



**The Timken Company**

4500 Mt Pleasant St. NW

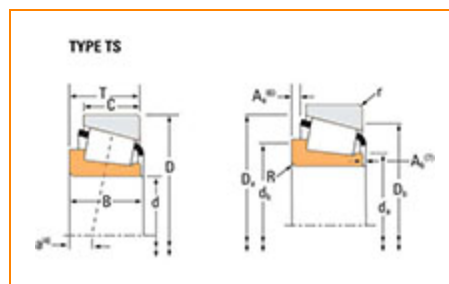
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## Part Number 538, Tapered Roller Bearings - Single Cones - Imperial

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>	535
<b>Cone Part Number</b>	538
<b>Design Units</b>	Imperial
<b>Cage Type</b>	Stamped Steel
<b>C1 - Dynamic Radial Rating (Two-Row, 1 million revolutions)<sup>1</sup></b>	67400 lbf 300000 N
<b>C90(2) - Dynamic Radial Rating (Two-Row, 90 million revolutions)<sup>2</sup></b>	17500 lbf 77700 N



Dimensions

<b>d - Cone Bore</b>	2.1649 in 54.988 mm
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<b>B - Cone Width</b>	1.4550 in 36.957 mm
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## Abutment and Fillet Dimensions

<b>R - Cone Backface "To Clear" Radius<sup>3</sup></b>	0.03 in 0.8 mm
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<b>da - Cone Frontface Backing Diameter</b>	2.44 in 62 mm
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<b>db - Cone Backface Backing Diameter</b>	2.48 in 63 mm
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<b>Ab - Cage-Cone Frontface Clearance</b>	0.07 in 1.8 mm
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<b>Aa - Cage-Cone Backface Clearance</b>	0.08 in 2 mm
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<b>a - Effective Center Location<sup>4</sup></b>	-0.48 in -12.2 mm
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## Basic Load Ratings

<b>C90 - Dynamic Radial Rating (90 million revolutions)<sup>5</sup></b>	10000 lbf 44600 N
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<b>C1 - Dynamic Radial Rating (1 million revolutions)<sup>6</sup></b>	38700 lbf 172000 N
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<b>C0 - Static Radial Rating</b>	46200 lbf 206000 N
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<b>C<sub>a90</sub> - Dynamic Thrust Rating (90 million revolutions)<sup>7</sup></b>	5090 lbf 22700 N
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## Factors

<b>K - Factor<sup>8</sup></b>	1.97
<b>G1 - Heat Generation Factor (Roller-Raceway)</b>	64.3
<b>G2 - Heat Generation Factor (Rib-Roller End)</b>	16.1
<b>Cg - Geometry Factor<sup>9</sup></b>	0.0938

<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.

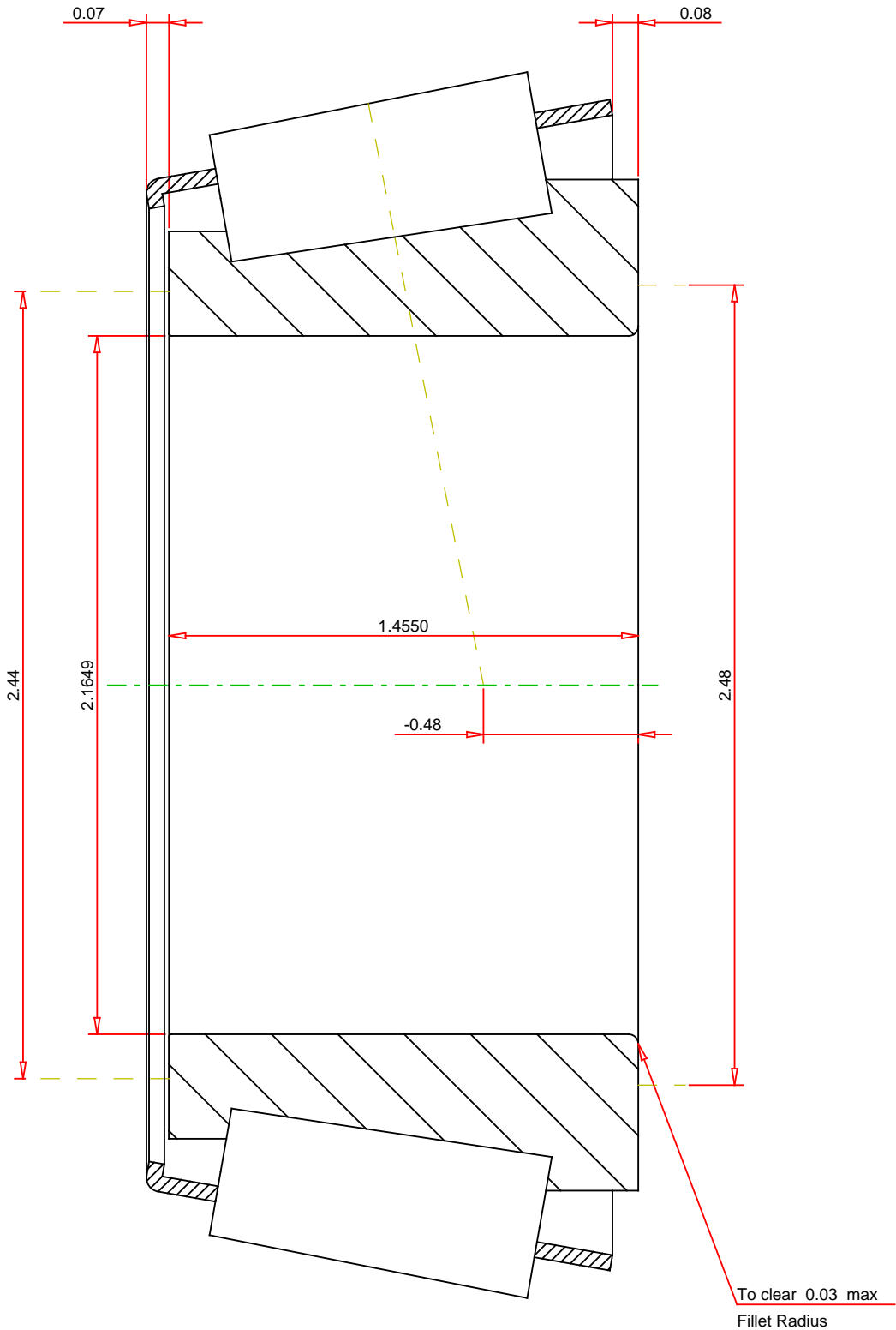
<sup>5</sup> Based on  $90 \times 10^6$  revolutions  $L_{10}$  life, for The Timken Company life calculation method.  $C_{90}$  and  $C_{a90}$  are radial and thrust values.

<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>TIMIKEN®</div> <div>THE TIMKEN COMPANY</div> <div>NORTH CANTON, OHIO USA</div>	<div>538</div> <div>Tapered Roller Bearings - Single Cones - Imperial</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>1.97</div><div>10000</div><div>5090</div><div>38700</div></div> <div><div>lbf</div><div>lbf</div><div>lbf</div></div>
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