



LOCTITE®



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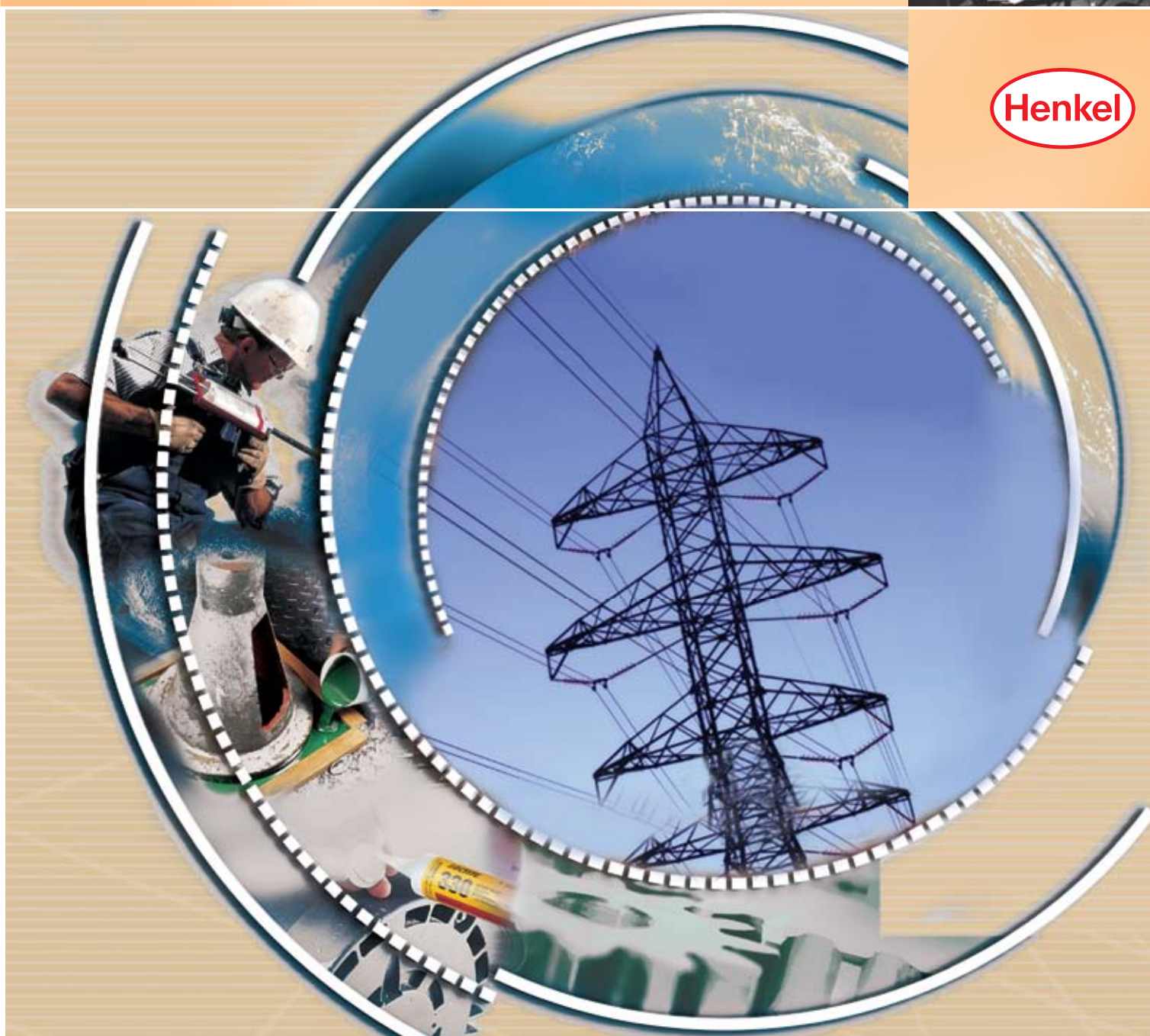
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Loctite® Solutions for Power Plants

Maintenance, Repair, Rebuild and Protect



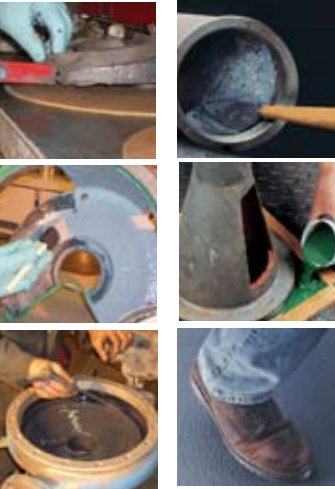
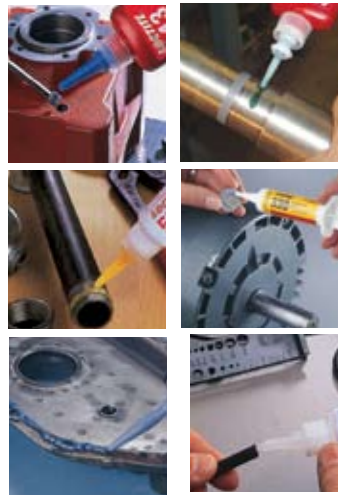
Loctite® Solutions for Power Plants

Loctite® has the right solutions to various maintenance, repair and overhaul challenges power plants face. Designed to prevent common failures, extend equipment life and increase production reliability, Loctite® product range is a maintenance professional's most valuable tool.

Loctite® Industrial Maintenance Solutions

Proven with over 50 years industrial experience, typical product applications include:

- Threadlocking - Securely lock any threaded fastener or fitting against vibration and shock load
- Thread Sealing - Seal and protect threaded joints and components
- Retaining - Retain bearings, bushes and cylindrical parts into housings or onto shafts – even if worn
- Gasketing - Instantly replace gaskets of any size or shape
- Anti-Seize Lubricants - Protect metal parts from corrosion, galling and seizing
- Instant & Structural Bonding - Permanently and quickly bond a wide variety of materials
- And much more...



Loctite® Repair, Rebuild & Protect Solutions

Under the Loctite® brand there are three key surface engineering and protective coating technologies known as Nordbak®, Fixmaster® and Big Foot. Tried and proven for over 50 years, these technologies offer proven solutions for the problems caused by wear, abrasion, chemical attack, erosion, corrosion, impingement, entrainment, mechanical damage and traction control.

- Loctite® Nordbak® - Utilises superior wear properties of ceramic and the convenience of two-part epoxies to seal and protect plant assets from wear and corrosion. Available in trowelable and brushable formulations with special fillers for tough conditions, Nordbak® is ideal for all repairs that have to last.
- Loctite® Fixmaster® - Designed to repair, reclaim, protect and maintain worn metal, rubber, and concrete surfaces, predominantly two-part composites, the range varies from metal filled putties to urethanes and quartz based concrete repair products.
- Loctite® Big Foot - Purpose designed to provide superior traction control in industrial environments, Loctite® Big Foot is resistant to harsh chemicals and tough enough to handle forklift and vehicular traffic.

With over 50 years' expertise and know-how, Loctite® brings power plants numerous cost saving and energy conservation maintenance, repair, rebuild and protect solutions. Application cases introduced in this catalog only demonstrated a part of Loctite® capabilities. Please consult Loctite® for a customized application solution for you.

- Improved Efficiency, Reliability and Safety
- Reduced Downtime and Spare Parts Inventory
- Reduced Energy Costs
- Extended Equipment Life
- Minimized Maintenance Costs
- Global Network and Local Service

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Prevent leaks - air, hydraulic



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Boiler Room - Pulverizer

Loctite® Retaining
Prevent backlash - key wallow, spun bearing, shaft alignment, wear



Loctite® Gasketing
Prevent leaks – gasket, oil, transmission, coolant

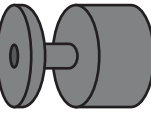


Boiler Room and Pollution Control

Loctite® Nordbak® Wear Resistant Coating
Repair and protect pumps, chutes, augers, handling equipment and more



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Power Generation

Loctite® Fixmaster® Metal Repair
Repair pumps, keyways, shafts, pipes, elbows, fuel & gas tanks, castings, air seals and more



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Water Circulation

Loctite® Fixmaster® Concrete Repair
Restore old concrete, repair floors, ramps, docks, pillars, chemical containment areas and more



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Pump Rebuild

Loctite® Solutions for Industrial Pumps
Improve efficiency and reliability of Industrial pumps



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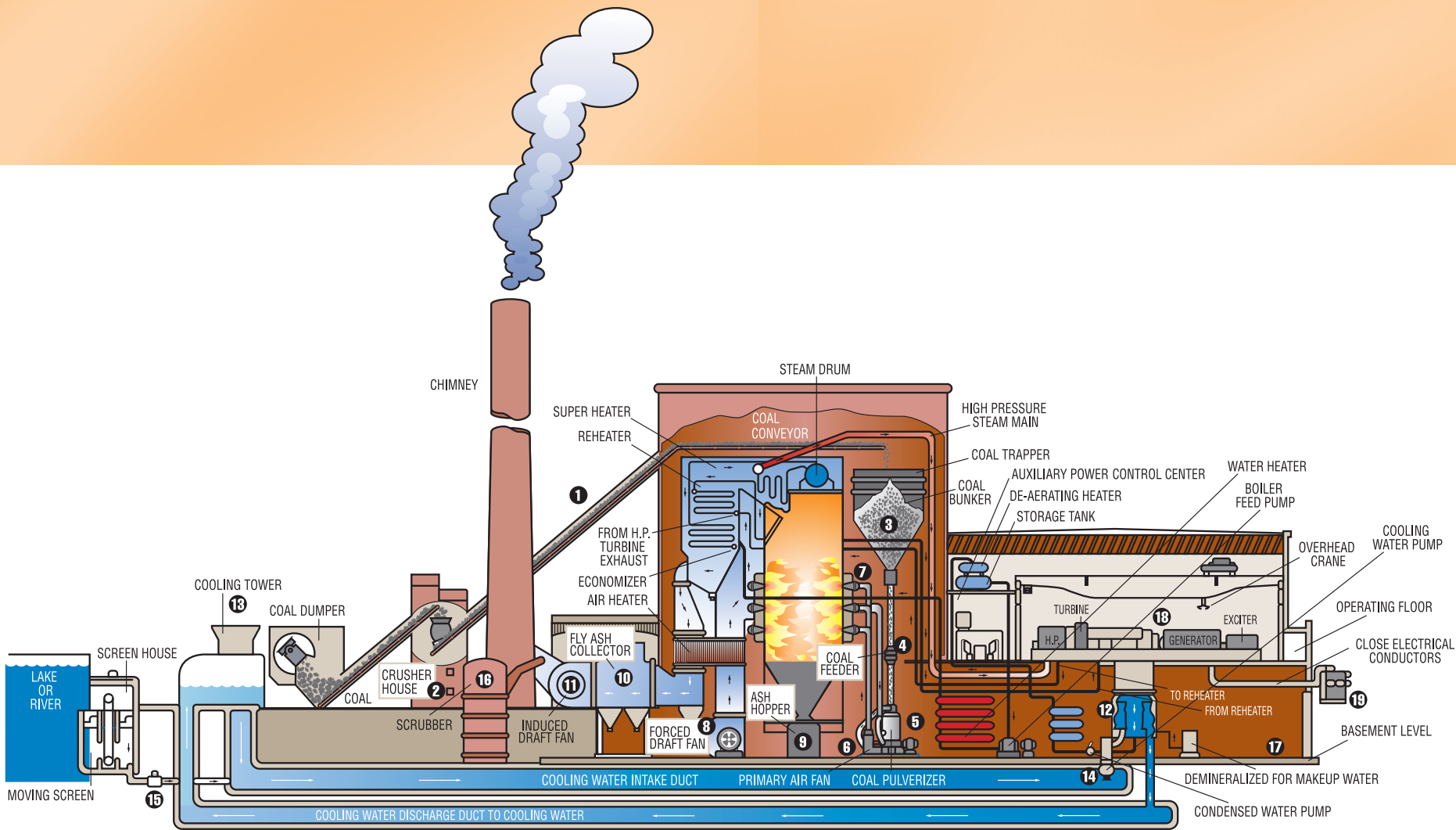


Loctite® MRO Workshop

Maintenance Reliability Workshop
Surface Engineering Workshop



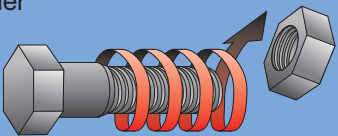
Coal Fired Power Plants



Equipment	Problem	Product/Solution	Equipment	Problem	Product/Solution
1 Conveyor Belts	Tears, gouges, edge damage Sifting and damage due to clips Wear to chutes and transfer points Uneven wear to lag or idler pulleys Assembling press and slip fit parts	Belt Repair Belt Repair Wear Prevention and Rebuilding Wear Prevention and Rebuilding Retaining	11 Induced Draft Fan	Exhaust leaks Abraded housing and blades Worn shaft and bearing housing Anchor fan and drive Secure bolts on housing and blades Assembling press and slip fit parts	Gasketing Wear Prevention and Rebuilding Metal Rebuilding and Shaft Repair Grouting Threadlocking Retaining
2 Crusher House	Abraded discharge chutes Mounting pads and anchor bolts	Wear Prevention and Rebuilding Grouting	12 Condenser	Pitted or corroded water box Corroded tube sheet Sealing flanges Preventing pipes and fittings from leaks	Wear Prevention and Rebuilding Wear Prevention and Rebuilding Gasketing Thread Sealing
3 Coal Bunker	Wear to cone and discharge areas Install ceramic tiles	Wear Prevention and Rebuilding Gasketing	13 Cooling Towers	Corrosion or cavitation Wear to fan blades Assembling press and slip fit parts Sealing flanges Preventing pipes and fittings from leaks	Wear Prevention and Rebuilding Wear Prevention and Rebuilding Retaining Gasketing Thread Sealing
4 Coal Feeder	Worn chutes and rings	Wear Prevention and Rebuilding	14 Cooling Water Pump	Cavitation in castings Erosion to impeller Secure bolts on housing and blades Sealing flanges Preventing pipes and fittings from leaks	Wear Prevention and Rebuilding Wear Prevention and Rebuilding Threadlocking Gasketing Thread Sealing
5 Coal Pulverizer	Abraded pipe, walls, and cone Wear to shafts and housings Install and repair ceramic tiles Assembling press and slip fit parts Sealing flanges Preventing pipes and fittings from leaks	Wear Prevention and Rebuilding Metal Rebuilding and Shaft Repair Gasketing Retaining Gasketing Thread Sealing	15 Water Service Pumps	Wear to rubber or urethane linings Reseat bearing housings Anchor pumps Secure bolts on housing and blades Preventing pipes and fittings from leaks	Belt Repair Metal Rebuilding and Shaft Repair Grouting Threadlocking Thread Sealing
6 Primary Air Fan	Worn housing and blades Install ceramic tiles Secure bolts on housing and blades Assembling press and slip fit parts	Wear Prevention and Rebuilding Gasketing Threadlocking Retaining	16 Scrubber System	Damage due to impingement Wear to lining Thickener tank rake and cone	Wear Prevention and Rebuilding Wear Prevention and Rebuilding Wear Prevention and Rebuilding
7 Fuel Lines and Elbows	Repair holes and leaks Abraded surfaces Install and repair ceramic tiles Sealing flanges Preventing pipes and fittings from leaks	Metal Rebuilding and Shaft Repair Wear Prevention and Rebuilding Gasketing Gasketing Thread Sealing	17 Floors, Decks, Roofs	Spalled or broken concrete Cracks in floors or expansion joints Hazardous, slippery surfaces Leaks in roofs or gutters	Floor and Concrete Repair Floor and Concrete Repair Anti-Slip Floor Coatings Floor and Concrete Repair
8 Forced Draft Fan	Anchor fan Worn shafts Wear to housings and blades Secure bolts on housing and blades Assembling press and slip fit parts	Grouting Metal Rebuilding and Shaft Repair Wear Prevention and Rebuilding Threadlocking Retaining	18 Turbine Deck	Reassemble unit Anchor machinery Secure bolts on housing and blades Assembling press and slip fit parts	Gasketing Grouting Threadlocking Retaining
9 Ash Hopper	Wear in ash hopper Sealing flanges	Wear Prevention and Rebuilding Gasketing	19 Transformers	Sealing flanges Preventing pipes and fittings from leaks	Wear Prevention and Rebuilding Thread Sealing
10 Fly Ash Collector	Exhaust leaks Abraded collector and separator Assembling press and slip fit parts Sealing flanges	Gasketing Wear Prevention and Rebuilding Retaining Gasketing			

Did You Know?

- #1 Reason for Catastrophic industrial equipment failure is the vibrational loosening of mechanical fasteners
- Just 2 drops of liquid or a swipe of the threadlockers stick is all it takes to ensure the reliability and performance of industrial equipment
- Once cured, threadlockers create a secure bond for any threaded fastener



Loctite® Threadlocking

Invented by Loctite Corporation, now Henkel Corporation, as a revolutionary method to lock and seal threaded fasteners, Loctite® threadlockers have a wide range of applications – from delicate electronic components to heavy construction equipment. Patented, revolutionary Loctite® semi-solid formulas in stick format offer added convenience and portability.

- Prevents loosening from shock and vibration
- Single component – clean and easy to apply
- Can be used on various sizes of fasteners – reduces inventory costs
- Seals threads
- Stops rust and corrosion
- Available in varying viscosities and strengths for any applications, including exposure to extreme environments



Coal Handling

Bollards are the iron posts used on coal yard quayside for mooring coal ships.

Challenges: The bollards and their ground base were corroded by sea water. The rust on the surface made it difficult to loose ropes when needed.

Loctite® Solutions: Rust was removed by Loctite® Extend® Rust Treatment. Ground base was repaired with Nordbak® Floor Fill. Top cap was filled with Fixmaster® 4 Minute Epoxy Adhesive. Finally, the bollard was coated with Loctite® Nordbak® High Temperature Brushable Ceramic. The product provides a high gloss, low friction and corrosion resistant coating.



Rubber is commonly used in power plants for construction of flexible equipment such as a conveyor belt or as a protective coating for critical operating equipment subject to impact, abrasion and corrosion. In this case, the Conveyor Belt for the Coal Feeder were seriously damaged by the coal materials it handled.

Challenges: Traditional belt repair methods are complicated, costly and time consuming.

Loctite® Solutions: With tough, rubber-like properties, Loctite® Fixmaster® Rapid Rubber Repair protects and seals critical operating equipment from impact, abrasion, and corrosion. The product is designed to make durable and flexible, on-site repairs to conveyor belts, returning them to service in as little as 2 hours.



Coal Handling Elbows were worn out by coal particles.

Challenges: The customer adopted chromium alloy elbows in order to have abrasion resistance and still had to replace ten of them every year. This was an expensive equipment replacement cost.

Loctite® Solutions: Loctite® Nordbak® High Temperature Pneu-Wear renewed worn surfaces, and extended the work life for the elbows. The product is designed for elbows, dust collectors, fan housings, pumps or any application that requires protection from fine particle abrasion for up to +232°C.



Continuous Ship Unloader unloads coal from ships.

Challenges: Bucket Chain Guide Rollers were damaged due to vibration by continuous ship unloader operation. The assembly time was long.

Loctite® Solutions: Clean the bucket chain guide roller shaft, then apply Loctite® 638 Retaining Compound and assemble the roller. With maximum strength, Loctite® 638 locks cylindrical assemblies up to 0.38 mm diameter clearance, and is suitable for use where high dynamic force or cyclic loading is expected. The assembly now is much faster and reliable.



Did You Know?

- Leakage from threaded and flanged fittings cost industry, and ultimately us as consumers, millions of dollars annually
- Re-work of pipe sealing leads to further downtime and unnecessary expense
- When fully cured, Loctite® Thread Sealants seal to the burst strength of most piping systems



Loctite® Thread Sealing

Loctite® liquid thread sealants seal and secure metal pipes and fittings, filling the space between threaded metal parts, and hardening to prevent leakage. Designed for low and high pressure applications, liquid thread sealants seal instantly for low pressure testing. The new innovative semi-solid formula in stick format offers added convenience and portability for general maintenance and hard-to-reach applications.

- Replaces tapes and pastes
- Liquids ensure complete contact between threads for a 100% seal
- Liquids will not creep, shrink, shred, or block systems (including filters)
- Disassembly can be achieved easily with basic hand tools
- Prevents leaks, corrosion and galling in threads

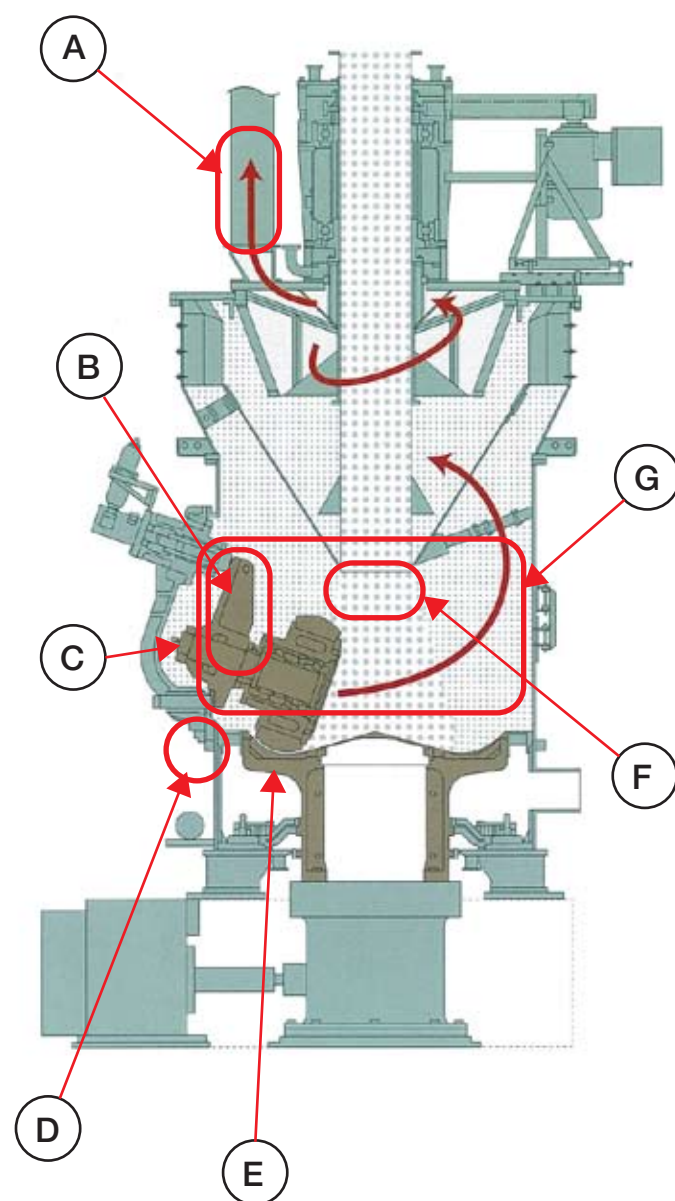


Boiler Room Pulverizer

Pulverizers are used to grind coal for combustion in the furnace. Pulverizers reduce the size of coal particles to fine powder to increase the combustibility of the coal and the efficiency of the system.



HP Ring-Roll Bowl Mill uses a Ring-Roll or Ball-Race combination in order to achieve the particle reduction of coal fuel. The grinding force is obtained through the centrifugal force of the rollers. The pulverizer which uses the stationary rolls and the rotating ring are the most widely used type of pulverizer today. The coal is loaded through the center of the system by means of a pipe that travels through the machine.



(A)

Challenges: Coal powder is discharged through the duct and supplied into the burner of the boiler room. The inner surface of the Discharge Duct was worn.

Loctite® Solutions: Loctite® Nordbak® High Temperature Pneu-Wear was used to rebuild and protect the inner surface of the Duct. The product cures to ceramic hardness, resists sliding abrasive wear, won't sag or shrink, conforms to irregular surfaces, renews worn surfaces fast, and protects substrates from fine particle abrasion for up to to +232°C.



(B)

Challenges: The Arm of the Grinding Roll was worn out by coal particles.

Loctite® Solutions: Loctite® Nordbak® High Temperature Wearing Compound was used to coat the arm, acting as sacrificial working surface. The product is designed to rebuild, repair, and protect equipment exposed to extreme sliding abrasion for up to +232°C, where conventional repair systems fail.



(C)

Challenges: Protecting the support and base for arm of grinding roll or reduction gears from wear.

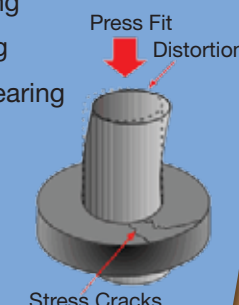
Loctite® Solutions: Loctite® Nordbak® High Temperature Pneu-Wear was applied on the base. It cures to ceramic hardness, resists sliding abrasive wear, won't sag or shrink, and protects from fine particle abrasion up for to +232°C.



Did You Know?

Why Do Bearings Fail?

- Defective bearing seats on shafts and in housings
- Misalignment
- Faulty mounting practice
- Incorrect shaft and housing fits
- Inadequate sealing
- Ineffective sealing
- Vibration while bearing is not rotating
- Electrical current passage through bearing



Loctite® Retaining

Pioneered anaerobic technology, Loctite® Retaining Compounds fill the "inner space" between components, cure to form a strong precision assembly, and increase the shear strength of cylindrical, non-threaded assemblies. Loctite® Retaining Compounds have gained wide acceptance as a standard method for assembling press and slip-fitted parts.

- Bond and secure non-threaded cylindrical metal assemblies
- High and moderate strength products – can carry high loads and eliminate fretting
- Fill all voids – prevent corrosion
- Reduce the need for close tolerances
- 100% contact – load and stress are distributed evenly over the joint



Boiler Room Pulverizer



D

Challenges: Air is pressurized upwards from the bottom of pulverizer to separate coal powders from particles. To protect the wind transformation plates and bolt caps from abrasion.



Loctite® Solutions: Loctite® Nordbak High Temperature Wearing Compound rebuilds the plates. Nordbak® High Temperature Brushable Ceramic works as a top coat for lasting protection. The product is an ultra smooth, ceramic reinforced epoxy that provides a high gloss, low friction coating designed to protect against turbulence, abrasion and cavitation for up to +288 °C.

E

Challenges: The high temperature wear resistant plate works under the highest working temperature (250°C) in the HP Pulverizer.



Loctite® Solutions: Loctite® Nordbak® Ultra High Temperature Wearing Compound has excellent wear resistant performance with temperature resistance up to +288°C. Easy to re-apply on a planned schedule. Significantly reduced downtime and the workload of repairing.

F

Challenges: Scraper in coal injection pipe distributes coal particles into the pulverizer, and is worn.



Loctite® Solutions: Loctite® Nordbak® Ultra High Temperature Wearing Compound is designed to rebuild, repair, and protect equipment exposed to both extreme sliding abrasion up to +288°C. The product protects equipment in high heat environments where conventional repair systems fail.

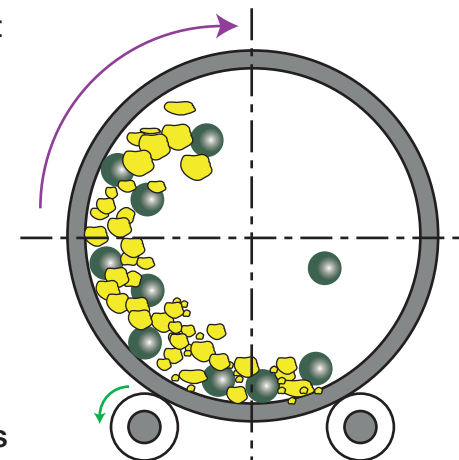
G

Challenges: Protecting the panel joints and bolt caps from wear.



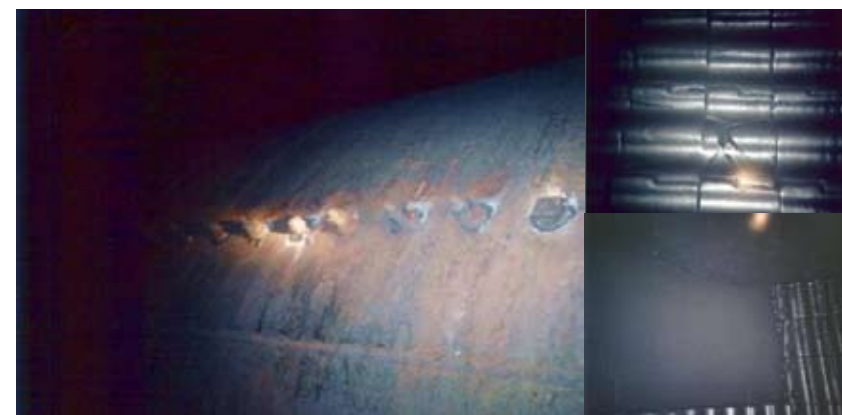
Loctite® Solutions: Loctite® Nordbak® High Temperature Pneu-Wear and Nordbak® Wearing Compound are used as protection coating.

Ball Mill is a pulverizer that consists of a horizontal rotating cylinder, containing a charge of tumbling or cascading steel balls. The cylinder is lined with a wear resistant cast material. The coal is gravity fed into the system through the feeder. The Ball Mill rotates the cylinder with the steel balls and coal. This rotation causes the coal to be reduced in size through crushing under the steel balls as well as wear from friction against the balls, liners and other coal particles.



Challenges: Significant impact on the liners from the charging of steel balls and friction against steel balls and coal particles. Asbestos or rubber plates were used to fill the gaps between the liners and the cylinder support structure, however it created uneven impact on different areas of liners, liners cracked and peeled off. Vibration loosened bolts and caused coal powder leakage through the bolt jointing areas, leakage kept coming back after welding repair.

Loctite® Solutions: Fill the gaps between backing and liners or support structure with Loctite® Nordbak® Backing Material. It contains elastomers for high impact and shock resistance, and has high volumetric stability that eliminates formation of gaps between backing and liners or support structures, therefore 100% fills the gaps and even the stress and solves the root causes of the problems. The product needs no melting or special equipment, is easy and safe to use.



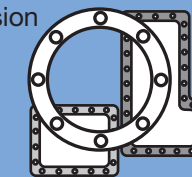
Did You Know?

What is the function of a Gasket?

- Maintains a seal
- Remains impervious to industrial fluids
- Compatible with the materials around the gasket

Why do Gaskets leak?

- Stress distortion is a primary cause of cork, paper, and cut gasketing products failure
- Causes of Stress Distortion:
 - Uneven and Localized stress causes leaks
 - Over-tightening bolts causes stress distortion
 - Pressure surges cause leaks
 - Different rates of thermal expansion cause leaks



Loctite® Gasketing

Loctite® anaerobic gasketing technology has revolutionized flange sealing in all industries. Anaerobic gasketing materials remain liquid when exposed to air, but cure when confined between mating flanges, are best suited for small gap applications and rigid metal-to-metal assemblies. With excellent fluid resistance, formulated for high operating temperatures, Loctite® silicone gasketing materials are best suited for large gap applications and stamped metal assemblies.

- No shimming effect – controlled tolerances, no need for re-torquing
- Fill all voids – reduce the need for a fine surface finish of flanges
- Parts can be disassembled easily even after extended service
- Resists high pressure when fully cured



Boiler Room and Pollution Control

This I.D.Fan pulls hot gases with coal particle into fire chamber at about 250°C. After 10 years' service, the inside plate of this fan was worn out by thickness of 2-3mm.



Challenges: The customer could only replace the worn plates at estimated cost of EUR 500K. The shutdown during replacement was EUR 180K per day.

Loctite® Solutions: Apply two coats of Loctite® Nordbak® High Temperature Brushable Ceramic. The product provides protection against turbulence, abrasion and cavitation up to 288°C. Loctite® solution has saved customer the replacement and downtime cost of EUR 669K. The surface can be renewable after two to three years with planned maintenance schedule.

Boiler Ducting supplies fuel to the boiler, is subject to wear caused by the abrasive action of coal dust. Continuous maintenance is required to prevent and reclaim parent metal, which can erode by up to 2mm per year.

Challenges: A common repair method requires welding sections of sacrificial steel into wear areas. However this method encourages accelerated wear due to the irregular surface profile disturbing the airflow. Welding within the confined space of the ducting proved hazardous and time consuming.

Loctite® Solutions: Loctite® Nordbak® Ultra High Temperature Pneu-Wear created a superior sacrificial surface that not only protected the surface from erosion but also sealed against corrosion. Corrosion may occur during outages where condensation forms and reacts with the sulfur rich dust.



Traditional Welding



Loctite® Solutions

Flue Gas Desulfurization (FGD) is the technology removing 95 percent or more sulfur dioxide from the exhaust flue gas for a typical coal fired power Plant. FGD system therefore protects our environments.

Fumes go through the Flue Gas Desulfurization Cooler, limestone slurries at 50-80°C, shoots through fumes at the inner surface of the cooler from an angle of 45°.

Challenges: The cooler is lined with glass tiles. The glass tiles were not abrasion resistant, the substrate was worn out and even leaked. Glass tiles had poor anti-abrasion capacity and its bonding strength to the surface was also poor. It failed completely after six months.

Loctite® Solutions: Both Loctite® Nordbak® Brushable Ceramic and Loctite® Nordbak® Pneu-Wear are applied to repair the inner surface and protect the it from corrosion and abrasion. Loctite® solution extended the equipment life by at least four times. The eliminated shutdown and emergency repair reduced air pollution and saved customer EUR 88,318.

Hydrocyclone classifies and separates limestone particles in the slurries by centrifugal forces. Limestone particles under 100 micro remain in the slurries and enter into Flue Gas Desulfurization system.

Challenges: To protect surface of Hydrocyclone from abrasion and cavitation.

Loctite® Solutions: Apply the base coat of Loctite® Nordbak® Pneu-Wear, repair the worn areas by Fixmaster® Superior Metal, coat Nordbak® Brushable Ceramic Grey as top coating. These reclaimed the substrate, and provided a smooth and wear resistant protection against turbulence and cavitation.



Did You Know?

HARD FACE WELD

- STEP 1: Prepare surface
STEP 2: Preheat rods and substrate
STEP 3: Lay (6mm x 3mm beads) x 210mm long. Overlap each bead by 50%
STEP 4: Lay second pass of beads to achieve 6mm thickness. Total of 176 passes
STEP 5: Relieve stress caused by application of heat

TOTAL LABOR = 8 HOURS

Loctite® Nordbak® Wearing Compound

- STEP 1: Prepare surface
STEP 2: Mix resin and hardener
STEP 3: Apply to surface with trowel

TOTAL LABOR = 1 HOUR
(NO flame, NO heat distortion of the substrate)

Loctite® Nordbak® Wear Resistant Coating

Loctite® Nordbak® Wearing Compounds utilize the superior wear properties of ceramic and the convenience of two-part epoxies to protect equipment like pumps, chutes, and augers in harsh industrial environments. Loctite® Nordbak® products stand up to almost any corrosion, abrasion and wear problems power plants can encounter, and are ideal for all those large-scale repairs that have to last.

- Restores worn surfaces, uses on new parts to extend life
- Provides superior protection from environmental impact
- Eliminates and breaks corrosion/erosion cycle
- Non-shrinking and non-sag formulations. High compressive strength
- Broad chemical resistance, broad range tailored to specific applications



Power Generation and Transmission

Steam Turbine extracts thermal energy from pressurized steam, and converts it into mechanical work which drives electrical generator for electricity generation.

Challenges: 2/3 of the hydrogen gas consumption was leaked and wasted from the turbine flange leakage.



Loctite® Solutions: Loctite® Fixmaster® Metal Magic Steel coated leaking points and around bolts, press till cure, curing time is as fast as 10 minutes. The product adheres to most damp surfaces, stops leaks fills oversized bolt holes, smoothes welds, and repairs non-structural defects.

Challenges: With working temperature as high as 500°C, bolts on the high temperature valves are difficult to be dismantled for maintenance. To prevent bolts and valve threads from galling and seizure.



Loctite® Solutions: Applying Loctite® N-5000 High-Purity Anti-Seize to bolts prior to assembly allows easy assembly of parts and prevents galling and seizure. Loctite® C5-A Copper Based Anti-Seize is used on valve threads on high heat equipment to protect against costly seizure.

In this power plant transmission substation, corrosion at the lid points of battery terminals reduced the electrical conductivity.



Challenges: Conventional petroleum jelly was not able to prevent the sulphurization of terminals in the long term. The customer had to shut down the unit, clean it and re-apply petroleum jelly every week.

Loctite® Solutions: Loctite® Graphite-50 Anti-Seize coated and prevented the lid points from corrosion for up to 6 months. A lubricant formulated from synthetic graphite and petrolatum, the product is a non-metallic lubricant with good electrical conductivity in metal-to-metal joints.

Busbar conducts electricity within a switchboard, distribution board, substation, or other electrical apparatus.

Challenges: The insulation tapes on the Busbars for this 110KV transformer of 220KV substation was broken.



Loctite® Solutions: Loctite® Color Guard® Coating was applied after the Busbar surface was properly cleaned. The product is specially designed to protect and insulate Busbars from moisture and corrosion, dries to a durable, flexible true synthetic rubber protective coating, outperforms conventional epoxy paints and tapes and do not peel or chip even in toughest operation conditions. Available in yellow, blue, black, and red.

Transformer reduces the current before transmitting electrical energy over long distances through wires.

Challenges: This 110 KV Transformer of 220 KV Substation has been leaking oil right since the time of commissioning in year 2003. Transformer oil leaked from welded joints at the speed of 200 liters per month. Operation cost increased significantly, and ground around transformer were contaminated.

Loctite® Solutions: Loctite® Fixmaster® Fast Set Steel Putty repaired the leaking areas. It is fast curing, steel reinforced, designed for making fast and durable repairs to a variety of metals. Loctite® Fixmaster® Superior Metal was applied on the top, it is ferrosilicon filled, extremely resistant to corrosion, chemical attack, and abrasion. Loctite® saved the customer 2,400 liters of transformer oil in a year, and protected our environment.

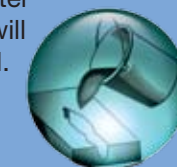


Did You Know?

What is Polymer Composites?

- An epoxy or urethane (polymer) system that contains a reinforcement component such as fibers, beads, powders, etc. these added composites increase performance.

Loctite® Nordbak® and Fixmaster® Polymer Composites are formulated with 100% solids. This means that unlike solvent-based systems, Loctite® Nordbak® and Fixmaster® polymer composites will not shrink when cured.



Loctite® Fixmaster® Metal Surface Repair & Rebuild

Loctite® Fixmaster® composites repair, rebuild and restore damaged machinery and equipment permanently and without the need for heat or welding. Technically advanced and manufactured with over 50 years' know-how, the range includes putty or pourable formulations, for aluminum, steel or stainless steel.

- Non-shrinking, high compressive strength, durable
- Can be drilled, tapped, or machined after cure
- Superior adhesion to metal, ceramic, wood, glass, and some plastics
- Excellent resistance to aggressive chemicals
- Choice of mild steel, aluminum, or nonmetallic fillers



Water Circulation

To reduce corrosion, water must be purified for use in the boiler tubes. Ion Exchange Equipment is used to purify water.

Challenges: The liquid in the tank of the Ion Exchange Equipment is acid or alkaline. The interior surface needs protection against corrosion.

Loctite® Solutions: Loctite® Nordbak® Chemical Resistant Coating is coated onto the interior surface of the tank, forms a glossy, low friction surface that protects against extreme chemical attack. This has extended the work life of the tank by six years.



The Condenser condenses the steam from the exhaust of the turbine into liquid. From the bottom of the condenser, condensate pumps recycle the condensed water back to the water/steam cycle.

Condenser Water Room holds cooling water. The Water Room is made of carbon steel, with stainless steel and rubber liner as working surface.

Challenges: The Rubber Liner was damaged due to continuous sea water corrosion and cavitation effect.

Loctite® Solutions: After surface preparation, repair damaged areas by Loctite® Fixmaster® Rapid Rubber Repair to its original specifications. Extremely tough and fast curing, the product forms permanent bonds to rubber. Its excellent flexibility and elongation properties make it suitable as a sealant in the most demanding environments.



Challenges: Reduced efficiency of heat exchangers due to leakage from the condenser tubes – end plate joints. Bimetallic corrosion reduced the thickness of Condenser End Plates and caused leakage.

Loctite® Solutions: Loctite® Nordbak® Brushable Ceramic coating made the end plates smooth and abrasion resistant, stopped the leakage, and protected from further corrosion.



Cooling Towers, Chimneys and Ash Discharge Structures are all constructed by concrete. Concrete is prone to degradation caused by corrosion, erosion and chemical attack.

Challenges: Being permeable, concrete is prone to ingress of moisture which caused embedded steel reinforcement bars to corrode. The corroded steel bars expand and exert a force on the surrounding concrete causing the concrete to bulge and crack.

Loctite® Solutions: Rust is removed from corroded steel bars using Loctite® Extend® Rust Treatment, then damaged concrete surface is restored by Loctite® Fixmaster® Magna-Crete or Fixmaster® High Performance Quartz.

Fixmaster® Magna-Crete is a unique, two-component magnesium phosphate-based, rapid setting concrete repair system that outperforms conventional concrete repairs, bonds to new and old concrete, can be applied at temperature as low as -26°C. Fixmaster® High Performance Quartz is a highly filled quartz epoxy system designed to protect old or new concrete from chemical attack, provides a surface resistant to concentrated acids, alkalis, and solvents.



Industrial pipe is the most common hardware used in Power Plants to transport fluid and solid.

Challenges: The exterior of these industrial water pipes were corroded especially at the intersection areas with the support structures. The corrosion was mainly caused by rain water.

Loctite® Solutions: After the surface preparation, Loctite® Nordbak® Brushable Ceramic reclaimed the corroded areas, Nordbak® Pneu-Wear was coated on top of it, and again Nordbak® Brushable Ceramic was applied as top coat to protect pipes from further corrosion.



Did You Know?

- Concrete is used for its compressive strength; however, concrete itself is not suitable for repair of concrete surfaces. Repairs using concrete are prone to delaminate and crack.
- A common cause of concrete degradation is corrosion - spalling. Because concrete is permeable, it is prone to water damage which causes embedded steel reinforcement bars to corrode. The corroded steel bars expand and exert a force on the surrounding concrete causing the concrete to bulge and crack.



Loctite® Fixmaster® Concrete Surface Repair & Rebuild

Loctite® Fixmaster® high strength concrete repair products offer the solution to fill and restore concrete permanently, while minimizing disruption to production.

- Chemical and corrosion resistant
- Self-leveling
- Stronger than concrete
- Bonds to concrete, wood, metals, bricks, and other common building materials

Concrete vs. Loctite® Fixmaster® Magna-Crete and Loctite® Fixmaster® High Performance Quartz

Property	Concrete	Loctite® Fixmaster® Magna-Crete and High Performance Quartz
Requires chemical bonding agents to adhere to concrete	Yes	No
Minimum thickness required to achieve compressive strength	100 mm	6 mm
Curing time	28 Days	1 to 24 hours
Chemical resistance	Low	High
Freeze/thaw resistant	No	Yes



Pump Rebuild in Power Plants

Pump casing and impellers are subject to wear from corrosion, erosion, cavitation, and chemical attack. Each of these can wear down internal sections of pump casings and affect pump efficiency. Some of the common wear areas include the cutwater, wear ring seats, impeller vane tips, and inside the volute.

This Slurry Pump works in Ash Handling Plant. The wear plates of Slurry Pump gland housing were worn.

Challenges: The wear plates were made of nihard. Traditional welding repair method could only crack the plates, the customer could only replace the wear plates every 4 months.

Loctite® Solutions: Properly clean and prepare the surface, apply a thin layer of Loctite® Nordbak® Wear Resistant Putty to wet the surface. Then apply another coat of Nordbak® Wear Resistant Putty to reclaim the worn area to desired dimension and finish. Ceramic fibers in the product give this trowelable putty excellent wear and abrasion resistant properties, and provides smooth, low friction finish for equipment exposed to wear, erosion, and cavitation. After being repaired by Loctite®, used wear plates can last another 4 months.



Wastewater Pump processes wastewater with coal waste particles sized up to 1mm.

Challenges: By replacing casings when emergencies occurred, the customer's maintenance model was only reactive.

Loctite® Solutions: After abrasive blast, clean the surface with Loctite® Cleaner 755. Wet the surface with Loctite® Nordbak® Brushable Ceramic White, this acts as a wear indicator and also makes apply the second coat more accurate. Nordbak® Pneu-Wear refurbished the worn areas. Finally Nordbak® Brushable Ceramic White was applied again as the top coating. Now the customer can plan on the maintenance instead of react to emergency, Loctite® solutions have transformed customer's maintenance mode to proactive.



Cooling Water Pump draws cooling water into the plant and circulated through condensers, which cools steam discharged from the turbine.

Challenges: Cooling Water Pump shaft underwent a lot of wear. The heat stress from traditional welding repair caused cracks and bends of the shaft. The customer had to keep spare shafts in warehouse for replacement at time of emergent shutdown.



Loctite® Solutions: Turn the shaft on a lathe and even out the worn areas to 1mm, leaving a rough surface finish. Clean the shaft with Loctite® ODC-Free Cleaner & Degreaser. While the shaft is turning on the lathe, apply Loctite® Fixmaster® Superior Metal by pressing it into the shaft. The product is a two-part ferrosilicon filled epoxy, ideal for restoring or protecting surfaces subject to corrosion, abrasion, and harsh environments.

Challenges: This Cooling Water pump was extensively corroded after four years of service. To replace with a new pump would cost EUR 15,000.

Loctite® Solutions: Initially the cases were sprayed with Loctite® Natural Blue® Biodegradable Cleaner & Degreaser to wash down surface contaminants and reduce the amount of salts being blasted back into the casing. Then the casing was abrasive blasted to a SA-3 White Blast, 75micron profile. Immediately after, the pump surface was coated with Nordbak® Brushable Ceramic to prevent flash rusting or incidental contamination. surface pits were then filled, and corroded facings rebuilt using Nordbak® Wear Resistant Putty. Finally the entire rebuilt surface was sealed again and protected with two coats of Nordbak® Brushable Ceramic, forming an ultra smooth low friction surface.



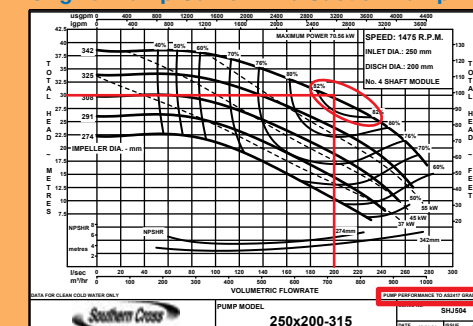
Did You Know?

- Most industrial pumps carry a significant capital value and therefore it is important to extend their useful lives and ensure that they run efficiently and reliably
- Proactive Maintenance can reduce the risk of breakdowns, increase pump reliability, efficiency and longevity, and extend the MTBF (Mean Time Between Failures)

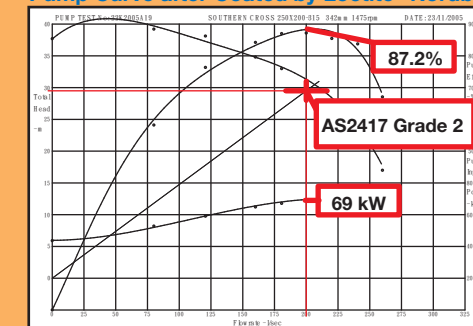
Loctite® Solutions for Industrial Pump Rebuild and Maintenance

- Used in all stages of pump assembly, installation, repairs, on-going maintenance, and disassembly, Loctite® solutions have improved efficiency and reliability of industrial pumps, new and old
- The following test shows that after coated by Loctite® Nordbak® Brushable Ceramic, Pump Efficiency increased by +4.8% from 82.4% to 87.2%, Tot. Head increased by +4% from 29.5 mtr to 30.68 mtr, Power Input reduced from 72.31 kW to 69.00 kW.

Original Pump Curve – End Suction Pump



Pump Curve after Coated by Loctite® Nordbak®



TRAINED, MOTIVATED, AND EQUIPPED PERSONNEL, DRIVE COSTS DOWN!

In the world of industry, maintenance typically contributes to over a quarter of the total cost of finished goods. Loctite® has identified the taproot causes of failures on most mechanical equipment, and teaches proactive approaches to combat downtime and optimize productivity and reliability.

After Loctite® Maintenance Reliability Workshop, your work force will have the knowledge and the tools to do the following:

SAVE TIME

- Reduce routine maintenance tasks
- Reduce standard repair time
- Reduce redundant repairs
- Reduce extended repair times

REDUCE ENERGY COSTS

- Air leak 1.6 mm @ 100 psi @ €0.04 per kWh = €517 lost per year
- Loose connector on 480 volt, 30 amp, 3 phase motor = 13% more energy needed to run

IMPROVED SAFETY

- Improve safety by eliminating personal injury hazards

REDUCE FLUID CONSUMPTION

- Hydraulic leak @ 1 drop/second @ €0.81/liter = €1,243 lost per year
- Reduce disposal costs
- Reduce clean up time and materials

IMPROVE RELIABILITY

- Quality production
- Extend Mean Time Between Failure
- Reduce minor stoppages for adjustment
- Fewer needless variables for Planned Maintenance
- Enlarged reliability culture

Maintenance Reliability Workshop

The majority of unplanned downtime is caused by mechanical subcomponent failure. Some taproots reasons are: fastener loosening, key wallow, PTFE tape fouling control valves, fitting leakage and spun bearings. This workshop teaches how to prevent these from happening proactively.



Threadlocking

- How a threaded fastener works
- Advantages and disadvantages of mechanical locking devices
- Loctite® Threadlockers
 - How they work
 - Benefits
 - Application cases and application techniques
 - Product selection
- Hands-on demonstrations & practice



Thread Sealing

- Types of threads and fittings
- Causes of leaks
- Loctite® Thread Sealants
 - How they work
 - Benefits
 - Application cases and application techniques
 - Product selection
- Hands-on demonstrations & practice



Gasketing

- Why gaskets leak
 - Design and service factors
 - Gasket materials and dressings
 - Assembly problems
- Form-in-place gasketing basics
- Loctite® Anaerobic and Silicone (RTV) Gasketing
 - How they work & benefits
 - Application cases and application techniques
 - Product selection
- Hands-on demonstrations & practice



Retaining

- Types, classes, and typical uses of cylindrical fittings
- Potential fit problems and possible solutions
- Loctite® Retaining Compounds
 - How they work & benefits
 - Application cases and application techniques
 - Product selection
- Hands-on demonstrations & practice

Air Leak Cost Calculator		
Diameter of Opening	Cubic Meter of Air Loss per Year at 100 psi	Cost per Year (Euro)
0.8 mm	24,045	€129
1.6 mm	96,328	€517
3.2 mm	385,907	€2,072
6.4 mm	1,543,626	€8,286
9.5 mm	3,473,159	€18,643
Cost per kWh		€ 0.04

* Cubic Meter Air Loss may vary based on the shape of the opening and assumes facility maintains air pressure 8,760 hours per year.

Oil Leak Cost Calculator		
Leakage Rate	Lite Lost per Year	Cost per Year (Euro)
One drop in 10 seconds	153	€124
One drop in 5 seconds	307	€249
One drop per second	1,533	€1,243
Three drops per second	5,110	€4,143
Stream breaks into drops	32,706	€26,518
Cost per Liter*		€ 0.81

* In addition to oil costs, the costs associated to leaks need to be considered, such as: clean-up labor, absorbents, transaction, shipping, storage, recycling, and disposal.



Need It Now!

Name: _____

Department: _____



Check the box for items you need

Product/ Part #	Loctite® Product Name	Package Size
Threadlocking		
☐ 222	Loctite® 222 Threadlocker	50 ml
☐ 243	Loctite® 243 Threadlocker	50 ml
☐ 271	Loctite® 271 Threadlocker	50 ml
☐ 290	Loctite® 290 Threadlocker	50 ml
☐ 2440	Loctite® 2440 Threadlocker	50 ml
☐ 37773	Loctite® 248 Threadlocker – Stick	19 g stick
☐ 37775	Loctite® 268 Threadlocker – Stick	19 g stick

Thread Sealing		
☐ 545	Loctite® 545 Thread Sealant	50 ml
☐ 567	Loctite® 567 PST Thread Sealant with PTFE	50 ml
☐ 577	Loctite® 577 Thread Sealant	50 ml
☐ 581	Loctite® 581Thread Sealant	50 ml
☐ 31899	Loctite® 55 Pipe Sealing Cord	150 m
☐ 37776	Loctite® 561 PST Pipe Sealant with PTFE – Stick	19 g stick

Gasketing		
☐ 510	Loctite® 510 Gasket Eliminator Flange Sealant	50 ml
☐ 587	Loctite® 587 Blue RTV Silicone	370 g
☐ 596	Loctite® 596 Superflex Industrial Grade Silicone	300 ml
☐ 30507	Loctite® Instant Gasket – Can	7 oz.
☐ 40392	Loctite® 534 Hi-Tack Gasket Dressing – Stick	19 g stick
☐ 40393	Loctite® 548 Gasket Eliminator Flange Sealant – Stick	19 g stick

Retaining		
☐ 603	Loctite® 603 Retaining Compound	50 ml
☐ 609	Loctite® 609 Retaining Compound	50 ml
☐ 638	Loctite® 638 Retaining Compound	50 ml
☐ 641	Loctite® 641 Retaining Compound	50 ml
☐ 660	Loctite® 660 Retaining Compound	50 ml
☐ 680	Loctite® 680 Retaining Compound	50 ml
☐ 40391	Loctite® 668 Retaining Compound – Stick	19 g stick

Metal Surface Repair & Rebuild		
☐ 39917	Loctite® Fixmaster® Fast Set Steel Putty	1 lb. kit
☐ 97453	Loctite® Fixmaster® Aluminum Liquid	1 lb. kit
☐ 97463	Loctite® Fixmaster® Aluminum Putty	1 lb. kit
☐ 97473	Loctite® Fixmaster® Superior Metal Putty	1 lb. kit
☐ 97483	Loctite® Fixmaster® Steel Liquid	1 lb. kit
☐ 98853	Loctite® Fixmaster® Metal Magic Steel	4 oz. stick
☐ 99913	Loctite® Fixmaster® Steel Putty	1 lb. kit

Wear Prevention – Reclaim and Repair		
☐ 39918	Loctite® Nordbak® High Impact Wearing Compound	25 lb. kit
☐ 96092	Loctite® Nordbak® Chemical Resistant Coating	12 lb. kit
☐ 96392	Loctite® Nordbak® Ultra High Temperature Wearing Compound	25 lb. kit

Product/ Part #	Loctite® Product Name	Package Size
☐ 42088	Loctite® Nordbak® High Temperature Brushable Ceramic	1 kg kit
☐ 42069	Loctite® Nordbak® Pneu-Wear	2 kg kit
☐ 42087	Loctite® Nordbak® Brushable Ceramic – Grey	1 kg kit
☐ 98742	Loctite® Nordbak® Wear Resistant Putty – Grey	1 lb. kit
☐ 41783	Loctite® Nordbak® Wearing Compound	2 kg kit

Grouting, Floor and Concrete Repair		
☐ 39366	Loctite® Fixmaster® Concrete Repair Epoxy	4 oz. stick
☐ 39916	Loctite® Urethane Sealant	10.2 oz.
☐ 95551	Loctite® Fixmaster® Magna-Crete – Grey	1 gal. kit
☐ 96495	Loctite® Fixmaster® High Performance Quartz – Grey	42 lb. kit
☐ 97572	Loctite® Fixmaster® Marine Chocking – Green	2 gal. kit
☐ 99361	Loctite® Fixmaster® Floor Fill – Grey	10 lb. kit
☐ 99545	Loctite® Fixmaster® Deep Pour Grout – Black	5 gal. kit

Anti-Slip Traction System		
☐ 39020J	Loctite® Big Foot Heavy Duty Pedestrian Grade – Yellow	1 gal. kit
☐ 39021J	Loctite® Big Foot™ Heavy Duty Pedestrian Grade – Tile Red	1 gal. kit
☐ 39022J	Loctite® Big Foot Zero V.O.C. – Yellow	1 gal. kit
☐ 39023J	Loctite® Big Foot Zero V.O.C. – Tile Red	1 gal. kit
☐ 39915	Loctite® Big Foot Zero V.O.C. – Grey	1 gal. kit
☐ 96211	Loctite® Big Foot Heavy Duty Pedestrian Grade – Black	1 gal. kit
☐ 96211G	Loctite® Big Foot Heavy Duty Pedestrian Grade – Green	1 gal. kit
☐ 96231G	Loctite® Big Foot Zero V.O.C. – Green	1 gal. kit
☐ 96261	Loctite® Big Foot Heavy Duty Pedestrian Grade – Grey	1 gal. kit
☐ 96265	Loctite® Big Foot Heavy Duty Pedestrian Grade – Grey	5 gal. kit

Rubber Surface Repair & Rebuild		
☐ 37719	Loctite® Fixmaster® Instant Belt Repair – Amber	1 lb. kit
☐ 96677	Loctite® Fixmaster® Rapid Rubber Repair	400 ml kit
☐ 97423	Loctite® Fixmaster® Flex 80 Putty	1 lb. kit

Anti-Seize Lubricants		
☐ 34395	Loctite® Marine Grade Anti-Seize	8 oz.
☐ 37782	Loctite® C-5A® Copper Anti-Seize – Stick	20 g stick
☐ 37783	Loctite® Silver Grade Anti-Seize – Stick	20 g stick
☐ 39901	Loctite® Zinc Anti-Seize – Can	1 lb.
☐ 51168	Loctite® Food Grade Anti-Seize – Brushtop	8 oz.
☐ 51606	Loctite® Heavy Duty Anti-Seize – Brushtop	1.2 lb.
☐ 51007	Loctite® C5-A® Copper Based Anti-Seize Lubricant – Brushtop	1 lb.
☐ 76764	Loctite® Silver Grade Anti-Seize – Brushtop	1 lb.
☐ 77164	Loctite® Nickel Anti-Seize – Brushtop	1 lb.

Product/ Part #	Loctite® Product Name	Package Size
Rust Treatments and Cleaning		
☐ 22355	Loctite® ODC-Free Cleaner & Degreaser – Aerosol	15 oz.
☐ 25791	Loctite® Electrical Contact & Parts Cleaner	11 oz.
☐ 36253	Loctite® Orange Lotion Hand Cleaner	4 L
☐ 36646	Loctite® Non-Flammable Electrical Contact & Parts Cleaner	14 oz.
☐ 75448	Loctite® Extend Rust Treatment – Bottle	1 gal.
☐ 79040	Loctite® Chisel Gasket Remover 790	18 oz.
☐ 82249	Loctite® Natural Blue® Biodegradable Cleaner & Degreaser – Spray Bottle	24 fl. oz.
☐ 82251	Loctite® Natural Blue® Biodegradable Cleaner & Degreaser – Bottle	1 gal.

Bonding		
☐ 330	Loctite® 330 Depend® Adhesive	25 ml syringe
☐ 380	Loctite® 380 Black Max® Instant Adhesive	1 oz.
☐ 401	Loctite® Fast 401 Prism® Instant Adhesive	20 g bottle
☐ 404	Loctite® 404 Quick Set Instant Adhesive	4 oz.
☐ 454	Loctite® 454 Prism® Instant Adhesive	20 g bottle
☐ 21426	Loctite® Fast Cure Epoxy – Mixer Cups	10 - 1 fl. oz. cups
☐ 81120	Loctite® Poxypak™ – Fast Cure Epoxy	1 oz syringe
☐ E-120HP	Loctite® Hysol® E-120HP Epoxy Adhesive	50 ml

Kits, Specialty and Emergency Repair Products

☐ 00112	Loctite® O-Ring Making Kit	
☐ 28654	Loctite® Form-A-Thread Stripped Thread Repair Kit	
☐ 96321	Loctite® Pipe Repair Kit	5 x 182 cm
☐ 82093	Loctite® Fixmaster® Underwater Repair Epoxy – Stick	4 oz. stick

Accessories

☐ 39633	Loctite® Fixmaster® Rapid Rubber Repair Static Mixers	6 / bag
☐ 39635	Loctite® Fixmaster® Rapid Rubber Repair Dispenser	
☐ 96121	Loctite® Phenolic Roller	
☐ 96131	Loctite® Mixing Blade	
☐ 97001	Loctite® Bottle Hand Pump	
☐ 983531	Loctite® Manual Applicator, Dual Cartridge	

Primers

☐ 21348	Loctite® 7649 Primer N	4.5 oz.
☐ 94142	Loctite® Big Foot Water-Based Primer/Sealer	1 gal.
☐ 95581	Loctite® Big Foot Acrylic Primer	1 gal.
☐ 96132	Loctite® Big Foot Metal Primer	1 gal.

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Reliability Improvement Suggestion

1. Problem Equipment _____ Department _____
Describe problem including failing components: _____
How often does this happen? _____ Times per month _____ Times per year
Describe negative impact: _____
Describe your intended actions including Loctite® brand products to be used: _____
Necessary products issued? ☐ Yes ☐ No Need Loctite® Engineer help? ☐ Yes ☐ No

2. Problem Equipment _____ Department _____
Describe problem including failing components: _____
How often does this happen? _____ Times per month _____ Times per year
Describe negative impact: _____
Describe your intended actions including Loctite® products to be used: _____
Necessary products issued? ☐ Yes ☐ No Need Loctite® Engineer help? ☐ Yes ☐ No

Additional Training Needed

Topics (Check appropriate boxes)	Comments
☐ Mechanical Basics & Failure Root Causes	_____
☐ Rebuild/Resurface Shafts ☐ Wear Prevention	_____
☐ Machine Base Grouting	_____
☐ Belt Jointing & Repair	_____
☐ Floor Repair & Resurface	_____
☐ Anti-Slip Safety Flooring	_____
☐ Corrosion Protection (tanks, decking, etc.)	_____

Training Critique

Check appropriate boxes	Great	O.K.	Poor
I learned useful information and proactive techniques for my job	☐	☐	☐
The instructor was well informed and his style made it easy to learn	☐	☐	☐
The examples helped me to understand where I can help increase reliability	☐	☐	☐
The demos and visual aids were used effectively and helped me learn	☐	☐	☐
The reference handouts are on target and will be helpful reminders	☐	☐	☐
Length of class ☐ Too Long ☐ Just right ☐ Too Short			
Pace of class ☐ Too Fast ☐ Just Right ☐ Too Slow			
Comments: _____			

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Loctite® Nordbak® and Fixmaster® Polymer Composites
REBUILD, REPAIR and PROTECT
industrial equipment and surfaces, extend equipment life, improve efficiency, and minimize down time.

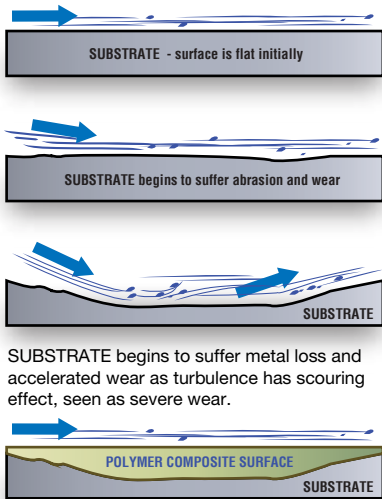
With extremely hard reinforcement fillers, Loctite® Nordbak® and Fixmaster® polymer composite products have excellent wear resistance and superior adhesion. They are designed to protect and extend the service life of a wide range of plant equipment. The composites act as a sacrificial and renewable working surface, protecting the structural integrity of the original substrate against the harshest industrial environments.

Wear / Abrasion

Over time, even a softer solid material in flow will eventually abrade and wear the hardest alloys. As the surface becomes weak it is then subject to being stripped from the parent substrate, therefore gradually reducing the thickness and structural integrity of the substrate.

Wear and Abrasion can be minimized and reduced by utilizing polymer composite materials. These act in a sacrificial capacity and therefore wear in the first instance rather than the original substrate.

Loctite® has developed specific formulations for a wide variety of applications. These formulations can be selected to match the environment for which they are suited, such as heavy wear / abrasion, corrosive fluids or high temperature service.



Corrosion / Erosion

As corrosion takes place it leaves a very weak and loose layer of oxide. As this oxide layer is continually stripped from the parent substrate this is often described as the Corrosion / Erosion Cycle.

Underfilm corrosion remains active below the surface of a high build coating and continually challenges the strength of the coating system to remain attached to the substrate.

Loctite® Polymer Composites, applied to the correctly prepared surface, will bond with a higher force of adhesion than any pressure exerted by oxidizing metal.

Surface Engineering Workshop

Despite the right coating systems are selected for the correct applications, it is often the lack of correct surface preparation and proper application procedures that will cause delamination and reduction of the coating's performance. Surface preparation is critical to enable the composite to stay fixed in place onto the substrate in order to perform at its designed specifications.

Loctite® Surface Engineering Workshop offers methods that can create correct Surface Profile, and provide Reduction in Equipment Replacement, Reduction of Energy Consumption and Increase in Equipment Efficiency and Reliability. The workshop covers the following subjects. Please call Loctite® today to arrange a Surface Engineering Workshop for your plant!



Wear / Abrasion

- Wear / abrasion
- Traditional methods to prevent and repair wear / abrasion
- Wear resistant polymer composites – dissected
- How wear and abrasion affect metal surfaces and surface dynamics
- Advantages of wear resistant polymer composites versus traditional



Corrosion / Erosion

- Corrosion / erosion cycle
- Reasons for and types of coating delamination
- Traditional methods for corrosion erosion / chemical attack
- Polymer composites and their role in Surface Engineering

