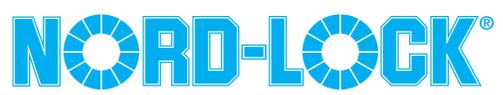
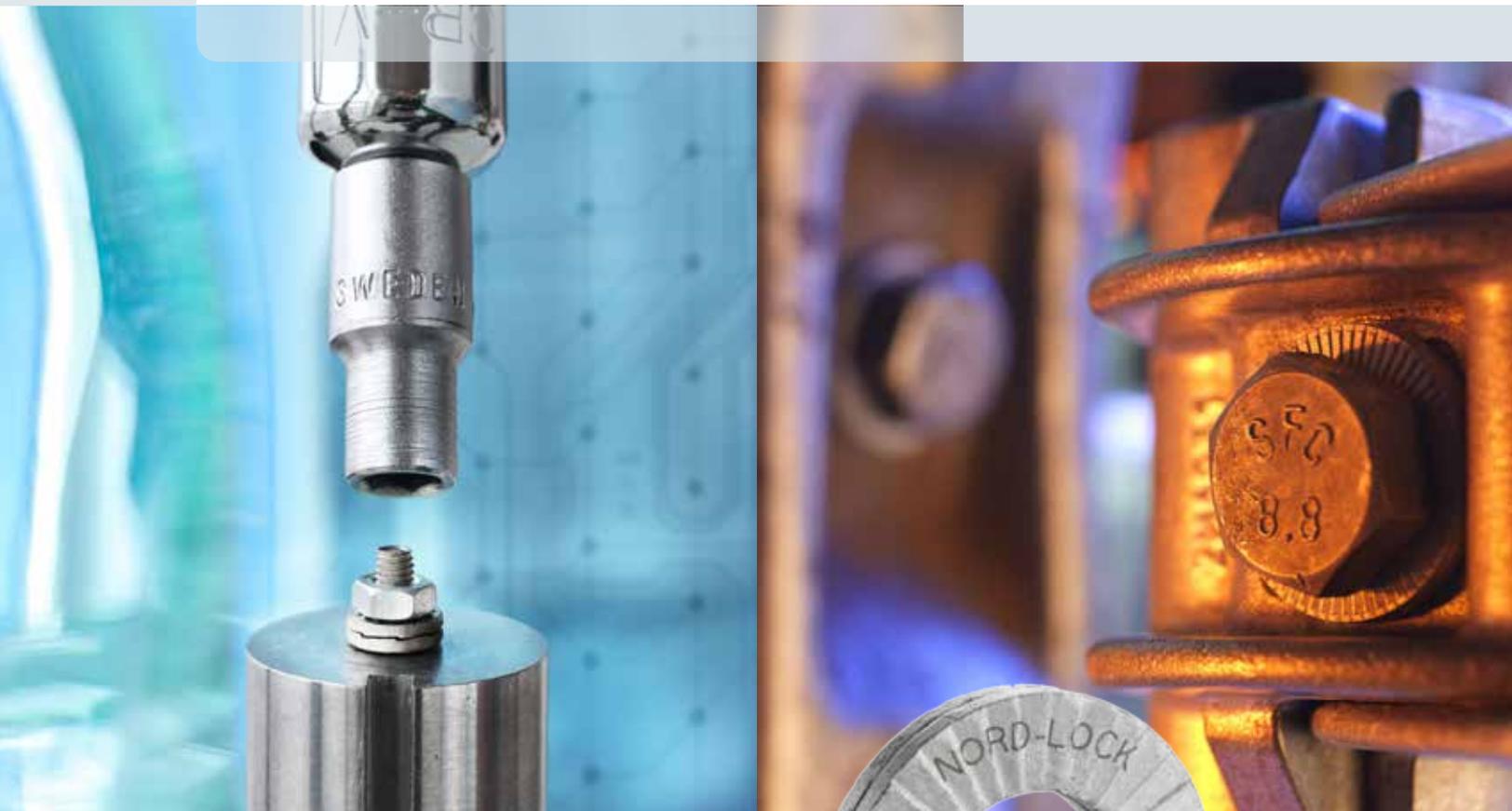


Nord-Lock washers

Product information

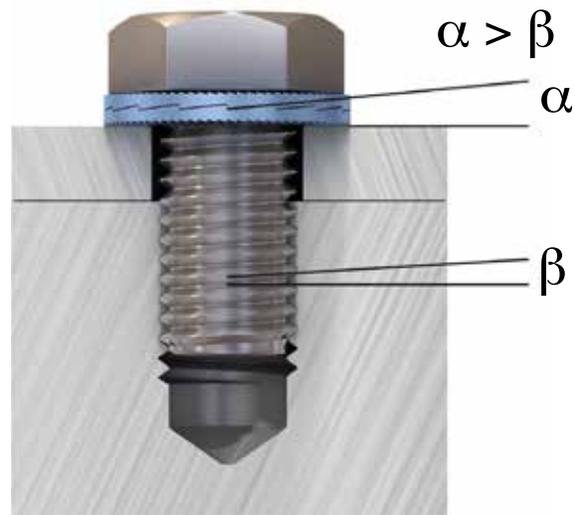


The proven original



Since the Nord-Lock Group began operations in 1982 we have focused on providing the world's most effective bolt securing systems. Our products are based on leading wedge-locking technology and are recognized for their ability to safely secure bolted joints exposed to severe vibration and dynamic loads.

When you choose Nord-Lock you do not only choose a supplier or a manufacturer, you also benefit from a partnership with an expert in bolted joint technology. Our global team of sales engineers work with our clients to solve bolt securing problems in the most demanding applications.



Nord-Lock wedge-locking technology



Nord-Lock wedge-locking products are the optimum choice for critical bolted joints.

Nord-Lock washers secure bolted joints with tension instead of friction. The system is comprised of a pair of washers that has cams on one side and radial teeth on the opposite side. Since the cam angle ' α ' is greater than the thread pitch ' β ' a wedge effect is created by the cams, preventing the bolt from rotating loose.

The key to efficient & secure operations



Nord-Lock washers provide more than just a safe locking function, using our washers also improves the general performance of a bolted joint.

Product benefits

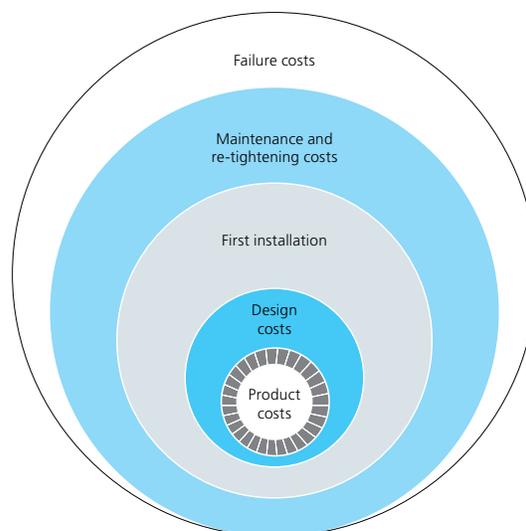
- Maintains high clamp load and thereby ensures the function of the joint
- Quick and easy to install and remove with standard tools
- Locking function not affected by lubrication
- Defined and uniform friction conditions which result in a more accurate preload
- Same temperature characteristics as standard bolt / nut
- Reusable – in addition, Nord-Lock washers do not affect the reusability of fasteners
- The washers are hardened and can support and distribute great loads
- Washers with enlarged outer diameter available for flanged bolts / nuts
- High corrosion resistance
- Can be used with fasteners up to grade 12.9 (ASTM A574)
- Reliable locking, even for joints with short clamp length
- Secures fasteners at both high and low preloads
- No retightening needed
- Verifiable locking function
- Elegant solution and problem solving – modern engineering

More than a physical product

Nord-Lock offers more than just secure bolted joints. When designing an application, it is important to consider the result it will generate throughout the entire lifespan. When using Nord-Lock products you also benefit from our experience and knowledge. We guide you towards the most beneficial and effective bolt design.

Life Cycle Profitability

Over the operational life cycle, Nord-Lock products give increased operational reliability and lower maintenance costs while significantly reducing the risks of production stops, accidents and warranty claims. We help you examine all cost factors related to bolted joints.



Nord-Lock products can help you increase your profitability by considering the complete life cycle cost for bolt securing.

Technical Center

Our skilled and innovative staff is available to help, review and discuss your applications in order to optimize the design of your bolted connections. Many companies take advantage of the customized tests or joint calculations we offer in our in-house laboratories located in Europe, North America and Asia. In addition, we offer on-site and remote product training.

Using Nord-Lock washers



Nord-Lock washers are easy and effective to use while ensuring structural security for applications exposed to vibration and dynamic loads.

Installing the washers

The pre-assembled washers are installed in pairs, cam face to cam face. Nord-Lock recommends lubrication when possible.

Tightening

Tighten Nord-Lock washers with standard tools according to the guidelines (on page 9-11). Tightening guidelines for other bolt grades are available through your Nord-Lock representative.

Untightening

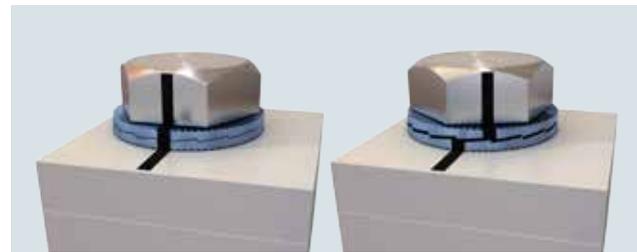
Untightening Nord-Lock washers is as simple as tightening. Note that since the locking function is not based on increased friction, the untightening torque is generally lower than the tightening torque. Therefore it is not possible to measure off-torque as verification of locking function.

Reusing Nord-Lock

Nord-Lock washers can normally be reused. As with all fasteners, they should be inspected for wear before reassembly. Make sure that the washers are reinstalled correctly cam face to cam face. Nord-Lock recommends lubrication of fasteners before reuse in order to minimize changes in friction conditions.



Possible to verify the locking function



When untightening a bolt secured by Nord-Lock washers, check that sliding occurs between the cam faces.



After disassembly, impression marks must be visible on both the fastener and the contact surface.

When the two criteria above are met, you have verified the locking function of the Nord-Lock washers.

Utilize the advantages of lubrication

Nord-Lock recommends the use of a high quality, anti-seize lubricant as it improves the tightening results. It is especially beneficial for large sized bolts and stainless steel applications. The Nord-Lock wedge-locking function provides safe locking in both dry and lubricated conditions. Benefits of lubricated fasteners include:

- Improves reusability
- Reduces friction and deviation
- Facilitates assembly and disassembly
- Reduces torsion stress due to minimized thread friction
- Avoids galling and thread seizure
- Additional protection against corrosion