

# Specialty Ball Bearings

# NICE®

## ER Series Ball Bearings

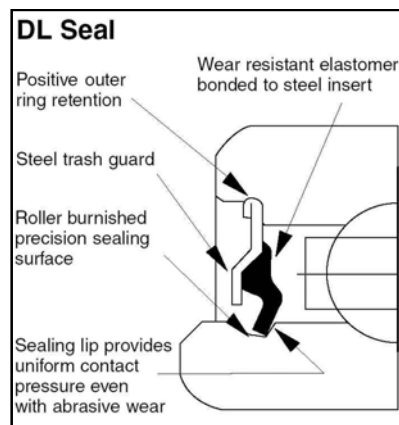


ER series ball bearings, an industry standard, are used in demanding applications such as:

- Cardboard/Packaging Machinery
- Paper/Printing Machinery
- Carpet Tufting/Manufacturing
- General Conveyor Equipment
- Pumps/Blowers

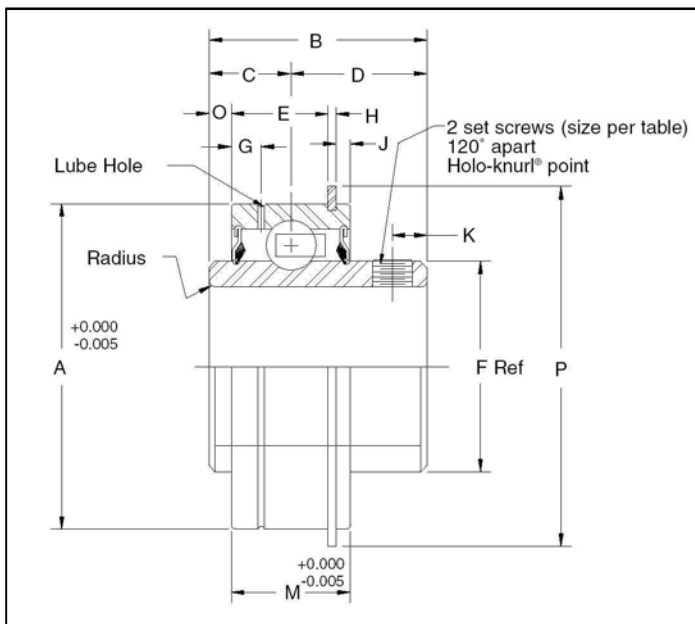
### ER Series Features and Benefits

- Exclusive, heavy duty "DL" seals
  - Permanently sealed and prelubricated for long life
  - Steel trash guard and inner ring labyrinth groove provide superior protection of sealing member
  - Better protection in wet/moist environments
  - Optional low-torque seal is available
- Two lubrication holes allow for re-greasing
- Two knurled cup point set screws offer excellent resistance to loosening under vibratory conditions
- Fully ground, SAE 52100 chrome alloy steel races
- Black oxide finish provides added corrosion resistance
- Interchanges with Sealmaster®, Fafnir, and MB/Rexnord ER series



800.390.3300

[www.rbcbearings.com](http://www.rbcbearings.com)



### Material

Inner and Outer Ring  
 52100 Hardened & Ground:  
 Black Oxide Finish  
 Balls: Chrome  
 Retainer: Nylon  
 Seals: Nitrile/CRS  
 Snap Ring: CRS

| Item     | Shaft Dia. | A      | B       | C     | D      | E     | F       | G     | H    | K    | J    | M      | Radius | O     | P       | Set Screws |
|----------|------------|--------|---------|-------|--------|-------|---------|-------|------|------|------|--------|--------|-------|---------|------------|
| RBC ER10 | 5/8        | 1.8504 | 1 7/32  | 13/32 | 13/16  | 31/64 | 1 7/64  | 9/64  | 3/64 | 3/32 | 3/16 | 5/8    | 0.040  | 0.094 | 2 1/16  | 10-32      |
| RBC ER12 | 3/4        | 1.8504 | 1 7/32  | 13/32 | 13/16  | 31/64 | 1 7/64  | 9/64  | 3/64 | 3/32 | 3/16 | 5/8    | 0.040  | 0.094 | 2 1/16  | 10-32      |
| RBC ER16 | 1          | 2.0472 | 1 3/8   | 33/64 | 55/64  | 39/64 | 1 21/64 | 3/16  | 3/64 | 3/32 | 7/32 | 3/4    | 0.040  | 0.141 | 2 17/64 | 1/4-28     |
| RBC ER19 | 1 3/16     | 2.4409 | 1 1/2   | 5/8   | 7/8    | 11/16 | 1 9/16  | 7/32  | 1/16 | 1/8  | 7/32 | 7/8    | 0.040  | 0.188 | 2 21/32 | 1/4-28     |
| RBC ER20 | 1 1/4      | 2.8346 | 1 11/16 | 11/16 | 1      | 3/4   | 1 13/16 | 7/32  | 1/16 | 1/8  | 1/4  | 15/16  | 0.040  | 0.219 | 3 5/64  | 1/4-28     |
| RBC ER23 | 1 7/16     | 2.8346 | 1 11/16 | 11/16 | 1      | 3/4   | 1 13/16 | 7/32  | 1/16 | 1/8  | 1/4  | 15/16  | 0.040  | 0.219 | 3 5/64  | 1/4-28     |
| RBC ER24 | 1 1/2      | 3.1496 | 1 15/16 | 3/4   | 1 3/16 | 29/32 | 2 3/64  | 1/4   | 1/16 | 1/8  | 5/16 | 1 3/32 | 0.062  | 0.203 | 3 13/32 | 5/16-24    |
| RBC ER31 | 1 15/16    | 3.5433 | 2 1/32  | 3/4   | 1 9/32 | 29/32 | 2 15/32 | 19/64 | 3/32 | 1/8  | 3/8  | 1 1/8  | 0.062  | 0.187 | 3 25/32 | 3/8-24     |
| RBC ER35 | 2 3/16     | 3.9370 | 2 3/16  | 7/8   | 1 5/16 | 31/32 | 2 23/32 | 19/64 | 3/32 | 1/8  | 3/8  | 1 3/16 | 0.080  | 0.281 | 4 3/16  | 3/8-24     |

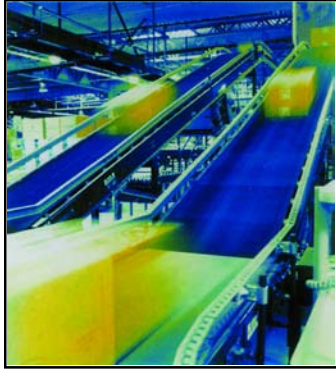
### ER Series Load Ratings

Radial capacities in table are based on L10 life of 10,000 hours.

To determine the capacity for a different L10 life, multiply the capacity from the table below by the appropriate factor:

| L10, Hrs. Factor | 5,000 | 30,000 | 50,000 | 100,000 |
|------------------|-------|--------|--------|---------|
|                  | 1.26  | 0.69   | 0.59   | 0.46    |

| Size     | Basic Load Rating<br>C, lbf | Static Load Rating<br>Co, lbf | Radial Capacity in Pounds vs. Revolutions per Minute<br>(for L10 life of 10,000 hours) |      |      |      |      |      |      |      |
|----------|-----------------------------|-------------------------------|--|------|------|------|------|------|------|------|
|          |                             |                               | 50   | 150  | 300  | 500  | 1200 | 1800 | 2500 | 5000 |
| RBC ER10 | 2860                        | 1480                          | 921  | 638  | 506  | 427  | 319  | 278  | 250  | 198  |
| RBC ER12 | 2860                        | 1480                          | 921  | 638  | 506  | 427  | 319  | 278  | 250  | 198  |
| RBC ER16 | 3145                        | 1770                          | 1012   | 702  | 557  | 469  | 351  | 306  | 274  | 218  |
| RBC ER19 | 4360                        | 2535                          | 1403   | 973  | 772  | 651  | 486  | 425  | 381  | 302  |
| RBC ER20 | 5755                        | 3450                          | 1852   | 1284 | 1019 | 859  | 642  | 561  | 502  | 399  |
| RBC ER23 | 5755                        | 3450                          | 1852   | 1284 | 1019 | 859  | 642  | 561  | 502  | 399  |
| RBC ER24 | 6535                        | 4025                          | 2103   | 1458 | 1157 | 976  | 729  | 637  | 571  | 453  |
| RBC ER31 | 7900                        | 5250                          | 2542   | 1762 | 1399 | 1180 | 881  | 770  | 690  | 547  |
| RBC ER35 | 9760                        | 6610                          | 3142   | 2178 | 1729 | 1458 | 1089 | 951  | 852  | 676  |



Material Handling Industry

| Recommended Relubrication Intervals<br>(hours @ ambient temperature) |          |          |
|--|----------|----------|
| Size   | 1000 rpm | 5000 rpm |
| RBC ER10   | 21000    | 9000     |
| RBC ER12   | 18000    | 7000     |
| RBC ER16   | 17000    | 6000     |
| RBC ER19   | 16000    | 5000     |
| RBC ER20   | 16000    | 5000     |
| RBC ER23   | 15000    | 4000     |
| RBC ER24   | 15000    | 3000     |
| RBC ER31   | 14000    | 2000     |
| RBC ER35   | 14000    | 1500     |

| Maximum Recommended Torques<br>Holo-knur!® Point Set Screws |                           |
|---|---------------------------|
| Nominal Size  | Max. Torque<br>(inch-lbs) |
| 10  | 34                        |
| 1/4   | 78                        |
| 5/16  | 156                       |
| 3/8   | 273                       |



Paper/Printing Industry

| Recommended Shaft Tolerances<br>For Light & Medium Duty Applications |  |
|--|--|
| Nominal Shaft-Size   | Shaft Tolerance                                      |
| 5/8 to 1-15/16 in.<br>2 to 3 in.                                     | + 0.0000 to - 0.0005 in.<br>+ 0.0000 to - 0.0010 in. |

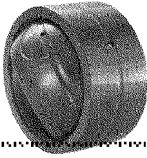
| Recommended Housing Fits |                             |        |                  |        |               |        |                    |        |               |        |
|--------------------------|-----------------------------|--------|------------------|--------|---------------|--------|--------------------|--------|---------------|--------|
| Bearing Number           | Outside Diameter of Bearing |        | Rotating Housing |        |               |        | Stationary Housing |        |               |        |
|                          |                             |        | Diameter         |        | Resultant Fit |        | Diameter           |        | Resultant Fit |        |
|                          |                             |        | Min.             | Max.   | Loose         | Tight  | Min.               | Max.   | Loose         | Tight  |
| RBC ER10                 | 1.8499                      | 1.8504 | 1.8498           | 1.8504 | 0.0005        | 0.0006 | 1.8503             | 1.8509 | 0.0010        | 0.0001 |
| RBC ER12                 | 1.8499                      | 1.8504 | 1.8498           | 1.8504 | 0.0005        | 0.0006 | 1.8503             | 1.8509 | 0.0010        | 0.0001 |
| RBC ER16                 | 2.0466                      | 2.0472 | 2.0466           | 2.0471 | 0.0005        | 0.0006 | 2.0471             | 2.0476 | 0.0010        | 0.0001 |
| RBC ER19                 | 2.4403                      | 2.4409 | 2.4403           | 2.4408 | 0.0005        | 0.0006 | 2.4408             | 2.4413 | 0.0010        | 0.0001 |
| RBC ER20                 | 2.8340                      | 2.8346 | 2.8340           | 2.8345 | 0.0005        | 0.0006 | 2.8345             | 2.8350 | 0.0010        | 0.0001 |
| RBC ER23                 | 2.8340                      | 2.8346 | 2.8340           | 2.8345 | 0.0005        | 0.0006 | 2.8345             | 2.8350 | 0.0010        | 0.0001 |
| RBC ER24                 | 3.1490                      | 3.1496 | 3.1490           | 3.1495 | 0.0005        | 0.0006 | 3.1495             | 3.1500 | 0.0010        | 0.0001 |
| RBC ER31                 | 3.5425                      | 3.5433 | 3.5426           | 3.5432 | 0.0007        | 0.0007 | 3.5432             | 3.5438 | 0.0013        | 0.0001 |
| RBC ER35                 | 3.9362                      | 3.9370 | 3.9363           | 3.9369 | 0.0007        | 0.0007 | 3.9369             | 3.9375 | 0.0013        | 0.0001 |

The fits above are recommended based on standard ball bearing fitting practices for bearings with rigid outer ring mountings. They are intended for general purpose applications. Consult with RBC engineering for evaluation of fits for severe applications.



# Innovation. Commitment. Quality.

RBC has been producing bearings in the USA since 1919. In addition to unique custom bearings, RBC offers a full line of standard industrial and aerospace bearings, including:



### Spherical Plain Bearings

Radial, angular contact, extended inner ring, high misalignment. **QuadLube**<sup>®</sup>, **ImpactTuff**<sup>®</sup>, **SpreadLock**<sup>®</sup> Seal, **CrossLube**<sup>®</sup>, **DuraLube**<sup>®</sup>, **MillTuff**<sup>®</sup> bearings, and self-lubricating bearings. Available in inch and metric sizes.



### Rod Ends

Commercial and industrial, precision, Mil-Spec series, self-lubricating, and aircraft. **Heim**<sup>®</sup>, **Unibal**<sup>®</sup> and **Spherco**<sup>®</sup> brands. Available in inch and metric sizes.



### Thin Section Ball Bearings

Standard cross sections to one inch. Sizes to 40 inches. Stainless steel and other materials are available. Seals are available on all sizes and standard cross sections.



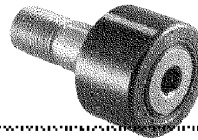
### Ball Bearings

Precision ground, semiground, unground. High loads, long life, smooth operation. **Nice**<sup>®</sup> brand is offered in caged and full complement configurations.



### Self-Lubricating Bearings

Radial, thrust, rod ends, spherical bearings, high temperature, high loads. Available in inch and metric sizes. **Fiberglide**<sup>®</sup>.



### Cam Followers

Standard stud, heavy stud, yoke type, caged roller followers. Patented **RBC Roller**<sup>®</sup> cylindrical roller cam followers, **HexLube**<sup>®</sup> universal cam followers, airframe track rollers.



### Airframe Control Bearings

Ball bearing types, self-lubricating types, needle roller track rollers.



### Needle Roller Bearings

**Pitchlign**<sup>®</sup> caged heavy duty needle roller bearings, inner rings, **TJ TandemRoller**<sup>®</sup> bearings for long life.



### Pins and shafts

Pins, needle rollers, shafts, and rollers.



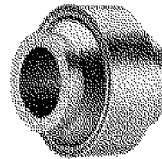
### Tapered Roller and Thrust Bearings

**Tyson**<sup>®</sup> brand case-hardened and through-hardened tapered roller and tapered thrust bearings available in many sizes. Used in Class 8 heavy truck and trailer wheel bearings, gearboxes, and final drive transmissions.



### Ball Screws

Precision ground, rolled, ball splines. Long life, low wear, high accuracy. **QuickTurn**<sup>®</sup> Ball Screw Repair Service.



### Specials

RBC manufactures many specialty bearings for the aerospace, oil and energy, semiconductor equipment, packaging, heavy truck, and other industries.



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