



EXIM & MFR ENTERPRISE
Your partner in single source solutions



WEDGE-LOCKING SOLUTIONS

ENGINEERED FOR HIGH-VIBRATION
& SAFETY-CRITICAL APPLICATIONS

Company Profile

COMPANY DETAILS



Global
Distributor



1982
Year Established



148
Employees



40,000+
Number of Line Items



155+
Commodity Groups

Vision

To be the global market leader in inventory management of mechanical and electro-mechanical components by being the link between world-class suppliers and global customer base.

Mission

We provide through our expertise, knowledge and network of global suppliers, the best quality products and services that we specialize in for our customers in the various industries.

Quality Management Certifications

AS 9120
ISO 9001
ISO 13485
ISO 14001

Aerospace
Business Enterprise
Medical Devices and Services
Environmental

ISO 22301
ISO 26000
ISO 29001
ISO 45001

Business Continuity
Social Responsibility
Oil & Gas
Occupational Health & Safety

Certified by:



Values

Professional

We take full responsibility throughout the value chain, delivering quality at every stage and making sustainability a natural part of all activities of our company. In the relation with our customers we are responsive, friendly and accountable.

Receptiveness

Meeting Changes, Customizing, Maintaining Communication.

Innovative

We are constantly pushing the boundaries of our business. With proven new technology and creative ideas we are striving to improve fastener applications, quality and enhance cost-efficiency.

Dedicated

We are passionate about the fastening business and will always go that extra mile to meet the expectations of our clients. We are proud to carry forward the long heritage of Bulten into a challenging and exciting future.

Empowered

At Exim you will meet highly skilled and motivated people empowered to make decisions and drive progress. Thus, you can be certain we will keep our promises and provide you the strongest possible solution for your fastening demands.

Vendor Managed Inventory (VMI) Programme:

- Ship-To-Stock
- Kanban System
- Hub Programme
- Two-Bin System
- Just-In-Time
- Consignment
- Demand Pull
- Schedule Sharing

Value-Added Services

Our in-house capabilities include:

- Loctite Coating
- Nylon Patching
- Waxing of Fasteners
- Painting
- Drilling
- Cutting
- Printing
- Kitting
- Assembly

Standards

ANSI, DIN, IFI, JIS, Military (MS), Army Navy (AN), and National Aeronautical (NAS). Customized parts according to your specifications from more than 2,000 trusted and reliable suppliers.

Send Us Your Inquiries

We quote to your required specifications & quantity. Let us help to reduce your sourcing and purchasing costs.

Industries Served:



Aerospace



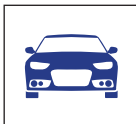
Aircon & Refrigeration



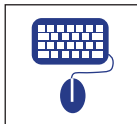
Automated Teller Machine (ATM)



Audio Equipment



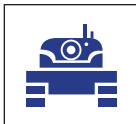
Automotive



Computer & Peripherals



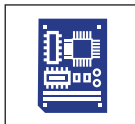
Construction Equipment



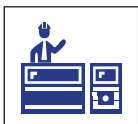
Defense & Military



Distributors



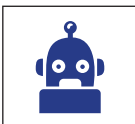
Electronics



Electronic Manufacturing Services (EMS)



Environmental & Water Technology



Factory Automation



Fishing Reel



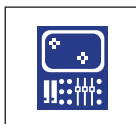
Furniture



Home Appliance



Info Communication



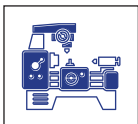
Instrumentation & Controls



Lightings



Life Science



Machine Builders



Marine & Offshore Engineering



Medical



Metal Stamping



Motors



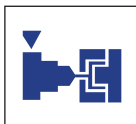
Office Equipment



Oil & Gas



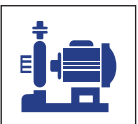
Optical Instrument



Plastic Molding



Power Supplies



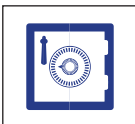
Pumps



Renewable Energy



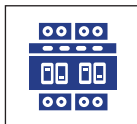
Sensors/Switches/Relays



Security Systems



Sports & Recreation



Switchgear/Panels/Enclosures



Telecommunications



Transport



Video Equipment



Wire Harnessing

NORD-LOCK® ORIGINAL WASHERS

WIDE RANGE & MANY MATERIALS



ORIGINAL WASHERS



SP WASHERS



Nord-Lock original washers are recognized around the world for their ability to secure bolted joints exposed to severe vibration and dynamic loads. The washers increase operational reliability and lower your maintenance costs, while significantly reducing the risks of unplanned production stops, accidents and warranty claims.

Applications

Nord-Lock washers cannot loosen unintentionally as a wedge-effect is created underneath the bolt head/nut. Our extensive range includes washers in various materials and sizes.

Nord-Lock washers are available in two outer diameters — standard and enlarged. Washers with an enlarged outer diameter (SP washers) are designed to be used together with flanged bolts and nuts (ISO 4161,4162) on oversized and slotted holes, and on sensitive surfaces and soft materials.

Advantages

- Nord-Lock original washers secure bolted joints exposed to severe vibration and dynamic loads
- Available in a wide range of materials to suit use in general steel and stainless steel applications, and in corrosive, acidic and high-temperature environments
- Locking function not affected by lubrication
- Achieves accurate preload with defined and uniform friction
- Available in a wide range of sizes (metric and imperial)
- Designed for bolts up to and including property class 12.9 (steel) and A4-80 (stainless steel)
- High corrosion resistance (minimum 1,000 hours in salt spray test according to ISO 9227) for steel washers
- Reusable (depending on conditions of use)
- Custom sizes available upon request

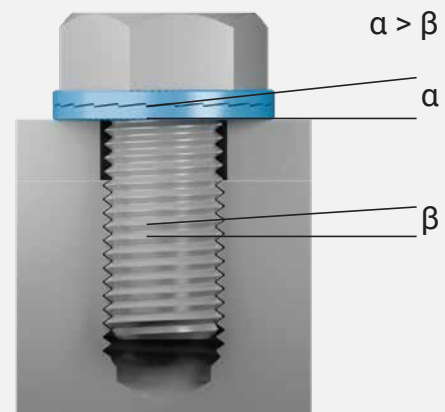
Black wedge-locking washers

Nord-Lock washers are also available in black. Stocked range M6-M24 excluding SP. Expect the same unmatched safety, corrosion resistance, and reliability, but with a black finish that can be crucial in specific critical mission environments.



How it works

When tightening, the bolt's serrations are embedded into the mating surfaces. As the cam angle α is greater than the thread pitch β , a wedge-effect is created.



NORD-LOCK® X-SERIES WASHERS

ONE SOLUTION FOR MULTIPLE
DESIGN CHALLENGES



X-SERIES WASHERS



X-SERIES SP WASHERS



Utilizing a unique multifunctional design, Nord-Lock X-series washers secure bolted joints against both spontaneous bolt loosening and slackening, thanks to their conical shape. Combining the unrivaled Nord-Lock wedge-effect with compensation against settlements, the X-series washers provide the extra level of security you need for applications that operate in extreme conditions.

Applications

Nord-Lock X-series washers are the optimum choice when you are facing extreme challenges that require extra protection. Nord-Lock X-series washers keep bolted joints secure when facing multiple challenges, including:

- Material expansion and contraction during thermal cycling
- Settlements due to paint or powder-coating
- Relaxation on soft metals, composites and polymers
- Slackening due to multiple clamped parts
- Joints with short clamp length
- Loss of clamp load in gasketed joints

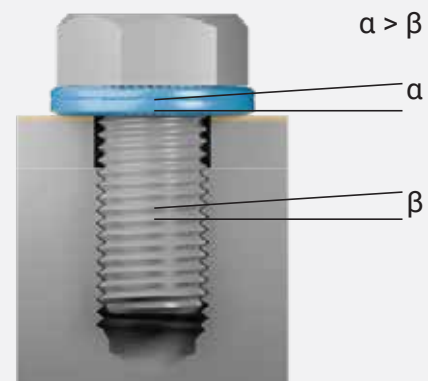
Advantages

- Nord-Lock X-Series washers secure bolted joints exposed to severe vibration and dynamic loads, reduces slackening and compensates against loss of preload
- Reliable locking, even for joints with short clamp length
- Locking function not affected by lubrication
- Achieves accurate preload with defined and uniform friction
- High corrosion resistance (minimum 1,000 hours in salt spray test according to ISO 9227, corresponding to C4 high or C5 medium according to ISO 12944-6)
- Reusable (depending on conditions of use)
- One solution to cover multiple design challenges

How it works

Utilizing a unique multifunctional design, Nord-Lock X-series washers combine Nord-Lock wedge-locking technology with compensation against settlements.

The wedge effect prevents bolt loosening caused by vibration and dynamic loads while the washer also reduces slackening and compensates against loss of preload, thanks to its conical shape.



NORD-LOCK® SC-WASHERS

DESIGNED FOR
STEEL CONSTRUCTION



SC-WASHERS

Nord-Lock Steel Construction (SC) washers are wedge-locking washers specially designed for use on steel construction applications and to fit HV/HR sets bolts and nuts in accordance with the European standard EN 14399-3 /EN 14399-4 /EN 14399-8.

Applications

Nord-Lock SC-washers can easily replace a standard plain washer as well as chamfered washer to prevent the bolt from rotating loose. The SC-washers are suitable for a wide variety of applications across the construction and bridge-building industry.

They are safe to use with high-strength structural bolting assemblies for preloading and are confirmed for HV-assemblies by the European Technical Assessment ETA-20/0010 issued by the German Institute for Construction Technology (DIBt).

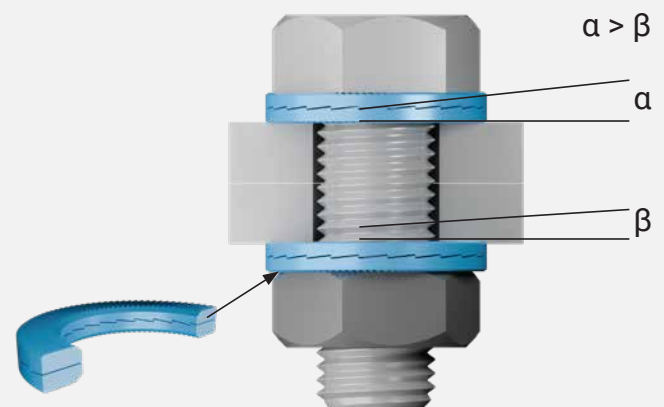
SC-washers, NLO, NLSS and 254 SMO® are safe to use in non-preloaded structural bolting assemblies according to EN 15048 and confirmed by the ETA-19/0813 issued by the DIBt.

Advantages

- Nord-Lock SC-washers secure bolted joints exposed to severe vibration, dynamic loads, shockloads or thermal movement
- Secures bolted joints in structural steelwork
- Designed and approved for use with HV and HR bolting assemblies
- Locking function not affected by lubrication
- Available in steel material with sizes from M12–M36
- High corrosion resistance (minimum 1,000 hours in salt spray test according to ISO 9227) corresponds to C4 high or C5 medium according to ISO 12944-6
- Withstand temperatures between -50°C and 150°C
- CE marked (ETA-19/0813, ETA-20/0010)

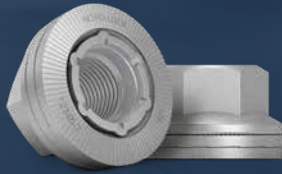
How it works

The system consists of a pair of washers that use Nord-Lock wedge-locking technology. Each washer has cam faces on one side and serrations on the other. They also have chamfers on the inner diameter which ensures optimal fit with HV bolts. Since the chamfer is present on both sides of each pair, it also eliminates the risk of incorrect installation.



NORD-LOCK® WHEEL NUTS

SAFE WHEELS
SAVE LIVES



WHEEL NUTS

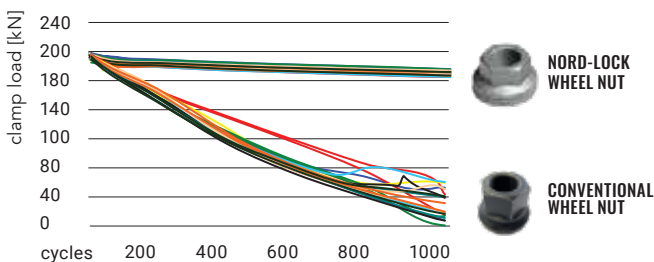


Nord-Lock wheel nuts safely secure wheels on commercial vehicles by maintaining a high clamp force, even under extreme operating conditions. They represent a simple and cost-effective way to make wheels safe and secure for more productive and efficient operations.

Applications

Nord-Lock wheel nuts are designed for flat-faced steel rims. Each nut is permanently attached to a pair of Nord-Lock wedge-locking washers. The wheel nut is suitable for:

- Heavy on-road vehicles — buses, trucks, trailers, etc.
- Off-road vehicles — tractors, farming equipment, mining equipment, forestry machinery, military vehicles, etc.



In tests, the Nord-Lock wheel nuts prove superior in securing wheel joints and maintaining clamp load. The graphs display products tightened to 200 kN and the change in clamp load during 1000 load cycles.

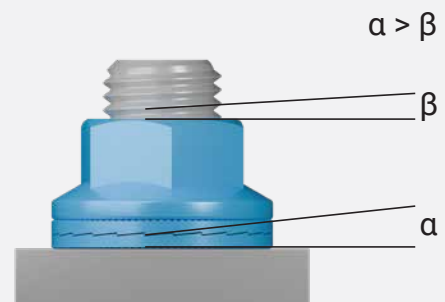
Advantages

- The Nord-Lock wheel nut safely secures wheels on both on-road and off-road heavy vehicles
- Improves driver productivity while reducing operating and service costs
- Minimizes risk of accidents and injury
- Easy to install and remove using hand tools
- Pre-lubricated
- Suits flat-faced steel rims
- Available in sizes M16–M24
- High corrosion resistance (minimum 600 hours in salt spray test according to ISO 9227)
- Reusable (depending on conditions of use)

How it works

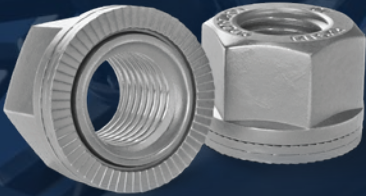
When tightening, the bolt's serrations are embedded into the mating surfaces. As the cam angle α is greater than the thread pitch β , a wedge-effect is created.

The washer's serrations are embedded into the mating surfaces, allowing movement only across the cam faces while the wedge effect prevents rotation of the nut.



NORD-LOCK® COMBI NUTS

FASTER AND SAFER
ASSEMBLY



COMBI NUTS



Expect simpler assembly, fewer errors, and optimized efficiency with our combi nuts, combining a nut with a pair of captivated Nord-Lock original washers.

Applications

Combi nuts are ideal when there is a lack of accessibility or when loose parts make assembling and maintenance difficult. The advantages of the combi nut will streamline production for any manufacturer using serial assembly.

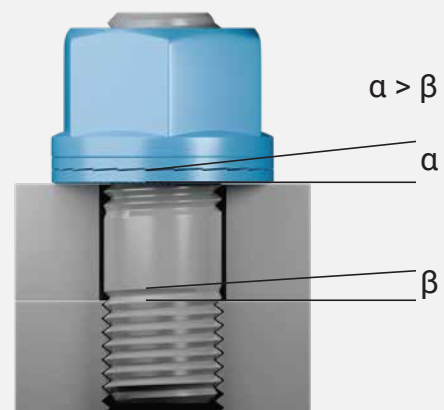
Advantages

- Faster assembly
- Reduced risk of incorrect assembly
- Lower risk of parts coming loose
- Easier disassembly and reassembly during maintenance
- Less time required to maintain production
- Cost savings through improved productivity

How it works

Each combi nut combines a nut with a pair of captivated Nord-Lock Original washers, with cam faces on one side and serrations on the other, giving rise to the wedge effect.

With movement only occurring across the cam faces, any rotation of the combi nut is blocked by the wedge effect of the cams.



NORD-LOCK® ORIGINAL WASHERS

PRODUCT SELECTION

Nord-Lock offers products in a wide range of sizes, shapes and materials. They are developed to suit even the toughest environments. If you need support selecting the most appropriate product, please contact your closest Nord-Lock sales representative.

* Washer hardness must be greater than the hardness of the mating surfaces in order to assure its mechanical function.

** Corrosion resistance is known as PREN. PREN, or Pitting Resistance Equivalent Number, is a theoretical number calculated from the chemical composition of the raw material. The formula is $PREN = \%Cr + 3.3x\%Mo + 16x\%N$.

*** Temperature recommendations are based on information from the raw material supplier and testing. The locking function is not affected within the specified range.

	STEEL	STAINLESS STEEL
Applications	General steel application	General stainless steel applications Non chlorine / acid environments
Material Standard	EN 1.7182	EN 1.4404
Size Range	M3–M130 #5 to 5"	M3–M80 #5 to 3 1/8"
Corrosion Resistance**	Minimum 1,000 hours in salt spray test according to ISO 9227	PREN 27
Hardening	Through hardened	Surface hardened
Washer Hardness*	≥ 465HV1	≥ 520HV0.05
Coating	Base coat: Delta Protokt® KL100 zinc flake coating Top coat: VH 302 GZ Standard products in range M6-M24 are available with Delta Seal GZ Black top coat (SP items not included)	—
Bolt Grades	Up to 12.9	Up to A4-80
Temperature Range***	-50°C to 200°C	-160°C to 500°C
Product Designation	NL NLsp	NLss NLspss
Laser Marking Type Code	Traceable batch number and type code flZn	SS

254 SMO®



ALLOY C-276



ALLOY 718



Applications	General salt water applications, pumps, chloride applications, heat exchangers, nuclear, desalination, food processing & medical equipment	General acidic environments, process and chemical industry, evaporators, offshore downhole tooling	High temperatures – gas turbines, turbo charges, incinerators
Material Standard	EN 1.4547	EN 2.4819 or equivalent	EN 2.4668 or equivalent
Size Range	M3–M39 #5 to 1 1/2"	M4–M20 #8 to 1 1/2"	M4–M20 #8 to 1 1/2"
Corrosion Resistance**	PREN 45	PREN 68	PREN 29
Hardening	Surface hardened	Surface hardened	Surface hardened
Washer Hardness*	≥ 600HV0.05	≥ 520HV0.05	≥ 620HV0.05
Coating	–	–	–
Bolt Grades	–	–	–
Temperature Range***	-160°C to 500°C	-160°C to 500°C	-160°C to 700°C
Product Designation	NLss-254 NLspss-254	NLss-276 NLspss-276	NLss-718 NLspss-718
Laser Marking Type Code	254	276	718

APPLICATIONS

Nord-Lock wedge-locking technology are ideal when a lack of accessibility and loose parts make assembling and maintenance difficult.

SERIAL PRODUCTION



MACHINE BUILDING



POWERGEN RENEWABLE



POWERGEN NON-RENEWABLE



TRANSPORTATION



RAILWAY



AGRICULTURE



FORESTRY



JOINT GUIDE

Use this guide to help you use Nord-Lock original washers correctly. If you have an application that does not meet our design criteria, contact us and we will help you find a solution.



Tapped holes

Nord-Lock washers safely lock the bolt against the underlying surface.



Through holes

Through holes require two pairs of Nord-Lock washers - one pair for securing the bolt and a second pair for securing the nut. Turn both fasteners in order to close the cams on both washer pairs before tightening to minimize settlements. Keep the nut secure while tightening the bolt.



Stud bolts

Nord-Lock washers safely lock the nut on stud bolts and eliminate the need for adhesives.



Counterbores

The outer diameter of regular Nord-Lock washers is designed for counterbore holes according to DIN 974.



Applications with large / slotted holes or soft underlying surfaces

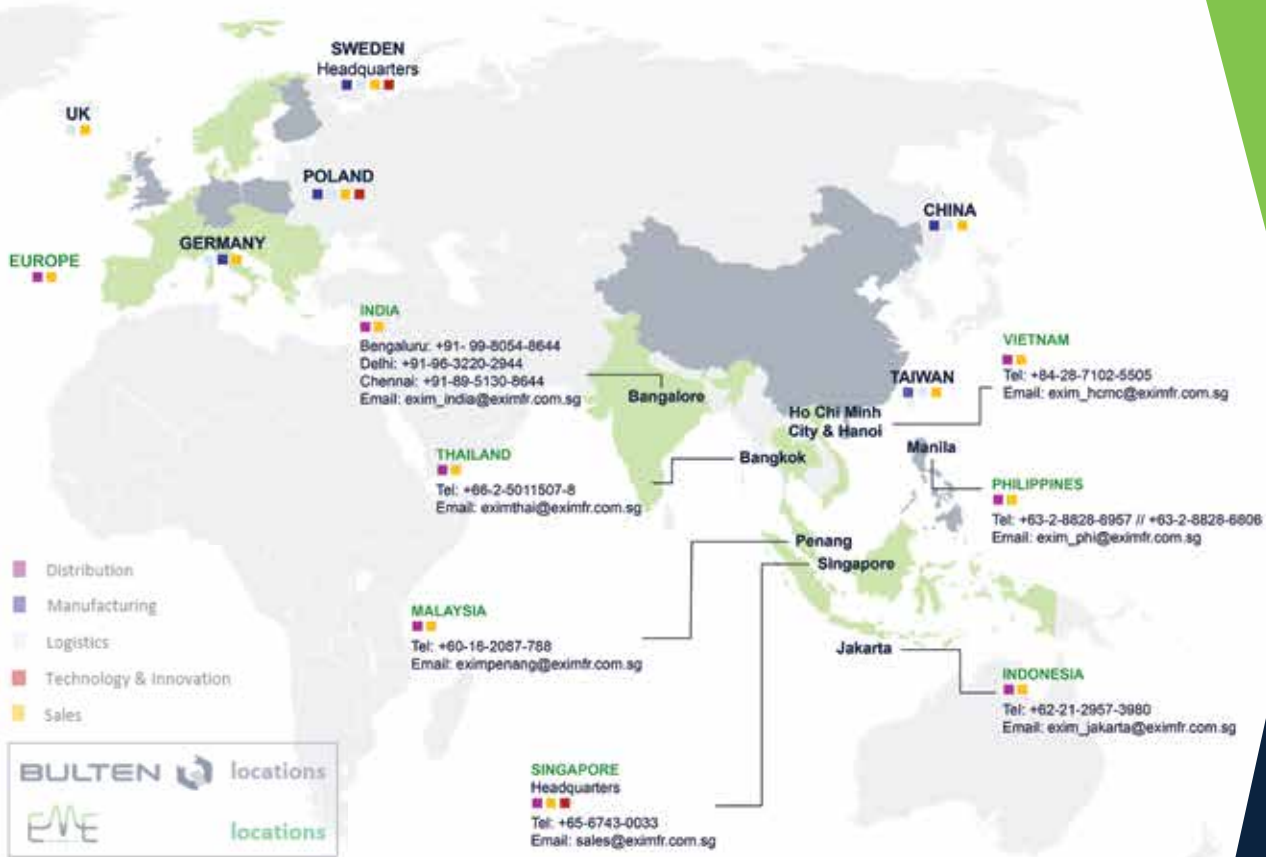
To optimize the load distribution for applications with large or slotted holes or with soft underlying surface, use a flanged nut or bolt together with Nord-Lock "sp" washers with enlarged outer diameter.

For soft underlying surfaces or materials with a lot of settlements, for example composite material, it is also recommended to use Nord-Lock X-series washers.



Design where Nord-Lock washers are not recommended

- When mating surfaces are not locked in place
- When mating surfaces are harder than the washers
- With very soft mating surfaces — for example, wood and plastic
- For applications with extremely large settlements



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NORD-LOCK®

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