

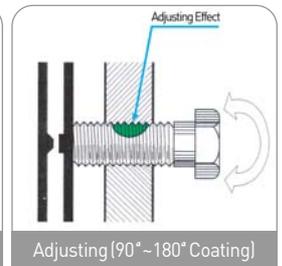
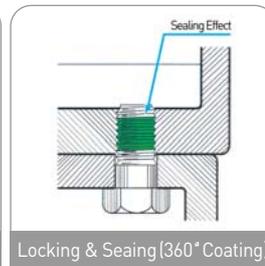
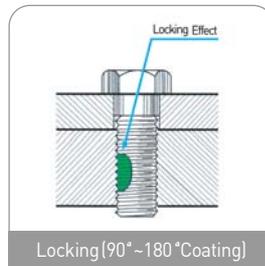
폴림방지사

Pre-Applied Coating for Self-Locking & Self-Sealing Fasteners

Prevailing Torque Type Self-Locking & Self-Sealing Fastener

NasaLok Nylon Patch

Reusable



Chemical Type Self-Locking Fastener

Epoxy-Lock

New Technology with ND



NasaTite & NasaTite EF

ND[®]
INDUSTRIES
Microspheres[®]

3M
Scotch-Grip™

LOCTITE[®]
Dri-Loc[®]



Self-Sealing Fastener

NasaSeal

ND[®]
INDUSTRIES
ST-3[®] Series

3M
Scotch-Grip™

LOCTITE[®]
Vibra-Seal[®]



Fluorocarbon Coated Fastener

NasaLM

Factory Pre-Applied,
Lubricating & Masking

ND[®]
INDUSTRIES
LM-1293[®]



NasaLok Coating Corporation

The Most Trusted Name in Self-Locking & Self-Sealing Fasteners

3 Ra 627 Ho, Siwha Industrial Complex, 1378-9 Jeongwang-dong, Siheung-si, Gyeonggi-do, South Korea (429-934)

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NasaLok Coating Corporation, founded in 1985, is the most matured & specialized self-locking and self-sealing fastener coating firm in Korea.



Established more than 23 years ago, NasaLok is proud to serve our customers in all facets of pre-applied self-locking fasteners as well as self-sealing fasteners which are mainly used on automotives, electronics, heavy industry and any other devices where loosening exists for severe vibration and shock.

Our diverse and comprehensive offerings for coating fasteners are a natural extension of our technology and core skills. We help to improve the reliability of our customer's products. We also have had good reputation from the customers in many fields like automotive, electronics and heavy industry.

In 1997, we developed 'NasaLok Nylon Patch' by ourselves that is reusable for the purpose of anti-loosening because the nylon was adhered on the threads by melting method. It meets the requirements of IFI-124, 524 and also has competitiveness with its high quality.

NasaLok defines success by the sustainable value we deliver with quality to customers and our profession. We invite you to explore how our people, history and expertise are enabling us to accomplish our mission: to be a positive and highly influential force in the development and success of our customers.

J.B. Lee
President

Nylon Patch NasaLok Patch



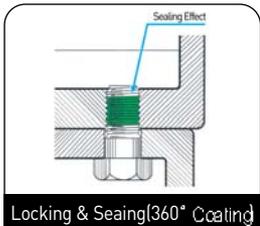
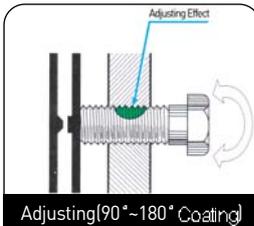
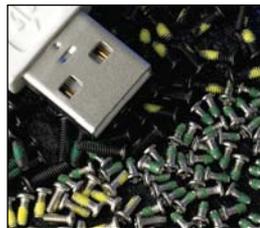
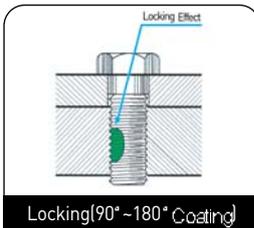
NasaLok Patch (Nylon Patch) is today's most advanced, most reliable prevailing torque type self-locking & self-sealing fastener developed by NasaLok Coating Corporation technology itself.



NasaLok Patch performs locking and sealing effect immediately upon assembly with no curing time required. When assembled with a mating part, the resilient NasaLok Patch is compressed to provide locking and sealing action. The resilience of NasaLok Patch holds the fastener in place without adhesives or thread distortion. Due to its resilience, Patch can be repeatedly adjusted and reused. Our customers can experience the new technology NasaLok Patch not causing dust after assembly, and use right out of the box in field even pre-patched small screw upto M1.

Locking & Sealing & Adjusting

- Nylon melting down to adhere to the threads cause to increase the friction when they are engaged with mating threads.
- Due to the reusability of fasteners coated with NasaLok Patch, it is more effective on adjusting.



Features

- **Reusable** : Fasteners coated with NasaLok Patch can be reused repeatedly without damage to threads.
- No curing time required, and immediately provide locking and sealing effect.
- No dust to be caused while and after assembly.
- **Chemical Resistant** : NasaLok Patch will not dry, shrink, or lose resiliency when exposed to commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, etc.
- **Saves Effort** : NasaLok Patch greatly reduces the need for retightening.
- **Saves Money** : Use of NasaLok Patch eliminates the need for costly lock washers, cotter pins, or castellated nuts.
- Great performance on adjusting.
- **Surpasses Industrial Fastener Institute Standards** : NasaLok Patch meets or exceeds all performance requirements of IFI 124 and IFI 524 as well as automotive specifications when used on clean, dry and/or dry phosphated surfaces.

Specification of Raw Material

Typical Color	Green, Yellow, White	
Material	Nylon	
Service Temp Range	-56 ℃ ~ +120 ℃	
Application Range	M1.0 ~ M4.0	
Chemical Resistant	Commercial solvents, alcohol, gasoline, oil, caustic soda, jet fuel, etc.	
Primary Usage	Locking & Sealing & Adjusting	
Related Spec	GM	GM 6189P
	Ford	ES-382101-S100, ES-378813-S100, ES-N800688-S100, WA970, ES-21002-S100
	Chrysler	PF-5144, PF-5461, PF-6157, PF-4730, PF-5683, PF-5077
	IFI	IFI-124, IFI-524, IFI-100(Nut)
	DIN	DIN 267 Part 28
	Hyundai / Kia	In Use

※Remarks : It resists solvents commonly used, but permeation might be caused in phenol and acetic acids.

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High Temp. Self-Locking Epoxy-Lock

Automotive Approved &
Environmentally Friendly



Epoxy-Lock is the state-of-the-art coating process developed by one of the leading fastener coating firms, ND Industries, Inc. in US, and introduced to Korea by NasaLok as to appropriate locking and sealing purpose.

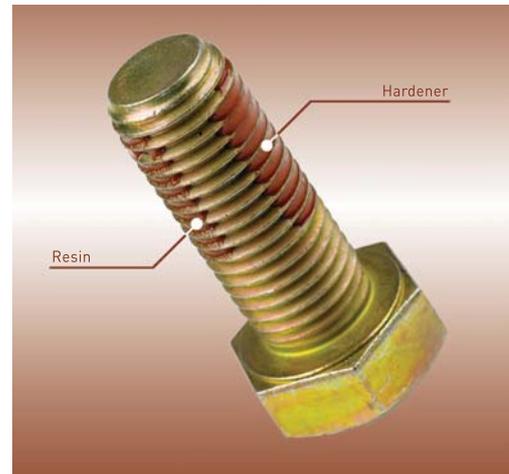
Epoxy-Lock is introduced first in Korea by NasaLok in 2006 to apply the state-of-the-art coating process in the market. This type of coating technology is designed to be used for powerful locking & sealing. With a long history of Epoxy-Lock in advanced nations including US, we experience the growing market trend with totally new technology, Epoxy-Lock.

Features

- **Process** : ND's skilled staff of engineers has developed a unique, highly repeatable, environmentally friendly fastener coating process.
- **Does Not Require Uncoated Lead Threads** : ND Epoxy-Lock is a soft, pliable material that will not cause or contribute to cross threading.
- **Versatile** : ND Epoxy-Lock is compatible with all materials (even plastics) and most finishes.
- **Long Shelf Life** : Once applied, ND Epoxy-Lock remains inert until a cure is activated by engagement with a mating thread.
- **Unaffected by Foreign Substances** : Oil, gasoline, salt-spray, acids, solvents, water, and air have virtually no effect on Epoxy-Lock after a final cure has been achieved.
- The cross-link molecular structure of Epoxy-Lock makes it solvent resistant.
- **Surpasses Industrial Fastener Institute Standards** : Epoxy-Lock meets or exceeds all torque requirements of IFI 125, IFI 525, as well as automotive adhesive-coated fastener performance specifications.

How to Work

ND Epoxy-Lock remains inert until the coated fastener is assembled to its mating part. The forces of engagement crush the surface skin, mix the separate epoxy components and initiate a chemical reaction which locks the parts together.



Specification of Raw Material

Manufacturer	ND Industries	
Resin System	Curing resin	
Typical Color	Orange	
Prevailing on Torque	Minimal	
Service Temp Range	-54 °C ~ +200 °C	
Primary Usage	Heavy duty lock	
Typical Curing Time	72 hours at room temperature (reduced at elevated temp.)	
Storage life (before use)	2 years (extreme storage conditions affect shelf life)	
Related Spec	GM	GM 6175M, GM6194M
	Ford	ES-20007-S100, ES20010-S100, ESS-M11P24-A1, ESS-M11P24-A2
	Chrysler	PF-6616, MS-CC-76
	IFI	IFI-125, IFI-525

- ※ Within minutes of assembly, ND Epoxy-Lock forms a bond between surfaces which can only be broken with a wrench.
- ※ After 12 hours, Epoxy-Lock outperforms most nylon locking elements in first-off torque.
- ※ After 24 hours, ND Epoxy-Lock has achieved up to 80% of its ultimate cure. Curing continues for up to 72 hours following installation.

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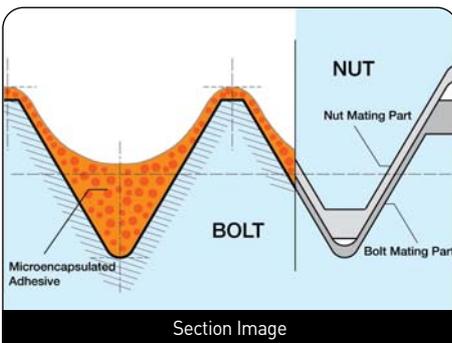
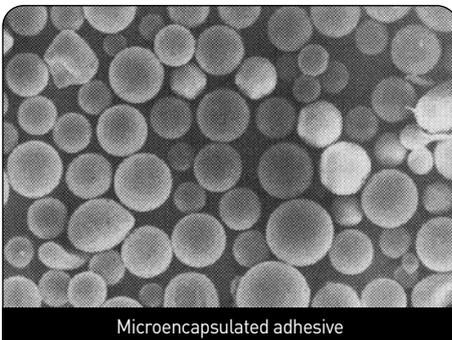
Self-Locking NasaTite



NasaTite is today's most widely used, most reliable breakaway torque type self-locking fastener with pre-applied chemical adhesives.

NasaTite achieves high breakaway torque for self-locking with the micro-encapsulated adhesive pre-applied on fasteners. Pre-applied chemical additive fasteners NasaLok produce meet and exceed all performance requirements of IFI 125 and IFI 525 as well as automotive specifications. Since 1985, NasaLok has been proud to be working with quality on NasaTite for our customers, GM Daewoo, Kia and Hyundai Motors. This type involves non-toxic environmental friendly product, NasaTite EF.

How to Work



Features

- As soon as the coated fastener is assembled to its mating part, the locking and sealing forces are initiated.
- Long Shelf Life : Once applied, NasaTite remains inert until a cure is activated by engagement with a mating thread.
- **Exceptional Sealing Power** : Extensive testing indicates that NasaTite provides exceptional resistance result upon 420kg/cm² water pressure or gas pressure.
- Applicable to diverse bolts from M1 to M50 by virtue of the features of adhesives, microencapsulated.
- Adjustable the breakaway torque by increasing or decreasing the applying adhesive.
- **Unaffected By Foreign Substances** : Oil, gasoline, saltspray, acids, solvents, water, and air have virtually no effect on NasaTite when introduced after a final cure has been achieved.
- **Surpasses Industrial Fastener Institute Standards** : NasaTite meets or exceeds all performance requirements of IFI 125 and IFI 525 as well as automotive specifications when used on clean, dry and/or dry phosphated surfaces.

※Due to the atmosphere changes while in stocks, appearance with whitening where coated parts might be caused, but it doesn't affect the major function.

General Purpose (-55 °C ~ 120 °C)

Manufacturer & TM	ND Microspheres		3M Scotch-Grip	
	Formula	593S	593S	2353
Typical Color	Blue	Yellow	Blue	Yellow
Base	Epoxy	Epoxy	Epoxy	Epoxy
Service Temp Range (°C)	-54 ~ +116	-54 ~ +116	-54 ~ +116	-54 ~ +116
Typical Curing Time	24 Hrs	24 Hrs	24 Hrs	24 Hrs
Primary Usage	Locking & Sealing		Locking & Sealing	
Related Spec	GM	GM6175M		GM6175M
	Ford	ESS-M11P24-A1/A2, WSS-M11P45-A1		ESS-M2G200-A, WSS-M11P45-A1
		Chrysler	PF-6616, MS-CC76	
	IFI	IFI-125, 525		IFI-125, 525
	Hyundai / Kia	-		MS 721-39 (Type E)

High Temp Purpose (-55 °C ~ 150 °C)

Manufacturer & TM	ND Microspheres		3M Scotch-Grip	
	Formula	1193S	N1193S	2510R
Typical Color	Orange	Neutral	Orange	Neutral
Base	Epoxy	Epoxy	Epoxy	Epoxy
Service Temp Range (°C)	-54 ~ +177	-54 ~ +177	-54 ~ +149	-54 ~ +149
Typical Curing Time	72 Hrs	72 Hrs	72 Hrs	72 Hrs
Primary Usage	Locking & Sealing		Locking & Sealing	
Related Spec	GM	GM6175M		GM6193M
	Ford	ESS-M11P24-A1/A2		ESS-M2G200-A, ESS-M11P24-A1/A2
		Chrysler	PF-6616, MS-CC76 (Type A, C)	
	IFI	IFI-125, 525		IFI-125, 525
	Hyundai / Kia	MS 721-39 (Type D)		MS 721-39 (Type F)



Self-Locking

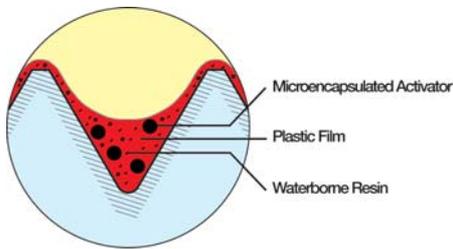
NasaTite EF



NasaTite EF (Environmental Friendly) is the reliable breakaway torque type self-locking fastener with pre-applied water-based chemical adhesives.

NasaTite EF achieves high breakaway torque for self-locking with the micro-encapsulated adhesive pre-applied on fasteners. Pre-applied water-based chemical additive fasteners NasaLok produce meet and exceed all performance requirements of IFI 125 and IFI 525 as well as automotive specifications. NasaLok has been proud to be working with quality on NasaTite EF for our customers where needed water based adhesives for environmental friendly application.

How to Work



NasaTite EF used adhesives contain a microencapsulated activator that is suspended in a quick curing waterborne resin. 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.

Features

- As soon as the coated fastener is assembled to its mating part, the locking and sealing forces are initiated.
- **Unaffected By Automotive Fluids** : Resists and seals against most automotive fluids. Oil, water, antifreeze, and gasoline have virtually no effect on pre-applied fasteners once the final cure has been achieved.
- **Variety of Strengths, Colors, & Viscosities** : NasaTite EF is available to be produced in a variety of colors for easy part inspection and in different strengths to fit the desired application.
- **Fast Fixture Times**: Under typical conditions fixture is achieved within 5 minutes.
- **High Temperature & Torque Sensitive Formulas** : NasaTite EF can be specifically intended for use in high temperature or torque/tension sensitive applications with applicable adhesives.
- **Minimal Clean-up Requirements**: Clean-up is a simple process that requires only soap and water.
- NasaTite EF meets or exceeds all performance requirements of IFI 125 and IFI 525 as well as automotive specifications when used on clean, dry and/or dry phosphated surfaces.

High Temp Purpose I (-54 °C ~ 150 °C)

Manufacturer & TM	ND Microspheres Acrylic Series			Loctite Dri-Loc		
	Formula	AA0695 (6)	AA0895 (6)	AA1095 (6)	200	204
Typical Color	Yellow	Green	Red	Yellow	Red	
Base	Meth Acrylate			Meth Acrylate		
Service Temp Range (°C)	-54 ~ +150			-54 ~ +150		
Classification	High Strength	Medium Strength	High Strength	High Strength	High Strength	
Typical Curing Time	72 Hrs			72 Hrs		
Primary Usage	Locking & Sealing			Locking & Sealing		
Related Spec	Ford	ESE-M2G260-A1	ESE-M2G260-A3	WSK-M2G354-A6	ES-2007-S100	ES-2007-S100
	IFI	IFI-125, 525	IFI-125, 525	IFI-125, 525	IFI-125, 525	IFI-125, 525
	Hyundai / Kia	-	-	-	MS 721-39 (Type D)	MS 721-39 (Type D)

High Temp Purpose II (-54 °C ~ 200 °C)

Manufacturer & TM	ND Microspheres Acrylic Series	Loctite Dri-Loc
	Formula	AA0795 (AA0796)
Typical Color	Yellow	Yellow
Base	Meth Acrylate	Meth Acrylate
Service Temp Range (°C)	-54 ~ +200	-54 ~ +204
Classification	High Strength	High Strength
Typical Curing Time	72 Hrs	72 Hrs
Primary Usage	Locking & Sealing	Locking & Sealing
Related Spec	GM	GM 6194M
	Ford	ESE-M2G260-A2, WSK-M2G354-A3, ESS-M11P24-A2
	Chrysler	PF-6616, MS-CC76 (Type A, C)
	IFI	IFI-125, 525

NasaLM



NasaLM is Fluorocarbon Coating for Electrodeposition Masking to be mainly used on fasteners to prevent buildup of electrodeposited primers and anti-seize of weld-spatter.

NasaLM produced by NasaLok applies thread masking and lubricating materials on fasteners for providing excellent solvent resistance, high temperature resistance, e-coat resistance, resistance to weld spatter, and improvement to torque tension properties. This type of coating material is designed for lubricating fastener threads to reduce driving friction as well.

Features

- **Great application** : ND LM-1293 can be applied to male or female, ferrous or non-ferrous threaded fasteners of virtually any finish.
- Excellent solvent resistance and high temperature resistance
- ND LM-1293 lubricates fastener threads to reduce driving friction, heat buildup, and thread galling in long rundowns while helping to ensure uniform clamp loading.
- **Increases Productivity** : By providing additional lubricity, NasaLM with ND LM-1293 speeds assembly operations and increases productivity.
- **Reliable Masking** : NasaLM with 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, the process with ND LM-1293 employs minimal heat.

Specification of Raw Material

Manufacturer	ND Industries	
Formula	LM 1293	
Typical Color	Pale Yellow, Teal, Purple	
Base	Poly (Tetrafluoroethylene) (PTFE) (Teflon®-type material)	
Service Temp Range (°C)	-54 ~ +204	
Primary Usage	Lubricating & Masking	
K Value	[ASTM D5648-01] : 0.14 (typical value)	
Solvent Resistance	[ASTM D5402-93 (99)] : 150 double MEK rubs	
Related Spec	GM	GM6076-M
	Ford	WSS-M21P27-A3
	Chrysler	PS-8542

※K value is tested with 3/8" x16 x11/4" dry zinc phosphate coated steel nuts and bolts.

Self-Sealing

NasaSeal



NasaSeal is today's most widely used, most reliable self-sealing fastener with pre-applied chemical adhesives.

NasaSeal produced by NasaLok applies high temp and high pressure resisting adhesives on bolts, nuts and pipes for sealing its mating part. Unlike adhesives applied on NasaTite, this type of adhesive is designed mainly for showing great effect on sealing. Moreover, this type is non-toxic environmental friendly product which can be used for water pipes.

Features

- Great sealing effect under high water pressure and gas pressure.
- Unaffected By Chemicals: Pre-applied NasaSeal protects against corrosion from brine, chlorine, acids, and alkalis. It effectively resists natural gas, butane, propane, motor fluids, and chemical solvents.
- Resists Vibration, Remains Elastic: Though pre-applied NasaSeal is mainly used to seal fasteners, it also helps to lock threads by resisting vibration. It is highly resistant to thermal shock and remains elastic through a wide range of temperatures.
- Non-toxic environmental friendly product which can be used for water pipes.

Specification of Raw Material

Manufacturer	ND	3M	Loctite
Formula	ST-3-Series	Scotch-Grip 4291	Vibra-Seal 503
Typical Color	White	White	White
Base	Acrylate	Acrylate	Acrylate
Service Temp Range (°C)	180	149	150
Primary Usage	Sealing	Sealing	Sealing
Related Spec	GM	9985490/9985473	9985490 9985473
	Ford	WSK-M4G328-A	WSS-M18P12-A WSK-M4G328-A2
	Chrysler	MS-CD16/914	MS-CD16 MS-CD914 (A)

※ Little oily material comes out after pre-applied, however, it doesn't effect on performance.

Pre-Applied Coating for Self-Locking & Self-Sealing Fasteners



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