

INDUSTRIAL ROUTING

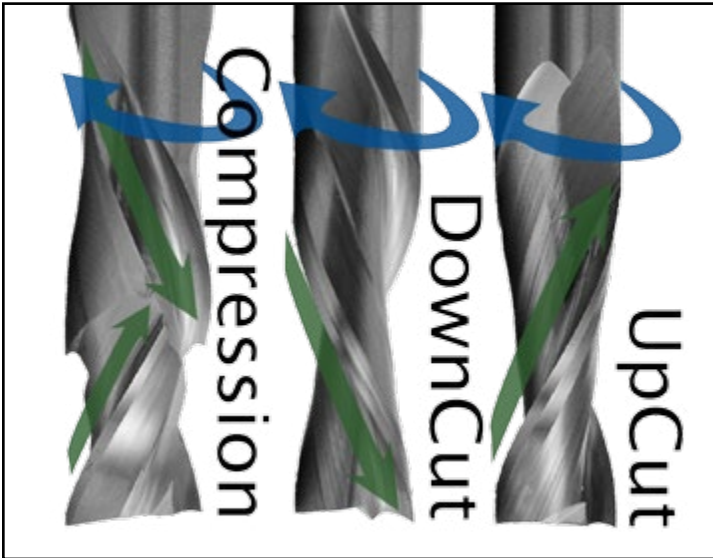


ROYCE//AYR
CUTTING TOOLS

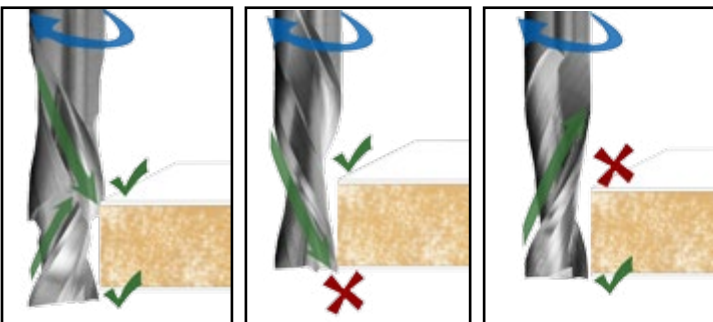
Technical Information

Chip-flow Explanation

UpCut, DownCut, Compression. What are the pros and cons of each of these chip flow styles? Below highlights some of the key considerations that should be taken into account.



When selecting what style tool is best two factors must be considered. First, is chipping on the edge of the material a concern? If you are machining brittle laminate that needs to have a chip free edge the below illustrations must be followed. Secondly, are moving parts an issue while machining? Upcut tooling provides superior chip removal, which means longer life and faster feed rates, however it will have the tendency to pull the parts towards the spindle when cutting, this can be problematic for smaller inadequately held parts.



Material Selection

What tool works well on what material? We know that selecting tools can be a daunting task. Our material selection system is designed to make this task less daunting.

	Best	Good	Acceptable	SFM
Hardwoods	Hw	Hw	Hw	1000-1800
Softwoods	Sw	Sw	Sw	1000-1800
Particle Board With Laminate	Pb	Pb	Pb	1000-1800
Fiberboard With Laminate	Fb	Fb	Fb	1000-1800
Plywood	Pl	Pl	Pl	1000-1800
Hard Plastic	Hp	Hp	Hp	1000-1800
Soft Plastic	Sp	Sp	Sp	1000-1800
Fibre Re-enforced Plastic Composites	Rp	Rp	Rp	1000-1800
Aluminium	Al	Al	Al	1000-1800

Calculations

$$\text{RPM} = (3.82 \times \text{SFM}) / \text{Diameter(in)}$$

$$\text{SFM} = 3.14 \times \text{Diameter(in)} \times (\text{RPM}/12)$$

$$\text{F-Rate (IPM)} = \text{Chip-load(in)} \times \# \text{ Wings} \times \text{RPM}$$

$$\text{F-Rate (mm/Min)} = \text{Chip-load(mm)} \times \# \text{ wings} \times \text{RPM}$$

$$\text{Chipload (in)} = \text{F-Rate (IPM)} / (\text{RPM} \times \# \text{ wings})$$

$$\text{Chipload (mm/min)} = \text{F-Rate(mm/m)} / (\text{RPM} \times \# \text{ wings})$$

2 Flute DownCut Spiral

PART #	DIA	CEL	SHK	OAL
R57-22200	1/8	3/4	1/4	2-1/2
R57-22201	1/8	1/2	1/4	2
R57-22212	1/4	7/8	1/4	2-1/2
R57-22214	1/4	1	1/4	2-1/2
R57-22216	1/4	1-1/8	1/4	3
R57-32222	3/8	1	3/8	3
R57-32225	3/8	1-1/4	3/8	3
R57-32226 LH	3/8	1-1/4	3/8	3
R57-32229	1/2	1-1/8	1/2	3
R57-32231	1/2	1-1/4	1/2	3-1/2
R57-32232	1/2	1-5/8	1/2	3-1/2
R57-32235	1/2	2-1/8	1/2	4



Pb Sw Hw Fb **Pl** **Al** **Hp**

Sp

See Material Guide p2

General purpose router for solid wood, wood composites and some plastics. Downcut design gives a clean edge when cutting dados on laminated material.

2 Flute UpCut Spiral

PART #	DIA	CEL	SHK	OAL
R52-22800	1/8	3/4	1/4	2
R52-22801	1/8	1/2	1/4	2
R52-22810	1/4	7/8	1/4	2-1/2
R52-22814	1/4	1-1/8	1/4	3
R52-32820	3/8	1	3/8	3
R52-32823	3/8	1-1/4	3/8	3
R52-32829	1/2	1-1/4	1/2	3-1/2
R52-32830	1/2	1-5/8	1/2	3-1/2
R52-32832	1/2	2-1/2	1/2	5
R52-32833	1/2	2-1/8	1/2	4



Sw Hw Fb **Pl** **Al** **Hp** **Sp**

See Material Guide p2

General purpose router for solid wood, wood composites and some plastics. Upcut spiral gives good chip evacuation.

3 Flute DownCut Low Helix Ripper

PART #	DIA	CEL	SHK	OAL
R60-01401	3/8	1-1/8	3/8	3-1/2
R60-01402	1/2	1-1/8	1/2	3-1/2
R60-01404	1/2	1-5/8	1/2	4
R60-01405	5/8	1-5/8	5/8	4
R60-01406	5/8	2-1/8	5/8	5
R60-01407	3/4	1-5/8	3/4	4
R60-01408	3/4	2-1/8	3/4	5



Hw Sw **Pl** **Fb**

See Material Guide p2

Serrated tooth design to eliminate tear out in difficult wood grains. Tooth design greatly reduces horsepower required to cut. Downcut to assist material hold down.



Hw Sw PI Fb

See Material Guide p2

Serrated tooth design to eliminate tear out in difficult wood grains. Tooth design greatly reduces horsepower required to cut. Downcut to assist material hold down.



Hw Sw PI Fb

See Material Guide p2

Serrated tooth design to eliminate tear out in difficult wood grains. Tooth design greatly reduces horsepower required to cut. Upcut to assist with chip evacuation.



Hw Sw PI Fb

See Material Guide p2

Serrated tooth design to eliminate tear out in difficult wood grains. Tooth design greatly reduces horsepower required to cut. Upcut to assist with chip evacuation.

3 Flute DownCut High Helix Ripper

PART #	DIA	CEL	SHK	OAL
R60-01501	3/8	1-1/8	3/8	3-1/2
R60-01503	1/2	1-1/8	1/2	3-1/2
R60-01504	1/2	1-5/8	1/2	4
R60-01505	5/8	1-5/8	5/8	4
R60-01506	5/8	2-1/8	5/8	5
R60-01509	3/4	1-5/8	3/4	4
R60-01510	3/4	2-1/8	3/4	5

3 Flute UpCut Low Helix Ripper

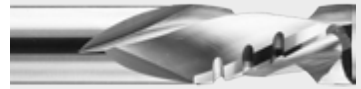
PART #	DIA	CEL	SHK	OAL
R60-01601	3/8	1-1/8	3/8	3-1/2
R60-01602	1/2	1-1/8	1/2	3-1/2
R60-01603	1/2	1-5/8	1/2	4
R60-01604	5/8	1-5/8	5/8	4
R60-01605	5/8	2-1/8	5/8	5
R60-01606	3/4	1-5/8	3/4	4
R60-01607	3/4	2-1/8	3/4	5

3 Flute UpCut High Helix Ripper

PART #	DIA	CEL	SHK	OAL
R60-01701	3/8	1-1/8	3/8	3-1/2
R60-01703	1/2	1-1/8	1/2	3-1/2
R60-01704	1/2	1-5/8	1/2	4
R60-01711	1/2	2	1/2	4
R60-01705	5/8	1-5/8	5/8	4
R60-01706	5/8	2-1/2	5/8	5
R60-01709	3/4	1-5/8	3/4	4
R60-01710	3/4	2-1/8	3/4	5

2 Flute Compression Chipbreaker

PART #	DIA	CEL	UPCUT	SHK	OAL
R60-11001	3/8	7/8	.385"	3/8	3
R60-11002	3/8	1-1/8	.495"	3/8	3
R60-11014	1/2	7/8	.400"	1/2	3
R60-11003	1/2	1-1/8	.440"	1/2	3
R60-11004	1/2	1-1/8	.495"	1/2	3
R60-11005	1/2	1-3/8	.605"	1/2	3-1/2
R60-11006	1/2	1-5/8	.715"	1/2	4
R60-11007	5/8	2-1/4	.990"	5/8	5
R60-11008	3/4	1-7/8	.825"	3/4	4



PI Fb Pb Hw Sw

See Material Guide p2

Laminated or veneered wood and wood composites when top and bottom finish is critical. Upward and downward shearing action prevents chipping of laminates. Chipbreakers help prevent furring of core on plywood.

2 Flute Compression

PART #	DIA	CEL	UPCUT	SHK	OAL
R60-11409	1/4	7/8	.500"	1/4	2-1/2
R60-11401	3/8	7/8	.500"	3/8	3
R60-11402	1/2	7/8	.500"	1/2	3
R60-11403	1/2	1-1/8	.400"	1/2	3
R60-11404	1/2	1-3/8	.625"	1/2	3-1/2
R60-11405	1/2	1-5/8	.750"	1/2	4
R60-11410	1/2	2-1/2	1.125"	1/2	5
R60-11406	5/8	2-1/4	1.125"	5/8	5
R60-11407	3/4	1-7/8	.750"	3/4	4
R60-11408	3/4	2-1/2	1.25"	3/4	5



Pb Fb PI Hw Sw

See Material Guide p2

Laminated or veneered wood and wood composites when top and bottom finish is critical. Upward and downward shearing action prevents chipping of laminates.

2 Flute Mortise Compression

PART #	DIA	CEL	UPCUT	SHK	OAL
R60-12001	1/4	7/8	.200"	1/4	2-1/2
R60-12002	3/8	7/8	.210"	3/8	3
R60-12012	3/8	1-1/8	.188"	3/8	3
R60-12003	1/2	7/8	.230"	1/2	3
R60-12007	1/2	7/8	.230"	1/2	2-1/2
R60-12004	1/2	1-1/8	.230"	1/2	3
R60-12004-3.5	1/2	1-3/8	.250"	1/2	3-1/2



Pb Fb PI Hw Sw

See Material Guide p2

Laminated or veneered wood and wood composites when top and bottom finish is critical. Upward and downward shearing action prevents chipping of laminates. Short upcut allows chip free dados to be routed.



Pb Fb Pl Hw Sw

See Material Guide p2

Laminated or veneered wood and wood composites when top and bottom finish is critical. Short Upcut allows chip free dados to be routed.

3 Flute Compression

PART#	DIA	CEL	UPCUT	SHK	OAL
R60-12101	3/8	7/8	.215"	3/8	3
R60-11501	3/8	1-1/8	.375"	3/8	3
R60-12102	1/2	7/8	.230"	1/2	3
R60-11502	1/2	1-1/8	.490"	1/2	3
R60-12103	1/2	1-3/8	.290"	1/2	3-1/2



Hw Hp Sw Sp Rp

See Material Guide p2

For routing plastics, composites, as well as finish passes on solid wood.

3 Flute DownCut Low Helix Finisher

PART #	DIA	CEL	SHK	OAL
R60-22301	1/4	3/8	1/4	3
R60-22302	1/4	7/8	1/4	3
R60-22303	3/8	5/8	3/8	3
R60-22310	3/8	1-1/8	3/8	3
R60-22307	1/2	2-1/8	1/2	4-1/2
R60-22311	1/2	1-1/8	1/2	3-1/2
R60-22312	1/2	1-5/8	1/2	4
R60-22313	3/4	1-5/8	3/4	4
R60-22309	3/4	2-1/8	3/4	5



Hw Hp Sw Sp Rp

See Material Guide p2

For routing plastics, composites, as well as finish passes on solid wood.

3 Flute UpCut Low Helix Finisher

PART #	DIA	CEL	SHK	OAL
R60-22501	1/4	3/8	1/4	3
R60-22502	1/4	7/8	1/4	3
R60-22503	3/8	5/8	3/8	3
R60-22504	3/8	1-1/8	3/8	3
R60-22507	1/2	1-1/8	1/2	3-1/2
R60-22509	1/2	1-5/8	1/2	4
R60-22510	1/2	2-1/8	1/2	4-1/2
R60-22511	3/4	1-5/8	3/4	4
R60-22512	3/4	2-1/8	3/4	5



Hw Sw Pl Pb Fb

See Material Guide p2

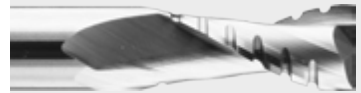
General purpose for solid wood, wood composites. Downcut design to give a clean edge when cutting dados on laminated material. Chip breakers help with furring and tear out.

2 Flute DownCut Chipbreaker Finisher

PART #	DIA	CEL	SHK	OAL
R60-31001	3/8	1-1/8	3/8	3
R60-31002	1/2	1-1/8	1/2	3
R60-31003	1/2	1-5/8	1/2	3-1/2
R60-31004	1/2	1-7/8	1/2	4
R60-31005	1/2	2-1/8	1/2	4
R60-31006	5/8	2-1/8	5/8	4
R60-31007	3/4	2-1/8	3/4	4

2 Flute UpCut Chipbreaker Finisher

PART #	DIA	CEL	SHK	OAL
R60-31201	3/8	1-1/8	3/8	3
R60-31202	1/2	1-1/8	1/2	3
R60-31203	1/2	1-5/8	1/2	3-1/2
R60-31205	1/2	1-7/8	1/2	3-1/2
R60-31204	1/2	2	1/2	4
R60-31206	5/8	2-1/8	5/8	4-1/2
R60-31207	3/4	2-1/8	3/4	4-1/2



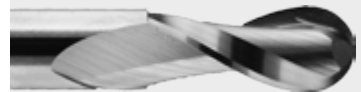
Hw Sw Pl Pb Fb

See Material Guide p2

General purpose for solid wood and wood composites. Upcut spiral gives good chip evacuation. Chip breakers help with furring and tear out.

2 Flute UpCut Ballnose

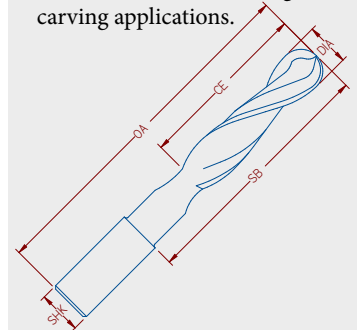
PART #	DIA	CEL	SHK	SB	OAL
R52-23401	1/8	3/4	1/4	N/A	2-1/2
R52-23402	1/8	1/2	1/4	N/A	2-1/2
R52-23403	3/16	3/4	1/4	N/A	2
R52-23404	3/16	3/4	1/4	N/A	3
R52-23405	1/4	7/8	1/4	N/A	2-1/2
R52-23406	1/4	1	1/4	N/A	4
R52-33407	3/8	1-1/8	3/8	N/A	3
R52-33408	3/8	1-1/4	3/8	N/A	4
R52-33409	1/2	1-1/8	1/2	N/A	4
R52-33411	1/2	1-1/2	1/2	N/A	5
R52-33413	5/8	2-1/2	5/8	N/A	5
R52-33417	3/4	3-1/2	3/4	4-1/4"	6



Sw Hw Fb Pl Al Hp Sp

See Material Guide p2

General purpose for solid wood and wood composites. Upcut spiral gives good chip evacuation. Ball nose design for carving applications.



1 Flute UpCut "O" Style Aluminum

PART #	DIA	CEL	SHK	OAL
R63-60002	1/16	1/4	1/8	1-1/2
R63-60006	1/8	1/4	1/4	2
R63-60010	1/8	1/2	1/4	2
R63-60014	3/16	3/8	1/4	2
R63-60018	3/16	5/8	1/4	2
R63-60020	1/4	3/8	1/4	2
R63-60022	1/4	3/4	1/4	2-1/2
R63-60024	1/4	1-1/4	1/4	3
R63-60025	3/8	3/4	3/8	3
R63-60026	3/8	1-1/8	3/8	3
R63-60031	1/2	1-1/8	1/2	3-1/2
R63-60032	1/2	1-3/8	1/2	3-1/2



Al Hp

See Material Guide p2

Designed for routing aluminum sheet and solid material on CNC machines. Upcut design for good chip removal.



See Material Guide p2

Designed for routing aluminium sheet and solid material on CNC machines. Downcut design to assist material hold down.



See Material Guide p2

Designed for routing soft plastics. Upcut design gives good chip removal.



See Material Guide p2

Designed for routing hard plastics. Upcut design gives good chip removal.

1 Flute DownCut "O" Style Aluminum

PART #	DIA	CEL	SHK	OAL
R62-60002	1/16	1/4	1/8	1-1/2
R62-60006	1/8	1/4	1/4	2
R62-60010	1/8	1/2	1/4	2
R62-60014	3/16	3/8	1/4	2
R62-60020	1/4	1-1/8	1/4	2-1/2
R62-60022	1/4	3/4	1/4	2-1/2
R62-60024	1/4	1-1/4	1/4	3
R62-60025	3/8	3/4	3/8	3
R62-60031	1/2	1-1/8	1/2	3-1/2

1 Flute UpCut "O" Style Soft Plastic

PART #	DIA	CEL	SHK	OAL
R63-71701	1/16	1/4	1/8	2
R63-71702	1/16	1/4	1/4	2
R63-71703	1/8	1/4	1/8	2
R63-71704	1/8	1/4	1/4	2
R63-71705	1/8	1/2	1/8	2
R63-71706	1/8	1/2	1/4	2
R63-71708	3/16	3/8	3/16	2
R63-71709	3/16	3/8	1/4	2
R63-71710	3/16	5/8	1/4	2
R63-71715	1/4	3/8	1/4	2
R63-71712	1/4	3/4	1/4	2-1/2
R63-71713	1/4	1-1/4	1/4	3
R63-71714	3/8	1-1/8	3/8	3

1 Flute UpCut "O" Style Hard Plastic

PART #	DIA	CEL	SHK	OAL
R63-71609	1/16	1/4	1/8	2
R63-71601	1/16	1/4	1/4	2
R63-71610	1/8	1/4	1/8	2
R63-71602	1/8	1/4	1/4	2
R63-71603	1/8	1/2	1/4	2
R63-71604	3/16	3/8	1/4	2
R63-71605	3/16	5/8	1/4	2
R63-71614	1/4	3/8	1/4	2
R63-71606	1/4	3/4	1/4	2-1/2
R63-71607	1/4	1-1/4	1/4	3
R63-71608	3/8	1-1/8	3/8	3

1 Flute DownCut “O” Style Soft Plastic

PART #	DIA	CEL	SHK	OAL
R62-71501	1/8	1/2	1/8	2
R62-71502	1/8	1/2	1/4	2
R62-71503	3/16	5/8	3/16	2
R62-71504	3/16	5/8	1/4	2
R62-71505	1/4	3/4	1/4	2-1/2
R62-71506	1/4	1-1/4	1/4	3
R62-71507	3/8	1-1/8	3/8	3



Sp Hp Hw Sw Al

See Material Guide p2

Designed for routing soft plastics. Downcut design to assist material hold down.

1 Flute DownCut “O” Style Hard Plastic

PART #	DIA	CEL	SHK	OAL
R62-71408	1/8	1/2	1/8	2
R62-71401	1/8	1/2	1/4	2
R62-71409	3/16	5/8	3/16	2
R62-71403	3/16	5/8	1/4	2
R62-71405	1/4	3/4	1/4	2-1/2
R62-71406	1/4	1-1/4	1/4	3
R62-71407	3/8	1-1/8	3/8	3



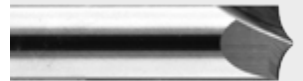
Hp Al Hw Sw

See Material Guide p2

Designed for routing hard plastics. Downcut design to assist material hold down.

2 Flute Beading Tools

PART #	DIA	r	b	SHK	OAL
R68-02001	3/8	1/16	1mm (.039")	3/8	2-1/2
R68-02002	3/8	1/8	1mm (.039")	3/8	2-1/2
R68-02003	1/2	3/16	1.5mm (.059")	1/2	3
R68-02004	1/2	1/4	1.5mm (.059")	1/2	3



Fb Hp Sp Hw Sw

See Material Guide p2



For beading profiles in MDF, Solid Wood, and plastics. 10° flares provide line free overlaps in MDF doors.

3 Flute UpCut Phenolic Spiral

PART #	DIA	CEL	SHK	OAL
R72-10004	3/8	7/8	3/8	3
R72-10007	1/2	1-1/4	1/2	3-1/2
R72-10010	1/2	2-1/8	1/2	4



Rp Hp

See Material Guide p2

Designed for routing phenolic and other fiber re-enforced plastics, unique style chip-breakers help eliminate harmonics in routing.



Rp Hp

See Material Guide p2

Designed for routing phenolic and other fiber re-enforced plastics, unique style chip-breakers help eliminate harmonics in routing.



Rp Fb Hw

See Material Guide p2

PCD cutting tool provides excellent wear resistance in abrasive materials. Solid carbide body unless indicated.



Rp Hw Fb

See Material Guide p2

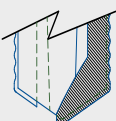
PCD cutting tool provides excellent wear resistance in abrasive materials. Serrated cutting edge cuts more freely and reduces delamination. Solid carbide body unless indicated.



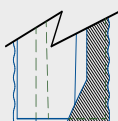
Rp Fb Hp Hw

See Material Guide p2

Serrated tooth design helps cleanly shear glass or carbon fibers in composites. Solid carbide body unless indicated.



Drill Point



End Mill

3 Flute DownCut Phenolic Spiral

PART #	DIA	CEL	SHK	OAL
R72-20004	3/8	7/8	3/8	3
R72-20007	1/2	1-1/4	1/2	3-1/2
R72-20010	1/2	2-1/8	1/2	4

2 Flute PCD Straight

PART #	DIA	CEL	SHK	OAL
R100-003	1/4	3/4	1/4	2-1/2
R100-004	1/4	3/4	1/4	3
R100-006	3/8	7/8	3/8	3
R100-007	3/8	1-1/8	3/8	3
R100-008	1/2	5/8	1/2	2-1/4
R100-009	1/2	1	1/2	3
R100-010	1/2	1-3/8	1/2	3-1/2
R100-013 •	5/8	1-5/8	5/8	4
R100-019	3/4	3/4	3/4	3-1/2

• Steel Body

2 Flute PCD Serrated Tooth

PART #	DIA	CEL	SHK	OAL
R101-004	1/4	3/4	1/4	3
R101-007	3/8	1-1/8	3/8	3
R101-010	1/2	1-3/8	1/2	3-1/2
R101-013 •	5/8	1-5/8	5/8	4

• Steel Body

3 Flute PCD Reinforced Plastic

PART #	DIA	CEL	SHK	OAL	END
R103-004	3/8	1-1/8	3/8	3	Drill
R103-007	1/2	1-1/8	1/2	3	Drill
R103-008	1/2	1-3/8	1/2	3-7/8	Drill
R103-010	1/2	1-5/8	1/2	3-1/2	Drill
R103-013 •	5/8	1-7/8	5/8	4	Drill
R103-004EM	3/8	1-1/8	3/8	3	End Mill
R103-007EM	1/2	1-1/8	1/2	3	End Mill
R103-008EM	1/2	1-1/2	1/2	3-7/8	End Mill
R103-010EM	1/2	1-5/8	1/2	3-1/2	End Mill
R103-013EM •	5/8	1-7/8	5/8	4	End Mill

• Steel Body

3 Flute PCD Rougher Finisher

PART #	DIA	CEL	SHK	OAL
R104-004	3/8	5/8	3/8	3
R104-007	3/8	7/8	3/8	3
R104-010	1/2	5/8	1/2	3
R104-011	1/2	7/8	1/2	3
R104-013	1/2	1-1/4	1/2	3-1/2
R104-016 •	3/4	1-3/8	3/4	4

•Steel Body



Rp Fb Hw

See Material Guide p2

Serrated tooth design helps cleanly shear glass or carbon fibers in composites. Finishing wing provides smooth finish. Solid carbide body unless indicated.

2 Flute PCD Ballnose

PART #	DIA	CEL	SHK	OAL
R109-004	1/4	3/8	1/4	3
R109-007	3/8	1/2	3/8	3
R109-010	1/2	5/8	1/2	3
R109-013 •	5/8	7/8	5/8	3
R109-017 •	3/4	1	3/4	4

•Steel Body



Rp Fb Hw

See Material Guide p2

For adding structural radii in pocketing applications. PCD edge provides excellent wear resistance in abrasive material. Solid carbide body unless indicated.

3 Flute PCD Lock Mortise

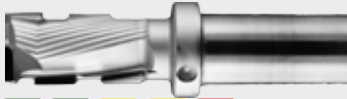
PART #	DIA	CEL	LOF	SHK	OAL
R230-004	5/8	7/8	4-7/8	5/8	7
R230-007	3/4	7/8	4-7/8	3/4	7
R230-104	16mm	20mm	120mm	16mm	175mm



Fb Sw Hw Pl

See Material Guide p2

Designed for mortising side of doors to hold locksets. PCD cutting edge for long life in engineered materials. Solid carbide body.



Fb **PI** **Pb** **Rp** **Hw**

See Material Guide p2

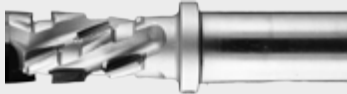
PCD cutting tool provides excellent wear resistance in abrasive materials. Compression style wings help eliminate chipping and delamination.

1 + 1 Wing PCD “ECODIA” Style

PART #	DIA	CEL	UPCUT	SHK	OAL
ECODIA-00*	3/8	7/8	.250"	3/8	2-3/4
ECODIA-01	1/2	1-1/16	.433"	1/2	2-3/4
ECODIA-01.S	1/2	1	.433"	1/2	2-3/4
ECODIA-01.SM	1/2	15/16	.200"	1/2	2-3/4
ECODIA-01L	1/2	1-1/16	.433"	1/2	2-3/4
ECODIA-02	1/2	1-3/8	.433"	1/2	3-3/4
ECODIA-02L	1/2	1-3/8	.433"	1/2	3-3/4
ECODIA-03	5/8	1-1/16	.433"	5/8	2-3/4
ECODIA-04	5/8	1-3/8	.433"	3/4	4
ECODIA-05	3/4	1-1/16	.433"	3/4	3-5/8
ECODIA-06	3/4	1-3/8	.433"	3/4	4
ECODIA-07	3/4	1-3/4	.433"	3/4	4-3/8
ECODIA-08	3/4	1-7/8	.433"	3/4	4-1/2

*Not guaranteed against breakage due to small diameter.

L = left hand



Fb **PI** **Pb** **Rp** **Hw**

See Material Guide p2

PCD cutting tool provides excellent wear resistance in abrasive materials. Compression style wings help eliminate chipping and delamination.

2 + 2 PCD “ECO-SPARK” Style

PART #	DIA	CEL	UPCUT	SHK	OAL
ECO-SPARK-03	5/8	1-1/8	.290"	5/8	3-3/4
ECO-SPARK-04	5/8	1-3/8	.290"	5/8	4
ECO-SPARK-05	3/4	1	.290"	3/4	3-1/2
ECO-SPARK-06	3/4	1-3/8	.290"	3/4	4
ECO-SPARK-07	3/4	1-3/4	.290"	3/4	4-3/8

3 Flute PCD “HIFEED” Style

PART #	DIA	CEL	UPCUT	SHK	OAL
DIA-HIFEED.01	1/2	1	.290"	1/2	3
DIA-HIFEED.03	5/8	1	.290"	3/4	4
DIA-HIFEED.05	3/4	1-1/8	.290"	3/4	3-3/4
DIA-HIFEED.06	3/4	1-1/4	.290	3/4	4-3/8
DIA-HIFEED.07	3/4	1-7/8	.290"	3/4	4-3/8
DIA-HIFEED.08	3/4	2-1/4	.290"	3/4	4-1/2
DIA-HIFEED.09	1	1	.290"	1	3-3/4
DIA-HIFEED.10	1	1-1/4	.290"	1	4-3/4
DIA-HIFEED.11	1	1-7/8	.290"	1	4-3/8



Rp Fb Pb Hw

See Material Guide p2

PCD cutting tool provides excellent wear resistance in abrasive materials. Compression style wings help eliminate chipping and delamination. Complex geometry closely matches 3 wings spiral tools.



“ER” Precision Collets

IMPERIAL

SIZE	ER11	ER16	ER20	ER25	ER32	ER40
1/32"	PRC-310.0031					
1/16"	PRC-310.0063	PRC-320.0063	PRC-330.0063	PRC-340.0063	PRC-350.0063	
1/8"	PRC-310.0125	PRC-320.0125	PRC-330.0125	PRC-340.0125	PRC-350.0125	PRC-375.0125
3/16"	PRC-310.0188	PRC-320.0188	PRC-330.0188	PRC-340.0188	PRC-350.0188	PRC-375.0188
1/4"		PRC-320.0250	PRC-330.0250	PRC-340.0250	PRC-350.0250	PRC-375.0250
5/16"		PRC-320.0313	PRC-330.0313	PRC-340.0313	PRC-350.0313	PRC-375.0313
3/8"		PRC-320.0375	PRC-330.0375	PRC-340.0375	PRC-350.0375	PRC-375.0375
7/16"			PRC-330.0438	PRC-340.0438	PRC-350.0438	PRC-375.0438
1/2"			PRC-330.0500	PRC-340.0500	PRC-350.0500	PRC-375.0500
9/16"				PRC-340.0563	PRC-350.0563	PRC-375.0563
5/8"				PRC-340.0625	PRC-350.0625	PRC-375.0625
3/4"				PRC-340.0750	PRC-350.0750	PRC-375.0750
7/8"						PRC-375.0875
1"						PRC-375.1000

METRIC

SIZE	ER11	ER16	ER20	ER25	ER32	ER40
3mm	PRC-310.M030	PRC-320.M030	PRC-330.M030	PRC-340.M030	PRC-350.M030	
4mm	PRC-310.M040	PRC-320.M040	PRC-330.M040	PRC-340.M040	PRC-350.M040	PRC-375.M040
6mm	PRC-310.M060	PRC-320.M060	PRC-330.M060	PRC-340.M060	PRC-350.M060	PRC-375.M060
8mm		PRC-320.M080	PRC-330.M080	PRC-340.M080	PRC-350.M080	PRC-375.M080
9mm		PRC-320.M090	PRC-330.M090	PRC-340.M090	PRC-350.M090	PRC-375.M090
10mm		PRC-320.M100	PRC-330.M100	PRC-340.M100	PRC-350.M100	PRC-375.M100
12mm			PRC-330.M120	PRC-340.M120	PRC-350.M120	PRC-375.M120
13mm				PRC-340.M130	PRC-350.M130	PRC-375.M130
14mm				PRC-340.M140	PRC-350.M140	PRC-375.M140
16mm					PRC-350.M160	PRC-375.M160
19mm					PRC-350.M190	PRC-375.M190
20mm					PRC-350.M200	PRC-375.M200
25mm						PRC-375.M250

"SYOZ 25" Precision Collets

IMPERIAL

SIZE	PART#
1/8"	PRC-400.0125
3/16"	PRC-400.0188
1/4"	PRC-400.0250
5/16"	PRC-400.0313
3/8"	PRC-400.0375
7/16"	PRC-400.0438
1/2"	PRC-400.0500
9/16"	PRC-400.0563
5/8"	PRC-400.0625
3/4"	PRC-400.0750
7/8"	PRC-400.0875
1"	PRC-400.1000

METRIC

SIZE	PART#
3mm	PRC-400.M030
4mm	PRC-400.M040
6mm	PRC-400.M060
8mm	PRC-400.M080
9mm	PRC-400.M090
10mm	PRC-400.M100
12mm	PRC-400.M120
13mm	PRC-400.M130
14mm	PRC-400.M140
16mm	PRC-400.M160
19mm	PRC-400.M190
20mm	PRC-400.M200
25mm	PRC-400.M250



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