

# Nord-Lock Washers

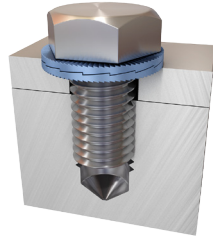
## Useful Instructions

Nord-Lock washers safely secure bolted joints that are subjected to extreme vibration and dynamic loads. Nord-Lock washers are easy to install and to ensure the system functions effectively, do take into consideration the information presented in this instruction guide.

### Correct Use of Nord-Lock Washers

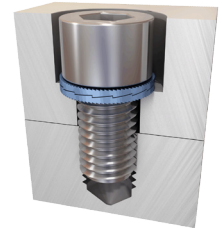
#### Tapped Holes

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



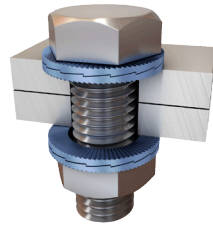
#### Counter Bores

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



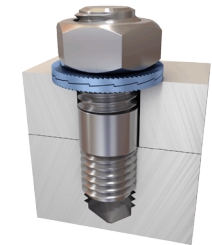
#### Through Holes

Through holes require two pairs of Nord-Lock washers - one pair for securing the bolt and one pair for securing the nut.



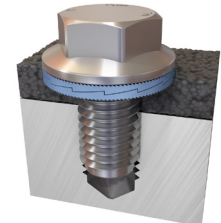
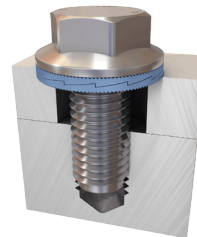
#### Stud Bolts

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



#### Large Slotted Holes Soft Underlying Surfaces

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



### Installation of Nord-Lock Washers

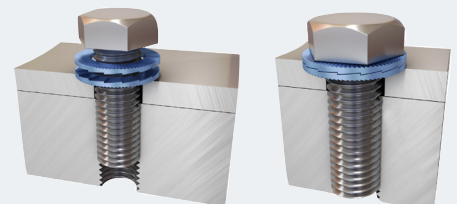
Nord-Lock washers can be tightened using standard tools and lubrication is recommended when possible. It is most important that the washers are installed in pairs, cam face to cam face, directly on the contact surface. Nord-Lock washers are designed to create impression marks without scoring the mating surface.

To achieve safe locking, a minimum of 30% of the bolt's capacity must be utilized. Recommended torque guidelines are available in the Nord-Lock washers brochure and through [www.nord-lock.com](http://www.nord-lock.com)



An example of tapped hole assembly:

1. Place a pair of Nord-Lock washers under the bolt head directly on the contact surface.
2. Mount the bolt in the hole by hand until positioning is completed.
3. Tighten the bolt head with an adequate tool at a torque corresponding to the desired clamp load.



# Nord-Lock Washers

## Useful Instructions

### Reusing Nord-Lock Washers

Nord-Lock washers can be reused, but should be inspected for wear before reassembly. Factors that might affect re-usability include wearing of the cam surfaces, and extreme high temperature environments.

It is strongly recommended to replace the Nord-Lock washer whenever the corresponding bolt/nut is replaced during maintenance operations.

### Incorrect Use of Nord-Lock Washers

Nord-Lock washers are not recommended when:

- Mating surfaces are not locked in place
- Mating surfaces are harder than the washers
- Very soft mating surfaces like wood, plastic
- Applications with extremely large settlements
- Non-preloaded joints

Not required/recommended when using Nord-Lock washers:

- Flat washers (see image to the right)
- Double nuts
- Nylon insert nuts
- Adhesives



Nord-Lock washers are a safer solution which replace the use of the above fasteners. Since Nord-Lock washers can prevent bolt loosening when installed with a standard bolt/nut, using additional locking items will only increase the cost of securing the bolted joints. Our torque guidelines are created using Nord-Lock washers only with standard bolts/nuts, with and without lubrication.

### Delivery Conditions & Assembly Facilitation

Information including batch number, washer size, material and coating are printed on the label of every box of Nord-Lock washers. Using the unique batch number, every washer batch can be traced from the material certificate of the steel, through the entire production process to the finished washer. To improve traceability, most sizes of the Nord-Lock washers are laser marked with the Nord-Lock brand, control number and a type code.

In order to facilitate first assembly, Nord-Lock washers are pre-assembled in pairs (glued) upon delivery. The purpose of the glue is solely to facilitate first time mounting and will no longer be effective after first use. When reusing Nord-Lock washers make sure that the washer pair is mounted correctly, cam face to cam face.



Please contact Nord-Lock should you have any inquiries regarding the use of Nord-Lock washers as a solution for your bolting application.

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