


**The Timken Company**

4500 Mt Pleasant St. NW

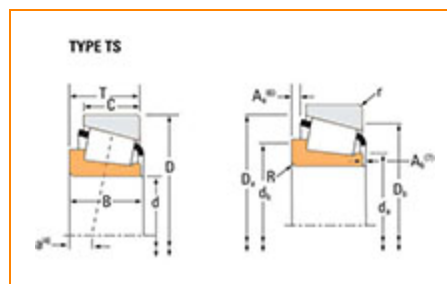
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## Part Number 2581, Tapered Roller Bearings - Single Cones - Imperial

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>                                                                               | 2500                  |
| <b>Cone Part Number</b>                                                                     | 2581                  |
| <b>Design Units</b>                                                                         | Imperial              |
| <b>Cage Type</b>                                                                            | Stamped Steel         |
| <b>C1 - Dynamic Radial Rating<br/>(Two-Row, 1 million<br/>revolutions)<sup>1</sup></b>      | 32800 lbf<br>146000 N |
| <b>C90(2) - Dynamic Radial Rating<br/>(Two-Row, 90 million<br/>revolutions)<sup>2</sup></b> | 8500 lbf<br>37800 N   |



Dimensions

|                      |                        |
|----------------------|------------------------|
| <b>d - Cone Bore</b> | 1 5/16 in<br>33.338 mm |
|----------------------|------------------------|

|                       |                        |
|-----------------------|------------------------|
| <b>B - Cone Width</b> | 0.9983 in<br>25.357 mm |
|-----------------------|------------------------|

## Abutment and Fillet Dimensions

|                                                            |                   |
|------------------------------------------------------------|-------------------|
| <b>R - Cone Backface "To Clear"<br/>Radius<sup>3</sup></b> | 0.03 in<br>0.8 mm |
|------------------------------------------------------------|-------------------|

|                                                 |                  |
|-------------------------------------------------|------------------|
| <b>da - Cone Frontface Backing<br/>Diameter</b> | 1.54 in<br>39 mm |
|-------------------------------------------------|------------------|

|                                                |                    |
|------------------------------------------------|--------------------|
| <b>db - Cone Backface Backing<br/>Diameter</b> | 1.56 in<br>39.5 mm |
|------------------------------------------------|--------------------|

|                                               |                   |
|-----------------------------------------------|-------------------|
| <b>Ab - Cage-Cone Frontface<br/>Clearance</b> | 0.06 in<br>1.5 mm |
|-----------------------------------------------|-------------------|

|                                              |                   |
|----------------------------------------------|-------------------|
| <b>Aa - Cage-Cone Backface<br/>Clearance</b> | 0.02 in<br>0.5 mm |
|----------------------------------------------|-------------------|

|                                                  |                     |
|--------------------------------------------------|---------------------|
| <b>a - Effective Center Location<sup>4</sup></b> | -0.34 in<br>-8.6 mm |
|--------------------------------------------------|---------------------|

## Basic Load Ratings

|                                                                             |                     |
|-----------------------------------------------------------------------------|---------------------|
| <b>C90 - Dynamic Radial Rating (90<br/>million revolutions)<sup>5</sup></b> | 4880 lbf<br>21700 N |
|-----------------------------------------------------------------------------|---------------------|

|                                                                           |                      |
|---------------------------------------------------------------------------|----------------------|
| <b>C1 - Dynamic Radial Rating (1<br/>million revolutions)<sup>6</sup></b> | 18800 lbf<br>83700 N |
|---------------------------------------------------------------------------|----------------------|

|                                  |                      |
|----------------------------------|----------------------|
| <b>C0 - Static Radial Rating</b> | 21200 lbf<br>94400 N |
|----------------------------------|----------------------|

|                                                                                         |                     |
|-----------------------------------------------------------------------------------------|---------------------|
| <b>C<sub>a90</sub> - Dynamic Thrust Rating (90<br/>million revolutions)<sup>7</sup></b> | 2280 lbf<br>10200 N |
|-----------------------------------------------------------------------------------------|---------------------|

## Factors

|                                                         |        |
|---------------------------------------------------------|--------|
| <b>K - Factor<sup>8</sup></b>                           | 2.14   |
| <b>G1 - Heat Generation Factor<br/>(Roller-Raceway)</b> | 23.6   |
| <b>G2 - Heat Generation Factor<br/>(Rib-Roller End)</b> | 9.6    |
| <b>Cg - Geometry Factor<sup>9</sup></b>                 | 0.0656 |

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

<sup>2</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>3</sup> These maximum fillet radii will be cleared by the bearing corners.

<sup>4</sup> Negative value indicates effective center inside cone backface.

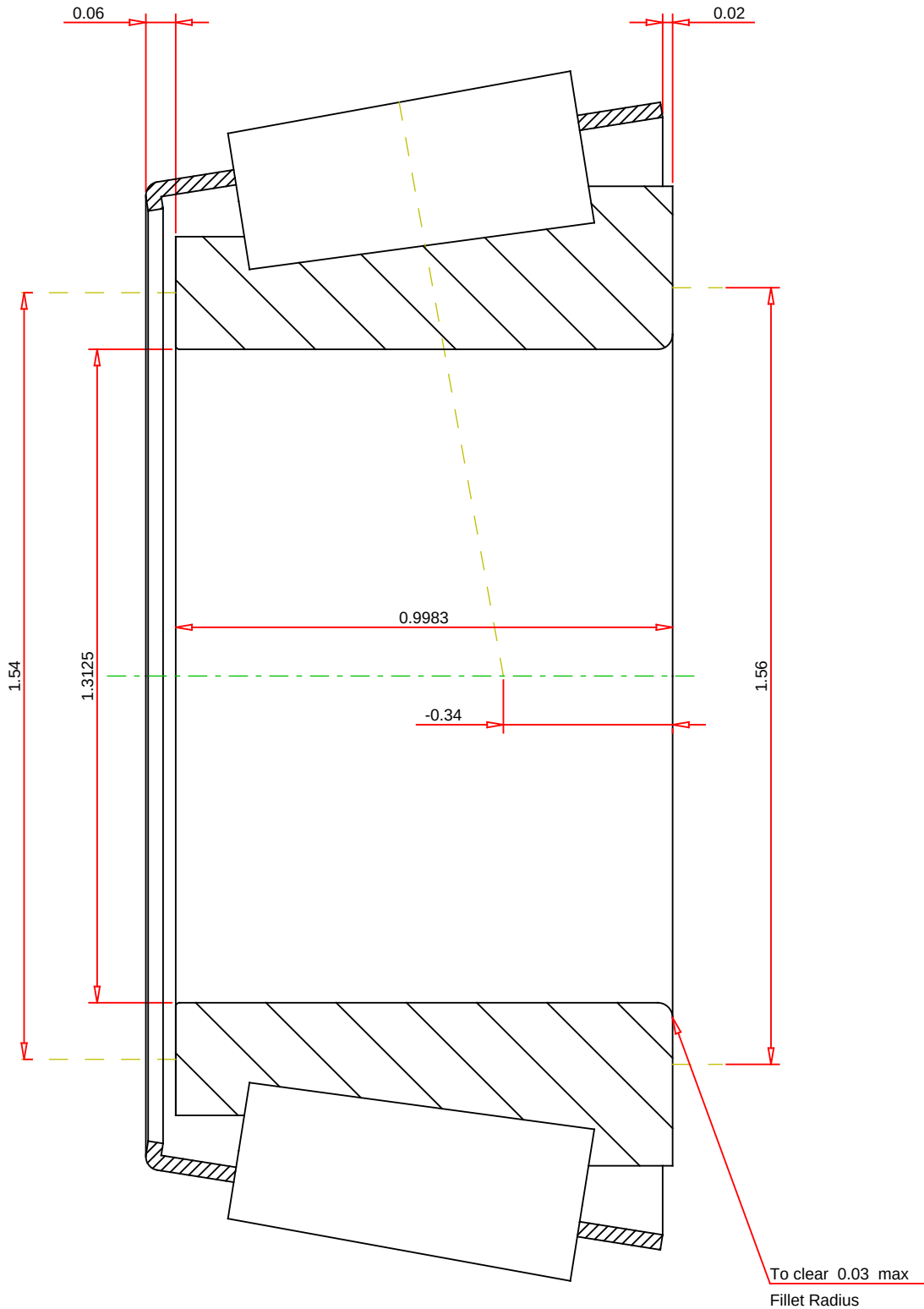
<sup>5</sup> Based on  $90 \times 10^6$  revolutions  $L_{10}$  life, for The Timken Company life calculation method.  $C_{90}$  and  $C_{a90}$  are radial and thrust values.

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

<sup>7</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>8</sup> These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

<sup>9</sup> Geometry constant for Lubrication Life Adjustment Factor  $a_3$ .



IMPERIAL UNITS

|                                                                                                                                                                                                   |                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>Number of Rollers Per Row16</div>                                                                                                                                                            | <div><div>TIMIKEN®</div><div>THE TIMKEN COMPANY</div><div>NORTH CANTON, OHIO USA</div></div> | <div><div>2581</div><div>Tapered Roller Bearings - Single Cones - Imperial</div></div> <div><div><div>K Factor</div><div>Dynamic Radial Rating - C90</div><div>Dynamic Thrust Rating - Ca90</div><div>Dynamic Radial Rating - C1</div></div><div><div>2.14</div><div>4880</div><div>2280</div><div>18800</div></div><div><div>lbf</div><div>lbf</div><div>lbf</div><div>lbf</div></div></div> |
| <div>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.</div> |                                                                                              | <div>FOR DISCUSSION ONLY</div>                                                                                                                                                                                                                                                                                                                                                                |