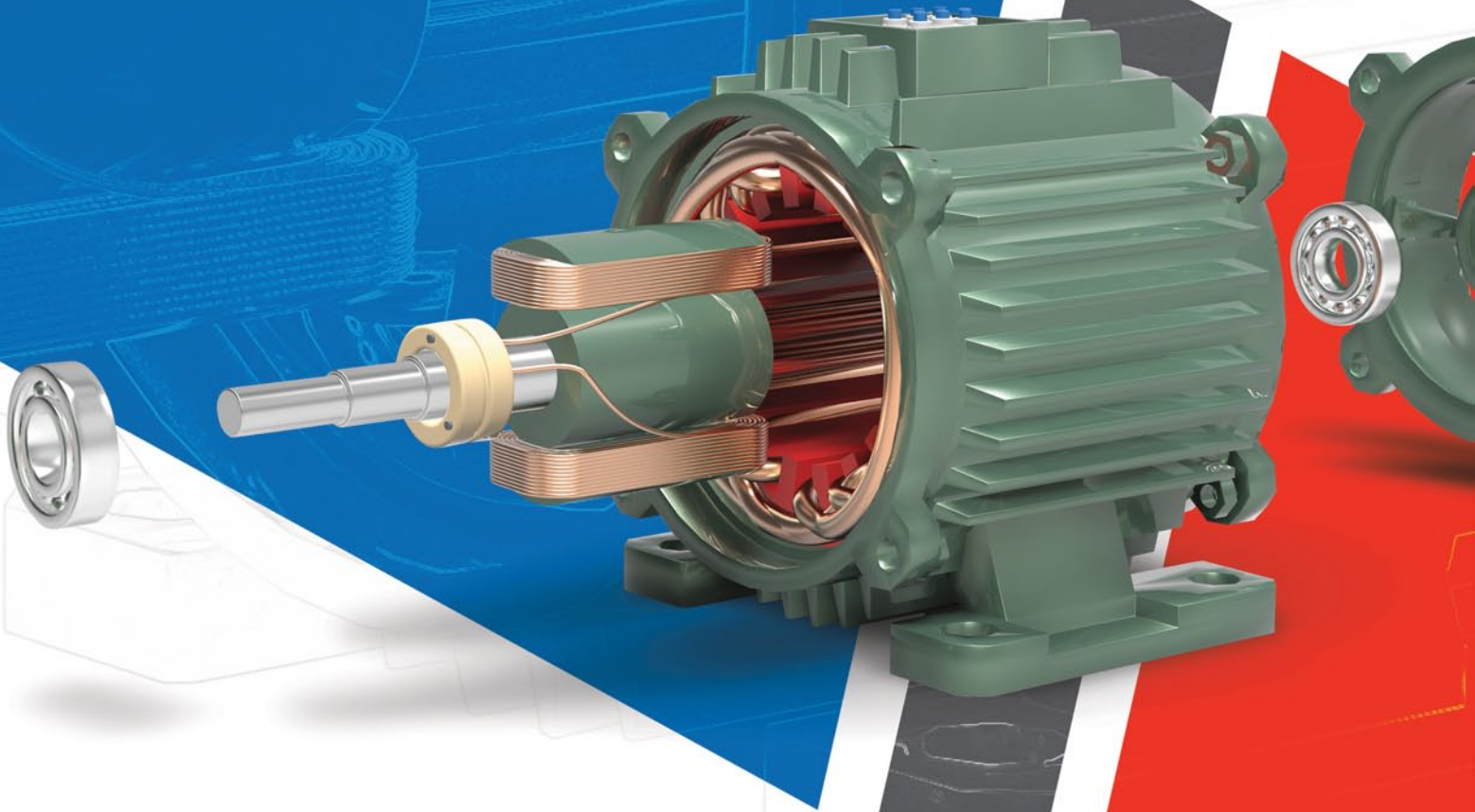




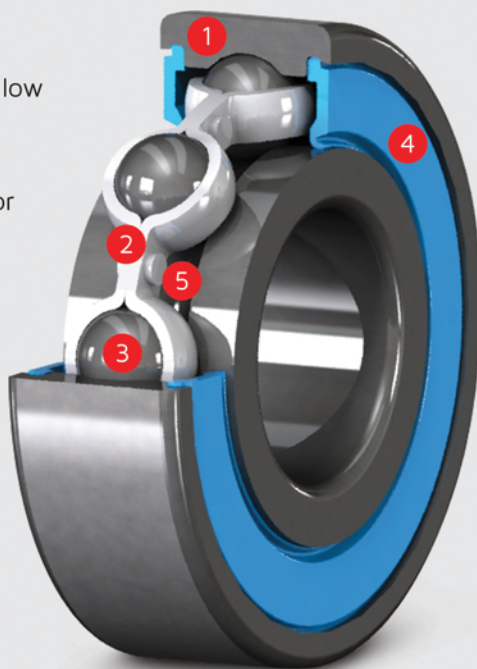
WJB BEARINGS



DEEP GROOVE BALL BEARINGS FOR ELECTRIC MOTORS

PRODUCT FEATURES AND BENEFITS

- 1 Through-hardened bearing steel with low impurity that improve bearing life.
- 2 Multiple cage material options (steel or nylon) for quiet operation and higher operating speed.
- 3 ABMA Grade 10 or better for reduced bearing vibration and noise which results in quieter operation.
- 4 Various bearing closure options to protect the bearing against contamination (dust, moisture and sand) while retaining lubricant inside the bearing for proper lubrication and longer bearing life.



- 5 Optimized raceways design and surface finishes to reduce bearing vibration and noise for a quiet, low running friction and longer bearing life.

Available with ABEC 1, 3 & 5 (ISO P0, P6, P5) class and special design configuration to meet your specific application requirements.

Available with premium lubricants such as Mobil Polyrex EM, Nye Rheolube 374C, Beacon 325, etc. for applications that required the bearing to operate at wide temperature range, low running noise, superior water washout resistant, and low running torque.

TYPE OF CAGE

Various inner ring groove with seals and shields

STEEL CAGE

- Readily available
- Standard cage for electric motor bearing
- Riveted or crimped for miniature bearing
- Wide range of operating temperature

NYLON CAGE

- Readily available
- Lower operating noise than steel cage
- Maximum operating temperature of 120°C



STEEL CAGE

NYLON CAGE

SEAL MATERIAL OFFERING

	NBR	ACM	FKM
WJB Seal Code	-	P	V
Continuous Max Temperature	+100 C	+150 C	+190 C
Peak Operating Temperature	+130 C	+180 C	+230 C
Low Operating Temperature	-30 C	-20 C	-15 C
Grease Resistance	GOOD	GOOD	VERY GOOD
Mineral Oil Resistance	GOOD	VERY GOOD	EXCELLENT
Wear Resistance	GOOD	POOR	GOOD
Relative Seal Cost Index	1X	2X	3X

TYPE OF SEAL CONTACT

Various seal contact

Depending on the application requirements such as speed, environment and friction requirement, a specific type of seal is selected to protect the bearing from contamination (dust and moisture) and reduce lubricant migration while keeping the bearing friction at a desired level.



Non-Contact



Light-Contact



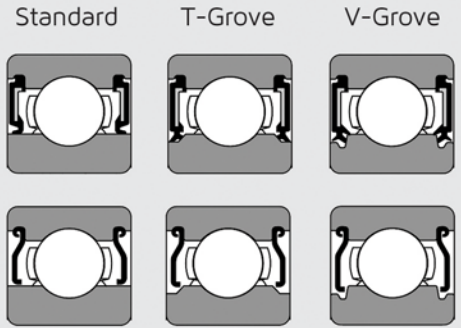
Standard-Contact

TYPE OF INNER RING GROOVE

Various inner ring grooves with seals and shields

Where the inner ring face width is sufficient for the grooves, a "T" or "V" shape groove is machined on the OD (shoulders) of the inner ring to protect the seal contact lip and improve sealing performance.

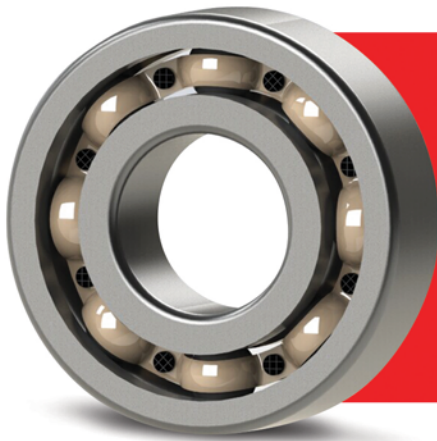
The groove typically creates a difficult entry path for contaminants and inhibits the migration of the lubricant.



LUBRICATION (GREASES)

Selecting the suitable grease for the application can be critical which leads to either the bearings success or failure. WJB electric motor bearings are stocked with electric motor quality grease (Mobil PolyrexEM) or we can select grease based on the application requirements.

Grease	Application Use
Mobil Polyrex EM	WJB standard grease
Mobil Beacon 325	Low temperature
Kyodo Yushi Multemp SRL	Miniature, higher speed
Chevron FM ALC EP2	Food grade (FDA Approved)
Kyodo Yushi Multemp SB-M	Miniature, higher temperature
Nyogel 75xG	Electrically conductive grease



CERAMIC (SILICON NITRIDE) BALLS

In an application where the bearing is exposed to stray electric current or operated at very high speeds, hybrid ball bearings are an alternative option. Applications include variable speed electric motors with high conductivity and generators.

Ceramic ball bearing can also operate for a longer period without lubrication compared to steel ball bearing.

CONTROLLING BALL BEARING VIBRATIONS AND NOISE FOR ELECTRIC MOTOR APPLICATION

In electric motor applications, bearings with lower noise level and vibration are preferred. To achieve low noise and low vibration in the bearing, WJB controls all necessary production processes to yield a bearing with low imperfections, high precision and accurate raceway surface finishes. WJB's special designation for bearings that meet all these strict requirements is Electric Motor Quality (EMQ).

All WJB bearings that are classified as EMQ bearings are 100% noise tested on state-of-the-art bearing vibration testers (Anderson in fig. 1) to meet OEM bearing noise requirements. The bearing vibration (noise) tester measures minute vibrations from bearing imperfections and displays the bearings vibration levels over three frequency ranges (low, medium and high) as well as amplified audibly to aid the inspector during inspection.

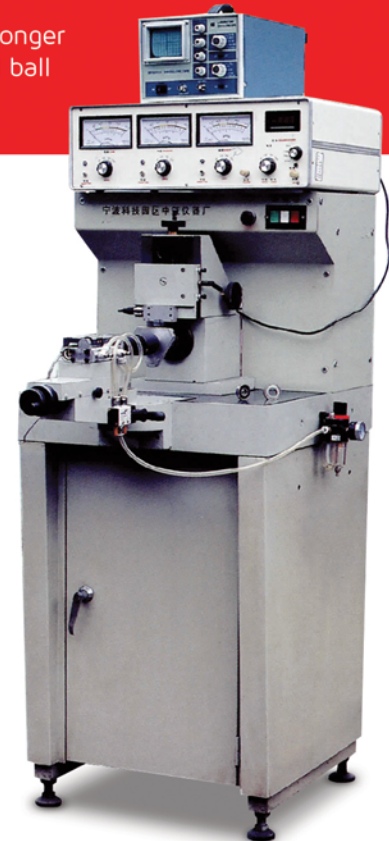


Figure 1: Standard bearing noise tester for electric motor bearings



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WJB is an expert in the design, manufacturing, and supply of a wide range of bearing products. Our manufacturing facilities have been awarded ISO9001 and TS16949 certifications. WJB has a worldwide network of manufacturing, research, and development facilities. We are able to develop and launch fully customized bearing solutions to complex mechanical systems using ROMAX and COBRA analysis software. Around the world, companies in the industrial and automotive industry have improved their performance by turning to WJB.

