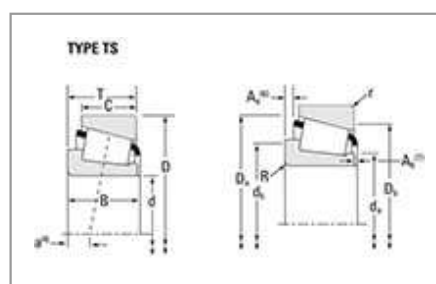




The Timken Company
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Part Number 32221, Tapered Roller Bearings - TS (Tapered Single) Metric

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	32221
Cone Part Number	X32221M
Cup Part Number	Y32221M
Design Units	METRIC
Bearing Weight	6 Kg 13.1 lb
Cage Type	Stamped Steel

Dimensions

d - Bore	105.000 mm 4.1339 in
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D - Cup Outer Diameter	190 mm 7.4803 in
B - Cone Width	50 mm 1.9685 in
C - Cup Width	43 mm 1.6929 in
T - Bearing Width	53.000 mm 2.0866 in

Abutment and Fillet Dimensions

R - Cone Backface "To Clear" Radius¹	3.050 mm 0.12 in
r - Cup Backface "To Clear" Radius²	2.54 mm 0.1 in
da - Cone Frontface Backing Diameter	118.11 mm 4.65 in
db - Cone Backface Backing Diameter	122.94 mm 4.84 in
Da - Cup Frontface Backing Diameter	181.10 mm 7.13 in
Db - Cup Backface Backing Diameter	170.94 mm 6.73 in
Ab - Cage-Cone Frontface Clearance	3.6 mm 0.14 in
Aa - Cage-Cone Backface Clearance	4.3 mm 0.17 in
a - Effective Center Location³	-7.9 mm -0.31 in

Basic Load Ratings

C90 - Dynamic Radial Rating (90 million revolutions)⁴	122000 N 27500 lbf
C1 - Dynamic Radial Rating (1 million revolutions)⁵	472000 N 106000 lbf
C0 - Static Radial Rating	516000 N 116000 lbf
C_{a90} - Dynamic Thrust Rating (90 million revolutions)⁶	88000 N 19800 lbf

Factors

K - Factor⁷	1.39
e - ISO Factor⁸	0.42
Y - ISO Factor⁹	1.43
G1 - Heat Generation Factor (Roller-Raceway)	219.9
G2 - Heat Generation Factor (Rib-Roller End)	43.5
C_g - Geometry Factor¹⁰	0.102

¹ These maximum fillet radii will be cleared by the bearing corners.

² These maximum fillet radii will be cleared by the bearing corners.

³ Negative value indicates effective center inside cone backface.

⁴ Based on 90×10^6 revolutions L_{10} life, for The Timken Company life calculation method. C_{90} and C_{a90} are radial and thrust values.

⁵ Based on 1×10^6 revolutions L_{10} life, for the ISO life calculation method.

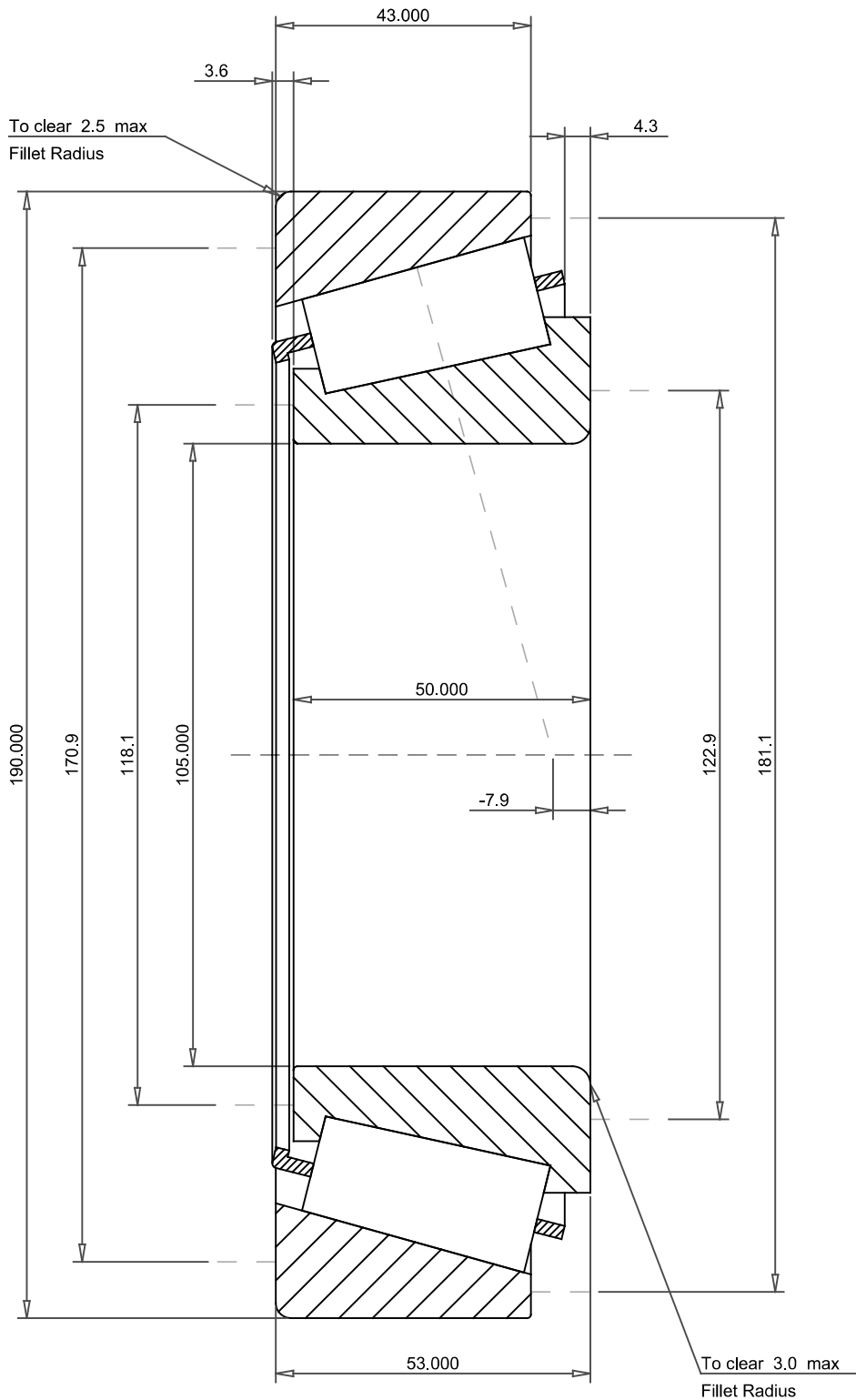
⁶ Based on 90×10^6 revolutions L_{10} life, for The Timken Company life calculation method. C_{90} and C_{a90} are radial and thrust values for a single-row, $C_{90(2)}$ is the two-row radial value.

⁷ These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

⁸ These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

⁹ These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

¹⁰ Geometry constant for Lubrication Life Adjustment Factor a3l.



METRIC UNITS

ISO Factor - e	0.42
ISO Factor - Y	1.43
Bearing Weight	6 kg
Number of Rollers Per Row	18
Effective Center Location	-7.9 mm

TIMKEN®

X32221M - Y32221M
TS BEARING ASSEMBLY

THE TIMKEN COMPANY
NORTH CANTON, OHIO USA

K Factor	1.39
Dynamic Radial Rating - C90	122000 N
Dynamic Thrust Rating - Ca90	88000 N
Static Radial Rating - C0	516000 N
Dynamic Radial Rating - C1	472000 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