



PRINTED CIRCUIT BOARD **ROUTING SOLUTIONS**



BRILLIANT PRECISION

Manufactured with the finest carbide grades available, Kyocera's product development laboratory continually evaluates new materials from carbide manufacturers around the world. As a result, Kyocera applies the latest developments in material science to the design and manufacture of precision cutting tools.



CONTENTS

Tool Type	Ref. Page	Series	Product Description	Shape (Not Actual Tool Size)	No. of Flutes	Cutting Diameter Range
Routers	4	1300	Premium Edge Routers		2	1.60mm - 2.40mm
	5	2300	Chipbreaker Routers		2	0.0500" - 0.1250" 0.50mm - 3.00mm
	7	2350	Low Fracture Routers		2	0.80mm - 2.40mm
	9	2390	Flash Routers		2	0.0938" - 0.1250"
	10	4100	Cross Cut Routers		2	0.0625" - 0.1250" 0.50mm - 2.60mm

All products are manufactured with a 3.17mm (1/8") shank
See product page for high performance features.

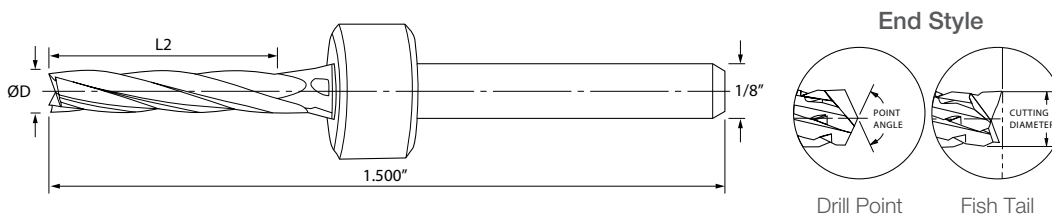
Gold Tab

Premium Edge Routers

Diameter Range
1.60mm ~ 2.40mm



Multiple flute cutter designed for routing printed circuit board gold tab connectors and plated solder features.



STANDARD Flute Length (Metric)

Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
1300.0630.310	●	1.60mm	1.588	7.87	Drill Point
1300.0945.395	●	2.40mm	2.400	10.03	Fish Tail



Part Numbers above include rings set at 0.800" - For Ringless Part Number, replace series "." with "-" (XXX-XXXX.XXXX)
Additional diameters and special ring colors available upon request.

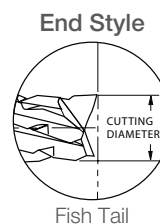
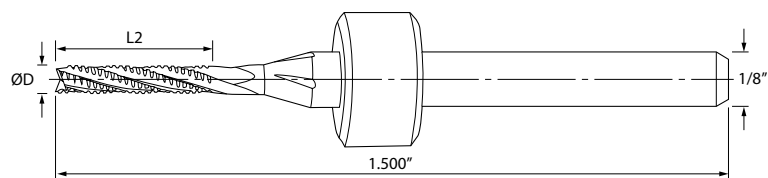


For recommended cutting conditions please visit:
www.kyoceraprecisiontools.com/pcb/speeds-feeds

Chipbreaker

Updraft Fish Tail Routers

Diameter Range
0.0500" ~ 0.1250"
0.80mm ~ 3.00mm



STANDARD Flute Length (Inch)

Part Number	Stock	Router Size	Dimensions (in)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2300.0500.256	●	0.0500"	0.0500	0.2560	Fish Tail
2300.1250.472	●	1/8"	0.1250	0.4720	Fish Tail

STANDARD Flute Length (Metric)

Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2300.0315.197	●	0.80mm	0.800	5.00	Fish Tail
2300.0354.197	●	0.90mm	0.900	5.00	Fish Tail
2300.0394.256	●	1.00mm	1.000	6.50	Fish Tail
2300.0472.256	●	1.20mm	1.200	6.50	Fish Tail
2300.0512.256	●	1.30mm	1.300	6.50	Fish Tail
2300.0551.256	●	1.40mm	1.400	6.50	Fish Tail
2300.0591.315	●	1.50mm	1.500	8.00	Fish Tail
2300.0630.315	●	1.60mm	1.600	8.00	Fish Tail
2300.0669.315	●	1.70mm	1.700	8.00	Fish Tail
2300.0709.315	●	1.80mm	1.800	8.00	Fish Tail
2300.0748.315	●	1.90mm	1.900	8.00	Fish Tail
2300.0787.315	●	2.00mm	2.000	8.00	Fish Tail
2300.0787.394	●	2.00mm	2.000	10.00	Fish Tail
2300.0827.394	●	2.10mm	2.100	10.00	Fish Tail
2300.0945.394	●	2.40mm	2.400	10.00	Fish Tail
2300.0984.394	●	2.50mm	2.500	10.00	Fish Tail
2300.1004.394	●	2.55mm	2.550	10.00	Fish Tail
2300.1181.394	●	3.00mm	3.000	10.00	Fish Tail



Chipbreaker style updraft router designed for superior edge finish on external and internal cuts.



Part Numbers above include rings set at 0.800" - For Ringless Part Number, replace series ".," with "-" (XXX-XXXX.XXXX)
 Additional diameters and special ring colors available upon request.



For recommended cutting conditions please visit:
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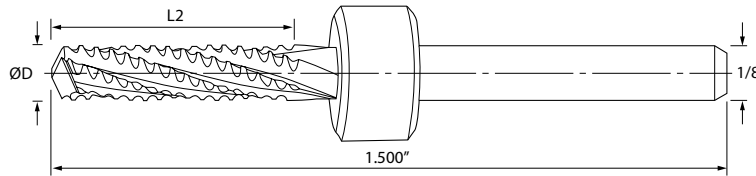
Chipbreaker

Updraft Drill Point Routers

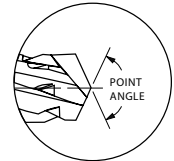
Diameter Range
0.0500" ~ 0.1250"
0.50mm ~ 2.40mm



Chipbreaker style updraft router designed for superior edge finish on external and internal cuts.



End Style



Drill Point

STANDARD Flute Length (Inch)

Part Number	Stock	Router Size	Dimensions (in)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2300.0500.256D	●	0.0500"	0.0500	0.2560	Drill Point
2300.1250.472D	●	1/8"	0.1250	0.4720	Drill Point

STANDARD Flute Length (Metric)

Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2300.0197.118D	●	0.50mm	0.500	3.00	Drill Point
2300.0315.197D	●	0.80mm	0.800	5.00	Drill Point
2300.0354.256D	●	0.90mm	0.900	6.50	Drill Point
2300.0394.256D	●	1.00mm	1.000	6.50	Drill Point
2300.0472.256D	●	1.20mm	1.200	6.50	Drill Point
2300.0512.256D	●	1.30mm	1.300	6.50	Drill Point
2300.0551.256D	●	1.40mm	1.400	6.50	Drill Point
2300.0630.256D	●	1.60mm	1.600	6.50	Drill Point
2300.0630.315D	●	1.60mm	1.600	8.00	Drill Point
2300.0787.394D	●	2.00mm	2.000	10.00	Drill Point
2300.0945.394D	●	2.40mm	2.400	10.00	Drill Point



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Series 2350

Fracture Reducing Router

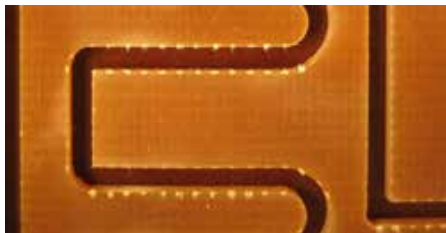
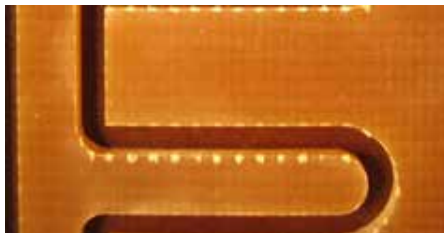
Kyocera Precision Tools Series 2350 Fracture Reducing Router Design

Driving down the costs in drill and fab operations has been the value proposition of Kyocera Precision Tools since its founding in 1987. Continuing to provide value, Kyocera Precision Tools introduces a new router design that reduces edge fracturing in many applications where fractured edges are a concern. The new tool design combines the advantages provided by end mills for edge quality and the chipbreaker router for debris evacuation. In addition, these tools generally eliminate the requirement of entry material that is sometimes needed on this type of work when using conventional cutters.

Series 2350 Performance

Lab and beta site tests were conducted to ensure the product performed at an improved level that is both reliable and repeatable. Example results are provided below.

Testing Parameters	
Material :	Polyimide
Board Thickness :	0.063"
Diameter :	1.60mm

New 2350 Series Minimal to no fracturing detected on routed edges	Standard Chipbreaker Notable fracturing detected on routed edges	Standard Diamond Cut Elevated fracturing detected on routed edges
		

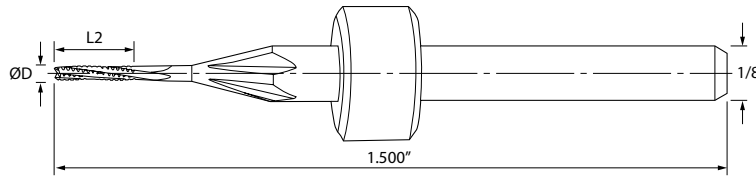
Users of the Series 2350 routers report 70% to 94% reduced fracturing when comparing to other router designs. Please contact a Kyocera Precision Tools field engineer for process assistance.

Low Fracture Updraft Fish Tail Routers

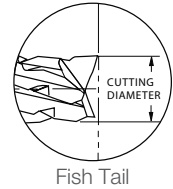
Diameter Range

1.20mm

Chipbreaker style updraft router designed with a cutting force reduction geometry leading to minimal routed edge fracturing and superior edge finish.



End Style



STANDARD Flute Length (Metric)

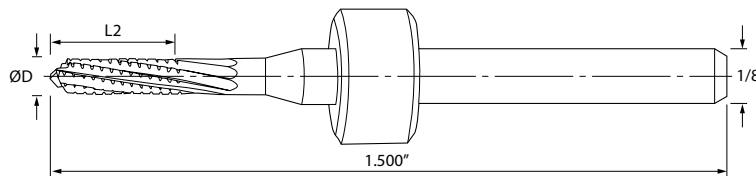
Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2350.0472.276	●	1.20mm	1.200	7.000	Fish Tail

Low Fracture Updraft Drill Point Routers

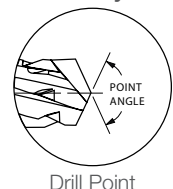
Diameter Range

0.80mm ~ 2.40mm

Chipbreaker style updraft router designed with a cutting force reduction geometry leading to minimal routed edge fracturing and superior edge finish.



End Style



STANDARD Flute Length (Metric)

Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2350.0315.177D	●	0.80mm	0.800	4.50	Drill Point
2350.0394.177D	●	1.00mm	1.000	4.50	Drill Point
2350.0492.197D	●	1.25mm	1.250	5.00	Drill Point
2350.0630.256D	●	1.60mm	1.600	6.50	Drill Point
2350.0787.276D	●	2.00mm	2.000	7.00	Drill Point
2350.0945.315D	●	2.40mm	2.400	8.00	Drill Point



Part Numbers above include rings set at 0.800" - For Ringless Part Number, replace series "." with "-" (XXX-XXXX.XXXX)
Additional diameters and special ring colors available upon request.

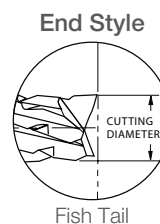
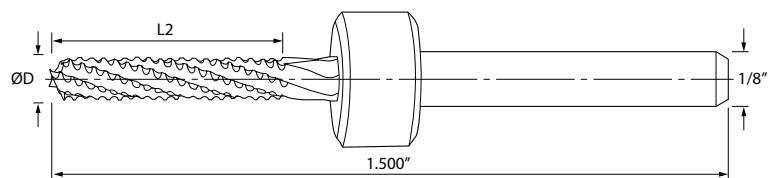


For recommended cutting conditions please visit:
www.kyoceraprecisiontools.com/pcb/speeds-feeds

Flash

Updraft Fish Tail Routers

Diameter Range
0.0938" ~ 0.1250"



STANDARD Flute Length (Inch)

Part Number	Stock	Router Size	Dimensions (in)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
2390.0938.500	●	3/32"	0.0938	0.495	Fish Tail
2390.1250.590	●	1/8"	0.1250	0.585	Fish Tail



Chipbreaker style
 updraft router
 designed for high
 stack routing with
 superior edge finish
 on external cuts.



Part Numbers above include rings set at 0.800" - For Ringless Part Number, replace series "." with "-" (XXX-XXXX.XXXX)
 Additional diameters and special ring colors available upon request.



For recommended cutting conditions please visit:
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Series 4100

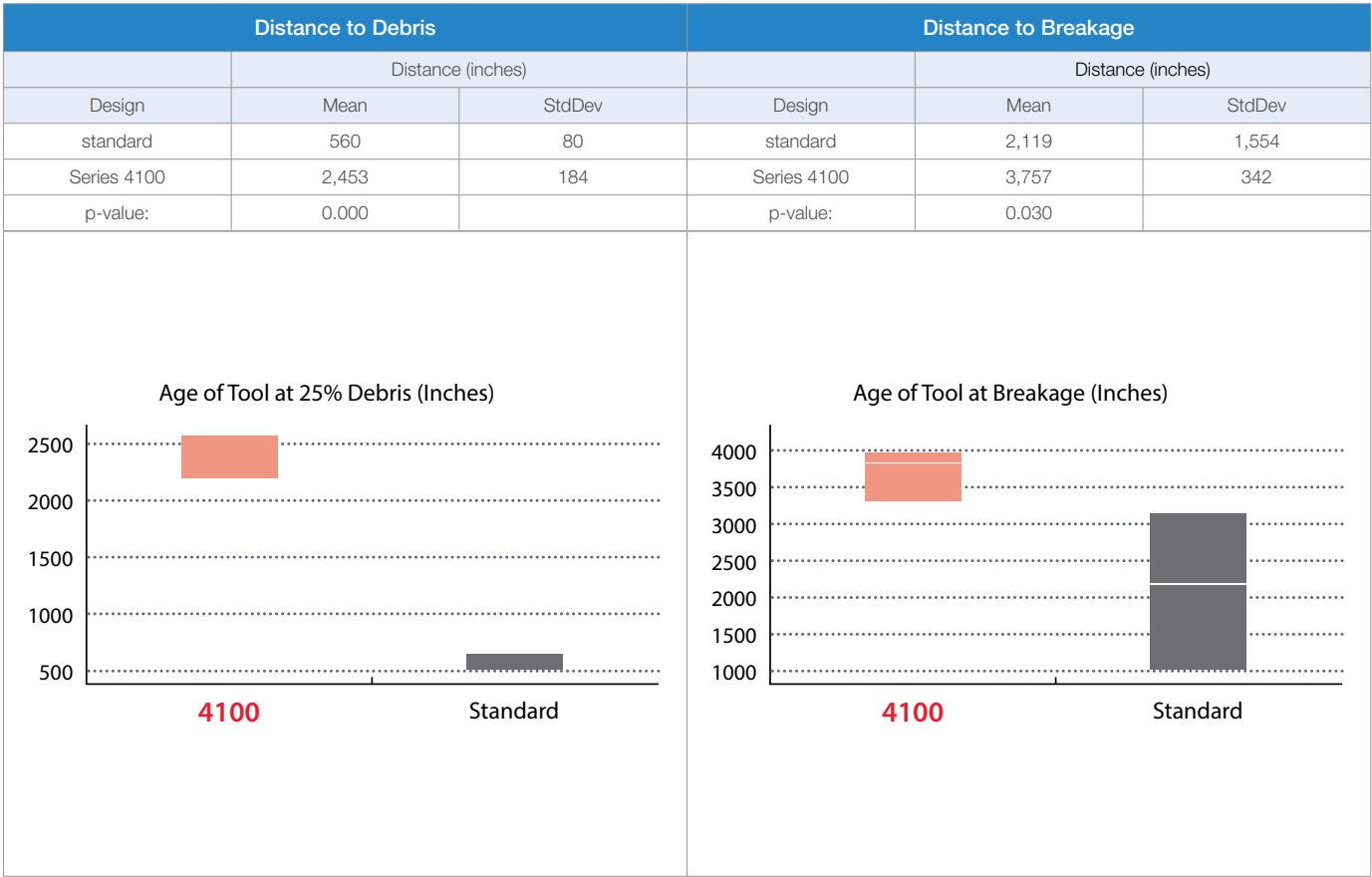
Cross Cut Router Design

Driving down the costs in drill and fab operations has been the value proposition of Kyocera Precision Tools since its founding in 1987. As part of this proposition, Kyocera Precision Tools introduces a revolutionary router design that outlasts previous router designs on a variety of applications. The 4100 tool design combines the advantages of the classical Chip Breaker and Diamond Cut designs to provide a high strength, superior edge finish, long lasting router.

Series 4100 Performance

Lab and beta site tests were conducted to ensure the product performed at an improved level that is both reliable and repeatable. Test data is summarized below.

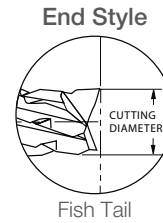
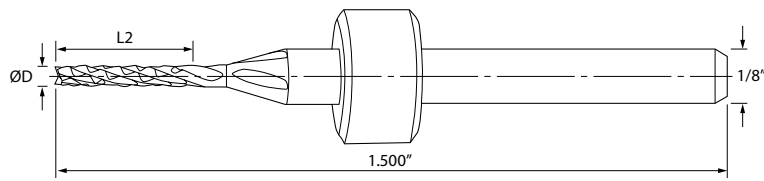
Testing Parameters	
Material :	High Tg
Thickness :	0.177"
Diameter :	0.0630"



Cross Cut

Updraft Fish Tail Routers

Diameter Range
0.1250"
0.50mm ~ 2.60mm



STANDARD Flute Length (Inch)

Part Number	Stock	Router Size	Dimensions (in)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
4100.1250.472	●	1/8"	0.1250	0.472	Fish Tail

STANDARD Flute Length (Metric)

Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
4100.0197.079	●	0.50mm	0.500	2.00	Fish Tail
4100.0236.118	●	0.60mm	0.600	3.00	Fish Tail
4100.0236.157	●	0.60mm	0.600	4.00	Fish Tail
4100.0276.177	●	0.70mm	0.700	4.50	Fish Tail
4100.0315.197	●	0.80mm	0.800	5.00	Fish Tail
4100.0315.256	●	0.80mm	0.800	6.50	Fish Tail
4100.0354.197	●	0.90mm	0.900	5.00	Fish Tail
4100.0354.256	●	0.90mm	0.900	6.50	Fish Tail
4100.0394.197	●	1.00mm	1.000	5.00	Fish Tail
4100.0394.256	●	1.00mm	1.000	6.50	Fish Tail
4100.0394.276	●	1.00mm	1.000	7.00	Fish Tail
4100.0433.256	●	1.10mm	1.100	6.50	Fish Tail
4100.0472.276	●	1.20mm	1.200	7.00	Fish Tail
4100.0500.276	●	1.27mm	1.270	7.00	Fish Tail
4100.0512.276	●	1.30mm	1.300	7.00	Fish Tail
4100.0551.256	●	1.40mm	1.400	6.50	Fish Tail
4100.0591.315	●	1.50mm	1.500	8.00	Fish Tail
4100.0630.256	●	1.60mm	1.600	6.50	Fish Tail
4100.0630.315	●	1.60mm	1.600	8.00	Fish Tail
4100.0669.315	●	1.70mm	1.700	8.00	Fish Tail
4100.0709.315	●	1.80mm	1.800	8.00	Fish Tail
4100.0748.315	●	1.90mm	1.900	8.00	Fish Tail
4100.0787.394	●	2.00mm	2.000	10.00	Fish Tail
4100.0945.394	●	2.40mm	2.400	10.00	Fish Tail
4100.0984.394	●	2.50mm	2.500	10.00	Fish Tail
4100.1004.394	●	2.55mm	2.550	10.00	Fish Tail
4100.1024.394	●	2.60mm	2.600	10.00	Fish Tail



Part Numbers above include rings set at 0.800" - For Ringless Part Number, replace series ".," with "-" (XXX-XXXX.XXXX)
Additional diameters and special ring colors available upon request.



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Diamond cut style
updraft router
designed for high
productivity routing.

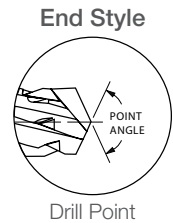
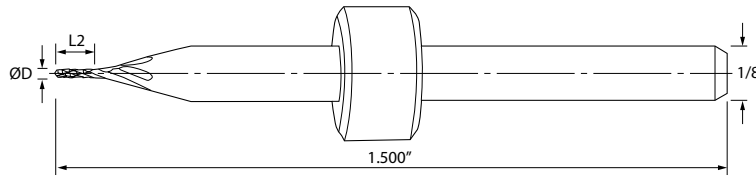
Cross Cut

Updraft Drill Point Routers

Diameter Range
0.0625" ~ 0.1250"
0.80mm ~ 2.55mm



Diamond cut style
updraft router
designed for high
productivity routing.



STANDARD Flute Length (Inch)

Part Number	Stock	Router Size	Dimensions (in)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
4100.0625.315D	●	1/16"	0.0625	0.315	Drill Point
4100.0938.394D	●	3/32"	0.0938	0.394	Drill Point
4100.1250.472D	●	1/8"	0.1250	0.472	Drill Point

STANDARD Flute Length (Metric)

Part Number	Stock	Router Size	Dimensions (mm)		End Style
			Cutting Diameter	Flute Length	
			ØD	L2	
4100.0315.197D	●	0.80mm	0.800	5.00	Drill Point
4100.0354.197D	●	0.90mm	0.900	5.00	Drill Point
4100.0394.256D	●	1.00mm	1.000	6.50	Drill Point
4100.0472.276D	●	1.20mm	1.200	7.00	Drill Point
4100.0500.276D	●	1.27mm	1.270	7.00	Drill Point
4100.0709.315D	●	1.80mm	1.800	8.00	Drill Point
4100.0748.315D	●	1.90mm	1.900	8.00	Drill Point
4100.0787.315D	●	2.00mm	2.000	8.00	Drill Point
4100.0906.394D	●	2.30mm	2.300	10.00	Drill Point
4100.0984.394D	●	2.50mm	2.500	10.00	Drill Point
4100.1004.394D	●	2.55mm	2.550	10.00	Drill Point



Part Numbers above include rings set at 0.800" - For Ringless Part Number, replace series "." with "-" (XXX-XXXX.XXXX)
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 12/2022