

LOCTITE®

SURROUND YOUR PUMP WITH EXPERTISE

Provides 360° reliability for big value parts:
The LOCTITE® Pump Maintenance Guide.



Henkel



This guide has been developed to assist maintenance personnel who service industrial centrifugal pumps in achieving their goals of pump reliability, longevity and cost reduction.

Most industrial centrifugal pumps carry a significant capital equipment value and it is therefore important to extend their useful lives and ensure that they run efficiently and reliably. Proactive maintenance can reduce the risk of breakdowns and increase pump reliability and longevity. Without proactive maintenance, some pump failures may go unnoticed until there is the inevitable breakdown.

Pump breakdowns can have significant negative impact, such as a stop in production and the cost of a broken piece of capital equipment. Many of these breakdowns are the result of simple, needless failures, such as the loss of clamp load between two assemblies caused by a loose fastener. This loss of clamp load could lead to misalignment and ultimately cause bearing failure. Taking some proactive steps can reduce the risk of this occurrence and can help extend the mean time between failure (MTBF).

LOCTITE® brand products have been helping OEMs around the world prevent common failures and extend end-product life. These same technologies are used by the people who maintain equipment.

Various LOCTITE® brand products can be used in all stages of pump maintenance:

- > Assembly
- > Installation
- > Repair
- > On-going maintenance
- > Disassembly

The use of LOCTITE® brand products in a proactive maintenance program can:

- > Prevent common failures, both major and minor
- > Allow for the recycling of parts to avoid scrap and replacement costs
- > Assist in disassembly
- > Help ensure reliability and a consistent running condition

To highlight the common failures, challenges and LOCTITE® product solutions, a common Goulds 3196 pump was used. This type of pump is very common, has been an industry standard, and is manufactured by one of the leaders in the pump industry. The environments in which these pumps operate, not necessarily pump construction, can affect pump operation and efficiency and present challenges to end users. We chose the Goulds 3196 to demonstrate the solutions to these common challenges. Similar solutions will apply to other types and brands of centrifugal pumps. **Contact your local Henkel representative if help is needed for your specific applications.**

Part 1: Pump Assembly

During the assembly of a pump there are many simple steps that can be taken to help reduce or eliminate common failures and that will also make future disassembly much easier. The following sections will discuss proven reliability applications and techniques starting with the bearing housing of the common 3196 end-section centrifugal pump all the way through to the final assembly of the pump casing, attaching the coupling and grouting the base.

Part 2: Pump Repair

Repairs are a critical element to pump maintenance. Because of the harsh environments and operating parameters, pump parts are subject to wear, erosion, corrosion, leaks, etc. In addition to preventative measures, LOCTITE® brand products can be used to restore pump parts. Alternative solutions such as scrap and replacement or the use of other repair technologies may be too costly. Using LOCTITE® brand products to restore parts is a very cost-effective solution because users can be assured of the consistent quality, performance, availability and support that is provided and expected from Henkel Corporation.



INDUSTRIAL PUMP APPLICATIONS

Detailed application callout diagram 4

PUMP ASSEMBLY

BEARING FRAME AND HOUSING

Prevent oil leaks from threaded assemblies 6

Prevent leaks and seizures between the bearing housing and oil seal 7

Keeping O-rings pliable to ensure a proper seal 7

Prevent bearing spinout, corrosion and component damage 8

Prevent corrosion and seizure of power end jack bolts, jam nuts and clamp bolts 9

FRAME ADAPTER

Prevent oil leaks between the frame adapter and the oil seal 9

Prevent dowel pins from seizing to the bearing frame and frame adapter 10

Prevent fastener loosening and corrosion to frame adapter mounting bolts 10

Prevent gasket failure between the bearing frame and frame adapter 11

GLAND ASSEMBLY

Prevent seizure and loosening of gland studs 12

Prevent corrosion and seizure of packing gland nuts 12

Prevent corrosion within the gland flushing connector 13

PUMP CASING

Prevent leaks between the stuffing box and casing 14

Prevent the frame adapter, stuffing box and casing from seizing together 15

Prevent corrosion and seizure of the pump casing bolts 15

KEYWAYS / KEY STOCK

Prevent keyway wallow by securing the key stock in the keyway – new components 16

Stop keyway wallow and prevent downtime and scrap costs – worn components 16

COUPLING

Prevent coupling from loosening or moving, resulting in disengagement, damage or misalignment 17

IMPELLER

Prevent seizure of the impeller to the shaft 17

PUMP BASE MOUNTING

Prevent pump mounting bolts from losing clamp load, leading to misalignment 18

PUMP BASE GROUTING

Prevent twisting, vibration and corrosion of pump base 19

PUMP REPAIR

CORROSION

Prevent corrosion damage to external parts 20

OIL SEEPAGE

Prevent oil loss from seepage 21

CASING / IMPELLER WEAR

Rebuild worn areas to restore pump casing and impellers 22

SHAFT WEAR

Restore worn shaft to the original condition 24

KEYWAY WALLOW

Repair wallowed out keyways 25

PUMP SOLUTIONS

Product Table 27

Product index 29

Notes 30

INDUSTRIAL PUMP APPLICATION

Prevent fretting and corrosion while securing bearings

LOCTITE® 638 Retaining Compound

Prevent rust and seizure of power end bolts

LOCTITE® Anti-Seize Lubricant

Prevent key wallow

LOCTITE® 243 Medium Strength Threadlocker

Repair key wallow

LOCTITE® 660 Retaining Compound

Prevent set screws from working loose

LOCTITE® 222 Low Strength Threadlocker or

LOCTITE® 243 Medium Strength Threadlocker

(depending on fastener size)

Secure and prevent leakage between oil seals and housing

LOCTITE® 222 Low Strength Threadlocker or

LOCTITE® 243 Medium Strength Threadlocker

Lubricate and prevent damage to O-rings

LOCTITE® LB 8034 High Performance Synthetic Grease

Seal threaded fittings

LOCTITE® 567 Thread Sealant

Keep mounting bolts tight

LOCTITE® 263 High Strength Threadlocker

Make any size gasket

LOCTITE® 518 Flange Sealant

Protect pump against chemical attack and erosion

LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating

Rebuild and protect worn volutes

LOCTITE® PC 7218 Nordbak® Wearing Compound and/or

LOCTITE® PC 7227 Nordbak® Brushable Ceramic

Restore, coat, and protect impeller vanes

LOCTITE® PC 7227 Nordbak® Brushable Ceramic

Rebuild worn shafts

LOCTITE® EA 3478 Superior Metal

Prevent corrosion and seizure of gland assembly nuts

and seizure of the impeller to the shaft

LOCTITE® Anti-Seize Lubricant

Seal and protect flushing connectors

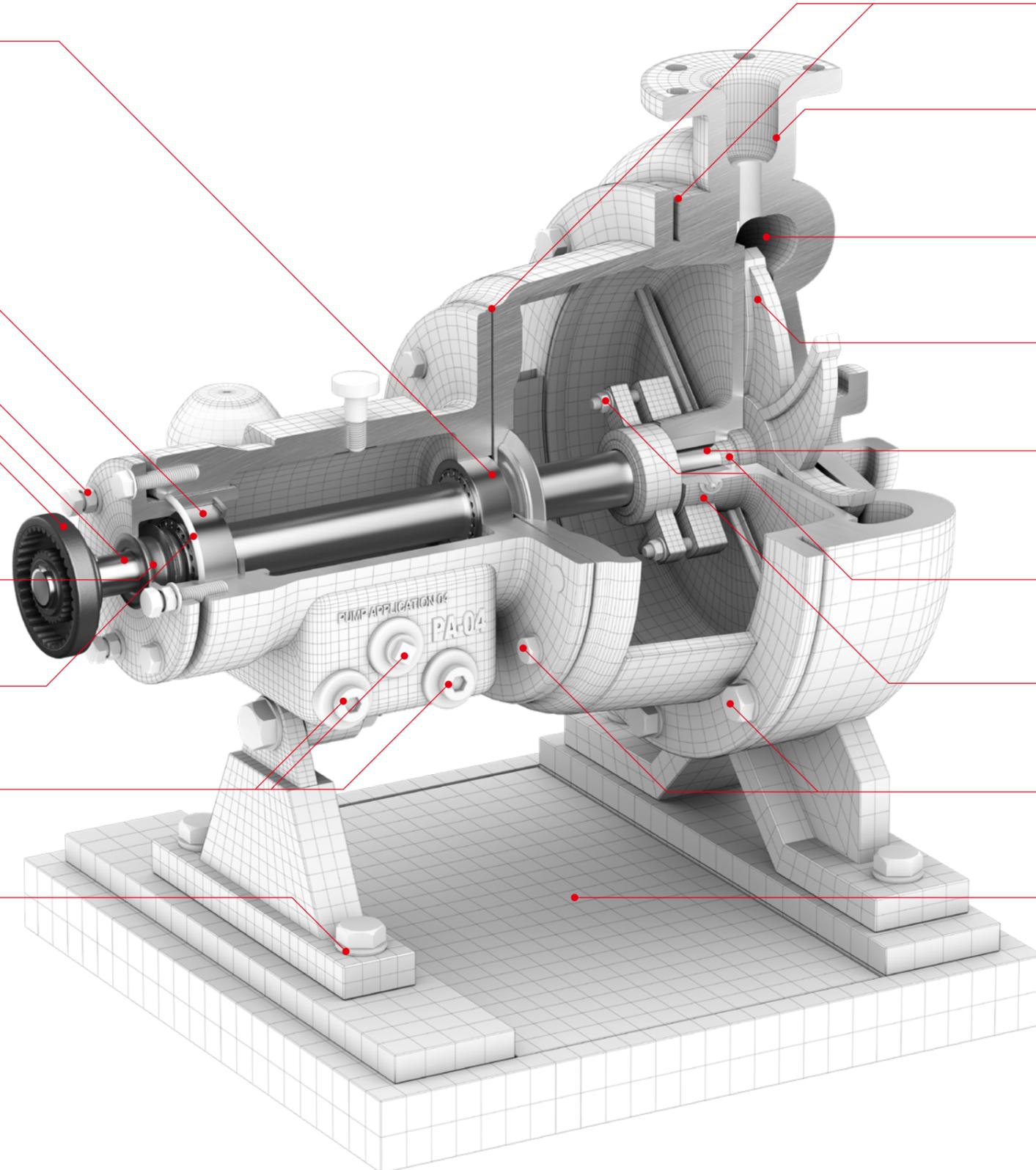
LOCTITE® 567 Thread Sealant

Prevent corrosion and secure casing bolts and adapter bolts

LOCTITE® 243 Medium Strength Threadlocker

Provide a solid mounting base

LOCTITE® PC 9422 Super Grout





PUMP ASSEMBLY

During the assembly of a pump there are many simple steps that can be taken to help reduce or eliminate common failures and that will also make future disassembly much easier. The following sections will discuss proven reliability applications and techniques starting with the bearing housing of the common 3196 end-section centrifugal pump all the way through to the final assembly of the pump casing, attaching the coupling and grouting the base.

BEARING FRAME AND HOUSING

CHALLENGE

Prevent oil leaks from threaded assemblies

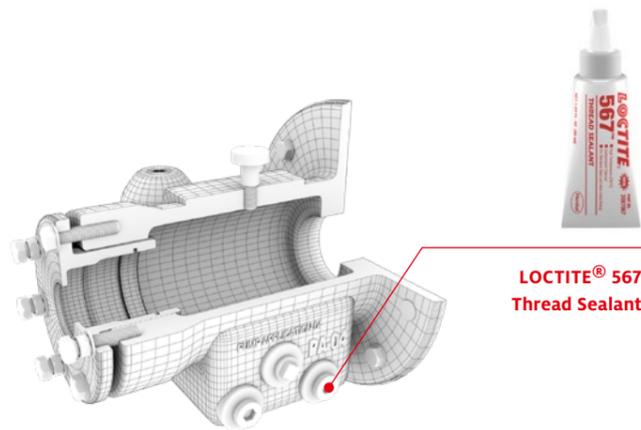
Drain plugs, oiler nipples, fittings, etc., all have air space between the threads and can weep oil out from the bearing housing. Constant pressure changes within the bearing housing can force these threaded assemblies to leak.

SOLUTION

- Seal threaded assemblies with LOCTITE® 567 Thread Sealant.
- LOCTITE® 567 Thread Sealant is designed to cure only when enclosed in metal, such as in a threaded assembly.
- Once cured, moisture and oil cannot penetrate this barrier as the pressure changes within the bearing housing.
- The thread sealant prevents fittings from loosening, yet allows for easy disassembly with normal hand tools.

Steps

1. Clean parts of contamination. If necessary, spray LOCTITE® 7649 Primer N onto threaded parts (male and female). Allow to dry.
2. Apply a band of LOCTITE® 567 Thread Sealant to male threads, starting one to two threads from end of fitting.
3. Assemble parts per OEM specifications.



LOCTITE® 567 Thread Sealant

RESULTS

- Less oil consumption, thereby reducing the risk of the pump running low on lubricant.
- Elimination of the potential hazards and cleanup associated with oil leaks.
- Elimination of seized fittings because moisture and air have been sealed out.
- Elimination of rust and corrosion within the thread space.
- Contaminants prevented from getting into the oil through the gaps in the threads.

CHALLENGE

Prevent leaks and seizures between the bearing housing and oil seal

As with any press fit, there are small air spaces between the housing and the oil seal. This air space can create a leak path where corrosion can form.

SOLUTION

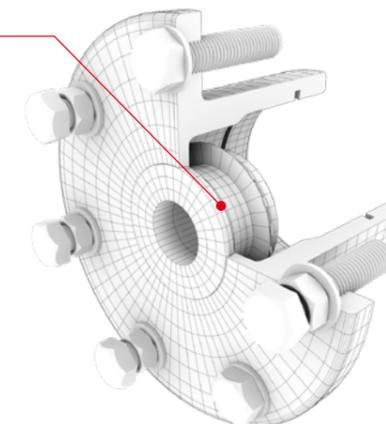
- Fill the air spaces by applying a LOCTITE® Medium Strength Threadlocker to the outside diameter of the oil seal.

Steps

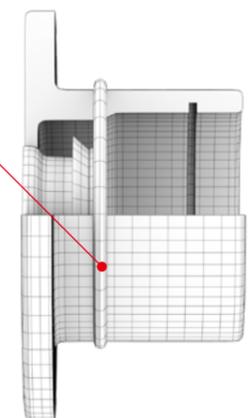
1. Clean the outside diameter of the oil seal and the side diameter of the bearing housing with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
2. Apply LOCTITE® 248 Medium Strength Threadlocker Stick to the outside diameter of the oil seal.
3. Wipe off any excess and press into housing using normal techniques.



LOCTITE® 248 Medium Strength Threadlocker



LOCTITE® LB-8034 High Performance Synthetic Grease



RESULTS

- A sealed assembly eliminates leaks, contamination and corrosion.
- Elimination of cleanup and hazards associated with oil seal leaks.
- Less oil consumption.
- Reduced risk of running low on lubricant.
- Service of the pump is easier.
- The oil seal can be easily removed with a screwdriver during the next overhaul.

CHALLENGE

Keeping O-rings pliable to ensure a proper seal

The typical pump environment is very humid, and water washout can remove lubricants from the O-ring. When adjustments are made to the impeller, this creates sliding abrasion and potential damage to the O-ring and ultimately leads to the loss of sealing. O-rings cannot be serviced once installed and may begin to dry out.

SOLUTION

- Lubricate O-rings with LOCTITE® LB-8034 High Performance Synthetic Grease.
- The synthetic formulation of LOCTITE® LB-8034 High Performance Synthetic Grease provides superior lubrication over extended periods of time and has excellent water washout resistance.

Steps

1. Clean O-ring to remove any grit or contaminants.
2. Apply LOCTITE® LB-8034 High Performance Synthetic Grease to the O-ring by smearing it to completely cover the entire surface.
3. Slide O-ring over the bearing housing and into the O-ring groove.

RESULTS

- Lubricated O-rings remain pliable and capable of sealing oil in and contaminants out.
- O-rings are prevented from adhering to the bearing frame.

BEARING FRAME AND HOUSING

CHALLENGE

Prevent bearing spinout, corrosion and component damage

Bearings are prone to spinning either on their shafts or within their housings, resulting in damage to these parts regardless of whether or not they have been pressed, shrink or slip fitted in place. The air space that exists between a bearing and shaft is an area where rust can form and cause damage to the parts.

SOLUTION #1

- › Outboard Bearing – Apply a coating of LOCTITE® 638 Retaining Compound to the outside diameter of the outboard bearing.
- › LOCTITE® 638 Retaining Compound is low strength, which allows for easy disassembly during future overhauls.

Steps

1. Clean parts with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
2. Apply a coating of LOCTITE® 638 Retaining Compound to the outside diameter of the outboard bearing.
3. Assemble using normal techniques.

SOLUTION #2

- › Inboard Bearing – Apply a coating of LOCTITE® 638 Retaining Compound to the inside diameter of the inboard bearing.

Steps

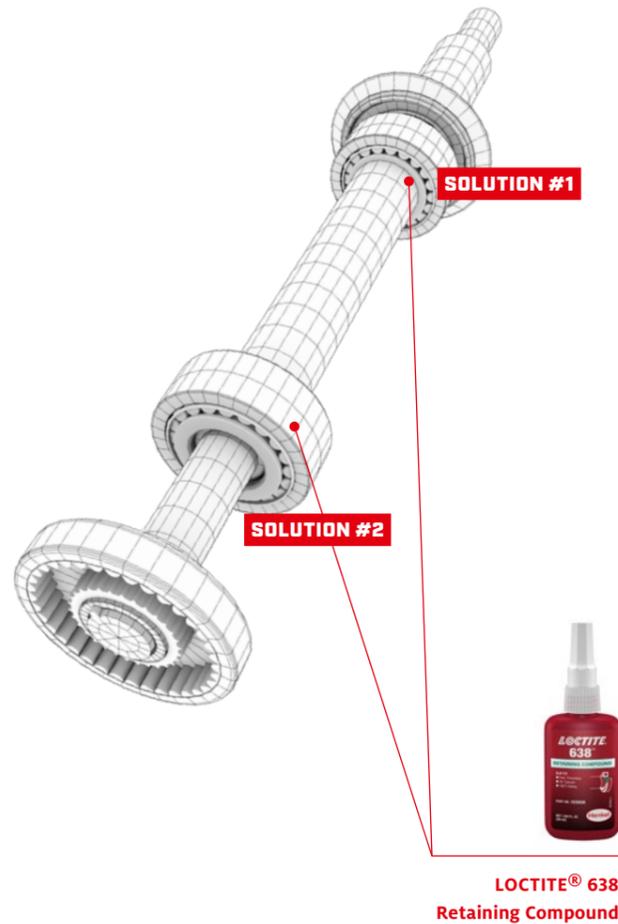
1. Clean parts with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
2. Apply a bead of LOCTITE® 638 Retaining Compound to the circumference of the shaft at the leading area of engagement.
3. Press the bearing onto the shaft using normal techniques.
4. Wipe off any excess material.



Solution #1, Step 2.



Solution #2, Step 2.



RESULTS

- › Shaft and/or bearing housing damage is eliminated.
- › Bearings are easily removed with standard tools.
- › Corrosion (the rust left on a shaft after a bearing has been removed) is eliminated because the air space between the bearing and the shaft or housing is sealed.

FRAME ADAPTER

CHALLENGE

Prevent oil leaks between the frame adapter and the oil seal

The small air spaces between the adapter and the oil seal can allow oil to leak.

CHALLENGE

Prevent corrosion and seizure of power end jack bolts, jam nuts and clamp bolts

Any exposed metal parts on a pump that are not stainless or coated, such as power end nuts and bolts, are subject to rust. When rust forms within the air space between the threads, the bolts will seize in place.

SOLUTION

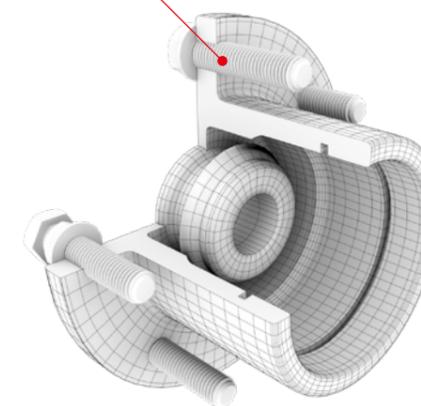
- › Apply LOCTITE® LB 8023 Marine Grade Anti-Seize to the power end bolts.
- › LOCTITE® LB 8023 Marine Grade Anti-Seize is met al-free and has superior water washout resistance.

Steps

1. Apply LOCTITE® LB 8023 Marine Grade Anti-Seize liberally to the bolt threads.
2. Assemble jam nuts onto the bolts.
3. Thread the bolts into the bearing housing and adjust as required.



LOCTITE® Anti-Seize Lubricant



RESULTS

- › Easy adjustment of bolts when needed to ensure that the pump runs closest to its best efficiency point (BEP).
- › Easy disassembly/removal of bolts.

SOLUTION

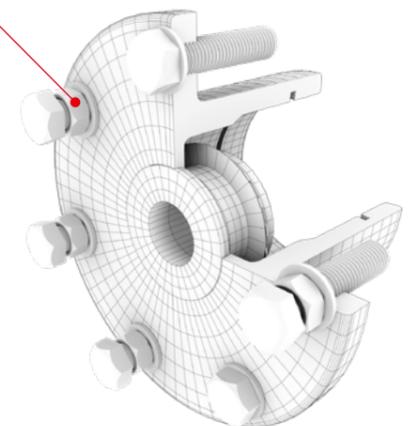
- › Fill the air by applying a LOCTITE® Medium Strength Threadlocker to the outside diameter of the oil lip seal.
- › LOCTITE® 567 Thread Sealant is designed to cure only when enclosed in metal, such as in a threaded assembly.

Steps

1. Clean the outside diameter of the oil seal and the inside diameter of the frame adapter with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
2. Apply LOCTITE® 248 Medium Strength Threadlocker Stick to the outside diameter of the oil seal.
3. Wipe off any excess and press into the adapter using normal techniques and tools.



LOCTITE® 248 Medium Strength Threadlocker



RESULTS

- › Elimination of leaks along with associated cleanup and hazards.
- › Less oil consumption.
- › Reduced risk of running low on lubricant.
- › Ease of pump service.
- › Elimination of leaks, contamination and corrosion due to a unitized assembly.

FRAME ADAPTER

CHALLENGE

Prevent dowel pins from seizing to the bearing frame and frame adapter

The dowel pins are exposed to the exterior pump environment and if not protected can rust and seize themselves to the bearing frame. When these pins seize in the bearing frame, the disassembly becomes very difficult.

SOLUTION

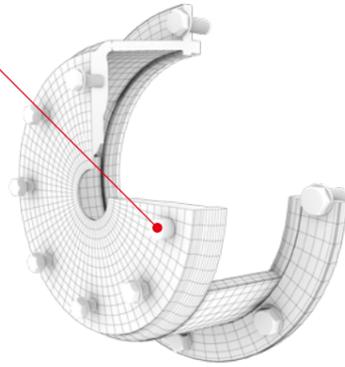
- Before assembly, apply LOCTITE® Marine Grade Anti-Seize to the dowel pins.
- LOCTITE® Marine Grade Anti-Seize Compound provides a protective coating to parts that are exposed to severe heat and moisture.

Steps

1. Clean the parts.
2. Apply LOCTITE® Marine Grade Anti-Seize to the pins.
3. Assemble adapter to the bearing frame.



LOCTITE® Anti-Seize Lubricant



RESULTS

- Prevention of rust and seizure of these closefitting parts.
- The bearing frame and frame adapter will be easier to separate during the next disassembly.

CHALLENGE

Prevent fastener loosening and corrosion to frame adapter mounting bolts

Bolts can work themselves loose because they are always under strain caused by torque. Also, vibration, thermal expansion and contraction, and shock all contribute to loosening and reduction of clamp load.

SOLUTION

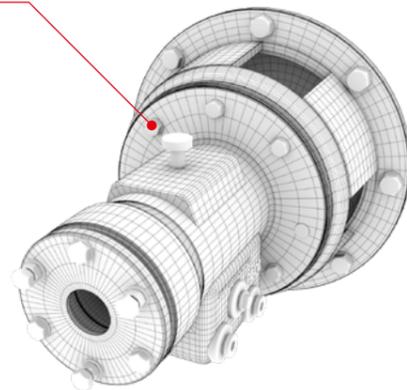
- Apply a LOCTITE® Medium Strength Threadlocker to the frame adapter bolts.

Steps

1. Clean threads with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
2. Apply several drops of LOCTITE® 243 Medium Strength Threadlocker to the adapter bolts.
3. Assemble and tighten as usual.



LOCTITE® Medium Strength Threadlocker



RESULTS

- Prevention of the bolts from rusting and seizing in place because a LOCTITE® brand threadlocker will seal all of the air space within the threads.
- Easy and consistent disassembly.
- Prevention of bolts from loosening.
- Torque and clamp load is maintained.
- Proper clamp load is ensured between flange surfaces, and leaks are eliminated, when LOCTITE® 518 Flange Sealant is used instead of a cut gasket.

CHALLENGE

Prevent gasket failure between the bearing frame and frame adapter

Leaks occur because a cut gasket can relax over time, resulting in loss of clamp load between the two flanges. Cut gaskets can also leak because they are prone to extrusion, misalignment, shrinkage and breaks. Flange imperfections can be leak paths that a cut gasket may not be able to seal over time.

SOLUTION

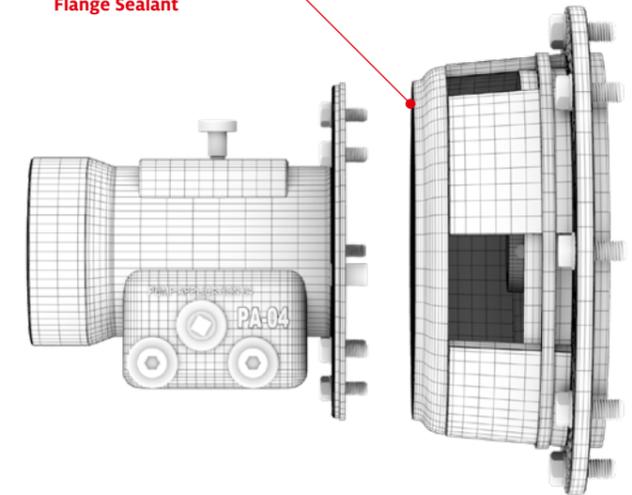
- Apply LOCTITE® 518 Flange Sealant to the flange face of the frame adapter.
 - The LOCTITE® 518 Flange Sealant not only eliminates the gasket but also eliminates all the failure modes of cut gaskets and, most important, it seals all of the air space between the two parts.
- Note:** In some cases the cut gasket is required for spacing. In this case, apply LOCTITE® 518 Flange Sealant to both sides of the gasket as a shellac.
- LOCTITE® 518 Flange Sealant can cure through fairly large gaps and surface imperfections.

Steps

1. Remove old gasketing material and other heavy contaminants with LOCTITE® SF 790 Paint Stripper.
 2. Clean both flange surfaces with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
 3. Spray LOCTITE® 7649 Primer N on only one flange surface and allow to dry.
 4. Apply a continuous bead of LOCTITE® 518 Flange Sealant to the other surface.
- Note:** Circle bolt holes with sealant if appropriate.
5. Assemble parts and tighten as required.
 6. Allow to cure:
 - No pressure – immediate service
 - Low pressure (up to 500 psi) – 30 to 45 minutes
 - High pressure (500 to 2500 psi) – 4 hours
 - Extreme high pressure (2500 to 5000 psi) – 24 hours



LOCTITE® 518 Flange Sealant



Step 4.

RESULTS

- Elimination of common cut gasket failures such as compression set, shrinkage, relaxation and breaks.
- Constant clamp load is ensured.
- Reliable seal.
- Elimination of oil leaks between the bearing frame and frame adapter, along with associated cleanup costs and hazards.
- Reduced oil consumption.
- Reduced risk of running low on oil.

GLAND ASSEMBLY

CHALLENGE

Prevent seizure and loosening of gland studs

Just as the gland nuts can rust and seize to the gland studs, so can the gland studs rust and seize to the stuffing box. If the nuts were to seize to the studs, the torque required to remove them could cause the studs to back out.

CHALLENGE

Prevent corrosion and seizure of packing gland nuts

The gland assembly is subject to severe corrosion and seizure because of the continuous flow of water that lubricates and cools the packing. This continuous flow of water also causes the gland studs and nuts to rust and seize. If the nuts seize to the studs, it becomes impossible to properly adjust the gland follower and, ultimately, proper lubrication and cooling cannot be maintained. This can lead to the packing running dry, overheating and subsequent wearing and gouging of the shaft. What starts out as a simple failure mode of a corroded threaded assembly can lead to a major failure of one of the main pump components.

CHALLENGE

Prevent corrosion within the gland flushing connector

Whether using a mechanical seal or packing, these components are typically cooled and lubricated by either a product flush or an external flush. In either case, the flushing connector is prone to corrosion and seizure. This is especially true for pumps configured with packing. Since packing typically requires 40-60 drops per minute for proper cooling and lubrication, there is plenty of available moisture for rust to attack the gland assembly components.

SOLUTION

- Apply LOCTITE® 263 High Strength Threadlocker.

Steps

- Place several drops of LOCTITE® 263 High Strength Threadlocker down the side of the female threads.
- Apply several drops of LOCTITE® 263 Threadlocker onto the stud threads.
- Install the studs.

SOLUTION

- Apply LOCTITE® LB 8023 Marine Grade Anti-Seize to the studs.
- LOCTITE® LB 8023 Marine Grade Anti-Seize is metal-free and is designed to have superior water washout resistance, a key feature in a gland application.

Steps

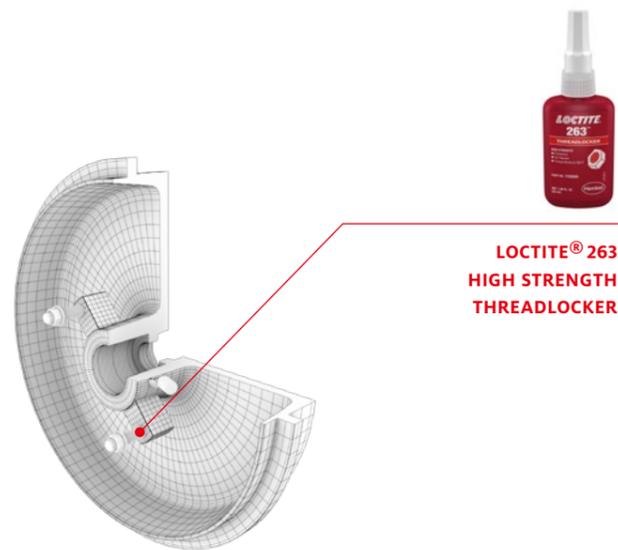
- Clean the parts.
- Apply LOCTITE® LB 8023 Marine Grade Anti-Seize to the studs.
- Assemble gland nuts and adjust gland follower as necessary.

SOLUTION

- Apply LOCTITE® 567 Thread Sealant.
- LOCTITE® 567 Thread Sealant fills the air space within the threads.
- Allows the flushing connector to be removed with normal hand tools when necessary.

Steps

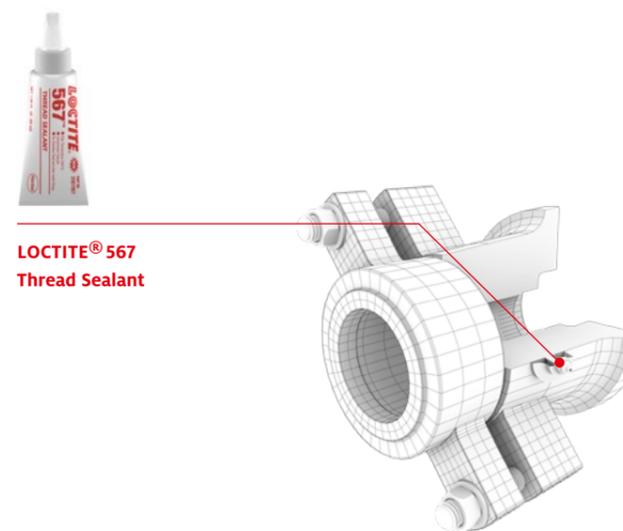
- Clean the parts with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
- Apply a band of LOCTITE® 567 Thread Sealant to male threads, starting one to two threads from the end of the fitting.
- Assemble parts snugly. Do not overtighten.



LOCTITE® 263
HIGH STRENGTH
THREADLOCKER



LOCTITE® Anti-Seize Lubricant



LOCTITE® 567
Thread Sealant

RESULTS

- Eliminated potential for corrosion.
- Eliminated possibility of the studs backing out during gland adjustments.

RESULTS

- Elimination of gland nuts freezing to the studs.
- Proper adjustments can be made to the gland follower.
- Water can properly flow through the packing for lubrication and cooling.
- Excessive shaft wear can be prevented.

RESULTS

- Prevention of leaks and corrosion.
- Eliminated seizure.
- Ensured easy maintenance of flushing connectors.



CHALLENGE

Prevent leaks between the stuffing box and casing

The use of cut gaskets suffers from inherent problems, such as gasket relaxation, shrinkage, extrusion and breakage, which can lead to leaks.

SOLUTION #1

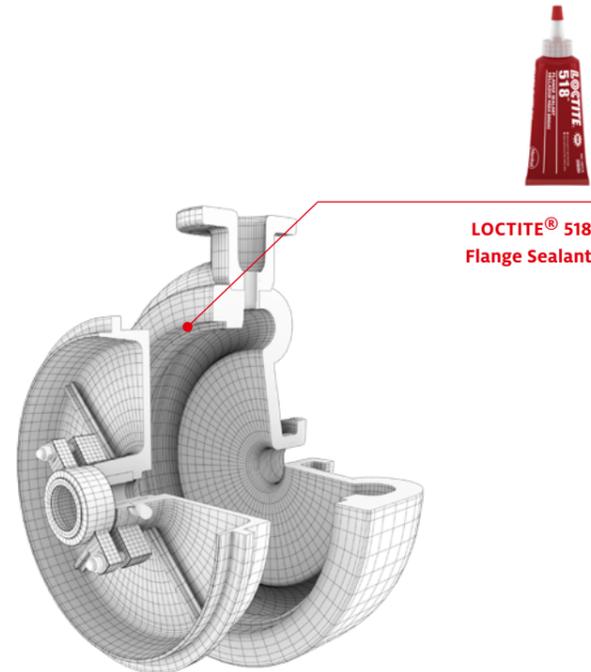
- Replace the cut gasket and apply LOCTITE® 518 Flange Sealant to the flange surface.
- Direct metal-to-metal contact along with the use of LOCTITE® 518 Flange Sealant allows for a positive seal.
- Since there is metal-to-metal contact, proper clamp load can be maintained and the two parts become unitized – they act as one.

Steps

1. Remove old gasketing material with LOCTITE® SF 790 Paint Stripper.
2. Clean both flanges with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
3. Spray LOCTITE® 7649 Primer N on only one surface and allow 1–2 minutes to dry.
4. Apply a continuous bead of LOCTITE® 518 Flange Sealant to the other surface.

Note: Circle all bolt holes, if appropriate.

5. Assemble and tighten as required.
6. Allow to cure.



SOLUTION #2

- Coat the gasket material with LOCTITE® 518 Flange Sealant.
- If there is not enough clearance between the impeller and the casing to eliminate the gasket, the cut gasket must be used.
- LOCTITE® 518 Flange Sealant will fill all the air space that cut gaskets simply cannot fill.
- LOCTITE® 518 Flange Sealant will withstand expansion and contraction caused by pressure and temperature changes.

Steps

1. Remove old gasketing material with LOCTITE® SF 790 Paint Stripper.
2. Clean both flanges with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
3. Spray LOCTITE® 7649 Primer N™ to both flange faces and both sides of the gasket. Allow 1-2 minutes to dry.
4. Smear LOCTITE® 518 Flange Sealant to both sides of the precut gasket.
5. Assemble and tighten as required.
6. Allow to cure.



RESULTS

- Eliminated casing gasket leaks.
- Eliminated corrosion and damage on the flange surface.

CHALLENGE

Prevent the frame adapter, stuffing box and casing from seizing together

When assembling these components, there are areas where the clearance is very tight. These small clearances are areas where rust and corrosion can work in to seize the components together, making disassembly very difficult.

SOLUTION

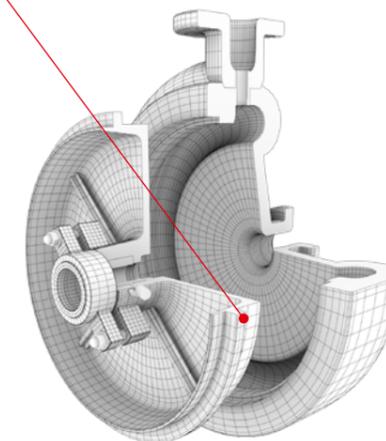
- Apply a LOCTITE® Anti-Seize compound during assembly. Because LOCTITE® Anti-Seize compounds have superior water washout resistance, they will stay where they are applied.

Steps

1. Clean the parts.
2. Apply LOCTITE® LB 8023 Marine Grade Anti-Seize to the outside diameter of the stuffing box at the mating point.
3. Assemble components as usual.



LOCTITE® Anti-Seize Lubricant



RESULTS

- Sufficient lubrication provided during assembly.
- Prevention of rust while in service.
- Efficient disassembly.

CHALLENGE

Prevent corrosion and seizure of the pump casing bolts

The severe pump environments of constant temperature, pressure and humidity changes result in corrosion. Casing bolts that are rusted and seized make pump maintenance difficult and create additional labor associated with drilling and tapping the bolt hole.

SOLUTION

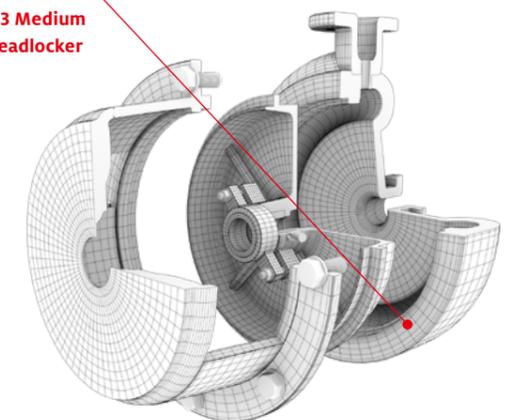
- Apply LOCTITE® 243 Medium Strength Threadlocker in the bolt holes prior to assembling the casing.
- LOCTITE® 243 Medium Strength Threadlocker fills all the air space within the threads.

Steps

1. Place several drops of LOCTITE® 243 Medium Strength Threadlocker down the side of the female threads.
2. Apply several drops of LOCTITE® 243 Medium Strength Threadlocker onto the bolt threads.
3. Install bolts.



LOCTITE® 243 Medium Strength Threadlocker



RESULTS

- Proper clamp load is maintained.
- Elimination of rust and seizure.
- Easy disassembly with normal hand tools.

KEYWAYS / KEY STOCK

CHALLENGE

Prevent keyway wallow by securing the key stock in the keyway — new components

In a new assembly, the fit between the key stock and the keyway are usually fairly tight. Over time the fit between the key stock and the keyway can loosen and lead to damage to the keyway.

SOLUTION

- Proactively apply a LOCTITE® Medium Strength Threadlocker to the keyway and then insert the key stock.
- The viscosity of a LOCTITE® Medium Strength Threadlocker is appropriate for the gap fill and provides the proper amount of strength, while allowing for easy removal.
- If the key needs to be removed, simply use a hammer to tap a metal chisel or drift against the key stock to pop it out of the keyway.

Steps

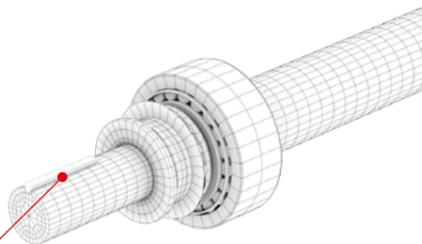
- Clean the keyway and key stock with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
- Apply several drops of LOCTITE® 243 Medium Strength Threadlocker directly into the keyway.
- Insert the key stock into the keyway.

Note: Cover the shaft with a rag to prevent splatter when inserting the key stock.

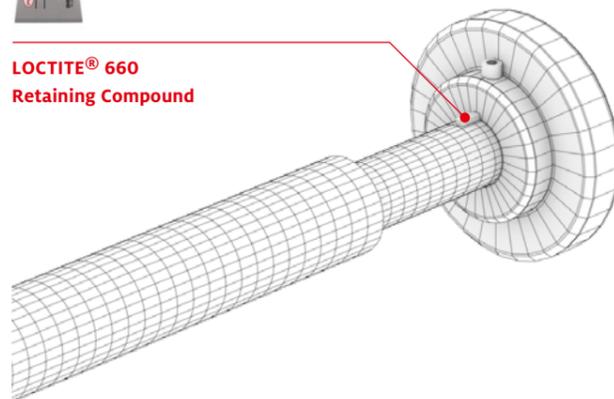
- Wipe off any excess threadlocker.



LOCTITE® 243 Medium Strength Threadlocker



LOCTITE® 660 Retaining Compound



RESULTS

- Prevention of corrosion.
- Prevention of keyway wallow.
- A unitized assembly.

RESULTS

- Assembly is restored, unitized and ready for service without a major overhaul.

CHALLENGE

Stop keyway wallow and prevent downtime and scrap costs — worn components

Over time, keyways can wear out if the key stock is not secured in place, which results in keyway wallow. This is a common failure for power transmission components such as couplings, sprockets, sheaves, etc. If keyway wallow is allowed to perpetuate, further damage can result, such as a sheared key stock or damage to the coupling. If the key stock shears, the result is a loss of power transmission (i.e., the pump will stop running) and further damage to the shaft will occur.

SOLUTION

- If the keyway has already been wallowed out, use LOCTITE® 660 Retaining Compound to stop the wallow and allow the components to return to service.
- LOCTITE® 660 Retaining Compound is a very thick product, which allows it to fill large gaps.

Steps

- Clean the keyway and key stock with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
- Apply LOCTITE® 660 Retaining Compound into the keyway.
- Assemble parts and wipe off excess.

Note: If keyway wallow is severe, shims can be used on both sides of the keyways in conjunction with the LOCTITE® 660 Retaining Compound.

COUPLING

CHALLENGE

Prevent coupling from loosening or moving, resulting in disengagement, damage or misalignment

Couplings are held in place by a key and a set screw. If the set screw was to loosen, the coupling can begin to slide along the shaft and disengage, or it can begin to wallow out the keyway.

SOLUTION

- LOCTITE® Medium and Low Strength Threadlockers.

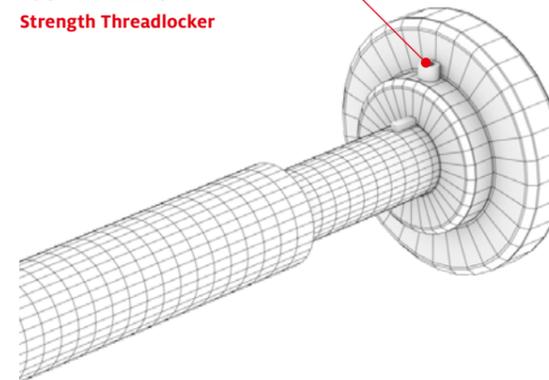
Steps

- Clean set screw with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
- If necessary, spray all threads with LOCTITE® 7649 Primer N and allow to dry.
- Apply a couple of drops of a LOCTITE® 222 Low Strength Threadlocker to the set screw (use a LOCTITE® Medium Strength Threadlocker if the set screw is over 1/4" in diameter).
- Assemble in the coupling as usual.

Note: Consider applying a LOCTITE® brand retaining compound or threadlocker to the shaft prior to assembling the coupling to completely unitize the coupling to the shaft and prevent any possible corrosion.



LOCTITE® 222 Low Strength Threadlocker



RESULTS

- Assembly is restored, unitized and ready for service without a major overhaul.

IMPELLER

CHALLENGE

Prevent seizure of the impeller to the shaft

The combination of small air spaces within the threads and high humidity and temperatures allows for rust to develop and seize the impeller to the shaft.

SOLUTION

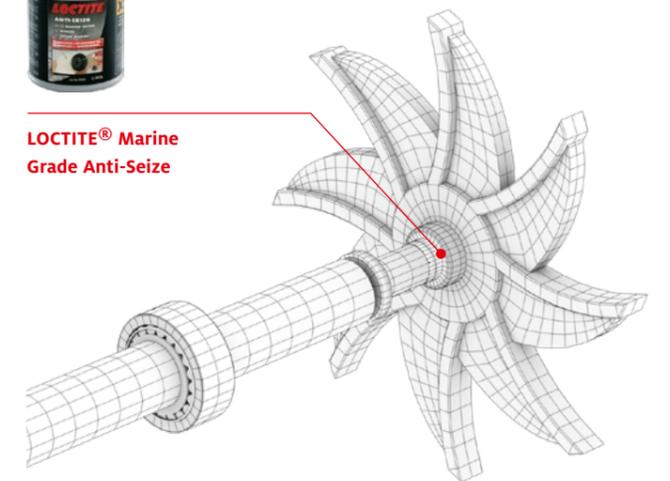
- Apply LOCTITE® LB 8023 Marine Grade Anti-Seize compound to the shaft threads prior to impeller assembly.

Steps

- Clean the shaft and impeller threads.
- Apply LOCTITE® LB 8023 Marine Grade Anti-Seize to the shaft threads.
- Assemble the impeller using normal techniques.



LOCTITE® Marine Grade Anti-Seize



RESULTS

- Prevention of seizure.
- Easier disassembly.

PUMP BASE MOUNTING

CHALLENGE

Prevent pump mounting bolts from losing clamp load, leading to misalignment

Vibration and possible impact shock can work to loosen the mounting bolts. Loose bolts result in a loss of clamp load, which in turn allows the pump to lose its level and aligned configuration.

SOLUTION #1

- Apply LOCTITE® 263 High Strength Threadlocker to the mounting bolts.

Steps

- Clean threads with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
- Apply several drops of LOCTITE® 263 High Strength Threadlocker to the mounting bolts.
- Assemble and tighten as usual.

SOLUTION #2

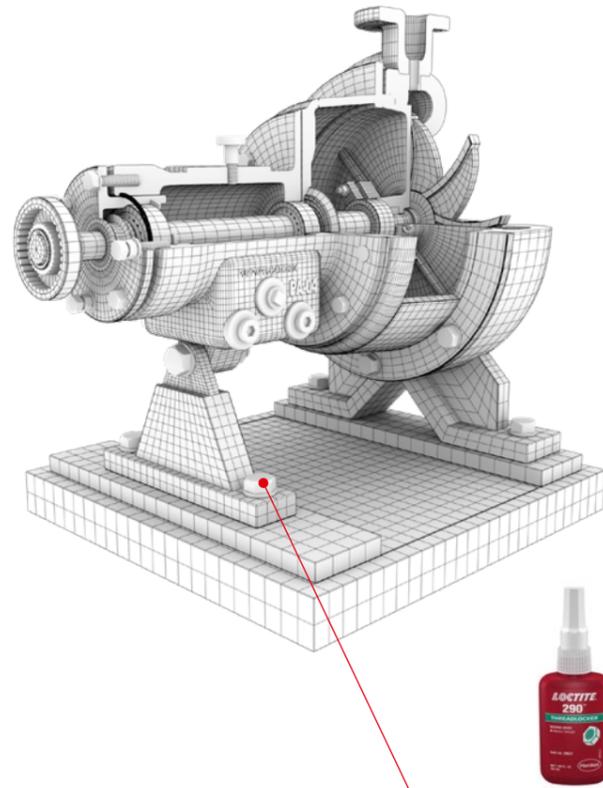
- Apply LOCTITE® 290 Wicking Grade Threadlocker to the mounting bolts after the pump has been aligned and torqued in place.

Steps

- Clean the parts with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
- Align the pump.
- Tighten the nuts on the mounting studs.
- Apply several drops of LOCTITE® 290 Wicking Grade Threadlocker to the mounting bolts.



Solution #1, Step 2 and Solution #2, Step 4.



LOCTITE® 290
Wicking Grade Threadlocker

RESULTS

- Mounting bolts are secured in place.
- Proper clamp load is maintained.
- Elimination of bolt corrosion.
- Prevention of misalignment.

PUMP BASE GROUTING

CHALLENGE

Prevent twisting, vibration and corrosion of pump base

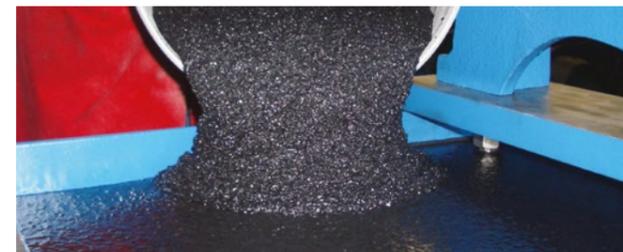
The pump base is made to not only provide a level mounting surface but is also designed to withstand torque loads and vibration/reverberations. The base by itself is not strong enough to withstand these forces along with the chemical attack and corrosion it is subject to.

SOLUTION

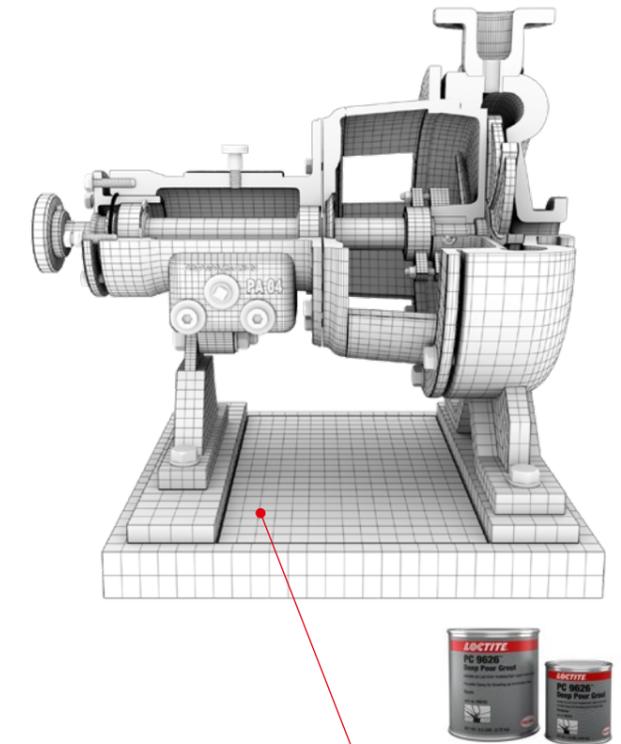
- Fill the pump base with a LOCTITE® Epoxy Grout.
- The base needs to be filled with a grout to fill the entire air space thereby preventing corrosion and providing a much more solid unit that can withstand torque loads and vibration. LOCTITE® Epoxy Grouts are:
 - Non-shrinking
 - Self-leveling
 - Resistant to high impact
 - Able to withstand chemical attack

Steps

- After the base has been leveled with shims or wedges, build a form around the base to contain the grout.
- Line the forms with either a thick mil plastic sheeting or a high-pressure laminate.
- Coat the plastic or laminate with a release agent to prevent the epoxy grout from bonding to the forms.
- A good release agent choice is LOCTITE® LB-8034 High Performance Synthetic Grease in the aerosol packaging.
- After the forms have been lined and built, seal any gaps in the forms with a LOCTITE® Silicone to prevent the grout from leaking.
- Then simply mix the grout per the label instructions and pour into place.
- Allow to cure.



Step 6.



LOCTITE®
Epoxy Grout

RESULTS

- Solid pump base that is resistant to compression, corrosion and chemical attack.

PUMP REPAIR

Repairs are a critical element to pump maintenance. Because of the harsh environments and operating parameters, pump parts are subject to wear, erosion, corrosion, leaks, etc. In addition to preventative measures, LOCTITE® brand products can be used to restore pump parts. Alternative solutions such as scrap and replacement or the use of other repair technologies may be too costly. Using LOCTITE® brand products to restore parts is a very cost-effective solution because users can be assured of the consistent quality, performance, availability and support that is provided and expected from Henkel Corporation.

CORROSION

CHALLENGE

Prevent corrosion damage to external parts

The external components can suffer from rust and chemical attack due to exposure to the elements, extreme temperatures, temperature changes, humidity and chemicals.

SOLUTION

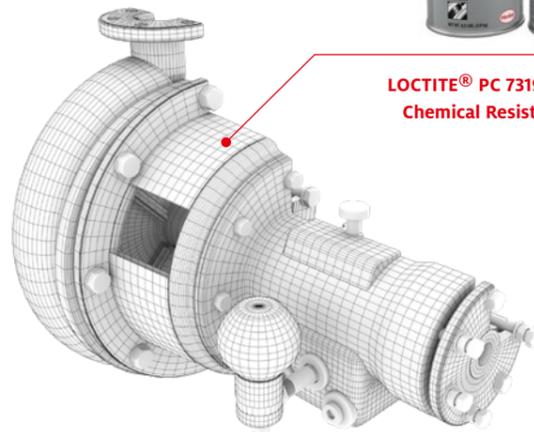
- › LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating.
- › Originally developed to protect mining equipment from sulfuric acid.
- › Provides an excellent coating to protect pump parts from a variety of severe chemical environments.

Steps

1. Clean and abrade the surface to a near white metal finish.
2. Apply LOCTITE® SF 7515 Surface Treatment to prevent flash rusting.
3. Mix and apply LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating per the package instructions.



LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating



RESULTS

- › Extended equipment life.
- › Reduced component consumption.
- › Increased pump reliability.

OIL SEEPAGE

CHALLENGE

Prevent oil loss from seepage

This cast part can have porosities created during the casting. These porosities can lead to the housing weeping oil.

SOLUTION #1

- › Coat interior of bearing frame to seal porosities with LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating.

Steps

1. Blast the interior of the bearing frame to remove contaminants.
2. Apply LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating to the interior of the bearing housing to protect and coat the bearing frame.

SOLUTION #2

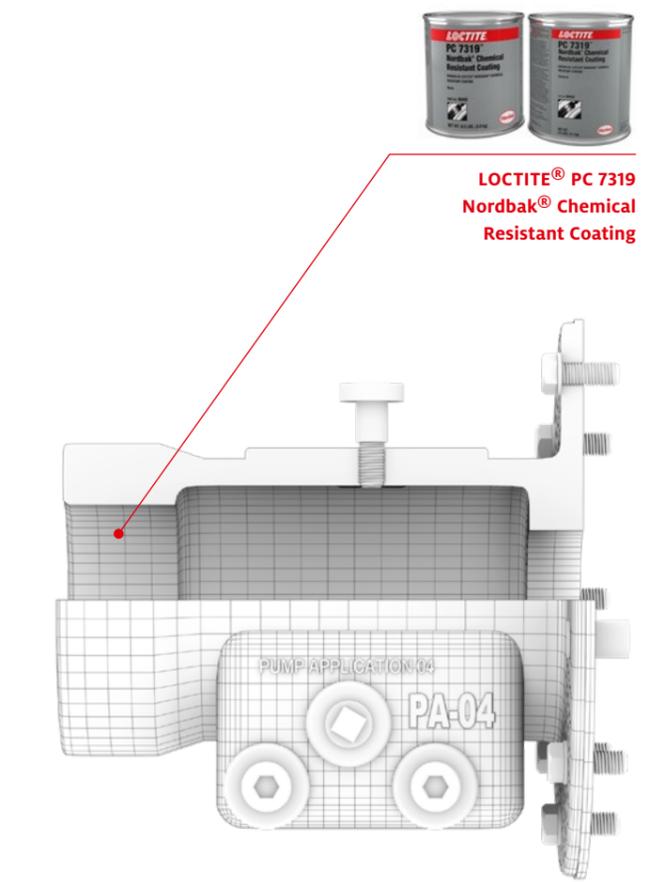
- › For a part where the specific leak points are known, brush on LOCTITE® 290 Wicking Grade Threadlocker.

Steps

1. Clean the surface.
2. Bake it dry.
3. Brush on LOCTITE® 290 Threadlocker.
4. Allow to cure.



Leak paths in housing.



LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating

RESULTS

- › Elimination of oil loss through seepage.
- › Reduced oil consumption.
- › Reduced cleanup.

CASING / IMPELLER WEAR

CHALLENGE

Rebuild worn areas to restore pump casing and impellers

Pump casings and impellers are subject to wear from abrasive slurries and solids, cavitation and chemical attack. Each of these can wear down internal sections of pump casing. Some of the common wear areas include the cutwater, wear ring seats, impeller vane tips and inside the volute. Casing and impeller wear typically falls within the following category types:

- Minor abrasive wear from pumping light slurries
- Heavy casing wear and erosion from pumping solids and/or cavitation
- Chemical attack
- Wear to specific areas of the casing or impeller
- Wear to rubber liners

SOLUTION #1

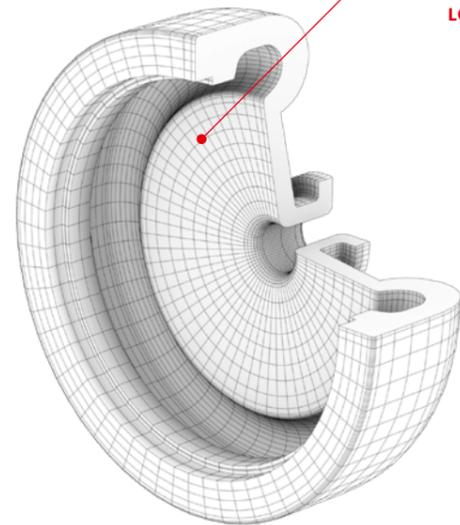
- › Repair minor surface wear. Rebuild and coat the surface with LOCTITE® Nordbak® Brushable Ceramic.
- › Provides a high gloss, low friction finish to help ensure the pump runs as close to its BEP as possible.

Steps

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® Nordbak® Brushable Ceramic per the package instructions.
3. Apply a coat of white LOCTITE® PC 7228 Nordbak® Brushable Ceramic first, and then a second coat of grey LOCTITE® PC 7227 Nordbak® Brushable Ceramic, to allow for easy visual inspection of the coating and wear.
4. Use as many coats as necessary to restore the casing to original dimensions.



LOCTITE® Nordbak®
Brushable Ceramic



SOLUTION #2

- › Repair heavy surface wear to the casing. Rebuild the casing with LOCTITE® PC 7218 Nordbak® Wearing Compound.
- › Ceramic beads provide superior wear resistance.

Steps

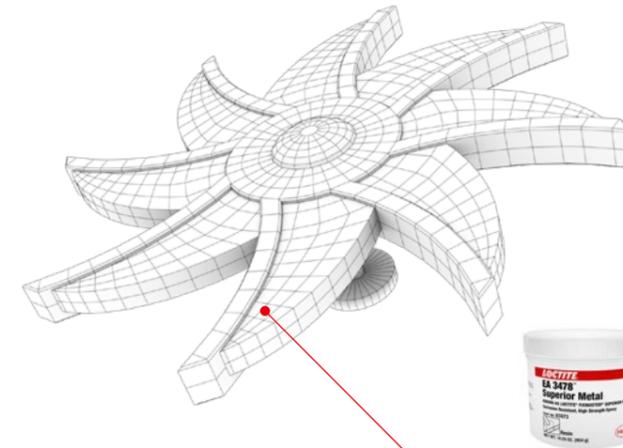
1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® PC 7218 Nordbak® Wearing Compound per the package instructions.
3. Apply a topcoat of LOCTITE® Brushable Ceramic to provide a low-friction finish, or for larger surfaces LOCTITE® PC 7255 Nordbak® Sprayable Ceramic.

SOLUTION #3

- › Repair damage from chemical attack and provide a protective coating. Coat the casing and the impeller with LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating.
- › Protects parts in severe chemical environments.

Steps

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating per the package instructions.



LOCTITE® EA 3478
Superior Metal



SOLUTION #4

- › Rebuild worn areas of the casing and impeller. Apply LOCTITE® EA 3478 Superior Metal or LOCTITE® PC 7222 Nordbak® Wear Resistant Putty to rebuild worn cutwaters, wear ring seats, impeller vane tips or other specific areas of the casing.
- › Use LOCTITE® EA 3478 Superior Metal to rebuild heavily worn areas.
- › Use LOCTITE® PC 7222 Nordbak® Wear Resistant Putty in areas where there is constant abrasion, such as wear ring seats.

Steps

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply the products per the package instructions.

SOLUTION #5

- › Repair wear to rubber liners using LOCTITE® PC 7350 Rubber Repair Compound.
- › Provides excellent abrasion resistance.

Steps

1. Clean and prepare the surface using LOCTITE® cleaner and etching agent.
2. Mix and apply the products as per package instructions.



Worn impeller prior to repair.



Solution #4, Step 2.

RESULTS

- › Reduced component consumption by salvaging and extending the life of pump casings.
- › Casings protected from wear and chemical attack.
- › Pumps helped to run close to their BEP.

SHAFT WEAR

CHALLENGE

Restore worn shaft to the original condition

Wear caused by packing and oil seals is typically the result of constant pressure and abrasion against the shaft surface. Over time, oil seals can cut a groove in a shaft. Neglect and improper water lubrication can cause the packing to heat up and in turn to cause severe wear to the shaft.

SOLUTION

- › Rebuild shafts with LOCTITE® EA 3478 Superior Metal.
- › LOCTITE® EA 3478 Superior Metal is an epoxy with high compressive strength that will not rust.

Steps

1. To make the repairs, turn the shaft on a lathe and even out the worn areas to at least 0.030", leaving a rough surface finish.
2. Clean the shaft of any cutting fluids or oils with LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser.
3. Mix the product per the package instructions.
4. While the shaft is turning on the lathe, apply LOCTITE® EA 3478 Superior Metal by pressing it into the shaft. Firm pressure is required to squeeze out any potential air pockets.
5. The cured product can be turned on the lathe and brought down to the original shaft diameter.



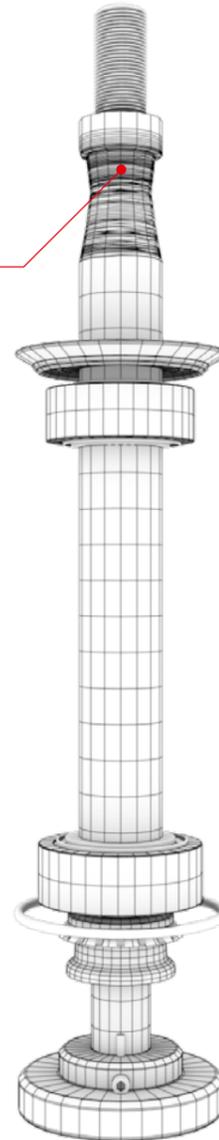
Worn shaft.



Step 4.



LOCTITE® EA 3478
Superior Metal



RESULTS

- › Quick return to service.
- › Reduced component consumption.
- › Extended shaft life.

KEYWAY WALLOW

CHALLENGE

Repair wallowed out keyways

Shaft vibration and external forces affect key stability. Over time, this instability leads to keyway wallow.

SOLUTION

- › Apply a bead of LOCTITE® 660 Retaining Compound directly in the worn keyway.
- › LOCTITE® 660 Retaining Compound is a heavy-bodied product designed to fill large voids, up to 0.030".

Steps

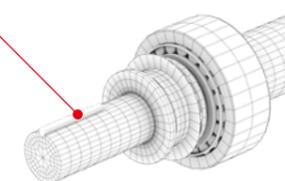
1. If the keyway wallow is severe, you may need to add shims to both sides.
2. Apply LOCTITE® 660 Retaining Compound directly into the keyway.
3. Press the new key stock into the keyway and the assembly is restored without having to take apart the pump.



Step 2.



LOCTITE® 660
Retaining Compound



RESULTS

- › A secured fit to the keyway.
- › Elimination of repeat wallowing.



PUMP SOLUTIONS

LOCTITE® is more than quality products – we provide solutions to many of the biggest challenges you face. LOCTITE® has:

- › Industry and component knowledge
- › Technology solutions
- › Applications support

Let us put our expertise to work for you to make sure your pumps perform better longer.

Your challenges. Our solutions. Your benefits.

PRODUCT TABLE

ASSEMBLY SECTIONS

Components	Application	LOCTITE® Solutions	Benefits	Typical Package	Item #
BEARING FRAME AND HOUSING	Threaded fittings	LOCTITE® 567 Thread Sealant	High temperature, solvent resistant	50 ml	
		LOCTITE® 565 Thread Sealant	Controlled strength	50 ml	
	Oil seals	LOCTITE® 248 Threadlocker	Semisolid, medium strength	19 g	
		LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
	O-rings	LOCTITE® LB 8034 High Performance Synthetic Grease	NLGI 2, GC-LB, NSF H1, Synthetic PAO	400 g	
	Power end bolts	LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant	Metal-free, water washout resistance	1 lb. brush top	
		LOCTITE® LB 8150 Silver Grade Anti-Seize Lubricant	General purpose, up to 1600°F	1 lb. brush top	
		LOCTITE® LB 8008 Copper Based Anti-Seize Lubricant	General purpose, up to 1800°F	1 lb. brush top	
	Bearings	LOCTITE® 641 Retaining Compound	Press & slip fits, low strength	50 ml	
		LOCTITE® 638 Retaining Compound	Slip fit, high strength	50 ml	
LOCTITE® 603 Retaining Compound		Press fit, oil tolerant	50 ml		
LOCTITE® 620 Retaining Compound		Slip fit, high temperature	50 ml		
FRAME ADAPTER	Oil seals	LOCTITE® 248 Threadlocker Stick	Semisolid, medium strength	19 g	
		LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
	Dowel pins	LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant	Metal-free, water washout resistance	1 lb. brush top	
		LOCTITE® LB 8150 Silver Grade Anti-Seize Lubricant	General purpose, up to 1600°F	1 lb. brush top	
		LOCTITE® LB 8008 Copper Based Anti-Seize Lubricant	General purpose, up to 1800°F	1 lb. brush top	
	Gasketing	LOCTITE® 518 Flange Sealant	General purpose, up to 0.050"	50 ml	
		LOCTITE® 515 Flange Sealant	General purpose, up to 0.050"	50 ml	
		LOCTITE® 574 Flange Sealant	Fast curing, up to 0.020"	50 ml	
		LOCTITE® S1 5900 Instant Gasket	High adhesion, up to 0.250"	190 ml power can	
	Adapter bolts	LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
LOCTITE® 248 Threadlocker Stick		Semisolid, medium strength	19 g		
LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant		Metal-free, water washout resistance	1 lb. brush top		
GLAND ASSEMBLY	Packing gland studs	LOCTITE® 263 Threadlocker	High strength, oil resistant, primerless	50 ml	
		LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
		LOCTITE® 248 Threadlocker Stick	Semisolid, medium strength	19 g	
	Packing gland nuts	LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant	Metal-free, water washout resistance	1 lb. brush top	
		LOCTITE® LB 8150 Silver Grade Anti-Seize Lubricant	General purpose, up to 1600°F	1 lb. brush top	
		LOCTITE® LB 8008 Copper Based Anti-Seize Lubricant	General purpose, up to 1800°F	1 lb. brush top	
Flushing connectors	LOCTITE® 567 Thread Sealant	High temperature, solvent resistant	50 ml		
	LOCTITE® 565 Thread Sealant	Controlled strength	50 ml		
PUMP CASING	Stuffing box	LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant	Metal-free, water washout resistance	1 lb. brush top	
		LOCTITE® LB 8150 Silver Grade Anti-Seize Lubricant	General purpose, up to 1600°F	1 lb. brush top	
		LOCTITE® LB 8008 Copper Based Anti-Seize Lubricant	General purpose, up to 1800°F	1 lb. brush top	
	Gasketing	LOCTITE® 518 Flange Sealant	General purpose, up to 0.050"	50 ml	
		LOCTITE® 515 Flange Sealant	General purpose, up to 0.050"	50 ml	
		LOCTITE® 574 Flange Sealant	Fast curing, up to 0.020"	50 ml	
	Casing bolts	LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
		LOCTITE® 248 Threadlocker Stick	Semisolid, medium strength	19 g	
		LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant	Metal-free, water washout resistance	1 lb. brush top	

PRODUCT TABLE

ASSEMBLY SECTIONS

Components	Application	LOCTITE® Solutions	Benefits	Typical Package	Item #
IMPELLER	Shaft & impeller threads	LOCTITE® LB 8023 Marine Grade Anti-Seize Lubricant	Metal-free, water washout resistance	1 lb. brush top	
		LOCTITE® LB 8150 Silver-Grade Anti-Seize Lubricant	General purpose, up to 1600°F	1 lb. brush top	
		LOCTITE® LB 8008 Copper Based Anti-Seize Lubricant	General purpose, up to 1800°F	1 lb. brush top	
KEYWAYS / KEY STOCK	Prevent keyway wallow	LOCTITE® 248 Threadlocker Stick	Semisolid, medium strength	19 g	
		LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
	Repair keyway wallow	LOCTITE® 660 Retaining Compound	Press fit repair	50 ml	
COUPLING	Coupling	LOCTITE® 222 Threadlocker	Low strength, small screws	50 ml	
		LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
		LOCTITE® 248 Threadlocker Stick	Semisolid, medium strength	19 g	
PUMP BASE MOUNTING	Mounting bolts	LOCTITE® 263 Threadlocker	High strength, oil resistant, primerless	50 ml	
		LOCTITE® 290 Threadlocker	Wicking for post-assembly	50 ml	
PUMP BASE GROUTING	Pump base grouting	LOCTITE® PC 9458 Fast Set Grout	For pours up to 1" deep	2 gal. kit	
		LOCTITE® PC 9626 Deep Pour Grout	For pours up to 6" deep	5 gal. kit	
		LOCTITE® PC 9422 Super Grout	For pours up to 18" deep	5 gal. kit	

REPAIR SECTIONS

Components	Application	LOCTITE® Solutions	Benefits	Typical Package	Item #
OIL SEEPAGE	Porosity sealing	LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating	Protective coating	12 lb. kit	
		LOCTITE® 290 Threadlocker	Wicking for sealing porosities	50 ml	
CORROSION	Corrosion	LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating	Protection against chemical attack	12 lb. kit	
CASING/IMPELLER WEAR	Wear	LOCTITE® PC 7227 Nordbak® Brushable Ceramic	Smooth, corrosion resistant coating	2 lb. kit grey	
		LOCTITE® PC 7228 Nordbak® Brushable Ceramic	Smooth, corrosion resistant coating	2 lb. kit white	
		LOCTITE® PC 7218 Nordbak® Wearing Compound	Trowelable, large ceramic beads	5 lb. kit	
		LOCTITE® PC 7255 Nordbak® Sprayable Ceramic	Smooth, corrosion resistant coating	900 ml	
		LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating	Protection against chemical attack	12 lb. kit	
		LOCTITE® EA 3478 Superior Metal	Ferro-silicon-filled repair epoxy	1 lb. kit	
		LOCTITE® PC 7222 Wear Resistant Putty	Ceramic fiber-filled epoxy	1 lb. kit	
SHAFT WEAR	Wear	LOCTITE® EA 3478 Superior Metal	Ferro-silicon-filled repair epoxy	1 lb. kit	
		LOCTITE® PC 3471 Steel Putty	Steel-filled repair epoxy	1 lb. kit	
KEYWAY WALLOW	Wallow	LOCTITE® 660 Retaining Compound	Press fit repair	50 ml	

OTHER PRODUCTS

Product Type	LOCTITE® Solutions	Benefits	Typical Package	Item #
PRIMER	LOCTITE® 7649 Primer N	Anaerobic primer/cleaner	4.5 oz. aerosol	
CLEANERS	LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser	General-purpose cleaner	15 oz. aerosol	
	LOCTITE® SF 790 Paint Stripper	Aggressive gasket remover	18 oz. aerosol	

PRODUCT INDEX

PRODUCT INDEX

LOCTITE® Solutions	Benefits	Typical Package	Item #
LOCTITE® 222 Threadlocker	Low strength, small screws	50 ml	
LOCTITE® 243 Threadlocker	Medium strength, oil resistant, primerless	50 ml	
LOCTITE® 248 Threadlocker Stick	Semisolid, medium strength	19 g	
LOCTITE® 263 Threadlocker	High strength, oil resistant, primerless	50 ml	
LOCTITE® 290 Threadlocker	Wicking for post-assembly	50 ml	
LOCTITE® 515 Flange Sealant	General purpose, up to 0.050	50 ml	
LOCTITE® 518 Flange Sealant	General purpose, up to 0.050	50 ml	
LOCTITE® 565 Thread Sealant	Controlled strength	50 ml	
LOCTITE® 567 Thread Sealant	High temperature, solvent resistant	50 ml	
LOCTITE® 574 Flange Sealant	Fast curing, up to 0.020	50 ml	
LOCTITE® 603 Retaining Compound	Press fit, oil tolerant	50 ml	
LOCTITE® 620 Retaining Compound	Slip fit, high temperature	50 ml	
LOCTITE® 638 Retaining Compound	Slip fit, high strength	50 ml	
LOCTITE® 641 Retaining Compound	Press & slip fits, low strength	50 ml	
LOCTITE® 660 Retaining Compound	Press fit repair	50 ml	
LOCTITE® 7649 Primer N	Anaerobic primer/cleaner	4.5 oz. aerosol	
LOCTITE® EA 3478 Superior Metal	Ferro-silicon-filled repair epoxy	1 lb. kit	
LOCTITE® LB 8008 Copper Based Anti-Seize Lubricant	General purpose, up to 1800°F	1 lb. brush top	
LOCTITE® LB 8023 Marine Grade Anti-Seize	Metal-free, water washout resistance	1 lb. brush top	
LOCTITE® LB 8034 High Performance Synthetic Grease	NLGI 2, GC-LB, NSF H1, Synthetic PAO	400 g	
LOCTITE® LB 8150 Silver Grade Anti-Seize	General purpose, up to 1600°F	1 lb. brush top	
LOCTITE® PC 3471 Steel Putty	Steel-filled repair epoxy	1 lb. kit	
LOCTITE® PC 7218 Nordbak® Wearing Compound	Trowelable, large ceramic beads	5 lb. kit	
LOCTITE® PC 7222 Wear Resistant Puffy	Ceramic fiber-filled epoxy	1 lb. kit	
LOCTITE® PC 7227 Nordbak® Brushable Ceramic	Smooth, corrosion-resistant coating	2 lb. kit grey	
LOCTITE® PC 7228 Nordbak® Brushable	Smooth, corrosion-resistant coating	2 lb. kit white	
LOCTITE® PC 7255 Nordbak® Sprayable Ceramic	Smooth, corrosion-resistant coating	900 ml	
LOCTITE® PC 7319 Nordbak® Chemical Resistant Coating	Protection against chemical attack	12 lb. kit	
LOCTITE® PC 9422 Super Grout	For pours up to 18" deep	5 gal. kit	
LOCTITE® PC 9458 Fast Set Grout	For pours up to 1" deep	2 gal. kit	
LOCTITE® PC 9626 Deep Pour Grout	For pours up to 6" deep	5 gal. kit	
LOCTITE® SF 7070 ODC-Free Cleaner & Degreaser	General-purpose cleaner	15 oz. aerosol	
LOCTITE® SI 5900 Instant Gasket	High adhesion, up to 0.250"	190 ml power can	

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