

Caution
Some components have sharp edges. Please read instructions before assembly.



COOPER[®]

COOPER BEARINGS GROUP

UK, Europe, South America, Asia, Australia and the Middle East
Cooper Roller Bearings Company Ltd.
Wisbech Road
Kings Lynn, Norfolk, PE30 5JX
United Kingdom
T: +44 (0) 1553 763447
F: +44 (0) 1553 761113
E: CoopersalesUK@kaydon.com

Germany
Cooper Geteilte Rollenlager GmbH.
Postfach 100 423
Oberbenrader Str. 407
47704 Krefeld GERMANY
T: +49 (0) 2151 713 016
F: +49 (0) 2151 713 010
E: CoopersalesDE@kaydon.com

Hong Kong
Cooper Roller Bearings (Hong Kong) Co. Ltd.
21st Floor
Chinachem Tower
34-37 Connaught Road
Central, Hong Kong
T: +852 (0) 135 7010 7075
E: CoopersalesHK@kaydon.com

USA, Canada, Mexico and Central America
The Cooper Split Roller Bearing Corp.
5365 Robin Hood Road, Suite B
Norfolk, VA 23513 USA.
T: +1 (1) 757 460 0925
F: +1 (1) 757 464 3067
E: CoopersalesUS@kaydon.com

People's Republic of China
Cooper Bearings Group Beijing.
Room 909,
Canway Building Tower I
No 66, Nanlishi Road,
Xicheng District, Beijing
PRC 100045
T: +86 (0) 10 68080803
+86 (0) 10 68080805
+86 (0) 10 68080806
F: +86 (0) 10 68080801
E: CoopersalesCN@kaydon.com

Brazil
Cooper do Brasil Ltda.
Caixa Postal 66.105
CEP 05.314-970, Brasil
T: +55 (0) 11 3022 3706
T: +55 (0) 11 9156 2500
E: CoopersalesBR@kaydon.com

India
Cooper Roller Bearings Company Ltd.
Wisbech Road
Kings Lynn, Norfolk, PE30 5JX
United Kingdom
T: +91 (0) 9820180089
E: CoopersalesIN@kaydon.com

Any significant mist from lubricant should be ducted away.

All threaded lifting holes are marked with the appropriate thread size, e.g. M16.

Bearing Types

The 08 SDC Series bearings are available in fixed 'GR' and expansion 'EX' types. Unlike

most Cooper bearings, the fixed and expansion bearings use the same outer race, which has lips to guide the rollers.

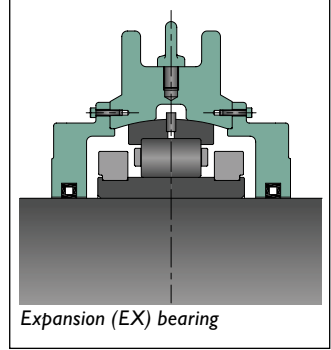
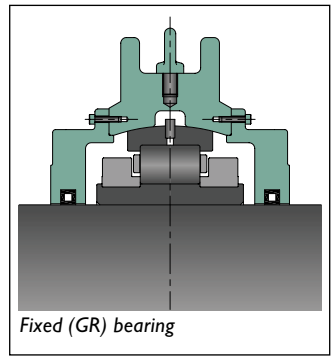
Fixed (GR) bearing

In the GR bearing the clamping ring inner faces guide the rollers and support axial loading.

Expansion (EX) bearing

The EX bearing differs from the 'GR' bearing by having a greater distance between the clamping ring inner faces so that they are clear of the rollers.

The inner race of the EX bearing must be assembled on the shaft in such a position that the rollers and clamping rings do not come into contact, taking into consideration any axial movement of the shaft in service.



Shaft Diameter (mm)	Pedestal Reference	Speed (rpm) up to	Grease (full pack) kg	Speed (rpm)		Grease (75% full pack) kg	Speed (rpm)		Grease (50% full pack) kg	Speed (rpm)		Grease (33% full pack) kg	Speed (rpm) over	Grease (25% full pack) kg
				from	to		from	to		from	to			
150	08 SDC3134	328	2.10	328	656	1.57	656	984	1.05	984	1312	0.69	1312	0.53
160	08 SDC3136	328	2.04	328	656	1.53	656	984	1.02	984	1312	0.67	1312	0.50
200	08 SDC3144	246	3.50	246	492	2.63	492	738	1.75	738	max.	1.16	-	0.88
220	08 SDC3148	219	3.62	219	437	2.72	437	656	1.81	656	max.	1.20	-	0.90
240	08 SDC3152	197	5.17	197	394	3.88	394	591	2.59	591	max.	1.71	-	1.30

Shaft Tolerance

The shaft diameter tolerance is generally h7. For speeds over 150,000 dn(mm) (shaft diameter in mm x speed in rpm), reciprocating or vibratory duty the tolerance is h6. The tolerance on roundness and parallelism is IT6 in all cases.

Shaft Dia	150mm 160mm		200mm 220mm 240mm	
	Tolerance in µm			
Tolerance band	h7	+0 / -40	+0 / -46	
	h6	+0 / -25	+0 / -29	
	IT6	25	29	

CHECK LIST

- The correct shaft size is important
- Parts should not be interchanged
- Match marks should coincide
- Lightly oil threads and interfaces
- Gap at each inner race joint
- Fully tighten clamping ring screws
- Lubricate before closing the housing
- Lubricate swivel seating

Technical Support

Please contact Cooper technical department in case of doubt regarding suitability for any application or operating condition.

Health and Safety at Work

We draw attention to the aspect of safety in the fitting and use of bearings. Damage to equipment and personal injury may result if bearings are not installed according to the instructions given here, or are operated under conditions or loads not recommended by the Cooper technical department.

If the bearing is to operate at slow speed, the roller bearing and housing should be fully packed on assembly. For higher speeds progressively less grease should be used to coat the bearing parts on assembly. The percentage pack and quantity used is given by the table opposite.

Never assemble the bearing dry and inject grease only after closing the housing. For full pack lubrication additional grease will need to be injected after closing the housing in order to properly fill the inside of the housing.

Routine Greasing

The lubrication points are tapped ¼"NPT and fitted with grease nipples. If possible, regrease the bearing as it rotates.

Expansion bearing 'EX' – lubricate the bearing via the bearing lubrication point in the pedestal cap with approximately 4ml grease (generally 2 shots of grease from a side-lever grease gun) for 150mm & 160mm sizes, or 8ml (4 shots) for larger sizes, every 400 hours. This frequency can be increased to weekly if desired.

Fixed bearing 'GR' – lubricate the bearing via the bearing lubrication point in the pedestal cap with approximately 4ml grease (generally 2 shots of grease from a side-lever grease gun) for 150mm & 160mm sizes, or 8ml (4 shots) for larger sizes, weekly or every 150 hours of operation.

If the fixed bearing is used for location only (i.e. there is no nominal axial load), it may be treated as per the expansion bearing for lubrication purposes.

The seals of both expansion and fixed types should be lubricated with one shot (2ml) of grease via each of the lubrication points in the pedestal end covers every time the bearing is relubricated, if the end covers have lubrication points.

Pumped systems should be metered to supply equivalent quantities of lubricant to those specified above.

Clean out the grease after several years of running or as conditions dictate or determine.

Screw Sizes and Tightening Torques

Shaft Diameter d (mm)	Bearing reference	Bearing type	Clamping ring screw			Outer race joint location strip screw			Outer race joint screw			End cover to pedestal screw			End cover joint screw			Pedestal joint screw		
			Screw size	Key size A/F (mm)	Torque (2) (Nm)	Screw size	Key size A/F (mm)	Torque (Nm)	Screw size	Key size A/F (mm)	Torque (Nm)	Screw size	Key size A/F (mm)	Torque (Nm)	Screw size	Key size A/F (mm)	Torque (Nm)	Screw size	Key size A/F (mm)	Torque (Nm)
150	08 SDC3134	EX or GR	M8x30	6	35	M4x12	2.5	2.7	M5x25	4	8.5	M6x25	5	11	M6x25	5	11	M20x80	17	420
160	08 SDC3136	EX or GR	M8x30	6	35	M4x12	2.5	2.7	M5x25	4	8.5	M6x25	5	11	M6x25	5	11	M20x80	17	420
200	08 SDC3144	EX or GR	M12x55	10	120	M4x12	2.5	2.7	M5x30	4	8.5	M6x25	5	11	M8x30	6	26	M24x100	19	712
220	08 SDC3148	EX or GR	M12x55	10	120	M4x12	2.5	2.7	M5x30	4	8.5	M8x30	6	26	M8x30	6	26	M24x100	19	712
240	08 SDC3152	EX or GR	M16x65	14	300	M4x12	2.5	2.7	M6x30	5	15	M8x30	6	26	M8x30	6	26	M30x120	22	1568

BASIC TOOLS REQUIRED

- Allen Keys - For bearing and housing assembly
- Feeler Gauges - To ensure correctly spaced joint gaps
- Flat Bladed Screwdriver - For separating cage halves
- Micrometer - To measure the shaft
- Soft Faced Hammer - To ensure correct seating of components
- Torque Wrench - To ensure correct torque on screws



Preliminary Notes

Before commencing assembly, unwrap the bearing and remove outer race halves. Unclip the 2 cage joints and remove cage & roller assembly halves. If the cage halves are held together by U clips, the clips are removed by inserting a small flat-bladed screwdriver between the clip and the body of the cage. Warning – the clips may fly off. Cover the clip when prising it off, in order to catch it, and wear eye protection. If the cage halves are held together by jointing plates, unclip the plates by lifting the jointing plate over the protruding pins using a small flat-bladed screwdriver. Unbolt the clamping ring screws and remove the 4 clamping ring halves from the 2 inner race halves. Remove the preservative from all parts and wipe dry.



Handle all components with care. Keep the bearing safe from damage. Lightly oil threads and interfaces, including bores of clamping rings.

Tightening torques, shaft tolerances and other relevant data are given overleaf. All bearing components (apart from the cage and roller assemblies of 150mm and 160mm bearings), pedestals and pedestal end cover plates are marked with matching numbers on each half. Ensure the numbers on each half component are the same and are assembled together.

Note: Complete roller bearings are interchangeable between similar pedestals. The pedestal end plates are also interchangeable as matched pairs of halves. Individual components should not be interchanged.

The inner race, before assembly, measures undersize equivalent to the final gap at the joints. When assembled on the shaft there should be a gap at each inner race joint. This gap is a feature of the design to ensure that the inner race grips the shaft.

Stage 1

Clean and inspect the shaft diameter. The shaft tolerance is specified overleaf.

Stage 2

Lightly oil the shaft with thin machine oil, then remove the excess with a clean wiper. Place the inner race in the correct position on the cleaned shaft. Soft packing at the joint faces, or feeler gauges, should be used to ensure that the joint gaps are approximately equal. For ease of assembly locate the joints of the inner race at the top and bottom of the shaft.



Stage 3

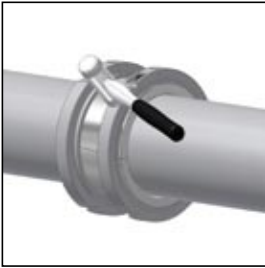
Fit the clamping rings with the joints at approximately 90° to the inner race joint. GR clamping rings have a lip which must be placed toward the centre of the race. EX clamping rings have a recess which must be placed towards the outside of the race. Progressively tighten all clamping ring screws equally, using the correct hexagon key and torque wrench. There should be equal gaps at both joints of the clamping rings and both joints of the inner race.



Discolouration on certain clamping rings is associated with localised heat treatment to increase wear resistance.

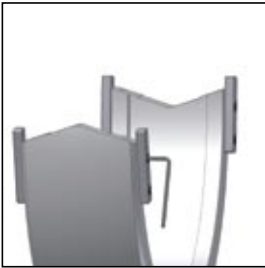
Stage 4

Tap down each half of the inner race and clamping rings all round the shaft using a soft faced hammer, or insert a hardwood block between a steel hammer and bearing parts. Re-tighten screws. Repeat until screws are fully tightened. The recommended torque values are shown on the reverse. Check there is a gap at both joints of the inner race. Check that expansion inner races will be central or correctly offset when all parts are finally positioned.



Stage 5

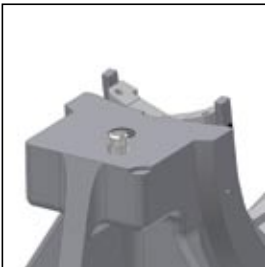
If the location strips are not already attached to the lower half of the outer race, attach them with the countersunk screws provided. If they are already attached, ensure that the screws are fully tightened (to 2.7Nm). The strips should be oriented so that there is maximum protrusion above the outer race joint.



Stage 6

If not already in position, the pedestal base should be placed in approximately the correct position, but be free to move to its correct position as the remainder of the bearing is assembled.

Smear grease over the outer race seating in the pedestal base. Place the bottom half of the outer race, complete with guidance lugs, into the pedestal base, tapping down lightly with a soft-faced hammer. The bottom half of the outer race is the half without the registering pin in the centre.



Ensure that the race is oriented such that the top face of the pedestal base is approximately halfway down each 'V' joint – this is essential to ensure that the two halves of the outer race are aligned radially.

Note: Some outer races have one male end and one female end to each race half. Others may have both male ends on the same half. Where both male ends are on the same half, the 'V' joint is offset to ensure correct orientation.

Stage 7

Coat the bore of the cage and roller assembly with grease and lightly cover the inner race assembly (fitted to the shaft) all over with grease for protection. Place the two halves of the cage around the inner race. If the cage has recesses for 'U' clips in the cage bar adjacent to the joint, push the steel 'U' clips on to secure each cage joint. Ensure that the clips are pushed fully home and are seated correctly (they should grip the two halves tightly together). If the cage is equipped with jointing plates, push the two halves of the cage together until the jointing plates clip over the protruding pins. Do this at both joints.



Note: if assembling in situ, the shaft will have to be raised slightly to allow the cage halves to be rotated about the inner race.

Stage 8

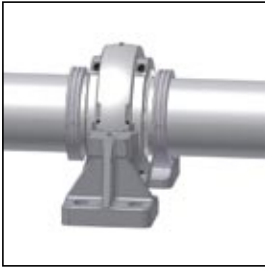
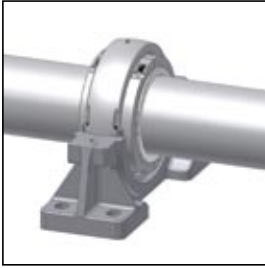
Before the top half of the outer race is placed in position, lubricate the inner race and cage and roller assemblies.

Assemble the top half of the outer race to the lower half, with the bottom half already in position in the pedestal base. Progressively tighten the outer race joint screws, maintaining approximately equal torque on all four screws until they are fully tightened.



Stage 9

Aluminium Triple Labyrinth (ATL) seals: Separate the ATL seal halves by driving out the two jointing pins. Lubricate the 'O' rings in the bore of the seal with grease. Reassemble on the shaft in approximately the correct position by compressing the 'O' rings of both halves sufficiently for the jointing pins to be reinserted, and reinsert the pins. Ensure that the halves are assembled the correct way round ('COOPER' and the shaft size are stamped on the same face of opposite halves). Note: ATL seals can be slid along the shaft once assembled.



Flexible Packing (FP) seals:

Lubricate the bore of the seals with grease. Assemble on to the shaft in approximately the correct position by wrapping around the shaft and pushing the joint dowels into the open end of the seal until the two ends of the seal butt together.

Synthetic Rubber (SRS) seals:

Place each seal half into a groove of one of the end-cover bores so that the seal ends finish flush with the end-cover joint face. In the standard assembly all lips face outwards.

Stage 10

One at a time, place the lower halves of the pedestal end covers over the seals (or simply on to the shaft with SRS seals) and move into position against the pedestal base. Attach to the pedestal.

Place the top halves of the pedestal end covers into position and secure to the lower halves with the joint screws, but do not tighten these screws yet.

Stage 11

Lubricate the outer race seat in the pedestal cap. Carefully lower into position over the outer race and pedestal base, taking care that the registering pin in the top half of the outer race enters into the cored recess or drilled hole in the top of the seating in the pedestal cap. Note: This registering pin is hollow to provide a channel for lubricant.

Tap the pedestal cap home over the dowels using a soft-faced hammer. Tighten the pedestal joint screws.

Tighten the top halves of the end covers in position by progressively tightening the screws affixing it to the pedestal cap and to the lower halves of the end covers.

Before finally tightening the pedestal base bolts the concentricity of the bores of the end covers to the shaft should be checked. For optimum performance the gaps between the end covers and the shaft (or between the end covers and ATL seals) should be made as uniform as possible by adjusting the orientation of the pedestal.

Initial Lubrication

These bearings are intended for grease lubrication.

For operation up to 100°C, we recommend the use of a good quality lithium based grease with extreme pressure properties (i.e. EP2 or equivalent). A grease with E.P. additives is essential if high axial loads are to be carried.

