



# Bearing Briefs

## ***Bearing Specific Topics***

**Bearing Installation & Fitting**

**Bearing Repair**

**Hybrid Ceramic Ball Bearings**

**Linear Bearings**

**Plane Bearings**

**Seal Selection**

**Spherical Plain Bearings**

**Vibration Analysis**

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**Repair Options**

**Planetary Roller Screws**

**Bearings for the Food &**

**Beverage Industry**

**Split Roller Bearing Technology**

**Bearing Mounting Tools**

## ***Bearing Industry Information***

**Bearing Standards**

**Organizations**

**Brief History of Bearings**

**The Domestic Bearing Industry:**

**Investing in the Future**

**History of Adhesives**

**Load Ratings & Bearing Life**

**Status of Bearing Load**

**Ratings**

## **Linear Bearings**

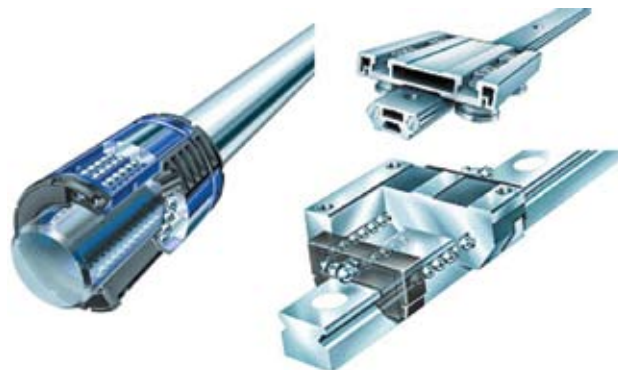
Linear bearing products are offered in greater diversity than rotary bearings intimidating many people who might otherwise use these products to improve their machine designs. The choices can be broken into sets rather than one broad array by identifying basic machine functions and features that are required.

One choice is whether the stroke (i.e. length of travel) is shorter than the limits of the bearing system or whether a recirculating product is needed for what may be considered an unlimited stroke. The former product would be something such as flat cage and roller assemblies or die set bearings. Unlimited stroke bearings require rolling elements that recirculate such as those used with shaft assemblies or monorail systems.

Simplicity of design and assembly desired can help us choose. Shaft and bushing systems require lots of parts and labor and simple design errors can easily be made. Carriage and monorail systems need merely be aligned and attached to the structure but cost more per part.

Another important choice is between conformity and rigidity. For example, the use of a roller monorail system with preload can provide the most rigid recirculating system while requiring the most exacting standards of manufacturing and assembly for the mating components. Ball monorail systems would be more forgiving to errors of manufacturing or expanded tolerances while sacrificing rigidity and load capacity. Products and solutions are widely different depending on the answer to those basic questions.










Regardless of your needs, the following charts can help you make sense of the many different linear systems available. You can make your system successful with these selection criteria.



# Linear Bearings



















































## LINEAR GUIDANCE SYSTEMS REFERENCE CHART

### LINEAR GUIDANCE SYSTEM TYPE














Flat Cage Assemblies	
Recirculating Roller Bearings	
Recirculating Roller Systems	
Recirculating Linear Ball Systems - 6 Row	
Recirculating Linear Ball Systems - 4 Row	
Recirculating Ball Unit	
Recirculating Linear Ball Systems - 2 Row	
Track Roller System	
Round Shaft System	

*BSA wishes to especially thank David Zoesch, INA USA Corporation, for his help in preparing this ESC Report.*

# Linear Bearings

Linear Guidance Systems	Load Capacity	Rigidity	Accuracy	Friction	Speed
Round Shaft System - Ball Bearing					
Round Shaft System - Plain Bearing					
Track Roller System					
Recirculating Ball System - Two Row					
Recirculating Ball Unit					
Recirculating Ball System - Four Row					
Recirculating Ball System - Six Row					
Recirculating Roller System					
Recirculating Roller Bearing					
Flat Cage System					

# Linear Bearings

Linear Systems	Segment 1	Segment 2	Segment 3
Flat Cage Assemblies			
Recirculating Roller Bearing			
Recirculating Roller Systems			
Recirculating Ball - 6 row			
Recirculating Ball - 4 row			
Recirculating Ball Unit			
Recirculating Ball - 2 row			
Track Roller System			
Round Shaft System			
<b>Characteristics</b>	<b>Segment 1</b>	<b>Segment 2</b>	<b>Segment 3</b>
<b>Load carrying capacity</b>	High	Moderate	Low
<b>Rigidity</b>	Very high	Moderate	Low
<b>Accuracy</b>	Very high	Moderate	Low
<b>Speed</b>	Low	High	Moderate
<b>Friction</b>	Moderate	Low	Moderate
<b>Total travel</b>	Low	High	High / Moderate
<b>Areas of application</b> (example)	<ul style="list-style-type: none"> <li>Measuring machines</li> <li>Precision machine tools</li> <li>Precision designs in general machine construction</li> </ul>	<ul style="list-style-type: none"> <li>Machine tools</li> <li>Woodworking machines</li> <li>Sheet metal processing</li> <li>Medical technology</li> <li>Handling equipment</li> <li>General machine constr.</li> </ul>	<ul style="list-style-type: none"> <li>Feed systems</li> <li>Transpot systems</li> <li>Handling systems</li> <li>General machine construction</li> </ul>