

Operating Instructions

Ellipti-Bur®

Tool adjustment & operating recommendations

Versatile, fast, safe, and easy

ELLIPTI-BUR® tools can be used on portable power tools and drill motors, drill presses, automatic equipment, CNC machines, or on virtually any type of shop equipment.

The tool is fast, safe, and easy to handle. The pilot engages the hole. The blade, *not* the tool body, reacts to accommodate the irregular hole geometry.

Speeds and feeds

The most desirable speed for a particular application can best be determined by trial. Spindle speeds must be relatively slow to enable the blade to accommodate a continuously changing path in the course of each revolution.

The speed recommendations below will serve as a guideline:

- Speeds up to 600 RPM are generally recommended where the following conditions exist:
 - (1) Where holes are drilled into a flat surface at an angle not exceeding 15°.
 - (2) Where holes are drilled into a cylindrical part with a diameter which is 6 or more times *greater* than the hole size.
- Speeds of 100-300 RPM may be required where more difficult conditions exist, such as:
 - (1) Holes drilled at a severe angle.
 - (2) Holes drilled into a cylindrical part where the diameter is *less* than 6 times the hole size.

Feeds are not a critical issue with the ELLIPTI-BUR. Only a light

contact pressure is required to deburr and produce a small edge break. The amount of stock removal is determined by the pressure applied and the dwell time.

Application considerations

A proper drilling technique is necessary in order to maximize the effectiveness of the ELLIPTI-BUR. The following guidelines will help you *avoid creating an excessive burr*:

- Drill points should have a 130-150° included angle, rather than the conventional 118°.
- Slow-spiral drills generally allow better breakthrough than fast-spiral drills.
- A uniformly controlled feed rate (preferably power feed) is required in order to prevent an accelerated advance of the drill at the point of breakthrough.
- The workpiece should be held securely.

Application restrictions

The ELLIPTI-BUR is generally *not* recommended for:

- Extremely soft, ductile metals.
- Applications where the diameter of a cylindrical part having a cross-drilled hole is *less* than 2-1/2 times the diameter of the drilled hole. (Note: The softer and more ductile the material, the more this limitation applies.)

Blade replacement and regrinding

The ELLIPTI-BUR blade can be easily replaced by following this procedure (refer to the details drawing on page 22):

- 1.Remove Detail 7 Retaining Screw. (*Note*: Tool is spring-loaded.)
- 2.Remove Det. 6 Shank Spring Assembly.
- 3.Remove Det. 3 Blade Spring.
- 4.Remove Det. 4 Chrome Steel Retaining Ball.
- 5.Slide Det. 1 Pilot and Det. 2 Blade from Det. 8 Tool Body.
- 6.Remove Pilot from Blade. (*Note*: spring-loaded.)
- 7.Replace Blade.
- 8.Reassemble in reverse order. (*Important*: Blade must be inserted in tool body so that it can float freely.)

Replacement blades are inexpensive; however, the blades can be reground in the user's shop. Please refer to Figure 3 for proper regrind procedure.

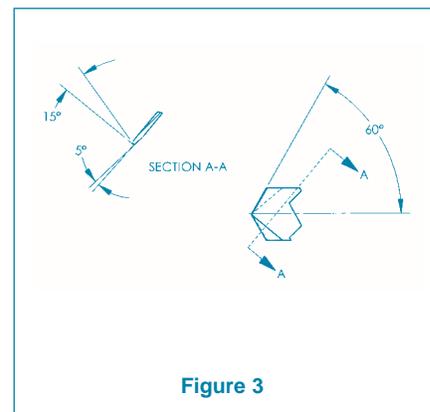


Figure 3

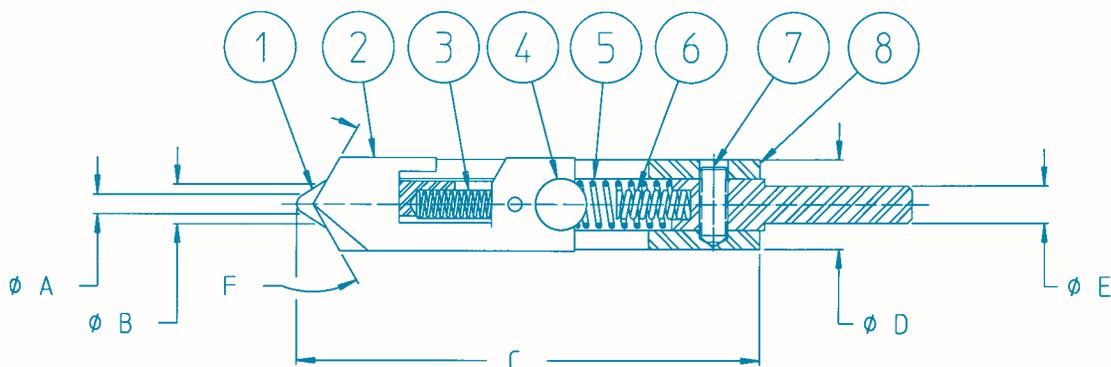
Standard tool specifications

Ellipti-Bur®

TOOL NO.	OPERATING RANGE				"C"		"D"		"E"		"F" DEGREE
	"A" (min.)		"B" (max.)		LENGTH		BODY		SHANK		
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	
EL-5	.156	3.96	.312	7.93	3.125	79.37	.625	15.87	.250	6.35	120°
*EL-5XT	.156	3.96	.312	7.93	3.125	79.37	.625	15.87	.250	6.35	120°
EL-8	.250	6.35	.500	12.7	3.250	82.55	.750	19.05	.250	6.35	120°
EL-16	.375	9.52	1.000	25.4	4.750	120.65	1.000	25.4	.500	12.7	120°

*Blades for the EL-5XT are made from a premium grade high speed steel and recommended for applications where longer tool life is desired, such as when coolant is unavailable.

Note: Operating range is determined by pilot diameter, not by cutter width.



- 1) Pilot
- 2) Blade
- 3) Blade Spring
- 4) Ball
- 5) Spring
- 6) Shank-Spring Assembly
- 7) Set Screw
- 8) Body



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