The Timken Company
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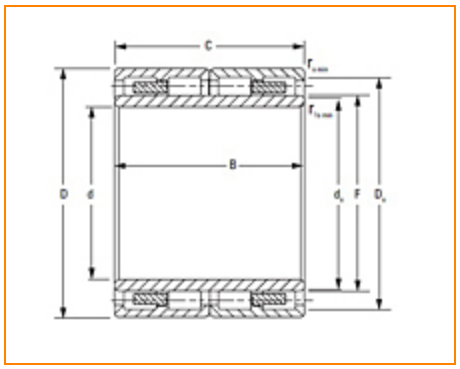
Part Number 220RYL1621, Cylindrical Roller Radial Bearings - Four-Row

Timken's four-row cylindrical roller bearings are designed for the rigors of daily use in applications where moderate and high speeds, high radial loads, elevated temperatures and debris are constant challenges. Designed with well-balanced cross sections, these bearings provide high-radial-load capacity within the bearing envelope.

The radial internal clearance (RIC) for the bearing assembly must be included when ordering either a) the complete assembly or b) with the inner-ring set. It is more



Specifications

Bore d	220 mm
Static Load Rating C_o	3432000 N 772000 lbf
Dynamic Load Rating C_1[1]	1840000 N 414000 lbf

Bearing Dimensions

O.D. D	310 mm 12.2047 in
Width B	192 mm 7.5591 in
Width C	192 mm 7.5591 in
DUR/DOR F/E	246 mm 9.6850 in
Type	RY-6

Mounting Data

Chamfer r_{smin}	3 mm 0.12 in
Chamfer r_{1smin} [2]	3 mm 0.120 in
Angle of Chamfer r_{1smin}	0 °
Backing Shaft Diameter d_s	240.5 mm 9.4700 in
Backing Housing Diameter D_s	290 mm 11.4200 in

Lubrication Data

Lubrication Groove g	0 mm 0 in
Lubrication Hole Diameter h	0 mm 0 in
Number of Lubrication Holes	0

Sub Assembly Part Numbers

Inner-Ring Set	220ARVSL1621
Outer-Ring Set	246RYSL1621

Applications

Engineered primarily for rolling mill roll-neck applications,Timken's four-row cylindrical bearings are commonly used inwork roll or back-up roll positions in flat product, long productand structural mills.

Product Features

- Available in sizes 140 mm I.D. – 2000 mm O.D. (5.512 in – 78.740 in).
- Case-hardened rings and rollers enhance durability.
- Inner races are interchangeable with outer assemblies.
- Manufactured to P6 boundary and P5 run out tolerances.
- Roller profiles are custom designed and manufactured for optimum performance.
- Straight and tapered bores are available.

Design Benefits

Our most common configurations available are types RY , RYL andRX. However, Timken also will custom design and manufacturebearings for your particular size and application requirements.If you have a new mill application, our engineers will work withyou in the earliest design stages to help you select the rightbearings.

Radial Internal Clearance (RIC)

Timken's standard bearings offer different clearances, such asC3 or C4 according to DIN 620-4. If needed for your application,they can be furnished with a tapered bore.

Timken supplies inner rings in two ways: a finished state with noadditional grinding required or a semi-

finished condition withappropriate grind stock. Semi-finished inner rings allow milloperators to optimize the roll's precision by finish grinding theinner ring after mounting it onto the roll.

The part numbers for these bearings and inner-ring assembliesare identified by a CF suffix.

Lubrication

Timken four-row cylindrical roller bearings can be used withgrease, oil-air, oil-mist or circulating-oil systems. The bearingsmust be correctly lubricated for maximum performance througheither lubrication grooves, holes in the outer-ring O.D. or throughintegrated face slots on the outer-ring faces. See detailed designtypes on pages 84-87 for further information on the standardlubrication configurations by bearing type.

Material

Our bearings are designed to provide superior size stability,fracture toughness and reliability. By using only high quality,carburized alloy, and applying a special heat-treatment duringthe manufacturing process, we are able to produce bearingsthat can withstand the heavy stresses and impact loading oftenexperienced by multi-row cylindrical roller bearings used inrolling mills.

Mounting Design and Fitting Practice

The cylindrical roller bearing design accommodates radialloading only, therefore, a separate thrust bearing must be usedto provide axial shaft location.

The housing fitting practice usually results in a loose fit tofacilitate easy removal at regular maintenance intervals. Thepreferred shaft fit is tight. There are occasions where loose shaftfits are tolerated, such as on some roughing-mill equipment. Inthe cases where a shaft fit is loose, inner-race bore lubricationgrooves must be incorporated in the bearing. Check with yourTimken representative for a more details on mounting four-rowcylindrical roller bearings. Mounting information also is availablein the Timken Engineering Manual (order no. 10424) on timken.com/catalogs.

In order to facilitate the dismounting, face slots can be added onthe inner rings (W30B modification code).

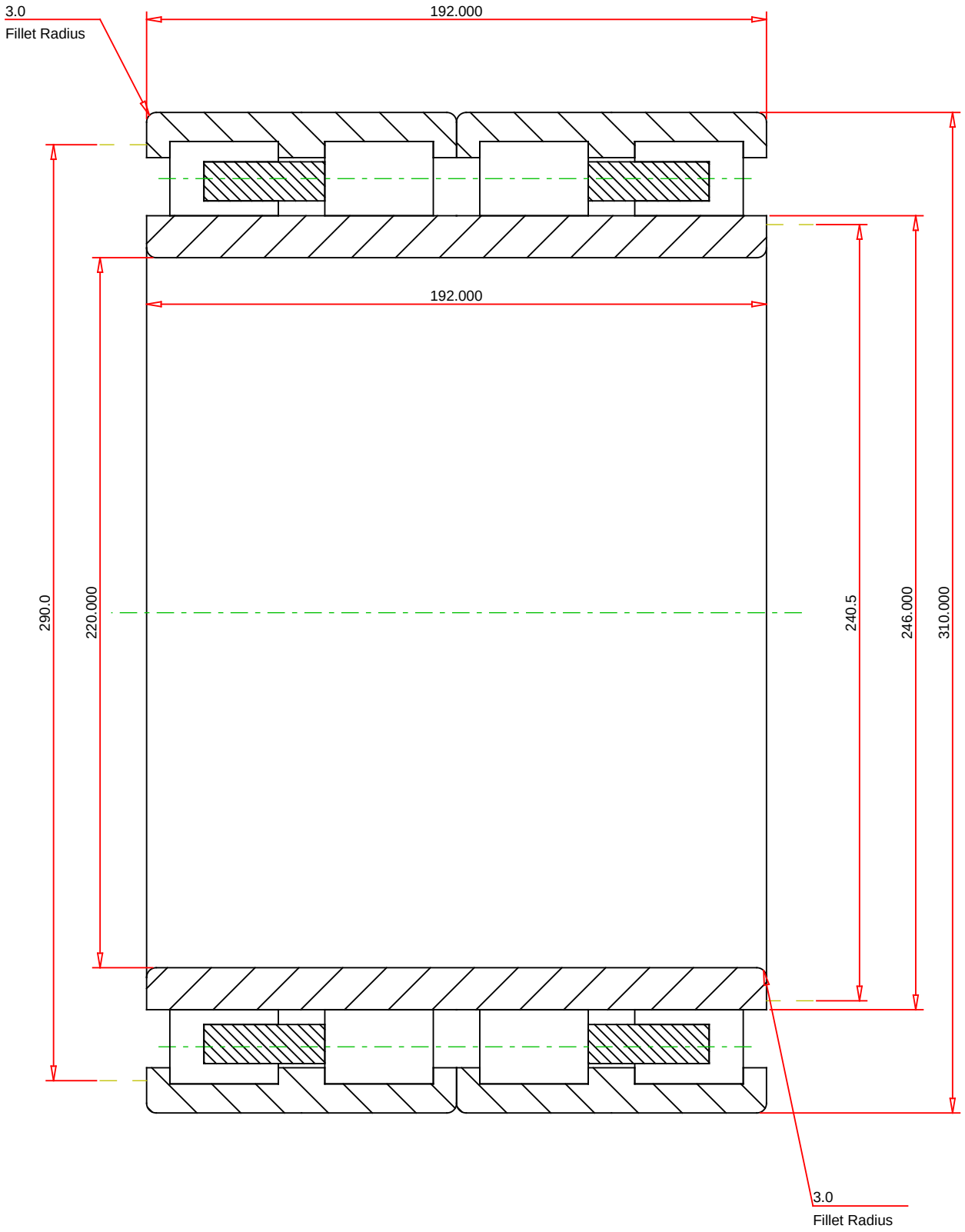
Inner rings can be ordered separately from the outer assemblyin order to equip additional spare rolls. Inner- and outerringassemblies are interchangeable in regard to internalclearance.

Main Design Types

Optimized rolling elements and race geometry provides highradial-load capacity within the bearing envelope. In addition,multiple cage designs and materials allow for design flexibilityand preset radial clearance simplifies the installation process.

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

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



METRIC UNITS

Bearing Weight	44.6	kg

TIMKEN®

THE TIMKEN COMPANY
NORTH CANTON, OHIO USA

220RYL1621
CYLINDRICAL ROLLER BEARING

Dynamic Load Rating	1840000	N
Static Load Rating	3432000	N

FOR DISCUSSION ONLY