The new generation of high-speed dental handpiece bearings created by Timken R&D
Minasure® RPM Dental Bearings: The High-Speed Performance Leader

MPB pioneered the development of high-speed dental bearings. In fact, the world’s first air turbine, the Borden Airotor, used MPB bearings. Today, as part of the Timken Company, the Dental Business Unit is dedicated to the development and manufacture of dental bearings that provide manufacturers and dentists with a new standard in handpiece performance – higher speeds, smoother operation, longer life and reduced maintenance. Minasure RPM high-speed dental bearings are available with a choice of five different ball cage materials to meet the complete range of high-speed operating environments. And, while these bearings are competitively priced, they deliver better long-term performance than other precision bearings.

All Minasure RPM bearings feature:

**N-DUR™ Steel, Smoother Is Better**
The Dental Business Unit shared in the development of Timken’s N-DUR steel, a revolutionary new stainless alloy that is harder and more corrosion resistant than standard 440C steels. N-DUR is manufactured using a special process that ensures a uniform fine carbide distribution throughout the alloy. As the graphs at right show, this gives bearings machined from N-DUR a superior raceway finish to provide smoother operation.

**Outer Ring Ball Cage Piloting Improves Performance**
By piloting, or guiding, the ball cage on the outer ring, rubbing velocity is reduced by 15% and cage stability is enhanced. While this requires greater precision in manufacturing than inner ring piloting, it is a key factor in prolonging ball cage life, the leading cause of dental bearing failure. At the same time, outer ring piloting utilizes centrifugal effects to direct lubricant to where it is most needed.

**7-Ball Complements Extend Life**
Flexible 0-ring seating frequently causes bearing misalignment when the outer ring cocks or tilts relative to the inner ring. To alleviate this, Minasure RPM bearings utilize Timken’s unique 7-ball geometry to minimize these damaging effects. This geometry is more forgiving toward misalignment than conventional 8-ball complements. At the same time, this geometry leaves more material between the ball pockets for greater cage strength.
Better Lubrication with Minapure® Grease
Timken research has shown that grease can enhance the life of high-speed bearings as it is less likely to dissipate at high speeds. Timken’s new heat-resistant Minapure handpiece grease is designed to stand up under repeated sterilization. It is an inert, non-toxic synthetic that’s specially formulated to help ensure that handpieces will run smoothly and reliably.
A Choice of Angular Contact and Radial Configurations

Angular Contact Bearings feature symmetrical cages. These enhance performance and extend bearing life as each ball is fully supported and completely surrounded by the cage. Angular contact bearings must be axially preloaded with a spring or O-rings to assure contact with the full unrelieved shoulder.

Radial Bearings are less expensive and easier to work with than angular contact bearings. They have full shoulders on both the inner and outer raceways so they won’t disassemble during handling and installation in the handpiece.

Ordering the Right Bearing Is As Easy As 1,2,3...

1. Determine part number by matching size, configuration (angular contact or radial) and features (smooth, flanged or grooved) to selection guide.
2. Add a digit representing desired cage material:
   - 5 - Everclave
   - 4 - Minawear
   - 3 - Minapar III
   - 2 - Torlon
   - 1 - Phenolic
3. Add a letter to indicate desired lubrication:
   - L - Oil
   - G - Grease
## INCH SIZES

<table>
<thead>
<tr>
<th>Bore-B (mm)</th>
<th>O.D.-D (mm)</th>
<th>Width-W (mm)</th>
<th>Features</th>
<th>Radial Bearings</th>
<th>Angular Contact Bearings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0937 (2.380)</td>
<td>Smooth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.125 (3.175)</td>
<td>0.250 (6.350)</td>
<td>Flanged</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.1094 (2.779)</td>
<td>Smooth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groove</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unique</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INCH SIZES</th>
<th>SELECTIONS</th>
<th>Features</th>
<th>Radial Bearings</th>
<th>Angular Contact Bearings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore-B (mm)</td>
<td>O.D.-D (mm)</td>
<td>Width-W (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0937 (2.380)</td>
<td>0.1875 (4.763)</td>
<td>0.0625 (1.588)</td>
<td>Smooth</td>
<td></td>
</tr>
<tr>
<td>0.0937 (2.380)</td>
<td></td>
<td>0.0937 (2.380)</td>
<td>Smooth</td>
<td></td>
</tr>
<tr>
<td>0.250 (6.350)</td>
<td>0.0752 (1.910)</td>
<td>0.0625 (1.588)</td>
<td>Smooth</td>
<td></td>
</tr>
<tr>
<td>0.1094 (2.779)</td>
<td></td>
<td>0.1094 (2.779)</td>
<td>Smooth</td>
<td></td>
</tr>
<tr>
<td>0.3125 (7.938)</td>
<td>0.1406 (3.571)</td>
<td>0.0625 (1.588)</td>
<td>Smooth</td>
<td></td>
</tr>
</tbody>
</table>

*Hole in Shield*
<table>
<thead>
<tr>
<th>METRIC SIZES</th>
<th>SELECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore-B (inch)</td>
<td>O.D.-D) (inch)</td>
</tr>
<tr>
<td>2.35 (.0925)</td>
<td>5 (.1969)</td>
</tr>
<tr>
<td>5.5 (.2165)</td>
<td>2 (.0787)</td>
</tr>
<tr>
<td>3 (.1181)</td>
<td>7 (.2756)</td>
</tr>
<tr>
<td>3 (.1181)</td>
<td>7 (.2756)</td>
</tr>
<tr>
<td>4 (.1575)</td>
<td>7 (.2756)</td>
</tr>
<tr>
<td>9 (.3543)</td>
<td>2.5 (.0984)</td>
</tr>
</tbody>
</table>
SALES OFFICES

To place an order, request technical assistance or for more information, Email: mpbdental@timken.com or contact one of our Sales Offices.

NORTH AMERICA

Timken Aerospace & Super Precision Bearings (MPB Division)
P.O. Box 547, Precision Park, Keene, New Hampshire 03431, USA
Telephone: (603) 352-0310 • Fax: (603) 355-4580

EUROPE

Timken Aerospace & Super Precision Bearings – Europa
Overleek 9, 1670 AA Medemblik, The Netherlands
Telephone: (227) 542344 • Fax: (227) 544552

ASIA

Timken Aerospace & Super Precision Bearings – Singapore
Block 1, Kallang Sector, #06-04, Singapore 349276
Telephone: (65) 841-4380 • Fax: (65) 841-4485

Timken India
Bara, PO Agrico, Jamshedpur, 831009, India
Telephone: (91) 657-436216 • Fax: (91) 657-436119

LATIN AMERICA

Timken do Brasil
Rua Engenheiro Mesquita Sampaio, 714, Sao Paulo, SP–Brasil 04711-901
Telephone: (5511) 5181-5516 • Fax: (5511) 5181-5516

For handpiece maintenance and repair services contact:

Handpiece Headquarters
2284 North Glassell Street, Orange, California 92865, USA
Telephone: (800) 557-7867 • Fax: (714) 921-1852

IDEAS IN MOTION

ISO 9001 Registered

Timken Aerospace & Super Precision Bearings (MPB Division)

Keep up with the latest bearing and materials technology, visit our Web site:

www.dentalbearings.com

Special thanks to Jack Beecher for his 40 years of contribution to product innovation.