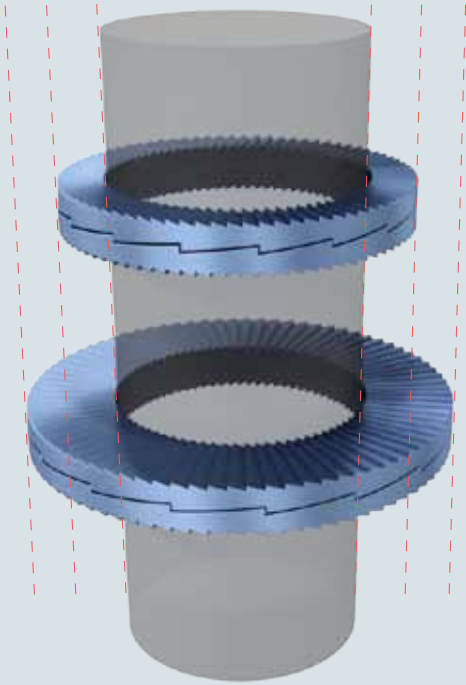


## Nord-Lock "sp" (enlarged outer diameter) washers

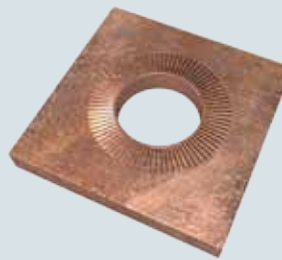
Nord-Lock washers are available with an enlarged outer diameter, referred to as "sp" washers. "sp" washers are designed for use on large / slotted holes, painted / sensitive surfaces or soft materials. Use Nord-Lock "sp" washers with flanged bolts or nuts for optimum load distribution.

$\varnothing$  inner regular =  $\varnothing$  inner "sp"  
 $\varnothing$  outer regular <  $\varnothing$  outer "sp"

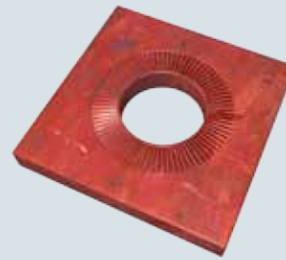


*A flanged nut and Nord-Lock "sp" washers increase the load supporting surface for applications with slotted holes.*

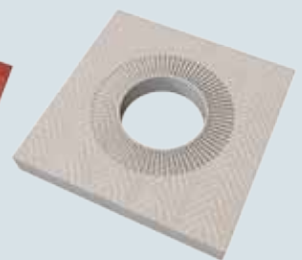
By using "sp" washers, the load is distributed over a larger surface which can be more gentle for sensitive surfaces. Please consult Nord-Lock to find the optimal solution for your application.



*Nord-Lock "sp" washers on soft metal.*



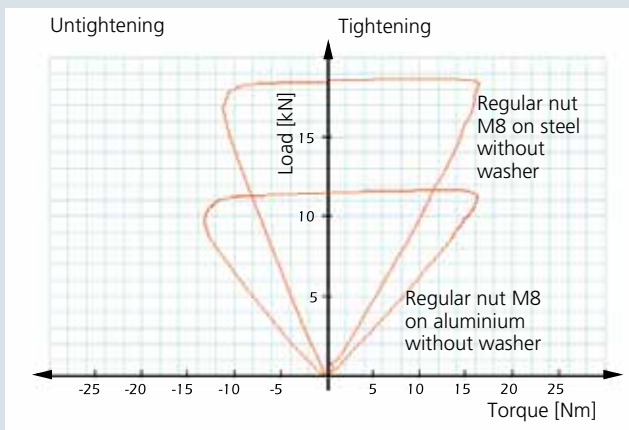
*Nord-Lock "sp" washers on painted surface.*



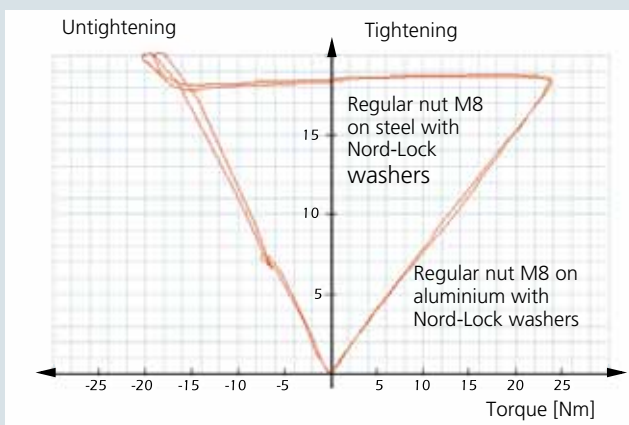
*Nord-Lock "sp" washers on fibre surface.*

## Uniform friction with Nord-Lock washers

It is important to have control over the friction conditions in order to obtain the desired preload when tightening a joint.



When no washer is used under the fastener, the friction depends on the contact surface. At a given torque, the obtained preload will vary depending on the contact material.



When using Nord-Lock washers, sliding always occurs between the upper washer and the bolt head / nut. At a given torque, the preload will be the same, regardless of the contact material.

Nord-Lock provides customized torque guidelines for your application, contact your nearest representative.