



**The Timken Company**

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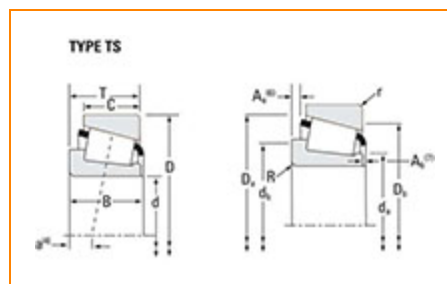
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## Part Number 30221, Tapered Roller Bearings - TS (Tapered Single) Metric

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.



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### Specifications

<b>Series</b>	30221M
<b>Cone Part Number</b>	X30221M
<b>Cup Part Number</b>	Y30221M
<b>Design Unit</b>	Metric
<b>Cage Material</b>	Stamped Steel
<b>Related Assembly Number(s)</b>	30221-9X095 30221-9X245 30221M-90KM1

### Dimensions



<b>d - Bore</b>	105 mm 4.1339 in
<b>D - Cup Outer Diameter</b>	190 mm 7.4803 in
<b>B - Cone Width</b>	36 mm 1.4173 in
<b>C - Cup Width</b>	30.000 mm 1.1811 in
<b>T - Bearing Width</b>	39.000 mm 1.5354 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>	120 mm 4.72 in
<b>db - Cone Backface Backing Diameter</b>	124 mm 4.88 in
<b>Da - Cup Frontface Backing Diameter</b>	179.10 mm 7.06 in
<b>Db - Cup Backface Backing Diameter</b>	171.96 mm 6.77 in
<b>Ab - Cage-Cone Frontface Clearance</b>	7.4 mm 0.29 in
<b>Aa - Cage-Cone Backface Clearance</b>	2.3 mm 0.09 in
<b>a - Effective Center Location<sup>3</sup></b>	-1.3 mm -0.05 in

## Basic Load Ratings

<b>C90 - Dynamic Radial Rating (90 million revolutions)<sup>4</sup></b>	84400 N 19000 lbf
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<b>C1 - Dynamic Radial Rating (1 million revolutions)<sup>5</sup></b>	325000 N 73200 lbf
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<b>C0 - Static Radial Rating</b>	407000 N 91400 lbf
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<b>C<sub>a90</sub> - Dynamic Thrust Rating (90 million revolutions)<sup>6</sup></b>	60700 N 13600 lbf
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## Factors

<b>K - Factor<sup>7</sup></b>	1.39
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<b>e - ISO Factor<sup>8</sup></b>	0.42
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<b>Y - ISO Factor<sup>9</sup></b>	1.43
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<b>G1 - Heat Generation Factor (Roller-Raceway)</b>	186.7
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<b>G2 - Heat Generation Factor (Rib-Roller End)</b>	59.4
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<b>C<sub>g</sub> - Geometry Factor<sup>10</sup></b>	0.096
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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.

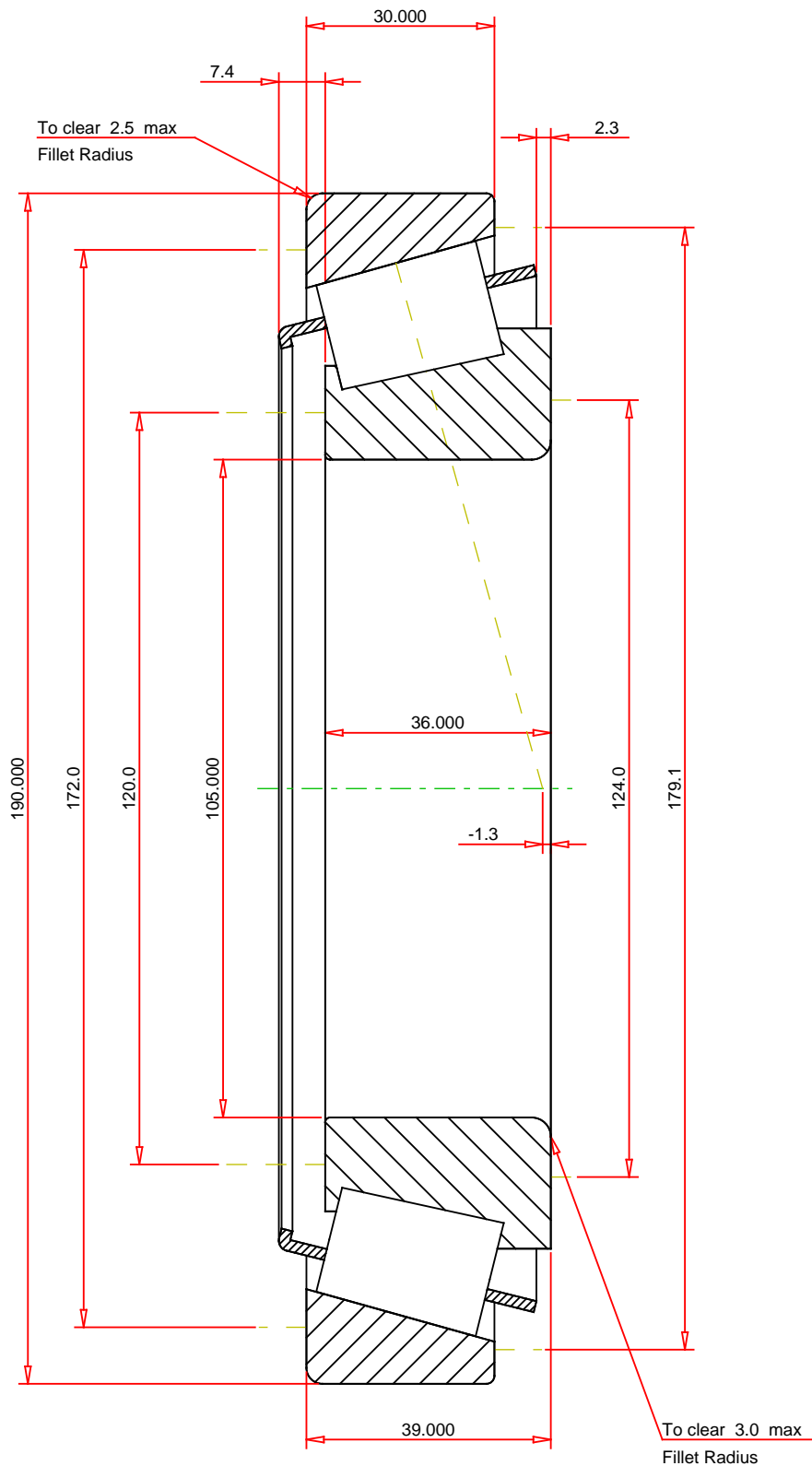
<sup>6</sup> Based on  $90 \times 10^6$  revolutions  $L_{10}$  life, for The Timken Company life calculation method.  $C_{90}$  and  $C_{a90}$  are radial and thrust values for a single-row,  $C_{90(2)}$  is the two-row radial value.

<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.

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



## METRIC UNITS

ISO Factor - e	0.42
ISO Factor - Y	1.43
Bearing Weight	4.5 kg
Number of Rollers Per Row	20
Effective Center Location	-1.3 mm

**TIMIKEN®**

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

**X30221M - Y30221M**  
Tapered Roller Bearings - TS (Tapered Single)  
Metric

K Factor	1.39	
Dynamic Radial Rating - C90	84400	N
Dynamic Thrust Rating - Ca90	60700	N
Static Radial Rating - C0	407000	N
Dynamic Radial Rating - C1	325000	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**