



FLYCUTTER P/N 3052



SLITTING SAW HOLDER P/N 3065



UNITurn & UNIMill
The cool tool

FLYCUTTER AND SLITTING SAW HOLDER P/N 3052 AND P/N 3065

Both the Flycutter (P/N 3052) and the Slitting Saw Holder (P/N 3065) are held in the spindle with a drawbolt that pulls these holders up into the Morse #1 taper. This is a “sticking” taper and it has to be removed from the spindle by backing out the drawbolt a few turns (do not disengage) and giving the bolt a few light taps with a hammer.

A Flycutter is a great way to machine flat surfaces. It can be easily sharpened and is probably the most economical way to remove material on a mill. The cutter is basically a left handed lathe tool. We supply it with a carbide tip cutter, but there is no reason a piece of 1/4" square high speed steel wouldn't work.

As with all machining operations, it is imperative the work is securely held to the work table. A flycutter on the **UNIMill DeLuxe** can cut a path 2" (50 mm) wide by .010" (.25 mm) deep in aluminum without even trying. Flycutters exert lower machining stresses on the machine than you may expect. This is because the cutter “peels” the material off with very little crushing action. If possible the cutter should swing a diameter larger than the part width. The cutter will usually take a second cut with the back side of the cutter even when the spindle is perfectly square with the table.

Chips thrown off by the flycutter are **HOT**. Long sleeve shirts are advisable and eye protection is a must!

If you're machining aluminum, run the spindle at 1/2 speed, with steel use 1/4 speed, and use a feed rate that creates curly chips about .002" (.05 mm) thick. You really should have some understanding of cutting speeds if you use high speed steel cutters on steels. It is very easy to exceed the cutting speed of high speed steel with a large cutter diameter. An example would be a H.S. cutter swinging a 2" (50 mm) circle shouldn't exceed 200 RPM when cutting steel with a cutting speed of 100 surface Ft/Min.

$$\frac{4 \text{ X CUTTING SPEED (Ft./Min.)}}{\text{CUTTER DIAMETER (In.)}}$$

$$\frac{4 \text{ X } 100}{2} = 200 \text{ RPM}$$

Note: The factor 4 used in this equation has been rounded off to allow mental calculations, the actual number should be 3.8

In metric a close approximation is:

$$\frac{300 \text{ X CUTTING SPEED (M/Min.)}}{\text{CUTTER DIAMETER (MM)}}$$

Note: The factor 300 has been rounded off to simplify calculations, the actual number is 318.

The reason we go into cutting speed in these instructions is that they are such an important part of using slitting saws correctly. You must realize that when you exceed the cutting speed with high speed steels, the dulling process can be instantaneous. It isn't you get shorter tool life, you get “no life”! This can be expensive in time and money because slitting saws usually cost so much you don't have spares.

Another problem that happens with slitting saws is that one edge gets dull before the other. This causes the blade to deflect as it cuts. How much it deflects is somewhat a function of the blade's thickness.

A common error that can be made is putting a slitting saw on the spindle upside down when they will only cut one way.

Coolant should be used. It doesn't have to be flooded, but it should be applied liberally to keep the fine teeth from loading up.

When cutting a slot that goes into a large hole, it is possible to have the part clamp the saw blade as it cuts through. It usually doesn't cause any serious problems, just stop the spindle and back it out.

There is always a question of the best approach to use when cutting a slot with a blade that is less than .060" (1.5 mm). You can cut in a series of passes, cut full depth in one pass, or cut straight in. The method to use is up to you, experiment with scrap until you're confident you will not screw up a lot of work.

The cool tool[®]
TOOL
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FLYCUTTER PARTS (P/N 3052)

NO. PART		
REQ. NO.		DESCRIPTION
1	1193	CARBIDE TOOL LEFT
1	3049	FLYCUTTER BODY
1	3088	1/4-20 X 5-1/8" DRAWBOLT
2	3108	10/32 X 3/8" SET SCREW

SLITTING SAW PARTS (P/N 3065)

NO. PART		
REQ. NO.		DESCRIPTION
1	3066	SLITTING SAW BODY
1	3067	SLITTING SAW CAP
1	3088	1/4-20 X 5-1/8" DRAWBOLT
1	4067	10-32 X 1/2" SKT HD CAP SCREW

ACCESSORIES AVAILABLE FOR P/N 3052 & P/N 3065

P/N	DESCRIPTION
1193	CARBIDE TOOL, LEFT
1196	H.S. TOOL, LEFT
3005	H.S. TOOL, BLANK
3005	BH.S. TOOL BLANK (5)
7301	#25 (.010) SLITTING SAW
7302	#40 (.020) SLITTING SAW
7303	#57 (.032) SLITTING SAW
7304	#53 (.051) SLITTING SAW