


**The Timken Company**

4500 Mt Pleasant St. NW

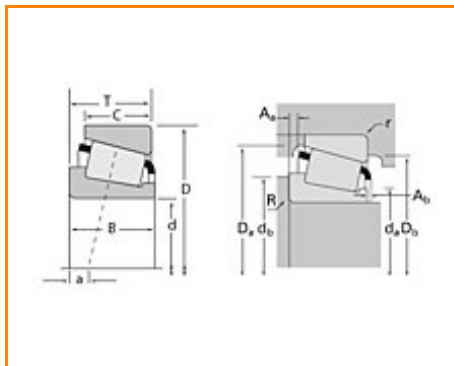
N. Canton, OH 44720

**Phone:** (234) 262-3000

**E-Mail:** [CustomerCAD@timken.com](mailto:CustomerCAD@timken.com) • **Web site:** [www.timken.com](http://www.timken.com)

## Timken Part Number 31590 - 31520, 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>	31500
<b>Cone Part Number</b>	31590
<b>Cup Part Number</b>	31520
<b>Design Units</b>	Imperial
<b>Bearing Weight</b>	0.600 Kg 1.40 lb
<b>Cage Type</b>	Stamped Steel

### Dimensions

<b>d - Bore</b>	33.338 mm 1.3125 in
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<b>D - Cup Outer Diameter</b>	76.2 mm 3 in
<b>B - Cone Width</b>	28.575 mm 1.1250 in
<b>C - Cup Width</b>	23.813 mm 0.9375 in
<b>T - Bearing Width</b>	29.370 mm 1.1563 in

## Abutment and Fillet Dimensions

<b>R - Cone Backface "To Clear" Radius<sup>1</sup></b>	0.760 mm 0.03 in
<b>r - Cup Backface "To Clear" Radius<sup>2</sup></b>	3.30 mm 0.130 in
<b>da - Cone Frontface Backing Diameter</b>	42.42 mm 1.67 in
<b>db - Cone Backface Backing Diameter</b>	42.93 mm 1.69 in
<b>Da - Cup Frontface Backing Diameter</b>	71.90 mm 2.87 in
<b>Db - Cup Backface Backing Diameter</b>	64.01 mm 2.52 in
<b>Ab - Cage-Cone Frontface Clearance</b>	2 mm 0.08 in
<b>Aa - Cage-Cone Backface Clearance</b>	1 mm 0.04 in
<b>a - Effective Center Location<sup>3</sup></b>	-7.60 mm -0.3 in

## Basic Load Ratings

<b>C90 - Dynamic Radial Rating (90 million revolutions)<sup>4</sup></b>	24600 N 5520 lbf
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<b>C1 - Dynamic Radial Rating (1 million revolutions)<sup>5</sup></b>	94700 N 21300 lbf
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<b>C0 - Static Radial Rating</b>	107000 N 24100 lbf
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<b>C<sub>a90</sub> - Dynamic Thrust Rating (90 million revolutions)<sup>6</sup></b>	16900 N 3800 lbf
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## Factors

<b>K - Factor<sup>7</sup></b>	1.45
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<b>e - ISO Factor<sup>8</sup></b>	0.40
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<b>Y - ISO Factor<sup>9</sup></b>	1.49
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<b>G1 - Heat Generation Factor (Roller-Raceway)</b>	26.3
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<b>G2 - Heat Generation Factor (Rib-Roller End)</b>	9.08
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<b>Cg - Geometry Factor</b>	0.0773
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<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.

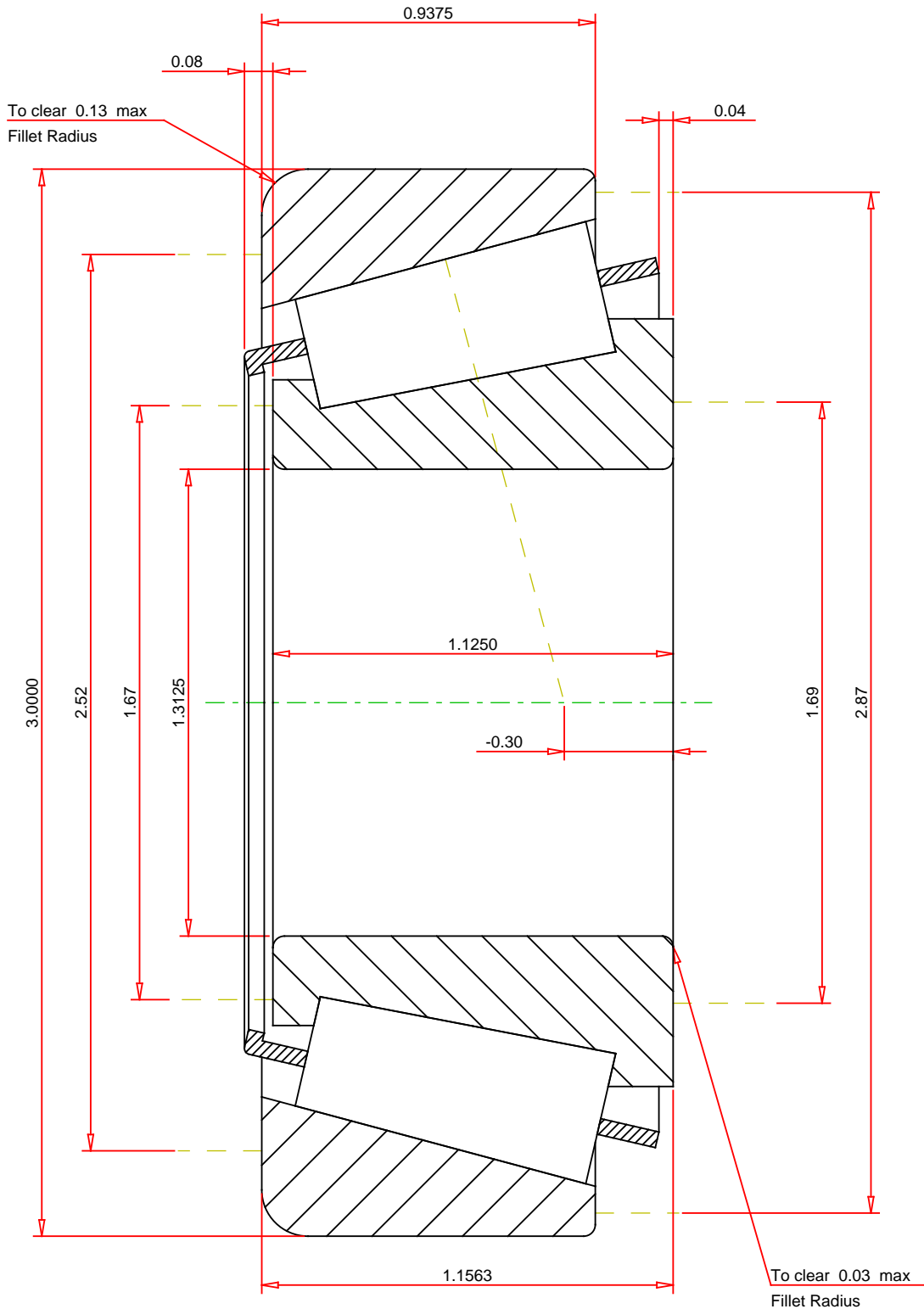
<sup>5</sup> Based on  $1 \times 10^6$  revolutions  $L_{10}$  life, for the ISO life calculation method.

<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 1.4 lb  
Number of Rollers Per Row 15  
Effective Center Location -0.3 inch

**TIMKEN®**

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

**31590 - 31520**  
**TS BEARING ASSEMBLY**

K Factor 1.45  
Dynamic Radial Rating - C90 24600 lbf  
Dynamic Thrust Rating - Ca90 16900 lbf  
Static Radial Rating - C0 107000 lbf  
Dynamic Radial Rating - C1 94700 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**