



21005



21011

## Crosshole Deburring Brushes - Silicon Carbide - 3/8" Stem

are designed for automated applications in CNC machining centers and dedicated machines. They are ideal for removing burrs from internal edges and finishing bores. Since they eliminate off-hand deburring, they improve part-to-part consistency and reduce direct labor content. Crosshole Deburring brushes are available in sizes ranging from 7/8" to 4" and can be readily adapted into a machining center's tool changer.

Diam.	Fill Diam.	Grit Size	Face Width	Overall Length	Max. RPM	Standard Pack	Item Number
7/8	.022	120	3/4	4-3/4	8,000	1	<b>21003</b>
1	.022	120	3/4	4-3/4	8,000	1	<b>21005</b>
1-1/4	.022	120	3/4	4-3/4	8,000	1	<b>21007</b>
1-1/2	.022	120	1	5	8,000	1	<b>21009</b>
2	.022	120	1	4-1/4	6,000	1	<b>21011</b>
2-1/2	.040	80	1	4-3/4	6,000	1	<b>21013</b>
3	.040	80	1	5-1/4	6,000	1	<b>21035</b>
4	.040	80	1	6-1/4	6,000	1	<b>21045</b>

**Note:** All brush stems have a 2" long flat for use in end mill holders. Alternatively, they can be mounted in 3/8" collets. Crosshole Deburring Brush extension holder is available. Contact Application Engineering at 800-553-2371.



Replacement Head

## Replacement Brush Heads and Reusable Arbors

In high production applications, reusable arbors reduce manufacturing costs by allowing the use of inexpensive brush head replacements. Brush heads are made-to-order in diameters ranging from 7/8" to 2" with face widths of 1/4" to 1". They are available on 3/16" and 1/4" pins. The pin diameter is based on the application and determines brush density. Contact Application Engineering at 800-553-2371 for more information.



Reusable Arbor

## Operating Parameters

Brush Diameter	Recommended RPM	Recommended Feed Rate
5/8 - 7/8	3000	20"/min
1 - 1-1/2	3000	20"/min
2 - 2-1/2	2000	20"/min
3 - 4	1500	20"/min

## Tool Paths for Crosshole Deburring

An effective tool path for most crosshole deburring jobs is circular interpolation using the following guidelines to determine diameter of interpolation. The interpolation should be performed at a depth where the center of the brush face is at the center of the intersecting hole.

- Diameter of Interpolation = Hole Dia. - 0.975 x Brush Dia.

## Tool Paths for Bore Finishing

These Crosshole Deburring Brushes can be used to improve the surface finish of bores. The best tool path normally involves helically interpolating the bore. The above recommendations for speed, feed and diameter of interpolation are also valid for bore finishing. The use of coolant is highly recommended in order to achieve maximum surface finish improvement.

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