


The Timken Company

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Part Number 33012, 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

Series	33012M
Cone Part Number	X33012M
Cup Part Number	Y33012M
Design Unit	Metric
Bearing Weight	0.70 Kg 1.5 lb
Cage Material	Stamped Steel
Full Timken Part Number	33012

Dimensions



d - Bore	60 mm 2.3622 in
D - Cup Outer Diameter	95 mm 3.7402 in
B - Cone Width	27.000 mm 1.0630 in
C - Cup Width	21.000 mm 0.8268 in
T - Bearing Width	27.000 mm 1.0630 in

Abutment and Fillet Dimensions

R - Cone Backface "To Clear" Radius¹	1.520 mm 0.060 in
r - Cup Backface "To Clear" Radius²	1.52 mm 0.06 in
da - Cone Frontface Backing Diameter	66 mm 2.6 in
db - Cone Backface Backing Diameter	69 mm 2.72 in
Da - Cup Frontface Backing Diameter	91.90 mm 3.62 in
Db - Cup Backface Backing Diameter	86.11 mm 3.39 in
Ab - Cage-Cone Frontface Clearance	2.5 mm 0.1 in
Aa - Cage-Cone Backface Clearance	1.8 mm 0.07 in
a - Effective Center Location³	-7.1 mm -0.28 in

Basic Load Ratings

C90 - Dynamic Radial Rating (90 million revolutions)⁴	31500 N 7090 lbf
C1 - Dynamic Radial Rating (1 million revolutions)⁵	122000 N 27400 lbf
C0 - Static Radial Rating	150000 N 33600 lbf
C_{a90} - Dynamic Thrust Rating (90 million revolutions)⁶	17700 N 3980 lbf

Factors

K - Factor⁷	1.78
e - ISO Factor⁸	0.33
Y - ISO Factor⁹	1.83
G1 - Heat Generation Factor (Roller-Raceway)	63
G2 - Heat Generation Factor (Rib-Roller End)	31.1
C_g - Geometry Factor¹⁰	0.0964

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.

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¹⁰ Geometry constant for Lubrication Life Adjustment Factor a_3 .

