

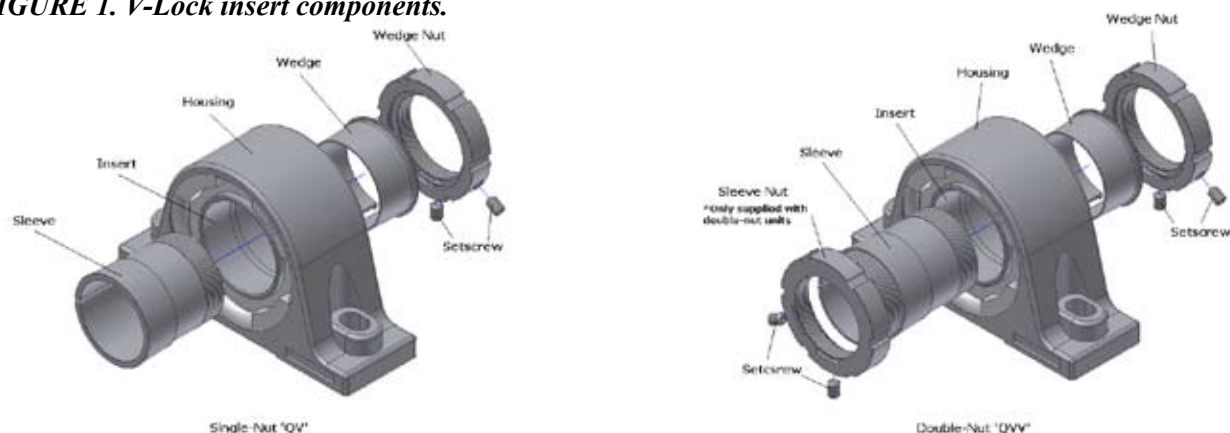
## QM Blue Brute V-Lock® Bearings Installation Guide

Due to the unique adapter, the QM Blue Brute V-Lock bearings are easy to install and remove. Please complete the following steps to install and/or remove QM Blue Brute V-Lock bearings.

### Installation

1. Ensure the shaft is within recommended diameter tolerance shown in Table 1 and that it is straight, clean and free of any burrs or debris.
2. If using an open-end cover, slide open-end cover/seal combination into position on shaft.
3. Remove the wedge assembly from the sleeve by unscrewing the wedge nut. See Figure 1.
4. Apply a thin oil film to shaft.
- 5a. For single-nut units:
  - i. Slide the sleeve, non-threaded end first, into position on shaft.
- 5b. For double-nut units:
  - i. Make sure the sleeve nut is flush with the end of the sleeve.
  - ii. Slide the sleeve/nut assembly, nut end first, into position on the shaft.
6. Wipe the bore of the inner race and all surfaces of the wedge dry and clean of any oils and debris.
7. Slide the bearing into place over the sleeve so that it is as far as it will go over the sleeve, making a tight fit between the two.
8. Slide the wedge and wedge nut into the bearing over the sleeve.
9. Tighten the wedge assembly by turning the wedge nut clockwise until tight; in most cases the nut will not be flush with the sleeve when installed correctly.  
NOTE: It is impossible to over-tighten the wedge assembly!
9. If installing double-nut unit, tighten the sleeve assembly by turning the sleeve nut clockwise until snug.
10. Tighten both the wedge nut and sleeve nut set screws to 25 ft-lbs using an allen key.
11. Install and tighten the housing mounting bolts.
12. If using covers:
  - a. Make sure mating surface of cover is clean and dry.
  - b. Using sandpaper, slightly roughen the mating surface of the cover.
  - c. Place a 1/8" - 1/4" bead of polyurethane adhesive sealant on mating surface of the cover.
  - d. Start two tabs of the cover into the cover slots on bearing making sure that the grease fitting on the cover is accessible
  - e. Using a deadblow hammer, drive the remaining tabs into place to lock the cover onto the bearing.

**FIGURE 1. V-Lock insert components.**



## Removal

1. Remove cover(s), if applicable, by prying tabs up with suitable prying tool to disengage the cover(s) from the bearing.
2. Loosen the wedge nut set screws, being sure to leave the Sleeve nut locked in place if using the double nut sleeve.
3. Turn the wedge nut counterclockwise to remove the wedge from the locked position.
4. Completely remove the wedge/wedge nut assembly.
5. Remove the mounting bolts.
- 6a. For *single-nut* units:
  - Pillow Block** — Remove the bearing and sleeve from the shaft starting with the bearing first.
  - Flange Cartridge** — Using the mounting bolts and extraction holes, push the bearing off the sleeve.
  - Flange Block** — Using a suitable prying tool disengage the bearing from the sleeve.
- 6b. For *double-nut* units:
  - a. Loosen the sleeve nut set screws.
  - b. Turn the sleeve nut clockwise to push the bearing off the sleeve.
  - c. Remove the bearing and sleeve from the shaft starting with the bearing first.

**TABLE 1. Recommended shaft tolerances.**

Shaft Size		Bearing Number	Tolerance (in)
1-15/16" 2"	50mm	22211	
2-3/16" 2-1/4"	55mm	22212 or 22213	+0.000 / -0.0015
2-7/16" 2-1/2"	60mm 65mm	22214 or 22215	
2-11/16" 2-3/4" 2-15/16" 3"	70mm 75mm	22216 or 22217	+0.000 / -0.002
3-3/16" 3-1/4" 3-7/16" 3-1/2"	80mm 85mm 90mm	22219 or 22220	+0.000 / -0.003
3-11/16" 3-3/4" 3-15/16" 4"	100mm	22222	
4-7/16" 4-1/2"	110mm 115mm	22226	+0.000 / -0.005
4-15/16" 5"	125mm 130mm	22228	

## Suggested Lubrication for Bearings

QM Bearings is dedicated to using the highest quality components in everything we do; this is why we use Dow Corning Molykote® G4700 grease. It is a lithium complex extreme pressure synthetic grease that combines the benefits of wide operating temperatures and broad compatibility with varied materials. This grease offers excellent thermal stability through temperatures ranging from -40 F/C to 350 F (177 C). When dealing with extremely high temperature applications, consult a QM Bearings Customer Service Specialist for optional grease recommendations. QM Bearing's Blue Brute bearings are factory lubricated and are ready for use without additional lubrication. Re-lubrication intervals noted below in Table 3 depend on the type of application, speed, operating temperature and other environmental conditions. Knowledge of a particular application will determine the best re-lubrication interval but use the intervals shown below for general purposes.

**TABLE 3. Re-Lubrication Intervals**

(Please note: The average manual grease gun will produce approximately one (1) ounce of grease per 33 strokes. Please check with the manufacturer of your grease delivery system for specific information.)

Shaft Size	Bearing Number	Initial Weight (oz)	Relubrication Weight (oz)	Relubrication Interval (Hours of Service Based On RPM and Temperature)												
				100 RPM		250 RPM		500 RPM		1000 RPM		2000 RPM		3000 RPM		
				<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	
1-15/16" 2"	50mm	22211	1	0.3	1200	600	800	400	440	220	160	80	100	50	60	30
2-3/16" 2-1/4"	55mm	22212	1.2	0.3	1150	580	750	380	400	200	140	70	90	50	50	20
		22213	1.3	0.4	1130	570	740	370	380	190	130	65	85	45	45	20
2-7/16" 2-1/2"	60mm	22214	1.4	0.4	1120	560	720	360	360	180	120	60	80	40	40	20
	65mm	22215	2	0.5	1080	540	700	350	350	175	110	55	70	35		
2-11/16" 2-3/4"	70mm	22216	2.7	0.7	1040	520	680	340	340	170	100	50	60	30		
	75mm	22217	3.4	0.9	1000	500	640	320	320	160	100	50	60	30		
3-3/16" 3-1/4" 3-7/16" 3-1/2"	80mm	22219	3.7	0.9	960	480	600	300	300	150	80	40	40	20		
	85mm	22220	6.5	1.6	840	420	520	260	240	120	70	35	30	18		
	90mm															
3-11/16" 3-3/4" 3-15/16" 4"	100mm	22222	7.4	1.9	680	340	440	220	200	100	60	30	20	16		
4-7/16" 4-1/2"	110mm 115mm	22226	10.6	2.7	560	280	360	180	160	80						
4-15/16" 5"	125mm 130mm	22228	14	3.5	520	260	340	170	140	75						

## How to Convert a Blue Brute Bearing from Fixed to Expansion (floating)

### Flange Cartridge & Flange Block

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

*Please note: When converting a Blue Brute bearing from fixed to expansion, it is imperative that the unit to be converted to expansion is oriented correctly. Since the insert in a Blue Brute flange bearing 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 amount and direction of expansion needed. If uni-directional expansion is required, follow directions as outlined above for flange bearings on the nut that is on the side you want the expansion.
2. If multi-directional expansion is required follow the directions as outlined above for flange bearings on both nuts except the rotation should be one-half a revolution on each nut instead of one complete revolution.

## How to Convert a Blue Brute Bearing from Expansion (floating) to Fixed

### Flange Cartridge & Flange Block

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

### Pillow Block

1. Follow directions above for Flange bearings on both nuts on either side of the housing. If the bearing originally came from the factory as expansion, only one nut will have been rotated out and it will be stamped with an “E” for identification purposes.

*Please Note: When converting a Blue Brute from expansion to fixed on a bearing that is mounted, the locking collar set screws must be released to allow the insert to move both in the housing and on the shaft.*

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**North American Locations:** Western Canada – Prince George, BC Eastern Canada – Mississauga, ON Western US – Ferndale, WA Southern US – Irving, TX Eastern US – Cuyahoga Falls, OH

QM Bearings designs, manufactures and markets rugged Blue Brute® bearings, Quick-Flex® couplings and rigid compression couplings. The company's precise manufacturing methods and innovative solutions have won over thousands of customers in over 40 countries. For more information, visit [www.qmbearings.com](http://www.qmbearings.com) for the distributor nearest you or call (800) 661-5568 or (360) 384-6673.