
ND®
INDUSTRIES
ADVANCED FASTENING AND SEALING SOLUTIONS
PROCESS OVERVIEWS

Vibra-TITE®

COMPETITIVE PERFORMANCE RESULTS. UNBEATABLE COST SAVINGS.

ND Industries & Vibra-Tite are the official sponsors of L&L Racing Engines.

Vibra-Tite offers a wide range of materials to cover all your manufacturing needs, including:

- Threadlockers
- Thread Sealants
- Retaining Compounds
- Liquid Gasket Makers
- Anti-Seize Lubricants
- RTV Silicones
- Super Glues
- Epoxies
- Urethanes
- Light Cures
- Hot Melts
- MMAs
- And More

SAVE OVER 40% OFF COMPARABLE NAME BRANDS.

- Over 55 years of adhesive formulating experience.
- American company headquarted in Troy, MI.
- Capability to manufacture a wide range of chemistries including custom formulas for unique applications.
- Materials supplied in bulk or bottled.

ND® INDUSTRIES

ISO

REACH COMPLIANT

NSF

ACCREDITED

www.vibra-tite.com
Phone: 800-521-2663 or 386-860-4522
Vibra-Tite is a Division of ND Industries, Inc.

Contents

Product Feature Chart

FEATURE / PRODUCT	HQ SELF-LOCKING INSERTS	ND PATCH	ND PATCH HI-TEMP	ND PELL-IT	ND PELL-IT SOFT TOUCH TIP	ND STRIP	VIBRA-TITE VC-3	EPOXY LOCK	EXPAND-A-LOCK	ND MICROSPHERES ACRYLIC	ND MICROSPHERES EPOXY	ND MICROSPHERES TA	ANTI-SEIZE	EZ-DRIVE	ND LM-1293	SPECIALITY COATINGS	BISEAL 0630	ND CRUSHABLE MASTICS	ND EXPANDABLE MASTICS	ND PLASTISOL	ND PLASTISOL OPEN MOLD	SEALTEK	ST-3	THERMOSEAL 400	ND COLOR CODE	STAY-PUT
Adjustable	■	■	■	■	■	■	■						■	■	■	■	■			■	■	■	■			
Bonding								■	■	■	■	■												■		
Chemical Resistant	■	■	■	■	■	■		■	■	■	■	■	■		■							■	■	■		
Galvanic Corrosion Resistant																■										
High Temperature			■										■											■		
Low Outgassing	■	■	■	■	■	■	■																			
Lubricating										◣		◣	■	■	■	■							■			
Masking															■											
No Cure Required	■	■	■	■	■	■	■						■	■	■	■	■	◣		■	■	■	■		■	■
Non-Toxic	■	■	■	■	■	■														■	■					■
Reduces Noise and Vibration	■	■	■	■	■	■	■	■	■	■	■	■						■	■					■		
Reusable	■	■	■	■	■	■	■								■	■				■	■	■	■		■	■
Sealing							■	■	■	■	■	■					■	■	■	■	■	■	■	■		
Reduces Seizing & Galling							■						■		■	■							■			
Temporary Retention																										■
Inert Chemistry	■	■	■	■	■	■	■						■	■	■	■	■	■	■	■	■	■	■		■	■
Reactive Chemistry								■	■	■	■	■						◣	■					■		
Torque Tension Control										◣		◣	■	■	■	■							■			
Indefinite Shelf-Life	■	■	■	■	■	■	■										■	■	■	■	■	■	■		■	
User-Applied							■						■										■			
Vibration Resistance	■	■	■	■	■	■	■	■	■	■	■	■						■	■	■	■	■	■	■		
Weld Spatter Masking															■											

■ = Product exhibits this feature ◣ = Particular formulations of the product exhibit this feature

Innovative Pre-Applied Adhesives & Sealants for Fasteners & Assemblies

The following products are just a sample of what ND Industries has to offer:

THREADLOCKING

ND PATCH
Nylon powder fused to fastener threads for locking, sealing, and adjusting.

ND PATCH HI-TEMP
High temp nylon powder fused to fastener threads for locking, sealing, and adjusting.

EXPAND-A-LOCK
Unique microcap adhesive that expands on installation filling gaps & voids in threads.

VIBRA-TITE VC-3
Synthetic resin that absorbs vibration and is adjustable, removable and reusable.

ND PELL-IT
Nylon plug, inserted in fastener threads for locking, sealing, and adjusting.

ND STRIP
Nylon bar inserted into fastener threads for locking, sealing, and adjusting.

EPOXY-LOCK
Epoxy resin and hardener which combine on installation to lock and seal fasteners.

ND MICROSPHERES
Micro-encapsulated adhesive applied to fastener threads, for locking and sealing.

THERMOLOC
Highest temperature chemical threadlocker available. Cures to withstand up to 1500°F

SEALING TECHNOLGIES

ST-3
Thread sealant for straight or tapered threads with excellent chemical resistance.

ND PLASTISOL
Underhead seal that fills in threads and retains integrity, even when nicked or cut.

SEALTEK
Resiliant, soft and flexible gasket with excellent automotive chemical resistance.

THERMOSEAL
Reactive medium strength high temperature sealant for high pressure applications.

BI-SEAL 0630
Wax based material which seals sheet metal holes on installation of the coated fastener.

MASTICS & EXPANDABLES
Materials to prevent metal-to-metal contact, vibration, & noise-related problems.

LUBRICATING AND MASKING

ANTI-SEIZE 917N & 957
Pre-applied lubricant to prevent galling of metals at high temperatures.

ND LM-1293
Torque tension control lubricant that prevents undesirable substances from adhering.

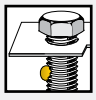
SPECIALTY COATINGS
Range of materials designed for lubrication, corrosion resistance, temperature protection, torque tension modification and more.

EZ-DRIVE
Synthetic resin designed to reduce installation torques on threadforming fasteners.

THREAD ARMOR VC
Advanced anti-galling and lubricating thread coating designed primarily for stainless steel.

ASSEMBLY AIDS

ND PELL-IT SOFT TOUCH TIP
Nylon or Brass tip on fastener for secure "grip" without damaging mating parts.



ND STAY-PUT
Temporary fastener retention device, useful for modular assemblies.

ND COLOR CODE
Paint, dye or ink that is applied to a fastener to aid in assembly & inspection.

ND® INDUSTRIES

Corporate Offices
1000 North Crooks Road
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

CERTIFICATIONS & ACCREDITATIONS
AS9100:2009, Rev. C • QPL-18240F • QSLM
ITAR • ISO-9001:2015 • ISO/IEC 17025:2005
CE Directive 2006/42/EC • ISO-14121
ISO-12110-1/12110-2 • IEC-EN 60204-1

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND PATCH®

ND Patch is a pre-applied process which fuses a nylon threadlocking coating to internal or external threads of fasteners making them self-locking and self-sealing (also known as prevailing torque generating type fasteners). ND Patch fasteners are dry to the touch, ready for immediate use and unlike reactive thread lockers, require no cure time after installation.

PRE-APPLIED PROCESS INFORMATION

How It Works

During the ND Patch pre-applied process, fasteners are heated and sprayed with a custom nylon powder which adheres to the threads. When assembled with a mating part, the engineered plastic nylon patch is compressed. Due to the elastic memory it resists this compression and acts like a wedge, increasing the metal to metal contact 180° opposite the material. This mechanical force creates a strong, yet fully adjustable lock which will not weaken, even under extreme vibration.

Reusable

ND Patch pre-applied fasteners can be repeatedly installed and removed without damage to threads. ND Patch fasteners are particularly resistant to deformation, which makes it ideal for reuse.

Retains Full Strength

The ND Patch process involves no drilling or milling, so there is no loss of fastener strength or hardness and no troublesome burrs or chips.

Resists Chemicals

The nylon applied in ND Patch processing will not dry, shrink, or lose resiliency when exposed to commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, etc.

Improved Sealing

Nylon is typically applied 90° which helps prevent gas and fluid leakage along the thread helix. However sealing functionality can be increased by completely coating the fastener 360°.

Resists Heat & Cold

Meets and exceeds IFI Specifications 124 & 524 as well as Military specification MIL-DTL-18240F, Type P, for temperatures from -70°F (-56°C) to +250°F (121°C).

Proven Performance

ND Patch is one of the oldest and most popular pre-applied threadlocking processes on the market. When female fasteners are coated, they function as an excellent alternative to nylon insert lock nuts.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND PATCH®

ND PATCH APPLICATIONS

Steering Columns, Engine Applications, Brakes, Rear-End, Transmissions, Areas of Vibration, Areas of Heat, Military Fasteners, Snowboard / Ski binding mounting screws.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: PF-4730, PF-5077, PF-5144, PF-5461, PF-5683, PF-6157, PF-6158
- Ford: ES-21002-S100, ES-21002-S100, ES-382101-S100, ES-N800688-S100, WA 970
- General Motors: GM 6189P
- Industrial: DIN 267 Part 28, IFI 100/107, IFI 124, IFI 155, IFI 524, IFI 555

PROCESSING NOTES

- Nylon material normally positioned one to three threads back from the end of the fastener to assure ease of starting.
- The normal coating length of the nylon patch is four to six threads. Special location and coating length can be specified for specific applications.
- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year.
- All fasteners should be from the same lot to insure consistent induction heating during the application process.

PRE-APPLIED BENEFITS

Saves Time: Pre-Applied ND Patch fasteners can be automatically fed through standard feeding devices and require no cure time after installation.

Saves Money: Eliminates the need for costly lock washers, cotter pins, or castellated nuts. Moreover, ND Patch processing is less expensive than applying bottled threadlockers at the point of assembly.

Quality Control: Pre-Applied parts are coated to specification, insuring consistent performance unlike bottled products. ND Patch application area and torque can be customized to meet specific needs.

Operator Friendly: ND Patch reduces fatigue by greatly reduces the need for re-tightening. Is also non-toxic and safe to handle.

Easy to use: Works on a wide range of material finishes.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

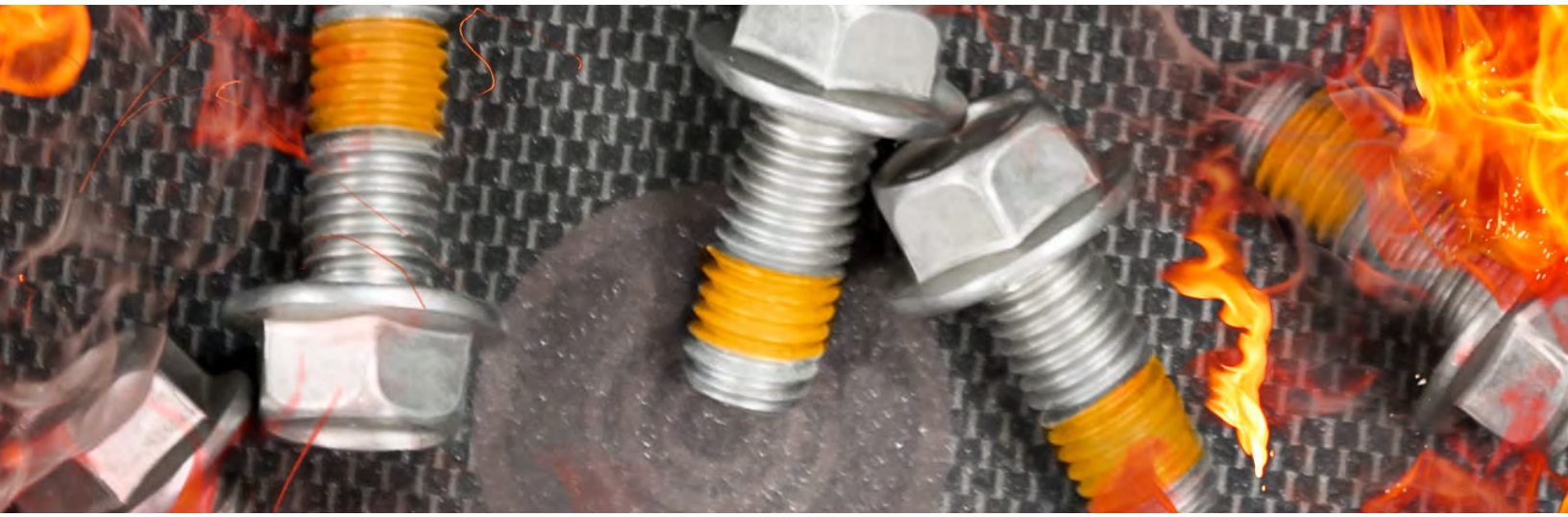
Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND PATCH® HI-TEMP

ND Patch® Hi-Temp is a pre-applied process which fuses a custom high temperature nylon threadlocking coating to internal or external threads of fasteners making them self-locking and self-sealing. ND Patch Hi-Temp fasteners are dry to the touch and ready for immediate use and unlike reactive thread lockers, require no cure time after installation.



PRE-APPLIED PROCESS INFORMATION

How It Works

During the ND Patch Hi-Temp pre-applied process, fasteners are heated and sprayed with a custom nylon powder which adheres to the threads. During the heating process, the melted nylon formula crosslinks, causing it to strengthen. Once cooled, the material can then withstand higher temperatures then those at which it was melted.

When assembled with a mating part, the nylon patch is compressed. This compression creates a dam-like action on the opposite side of the coated fastener creating very strong metal-to-metal contact.

Hi-Temp Resistance

Applied fasteners maintains their torque performance through temperatures as low as -70°F (-56°C) and as high as +500°F (+260°C). ND Patch Hi-Temp is the highest temp nylon available.

Retains Full Strength

ND Patch Hi-Temp processing involves no drilling or milling, so there is no loss of the fastener's strength or hardness and no troublesome burrs or chips.

Low-Temp Application

Unlike many other high temp nylon threadlockers, the ND Patch Hi-Temp process requires fasteners only be heated to 250°F during application. This reduces damage to the fastener and its finish.

Chemical Resistant

The nylon used in ND Patch Hi-Temp will not dry, shrink, or otherwise be effected when exposed to commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, etc.

Reuseable

ND Patch Hi-Temp pre-applied fasteners can be re-used repeatedly without damage to the threads. ND Patch Hi-Temp is particularly resistant to deformation, which makes it ideal for reuse.

Improved Sealing

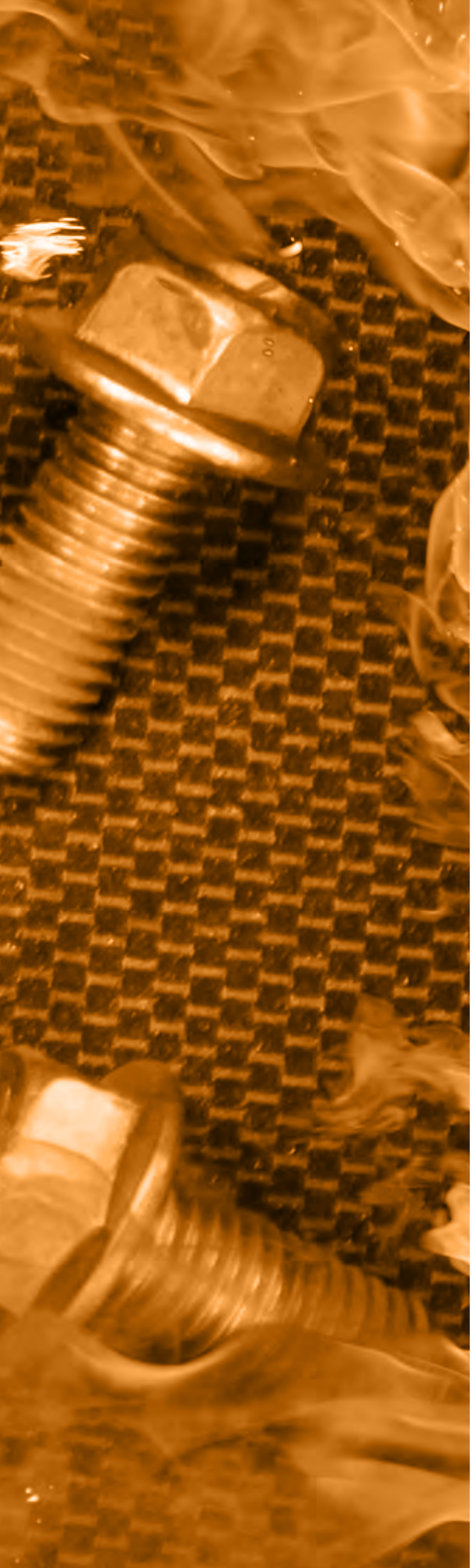
Nylon is typically applied 90° which helps prevent gas and fluid leakage along the thread helix. However sealing functionality can be increased by completely coating the fastener 360°.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

CERTIFICATIONS & ACCREDITATIONS
AS9100:2009, Rev. C • QPL-18240F • QSLM
ITAR • ISO-9001:2008 • ISO/IEC 17025:2005
CE Directive 2006/42/EC • ISO-14121
ISO-12110-1/12110-2 • IEC-EN 60204-1



PRE-APPLIED

ND PATCH® HI-TEMP

ND PATCH HI-TEMP APPLICATIONS

Engine Applications, Brakes, Rear-End, Transmissions, Areas of Vibration, Areas of Heat. Meets low outgassing NASA Spec ASTM E595.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:
Chrysler: PF-5144, PF-5461, PF-6157, PF-6158
Ford: ES-382101-S100, ES-378813-S100, ES-N800688-S100, WA970, ES-21002-S100
General Motors: GM 6189P

PROCESSING NOTES

- Nylon is normally positioned one to three threads back from the end of the fastener to assure ease of starting.
- The normal coating length of the Patch is four to six threads. Special Patch location and coating length can be specified for specific applications.
- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year.
- All fasteners should be from the same lot to insure consistent induction heating during the application process.

PROCESS BENEFITS

Saves Time: Pre-Applied ND Patch Hi-Temp fasteners can be automatically fed through standard feeding devices and require no cure time after installation.

Saves Money: Eliminates the need for costly lock washers, cotter pins, or castellated nuts. Moreover, ND Patch Hi-Temp is less expensive than applying bottled threadlockers at the point of assembly.

Quality Control: Pre-Applied parts are coated to specification, insuring consistent performance unlike bottled products. ND Patch application area and torque can be customized to meet specific needs.

In-Line Inspection: During the ND Patch Hi-Temp process, camera systems are used to verify parts are coated exactly to customer's specifications. This often removes a secondary sorting operation at the end customer.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND PELL-IT®

ND Pell-it is a pre-applied process which makes either male or female threaded fasteners of virtually any size, material or finish, self-locking. ND Pell-it delivers outstanding performance in both high and low temperature extremes. Due to its compressibility, resilience and resistance to deformation, fasteners utilizing ND Pell-it processing can be repeatedly removed and adjusted.

PRE-APPLIED PROCESS INFORMATION

How It Works

Customer fasteners are first sent to ND for processing. Using custom equipment we drill a hole into the fastener threads, deburr any edges, then have the part sent out for replating if necessary. Next a tough plug or pellet typically made of nylon is inserted into the hole. Completed parts are shipped back to the customer.

When assembled with a mating part the resilient pellet is compressed. This compression exerts a force 180° opposite, increasing metal to metal contact and holding the fastener in place without adhesives or thread distortion. The engineered plastic pellet provides locking action in the thread instead of at the bearing surface.

Dependable Positive Lock

Resistant to vibration or reversal of stress. As long as the nylon pellet has been engaged, processed fasteners lock whether seated or unseated.

Resists Heat & Cold

ND Pell-it processed fasteners meet or exceeds IFI Specifications 124, 524, and military Specification MIL-DTL-18240F Type N for temperatures up to +250°F (up to + 120°C).

Resists Chemicals

Nylon is virtually impervious to a wide range of chemicals, water, and motor fluids. Will not dry, shrink, or lose resiliency when exposed to commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, and many other chemicals.

Outstanding Reusability

Due to its resiliance, nylon pellet inserts can be adjusted and removed several times without substantially decreasing the fasteners locking ability.

Internally Threaded Parts

Any female part can be Pell-itized by the `twist` method of spinning the Pell-it into a tapped hole from the O.D. of the part. ND Pell-it processing is particularly suitable for bearing retainer nuts.

Press-Fit Applications

Press-Fit fasteners with pellet inserts provide a close fit without expensive close tolerances. Replaces the need for extra parts, special grooves, clips, or retaining rings.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND PELL-IT®

PRE-APPLIED BENEFITS

Saves Time: ND Pell-it processed fasteners can be automatically fed through standard feeding devices – speeding up your workflow and improving productivity.

Saves Money: ND Pell-it processing eliminates the need for costly lock washers, cotter pins, or castellated nuts. You get a close fit without expensive close tolerances.

Quality Control: Locking elements are installed with automated equipment, insuring consistent performance unlike bottled products.

Saves Effort: ND Pell-it processing greatly reduces the need for retightening.

Won't work Loose: Under most operating conditions, pellets are unaffected by vibration or reversal of stress. Locks whether your fasteners are seated or unseated, making it ideal for use with gasketed joints, plastic, or glass.

ND PELL-IT APPLICATIONS

Military fasteners, Aerospace fasteners

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- U.S. Military: MIL-DTL-18240F, MIL-F-18240E, MIL-N-25027
- Chrysler: PF-5144, PF-6157, PF-6158
- Ford: ES-382101-S100, ES-378813-S100

PROCESSING NOTES

- ND Pell-it processing is available with Neoflon™ and Vespel® materials for higher temperature applications.
- Pellets are normally positioned one to three threads back from the end of a fastener to assure ease of starting. Special positioning can be specified for specific applications. Pellet location and diameter can be tailored to fit your needs.
- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND PELL-IT® SOFT TOUCH TIP

ND Pell-it Soft Touch Tip is a pre-applied process in which a pellet typically made of nylon, is inserted into the tip of a set screw or bolt end. The pellet permits full-face, cushioned contact with a curved shaft while ensuring a secure hold. ND Pell-it Soft Touch Tip processed fasteners are highly reusable and when installed with alternate materials, can be utilized in high temperature applications.

PRE-APPLIED PROCESS INFORMATION

How It Works

When assembled with a mating part the resilient (typically nylon) pellet is compressed. The compressed engineered plastic pellet, acts like a spring, pushing back on the fastener and increasing friction within the threads which helps prevent it from loosening. Because the tip is compressible, it prevents marring and scratching of the contact surface.

Protects

ND Pell-it Soft Touch Tip processing prevents marring and scratching caused by metal-to-metal contact.

Insulates

In applications where an electrical current is present, nylon pellets act as a nonconductor, insulating metal-to-metal contact.

Resists Chemicals

Nylon is virtually impervious to a wide range of chemicals, water, and motor fluids. Will not dry, shrink, or lose resiliency when exposed to commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, and many other chemicals.

Resists Heat & Cold

ND Pell-it processing meets or exceeds IFI Specifications 124, 524, and military Specification MIL-DTL-18240F Type N for temperatures up to +250°F (up to + 120°C).

Versatile

ND Pell-it Soft Touch Tip processing can utilize a number of materials to match your unique application requirements.

Outstanding Reuseability

``Pell-itized`` fasteners can be reused repeatedly without damage to threads.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND PELL-IT® SOFT TOUCH TIP

PROCESS BENEFITS

Saves Time: "Pell-itized" fasteners can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Quality Control: Pre-Applied parts are built to specification, insuring consistent performance unlike bottled products.

Saves Effort: ND Pell-it Soft Touch Tip greatly reduces the need for retightening.

ND PELL-IT SOFT TOUCH TIP APPLICATIONS

Military Fasteners, Aerospace. ND Pell-It Soft Touch Tip is ideal for applications where it is necessary to make repeated adjustments to a gear or pulley on a shaft. This unique anti-marring fastening method will not raise burrs, thus circumventing break downs.

PROCESSING NOTES

- ND Pell-It Soft Touch Tip is also available in KEL-F® and Vespel® materials for higher temperature applications.
- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND STRIP®

ND Strip processing makes fasteners self-locking and self-sealing, but adjustable and removable. Normally a resilient bar of nylon inserted into a slot milled in fastener threads, ND Strip processing delivers outstanding performance in both high and low temperature extremes. Ideal for all types and sizes of commercial, automotive, and aerospace fasteners.

PRE-APPLIED PROCESS INFORMATION

How It Works

Customer fasteners are first sent to ND for processing. Using custom equipment we mill a slot into the fastener threads, deburr any edges, then have the part sent out for replating if necessary. Next a tough strip typically made of nylon is inserted into the slot. Completed parts are shipped back to the customer.

When assembled with a mating part the resilient nylon is compressed. This compression exerts a force 180° opposite, increasing metal to metal contact and holding the fastener in place without adhesives or thread distortion. The engineered plastic strip provides locking action in the thread instead of at the bearing surface.

Wide Adjustment Range

ND Strip processed fasteners have a wider range of adjustment and larger working area than most other locking elements due to the fact that the insert runs parallel to the length of the fastener.

Outstanding Reusability

Due to its resiliance, nylon strip inserts can be adjusted and removed several times without substantially decreasing the fasteners locking ability and without damage to threads.

Resists Heat & Cold

Nylon ND Strip meets and exceeds MIL-DTL-18240F, Type L for temperatures up to +250°F (+121°C). Using other materials, ND Strip can withstand temperatures as high as +1,200°F (+649°C).

Easy to Customize Torque

ND Strip processing can be customized to meet your specific requirements by adjusting the length and diameter of the installed material.

Resists Chemicals

Nylon is virtually impervious to a wide range of chemicals, water, and motor fluids. Will not dry, shrink, or lose resiliency when exposed to commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, and many other chemicals.

Substrate Independent

ND Strip processing is excellent for use on non-metallic fasteners where a chemical threadlocker could deteriorate the substrate.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND STRIP®

PROCESS BENEFITS

Saves Time: ND Strip fasteners can be fed through an automated feeding device to improve your productivity and save time.

Saves Money: ND Strip processing works with virtually any fastener (standard or special). ND Strip fasteners eliminate the need for costly lock-washers, cotter pins, or castellated nuts. Achieve close fits without the expense involved in attaining close tolerances.

Quality Control: Fastener processing is done to specification, insuring consistent performance unlike bottled products.

Saves Effort: ND Strip processed fasteners greatly reduce the need for retightening.

Won't work Loose: Under most operating conditions, nylon strips are unaffected by vibration or reversal of stress.

ND STRIP APPLICATIONS

Military fasteners, Aerospace

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- U.S. Military: MIL-DTL-18240F, MIL-F-18240E, MIL-N-25027
- Chrysler: PF-5144, PF-6157, PF-6158
- Ford: ES-382101-S100, ES-378813-S100

PROCESSING NOTES

- ND Strip processing is also available with KEL-F®, Vespel®, Copper, Stainless Steel, and PTFE materials for non-standard applications.
- Strips are normally positioned one to three threads back from the end of a fastener to assure ease of starting. Special positioning can be specified for specific applications. Strip location and diameter can be tailored to fit your needs.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

VIBRA-TITE® VC-3®

Pre-Applied Vibra-Tite VC-3 is a process in which fasteners are coated in bulk with VC-3 Threadlocker. VC-3 is a unique process which makes fasteners self-locking and sealing, but are still adjustable, removable, and reusable. A blend of cold flow acrylic polymers, VC-3 acts like a shock absorber, dampening vibration and preventing fastener assembly thread rotation.

PRE-APPLIED PROCESS INFORMATION

How It Works

Fasteners sent to ND Industries, undergo the Pre-Applied Vibra-Tite VC-3 process in which VC-3 is flow coated onto internal or external fastener threads made of virtually any material or finish. Unlike many other pre-applied threadlockers, VC-3 processing does not require heat which reduces the chance of degradation of the fastener or its finish. Parts arrive to the customer dry to the touch and ready for installation.

Versatile

Processing is compatible with both ferrous and non-ferrous metals, most platings, wood, and nylon, PPE, or PP plastics. There are no limitiations on fasteners size or configuration.

Reusable

Using steady pressure and standard hand tools, Vibra-tite VC-3 parts can easily be adjusted, removed, and reused.

Excellent Shelf Life

When in a cool and dry environment, Vibra-tite VC-3 processed parts can be stored indefinitely before use.

Minimizes Galling & Stripping

Since Vibra-tite VC-3 remains a thick, resilient, cold flow resin, its properties actually minimize galling or stripping of soft threads during reuse.

Reliable, Powerful, Lock & Seal

With exceptional reliability, VC-3 holds parts in place even during extreme vibration and resists leakage by acting as a dam between mated threads.

Resists Chemicals

Resistant to most solvents (acts as a partial corrosion barrier) with total resistance to water and salt water.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

VIBRA-TITE VC-3®

PROCESS BENEFITS

Low Temp Application: Compared to many other Pre-Applied threadlockers, VC-3 does not require high heat for the application process which reduces damage to the fastener and finish.

Saves Time: Vibra-Tite VC-3 processed fasteners can be automatically fed through standard feeding devices.

Saves Money: Eliminates the need for costly lock washers, cotter pins, or castellated nuts. Moreover, VC-3 processing is less expensive than applying bottled threadlockers at the point of assembly.

Quality Control: Pre-Applied Vibra-Tite VC-3 parts are coated to specification, insuring consistent performance unlike bottled products.

Reduces Fatigue: By using Vibra-Tite VC-3 processing, the need for retightening is greatly reduced.

PROCESS APPLICATIONS

From tiny eyeglass screws to huge construction bolts, Vibra-tite VC-3 processing is ideal for use on fasteners of any size. VC-3 can serve as an alternative to ND Patch when low installation torques are required along with the need for adjustability and reusability.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:
U.S. Army Missile Command: MIS-28867A, P5407-1
U.S. Airforce: 19207
U.S. Army Tank Automotive Command (General Dynamics):11663357
Naval Sea Command: 5174855

OTHER NOTES

- Processed parts are dry to the touch and ready for immediate use with no cure time.
- Vibra-Tite VC-3 processing does not require any lead threads.
- Vibra-Tite VC-3 can also be purchased for manual application (bottled product) from Vibra-Tite.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

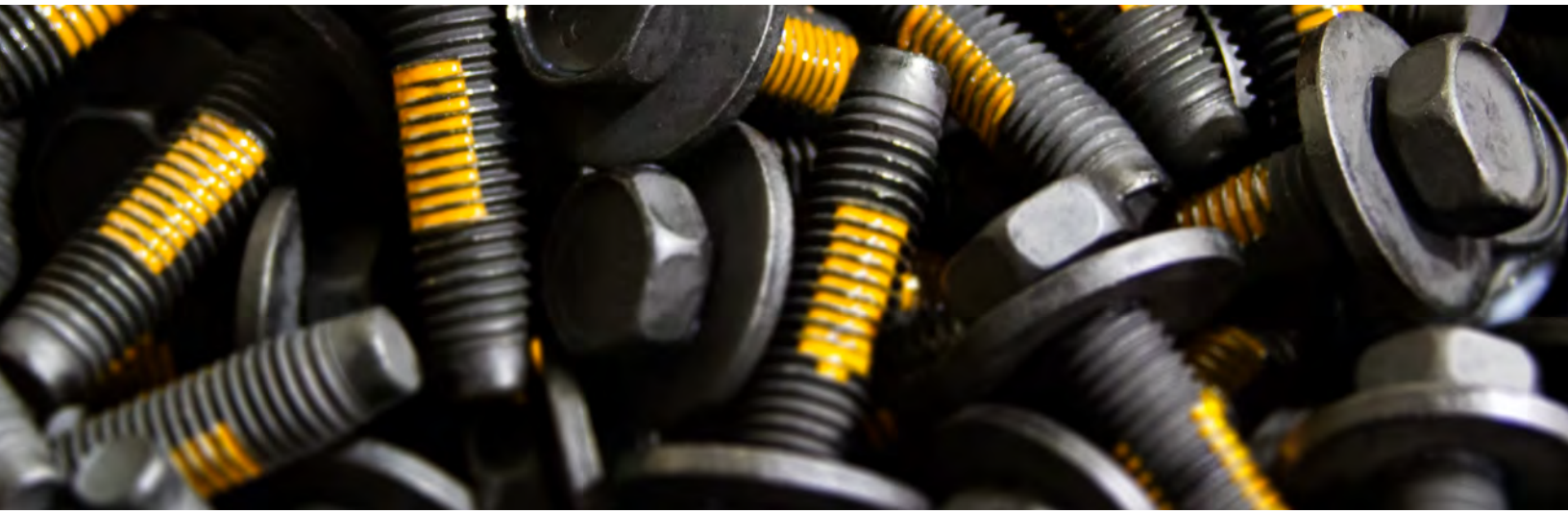
ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

EPOXY-LOCK®

Epoxy-Lock is a process in which a two part epoxy system is applied to male or female threaded fasteners of all sizes and configurations; creating powerful self-locking & self-sealing fasteners. Epoxy-Lock processing is compatible with a very wide range of material types and finishes including wood, ceramic, many plastics and more.



PRE-APPLIED PROCESS INFORMATION

How It Works

Fastener threads are coated with two separated strips of epoxy resin and hardener beneath a protective skin that allows the fastener to stay dry to the touch. The materials remain inert until assembled to a mating part. At which time, the forces of engagement will crush the surface skin, mix the two epoxy components and initiate a chemical reaction; locking the parts together.

After assembly, the epoxy forms a bond between surfaces which can only be broken with a wrench. After 12 hours, it outperforms most nylon locking elements in first-off torque. After 24 hours, the epoxy has achieved up to 80% of its ultimate cure. Curing continues for up to 72 hours.

Exceptional Locking

Extensive testing indicates that Epoxy-Lock processed fasteners provide two to four times greater breakaway torque than conventional plastic fastener locking devices.

Resists Chemicals

Oil, gasoline, salt spray, acids, solvents, water, and air have virtually no effect on the epoxy used in Epoxy-Lock processing after a final cure has been achieved.

Versatile

The Epoxy-Lock process is compatible with a very wide range of materials including plastics, ceramic, wood and most metal finishes.

No Lead Threads

Because the epoxies used in Epoxy-Lock are soft and pliable, they will not cause or contribute to cross threading.

Long Shelf Life

Processed fasteners have an on part life of 2 years and will remain inert until a cure is activated by engagement with a mating thread.

Surpasses IFI Standards

Epoxy-Lock processed fasteners meet or exceeds all torque requirements of IFI 125, IFI 525, as well as automotive adhesive coated fastener performance specifications.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

EPOXY-LOCK®

PRE-APPLIED BENEFITS

Saves Time: Epoxy-Lock processed fasteners can be automatically fed through standard feeding devices – speeding up your workflow and improving productivity.

Saves Money: Epoxy-Lock processing is less expensive than applying bottled thread locking compounds at the point of assembly. Eliminates the need for costly lockwashers, cotter pins or castellated nuts.

Quality Control: Pre-Applied parts are coated to specification, insuring consistent performance unlike bottled products.

Saves Effort: Epoxy-Lock greatly reduces the need for retightening.

Won't work Loose: Under most operating conditions, Epoxy-Lock processed fasteners are unaffected by vibration or reversal of stress.

EPOXY-LOCK APPLICATIONS

Engine Applications, Automotive Locking Applications, Automotive Body/Frame Bolts, Suspension Areas, Brakes, Rear-End, Transmissions. Ring gear bolts, Head bolts, Intake manifold bolts, Transmission bolts.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:
Chrysler: PF-6616, MS-CC-76
Ford: ESS-M11P24-A1, ESS-M11P24-A2
General Motors: GM6175M, GM6194M

PROCESSING NOTES

- Under typical conditions, the epoxy used in Epoxy-Lock processing has a fixture time of 4 hours with a full cure in 72 hours.
- Typical coating length is 1.5 times thread diameter.
- It is recommended that Epoxy-Lock processed fasteners are not reused.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

EXPAND-A-LOCK®

Expand-A-Lock is a process in which fasteners are pre-applied with a unique microencapsulated expanding threadlocking and sealing compound. Once installed into a mating part the microspheres burst, mixing the reactive adhesive components initiating a curing reaction while increasing in volume 20 to 50%. This expansion penetrates the gaps in fastener threads typically unfilled by conventional threadlockers.

PRE-APPLIED PROCESS INFORMATION

How It Works

Expand-A-Lock processing involves the application of proprietary microencapsulated epoxy resins and expanding compounds suspended in a hardener. The forces of engagement crush the microscopic capsules of epoxy resin and expansion agent, mixing the separate components, and initiating a chemical reaction. As the activation is taking place, the material expands, filling the fastener thread gaps while hardening.

Problem Solver

Many threadlockers fail when used in less than optimal conditions, such as misfit parts or threadformed screws. Due to its expansion properties, Expand-A-Lock processed parts can overcome these limitations.

Surface Insensitive

Expand-A-Lock processing is compatible with most fastener sizes, configurations, materials and finishes. The use of an epoxy formulation insures that a strong reliable lock and seal are formed.

Resists Chemicals

A cross-linked molecular structure makes it one of the most resistant types of adhesives. Oil, gasoline, salt spray, acids, solvents, and water have virtually no effect on parts when introduced after final cure.

Strongest Lock Available

Expand-A-Lock has been shown to provide some of the highest break away torques of all our reactive threadlocking materials.

Low Prevailing on Torque

Compared to patch threadlockers, Expand-A-Lock has minimal on-torque and assembles easily with common hand tools.

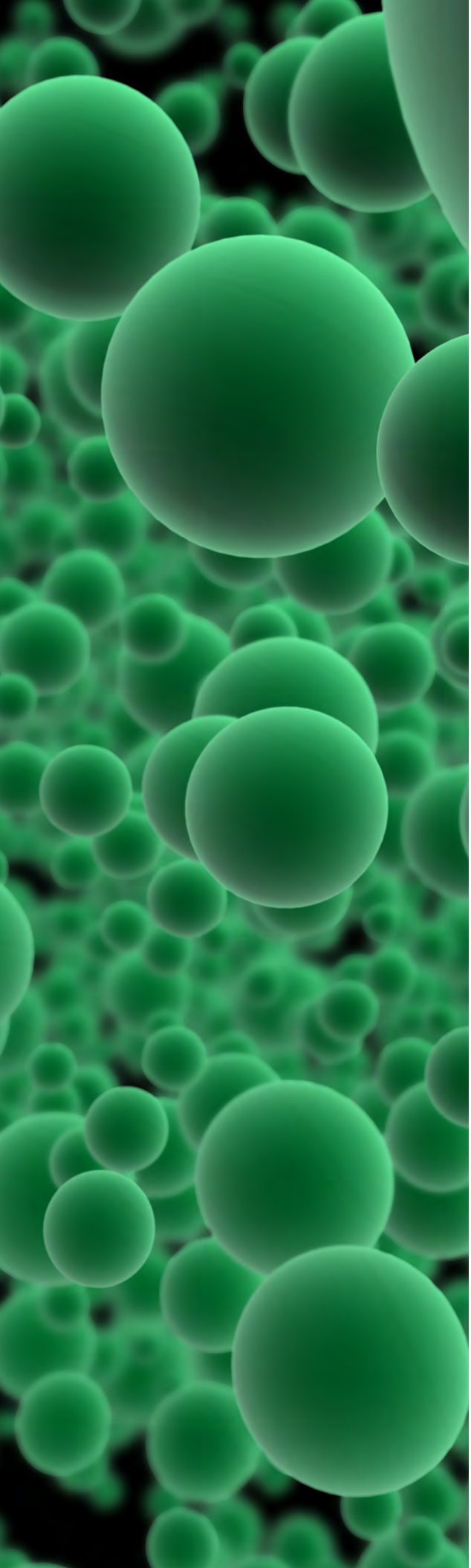
Surpasses IFI Standards

Expand-A-Lock meets or exceeds all torque requirements of IFI 125, IFI 525, as well as automotive adhesive coated fastener performance specifications.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com



PRE-APPLIED

EXPAND-A-LOCK®

PRE-APPLIED SERVICE

1. Once your fasteners arrive we will assess your parts to determine whether they are in adequate condition for the coating process. If not, secondary operations such as part washing may be necessary.
2. Parts then undergo the Expand-A-Lock process which involves application of proprietary microencapsulated epoxy resins and expanding compounds suspended in a hardener.
3. Once the material is dry to the touch, parts exit the application system and may require another operation such as part oiling. Complete fasteners are then prepped for shipment back to the customer.

SERVICE BENEFITS

Saves Time: Expand-A-Lock processed fasteners can be automatically fed through standard feeding devices – speeding up your workflow and improving productivity.

Saves Money: Expand-A-Lock processing of fasteners is less expensive than hand applying bottled thread locking compounds at the point of assembly. It also eliminates the need for costly lock washers, cotter pins or castellated nuts.

Quality Control: Expand-A-Lock pre-applied fasteners are coated to specification, insuring consistent performance, unlike the variation from hand applying bottled products.

Reliability: Under most operating conditions, once installed and cured, Expand-A-Lock processed fasteners are unaffected by vibration or reversal of stress and greatly reduce the need to re-tighten fasteners.

TYPICAL APPLICATIONS

Choose Expand-A-Lock when you need to seal critical applications where shock, vibration and fluid pressure would cause a fastener to loosen or a joint to leak. Typical applications include: Marine Ride Plates, Head Bolts, Engine Plugs and bolts, Pipe Fittings, Air fitting connectors.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- General Motors: GM9986339
- IFI: 125, 525
- DIN: 267 Part 27

OTHER NOTES

- Expand-A-Lock under typical conditions will fixture in 15 minutes and fully cure in 24 hours.
- Material is normally applied one to three threads back from the end of a fastener to assure ease of starting.

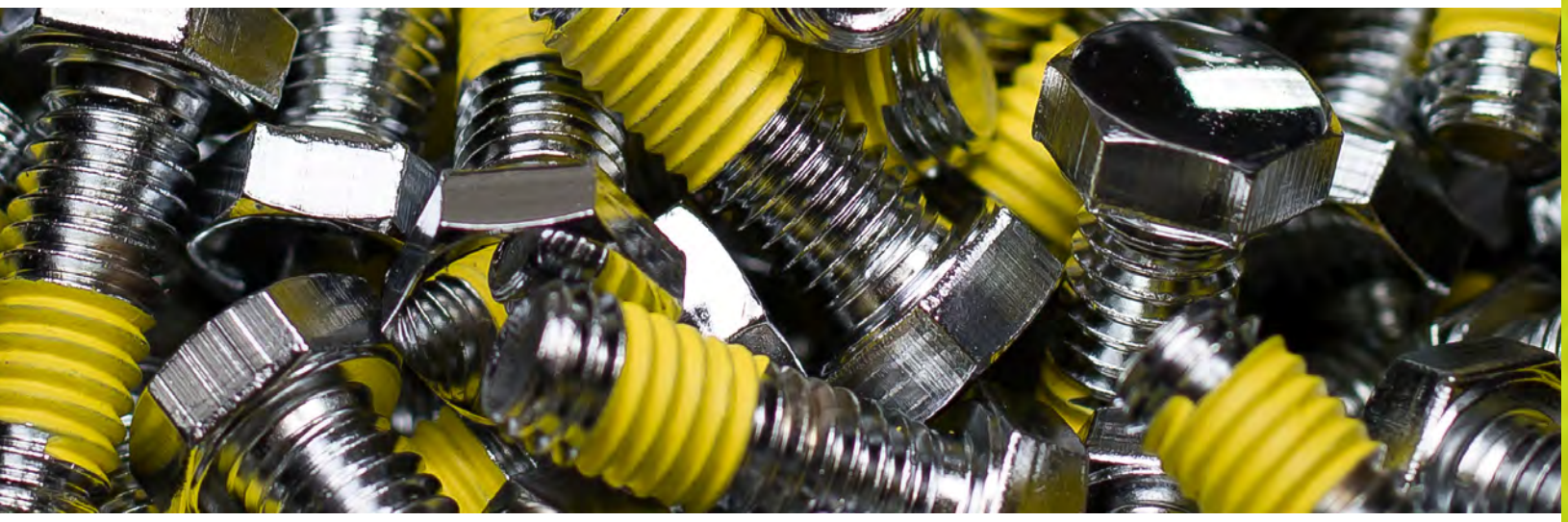
ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND MICROSPHERES® ACRYLIC

ND Microspheres Acrylic is a process in which microencapsulated, room temperature curing acrylic threadlocking adhesives are applied to male or female threaded fasteners of virtually all sizes, materials and finishes. Acrylic threadlockers offer consistent and predictable torque values and require no heat or primers for curing.



PRE-APPLIED PROCESS INFORMATION

How It Works

After choosing ND Microspheres Acrylic processing, have your parts sent to one of ND's service centers.

ND will then apply a microencapsulated activator suspended in a quick curing waterborne resin. This material dries on the part and is then shipped back to the customer for use.

When installed, the shearing forces caused by engagement with a mating part release the activator and allow it to mix with the resin. The resulting chemical reaction rapidly bonds the surfaces, locking the parts together and sealing leak paths.

Resists Chemicals

Processed parts resist and seal against most automotive fluids. Oil, water, antifreeze, and gasoline have virtually no effect on performance once the final cure has been achieved.

Versatile

ND Microspheres Acrylic processing can be specified in a variety of colors for easy part inspection and in different strengths to fit the desired application.

High Temp and Torque Sensitive

ND applies material formulations which are specifically intended for use in high temperature or torque/tension sensitive applications.

Fast Fixture Times

After installation parts typically fixture in under 5 minutes. However to reach full strength it is recommended to allow a full cure of 72 hours.

Color Identification

ND Microspheres Acrylic processing is available with a variety of colors for easy part inspection and in different strengths to fit the desired application.

Surpasses IFI Standards

ND Microspheres Acrylic procesed parts meet or exceed all torque requirements of IFI 125, IFI 525, as well as automotive adhesive coated fastener performance specifications.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND MICROSPHERES® ACRYLIC

PROCESS BENEFITS

Saves Time: Processed fasteners can be automatically fed through standard feeding devices – speeding up your workflow and improving productivity.

Saves Money: ND Microspheres Acrylic processing is less expensive than hand applying bottled thread locking compounds at the point of assembly. It also eliminates the need for costly lock washers, cotter pins or castellated nuts.

Quality Control: Pre-Applied ND Microspheres fasteners are coated to specification, ensuring consistent performance, unlike the variation from hand applying bottled products.

Reliability: Under most operating conditions, processed parts are unaffected by vibration or reversal of stress and greatly reduces the need to re-tighten fasteners.

ND MICROSPHERES ACRYLIC APPLICATIONS

Engine Applications, Automotive Locking Applications, Automotive Body/Frame Bolts, Suspension Areas, Brakes, Rear-End, Transmissions.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: PF-6616, MC-CC-76 A & C
- Ford: ES-377734-S100, ESE-M2G260-A1, ESE-M2G260-A2, ESE-M2G260-A3, ESE-M2G260-A4, ESS-M11P24-A1, ESS-M11P24-A2, WSK-M2G354-A1, WSK-M2G354-A2, WSK-M2G354-A3, WSK-M2G354-A4, WSK-M2G354-A5, WSS-M11P45-A1, WX-200
- General Motors: GM6124M, GM6175M, GM6194M, GMW14657A, GMW14657C

PROCESSING NOTES

- Materials used with ND Microspheres Acrylic processing have an on part life of 4 years. (When stored in a dry, cool environment.)
- Typically the first one to three threads from the end of the fasteners are left free of material to assure ease of starting.
- It is recommended that ND Microspheres Acrylic processed parts are not reused.
- Water based acrylic materials should be tested for compatibility on application specific organic zinc fasteners with lubricated top coatings. ND Microspheres Epoxy processing could be used as an alternative for any incompatibility.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND MICROSPHERES® EPOXY

ND Microspheres Epoxy is a pre-applied process in which microencapsulated, epoxy based, room temperature curing threadlocking adhesives are applied to male or female threaded fasteners of virtually all sizes, configurations, materials and finishes.

PRE-APPLIED PROCESS INFORMATION

How It Works

After choosing ND Microspheres Epoxy processing, have your parts sent to one of ND's service centers.

ND will then apply a microencapsulated epoxy resin suspended in a hardener to fasteners. After drying, parts are shipped back to the customer ready for use.

When installed, the forces of engagement crush the microscopic capsules of epoxy resin, mix the separate reactant components, and initiate a chemical reaction which locks the parts together.

Resists Chemicals

Processed parts resist and seal against most automotive fluids. Oil, water, antifreeze, and gasoline have virtually no effect on performance once the final cure has been achieved.

Versatile

ND Microspheres Epoxy processing is compatible with most fastener sizes, configurations, materials and finishes. Available in Blue, Yellow, Pink, Green, and Red.

Exceptional Locking

Extensive testing indicates that ND Microspheres Epoxy processed fasteners provide two to four times greater break-away torque than conventional "plastic" thread locking devices.

Low Prevailing-on Torque

Compared to patch threadlockers, ND Microspheres Epoxy fasteners have a lower on torque and assemble easily with common hand tools.

Long Shelf Life

Materials used for ND Microspheres Epoxy processing have an on part life of 2 years and will remain inert until a cure is activated by thread engagement.

Surpasses IFI Standards

ND Microspheres Epoxy processed parts meet or exceed all torque requirements of IFI 125, IFI 525, as well as automotive adhesive coated fastener performance specifications.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND MICROSPHERES® EPOXY

PROCESS BENEFITS

Saves Time: Processed fasteners can be automatically fed through standard feeding devices – speeding up your workflow and improving productivity.

Saves Money: ND Microspheres Epoxy processing is less expensive than hand applying bottled thread locking compounds at the point of assembly. It also eliminates the need for costly lock washers, cotter pins or castellated nuts.

Quality Control: Pre-Applied ND Microspheres fasteners are coated to specification, ensuring consistent performance, unlike the variation from hand applying bottled products.

Reliability: Under most operating conditions, processed parts are unaffected by vibration or reversal of stress and greatly reduces the need to re-tighten fasteners.

END USER APPLICATIONS

Engine Applications, Wheel Bearings, Automotive Locking Applications, Automotive Body/Frame Bolts, Suspension Areas, Brakes, Rear-End, Transmissions.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: PF-6616, MC-CC-76 A & C
- Ford: ESA-M2G200-A, ESB-M2G200-B, ESS-M11P24-A1, ESS-M11P24-A2, WSS-M11P45-A1, WX-200 (green color)
- General Motors: GM6175M, GME00151, GMW 14657B
- Hyundai / KIA: MS-721-39

PROCESSING NOTES

- Typical fixture time of 4 hours with a full cure in 72 hours.
- The first 1 to 3 threads on the fastener are typically left free of material to assure ease of starting.
- It is recommended that ND Microspheres Epoxy processed parts are not reused.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND MICROSPHERES® TA

ND Microspheres TA is a process in which dual microencapsulated, room temperature curing threadlockers are applied to male or female threaded fasteners of virtually all sizes, configurations, materials and finishes. Dual microencapsulation results in a threadlocker which is less susceptible to environmental conditions. Pre-applied ND Microspheres TA fasteners arrive dry to the touch and ready for assembly.

PRE-APPLIED PROCESS INFORMATION

How It Works

After choosing ND Microspheres TA processing, have your parts sent to one of ND's service centers.

ND will then apply a microencapsulated activator and resin suspension. This material dries on the part and is then shipped back to the customer for use.

When installed, the shearing forces caused by engagement with a mating part release the activator and resin, allowing them to mix. The resulting chemical reaction rapidly bonds the surfaces, locking the parts together and sealing leak paths.

Versatile

ND Microspheres TA processing is compatible with most fastener sizes, configurations, materials and finishes.

Specially Designed

ND Microspheres TA processing is available in three formulas to meet differing needs including; low strength, high strength, and high temperature with torque tension control.

Resists Chemicals

A cross-linked molecular structure makes TA Series materials some of the most resistant types of adhesives. Oil, gasoline, salt spray, acids, solvents, and water have virtually no effect on parts after final cure.

Low Prevailing-on Torque

ND Microspheres TA Series processed fasteners assemble easily with common hand tools.

Long Shelf Life

Parts processed with ND Microspheres TA have an on part life of 4 years* and will remain inert until a cure is activated by engagement with a mating thread.

Surpasses IFI Standards

ND Microspheres TA processed fasteners meet or exceed all torque requirements of IFI 125, IFI 525, as well as automotive adhesive coated fastener performance specifications.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND MICROSPHERES® TA

PROCESS BENEFITS

Saves Time: ND Microspheres TA processed fasteners can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Saves Money: ND Microspheres TA processing is less expensive than hand applying bottled thread locking compounds at the point of assembly. It also eliminates the need for costly lock washers, cotter pins or castellated nuts.

Quality Control: Pre-Applied ND Microspheres fasteners are coated to specification, ensuring consistent performance, unlike the variation from hand applying bottled products.

Reliability: Under most operating conditions, ND Microspheres TA are unaffected by vibration or reversal of stress and greatly reduces the need to re-tighten fasteners.

ND MICROSPHERES TA APPLICATIONS

Engine Applications, Wheel Bearings, Automotive Locking Applications, Automotive Body/Frame Bolts, Suspension Areas, Brakes, Rear-End, Transmissions.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards: Ford: ESS-M11P24-A2 • General Motors: GM6124M, GM6175M, GM6194M, GME00151, GMW14657A, GMW14657C

OTHER NOTES

- Under typical conditions, ND Microspheres TA will fixture after 4 minutes with a full cure in 24 hours.
- Typically the first one to three threads from the end of the fasteners are left free of material to assure ease of starting.
- It is recommended that ND Microspheres TA processed parts are not reused.
- Materials used with ND Microspheres TA processing have an on part life of 4 years. (When stored in a dry, cool environment.)

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND ANTI-SEIZE

ND Anti-Seize is a pre-applied process in which ND Industries applies custom dry film lubricants to fasteners and assemblies to prevent galling, seizing and corrosion. Pre-Applied bolts achieve a higher torque clamp load when compared to an un-coated bolt receiving the same torque.

PRE-APPLIED PROCESS INFORMATION

How It Works

Customer parts sent to ND Industries undergo our ND Anti-Seize pre-application process whereby dry film lubricants are coated onto fasteners and assemblies in bulk. Our custom formulated materials are dried, then the completed fasteners are packaged and returned to the customer.

Parts arrive ready for assembly or for storage until needed. ND Anti-Seize processed parts have a very long shelf life due to the inert nature of the materials used, however re-certification of parts should take place to confirm other external factors have not compromised performance.

- **Reduce Installation & Removal Torque**
- **Eliminates Galling and Seizing**
- **Provides Consistent Torque Values**
- **High Temperature Resistance**
- **Chemical and Corrosion Resistant**
- **Increases Sealing Ability**
- **2 to 5 Reuses**
- **Non-curing & Inert**
- **Allows for high speed installation**

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND ANTI-SEIZE

PROCESS BENEFITS

Saves Time: Pre-Applied ND Anti-Seize parts can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Saves Money: ND Anti-Seize processing is less expensive than applying bottled anti-seize at the point of assembly.

Quality Control: Pre-Applied parts are coated to specification, insuring consistent performance unlike bottled products.

Reduces Fatigue: ND Anti-Seize processing reduces installation and removal torques.

Increased Margins: Add value to your fasteners without adding to inventory by supplying customers with self-lubricated fasteners.

ND ANTI-SEIZE APPLICATIONS

Steering Columns, Engine Applications, Brakes, Rear-End, Transmissions, Areas of Vibration, Areas of Heat, Military Fasteners

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- General Motors: GM 6108M

TECH DATA

PRODUCT	COLOR	BASE	K-VALUE	TEMP RANGE
Anti-Seize 917N	Grey	Nickel	0.15	1200°F (650°C)
Anti-Seize 957	White or Black	Water-based non-toxic formula	0.23	2012°F (1100°C)

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

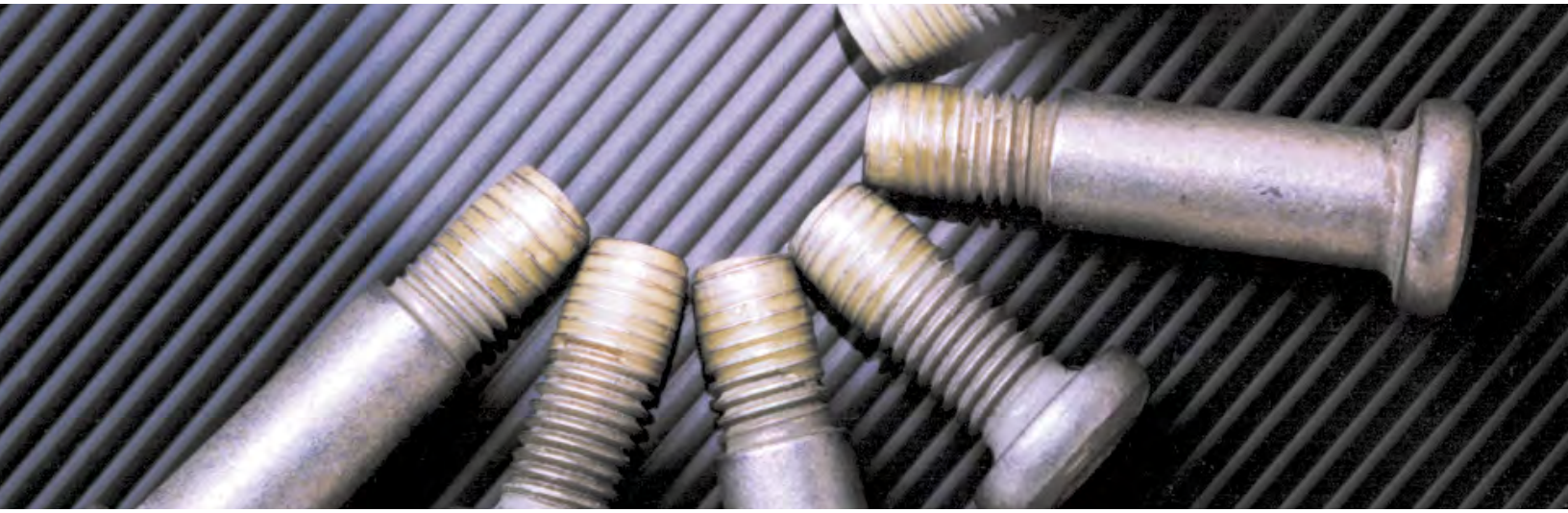
ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

EZ DRIVE®

EZ Drive (formerly ND WaxLube) is a pre-applied process whereby fasteners are coated with a synthetic, thermoplastic lubricant which increases installation efficiency by serving as an ergonomic assembly aid. It is used to reduce installation torques on thread-forming fasteners, reducing worker fatigue while increasing productivity. EZ Drive is less expensive and easier to use than competitive products.



PRE-APPLIED PROCESS INFORMATION

How It Works

After choosing EZ Drive processing, have your parts sent to one of ND's regional service centers.

ND will then apply the EZ Drive thermoplastic lubricant with our automated equipment, ensuring consistent quality. Once the materials have dried, fasteners are returned to their original container for shipment.

Upon arrival, parts are dry to the touch and are ready for immediate installation. EZ Drive is unaffected by exposure to other lubricants, dust and normal shipping conditions.

Controlled Torque

EZ Drive reduces friction by as much as 75% which creates more consistent drive torques and allows assemblers to position fasteners more easily and accurately.

Saves Time & Money

EZ Drive reduces the amount of time and effort required to install fasteners, therefor cutting down on associated labor costs. Clean and dry formulation eliminates the need to clean up lubricant messes.

Long Shelf Life

EZ Drive processed fasteners are stable and exhibit a virtually unlimited* shelf life when stored in a cool and dry location.

Threadforming Lubricant

Used on Trilobular®, Taptite®, Taptite II®, and Taptite 2000®, and captive point bolt / nut plane assemblies that create their own threads by distorting a threadless nut into the spaces around the bolt.

Multi-Process Compatible

Can be combined with other ND pre-applied processes to add self-locking and sealing features to fasteners.

Safe and Productive

EZ Drive materials are is non-toxic, nonhazardous, and does not out-gas during assembly. Lower drive torque leads to reduced operator fatigue and associated injuries.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

EZ DRIVE®

PROCESS BENEFITS

Saves Time: EZ Drive processed fasteners can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Saves Money: EZ Drive fastener pre-application is less expensive than hand applying bottled thread lubricants at the point of assembly.

Quality Control: Pre-Applied EZ Drive fasteners are coated to specification, insuring consistent performance, unlike the variation from hand applying bottled products.with pre-applied fasteners.

EZ DRIVE APPLICATIONS

Seat Belt, Seat Track to floor, Steering Column, Seat Assembly, Door Assembly, Dish Washer Appliances, Large Appliances, Off-Road Equipment, Farm Equipment, Construction Equipment.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: MS-9775
- Ford: WSS-M21P27-A4
- General Motors: 9986167

PROCESSING NOTES

- EZ Drive has an indefinite on part life. (When stored in a cool and dry location at temperatures between -10°C to 35°C)
- EZ Drive is a soft material and is typically applied without lead threads.
- EZ Drive 200 was formerly known as ND WaxLube.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

ND SPECIALTY COATINGS

Specialty Coatings are paints, lubricants, and custom, high-performance finishes that are used in a wide variety of applications, including assemblies such as hood springs, window rails, seat tracks, and any number of brackets, clips, dowel pins, and hinges.

PRE-APPLIED PROCESS INFORMATION

How It Works

ND's complete line of coating services which provide one or more of the following features:

- *Lubrication*
- *Temperature Protection*
- *Friction Reduction / Modification*
- *Corrosion Resistance*
- *Torque Tension Modification*
- *Clamp Load And Draw Up Modification*
- *Seize And Gall Prevention*
- *Clogging And Accumulation Prevention*
- *Aesthetic Enhancement And Identification*

Application Types

Specialty coatings can be applied via dip-and-spin, dip-drain, flood or spray processing.

Water-Based Capability

Most suppliers offer only solvent-based coatings, ND offers materials in both solvent and water-based mediums.

Formula Bases

Specialty coatings are available in a variety of formula bases, including epoxy, acrylic, urethane and others.

Environmentally Friendly

Water based formulations are available with lower Volatile Organic Compounds.

Lower Shipping Costs

A direct benefit from non-hazardous formulas.

Coating Adhesion

Specialty coatings will adhere to a variety of substrates.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

ND SPECIALTY COATINGS

PROCESS BENEFITS

Saves Time: Fasteners coated with ND Specialty Coatings can be automatically fed through standard feeding devices.

Preserves Fastener Strength: Application and product will not induce hydrogen embrittlement.

Quality Control: Pre-Applied parts are coated to specification, insuring consistent performance.

Increased Margins: Add value to your fasteners without adding to inventory by supply customers with pre-applied fasteners.

PROCESS APPLICATIONS

Torque Installation Reducing Aid, Surface Metal Protection, Springs, Clips, Washers, Dowel Pins.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: PS-7001
- Ford: ESE-M13P6-B1, ESE-M13P6-B2, ESF-M13P6-A, WSS-M21P28-A2, WSS-M21P33-A

PROCESSING NOTES

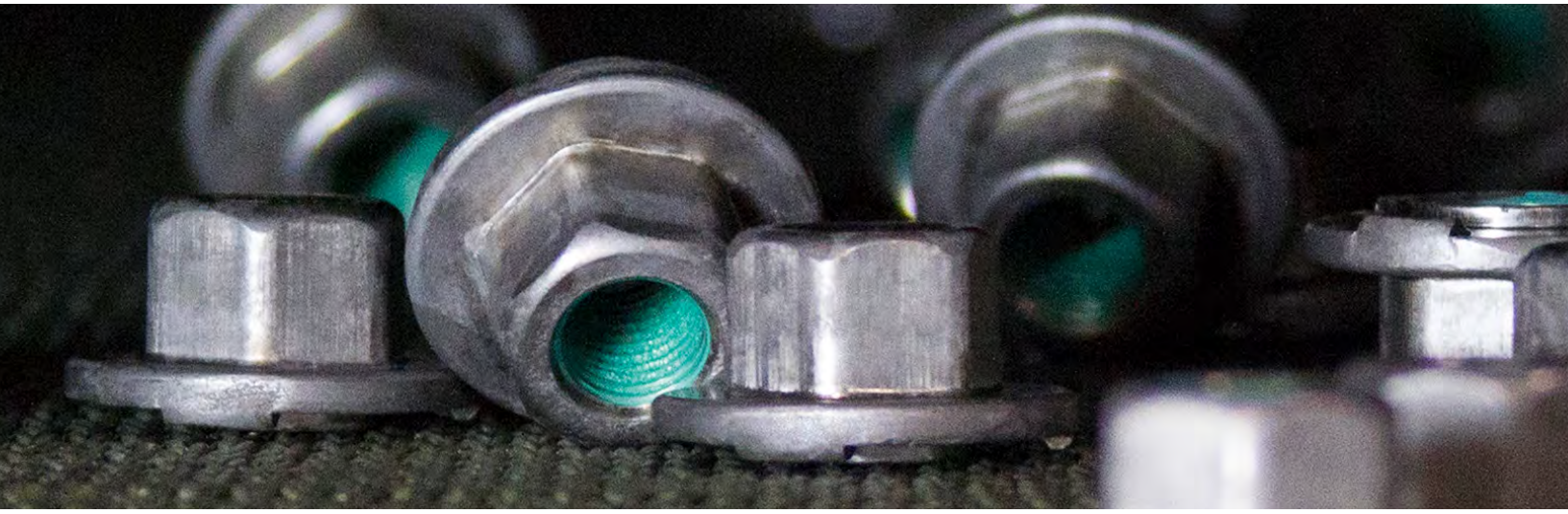
- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year.
- ND Specialty Coatings do not typically require lead threads.
- As with all our Pre-Applied products, ND Industries can apply ND Specialty Coatings to your fasteners at any one of our regional service centers, or we can supply you with completed pre-applied fasteners.

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND LM-1293®

ND LM-1293 is an automotive approved process in which fasteners are accurately coated with thread masking and lubricating materials. ND LM-1293 is compatible with male, female, ferrous, or non-ferrous threaded fasteners of virtually any finish. The use of PTFE materials along with ND's proprietary binder system makes ND LM-1293 ideal for many applications such as e-cote and weld spatter prevention.



PRE-APPLIED PROCESS INFORMATION

How It Works

After choosing ND LM-1293 processing, have your parts sent to one of ND's service centers.

ND will then apply the appropriate materials to your fasteners with our automated equipment which ensures consistent, quality results. Coated fasteners are then dried and repacked as needed.

Upon arrival, parts are ready for immediate installation and use.

Reliable Masking

ND LM-1293 prevents undesirable substances such as electro-deposited undercoatings, weld spatter and some other materials from adhering to fastener threads.

Low Heat Process

Unlike competitive processes which often subject parts to extremely high temperatures that may damage or discolor the fastener, ND's unique patented process employs minimal heat.

Minimal Pre-Cleaning

Unlike competitive processes that require parts be completely free of oil or other rust preventative coatings, only parts with excessive oil or surface contaminants may require pre-cleaning.

Increases Productivity

Increases efficency by lubricating fastener threads which reduces driving friction, heat buildup, and thread galling in long rundowns while helping to ensure uniform clamp loading.

Eliminates Capping & Plugging

ND LM-1293 eliminates the need to cap male and plug female threads.

Strong Resistance

ND LM-1293 processing creates a cross-linked coating which provides excellent solvent resistance, high temperature resistance, e-coat resistance, resistance to weld spatter, and improvement to torque-tension properties.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ND LM-1293®

PROCESS BENEFITS

Saves Time and Money: ND LM-1293 processed fasteners eliminate the need for re-tapping, plugging, capping, and slave bolts. This increases greatly reduces labor and material costs.

Quality Control: Pre-Applied ND LM-1293 fasteners are coated to specification, ensuring consistent performance.

Improved Torque: ND LM-1293 acts as a lubricant and reduces variation in torque tension while lowering installation torque.

Electrical Grounding: ND LM-1293 processing helps to guarantee a good electrical ground.

ND LM-1293 APPLICATIONS

Seat Belt Anchors, Weld Spatter Protection, E-Coat Protection, Automotive frame, Underbody.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:
Chrysler: PS-8542, PS-50015
Ford: WSS-M21P27-A3
General Motors: GM6076M, GMW 15822

PROCESSING NOTES

- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year. Typical coating length is 1.5 times thread diameter.
- To meet your specific application needs, ND LM-1293 processing employs a wide range of polymers, including fluorinated ethylene polymers.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

Advanced Fastening and Sealing Technologies

ND CRUSHABLE MASTICS

ND Crushable Mastic Sealer is an extruded product that is specially formulated for fastening and sealing operations that require holes and gaps to be filled and sealed. An extruded product, Crushable Mastic Sealer can be formed in a variety of shapes, sizes, and dimensions, and can be applied to your parts by ND Industries.

PRE-APPLIED PROCESS INFORMATION

How It Works

ND Crushable Mastic Sealer is most often used in one of two ways. The most common is that of seal, pre-assembled directly to a fastener. Crushable properties enable it to evenly fill and seal holes, gaps, and other voids in bolts, nuts, stampings, or virtually any other item. The second most common use is as a loose seal. ND forms the material to specifications and the end user or assembler places the seal on the gap, prior to torquing the fastener into place.

Versatile

Crushable Mastic Sealer can be extruded in a wide range of diameters, lengths, and durometers.

Heat Resistant

Unlike many other automotive sealers, Crushable Mastic Sealer can be exposed to temperatures of up to 400° F without losing its sealing qualities.

Complete Fill & Seal

Unlike plastic, rubber, and other "washer" materials which often fail to seal completely when torqued into place, Crushable Mastic Sealer is crushable and consistently provides reliable gap filling and sealing.

No Application Tooling

Crushable Mastic Sealer requires no special tools for application by the end user.

Long Shelf Life

Crushable Mastic Sealer is stable, with a long shelf life.

Does Not Stain

Crushable Mastic Sealer will not stain metal, fabric, or other surfaces.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

ND CRUSHABLE MASTICS

PROCESS BENEFITS

Saves Time: Crushable Mastic Sealer is easy to incorporate into high-volume production functions and can be applied with a minimum of time and effort.

Saves Money: Crushable Mastic Sealer costs less than silicone and provides high-quality gap filling and sealing, even in high temperature applications.

Easy to Use: Crushable Mastic Sealer requires minimal employee training for efficient use.

Meets Automotive Specs: Crushable Mastic Sealer meets specifications for the "Big Three" automakers.

PRODUCT APPLICATIONS

ND Crushable Mastic Sealer is generally used in applications where a considerable clearance has been designed into a part, thus leaving voids, gaps, and spaces which can be penetrated by gases, water, dust, and other substances. Automotive Floor Boards, Firewall, Sound Deadening, Interior applications, Automotive Gaskets, Automotive Washers, Drain Plugs.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: MS-CD69
- Ford: WSS-M4G87-B
- General Motors: GM1131M A, GM1131M B, GM9984193C

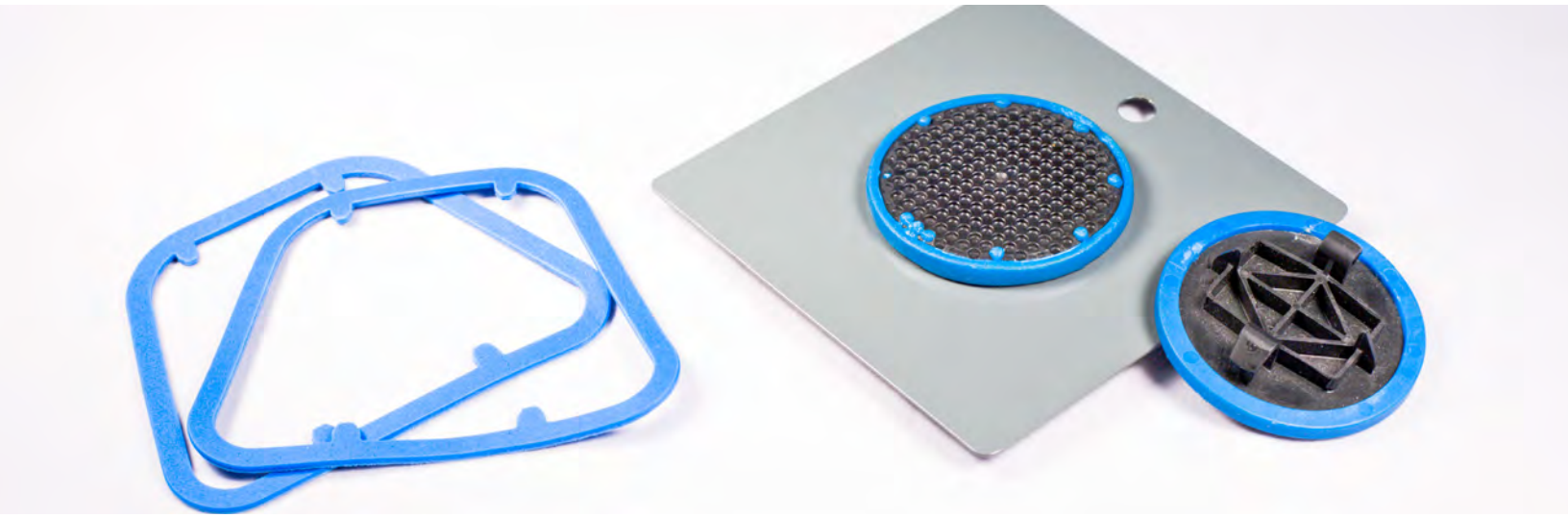
OTHER NOTES

- Crushable Mastic Sealer is stable, with a long shelf life.
- ND can specially formulate Crushable Mastic Sealer to meet customer specifications (e.g. – penetrometers, tolerances, etc.). ND will work with you to produce extremely low tolerances – lower than any other crushable mastic supplier.

Advanced Fastening and Sealing Technologies

ND EXPANDABLE MASTICS

ND Industries' heat expandable mastic products are used in a wide variety of applications providing economical solutions for the prevention of metal-to-metal contact, vibration, and noise-related problems (sometimes refered to as flutter). An excellent anti-flutter compound, ND Expandable Mastics are an extruded product made in standard, custom, or complex die cut shapes and thicknesses to meet customer requirements for sealing, noise dampening, and vibration reduction.



PRE-APPLIED PROCESS INFORMATION

How It Works

ND Expandable Mastic extrusions are ready-to-use in an uncured form and can be applied or bonded to any metal surface prior to the application of heat. When heat is applied, generally in a primer oven, a reaction takes place that causes the material to expand and adhere to the metal surfaces and create a seal while filling all space between the metals. Our product offers expansion rates ranging from 100% to 700%. The material is stable, non-volatile, resistant to most chemicals, has a long shelf-life, and is compatible with production phosphatizing and paint systems.

Suppress Flutter & Vibration

When used as backing for sheet metal panels, it prevents flutter, seals, reduces vibration, and deadens sound.

Bonding

ND Expandable Mastics will provide some metal-to-metal bonding once it is fully cured.

Volume Filler

ND Expandable Mastics swell to fill the cavity it is placed in. Between two layers of sheet metal, the material acts as an insulator from moisture, air, dust, and noise.

Sealing

In a cured or uncured state, ND Expandable Mastics secure the intended area from penetration by moisture, gases, dust, sound, and vibration.

Adhesion

ND Expandable Mastics offer excellent adhesion to metal substrates - without additional adhesives or tape.

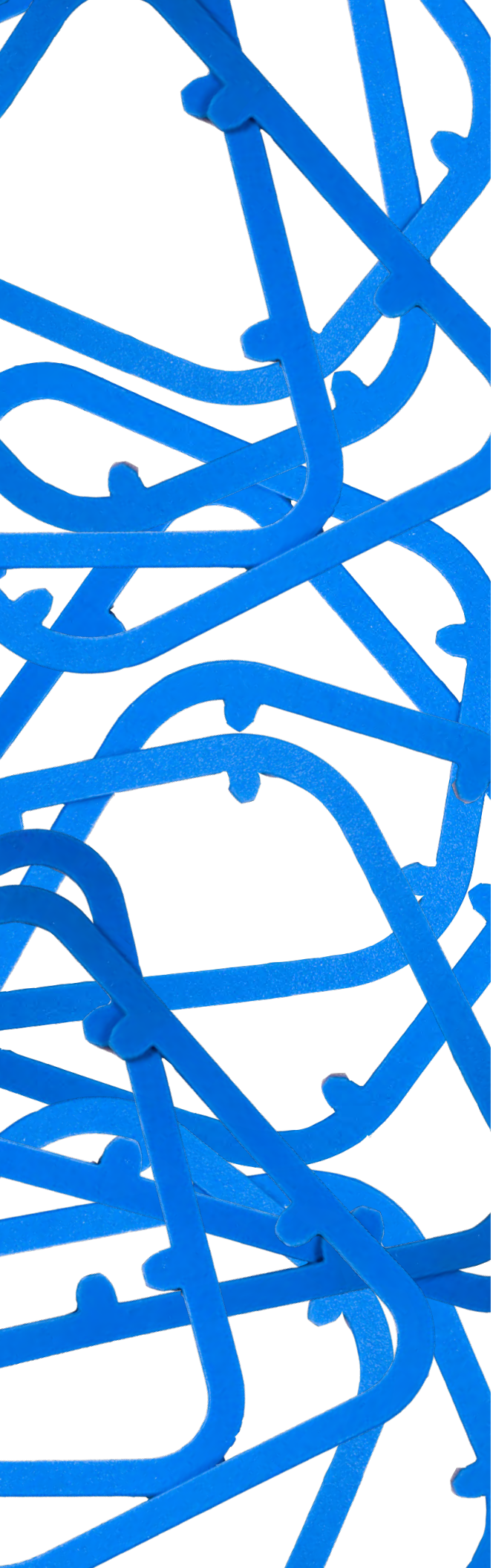
Standard Profiles

ND Expandable Mastics are available in a variety of lengths and diameters to provide a quick and flexible response to a customer's need.

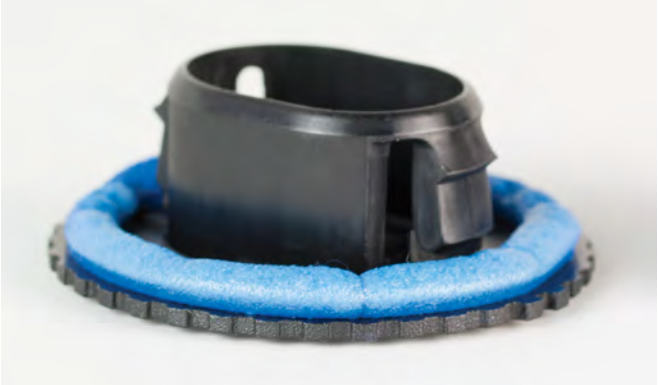
CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com



ND EXPANDABLE MASTICS



PROCESS BENEFITS

Saves Time: ND Expandable Mastics are easy to incorporate into high-volume production functions and can be applied with minimal time, effort, or training, or can be assembled for you by ND.

Saves Money: ND Expandable Mastics are inexpensive and yet provide excellent high-quality expansion and sealing.

Easy to Use: ND Expandable Mastics require minimal employee training for efficient use.

Meets Automotive Specs: ND Expandable Mastics meet specifications for the "Big Three" automakers.

PRODUCT APPLICATIONS

Automotive Floor Boards, Firewall, Sound Deadening, Interior applications, Automotive Gaskets, Automotive Washers, Drain Plugs

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: MS-CD64, MS-CD451, MS-CD451E, MS-CD466A
- Ford: ESB-M4G223-A, WSS-M18P11-B, WSS-M4G183-D
- General Motors: GM3640M, GM9984188A, GM9984188C, GM9984188E, GM9984192A, GM9984193A, GM9984193B, GM9984526B, GM9984526C

OTHER NOTES

- ND Expandable Mastics are stable, with a long shelf life.
- ND can specially formulate Expandable Mastics to meet customer specifications (e.g. – penetrometers, expansion, etc.). ND will work with you to produce extremely high expansion rates – higher than any other Expandable mastic supplier.
- For unique applications, ND Industries can provide the material in custom die cut shapes.
- ND Expandable Mastics are non-staining, non-volatile, and require little cleanup in production operations.

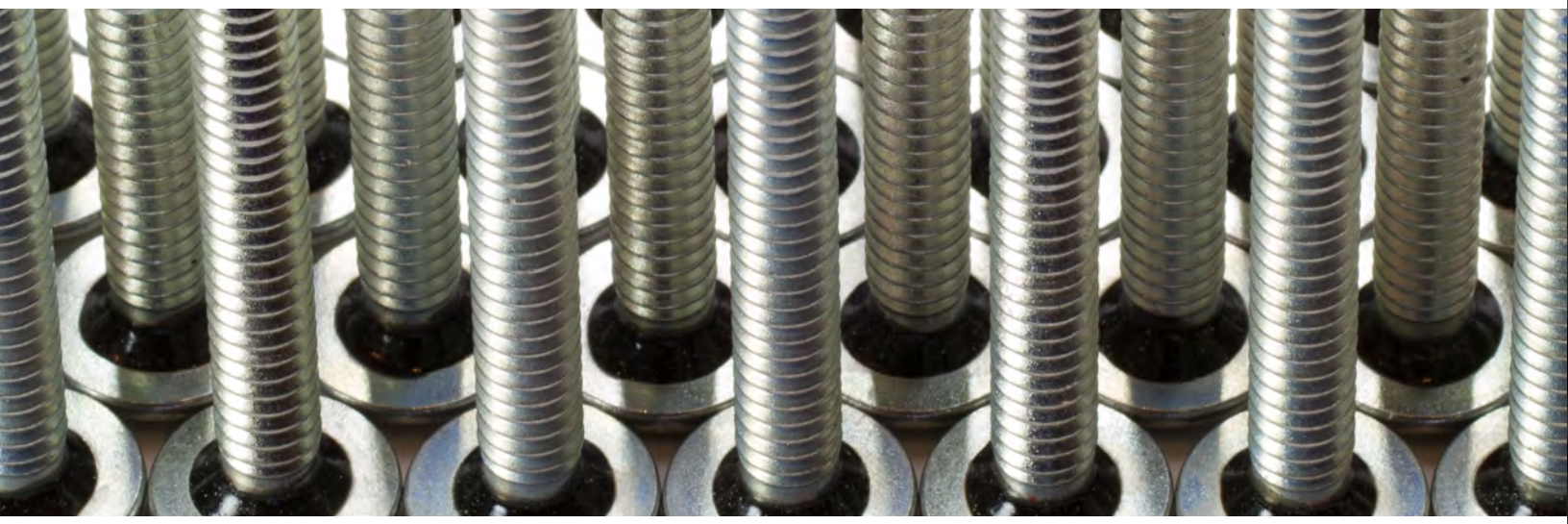
ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ND PLASTISOL

ND Plastisol processing involves the application of closed cell PVC materials directly to fasteners, washers, and other parts for a variety of purposes. ND Plastisol is used extensively in the automotive industry and adheres to many substrates.



PRE-APPLIED PROCESS INFORMATION

How It Works

During the pre-application process, ND Industries precisely dispenses liquid plastisol PVC onto parts and then heat cures the material in place. The resulting component is dry to the touch and ready for immediate installation. Plastisol can be applied to a wide variety of parts for use in functions such as:

Cushioning

Insulating

Masking

Sealing

Trimming

Controlling Noise

Reducing Vibration

Advanced Sealing

Components processed with ND Plastisol provide an immediate positive seal when installed, which eliminates leaks and fills voids between mating parts.

Versatile

ND Plastisol processing is compatible with ferrous and non-ferrous metals including a wide range of common fastener finishes. PVC plastisol has a functional temperature range of -40°F to 320°F.

Reliable

Unlike O-rings and nylon washers which are difficult to seat, tear easily and lose integrity when nicked or cut, ND Plastisol processed fasteners are easy to seat and perform consistently.

Environmental Resistance

ND Plastisol offers weatherability and dielectric strength while providing excellent fire, chemical, abrasion, UV, and ozone resistance.

Custom Formulas

ND Plastisol processing is available in virtually any durometer (hard to soft), and in any color, including fluorescent and clear.

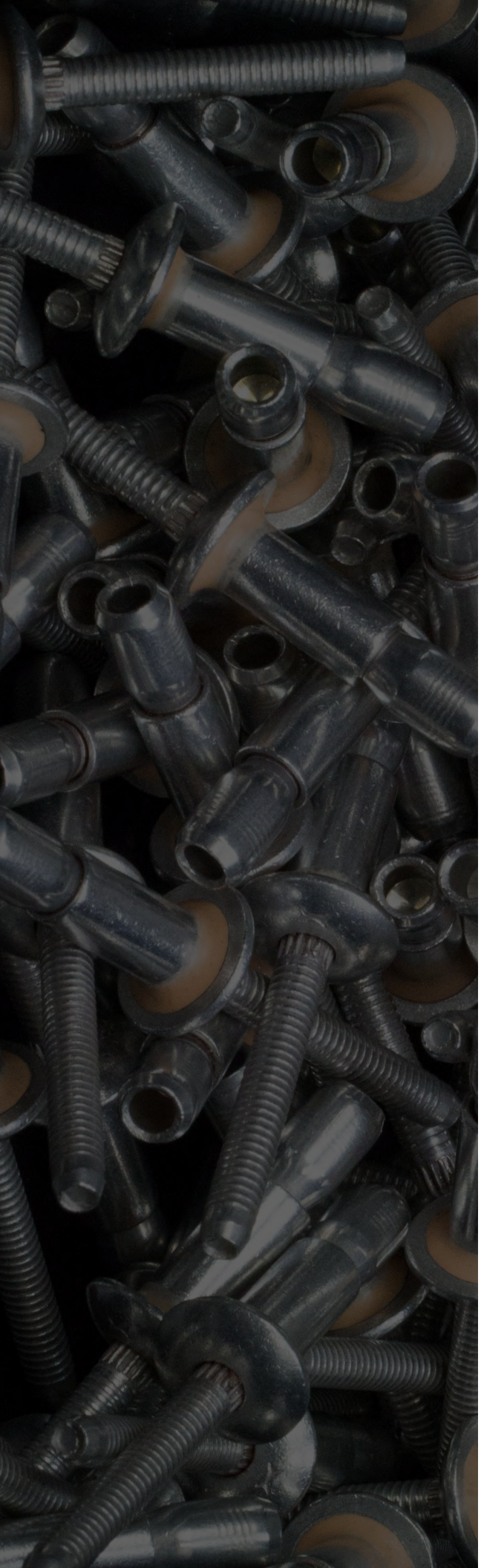
Long Shelf Life

ND Plastisol processed parts exhibit an extended shelf life and will not dry or shrink with exposure to the environment.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com



PRE-APPLIED

ND PLASTISOL

PROCESS BENEFITS

Saves Time: Pre-Applied ND Plastisol parts can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Saves Money: Pre-Applied ND Plastisol processing is less expensive than hand applying bottled thread sealing compounds or tapes at the point of assembly.

Quality Control: Pre-Applied ND Plastisol fasteners are coated to specification, ensuring consistent performance, unlike the variation from hand applying bottled products.

Non-Toxic: ND Plastisol is non-toxic.

Reusable: ND Plastisol processed fasteners are removable and reusable.

Corrosion Resistance: ND Plastisol isolates dissimilar metals and helps to reduce galvanic corrosion.

ND PLASTISOL APPLICATIONS

Marine Ride Plates, Automotive Rivets, Sunroofs, Luggage Rack, Floorboards, Sealing Applications, Temporary Retention.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: MS-CD43, MS-DC543
- Ford: ESB-M4G70-A, ESB-M4G70-B, WSK-M4G70-C
- General Motors: GM1131M Type D, GM6086M Type 3B, GMW 15473

PROCESSING NOTES

- Because plastisol is not resistant to Hydrocarbons, Sealtek processing is recommended for applications in contact with fuel or oil.
- Indefinite shelf-life under room temperature and ideal storage conditions, but re-certification must occur once a year.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

ST-3® THREAD SEALANT

ST-3 is a pre-applied process whereby a series of resilient thread sealants are coated onto straight or tapered threaded fasteners. A widely-used automotive industry approved process, ST-3 creates a custom-fit elastic gasket around fastener threads which prevents the passage of most fuels and chemicals, and helps keep joints tight under severe vibration.

PRE-APPLIED PROCESS INFORMATION

How It Works

During the ST-3 pre-application process, ND Industries accurately dispenses a select range of materials onto fasteners, making them self-sealing. The applied sealants act as a partial lubricant, reducing torque tension variation and preventing the galling of metals. They will not harden or cure, allowing fasteners to be adjusted, removed, and replaced, throughout the life of the part if needed. Processed fasteners arrive to the customer dry to the touch, and ready for immediate assembly.

Exceptional Sealing Power

ST-3 creates fasteners which provide an instant seal of over 2000 psi on both straight and tapered threads.

Offers Multiple Reuses

The materials applied through the ST-3 process are non-hardening with lubricating properties, making fasteners easy to adjust, remove, and reuse.

Resists Vibration

Although ST-3 processed fasteners are primarily for sealing, they also provide a limited amount of resistance to vibrational loosening and thermal shock resistance through a wide range of temperatures.

Environmentally Friendly

Materials used in the ST-3 process are non-hazardous, non-flammable, and will not migrate into fluid systems like paste or tape sealants.

Resists Chemicals

Sealants applied in ST-3 processing are resistant to corrosion from brine, chlorine, acids, and alkalis. They effectively resist natural gas, butane, propane, motor fluids, and other chemicals.

Resists Corrosion

ST-3 processing inhibits corrosion between mating fasteners which prevents seizing and allows for easy removal.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

ST-3® THREAD SEALANT

PRE-APPLIED BENEFITS

Saves Time: Pre-Applied ST-3 fasteners can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Saves Money: Pre-Applied ST-3 processing is less expensive than hand applying bottled thread sealing compounds or tapes at the point of assembly.

Quality Control: Pre-Applied ST-3 fasteners are coated to specification, ensuring consistent performance, unlike the variation from hand applying bottled products.

Reliability: Under most operating conditions, Pre-Applied ST-3 fasteners are unaffected by vibration or reversal of stress and greatly reduce the need to re-tighten fasteners.

ST-3 APPLICATIONS

Pipe Plugs, Engine Applications, Head Gasket Application, Under Head Sealant for Torque Tension control, Automotive Hose Fittings, Cooling System, A/C System.

APPROVED SPECIFICATIONS

Meets or exceeds the performance requirements of the following specifications and/or standards:

- Chrysler: MS-CD16
- Ford: WSK-M4G328-A1 A2 A3 A5 A6, ES-379570-S100, WX-201, WSS-M18P12-A
- General Motors: 9985490, 9985473
- Volvo: 1262.2

PROCESSING NOTES

- For the ST-3 process, sealants are typically applied one to three threads back from the end of a fastener to assure ease of starting.
- Indefinite on part life under ideal storage conditions [+40°F (+4°C) to +90°F (+32°C)], but re-certification must occur once a year.

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

SEAL-TEK™

SealTek is a pre-applied process which adheres a line of acrylic-based sealing materials manufactured by ND Industries to the underhead of fasteners. SealTek processed fasteners negate the need for additional O-rings, gaskets, or sealing washers. When the fastener is installed, SealTek conforms to surface dimensions and fills voids between mating parts, forming a robust seal.

PRE-APPLIED PROCESS INFORMATION

How It Works

During the SealTek pre-application process, ND Industries precisely dispenses then heat or UV cures the selected material onto customer provided fasteners. The result is a self-sealing fastener which is dry to the touch and ready for immediate installation. SealTek processing is compatible with a wide variety of parts for use in functions such as:

- *Cushioning*
- *Insulating*
- *Masking*
- *Sealing*
- *Trimming*
- *Controlling Noise*
- *Reducing Vibration*

Advanced Sealing

SealTek processed fasteners provide an immediate positive seal of up to 500 psi which eliminates leaks while filling voids between mating parts.

Versatile

Pre-Applied SealTek is compatible with ferrous and non-ferrous metals including a wide range of common fastener finishes.

Reliable

Unlike O-rings and nylon washers which are difficult to seat, tear easily and lose integrity when nicked or cut, SealTek processed fasteners are easy to seat and perform consistently.

Environmental Resistance

Materials pre-applied with the SealTek processing offer weatherability and dielectric strength while providing excellent fire, chemical, abrasion, UV, and ozone resistance.

Resists Chemicals

SealTek's pre-application process creates three dimensional cross-linked materials which resist a wide variety of chemicals including gasoline, oil, diesel fuel, alcohol, kerosene, and hydraulic fluids.

Long Shelf Life

The materials selected for Pre-Applied SealTek exhibit an extended shelf life and will not dry or shrink with exposure to the environment.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

SEAL-TEK™

PRE-APPLIED BENEFITS

Saves Time: Pre-Applied SealTek fasteners can be automatically fed through standard feeding devices – speeding up your process and improving productivity.

Saves Money: The Pre-Applied SealTek process is less expensive than other underhead fastener sealing methods. It also eliminates the need for costly O-rings and nylon washers.

Quality Control: Pre-Applied SealTek coats fasteners to specification, insuring measurable and consistent performance.

Reusable: SealTek processed fasteners are removable and reusable.

Corrosion Resistance: The materials used in the Pre-Applied SealTek process isolate dissimilar metals which helps to reduce galvanic corrosion.

SEALTEK APPLICATIONS

Automotive Interior Applications, Automotive Gaskets

APPROVED SPECIFICATIONS

SealTek processed parts meet or exceed the performance requirements of the following specifications and/or standards:

- General Motors: GM DWG #11611609

PROCESSING NOTES

- Coated fasteners should be stored at 22±4°C and relative humidity of <50% prior to installation in final assembly.
- Sealtek AEM is inert and will not degrade when stored under these storage conditions.

PRE-APPLIED SERVICE

Step 1 - Material Selection: Our sales and R&D staff will help you find or custom formulate a material to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the selected material to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

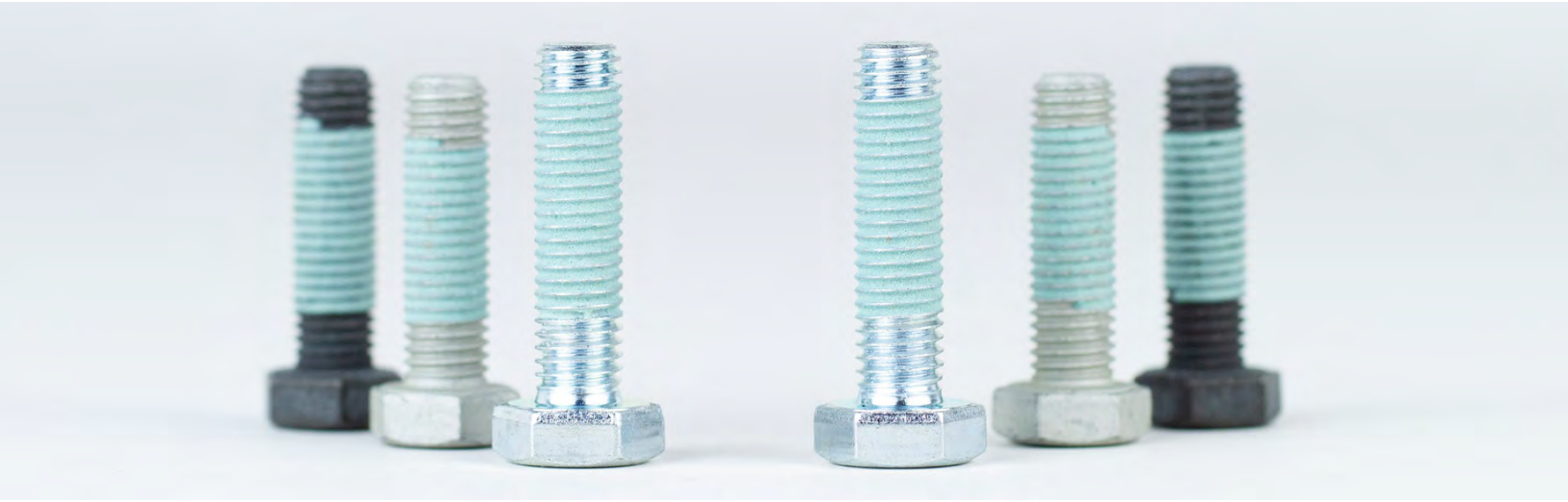
ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

THERMOSEAL™

Thermoseal™ is an ND pre-applied process in which a hybrid microencapsulated sealant is applied to fasteners, providing excellent sealing and thread locking capabilities. This process creates fasteners for high temperature, high pressure applications where other thread locking materials would fail. In addition to these benefits, Thermoseal processing may also provide a lower coefficient of friction than other thread lockers to help with ease of installation.



PRE-APPLIED PRODUCT FEATURES

How It Works

Thermoseal processing involves the application of two-part, dual-encapsulated dry film adhesives to male or female fasteners. Upon installation with a mating part, shear forces cause the microsphere capsules to rupture, mixing the two components, initializing the reaction and curing to form a strong chemical bond and effective seal.

Thermoseal processing creates a fastener with exceptional sealing properties and the ability to withstand pressures up to 40MPa. In addition, it prevents loosening due to vibration, shock, and thermal effects. Thermoseal fasteners can replace the need for PTFE tape due to its better reproducibility and speed of installation.

Versatile Application

Thermoseal pre-applied fasteners provide excellent protection from pressure, heat and loosening due to vibration, shock, and thermal effects. Thermoseal processing creates both a self-locking and self-sealing fastener through its reactive curing technology.

High Pressure Seal

Thermoseal processed fasteners are able to withstand high sealing pressures with burst pressure in excess of 5800 psi (40MPa) under challenging conditions.

Chemical Resistant

Upon fastener installation the adhesives cure to a cross-linked molecular structure; making it one of the most resistant types of sealants. Oil, gasoline, salt spray, acids, solvents, and water have virtually no effect on parts when introduced after final cure.

Surface Insensitive

Thermoseal processing is compatible with most fastener sizes, configurations, materials and finishes. The use of an epoxy based microsphere adhesive ensures that a strong reliable lock and seal are formed.

Secure Lock

Once cured, a medium strength lock is formed which helps prevent loosening under vibration or reversal of stress and greatly reduces the need to re-tighten fasteners.

Long Shelf Life

Thermoseal processed fasteners have an on-part life of 1 year and will remain inert until a cure is activated by engagement with a mating thread.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

THERMOSEAL™

PROCESS APPLICATIONS

Thermoseal can be used to seal critical applications where shock, vibration and fluid pressure cause the fastener to loosen or the joint to leak. Typical applications include: Marine Ride Plates, Head Bolts, Engine Plugs and bolts, Pipe Fittings, Air fitting connectors.

THERMOSEAL 400

Break away torque: M-10 bolt
Zinc Test Nut @24 hr: >20 Nm

Fixture time:
8 minutes @ 72°F

Full cure time:
24 hours @ 72°F

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our Sales and R&D staff will help you find or custom formulate a process to meet your performance specifications.

Step 2 - Shipping: Once a process selection has been made, have your fasteners shipped to one of our worldwide application centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the selected material to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

PRE-APPLIED BENEFITS

Saves Time: ND's Thermoseal Pre-Applied service utilizes custom build in-house equipment to coat your fasteners at extremely high rates. In addition, our rapid turn around time and fast customer service lead to significant time savings.

Saves Money: Bulk Thermoseal fastener pre-application is less expensive than hand applying bottled thread sealing compounds at the point of assembly. It also eliminates the need for costly lock washers, cotter pins or castellated nuts.

Quality Control: The Thermoseal Pre-Applied process is strictly controlled by ND to meet and reduce variation between parts. Fasteners are coated to specification, insuring consistent performance from fastener to fastener and lot to lot.

STORAGE CONDITIONS

Thermoseal should be stored in a cool and dry location at temperatures between -10°C to 30°C. Optimal storage is 22±4°C. Shelf life is 18 months from date of manufacture when stored at 22±4°C.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

EXPAND-A-SEAL®

Expand-A-Seal is a unique microencapsulated expanding thread sealant which is pre-applied by ND to your fasteners and arrives dry to the touch and ready for assembly. Upon installation Expand-A-Seal increases in volume 20 to 50%, penetrating gaps in fastener threads typically left unfilled by conventional thread sealants. When fully cured it forms a high pressure seal from gas and fluid.

PRE-APPLIED PRODUCT FEATURES

How It Works

Expand-A-Seal contain a microencapsulated epoxy resin and expanding compounds suspended in a hardener. The forces of engagement crush the microscopic capsules of epoxy resin and expansion agent, mixing the separate reactant components, and initiating a chemical reaction. As the reaction is taking place, the material expands, filling the fastener thread gaps while hardening.

Problem Solver

Many threadsealants fail when used in less than optimal conditions, such as misfit parts or threadformed screws. Because of its expansion properties, Expand-A-Seal can overcome these limitations.

High Pressure Seal

Expand-A-Seal has been shown to have some of the highest sealing pressures of all our pre-applied theadsealants with burst pressure in excess of 10,000 psi under challenging conditions.

Chemical Resistant

A cross-linked molecular structure makes it one of the most resistant types of adhesives. Oil, gasoline, salt spray, acids, solvents, and water have virtually no effect on parts when introduced after final cure.

Surface Insensitive

Expand-A-Seal is compatible with most fastener sizes, configurations, materials and finishes. Its epoxy formulation insures that a strong reliable lock and seal are formed.

Additional Locking

Once cured, a low strength lock is formed which helps prevent loosening under vibration or reversal of stress and greatly reduces the need to retighten fasteners.

Long Shelf Life

Expand-A-Seal has an on-part life of 1 1/2 years and will remain inert until a cure is activated by engagement with a mating thread.

CONTACT US

ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

PRE-APPLIED

EXPAND-A-SEAL®

PRODUCT APPLICATIONS

Expand-A-Seal can be used to seal critical applications where shock, vibration and fluid pressure cause the fastener to loosen or the joint to leak. Typical applications include: Marine Ride Plates, Head Bolts, Engine Plugs and bolts, Pipe Fittings, Air fitting connectors.

BREAKAWAY TORQUES

M-10 Phosphate oil bolt
Zinc Test Nut @24 hr: 13 Nm
M-10 Zinc plate bolt
Zinc Test Nut @24hr: 12 Nm

CURE TIMES

Fixture time
60 minutes @ 72°F
Full cure time
24 hours @ 72°F

EXPAND-A-SEAL PRE-APPLIED SERVICE

Step 1 - Product Selection: Our Sales and R&D staff will help you find or custom formulate a product to meet your performance specifications.

Step 2 - Shipping: Once a material selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the selected material to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

PRE-APPLIED BENEFITS

Saves Time: ND's Expand-A-Seal Pre-Applied service utilizes custom build in-house equipment to coat your fasteners at extremely high rates. In addition, our rapid turn around time and fast customer service lead to significant time savings.

Saves Money: The bulk pre-application of Expand-A-Seal to fasteners is less expensive than hand applying bottled thread sealing compounds at the point of assembly. It also eliminates the need for costly lock washers, cotter pins or castellated nuts.

Quality Control: The Expand-A-Seal Pre-Applied process is strictly controlled by ND to meet and reduce variation between parts. Fasteners are coated to specification, insuring consistent performance from fastener to fastener and lot to lot.

STORAGE CONDITIONS

Expand-A-Seal should be stored in a cool and dry location at temperatures between -10°C to 30°C. Optimal storage is 22±4°C. Shelf life is 18 months from date of manufacture when stored at 22±4°C.

ND INDUSTRIES

Advanced Fastening and Sealing Technologies

PRE-APPLIED

STAY-PUT® ASSEMBLY AID

Stay-Put processing adds a temporary, dependable retention device to fasteners or other components. Parts can be sent in for separate processing or to be combined into one assembly by ND; reducing end user assembly time, associated labor costs, and inventory.

PRE-APPLIED PROCESS INFORMATION

How It Works

After discussing your application with our sales team, have your parts sent to one of ND's facilities for processing. If necessary, we will combine components into one unit and apply one of our custom materials to hold the parts in place. Once processing is complete, we ship your parts back ready for assembly.

Speeds Assembly

Stay-Put processing combines auxiliary attachments, resulting in a reduction of the quantity of parts involved and a decrease in the assembly difficulty.

Reduces Inventory

Pre-assembled auxiliary attachments allow the combining of part numbers resulting in less paperwork and the reduction of shipping costs and storage space.

Consistent Results

ND has a wide range of materials available to meet your exact application needs, including those that involve ferrous and non-ferrous metals, solvents, oil, gasoline, acids, water, salt, and extreme temps.

Reduces Operator Fatigue

Stay-Put assemblies increase overall procedural ergonomics and decrease the number of tasks required to assemble an end product.

Versatile Formulas

Depending on the application requirements, processing can be completed with polyamides, adhesives, UV curable compounds and more.

Customer Assistance

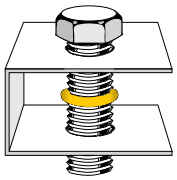
ND's experienced engineers can help you to perform an efficiency analysis to see how Stay-Put will ensure the most optimized end product fabrication possible.

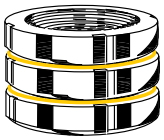
CONTACT US

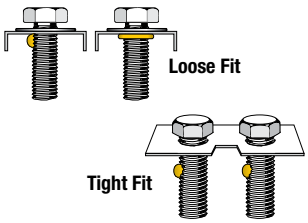
ND Industries, Inc.
Corporate Offices
1000 North Crooks Road,
Clawson, MI 48017

Phone: 248-288-0000
Fax: 248-288-0022
Toll Free: 800-471-5000
Email: info@ndindustries.com
www.ndindustries.com

STAY-PUT® ASSEMBLY AID







Temporary Fastener Retention:

Stay-Put processing can be used to hold fastener(s) in place, making it easy for an operator to complete the assembly process.

Unit Adhesion:

The Stay-Put application process can be specified to act like a glue, bonding a number of auxiliary components together.

Pre-Assembled Auxiliary Components:

Utilize Stay-Put processing to combine numerous parts or auxiliary attachments into one easy-to utilize unit.

PRE-APPLIED BENEFITS

Easy Assembly: Stay-Put processing uses materials which are dry to the touch yet pliable enough to allow assembly by hand.

Saves Money: Customers that that use temporary retention devices will see productivity increases which directly lead to cost savings.

Versatile: Stay-Put processing is compatible with both threaded and non-threaded assemblies.

STAY-PUT APPLICATIONS

Bracket assemblies, Washer and bolt assemblies, Collars

PRE-APPLIED SERVICE

Step 1 - Process Selection: Our sales and R&D staff will help you find the right process to meet your performance specifications.

Step 2 - Shipping: Once a selection has been made, have your fasteners shipped to one of our worldwide processing centers.

Step 3 - Processing: Utilizing custom, high-speed equipment, we apply the necessary materials to your exact specification.

Step 4 - Delivery: Once processing is complete, parts are shipped back ready for distribution or assembly.

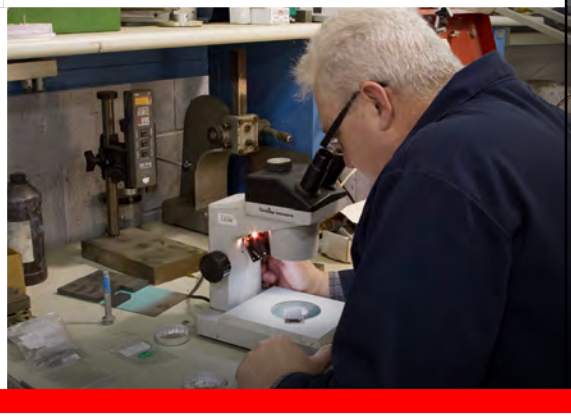
ND Industries, Inc.
1000 North Crooks Road
Clawson, MI 48017

Phone: 248-288-0000
Toll Free: 800-471-5000
Fax: 386-860-4521
Email: info@ndindustries.com
Web: www.ndindustries.com









ND DESIGN CENTERS

- Corporate Headquarters
  1000 North Crooks Rd.
  Clawson, Michigan 48017
- Technologies Group
  1896 Barrett Dr.
  Troy, Michigan 48084
- Compound Blending / IT
  1893 Barrett Road
  Troy, Michigan 48084
- Design Engineering Group
  1819 Thunderbird Street
  Troy, Michigan 48084

ND PROCESSING DIVISIONS

- Midwestern Processing Division
  9051 Dutton Drive
  Twinsburg, Ohio 44087
- Midwestern Processing Division
  3954 South Central
  Rockford, Illinois 61102
- Midwestern Processing Division
  1840 Raymond Drive
  Northbrook, Illinois 60062
- Midwestern Processing Division
  1000 N. Crooks Road
  Clawson, Michigan 48017
- Southwestern Processing Division
  3611 Dalworth Street
  Arlington, Texas 76011
- Western Processing Division
  13929 Dinard Avenue
  Santa Fe Springs, California 90670
- ND Industries, Inc. Taiwan
  No.4-5, Lane 832, An Zhao Road
  Yan Chao Village, Kaohsiung, Taiwan 824