The Timken Company
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Timken Part Number 27880 - 27820D, Tapered Roller Bearings - TDO (Tapered Double Outer) Imperial

The configuration of the TDO provides a wide effective bearing spread, making it ideal for applications in which overturning moments are a significant load component. TDO bearings can be used in fixed positions or allowed to float in the housing bore.



Specifications | Dimensions | Abutment and Fillet Dimensions | Basic Load Ratings | Factors

Specifications

Series	27800
Cone Part Number	27880
Cup Part Number	27820D
Design Units	Imperial
Bearing Weight	2.62 lb 1.188 Kg
Cage Type	Stamped Steel
Ab - Cage-Cone Frontface Clearance	0.09 in 2.3 mm

Dimensions

d - Bore	1.5 in 38.1 mm
D - Cup Outer Diameter	3.1510 in 80.035 mm
B - Cone Width	0.9330 in 23.698 mm
C - Double Cup Width	1.7700 in 44.958 mm
T - Bearing Width across Cones	2.2500 in 57.150 mm

Abutment and Fillet Dimensions

R - Cone Backface "To Clear" Radius[1]	0.03 in 0.800 mm
r - Cup Frontface "To Clear" Radius[2]	0.03 in 0.8 mm
db - Cone Backface Backing Diameter	1.89 in 48.00 mm
Da - Cup Frontface Backing Diameter	2.99 in 74.93 mm
Aa - Cage-Cone Backface Clearance	0.1 in 2.5 mm

Basic Load Ratings

C90 - Dynamic Radial Rating (One-Row, 90 million revolutions)[3]	4550 lbf 20200 N
C1 - Dynamic Radial Rating (Two-Row, 1 million revolutions)[4]	30500 lbf 136000 N

C90(2) - Dynamic Radial Rating (Two-Row, 90 million revolutions)[5]	7920 lbf 35200 N
C_{a90} - Dynamic Thrust Rating (90 million revolutions)[6]	4370 lbf 19400 N

Factors

K - Factor[7]	1.04
e - ISO Factor[8]	1.3
Y1 - ISO Factor[9]	0.52 0.77
Y2 - ISO Factor[10]	0.77
G1 - Heat Generation Factor (Roller-Raceway)[11]	24.6
G2 - Heat Generation Factor (Rib-Roller End)	12.6
Cg - Geometry Factor[12]	0.0839

[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] Based on 90 x 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.

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

[5] Based on 90 x 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.

[6] Based on 90 x 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

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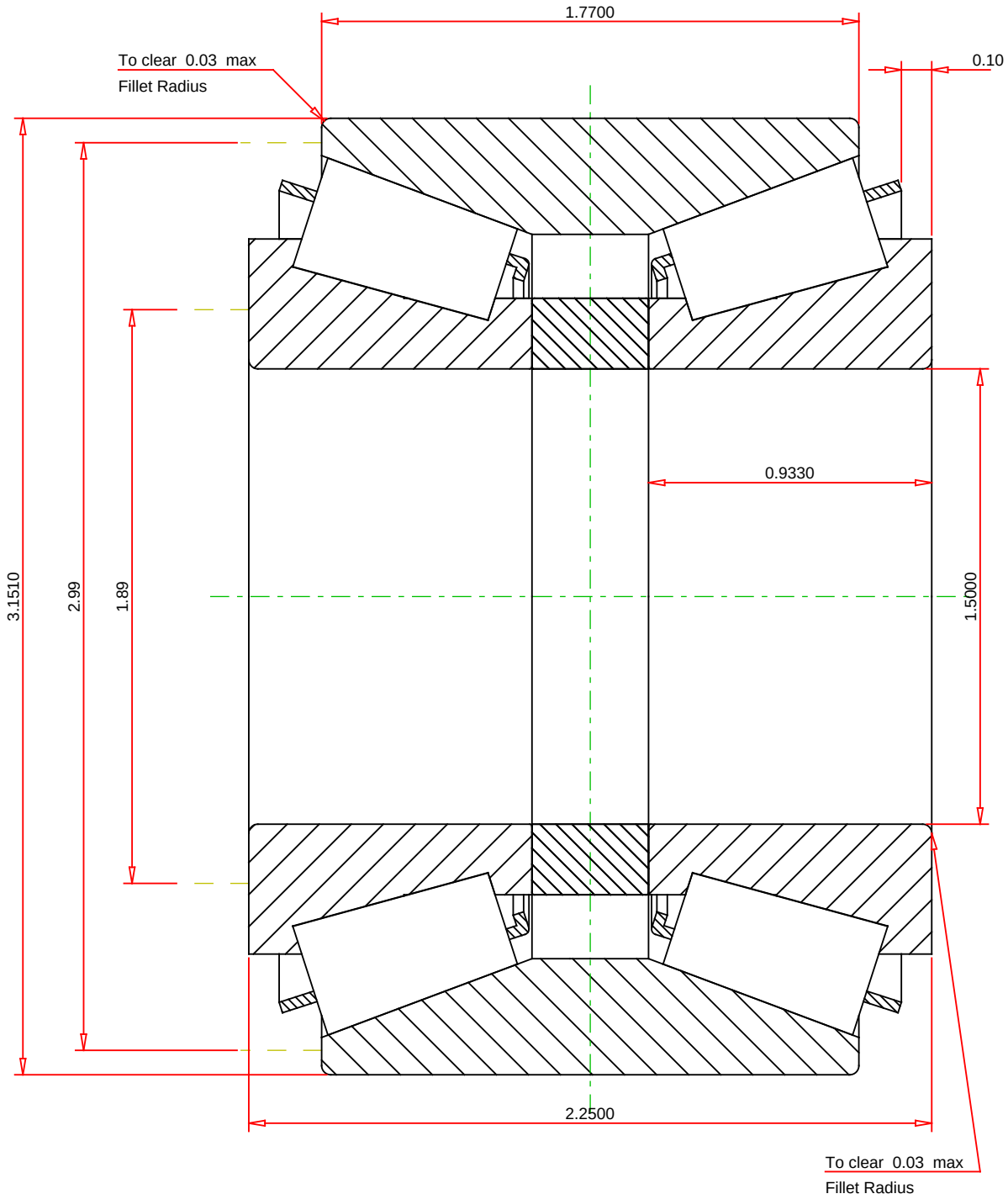
[10] These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

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

[12] Geometry constant for Lubrication Life Adjustment Factor a3l.



IMPERIAL UNITS

ISO Factor - e	1.3	
ISO Factor - Y1	0.52	
ISO Factor - Y2	0.77	
Bearing Weight	2.62	lb
Number of Rollers Per Row	18	

TIMKEN

THE TIMKEN COMPANY
NORTH CANTON, OHIO USA

27880 - 27820D
TDO BEARING ASSEMBLY

K Factor	1.04	
Dynamic Radial Rating - C90	4550	lbf
Dynamic Thrust Rating - Ca90	4370	lbf
Dynamic Radial Rating - C90(2)	7920	lbf
Radial Rating - C1	30500	lbf

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