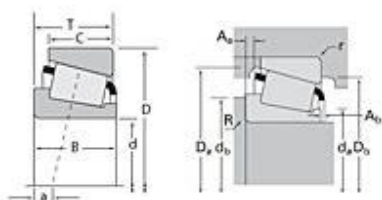


# TIMKEN

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## Timken Part Number 3984 - 3920, Tapered Roller Bearings - TS (Tapered Single) Imperial

This is the most basic and most widely used type of tapered roller bearing. It consists of two main separable parts: the cone (inner ring) assembly and the cup (outer ring). It is typically mounted in opposing pairs on a shaft.



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### Specifications

|                         |                     |
|-------------------------|---------------------|
| <b>Series</b>           | 3900                |
| <b>Cone Part Number</b> | 3984                |
| <b>Cup Part Number</b>  | 3920                |
| <b>Design Units</b>     | Imperial            |
| <b>Bearing Weight</b>   | 2.60 lb<br>1.200 Kg |
| <b>Cage Type</b>        | Stamped Steel       |

### Dimensions

|                               |                         |
|-------------------------------|-------------------------|
| <b>d - Bore</b>               | 2.6250 in<br>66.675 mm  |
| <b>D - Cup Outer Diameter</b> | 4.4375 in<br>112.713 mm |

|                          |                        |
|--------------------------|------------------------|
| <b>B - Cone Width</b>    | 1.1830 in<br>30.048 mm |
| <b>C - Cup Width</b>     | 0.9375 in<br>23.813 mm |
| <b>T - Bearing Width</b> | 1.1875 in<br>30.163 mm |

#### Abutment and Fillet Dimensions

|  |                      |
|--|----------------------|
| <b>R - Cone Backface "To Clear" Radius<sup>1</sup></b> | 0.14 in<br>3.560 mm  |
| <b>r - Cup Backface "To Clear" Radius<sup>2</sup></b>  | 0.130 in<br>3.30 mm  |
| <b>da - Cone Frontface Backing Diameter</b>            | 3.54 in<br>73.91 mm  |
| <b>db - Cone Backface Backing Diameter</b>             | 3.15 in<br>80.01 mm  |
| <b>Da - Cup Frontface Backing Diameter</b>             | 4.18 in<br>106.17 mm |
| <b>Db - Cup Backface Backing Diameter</b>              | 3.90 in<br>99.06 mm  |
| <b>Ab - Cage-Cone Frontface Clearance</b>              | 0.08 in<br>2 mm      |
| <b>Aa - Cage-Cone Backface Clearance</b>               | 0.06 in<br>1.5 mm    |
| <b>a - Effective Center Location<sup>3</sup></b>       | -0.18 in<br>-4.60 mm |

#### Basic Load Ratings

|   |                       |
|---|-----------------------|
| <b>C90 - Dynamic Radial Rating (90 million revolutions)<sup>4</sup></b>             | 8090 lbf<br>36000 N   |
| <b>C1 - Dynamic Radial Rating (1 million revolutions)<sup>5</sup></b>               | 31200 lbf<br>139000 N |
| <b>C0 - Static Radial Rating</b>  | 43000 lbf<br>191000 N |
| <b>C<sub>a90</sub> - Dynamic Thrust Rating (90 million revolutions)<sup>6</sup></b> | 5570 lbf<br>24800 N   |

## Factors

|   |       |
|---|-------|
| <b>K - Factor<sup>7</sup></b>                           | 1.45  |
| <b>e - ISO Factor<sup>8</sup></b>                       | 0.4   |
| <b>Y - ISO Factor<sup>9</sup></b>                       | 1.49  |
| <b>G1 - Heat Generation Factor<br/>(Roller-Raceway)</b> | 75.2  |
| <b>G2 - Heat Generation Factor<br/>(Rib-Roller End)</b> | 21.3  |
| <b>Cg - Geometry Factor</b>                             | 0.109 |

<sup>1</sup> These maximum fillet radii will be cleared by the bearing corners.

<sup>2</sup> These maximum fillet radii will be cleared by the bearing corners.

<sup>3</sup> Negative value indicates effective center inside cone backface.

<sup>4</sup> Based on  $90 \times 10^6$  revolutions  $L_{10}$  life, for The Timken Company life calculation method.  $C_{90}$  and  $C_{a90}$  are radial and thrust values.

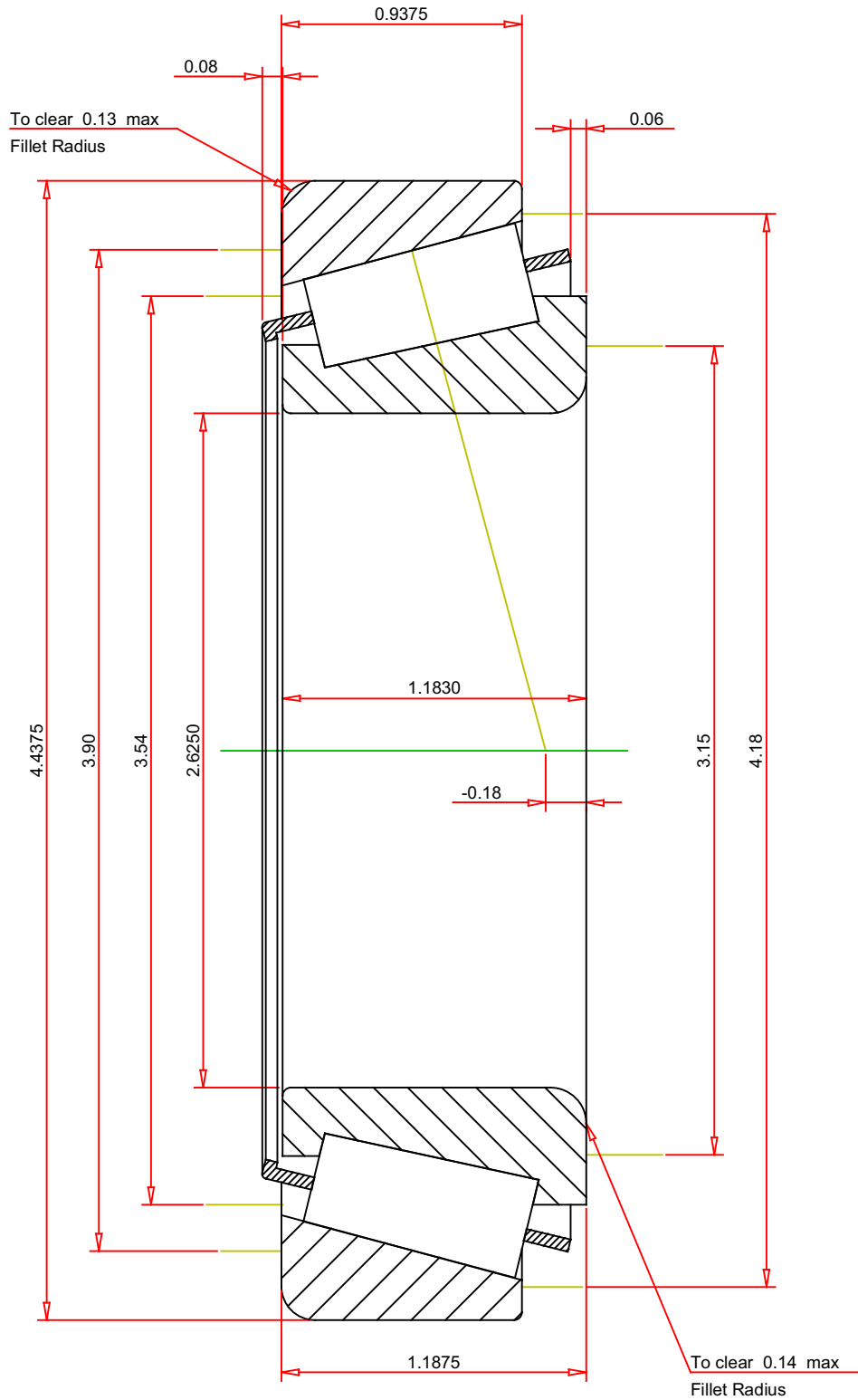
<sup>5</sup> Based on  $1 \times 10^6$  revolutions  $L_{10}$  life, for the ISO life calculation method.

<sup>6</sup> Based on  $90 \times 10^6$  revolutions  $L_{10}$  life, for The Timken Company life calculation method.  $C_{90}$  and  $C_{a90}$  are radial and thrust values for a single-row,  $C_{90(2)}$  is the two-row radial value.

<sup>7</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

<sup>8</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

<sup>9</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.



**IMPERIAL UNITS**

|                           |            |
|---------------------------|------------|
| ISO Factor - e            | 0.4        |
| ISO Factor - Y            | 1.49       |
| Bearing Weight            | 2.6 lb     |
| Number of Rollers Per Row | 22         |
| Effective Center Location | -0.18 inch |

**TIMKEN®**

**3984 - 3920  
TS BEARING ASSEMBLY**

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

|                              |           |
|------------------------------|-----------|
| K Factor                     | 1.45      |
| Dynamic Radial Rating - C90  | 8090 lbf  |
| Dynamic Thrust Rating - Ca90 | 5570 lbf  |
| Static Radial Rating - C0    | 43000 lbf |
| Dynamic Radial Rating - C1   | 31200 lbf |

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**