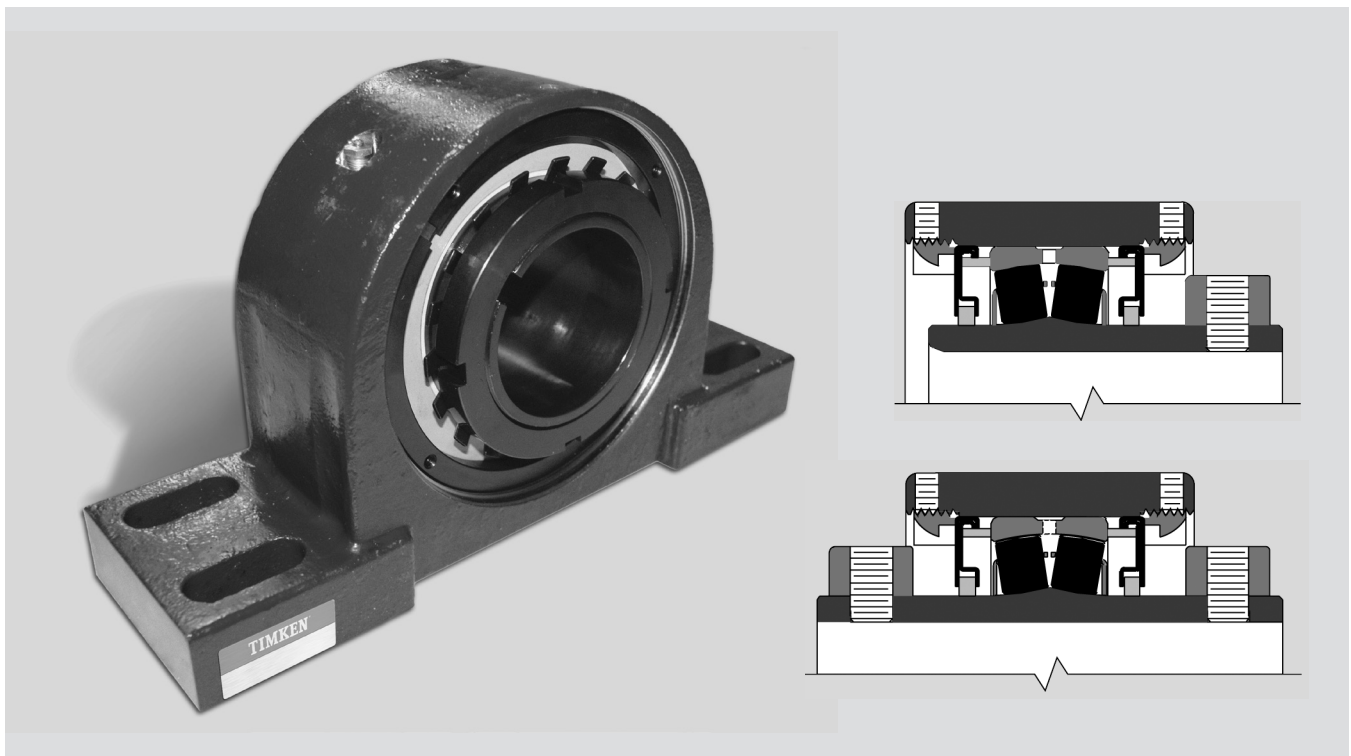


## Installation Guide

### Timken® Spherical Roller Bearing Solid-Block Housed Unit



CL Series

# INSTALLATION GUIDE

## CL SERIES, SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNIT

### INSTALLATION

Please complete the following steps to install Timken solid-block housed unit CL Series bearings:

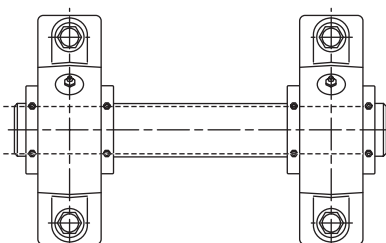
1. Ensure that the shaft is clean, free from nicks and burrs, straight and of proper diameter. See table 1 for recommended shaft tolerances. The housed unit should not be mounted on a worn section of the shaft. Use of shafts with hardness greater than Rc 45 will reduce the effectiveness of locking devices.
2. If using an open-end cover, slide the open-end cover/seal combination into position on shaft.
3. Apply a thin oil film to shaft and bearing bore.
4. Slide the housed unit into position on shaft.
5. Install the housed unit mounting bolts. Check the housed unit alignment. Verify mounting surfaces are in the same flat plane to help make sure good alignment is achieved. If shimming is required to minimize misalignment, use full shims across entire housing base where possible (fig. 2). The bolts then need to be alternately torqued securely to their mounting supports.
6. Tighten set screws alternately as per table 2. Set screws in multiple units should be aligned to each other (fig. 1).
7. If using covers:
  - Make sure the mating surface of cover and retaining nut are clean and dry.
  - If using a urethane cover, slightly roughen the mating surface of the cover.
  - Place a 1/8 in. - 1/4 in. bead of polyurethane adhesive sealant on the mating surface of the cover.
  - Align cover mounting holes with the mounting holes on the retaining housing nut (make sure that the grease fitting on the cover is accessible when doing so).
  - Apply and tighten cover mounting hardware.

**TABLE 1. RECOMMENDED SHAFT TOLERANCES.**

Shaft Size		Bearing Number	Tolerance
in.	mm		in.
1 7/16	-	22208	+0.000/0.001
1 1/2			
1 11/16	40	22209	+0.000/0.0015
1 3/4			
1 15/16	50	22210	+0.000/0.0015
2			
2 3/16	55	22211	+0.000/0.0015
2 1/4			
2 7/16	60	22213	+0.000/0.0015
2 1/2			
2 11/16	70	22215	+0.000/0.002
2 3/4			
2 15/16	75	22218	+0.000/0.003
3			
3 3/16	80	22220	+0.000/0.003
3 1/4			
3 7/16	85	22222	+0.000/0.005
3 1/2			
3 15/16	90	22226	+0.000/0.005
4			
4 7/16	100	22226	+0.000/0.005
4 1/2			
4 15/16	115	22226	+0.000/0.005
5			
	130	22226	+0.000/0.005

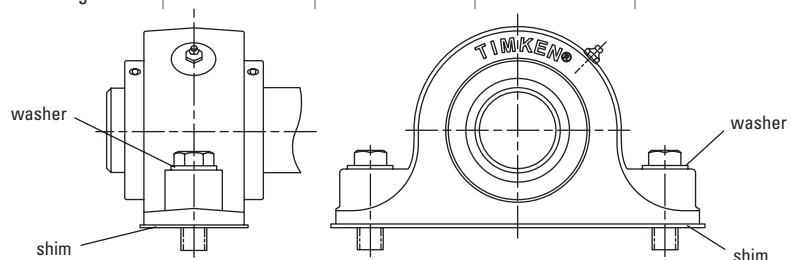
**TABLE 2. SET SCREW TORQUE VALUES.**

Shaft Size		Bearing Number	Set Screw Size	Torque
in.	mm		in.	in. lbs.
1 7/16	-	22208	3/8 - 24TPI	290
1 1/2				
1 11/16	40	22209	3/8 - 24TPI	290
1 3/4				
1 15/16	50	22210	3/8 - 24TPI	290
2				
2 3/16	55	22211	3/8 - 24TPI	290
2 1/4				
2 7/16	60	22213	1/2 - 20TPI	620
2 1/2				
2 11/16	70	22215	1/2 - 20TPI	620
2 3/4				
2 15/16	75	22218	1/2 - 20TPI	620
3				
3 3/16	80	22220	5/8 - 18TPI	1325
3 1/4				
3 7/16	85	22222	5/8 - 18TPI	1325
3 1/2				
3 15/16	90	22226	5/8 - 18TPI	1325
4				
4 7/16	100	22226	5/8 - 18TPI	1325
4 1/2				
4 15/16	115	22226	5/8 - 18TPI	1325
5				
	130	22226	5/8 - 18TPI	1325



Line up set screws in multiple units.

**Fig. 1.**



Use washers and full shims.

**Fig. 2.**



## RELUBRICATION

Adequate lubrication is an essential element to the housed unit bearing life. Table 3 can be used as a suggested initial point of reference. Relubrication frequency and quantity intervals are best developed through experience for each application, based on types of service, which may differ from the suggestions in the table.

When the housed unit is not in operation for an extended period of time, grease should be added to prevent corrosion.

Table 3 shows general lubrication suggested starting points only. Please read the entire installation instructions prior to using these tables. Applications should be regularly reviewed and lubrication amounts and intervals modified as needed to assure best results.

### NOTE

*Proper maintenance and handling practices are critical. Failure to follow installation instructions and to maintain proper lubrication can result in equipment failure.*

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 any other reason.

### NOTE

*When converting a solid-block housed unit from expansion to fixed on a mounted bearing, the locking collar set screws must be released to allow the insert to move both in the housing and on the shaft.*

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM FIXED TO EXPANSION (FLOATING)

### Flange Cartridge and Flange Block

1. Make a reference mark on the housing and retaining nut.
2. Loosen the Teflon-tipped set screw that locks the retaining nut in place.
3. Loosen the retaining nut by tapping it with a hammer and punch, rotating the retaining nut counterclockwise one complete revolution.
4. Tighten the Teflon-tipped set screw.

### NOTE

*When converting a solid-block housed unit bearing from fixed to expansion, it is imperative that the unit that is going to be converted is correctly oriented. Since the insert in a housed unit flange housed unit is held against either a shoulder or snap ring opposite the housing retaining nut, a flange bearing that has been converted to expansion can only float in the direction of the retaining nut. Based on this, the retaining nut must be on the side of the housing opposite the fixed bearing.*

### Pillow Block

1. Decide the amount and direction of expansion that's needed. If uni-directional expansion is required, follow directions outlined in the previous column for flange housed units on the nut that is on the side you want the expansion.
2. If multi-directional expansion is required, follow the directions outlined in the previous section for both nuts on flange housed units.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM EXPANSION (FLOATING) TO FIXED

### Flange Cartridge and Flange Block

1. Loosen the Teflon-tipped set screw that locks the retaining nut in place.
2. Tighten the retaining nut by tapping it with a hammer and punch, rotating the retaining nut clockwise until it's tight. It is not possible to over-tighten the retaining nut.
3. Tighten the Teflon-tipped set screw.

### Pillow Block

1. Follow the directions above for flange housed units on both nuts on either side of the housing.

**TIMKEN**  
Where You Turn

Bearings • Steel •  
Power Transmission Systems •  
Precision Components •  
Gears • Seals • Lubrication •  
Industrial Services •  
Remanufacture and Repair

[www.timken.com](http://www.timken.com)



5M 01-12: Order No. 10500