


The Timken Company

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Timken Part Number 3977 - 3920-B, Tapered Roller Bearings - TSF (Tapered Single with Flange) Imperial

Like the TS bearing design, the TSF design 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. TSF bearings have flanged cups to facilitate axial location and accurately align seals in through-bored housings.



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Specifications

Series	3900
Cone Part Number	3977
Cup Part Number	3920-B
Design Units	Imperial
Bearing Weight	3.00 lb 1.300 Kg
Cage Type	Stamped Steel

Dimensions

d - Bore	2.3622 in 60.000 mm
D - Cup Outer Diameter	4.4375 in 112.713 mm
D1 - Flange Outer Diameter	4.6210 in 117.373 mm
B - Cone Width	1.1830 in 30.048 mm
C - Cup Width	0.9375 in 23.813 mm
C1 - Cup Flange Width	0.1875 in 4.763 mm
T1 - Bearing Width	1.1875 in 30.163 mm
T - Bearing Width to Flange	0.4375 in 11.113 mm

Abutment and Fillet Dimensions

R - Cone Backface "To Clear" Radius¹	0.14 in 3.600 mm
r - Cup Backface "To Clear" Radius²	0.130 in 3.30 mm
da - Cone Frontface Backing Diameter	2.68 in 68.10 mm
db - Cone Backface Backing Diameter	2.91 in 73.90 mm
Da - Cup Frontface Backing Diameter	4.29 in 108.97 mm
Ab - Cage-Cone Frontface Clearance	0.08 in 2 mm

Aa - Cage-Cone Backface Clearance	0.06 in 1.5 mm
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a - Effective Center Location³	-0.18 in -4.6 mm
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Basic Load Ratings

C90 - Dynamic Radial Rating (90 million revolutions)⁴	8090 lbf 36000 N
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C1 - Dynamic Radial Rating (1 million revolutions)⁵	31200 lbf 139000 N
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C0 - Static Radial Rating	43000 lbf 191000 N
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C_{a90} - Dynamic Thrust Rating (90 million revolutions)⁶	5570 lbf 24800 N
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Factors

K - Factor⁷	1.45
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e - ISO Factor⁸	0.40
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Y - ISO Factor⁹	1.49
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G1 - Heat Generation Factor (Roller-Raceway)¹⁰	75.2
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G2 - Heat Generation Factor (Rib-Roller End)	21.3
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Cg - Geometry Factor¹¹	0.109
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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.

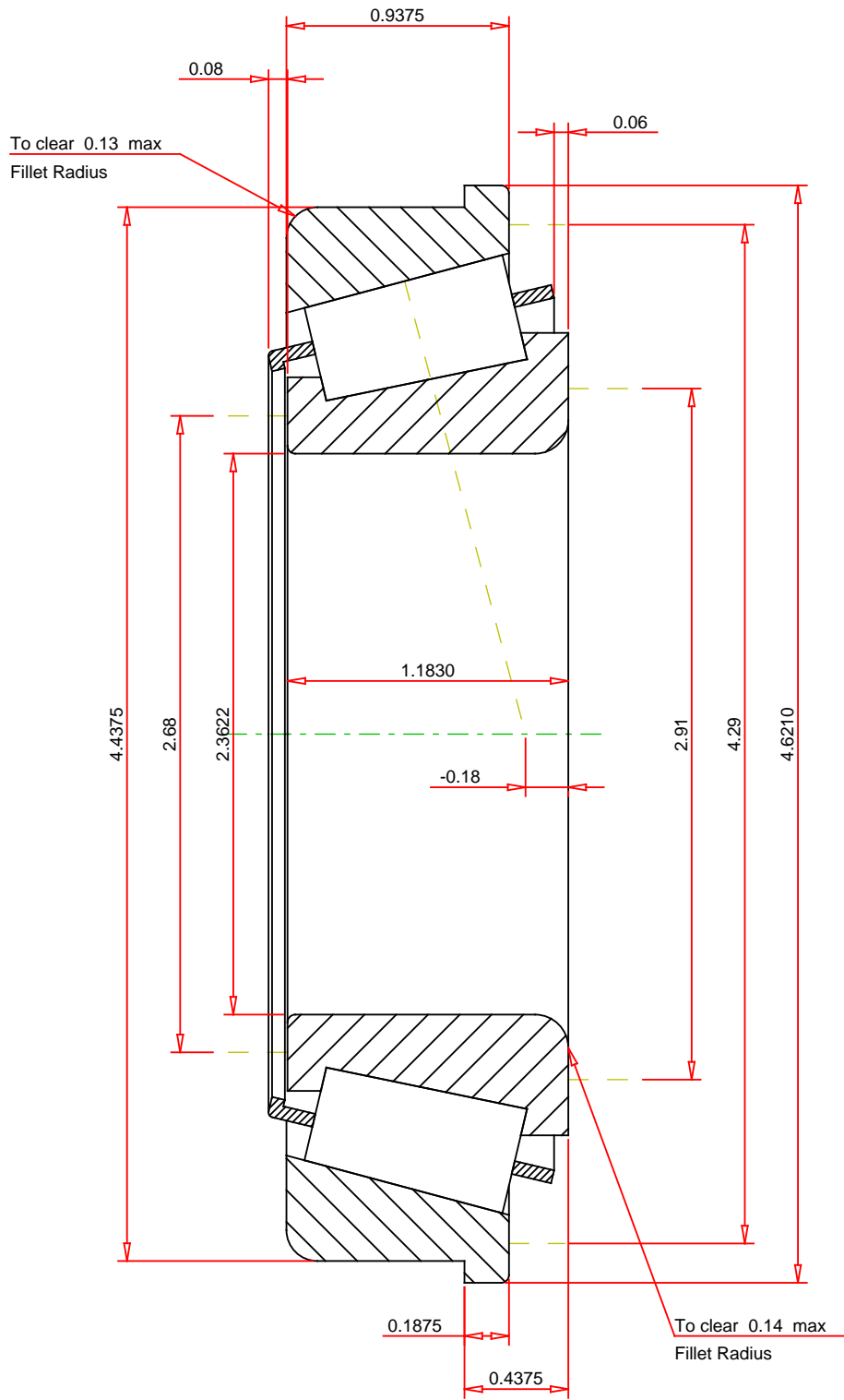
⁷ These factors apply for both inch and metric calculations. Consult your Timken representative for instruction on use.

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

¹¹ Geometry constant for Lubrication Life Adjustment Factor a_3 .



IMPERIAL UNITS

<div>ISO Factor - e0.4</div> <div>ISO Factor - Y1.49</div> <div>Bearing Weight3 lb</div> <div>Number of Rollers Per Row22</div> <div>Effective Center Location-0.18 inch</div>		<div>TIMIKEN®</div> <div>THE TIMKEN COMPANY</div> <div>NORTH CANTON, OHIO USA</div>	<div>3977 - 3920-B</div> <div>TSF BEARING ASSEMBLY</div> <div>K Factor1.45</div> <div>Dynamic Radial Rating - C908090 lbf</div> <div>Dynamic Thrust Rating - Ca905570 lbf</div> <div>Static Radial Rating - C043000 lbf</div> <div>Dynamic Radial Rating - C131200 lbf</div>
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