on cutters



**Cutting angle** means the angle between the cutter rotation axis and its edge. This angle determines the V shape of the engraving with conical cutters.



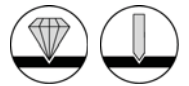
**Rake** is the angle of the cutter tip. It determines the width of the surface at the base of the engraving.



**Cutting base** refers to the surface on the tip of the cutter and determines the width of the profile.

The cutting base is the width at the base of the engraving.

Engraving depth (mm)	1-2	2-3	3-4	5-6	7-8	9-10	11-12	13-16	17-20	21-30	31-40	41-50
Cutting base (mm)	0,25	0,32	0,5	0,75	1,0	1,25	1,5	2,0	3,0	4,0	4,7	6,35



## Standard cutters



Used particularly for plastic and metal engraving materials.  
Made of MicroJRain-Carbid® hard metal, these cutters keep their edge longer and cut well.  
**Please indicate cutting width on your order.**

Code	Description
JR4150025	Size: 0,25-4x150 mm
JR4150032	Size: 0,32-4x150 mm
JR4150050	Size: 0,50-4x150 mm
JR4150075	Size: 0,75-4x150 mm
JR4150100	Size: 1,00-4x150 mm
JR4150125	Size: 1,25-4x150 mm
JR4150150	Size: 1,50-4x150 mm
JR4150200	Size: 2,00-4x150 mm
JR4150300	Size: 3,00-4x150 mm
JR4150350	Size: 3,50-4x150 mm

## Standard VA cutters



Due to special sharpening these cutters are suitable for VA steel.  
**Please indicate cutting width on your order.**

Code	Description
JR4150025VA	Size: 0,25-4x150 mm
JR4150032VA	Size: 0,32-4x150 mm
JR4150050VA	Size: 0,50-4x150 mm
JR4150075VA	Size: 0,75-4x150 mm
JR4150100VA	Size: 1,00-4x150 mm
JR4150125VA	Size: 1,25-4x150 mm
JR4150150VA	Size: 1,50-4x150 mm
JR4150200VA	Size: 2,00-4x150 mm
JR4150300VA	Size: 3,00-4x150 mm
JR4150350VA	Size: 3,50-4x150 mm



## Diamond cutters



Non rotating tools: suitable for engraving and scratching brass and aluminium; they have a 120° angle.

Code	Description
JR58124	Size: 4,00x150 mm - 120°

## Cutter case



Code	Description
JRFRAESERBOX	A handy case for holding cutters.