



Brownells **High Speed Steel Dovetail Cutters** are the gunsmithing industry's standard for machining sight dovetails in all types of materials. For extremely hard parts such as some auto pistol slides, we recommend the use of Brownells **Carbide Cutters**.



WARNING



Never attempt to disassemble or reassemble a firearm unless you are absolutely certain that it is empty and unloaded. Visually inspect the chamber, the magazine and firing mechanism to be absolutely certain that no ammunition remains in the firearm. Disassembly and reassembly should follow the manufacturer's instructions. If such instructions are not immediately available, contact the manufacturer to see if they are available. If they are not available at all, then you should consult other reference sources such as reference books or persons with sufficient knowledge. If such alternative sources are not available and you have a need to disassemble or reassemble the firearm, you should proceed basing your procedures on common sense and experience with similarly constructed firearms.

With regard to the use of these tools, the advice of Brownells Incorporated is general. If there is any question as to a specific application it would be best to seek out specific advice from other sources and not solely rely on the general advice and warnings given.

WARNING: Wear safety glasses and utilize all recommended and factory installed safety equipment on your milling machine when using this cutter. The slow feed rates required by these cutters generate very fine "chips".

WARNING: Use these cutters only in milling equipment in good condition. **DO NOT USE IN A DRILL PRESS!** Excessive runout at the tool due to bent or damaged tool holders, or wear on bearings, may cause this tool to break in use. Dovetail milling cutters are relatively fragile; if dropped onto a hard surface, cutting edges may break. Do not use if any cutting edge has been burred or broken. Failure to follow instructions and warnings may cause the tool to shatter and/or may damage the part being cut. Make certain the tool is held firmly in the tool holder and will not slip either up or down in use.

HOW TO USE

MEASURE YOUR SIGHT BEFORE MAKING ANY CUTS! Sights can vary from their published dimensions and we recommend that you verify the actual dimensions before cutting into an expensive part. Also, all cutting tools have a manufacturing tolerance range. Brownells **High Speed Steel Dovetail Cutters** are held to very close tolerances, but tool runout can affect the actual size of a cut. We recommend cutting a "test" dovetail in a piece of scrap material before using this cutter for the first time. Use the test piece to verify the size of the cut and to gauge the sight you are installing against the dovetail you will make in the actual workpiece. Keep this test piece for future reference when using this cutter with other sights. Multiple passes or final hand fitting with Brownell Dovetail Files may be necessary if the dovetail on the sight is larger than the dovetail cutter produces.

Workpiece setup is critical. You must ensure that the part being worked on, and the workholding device, are clamped or attached "with absolute rigidity" to the milling table. Any bounce, flex or vibration of the workpiece may cause the dovetail cutter to break. Never start or stop the tool while it is in contact with the workpiece, as it may break. You must cut a relief slot in the workpiece before using a dovetail cutter. This lightens the stress on the relatively fragile dovetail cutter, extending its useful life expectancy. The relief slot should be as wide as possible, but just slightly smaller than the narrowest point of the dovetail sight being installed.

Any milling cutter will give greater tool life and accuracy with constant lubrication and cooling while cutting. We recommend Brownells Do-Drill™ for this purpose. Running a dovetail cutter without lubricant can cause it to overheat. Overheating will cause small particles of the material being cut to fuse to the cutter teeth. Fused particles will leave a very rough finish that could affect critical finished dimensions.

SPEED AND FEED REQUIREMENTS

SPEED RATE: 600-700 RPM.

CAUTION: The maximum revolutions per minute of these high speed steel cutters is 700 rpm.

BROWNELLS® HIGH SPEED STEEL DOVETAIL CUTTERS

READ & FOLLOW THESE
INSTRUCTIONS

BROWNELLS®
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FEED RATE: For mills equipped with power table feeds:

Cutter #080-621-245 (60° x .245") 3 to 6 inches per minute.
Cutter #080-621-250 (74° x .250") 3 to 6 inches per minute.
Cutter #080-621-300 (60° x .300") 3 to 6 inches per minute.
Cutter #080-621-330 (60° x .330") 3 to 6 inches per minute.
Cutter #080-621-359 (60° x .359") 3 to 6 inches per minute.
Cutter #080-621-495 (65° x .495") 4½ to 9 inches per minute.
Cutter #080-621-305 (65° x .300") 3 to 6 inches per minute.
Cutter #080-621-331 (60° x .330") 3 to 6 inches per minute.
Cutter #080-621-290 (60° x .290") 3 to 6 inches per minute.

If you must manually feed your milling cutter when cutting dovetails, smoothness of operation is more important than actual feed rate.

FINAL FITTING AND ASSEMBLY

Since these high speed steel dovetail cutters cut dovetails of nominal dimension, final fitting of the sight to the dovetail is normally required. You may need to make more than one pass with the dovetail cutter to get close to the actual sight dovetail dimension. Plus, you may need to do minimal final cleanup with a fine cut dovetail file of the appropriate angle. You may find it to your advantage to make a detailed sketch of the sight, with all dimensions you can measure on it, before you make any cuts on an expensive slide, barrel or receiver. We strongly recommend whenever possible, that you do the majority of the fitting operations on the cheapest or most available part first.

Reassemble the firearm according to the manufacturer's instructions. Check for proper functioning using **ACTION PROVING DUMMIES**. Make sure **ALL SAFETY MECHANISMS** are fully functional as designed and approved by the manufacturer. If these tests prove satisfactory, test-fire the firearm with live ammunition in a **SAFE** and **APPROPRIATE** manner. **IMPORTANT!** Start the live ammunition tests by first loading an **ACTION PROVING DUMMY**, then a live round, into the magazine. Only after several tests have been conducted in this manner should additional rounds be placed in the magazine and fired.