

Shefcut[®] operating requirements

Coolant

Coolant usage and selection is a critically important factor in maximizing Shefcut tool performance. As a general rule, Shefcut tools should **not** be run dry. A flood of clean coolant should be directed along the blade for lubrication and clearing of chips (swarf). (NOTE: Special Shefcut dry-cutting tools, and tools for spray-mist applications, are designed and built to order. Contact Cogdill to discuss your application.)

We strongly recommend using a coolant with good lubricity, especially when machining nonferrous materials.

Refer to the Coolant Selection and Coolant Flow Rate charts on this page for guidance in selecting the appropriate coolant for your material type.

Internal coolant is available for both through-bore and blind-bore applications (see “Internal Coolant Options,” above). Internal coolant is recommended where the following conditions exist:

1. When machining blind bores where the depth of the bore is more than twice the diameter.
2. Where guide bushings or fixtures are used, or in applications where chip clearance problems are likely to occur.
3. When machining at high cutting speeds.
4. When machining long through-bores.

Internal coolant options



For **through-hole** tools with internal coolant, the coolant flows through the center of the tool and exits above the blade and pads, flushing chips out of the bore ahead of the tool.



For **blind-bore** tools with internal coolant, the coolant exits at the end of the cutting head, flushing the chips back and out of the entrance of the blind bore.

COOLANT SELECTION	
MATERIAL TYPE	COOLANT RECOMMENDATION
Steel	Soluble 12%
Nickel chrome steel	Soluble 12%
Stainless steel	Soluble 12-14%
Cast iron	Soluble/Synthetic
Aluminum	Soluble 12-14%
Zinc alloys	Soluble 12%
Copper	Soluble 10-12%
Brass	Soluble 10-12%

INTERNAL COOLANT FLOW RATE					
REAMER DIAMETER		PRESSURE		VOLUME	
mm	In.	bar	psi	Liters/min	Gal/min
6-20	.236-.787	6-20	87-290	6-20	1.5-5.3
>20	>.787	3-10	44-145	20-100	5.3-26.4

Machining allowance

The bore size and finish prior to reaming must allow sufficient depth of cut for the reamer to remove all tool marks from the pre-machined hole. Refer to the charts on pages 26–29 for recommended machining allowances when using standard cutting leads.

NOTE: A maximum allowance of 0.15mm (.006 in.) on diameter is recommended when machining stainless steel.

Alignment

Shefcut reaming or boring requires accurate alignment of machine spindle to workpiece. Misalignment will reduce tool performance and bore quality, and may result in blade damage.

In Shefcut reaming applications, a floating holder may correct misalignment problems. Precision boring operations performed with a Shefcut tool may require the use of an adjustable holder (see “Tool Holders,” page 30).

Power feed

Power feed is essential for consistent cutting pressure on the Shefcut tool. Hand-feeding the tool could result in poor tool performance and probable tool damage.

Lathe applications

Position the blade in the “up” position when using a Shefcut reamer on a lathe or in any application where the tool is held stationary in the horizontal position while the workpiece rotates. Use of a floating holder will correct any turret indexing errors.