
ND®
INDUSTRIES
ADVANCED
FASTENING AND
SEALING SOLUTIONS

SOLUTIONS PROVIDER

Solving our customers' toughest problems through innovative technologies, competitive pricing, and industry-leading service.

PAGE	CONTENTS
02	ND Industries - Solutions Provider
04	Technologies Group And Resource Center
05	Chemical Blending
06	Machine Design and Engineering Group
07	High-Tech Inspection And Sorting
08	Pre-Applied Fastener Processing Centers
09	Innovative Products
10	Vibra-Tite Adhesive And Sealant Division
11	ND's Global Presence



Richard Wallace, Owner and President of ND Industries

COMPANY HISTORY:

A family-owned business since 1955, ND Industries specializes in the development of innovative materials and processes which increase the safety and reliability of fastener assemblies. Headquartered outside Detroit, Michigan, ND serves a global market with 13 divisions in the continental US, facilities in Taiwan, China, and Turkey, and licensees around the world.

WHAT WE DO:

ND's core business revolves around the application of a wide variety of materials onto fasteners and assemblies to aid in functions such as locking, sealing, masking, lubricating, and noise and vibration dampening. ND also manufactures a line of bottled adhesive and sealant products under the Vibra-Tite brand name for MRO and retail use.

THE ND ADVANTAGE:

ND's success in the Pre-Applied fastener industry is due in large part to the strength of its resources. Whether a customer's project requires chemical engineering, chemical manufacturing, mechanical engineering, inspecting and sorting, bottling and packaging services, or A2LA lab testing, no other fastener processor can match ND's in-house capabilities.



ND Industries Corporate Headquarters, located in Clawson, Michigan.



Founded in 1955, ND introduces ND Pell-It.



ND develops Vibra-Tite VC-3, a user applied, adjustable, removable, and reusable threadlocker.

ND Industries opens divisions dedicated to Chemical Blending, Research & Development, and Design Engineering.

ND's chemical blending facility brings microcap production in-house.



ND opens fastener processing facilities in Taiwan and China.

Breakthrough with expandable locking and sealing microcaps.

Vibra-Tite becomes brand name for bottled products.

ND Expands to Istanbul, Turkey

PRODUCT INSURANCE:

Even the best-designed fastener assemblies can succumb to a range of negative side effects including rattling, leaking, loosening, seizing, stripping, corroding, or shearing. Each of these issues could potentially lead to a product failure and costly warranty claims or recalls. Because product quality matters, turn to ND Industries to provide solutions for all these problems and more.

VALUE ADDED:

As an added benefit, fastener distributors can use ND processing to increase the value of their fasteners, without adding to their inventory.

INNOVATIVE PRODUCTS:

From two base products in 1965 to currently over 220, ND continues its research and development with the regular introduction of unique materials along with offsets to other brand names. ND currently owns 41 product and process patents in the U.S. and overseas.



ND's innovative product offerings include (TOP ROW) Sealtek™1120, ND Epoxy-Lock®, (BOTTOM ROW) Expand-A-Seal ES0105®, ND Microspheres®, and Vibra-Tite® VC-3®.

TECHNOLOGIES GROUP & RESOURCE CENTER

Investing in ND's future through the development and manufacturing of cutting-edge products and services.



"ND Industries is committed to remaining on the cutting edge of innovation. Our team of highly educated and experienced chemists will continue to catapult ND Industries as a leader in pre-applied and user-applied adhesives, sealants, and specialized coatings."
- Scot Wickham, Director of ND Research and Development



Fasteners being coated with a threadlocking formula before undergoing thermal testing.



An ND Quality Technician conducts an elevated temperature tensile test.

RESEARCH & DEVELOPMENT:

To ensure the highest product quality standards possible, we assembled a team of degreed scientists and Ph.D chemists dedicated to the development and testing of all our chemical formulations.

With more than 55 years of experience in the Automotive, Electronics, Aerospace and Military markets, ND has built one of the most extensive product portfolios in the pre-applied fastener industry. Each ND material has been specifically designed to solve a unique customer application issue.

Not one to rest on its laurels, ND's in-house R&D and Chemical Manufacturing staff continually works to optimize existing materials and formulate new products through rigorous lab and Quality Control procedures.

The ND Technologies Group holds an A2LA ISO/IEC 17025:2005 accreditation and is able to assist customers by performing independent testing for a wide range of criteria.



ABOVE: An ND Chemist sets up a test on the Differential Scanning Calorimetry machine. BELOW: One of the lab rooms in ND Industries' newly expanded R&D facility.



CHEMICAL BLENDING

Utilizing ND's expertise to rapidly scale-up our material formulas in a demand-driven manufacturing environment.



CHEMICAL BLENDING:

Once a product formulation is complete, production moves next door to ND's chemical blending facility where scale-up takes place. The close proximity and collaborative workflow greatly reduce manufacturing time and allow for the customization of materials to customer specifications.

ND's chemical blending operation annually manufactures over one million pounds of a wide variety of adhesives, microcaps, anaerobics, epoxies, urethanes, ultraviolets, acrylics, and more.

ND chemical toll blending services provide customers with the opportunity to have their own chemical formulations blended, packaged, and prepared for shipment.



TOP LEFT: Blue pigment is being blended into a batch of epoxy microspheres. ABOVE: ND Blending Technicians position a vessel containing anaerobic paste beneath a mixer. BELOW: A technician reviews the lot numbers of three 150 gallon batches of epoxy microspheres.



MACHINE DESIGN & ENGINEERING GROUP

Building the equipment that applies ND's custom formulations.



"For years our highly-skilled engineers and technicians have been building process and inspection equipment that has conquered many application and quality challenges."
- Gerald Snow, ND Director of Design Engineering



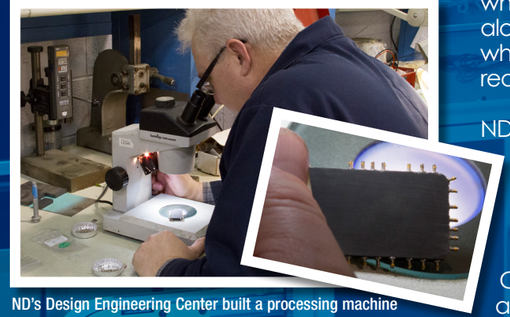
ND's Machine Design and Engineering Group is located in this facility in Troy, Michigan.

DESIGN & ENGINEERING:

When developing a pre-applied product, formulating the right chemical blend is only half the challenge. Just as important is the process of applying that material onto fasteners. That's where ND's Design Engineering Group steps in. They work along side R&D to build custom application equipment, which gives ND the ability to meet virtually any processing requirement.

ND machines operate at some of the fastest rates in the industry while the parts processed exhibit excellent visual and performance qualities. ND prides itself on the fact that we are able to achieve these goals and still maintain highly competitive pricing.

Companies that qualify for ND's licensing program can gain access to equipment and materials which will put them ahead of their competition.



ND's Design Engineering Center built a processing machine that applies ND Patch onto fasteners as small as these M1 x 0.8 screws for the electronics industry.



Technician Frank Sahutske sets up a part to be processed on a CNC Machine.



"ND Industries encourages us to be creative when confronting processing equipment challenges. That kind of thinking leads to positive results."
- Tom Shields, ND Machinist

PROVIDING HIGH-TECH INSPECTION AND SORTING

Expanding our in-house inspection and sorting capabilities with the addition of world-class equipment from Linear GS.



Fasteners transferring from the magnetic pick-up wheel onto the upper conveyor belt of a Linear GS inspection machine.

ND INSPECTION, SORTING, AND PACKAGING:

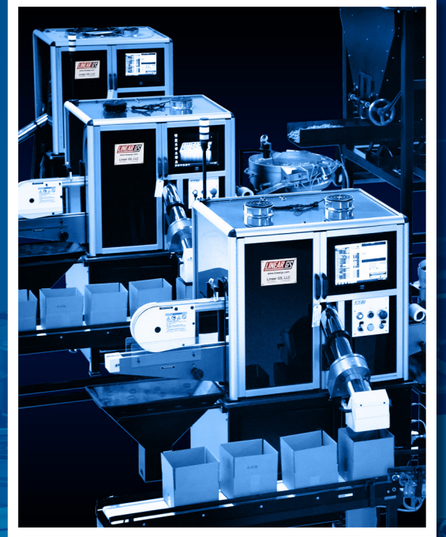
Always searching for new ways to assist customers, ND has brought in-house a line of cutting-edge inspection, sorting and packaging equipment built by Linear GS. Customers utilizing both pre-applied processing and inspection can expect to see lower shipping and handling costs, improved part turn around time, and a reduced possibility of processing touch marks or damage from handling versus outside services.

WE CAN INSPECT FOR:

- Foreign Material
- Shank Length
- Head Diameter
- Bent Shanks
- Presence of Thread
- Broken Punch
- Recess Fill
- And More

BENEFITS OF UTILIZING ND INDUSTRIES:

- Reduced shipping and handling costs.
- Improved part turnaround time.
- Less handling leads to fewer touch marks and less damage.
- Value-added, part quality assurance.



This lineup of Linear GS Inspection Machines includes the automated packaging conveyor system.



PRE-APPLIED FASTENER PROCESSING CENTERS

Providing high-volume material application in a quality conscious environment.



Supervisors Mike Tohlman Jr. (left) and Kevin Michalak are on hand at ND's Clawson, Michigan plant to ensure that fastener processing runs smoothly.

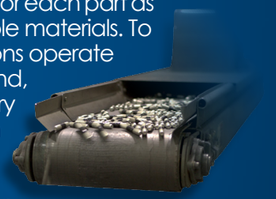


ND Industries' plant in Clawson, Michigan, is one of eight processing facilities strategically located across the United States.

FASTENER PROCESSING:

ND's Pre-Applied Processing Centers are where it all comes together. Once a customer has selected the ND product which meets their specifications, uncoated fasteners are shipped from a manufacturer or distributor to one of ND's thirteen worldwide divisions or licensees.

Once on-site, ND Plant Supervisors and Machine Operators carefully direct and monitor each part as it is processed—sometimes for multiple materials. To maintain consistent quality, ND divisions operate under strict ISO or AS certifications and, if appropriate, utilize smart factory technology, including vision inspection systems, for in-process checks.



ND also offers services like part sorting, color coding, and even partial assembly, specially designed to make subsequent assembly simple, fast, and more accurate.





ND Machine Operators, like Victor Sedrick, work to ensure that their processed parts meet the required specifications. ND's check methods can range from a test block (shown above) to an in-line vision camera.



These bolts have received an application of ND Microspheres® TA850, one of a wide range of available materials from ND Industries.

PRE-APPLIED BENEFITS:

- Increases productivity by speeding up the assembly process.
- Decreases the number of errors made during assembly.
- Provides a consistent, uniform quality standard.
- Reduces downtime and unusable parts that result from manual application errors.
- Prevents wasted material and cleanup versus hand applied bottle products.

INNOVATIVE PRODUCTS

Offering a wide range of pre-applied materials to resolve fastening and sealing challenges.

PRE-APPLIED PRODUCT CATEGORIES



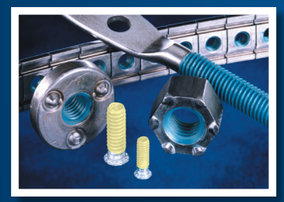
INERT THREAD LOCKING

Also known as prevailing torque, this process uses a mechanical force to create a secure lock that is resistant to vibration, shock, and related slippage. It can typically be removed and reused.



REACTIVE THREAD LOCKING

Once installed into a mating part, a strong chemical bond is formed, preventing slippage from shock and vibration while helping to seal fastening points against gas and liquid leakage.



MASKING AND LUBRICATING

Formulated to ease the assembly process and to protect fastening parts against exposure to undesirable substances that can adhere to uncoated fasteners.



ADVANCED SEALING

ND pre-applied sealants are designed to withstand a wide range of pressures, chemical fluids and gases, while reducing the chance of fastener loosening.



ASSEMBLY AIDS

Designed to make assembly safer, easier and fastener by reducing application errors and worker fatigue.

To learn more about the products within each category, visit our website. www.ndindustries.com

PRODUCT FOCUS

Hi-Temp Nylon Patch

Maintains torque at temps up to 500˚F (260˚C).

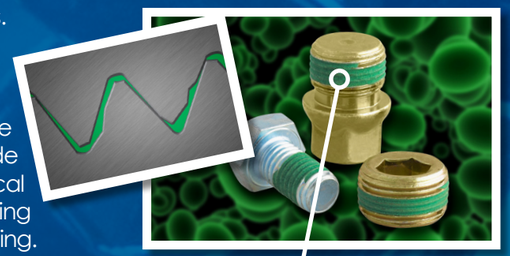
No curing required.

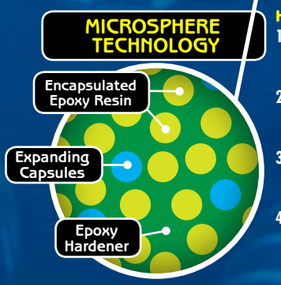
Won't dry or shrink.



EXPAND-A-SEAL FILLS THE GAPS

Expand-A-Seal ES0105® expands 20 to 50%, completely filling the gaps between fastener threads, resulting in a strong lock and high-pressure seal.





HOW IT WORKS:

1. Install Expand-A-Seal-coated fastener into mating part.
2. Installation pressure makes Epoxy Resin & Expanding Capsules burst.
3. Epoxy expands, filling fastener thread gaps while hardening.
4. Fastener is fixed in place within 10-15 minutes. Full cure in 24 hours.

Vibra-TITE® ADHESIVE AND SEALANT DIVISION

Fulfilling the needs of the OEM and MRO markets.



"Vibra-Tite is a real-value proposition. Our objective is to offer the highest quality products at the best value."
- John Hamaty, President, Vibra-Tite Division



VALUE PROPOSITION:

Vibra-Tite, the bottled product division of ND Industries, is one of the world's market leaders in anaerobics, cyanoacrylates, epoxies and ultra-violet technologies. With low overhead and in-house chemical formulation and blending, Vibra-Tite offers products with the same high quality and performance of other name brands, but at cost savings of up to 40%.



Our Vibra-Tite customer service representatives are available to answer your questions at 1-800-521-2663. To view an on-line catalog of our complete product line-up, visit our website at www.vibra-tite.com.

THE VIBRA-TITE LINE-UP:

- Threadlockers
- Thread Sealants
- Pipe Sealants
- Retaining Compounds
- Cyanoacrylates
- Structural Adhesives
- Anti-Seize Compounds
- RTV Sealants
- Activators / Primers
- Ultra-Violets
- Epoxies
- Specialty Products



DISTRIBUTION 2.0:

Distributors of leading brand adhesives and sealants have seen margin erosion due to marketplace saturation. In addition, MRO customers are mandating cost savings from their product suppliers. This provides an opportunity for distributors to switch to Vibra-Tite and receive increased margins while passing on cost savings to their end users, without sacrificing quality.



Whether you're located down the street or halfway around the world, our goal is to move your purchase quickly and economically.

PRIVATE LABELING:

Create brand loyalty with your own private label bottled product line. Vibra-Tite services have substantially lower minimum-quantity requirements than our competitors, giving your company an excellent ROI.



ND® INDUSTRIES GLOBAL PRESENCE

Through innovation, continual reinvestment, and the drive to better serve our customers, ND Industries has grown to become one of the largest self-locking fastener processors in the world.



CONVENIENCE:

ND's divisions are strategically located near industrial centers to reduce shipping time and cost and provide better customer service and support. With eight processing facilities spread across the US, three additional centers in Taiwan, China, and Turkey, as well as licensees around the world, there's a location nearby to assist your company.

Unlike many competitors' foreign operations, ND's Asian facilities are wholly owned divisions and have the full support of ND corporate and its resource centers.

LOCATIONS:

- *Oakland, NJ*
- *Charlotte, NC*
- *Deltona, FL*
- *Clawson, MI*
- *Troy, MI*
- *Northbrook, IL*
- *Rockford, IL*
- *Twinsburg, OH*
- *Arlington, TX*
- *Santa Fe, CA*
- *Blythe, CA*
- *Kunshan, China*
- *Kaohsiung, Taiwan*
- *Istanbul, Turkey*

FUTURE:

ND is focused on creating new products and increasing efficiency in all areas of the company. After more than doubling the size of the R&D Department in 2011, construction is now underway to expand chemical blending and the Vibra-Tite bottled product divisions.

Currently, ND is actively seeking additional licensees and joint ventures in order to further expand its global presence.

Contact us to put ND's products and services to work for you. Information for each of our facilities is located on the ND Industries website.

www.ndindustries.com

ND is fully ISO certified, REACH compliant, and lab accredited. In addition, all of ND Industries adhesive and sealant formulations are ROHS compliant.

REACH COMPLIANT · ISO · ACCREDITED · NSF · Registered International Traffic in Arms Regulations ITAR



ND Industries, Inc.
Corporate Office
1000 North Crooks Road
Clawson, Michigan 48017 U.S.A.
Phone: 248-288-0000
Fax: 248-288-0022
www.ndindustries.com
www.vibra-tite.com
www.lineargs.com

ND Industries and Vibra-Tite are registered trademarks of ND Industries, Inc.

ND-AFS-2013-10