

A close-up photograph of a precision bearing assembly, showing the intricate details of the balls and races. The image is partially overlaid by a large, vibrant orange triangle that points towards the bottom right corner. In the top left corner, the 3M logo is displayed in red, followed by the tagline "Science. Applied to Life.™" in white text.

**3M** Science.  
Applied to Life.™

3M Precision Grinding & Finishing  
**Solutions for the  
Bearing Industry**

# Your partner with a century of grinding experience

An aerial photograph of a large number '3' constructed from thousands of small, red, conical abrasive particles. The number is set on a well-maintained green lawn. A white geometric line, resembling a stylized '3' or a large triangle, is overlaid on the image, framing the text and the number.

At 3M, we're constantly working to find new ways to make the complex jobs easier. With many years of experience in a vast array of grinding operations, we have continued to evolve our abrasive technology to meet the growing needs of customers who produce sophisticated components.



<b>3M™ Cubitron™ II</b>	<b>4</b>
<b>Face &amp; Fine Grinding</b>	<b>4</b>
<b>Centerless Grinding &amp; Finishing</b>	<b>5</b>
<b>Bore Grinding</b>	<b>5</b>
<b>Inner Ring Track Grinding &amp; Finishing</b>	<b>6</b>
<b>Outer Ring Track Grinding &amp; Finishing</b>	<b>6</b>
<b>Linear Guide Rail Grinding</b>	<b>7</b>
<b>Linear Guide Carrier/Block Grinding</b>	<b>7</b>

# 3M™ Cubitron™ II Grinding Wheels

3M™ Cubitron™ II grinding wheels offer functional surfaces well-suited for components commonly used in the bearing industry.

- ▶ Centerless Grinding
- ▶ Cylindrical Grinding
- ▶ Surface Grinding

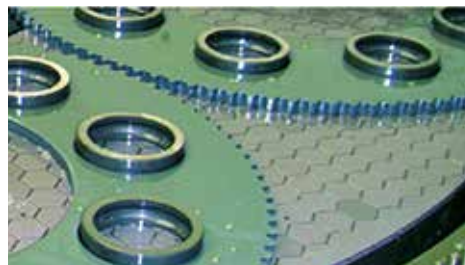
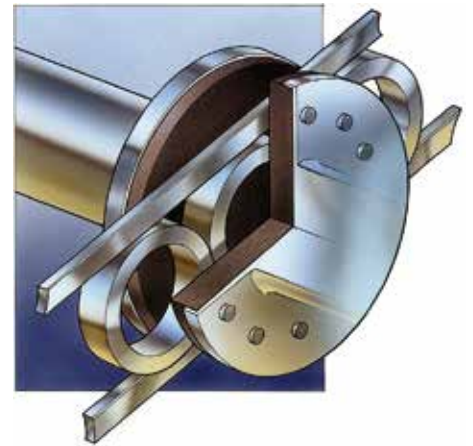


## Face & Fine Grinding

Manufacturing bearing rings requires many different grinding operations – thankfully, we’ve got you covered. 3M™ CBN Fine Grinding Wheels are specifically designed for versatility, efficiency, high-performance and long life.

### 3M™ CBN Fine Grinding Wheels

3M Product ID	Operation Type	Specification
1TVB	Face grinding of inner ring & outer ring	B46-VB
1TVU	Face grinding of inner ring & outer ring	B46-VT



# Centerless Grinding & Finishing

3M offers both resinoid and vitrified centerless grinding wheels that are tailored to suit the ring type and grinding method utilized – such as several or single pass, separate or combined roughing and finishing, and throughfeed speed. The abrasives and bonds are designed to fit the ring dimensions, as well as provide maximum performance and long-life.

## 3M™ Vitrified Conventional Grinding Wheels

3M Product ID	Operation Type	Specification
92VJ	Roughing	93DA80/80 H15VPMF601W 93DA120/120 H15VPH901W
	Finishing	93DA80/80 L6V901W 93DA120/120 L6V901W
33VB	Roughing	31A80 L6V301W
	Finishing	31A120 L6V301W



# Bore Grinding

Internal grinding of inner rings, or bore grinding, involves a unique set of challenges. A relatively small wheel with few cutting edges, a large contact arc and the risk of non-rigidity in the spindle can generate excess heat and deform a workpiece or limit productivity – creating a demand for very cool-cutting abrasives

3M manufactures a variety of bore grinding wheels with conventional abrasives as well as vitrified CBN to best suit your application – and keep things cool.

## 3M™ Vitrified Conventional Grinding Wheels

3M Product ID	Operation Type	Specification
92VJ	Roughing	93DA46/60 F15VPH901W
92VJ 93VL	Finishing	93DA80/120 H8V901W 99DA80/80 H8V901W
92VJ	Finishing	93DA120/120 J7V601W 93DA80/120 J7V601W
92VD	Finishing	93A80 H8V601W 93A120H8V601W
33VB	Finishing	54A80 H8V604W 54A120 H8V604W



## 3M™ Vitrified CBN Grinding Wheels

3M Product ID	Operation Type	Specification
1PVZ	Roughing	div.
1PVZ	Finishing	div.

# Inner Ring Track Grinding & Finishing

3M raceway grinding wheels are engineered for efficiency – so you can get more done, faster. They are designed to meet the form and surface finish requirements of the raceway, to the specific machining parameters, and with a maximized dressing interval.

## 3M™ Vitrified Conventional Grinding Wheels

3M Product ID	Operation Type	Specification
92VJ	Roughing	93DA80/80 J7V601W 93DA80/80 L6V901W
92VJ	Finishing	93DA120/120 J7V601W 93DA120/120 L6V901W
92VJ	Large bearing	93DA80/80 H15VPMF601W
92VJ	Large bearing	93DA120/120 H15VPMF601W
92VD	Roughing	93A80 J7V601W
92VD	Finishing	93A120 J7V601W
33VB	Roughing	54A80 J7V604W
33VB	Finishing	54A120 J7V604W



## 3M™ Vitrified CBN Grinding Wheels

3M Product ID	Operation Type	Specification
1PVZ	Roughing	Upon request
1PVZ	Finishing	Upon request

# Outer Ring Track Grinding & Finishing

Outer ring tracks come in many different shapes. Consequently, grinding and finishing operations and solutions vary greatly. The cool-cutting abrasives and bonds of 3M grinding wheels are designed to meet the challenge of such a mutable task – providing maximum stock removal rate, a high dressing interval and long wheel life.

## 3M™ Vitrified Conventional Grinding Wheels

3M Product ID	Operation Type	Specification
92VJ	Roughing	93DA80/80 J7V601W
92VJ	Finishing	93DA80/120 J7V601W 93DA120/120 J7V601W
91VB	Roughing	220NA80/8 H15V722A
92VD	Roughing	93A80 J7V601W
92VD	Finishing	93A120 J7V601W
33VB	Roughing	54A80 J7V604W
33VB	Finishing	54A120 J7V604W



# Linear Guide Rail Grinding

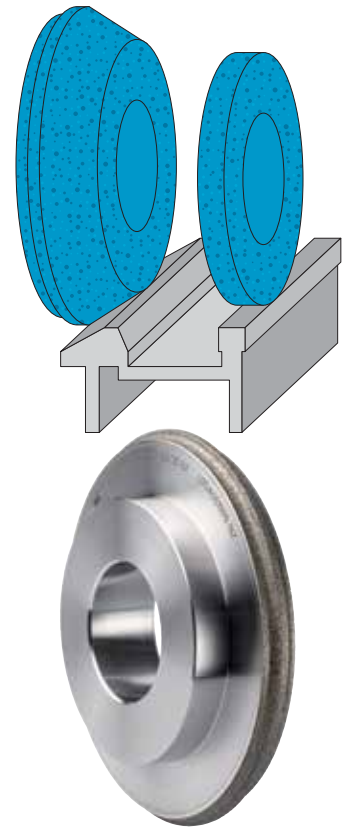
Grinding linear guide way components is a very challenging operation, particularly as parts increase in length. 3M offers high-performance grinding tools designed to meet the tight surface finish specifications and geometrical straightness required of the task, allowing for a high-quality, level finish.

## 3M™ Vitrified Conventional Grinding Wheels

3M Product ID	Operation Type	Specification
92VJ	Rail	93DA80/80 F15VPH601W

## 3M™ Diamond Rotary Dressers

3M Product ID	Operation Type	Specification
6JGN	Rail	div.
6HMI	Rail	div.



# Linear Guide Carrier/Block Grinding

A linear guide way is only as efficient as its components, which must be precisely tailored to operate effectively. 3M offers a variety high-performance grinding tools designed to achieve the tight surface finish and geometrical straightness required for linear guide way components – so that everything works together.

## 3M™ Vitrified Conventional Grinding Wheels

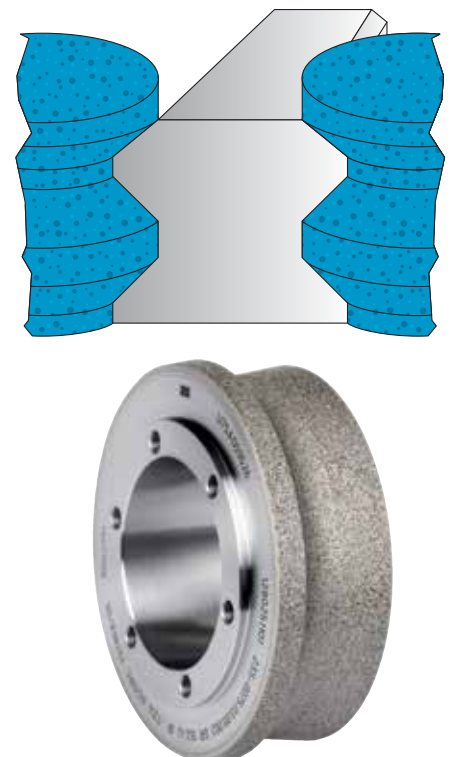
3M Product ID	Operation Type	Specification
92VJ	Carrier	93DA46/60 F15VPH901W 93DA80/80 J7V601W
93VJ	Carrier	99DA 120/120 H8V901W

## 3M™ Vitrified Grinding Wheels

3M Product ID	Operation Type	Specification
1PVZ	Carrier	div.
1PVY	Carrier	div.

## 3M™ Diamond Rotary Dressers

3M Product ID	Operation Type	Specification
6JGN	Rail	div.
6HMI	Rail	div.





**Product Selection and Use:** Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

**Warranty, Limited Remedy, and Disclaimer:** Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

**Limitation of Liability:** Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.



**Abrasive Systems Division**  
3M Center, Building 223-6S-03  
St. Paul, MN 55144-1000  
1-866-279-1235  
[www.3M.com/abrasives](http://www.3M.com/abrasives)

Please recycle. Printed in USA.  
© 3M 2018. All rights reserved.  
Issued: 8/18 14504HB  
61-5002-8449-4

3M and Cubitron are trademarks of  
3M Company. Used under license by  
3M subsidiaries and affiliates.