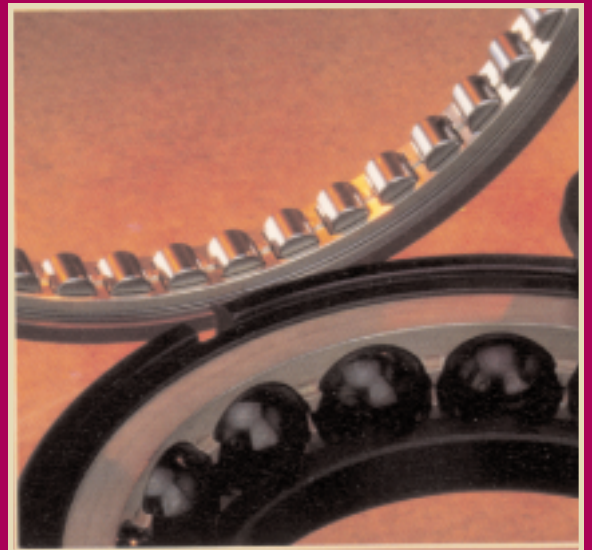




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# roller and ball bearings

**D E S I G N   G U I D E**



## ***Welcome to the HiTech Division of NHBB***

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The HiTech Division of NHBB has firmly established its leadership position within the industry as the solution provider for your most critical and demanding bearing applications.

In today's competitive business climate, performance is what sets us apart. From bearing design to delivery of a quality product, on-time, at a competitive price, NHBB is committed to being the bearing supplier of choice.

The employees of the HiTech Division are devoted to making constant advancements in all aspects of our business. Initiatives such as AS9000, D1-9000 Rev A., and ISO 9001 provide the framework for continuing improvements in our manufacturing processes and product quality. Certification to the environmental standard ISO 14001 is reflective of our pledge to minimize our impact on the environment.

This Roller and Ball Bearing Design Guide illustrates many of the products offered by the HiTech Division. Standard dimensions, tolerances, and available options are included to help you select the optimal bearing design for your unique application. Please contact HiTech's sales or engineering groups for assistance with your specific requirements.

# PART NUMBERING

## Ball Bearing Part Numbering System

### EXAMPLE: MTMER-1905CV52DB20R6A5

MT	MER-	1905		CV52	DB20	R6	A5
MATERIAL	TYPE	BASIC NUMBER	ENCLOSURES	SPECIAL DESIGN	DUPLEX	CAGES	TOLERANCE
No Code=52100 chrome steel	<b>F</b> =Flanged	<b>Inch Series:</b> First 1-3 digits indicate OD in 16ths of an inch, the bore size is the next 2-3 digits	<b>D</b> =Rubber seal	<b>SD</b> , 3 Digit number assigned by NHBB engineering	<b>DB</b> =Back to back	<b>F</b> =None, full complement	<b>A1</b> =ABEC 1 *
<b>CE</b> =52100 rings, ceramic balls	<b>GR</b> =Gothic arch	<b>Metric Series:</b> ABMA Dimension series 18,19,10,02 and 03 indicated by 18,19,1,2,and 3 followed by bore size of:	<b>DD1</b> =Molded, snap-in seal	<b>CV</b> , Non-standard race curvature expressed as a value	<b>DF</b> =Face to face	<b>R</b> =2pc ribbon, steel	<b>A3</b> =ABEC 3
<b>MT</b> =M-50 tool steel	<b>R,RI</b> =Radial	00 for 10mm	<b>H</b> =Metallic shield		<b>DT</b> =Tandem	<b>R6</b> =Riveted ribbon, steel	<b>A5</b> =ABEC 5
<b>SB</b> =440C modified	<b>MBR</b> =Inner ring relieved, separable	01 for 12mm	<b>L</b> =Glass reinforced PTFE shield		<b>DU</b> =Universal	<b>B2</b> =2pc riveted, bronze	<b>A7</b> =ABEC 7
<b>SE</b> =440C rings, ceramic balls	<b>MDR</b> =Inner ring relieved, non-separable	02 for 15mm	<b>S</b> =Non-contact rubber seal		When followed by a number= preload value in pounds	<b>B5</b> =Machined, silicon-iron bronze	<b>A9</b> =ABEC 9
<b>SH</b> =Cobalt based alloy	<b>MER</b> =Outer ring relieved, non-separable	03 for 17mm	<b>Z</b> =Metallic shield, removable			<b>KE</b> =Crown, inner land piloted, phenolic	*A1 miniature and instrument bearings of both the metric and inch configurations meet the tolerances of ABMA Standard 20 for ABEC 1 metric series bearings.
<b>SS</b> =440C stainless steel	<b>W</b> =Fractured outer ring	04 for 20mm				<b>KM</b> =Fully machined, inner land piloted, phenolic	
<b>TE</b> =M-50 rings, ceramic balls		05 for 25mm				<b>M2</b> =One-piece machined silver plated steel	
		etc...in 5mm increments					

The above descriptions indicate the most common options; additional types exist. Beyond the basic **part number**, NHBB may also show **specifications** such as coding, radial play, torque, lubricant and packaging. These features are not part of the basic number.



# Roller Bearing Part Numbering System

**EXAMPLE: MTPULS105-5**

<b>MT</b>	<b>TP</b>	<b>U</b>	<b>L</b>	<b>S</b>	<b>105</b>	<b>-5</b>
MATERIAL	ALL ROLLERS	OUTER RING CONFIGURATION	INNER RING CONFIGURATION	CAGE MATERIAL	BASIC SIZE	- DASH NUMBER
No Code=52100 chrome steel <b>MT</b> =M-50 tool steel <b>SB</b> =440C modified <b>SS</b> =440C stainless steel	<b>TP</b>	<b>U</b> =Double guide flange <b>L</b> =Single guide flange <b>S</b> =No guide flanges	<b>U</b> =Double guide flange <b>L</b> =Single guide flange <b>S</b> =No guide flanges	<b>B</b> =Bronze or brass <b>S</b> =Steel	ABMA dimension series 18, 19, 10 02 and 03 indicated by 18, 19, 1, 2 and 3 followed by bore size of: 00 for 10mm 01 for 12 mm 02 for 15mm 03 for 17mm 04 for 20mm 05 for 25 mm etc. ...in 5mm increments	Unique number assigned within each dimension series identifying special features

The roller bearing part numbering system is designed to identify the important basic features of the bearing while providing a unique part number. Complete bearing details are available on NHBB sales drawings.

# CAPABILITIES

## WE CAN MAKE JUST ABOUT ANY BEARING.

While we offer a wide range of standard bearings, our specialty is custom bearing design and manufacture. We also have the facilities to develop and incorporate special materials and lubricants in order to meet the requirements of leading-edge applications. We encourage you to consult with NHBB engineers as early as possible in the product design phase. We'll acquaint you with the most up-to-date developments in bearing technology and their impact on your applications.



Miniature & Instrument Bearings  
**Precision Division**



Composite Components  
**Astro Division**



Ultra Precision Machine Tool Bearings  
**HiTech Division**



# ONGOING NEW PRODUCT DEVELOPMENT.



Rod Ends, Sphericals and Link Assemblies  
**Astro Division**



Cylindrical Roller Bearings  
**HiTech Division**

**WE MAKE  
CUSTOM  
PRODUCTS  
TO YOUR  
SPECIFICATIONS.**

Racing Series Bearings  
**Astro Division**



## ULTRA-PRECISION MANUFACTURING SYSTEMS.



### OUR FACILITIES INCLUDE:

- CAD CAM-based Manufacturing and Design
- Metallurgy and Testing Laboratories
- Class 10,000 Clean Room
- Class 100 Clean Workstations
- World Class Manufacturing
- Comprehensive Life Testing







# TOTAL IN-HOUSE QUALITY CONTROL.



## WE MEET OR EXCEED EVERY STANDARD IN THE BOOK.

We employ over 1,000 people in a total of 455,000 sq. ft. of manufacturing, engineering and administrative facilities. With a dedicated R&D staff, materials and testing laboratories, state-of-the-art manufacturing, and continuous quality programming, we maintain stringent controls over each step in the manufacturing process. This enables us to meet every major standard, including:

- ABEC
- MIL-SPEC
- RBEC
- ISO 9000

