

Shefcut® blade options & cutting lead geometries



Carbide blades are available from stock, with or without TiN coating.

Shefcut® blades are manufactured from polished micrograin carbide, carefully selected for maximum life and performance. The blade is precision ground to exacting tolerances and has a very sharp, high-quality edge. An array of standard cutting lead geometries and rake angles are available to suit various material types and application requirements.

Carbide blades are available from stock, with or without TiN coating. Blades with other coatings are available upon request for better performance on certain materials.

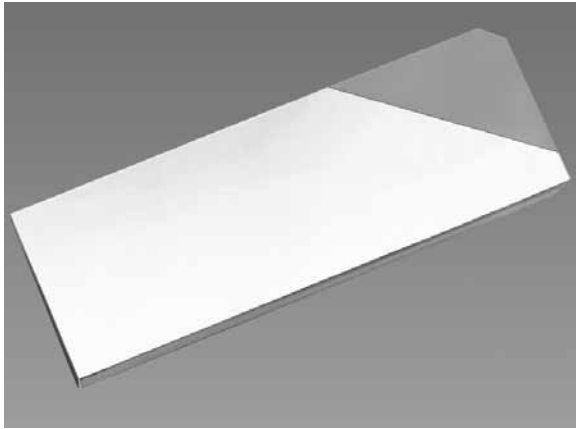
Blades tipped with polycrystalline diamond (PCD) are of a standard design and made to order for top performance, enhanced productivity, and extended blade life on certain materials (e.g., high-silicon aluminum, composites, or abrasive materials) and for certain machining conditions (high cutting speeds or very long production runs).

Most standard blades are double-edged for extended blade life (see “Blade Replacement and Adjustment,” page 36). PCD-tipped blades are single-edged.

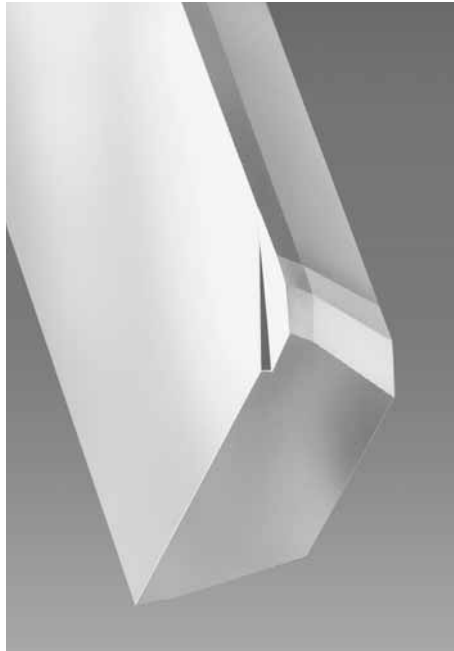
Blade options

Refer to “Cutting Lead Geometries” on pages 26–29, and to the Machining Guide on pages 40–41, for general guidelines for selecting specific lead geometries and rake angles to suit the application. The charts are intended as a starting point; variables such as material type, speed and feed, cycle time, machining allowance, and finish requirement will influence the selection of the appropriate lead and rake.

NOTE: In order to avoid tool damage, the blade lead should match the lead that is ground on the guide pads and marked on the tool.



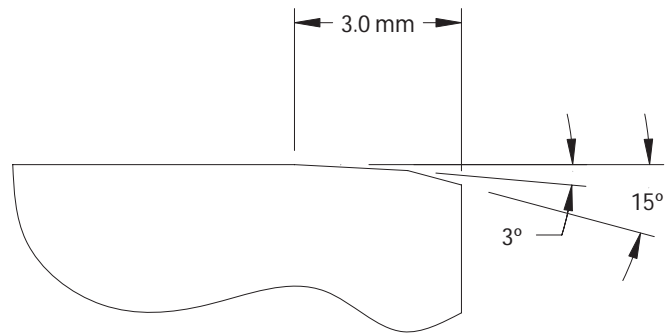
PCD-tipped blades are made to order for top performance, enhanced productivity, and extended blade life on certain materials.



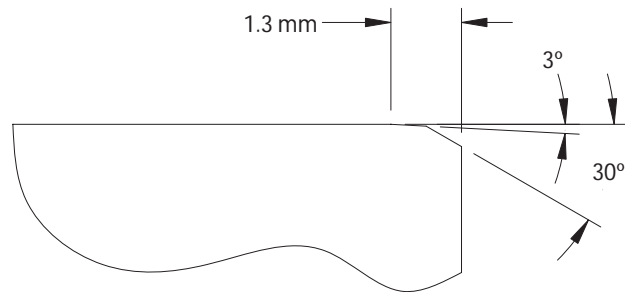
Blades with an optional chipbreaker are offered upon request for cutting materials that generate long, stringy chips.

Cutting lead geometries

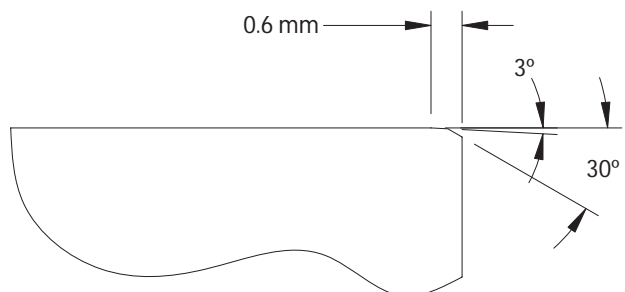
cutting lead C3.0



cutting lead C1.3



cutting lead C0.6



Cutting lead geometries

METRIC UNITS

STANDARD CUTTING LEAD GEOMETRY	SUGGESTED APPLICATIONS	FINISHES ATTAINABLE IN MICROMETERS (RA)	RECOMMENDED MACHINING ALLOWANCE ON DIAMETER		
			REAMER DIAMETER	RECOMMENDED RANGE	MAXIMUM*
C3.0	Through-bores- for improved surface finish using lower speeds and light cuts in cast iron, stainless steel, and nickel chrome steels	0.15 to 0.6	7.899 - 14.478	0.15 - 0.30	0.40
			14.503 and up	0.20 - 0.40	0.70
C1.3	Universal lead for through or blind bores- for higher cutting speeds, reaming into cut-off zones, aluminum and softer or nonferrous materials, thin-wall applications	0.2 to 0.9 (0.1 possible in aluminum)	7.899 - 14.478	0.15 - 0.30	0.50
			14.503 and up	0.20 - 0.40	0.80
C0.6	Blind bores- where C1.3 is too long	0.4 to 1.2 (0.1 possible in aluminum)	7.899 - 14.478	0.15 - 0.30	0.30
			14.503 and up	0.15 - 0.30	0.40

* Maximum should not be exceeded. Maximum for stainless steel is 0.15mm on diameter.

INCH UNITS

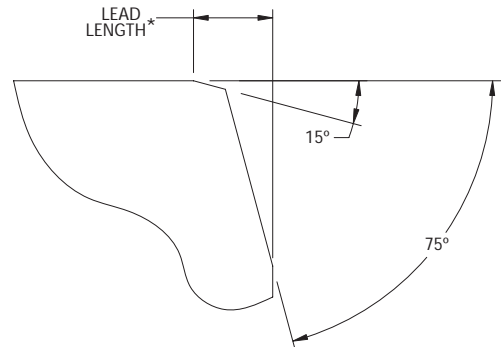
STANDARD CUTTING LEAD GEOMETRY	SUGGESTED APPLICATIONS	FINISHES ATTAINABLE IN MICROINCHES (RA)	RECOMMENDED MACHINING ALLOWANCE ON DIAMETER		
			REAMER DIAMETER	RECOMMENDED RANGE	MAXIMUM*
C3.0	Through-bores- for improved surface finish using lower speeds and light cuts in cast iron, stainless steel, and nickel chrome steels	6 to 24	.311 - .570	.006 - .012	.016
			.571 and up	.008 - .016	.028
C1.3	Universal lead for through or blind bores- for higher cutting speeds, reaming into cut-off zones, aluminum and softer or nonferrous materials, thin-wall applications	8 to 36 (4 possible in aluminum)	.311 - .570	.006 - .012	.020
			.571 and up	.008 - .016	.031
C0.6	Blind bores- where C1.3 is too long	16 to 48 (4 possible in aluminum)	.311 - .570	.006 - .012	.012
			.571 and up	.006 - .012	.016

* Maximum should not be exceeded. Maximum for stainless steel is .006 in. on diameter.

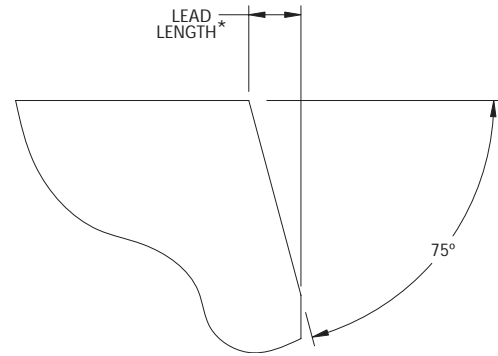
Cutting lead geometries

(greater stock removal)

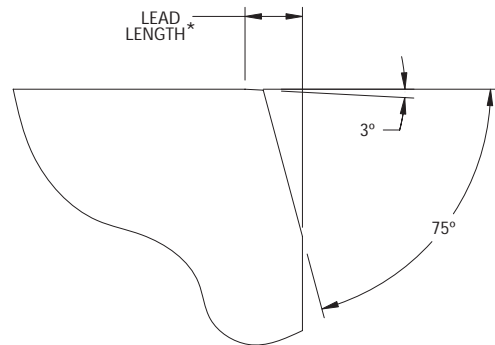
cutting lead GR



cutting lead GD



cutting lead GDR



**Length of cutting lead depends on size of blade as shown in chart below.*

CUTTING LEAD	LENGTH OF CUTTING LEAD									
	G0		G19		G29		G39		G49	
	mm	in	mm	in	mm	in	mm	in	mm	in.
GR	1.5	.059	1.7	.067	2.0	.078	2.2	.086	2.5	.098
GD	0.5	.020	0.7	.028	1.0	.039	1.2	.047	1.5	.059
GDR	1.0	.039	1.0	.039	1.3	.051	1.5	.059	1.6	.063

Cutting lead geometries

(greater stock removal)

METRIC UNITS

STANDARD CUTTING LEAD GEOMETRY	SUGGESTED APPLICATIONS	FINISHES ATTAINABLE IN MICROMETERS (RA)	RECOMMENDED MACHINING ALLOWANCE ON DIAMETER		
			REAMER DIAMETER	RECOMMENDED RANGE	MAXIMUM*
GR	For short chip materials (e.g., cast iron)	0.3 to 1.5	7.925 - 9.499	0.40 - 1.5	2.5
			9.500 - 14.492	0.50 - 2.5	4.0
			14.493 - 17.792	0.50 - 4.0	6.0
			17.793 - 22.491	0.50 - 5.0	7.0
			22.492 and up	0.50 - 6.0	8.0
GD	For machining aluminum at high speeds	0.3 to 1.5 (0.15 possible in aluminum)	7.925 - 9.499	0.40 - 1.5	2.5
			9.500 - 14.492	0.50 - 2.5	4.0
			14.493 - 17.792	0.50 - 4.0	6.0
			17.793 - 22.491	0.50 - 5.0	7.0
			22.492 and up	0.50 - 6.0	8.0
GDR	For producing high quality surface finishes in most materials	0.3 to 1.0 (0.15 possible in aluminum)	7.925 - 9.499	0.40 - 1.5	2.5
			9.500 - 14.492	0.50 - 2.5	4.0
			14.493 - 17.792	0.50 - 4.0	6.0
			17.793 - 22.491	0.50 - 5.0	7.0
			22.492 and up	0.50 - 6.0	8.0

* Maximum should not be exceeded. Not recommended for steels.

INCH UNITS

STANDARD CUTTING LEAD GEOMETRY	SUGGESTED APPLICATIONS	FINISHES ATTAINABLE IN MICROINCHES (RA)	RECOMMENDED MACHINING ALLOWANCE ON DIAMETER		
			REAMER DIAMETER	RECOMMENDED RANGE	MAXIMUM*
GR	For short chip materials (e.g., cast iron)	12 to 60	.312 - .373	.016 - .059	.098
			.374 - .570	.020 - .098	.157
			.571 - .700	.020 - .157	.236
			.701 - .885	.020 - .197	.276
			.886 and up	.020 - .236	.315
GD	For machining aluminum at high speeds	12 to 60 (6 possible in aluminum)	.312 - .373	.016 - .059	.098
			.374 - .570	.020 - .098	.157
			.571 - .700	.020 - .157	.236
			.701 - .885	.020 - .197	.276
			.886 and up	.020 - .236	.315
GDR	For producing high quality surface finishes in most materials	12 to 40 (6 possible in aluminum)	.312 - .373	.016 - .059	.098
			.374 - .570	.020 - .098	.157
			.571 - .700	.020 - .157	.236
			.701 - .885	.020 - .197	.276
			.886 and up	.020 - .236	.315

* Maximum should not be exceeded. Not recommended for steels.

NOTE: Special chamfer and radius leads are available upon request and designed to suit the application. Please complete the Application Data Sheet on page 43 and submit it along with a part print or detailed sketch.