

# USER MANUAL

Nord-Lock wheel nut

ASSEMBLY INSTRUCTIONS 3

TECHNICAL DATA 3

FAQ 4



# THE SMART SYSTEM THAT PREVENTS YOUR WHEELS FROM LOOSENING

Nord-Lock wheel nuts secure bolted joints with tension. The system is comprised of a nut with a pair of washers with cams on one side and radial teeth on the opposite side. Since the cam angle ' $\alpha$ ' is greater than the thread pitch ' $\beta$ ' a wedge effect is created by the cams, preventing the nut from rotating loose.

## Traceability

Every box of Nord-Lock wheel nuts has a control number. Using the unique control number, every batch can be traced from the material certificate of the steel, through the entire production process to the finished product. Nord-Lock wheel nut washers are also laser marked with the Nord-Lock brand, control number and a type code. The nut body is marked with Nord-Lock, nut grade and size.

## Reuse

It is possible to reuse Nord-Lock wheel nut. Visually inspect the cams and serrations for obvious defects before installation. Reusability depends on conditions of use. Please note that the Lifetime Warranty is not applicable during reuse.

## Thread

Nord-Lock washers are designed for Metric/UNC coarse pitch threads. They can also be used with fine pitch threads (Metric/UNC), but the increased difference in pitch between the thread and the washer needs to be considered. Higher difference in pitch leads to higher tension load and required torque during untightening. This can lead to exceeding the elastic limit of the bolt.



*We are convinced that you are going to be satisfied with your locking product.*

*Nord-Lock washers safely secure bolted joints that are subjected to extreme vibration and dynamic loads.*

## ASSEMBLY INSTRUCTIONS

### For flat-faced rims

The Nord-Lock wheel nut is designed for use on flat-faced rims. Sliding always occurs between the nut and the upper washer during tightening, and between the cam faces during untightening. In this way, clear impression marks are created without scoring the contact surface. Upon reuse, the serrations find their way back into the previously created impressions.

### Assembly instructions



1. Place the rim over the wheel hub. Ensure the wheel studs are not damaged.
2. Fit and tighten the nuts with a calibrated torque wrench at the recommended torque, in the sequences illustrated here.

Thread	Key width W	Diameter Ø	Height H	Tightening	Clamp load
M22x1.5	32 mm	46 mm	27 mm	600-650 Nm	~ 200 kN
7/8"-11 BSF	32 mm	46 mm	27 mm	600-650 Nm	~ 180 kN

\*BSF = British standard fine thread

## TECHNICAL DATA

<b>Surface coating:</b>	Basecoat Delta Protekt KL 100, Topcoat VH 302 GZ
<b>Corrosion resistance:</b>	600 hours according to ISO 9227
<b>Lubrication:</b>	Pre-lubricated
<b>Property class:</b>	Class 10

## FAQ

<p><b>How does the Nord-Lock wheel nut work?</b></p>	<p>When the wheel nut is tightened the teeth of the Nord-Lock washers grip and lock the mating surfaces, allowing movement only across the cam faces, which creates a wedge-locking effect. The Nord-Lock wheel nut maintains a high clamp force even under severe operating conditions. Any rotation of the wheel nut is blocked by the wedge effect of the cams.</p>
<p><b>Do I need any special tools to tighten the Nord-Lock wheel nut?</b></p>	<p>No, Nord-Lock wheel nut is developed to fit standard equipment and tools.</p>
<p><b>Can an impact or pulsating tool be used to tighten Nord-Lock wheel nuts?</b></p>	<p>Yes. However, please note that a calibrated torque wrench is a more accurate way of tightening fasteners.</p>
<p><b>Do I need to re-tighten the wheel nuts?</b></p>	<p>Yes. It is common practice to retighten wheel nuts. The Nord-Lock wheel nuts do not loose clamp load due to rotation. However, settlements occur in other parts of the wheel assembly during driving which may result in loss of clamp load. Nord-Lock therefore recommends that standard retightening procedures are maintained.</p>
<p><b>Should the Nord-Lock wheel nuts be lubricated?</b></p>	<p>Nord-Lock wheel nuts are pre-lubricated to facilitate assembly. During reuse it is recommended to re-lubricate the threads as well as under the flange.</p>
<p><b>Do I need to change all wheel nuts to Nord-Lock wheel nuts?</b></p>	<p>Yes, in order to maintain the clamp load in the entire wheel assembly, Nord-Lock wheel nuts must be fitted to all wheel studs.</p>
<p><b>Is the untightening torque different from the tightening torque?</b></p>	<p>Yes, when using the Nord-Lock wheel nut the untightening torque is generally lower than the tightening torque. During tightening, sliding occurs between the wheel nut and the serrated surface of the upper Nord-Lock washer. However, during untightening, sliding occurs between the cam faces of the washers, where friction is significantly lower. This is a valuable feature of Nord-Lock washers, as a low untightening torque facilitates maintenance and thereby reduces downtime. Because of this feature, the untightening torque cannot be used to indicate the maintained clamp load.</p>