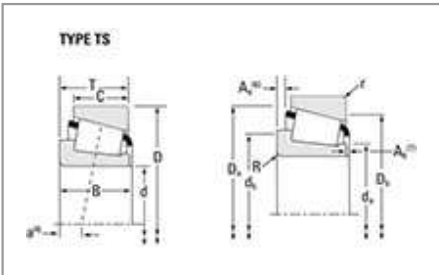




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Part Number 31314, Tapered Roller Bearings - TS (Tapered Single) Metric

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.




[Specifications](#) | [Dimensions](#) | [Abutment and Fillet Dimensions](#) | [Basic Load Ratings](#) | [Factors](#)

Specifications

Series	31314M
Cone Part Number	X31314M
Cup Part Number	Y31314M
Design Unit	Metric
Cage Material	Stamped Steel
Full Timken Part Number	31314

Dimensions

 - Bore	70 mm 2.7559 in
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<b>D - Cup Outer Diameter</b>	150 mm 5.9055 in
<b>B - Cone Width</b>	35.000 mm 1.3780 in
<b>C - Cup Width</b>	25.000 mm 0.9843 in
<b>T - Bearing Width</b>	38.000 mm 1.4961 in

## Abutment and Fillet Dimensions

<b>R - Cone Backface "To Clear" Radius<sup>1</sup></b>	3.050 mm 0.12 in
<b>r - Cup Backface "To Clear" Radius<sup>2</sup></b>	2.54 mm 0.1 in
<b>da - Cone Frontface Backing Diameter</b>	85 mm 3.35 in
<b>db - Cone Backface Backing Diameter</b>	101.0 mm 3.98 in
<b>Da - Cup Frontface Backing Diameter</b>	141.99 mm 5.59 in
<b>Db - Cup Backface Backing Diameter</b>	129.03 mm 5.08 in
<b>Ab - Cage-Cone Frontface Clearance</b>	5.3 mm 0.21 in
<b>Aa - Cage-Cone Backface Clearance</b>	5.3 mm 0.21 in
<b>a - Effective Center Location<sup>3</sup></b>	9.1 mm 0.36 in

## Basic Load Ratings

<b>C90 - Dynamic Radial Rating (90 million revolutions)<sup>4</sup></b>	65500 N 14700 lbf
<b>C1 - Dynamic Radial Rating (1 million revolutions)<sup>5</sup></b>	252000 N 56800 lbf
<b>C0 - Static Radial Rating</b>	235000 N 52900 lbf
<b>C<sub>a90</sub> - Dynamic Thrust Rating (90 million revolutions)<sup>6</sup></b>	92500 N 20800 lbf

## Factors

<b>K - Factor<sup>7</sup></b>	0.71
<b>e - ISO Factor<sup>8</sup></b>	0.83
<b>Y - ISO Factor<sup>9</sup></b>	0.73
<b>G1 - Heat Generation Factor (Roller-Raceway)</b>	75.8
<b>G2 - Heat Generation Factor (Rib-Roller End)</b>	29.5
<b>C<sub>g</sub> - Geometry Factor<sup>10</sup></b>	0.0873

<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.

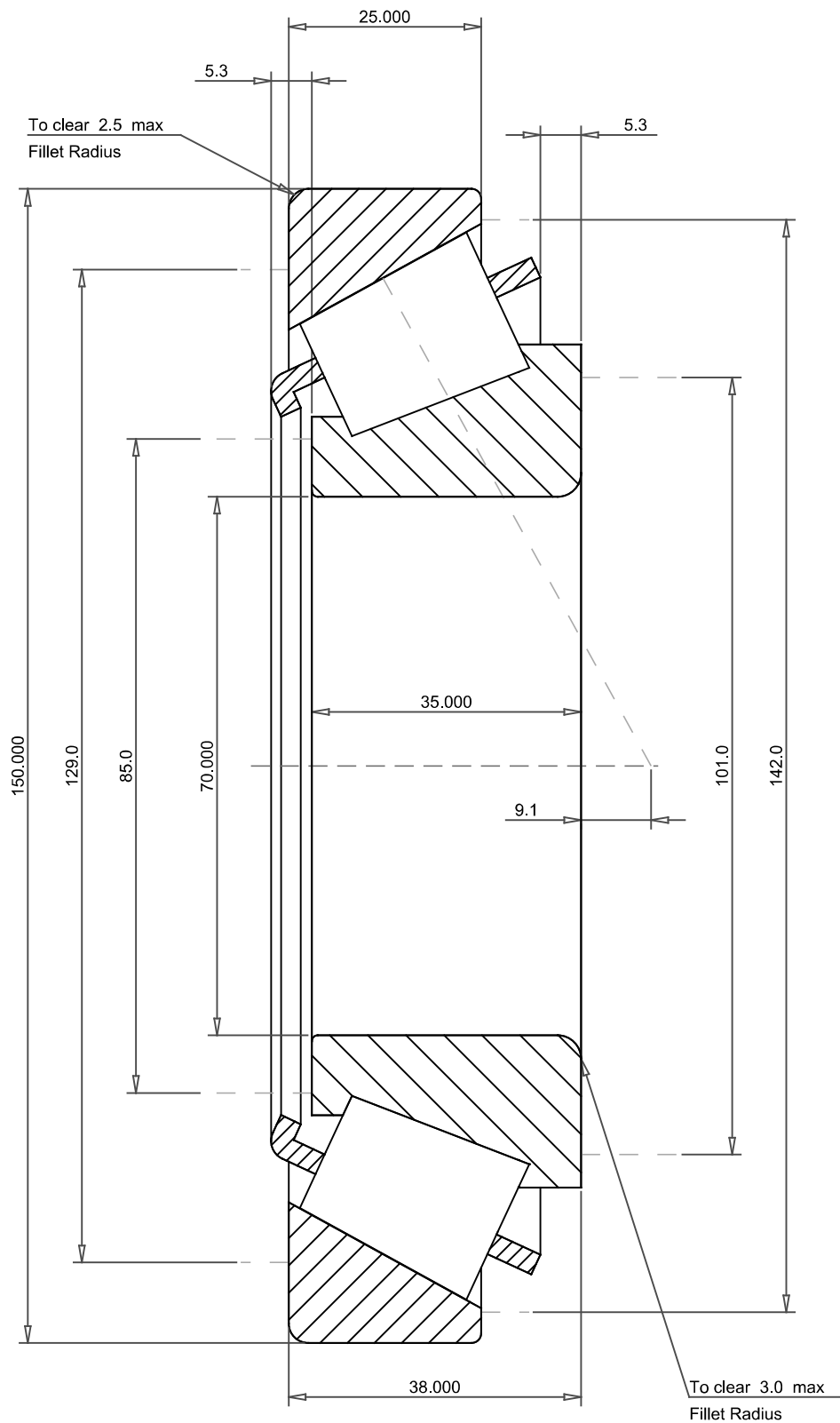
<sup>6</sup> Based on  $90 \times 10^6$  revolutions  $L_{10}$  life, for The Timken Company life calculation method.  $C_{90}$  and  $C_{a90}$  are radial and thrust values for a single-row,  $C_{90(2)}$  is the two-row radial value.

<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.

<sup>10</sup> Geometry constant for Lubrication Life Adjustment Factor  $a_3$ .



## METRIC UNITS

ISO Factor - e	0.83
ISO Factor - Y	0.73
Bearing Weight	2.9 kg
Number of Rollers Per Row	16
Effective Center Location	9.1 mm

**TIMKEN**®

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

**X31314M - Y31314M**  
Tapered Roller Bearings - TS (Tapered Single)  
Metric

K Factor	0.71	
Dynamic Radial Rating - C90	65500	N
Dynamic Thrust Rating - Ca90	92500	N
Static Radial Rating - C0	235000	N
Dynamic Radial Rating - C1	252000	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**