


**The Timken Company**

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**Part Number 23980EMBW33C2, Spherical Roller Bearings - Brass Cage**

Spherical bearings are designed to manage high radial loads even when misalignment, poor lubrication, contamination, extreme speeds or critical application stresses are present.




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**Specifications**

|                        |               |
|------------------------|---------------|
| <b>Design Unit</b>     | Metric        |
| <b>d - Bore</b>        | 400 mm        |
| <b>Cage Type</b>       | EMB           |
| <b>Cage Material</b>   | Brass         |
| <b>Superseded Part</b> | 23980YMBW33C2 |

**Dimensions**

|  |                      |
|--|----------------------|
| <b>D - Outer Diameter</b>  | 540 mm<br>21.2600 in |
|  <b>- Inner Ring Width</b> | 106 mm<br>4.173 in   |

|                             |                     |
|-----------------------------|---------------------|
| <b>B - Outer Ring Width</b> | 106 mm<br>4.1730 in |
|-----------------------------|---------------------|

## Abutment and Fillet Dimensions

|   |                  |
|---|------------------|
| <b>R - Inner Ring "To Clear" Radius<sup>1</sup></b> | 3 mm<br>0.120 in |
|---|------------------|

|   |                 |
|---|-----------------|
| <b>r - Outer Ring "To Clear" Radius<sup>2</sup></b> | 3 mm<br>0.12 in |
|---|-----------------|

|   |                      |
|---|----------------------|
| <b>da - Inner Ring Backing Diameter</b> | 436 mm<br>17.2000 in |
|---|----------------------|

|   |                          |
|---|--------------------------|
| <b>Da - Outer Ring Backing Diameter</b> | 511.000 mm<br>20.1000 in |
|---|--------------------------|

## Basic Load Ratings

|                                  |                         |
|----------------------------------|-------------------------|
| <b>C0 - Static Radial Rating</b> | 4020000 N<br>903000 lbf |
|----------------------------------|-------------------------|

|   |                         |
|---|-------------------------|
| <b>C1(2) - Dynamic Radial Rating (Two-Rows)</b> | 2180000 N<br>489000 lbf |
|---|-------------------------|

## Factors

|                                   |      |
|-----------------------------------|------|
| <b>e - ISO Factor<sup>3</sup></b> | 0.17 |
|-----------------------------------|------|

|                                    |     |
|------------------------------------|-----|
| <b>Y0 - ISO Factor<sup>4</sup></b> | 3.9 |
|------------------------------------|-----|

|                                    |      |
|------------------------------------|------|
| <b>Y1 - ISO Factor<sup>5</sup></b> | 3.99 |
|------------------------------------|------|

|                                    |      |
|------------------------------------|------|
| <b>Y2 - ISO Factor<sup>6</sup></b> | 5.94 |
|------------------------------------|------|

|  |         |
|--|---------|
| <b>Reference Thermal Speed Rating (Grease)</b> | 690 rpm |
|--|---------|

|   |         |
|---|---------|
| <b>Reference Thermal Speed Rating (Oil)<sup>7</sup></b> | 810 rpm |
|---|---------|

|   |        |
|---|--------|
| <b>Cg - Geometry Factor<sup>8</sup></b> | 0.1464 |
|---|--------|

<sup>1</sup> Maximum housing fillet radius that bearing corners will clear.

<sup>2</sup> Maximum shaft fillet radius that bearing corners will clear.

<sup>3</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

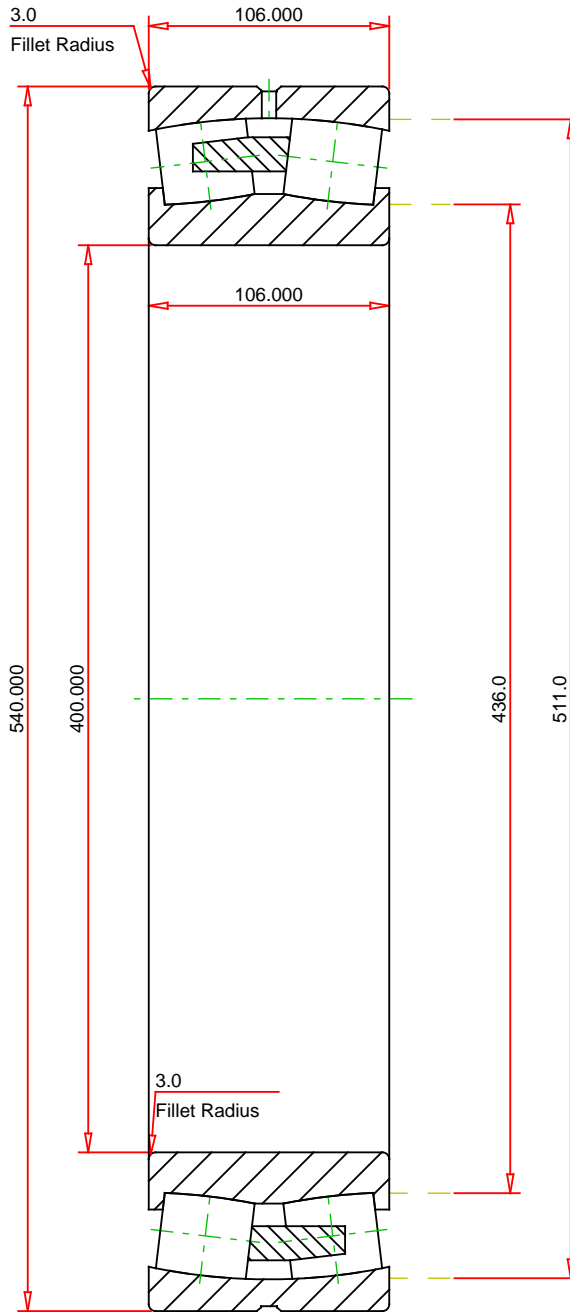
<sup>4</sup> These factors apply for both inch and metric calculations. See engineering

<sup>5</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

<sup>6</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

<sup>7</sup> See thermal speed ratings in the engineering section.

<sup>8</sup> Geometry constant for Lubrication Life Adjustment Factor a3l.



METRIC UNITS

|                           |         |
|---------------------------|---------|
| Number of Rollers Per Row | 36      |
| ISO Factor e              | 0.17    |
| ISO Factor Y0             | 3.90    |
| ISO Factor Y1             | 3.99    |
| ISO Factor Y2             | 5.94    |
| Bearing Weight            | 69.2 kg |
| Cage Type                 | EMB     |
| Cage Material             | Brass   |

**TIMKEN**®

**23980EMBW33C2**  
SRB ASSEMBLY

**THE TIMKEN COMPANY**  
NORTH CANTON, OHIO USA

|                                  |        |   |
|----------------------------------|--------|---|
| Dynamic Radial Rating (Two Rows) | 218000 | N |
| Static Radial Rating             | 402000 | N |

Every reasonable effort has been made to ensure the accuracy of the information contained in this writing, but no liability is accepted for errors, omissions or for any other reason.

**FOR DISCUSSION ONLY**