TIMKEN

The Timken Company
4500 Mt Pleasant St. NW
N. Canton, OH 44720
Phone: (234) 262-3000
E-Mail: CustomerCAD@timken.com • **Web site:** www.timken.com

Timken Part Number X33024M - Y33024M, 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	33024M
Cone Part Number	X33024M
Cup Part Number	Y33024M
Design Units	METRIC
Bearing Weight	4.200 Kg 9.20 lb
Cage Type	Stamped Steel

Dimensions —

d – Bore	120 mm 4.7244 in
D – Cup Outer Diameter	180 mm 7.0866 in

B - Cone Width	48 mm 1.8898 in
C - Cup Width	38 mm 1.4961 in
T - Bearing Width	48.000 mm 1.8898 in

Abutment and Fillet Dimensions

R - Cone Backface "To Clear" Radius[1]	2.540 mm 0.1 in
r - Cup Backface "To Clear" Radius[2]	2.03 mm 0.08 in
da - Cone Frontface Backing Diameter	130.05 mm 5.12 in
db - Cone Backface Backing Diameter	134.11 mm 5.28 in
Da - Cup Frontface Backing Diameter	172 mm 6.81 in
Db - Cup Backface Backing Diameter	166.12 mm 6.54 in
Ab - Cage-Cone Frontface Clearance	3.3 mm 0.13 in
Aa - Cage-Cone Backface Clearance	3.8 mm 0.15 in
a - Effective Center Location[3]	-11.9 mm -0.47 in

Basic Load Ratings

C90 - Dynamic Radial Rating (90 million revolutions)[4]	91300 N 20500 lbf
C1 - Dynamic Radial Rating (1 million revolutions)[5]	352000 N 79200 lbf
C0 - Static Radial Rating	603000 N 135000 lbf
C_{a90} - Dynamic Thrust Rating (90 million revolutions)[6]	47700 N 10700 lbf

Factors   —

K - Factor[7]	1.91
e - ISO Factor[8]	0.31
Y - ISO Factor[9]	1.97
G1 - Heat Generation Factor (Roller–Raceway)	342
G2 - Heat Generation Factor (Rib–Roller End)	93.7
Cg - Geometry Factor	0.107

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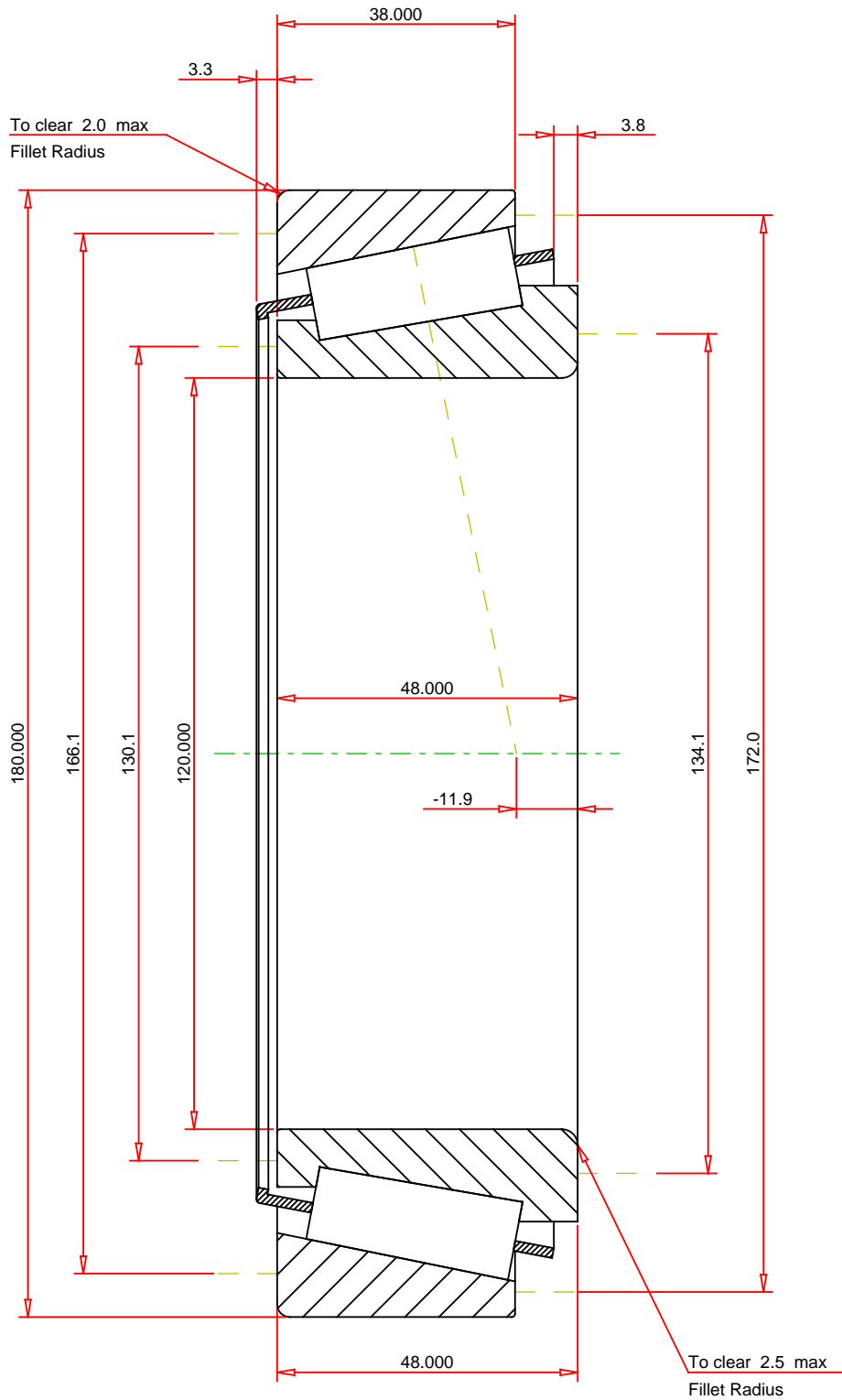
[5] Based on 1×10^6 revolutions L_{10} life, for the ISO life calculation method.

[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.

METRIC UNITS

Dimensions on drawing (mm):

- 38.000
- 3.3
- To clear 2.0 max Fillet Radius
- 3.8
- 180.000
- 166.1
- 130.1
- 120.000
- 48.000
- 134.1
- 172.0
- -11.9
- 48.000
- To clear 2.5 max Fillet Radius

X33024M - Y33024M
TS BEARING ASSEMBLY

ISO Factor - e	0.31
ISO Factor - Y	1.97
Bearing Weight	4.2 kg
Number of Rollers Per Row	29
Effective Center Location	-11.9 mm

TIMKEN®

THE TIMKEN COMPANY
NORTH CANTON, OHIO USA

K Factor	1.91	
Dynamic Radial Rating - C90	91300	N
Dynamic Thrust Rating - Ca90	47700	N
Static Radial Rating - C0	603000	N
Dynamic Radial Rating - C1	352000	N

FOR DISCUSSION ONLY