

Original SCHNORR® Safety Washers

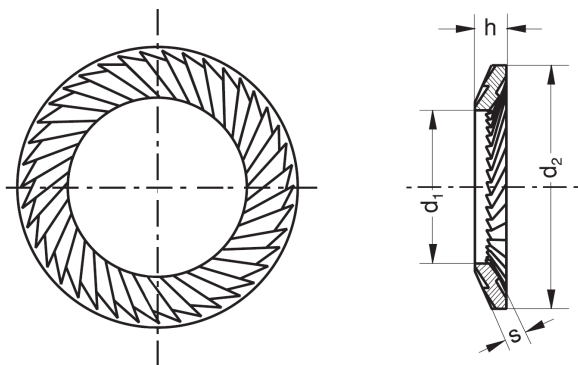
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SCHNORR®
DISC SPRING ENGINEERING

Original SCHNORR® Safety Washers

The Original SCHNORR® Safety Washers are in the form of a disc spring but with a trapezoidal cross-section and serrations on both sides. The outer diameter is matched to the head diameter of the hexagon socket head cap screw (acc. to DIN 912 / ISO 4762).



The Original SCHNORR® Safety Washers are available in two versions with the following characteristics:

Attributes	Typ S	Typ VS
Screw Size	M 1,6 bis M 36	M 5 bis M 30
Strength grade	bis 8.8	8.8 bis 10.9
Standard Materials	C60S (1.1211) X5CrNi18-10 (1.4301)	C60S (1.1211) X5CrNi18-10 (1.4301)
Standard Surfaces (bei C60S)	blackened Gal.Zn8 + passivation Zn8M + passivation SCHNORR Zn-Flake720h	blackened Zn8M + passivation SCHNORR Zn-Flake720h
Tolerances	h14/H14 acc. to DIN 286-2	h14/H14 acc. to DIN 286-2

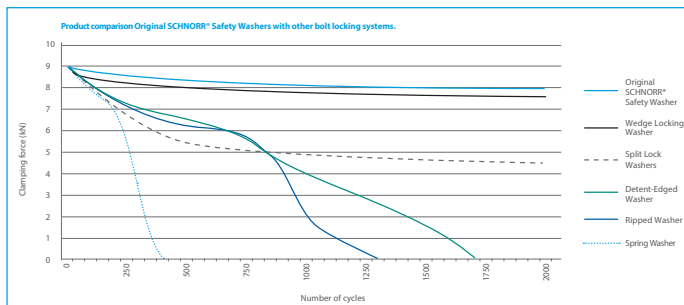
Engineering:

Our engineers and technicians are able to develop and engineer tailor-made SCHNORR® Safety Washers with further dimensions, materials and surfaces to customer requirements.

A sight better securing action with the Original SCHNORR® Safety Washers

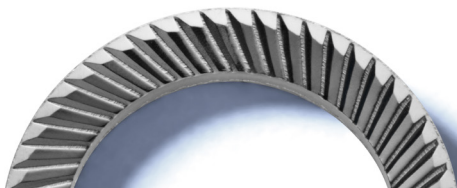
Extensive test series carried out through independent public material research laboratory prove that the Original SCHNORR® Safety Washers manufactured using the patented manufacturing method brings about a clear improvement of the safety properties.

Results of vibration test according to DIN 65151



Conclusions:

- Connections secured using a Original SCHNORR® Safety Washers maintain the pretension force also after 2,000 cycles.
- The test clearly shows a superior locking performance of the Original SCHNORR® Safety Washer in terms of number of cycles lasted and in terms of residual clamping force after 2,000 cycles in comparison to split lock washers, detent-edged washers, ribbed washers and spring washers (acc. to DIN 137 B)
- Furthermore, the test shows a equilant locking effect of the Original SCHNORR® Safety Washer compared with a wedge-locking washer.



The Original SCHNORR® Safety Washers offer the following advantages

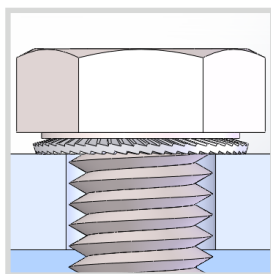
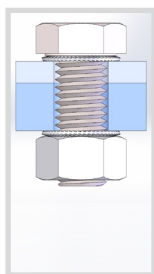
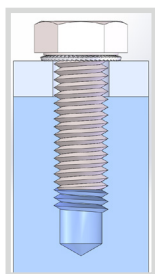
- High resistance to vibration due to positive locking of the serrations.
- Concentric force transmission and uniform axial load eliminate bending torques and deformation of the bolt stem.
- The design of the serrations prevents friction and damage to components when tightening.
- Extremely high safety against loss of pretension force and loosening.
- Wide variety for materials and different finishes.
- The closed ring form results in high degree of pre-tensioning, while avoiding burst-open effect.
- Development and design of the washers take place on the basis of the screw geometrics, tightening torque as well as the constructive circumstances.
- Also applicable for clearance holes (safety washer is necessary on both sides)
- Applicable for elongated holes (using type VS)
- Equivalent locking effect like wedge-locking washers (according to vibration test DIN 65101 resp. DIN 25201-4 Part B)

SCHNORR worldwide



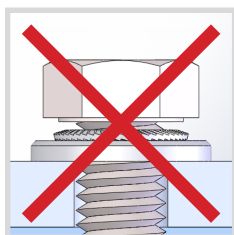
Correct usage of the Original SCHNORR® Safety Washers

The Original SCHNORR® Safety Washer is only able to obtain its full effectiveness as a bolt locking device if it is used correctly.

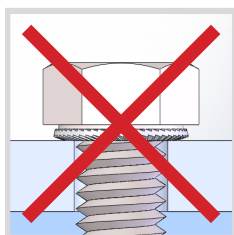


Incorrect usage of the Original SCHNORR® Safety Washers

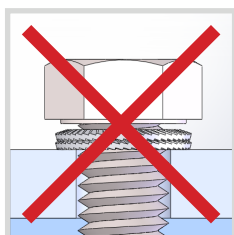
To obtain the maximum locking effect of the Original SCHNORR® Safety Washers we recommend **not** to use them in combination with a flat washer.



To obtain the maximum locking effect of the Original SCHNORR® Safety Washers we recommend **not** to use them up-side down.



To obtain the maximum locking effect of the Original SCHNORR® Safety Washers we recommend **not** to use them stacked.



Video Original SCHNORR® Safety Washers

All information on the original SCHNORR® lock washers contained in this flyer can also be viewed in our explanatory video. Simply use the QR code on the right.



Tightening torques for Original SCHNORR® Safety Washers

You can also find an overview of the tightening torques of the original SCHNORR® safety washers online. Simply use the QR code on the right.



Questions?
We look forward to hearing from you!

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