


**The Timken Company**

4500 Mt Pleasant St. NW

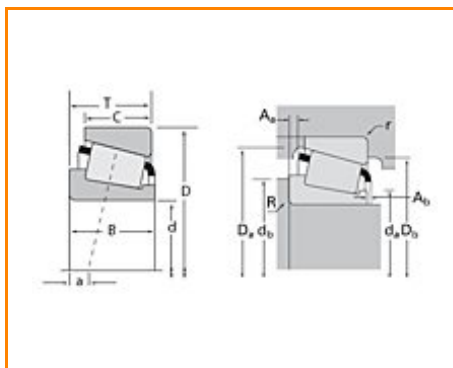
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## Timken Part Number 657 - 653, Tapered Roller Bearings - TS (Tapered Single) Imperial

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>	655
<b>Cone Part Number</b>	657
<b>Cup Part Number</b>	653
<b>Design Units</b>	Imperial
<b>Bearing Weight</b>	3.100 Kg 6.90 lb
<b>Cage Type</b>	Stamped Steel

### Dimensions

<b>d - Bore</b>	73.025 mm 2.8750 in
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<b>D - Cup Outer Diameter</b>	146.050 mm 5.7500 in
<b>B - Cone Width</b>	41.275 mm 1.6250 in
<b>C - Cup Width</b>	31.750 mm 1.2500 in
<b>T - Bearing Width</b>	41.275 mm 1.6250 in

## Abutment and Fillet Dimensions

<b>R - Cone Backface "To Clear" Radius<sup>1</sup></b>	3.560 mm 0.14 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>	85.09 mm 4.09 in
<b>db - Cone Backface Backing Diameter</b>	90.93 mm 3.58 in
<b>Da - Cup Frontface Backing Diameter</b>	139.95 mm 5.51 in
<b>Db - Cup Backface Backing Diameter</b>	131.06 mm 5.16 in
<b>Ab - Cage-Cone Frontface Clearance</b>	2.5 mm 0.1 in
<b>Aa - Cage-Cone Backface Clearance</b>	4.3 mm 0.17 in
<b>a - Effective Center Location<sup>3</sup></b>	-7.9 mm -0.31 in

## Basic Load Ratings

<b>C90 - Dynamic Radial Rating (90 million revolutions)<sup>4</sup></b>	64000 N 14400 lbf
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<b>C1 - Dynamic Radial Rating (1 million revolutions)<sup>5</sup></b>	247000 N 55500 lbf
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<b>C0 - Static Radial Rating</b>	335000 N 75300 lbf
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<b>C<sub>a90</sub> - Dynamic Thrust Rating (90 million revolutions)<sup>6</sup></b>	44800 N 10100 lbf
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## Factors

<b>K - Factor<sup>7</sup></b>	1.43
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<b>e - ISO Factor<sup>8</sup></b>	0.41
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<b>Y - ISO Factor<sup>9</sup></b>	1.47
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<b>G1 - Heat Generation Factor (Roller-Raceway)</b>	137
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<b>G2 - Heat Generation Factor (Rib-Roller End)</b>	27.3
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<b>Cg - Geometry Factor</b>	0.0919
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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.

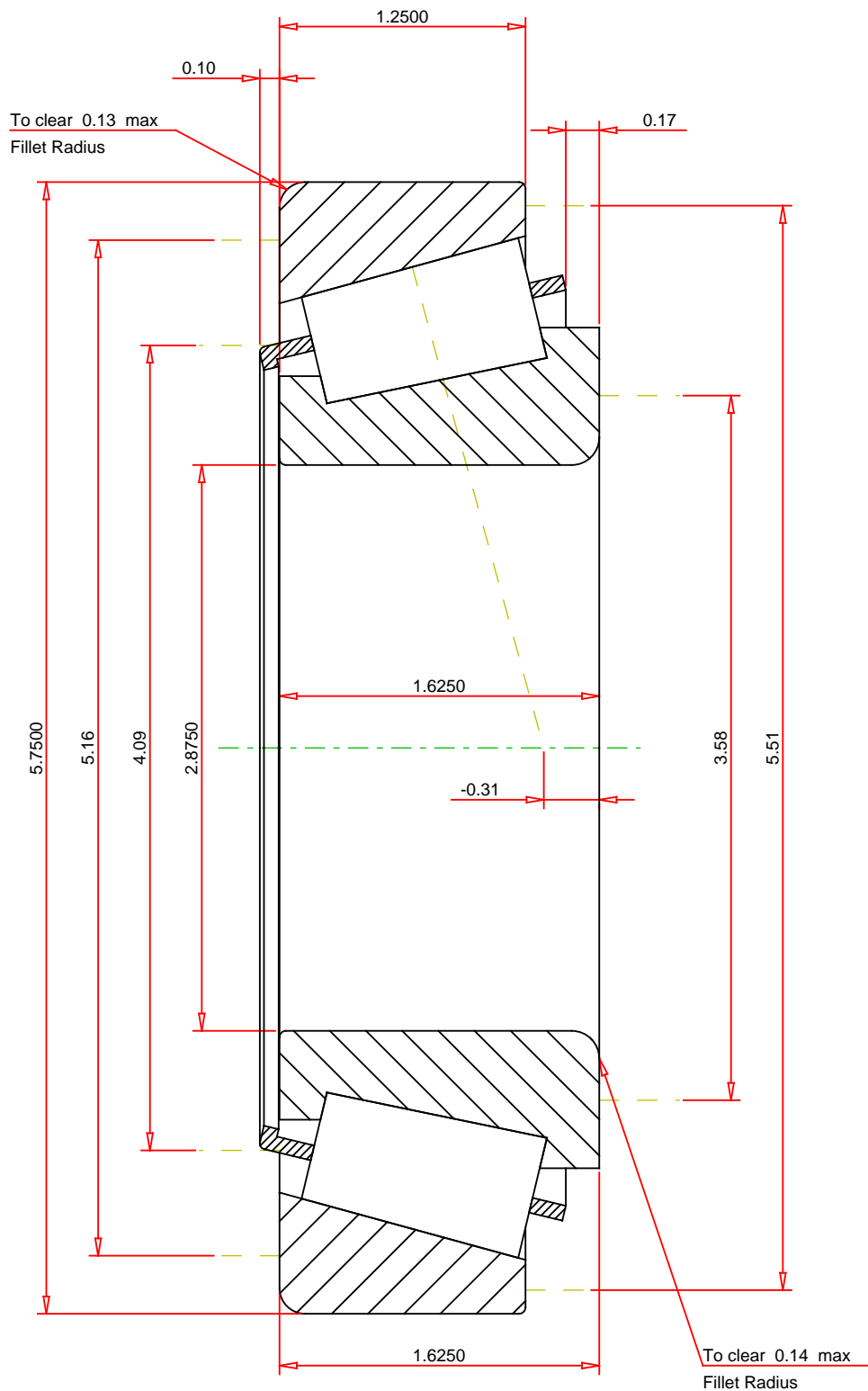
<sup>5</sup> Based on  $1 \times 10^6$  revolutions  $L_{10}$  life, for the ISO life calculation method.

<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 0.41  
ISO Factor - Y 1.47  
Bearing Weight 6.9 lb  
Number of Rollers Per Row 20  
Effective Center Location -0.31 inch

**TIMKEN®**

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

## 657 - 653 TS BEARING ASSEMBLY

K Factor 1.43  
Dynamic Radial Rating - C90 64000 lbf  
Dynamic Thrust Rating - Ca90 44800 lbf  
Static Radial Rating - C0 335000 lbf  
Dynamic Radial Rating - C1 247000 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**