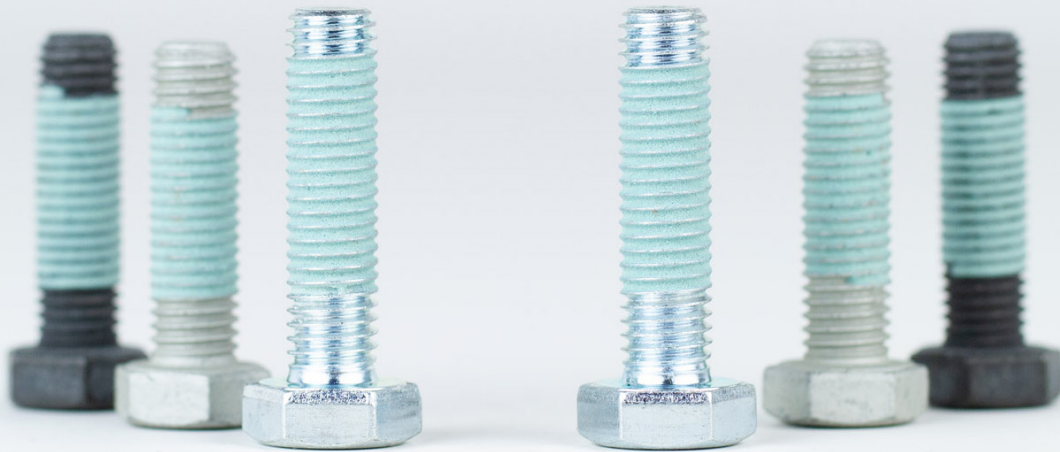




Advanced Fastening and Sealing Technologies

# 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.



### 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.



### 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.



### 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.



### 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.



### 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

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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.

Thermoseal is a trademark and ND is a registered trademark of ND Industries, Inc. USA.