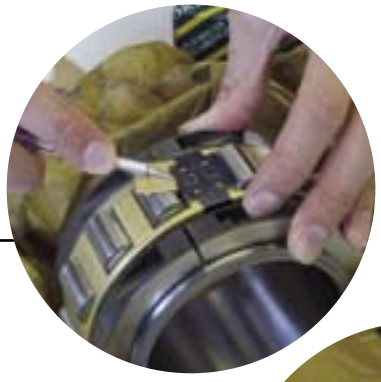
Assembly and Maintenance

Shaft Check

When fitting bearings on both new and existing installations, the shaft need only be raised 1 to 2 millimetres. This should provide sufficient clearance to allow for easy fitting. Prior to the assembly of any bearing components the shaft must be checked for size, roundness and parallelism.

- Check a minimum of three positions along the journal length.
- Check a minimum of three positions around the shaft to establish roundness.
- Shaft tolerances and shaft surface finish are given in the table on page 23.



Fitting the Inner Ring

- Carefully unpack and clean the bearing removing all preservatives.
- Inner race locating clamping rings cannot be removed before the cage has been dismantled.
- Care must be taken that no damage occurs when cage halves are separated.

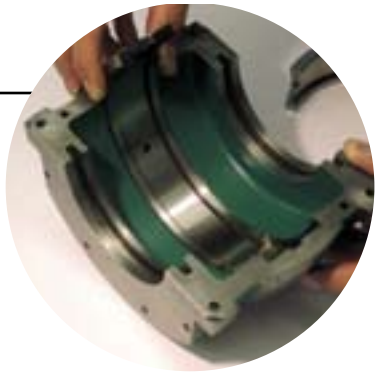
Please Note:
Spring Clips should always be retained on one cage half.

- Clean the shaft and lightly oil the bore of the inner race.
- Place the two inner race halves in approximately the correct position with the joints at the top and bottom. With the joints in that position it will allow easy access to the clamp ring screws later when they are tightened.
- Ensure that the match marks (black band) in the clamp ring groove on one side of the race coincide.

There should be an equal gap at each joint. If there are no gaps do not proceed and contact the SRB Technical Services Department.

- Fit the inner race locating clamping rings. Ensure that the correct clamp ring is fitted in the corresponding groove. To assist in this the clamping rings are intentionally manufactured to different widths on the more popular sizes. In addition, the match-marking groove found on the inner race is repeated on the corresponding clamping ring.
- Make sure that the thrust faces are not damaged when the rings enter the grooves.
- The joints should be at 90° to the inner race joints and the screws should be tightened in such a way that there are four equal gaps.
- Screws should only be finger tight so that the race can be adjusted axially into its final position.

Pre-Assembly of the Outer Race into the Seating Groove in the Housing



- The housing must be cleaned thoroughly removing all preservatives. If reusing an existing housing it is essential that the outer race seating groove is clean and free of any hardened grease deposits or corrosion.
- Lightly oil the seating groove and the outside diameter of the outer race halves.
- Place the race halves of the expansion or retained type into the seating groove and ensure that:
- The match marking numbers on the edge of each race half coincide.
- The lubrication hole in the outer race is in the upper housing half.
- The outer race joints should protrude equally above the housing joint faces.

If a retained bearing is being fitted:

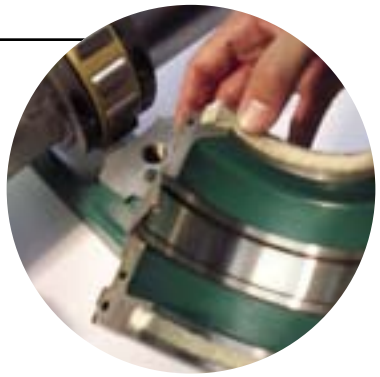
- Pre-assemble the housing halves and fully tighten the joint socket head cap screws.
- Ensure that the joints are closed.
- Fit the pins and screws provided and tighten up evenly to ensure that the outer race is fixed square against the opposite shoulder of the seating groove.

Larger bearings (both retained and expansion) may require outer race retaining screws. If these are required, please ensure that the flat washers are not omitted. Once fitted, ensure that the end of the screw does not protrude above the race track surface.

- Separate the housing halves, these are now ready for final assembly.
- Fit the appropriate seals. The seal grooves in the standard housing are suitable for felt and synthetic rubber. If the bearing is inspected or replaced on an existing installation and the housing is re-used, we advise that new seals are fitted.

Pre-Fitting the Lower Housing Half

On existing installations it is often unnecessary to change the support if a bearing, or bearing and housing has to be replaced. In such cases the support base bolts should not be touched to ensure that the replacement bearing and the old or new housing will be in the same position as previously. In new installations the support base should be positioned with the bolts finger tight. This will allow additional freedom of movement when aligning the inner and outer races.



Retained Bearing

- Slide the pre-assembled bottom half into the support base.
- Line up the inner and outer race roller track by adjusting the inner ring sideways into the final position. The final position should be confirmed by passing one half of the cage and roller assembly between the inner and outer races. The cage half should pass freely round the lower half of the bearing without becoming jammed or trapped.
- Remove the bottom housing half and tighten the clamp ring socket head cap screws and fit the cage as explained below.

Expansion Bearing

- As in the case of the retained bearing, slide in the pre-assembled bottom housing half.
- Line up the inner ring by adjusting it sideways until it is central with the outer race.
- The clearance between the inner race end faces and inside housing walls should be equal. If cage and rollers are assembled in this position the shaft can expand either side of the centre line by the amount shown in column 1 in the table right.
- When the position of the inner ring is satisfactory, remove the bottom half housing and tighten the clamp ring socket head cap screws and fit the cage as explained below.

A greater degree of expansion allowance can be obtained, but only in one direction. This is achieved by offsetting the inner race with respect to the housing. In this case the total amount of linear movement in service is given in column 2 of the table.

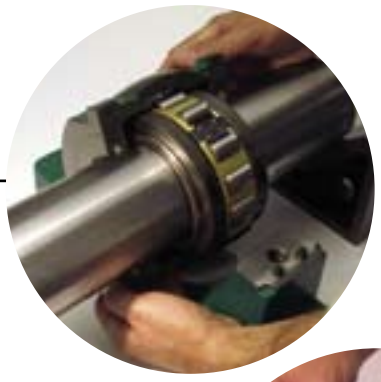
Group	Maximum Expansion if cage and rollers are assembled central 1	Maximum Expansion 2
40 mm 1½"	3 mm	6 mm
50 mm 2"	3 mm	6 mm
60 mm 2½"	3.5 mm	7 mm
70 mm 3"	4 mm	8 mm
80 mm 3½"	5 mm	10 mm
100 mm 4"	5.5 mm	11 mm
110 mm 4½"	8 mm	16 mm
120 mm 5"	8.5 mm	17 mm
140 mm 5½"	9 mm	18 mm
160 mm 6"	9 mm	18 mm

Tightening of the Locating Clamping Ring Screws

- When the inner race is in its final position, tighten all four clamping ring screws equally.
- Use the correct hexagon key and a torque wrench.
- Tap down the locating thrust rings with a nylon mallet to ensure that they are seating down correctly within the grooves.
- Re-tighten and repeat the tapping down until the screws are fully tight.
- Torque values for the various screw sizes are given in the tables at the end of this section. If a screw is lost it must be replaced using a High Tensile Socket Head Cap Screw Grade, 12.9.

Fitting the Cage

- Grease the inner race roller track and cage.
- Place the cage halves around the inner race ensuring that the match mark numbers on the edge of each cage half are the same and coincide at one joint.
- Press the cage halves into the clip ensuring that the bissel pins are fully located.
- Check that the cage assembly runs freely on the inner race.
- Fully pack the cage and roller assembly with the correct type of grease.

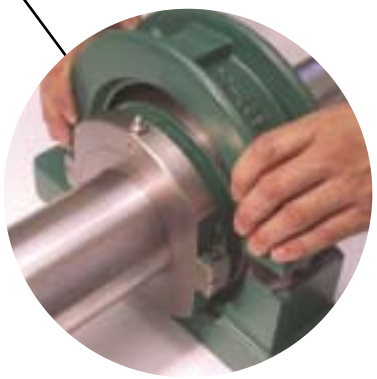


Final Fitting of the Housing

- Charge the bottom and upper housing halves with the correct amount of grease. Refer to page 27 for correct types and quantities of grease depending on the application and the speed.
- Lightly oil the spherical diameter of both housing and support and slide the bottom housing half into the support base.
- Lower the shaft with the assembled inner races and cages, until the rollers touch the tracks in the bottom half housing. Make sure that when the rollers in the retained bearing enter the outer race groove they do not damage the lips.
- Revolve the shaft by hand, the rollers should move freely between the thrust shoulders of the inner race and the lips of the retained outer race.
- Fit the upper housing half then tighten the housing joint screws. Check that there is no gap at the joints.

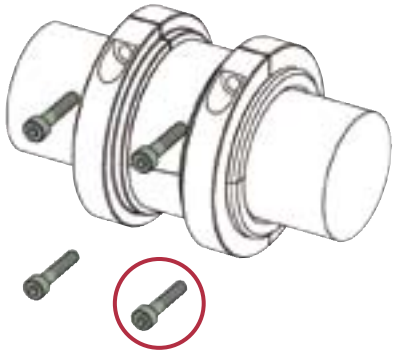
Fitting the Support Cap

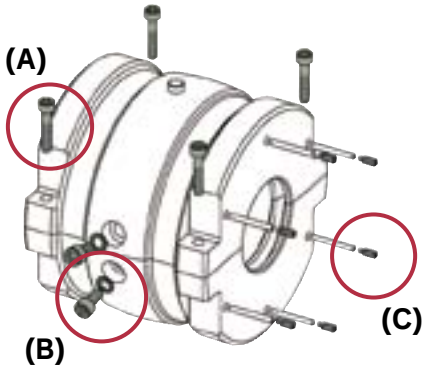
- Place the support cap over the upper housing half and engage the locating dowels at the joint.
- Using a nylon mallet, gently tap the support cap down to close the gap at the joints.
- Fit the bolts and tighten just enough to hold the support joints closed.
- At this point, and only if it is safe to do so, the shaft should be run at low speed and if possible, with low loading. This will allow the spherical locating surfaces to correctly align. If running the shaft under power is not an option, the shaft should be rotated by hand to achieve this goal.
- Tighten the cap bolts fully using a torque wrench. At this point the support base bolts should also be checked and tightened as required. Torque values for housing and support screws are given in the table at the end of this section.

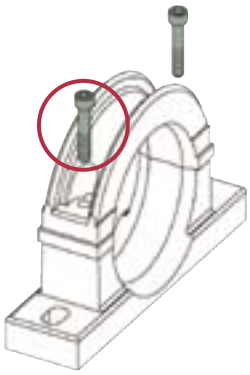


Light Series

Screw Sizes, Key Sizes & Torque Values





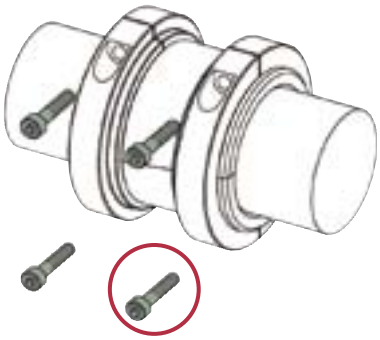


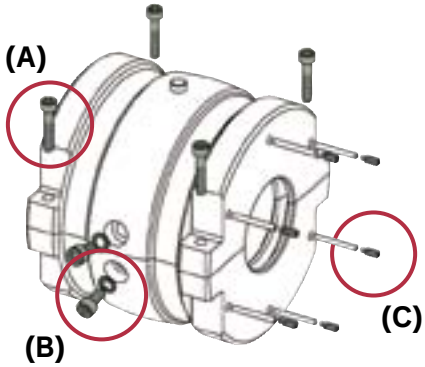
Shaft (d)		Clamping Ring*			Housing									Support		
					Joint (A)			Radial Retainer (B)			Axial Retainers (HR only) (C)					
mm	inch	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)
35 - 40	1 3/16 - 1 1/2	M4	3	5 (3.6)	M4	3	4 (2.6)				M4	2	4 (2.6)	M8	6	27 (20)
45 - 50	1 11/16 - 2	M4	3	5 (3.6)	M4	3	4 (2.6)				M4	2	4 (2.6)	M8	6	27 (20)
60 - 65	2 3/16 - 2 1/2	M4	3	5 (3.6)	M4	3	4 (2.6)				M4	2	4 (2.6)	M10	8	54 (40)
70 - 75	2 11/16 - 3	M4	3	5 (3.6)	M4	3	4 (2.6)				M4	2	4 (2.6)	M12	10	94 (69)
80 - 90	3 3/16 - 3 1/2	M5	4	9 (7)	M5	4	7 (5)				M4	2	4 (2.6)	M16	14	231 (170)
100 - 105	3 11/16 - 4	M6	5	15 (11)	M6	5	11 (8)				M4	2	4 (2.6)	M16	14	231 (170)
110 - 115	4 3/16 - 4 1/2	M6	5	15 (11)	M6	5	11 (8)				M6	3	11 (8)	M20	17	434 (320)
120 - 130	4 11/16 - 5	M6	5	15 (11)	M6	5	11 (08)				M6	3	11 (08)	M20	17	434 (320)
135 - 140	5 3/16 - 5 1/2	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M20	17	434 (320)
150 - 155	5 11/16 - 6	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M20	17	434 (320)
160	6 7/16 - 6 1/2	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M16	14	231 (170)
170 - 180	6 11/16 - 7	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M16	14	231 (170)
190 - 200	7 1/4 - 8	M8	6	35 (26)	M8	6	27 (20)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
220 - 230	8 1/2 - 9	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
240 - 250	9 1/2 - 10	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
260 - 280	10 1/2 - 11	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
300	11 1/2 - 12	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
320 - 330	12 1/2 - 13	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
340 - 350	14	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
360 - 380	15	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
400	16	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
420	17	M12	10	125 (92)	M12	10	94 (69)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
440 - 460	18	M12	10	125 (92)	M12	10	94 (69)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
480	19	M12	10	125 (92)	M12	10	94 (69)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
500	20	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
530	21	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
560	22	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
580	23	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
600	24	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)

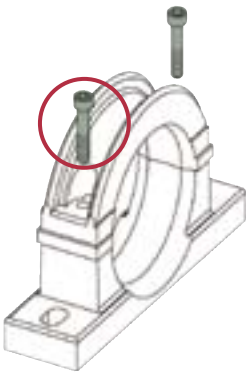
* May be increased by up to 20% for high axial load applications

Medium Series

Screw Sizes, Key Sizes & Torque Values





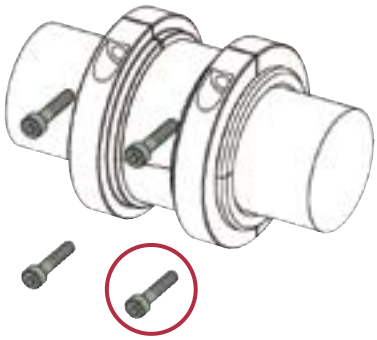


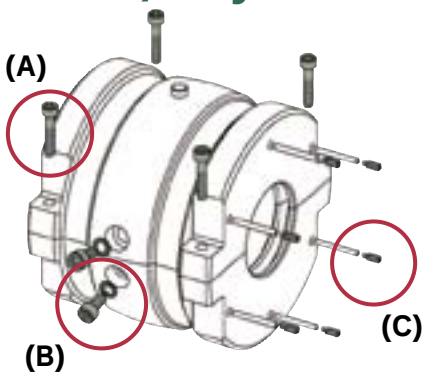
Shaft (d)		Clamping Ring*			Housing									Support		
					Joint (A)			Radial Retainer (B)			Axial Retainers (HR only) (C)					
mm	inch	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)
45 - 50	$1^{11}/_{16}$ - 2	M5	4	9 (7)	M5	4	7 (5)				M4	2	4 (2.6)	M10	8	54 (40)
60 - 65	$2^{3}/_{16}$ - $2^{1}/_{2}$	M5	4	9 (7)	M5	4	7 (5)				M4	2	4 (2.6)	M12	10	94 (69)
70 - 75	$2^{11}/_{16}$ - 3	M6	5	15 (11)	M6	5	11 (08)				M4	2	4 (2.6)	M16	14	231 (170)
80 - 90	$3^{3}/_{16}$ - $3^{1}/_{2}$	M6	5	15 (11)	M6	5	11 (08)				M4	2	4 (2.6)	M16	14	231 (170)
100 - 105	$3^{11}/_{16}$ - 4	M6	5	15 (11)	M6	5	11 (8)				M4	2	4 (2.6)	M20	17	434 (320)
110 - 115	$4^{3}/_{16}$ - $4^{1}/_{2}$	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (8)	M20	17	434 (320)
120 - 130	$4^{11}/_{16}$ - 5	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M20	17	434 (320)
135 - 140	$5^{3}/_{16}$ - $5^{1}/_{2}$	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M20	17	434 (320)
150 - 155	$5^{11}/_{16}$ - 6	M8	6	35 (26)	M8	6	27 (20)				M6	3	11 (08)	M20	17	434 (320)
160 - 170	$6^{7}/_{16}$ - $6^{1}/_{2}$	M10	8	72 (53)	M10	8	54 (40)				M6	3	11 (08)	M20	17	434 (320)
180	$6^{11}/_{16}$ - 7	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
190 - 200	$7^{1}/_{4}$ - 8	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
220 - 230	$8^{1}/_{2}$ - 9	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
240 - 260	$9^{1}/_{2}$ - 10	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
280	$10^{1}/_{2}$ - 11	M16	14	309 (228)	M16	14	231 (170)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
300	$11^{1}/_{2}$ - 12	M16	14	309 (228)	M16	14	231 (170)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
320 - 330	$12^{1}/_{2}$ - 13	M16	14	309 (228)	M16	14	231 (170)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
340 - 360	14	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
380	15	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
400	16	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
420	17	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
440 - 460	18	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
480	19	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
500	20	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
530	21	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
560	22	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
580	23	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
600	24	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)

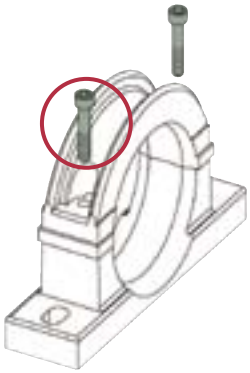
* May be increased by up to 20% for high axial load applications

Heavy Series

Screw Sizes, Key Sizes & Torque Values







Shaft (d)		Clamping Ring*			Housing									Support		
					Joint (A)			Radial Retainer (B)			Axial Retainers (HR only) (C)					
mm	inch	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)
100 - 105	$3^{11}/_{16}$ - 4	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
110 - 120	$4^{3}/_{16}$ - $4^{1}/_{2}$	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
125 - 130	$4^{15}/_{16}$ - 5	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M16	14	231 (170)
135 - 140	$5^{3}/_{16}$ - $5^{1}/_{2}$	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
150 - 155	$5^{11}/_{16}$ - 6	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
160 - 170	$6^{7}/_{16}$ - $6^{11}/_{16}$	M12	10	125 (92)	M12	10	94 (69)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
180	$6^{3}/_{4}$ - 7	M12	10	125 (92)	M12	10	94 (69)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
190 - 200	$7^{1}/_{4}$ - 8	M12	10	125 (92)	M12	10	94 (69)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
220 - 230	$8^{1}/_{2}$ - 9	M16	14	309 (228)	M16	14	231 (170)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
240 - 260	$9^{1}/_{2}$ - 10	M16	14	309 (228)	M16	14	231 (170)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
280	11	M20	17	600 (442)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
300	12	M20	17	600 (442)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
320 - 330	13	M20	17	600 (442)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
340 - 360	14	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
380 - 400	15 - 16	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
420 - 440	17	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M16	14	231 (170)	M24	19	760 (560)
460	18	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M16	14	231 (170)	M24	19	760 (560)
480	19	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M16	14	231 (170)	M24	19	760 (560)
500	20	M24	19	997 (735)	M20	17	434 (320)	M16	14	231 (170)	M10	5	54 (40)	M24	19	760 (560)
530	21	M24	19	997 (735)	M20	17	434 (320)	M16	14	231 (170)	M10	5	54 (40)	M24	19	760 (560)
560	22	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
580	23	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
600	24	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)

* May be increased by up to 20% for high axial load applications