

BÖLLHOFF

RIPP LOCK® screw lock

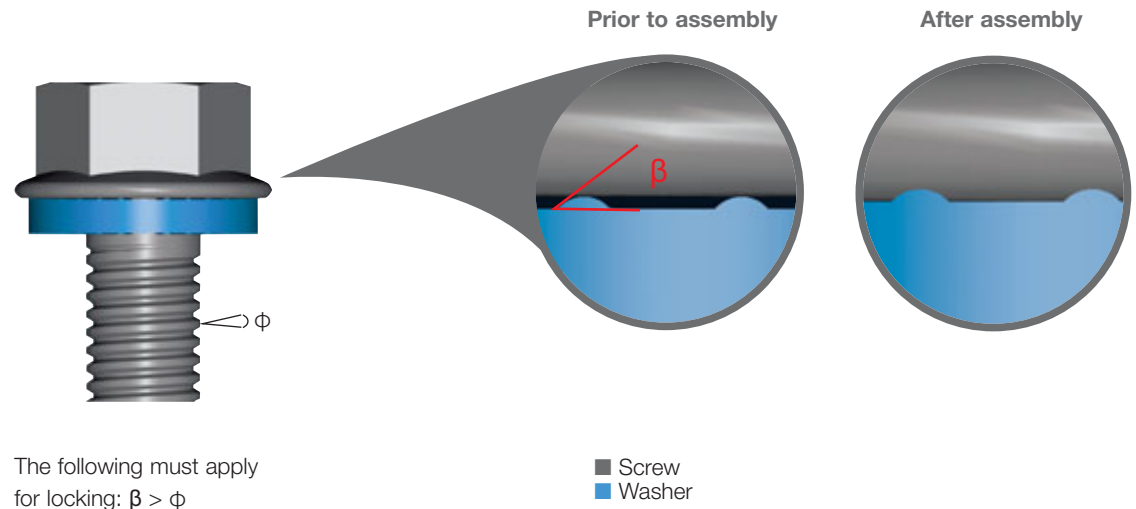
Efficient and secure



The system

RIPP LOCK® lock washers have radial ribs on both sides.

The contact angle at the foot of the ribs is obviously larger than the gradient angle of the metric thread.

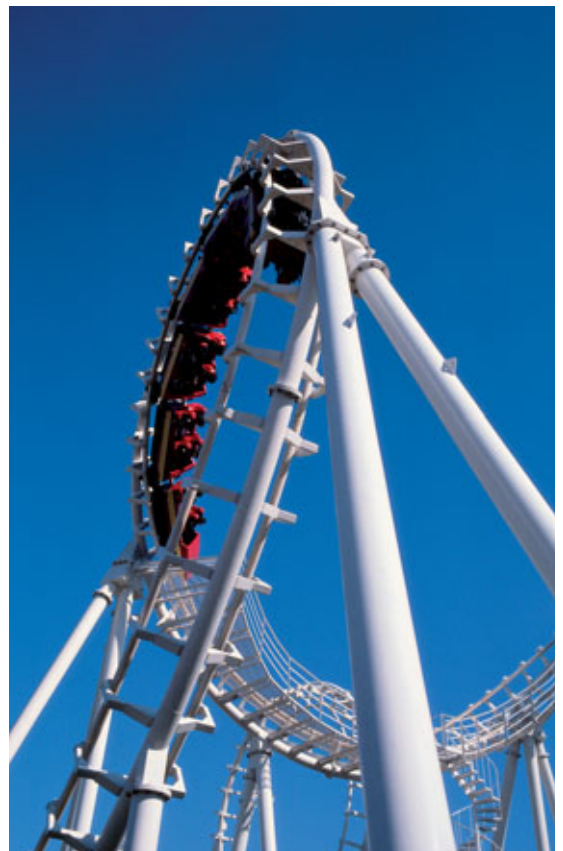


Working-principle

Because of the preload force the ribs of the RIPP LOCK® washers are embossed into the counter surface during assembly.

The resulting form lock prevents self-loosening of the connection reliably, even under extreme vibrations or high dynamic stresses.

Due to their high hardness the washers can be used with screws of all property classes up to 12.9.

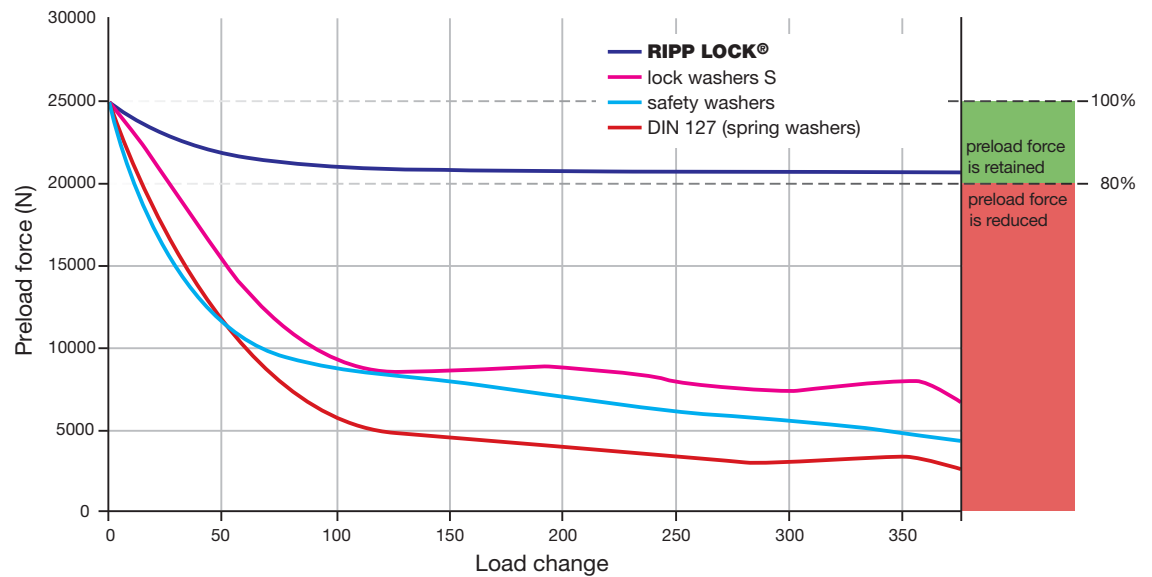


Benefits

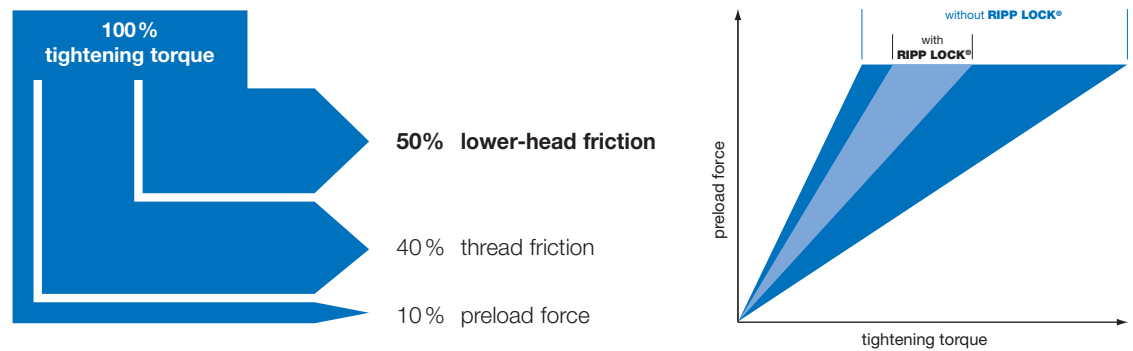
- Excellent locking against self-unscrewing – even under high dynamic stress

Junkers vibration test according to DIN 65151

Screw M 10 (8.8) galvanically zinc coated



- Very low fluctuation in preload force at defined tightening torque



- Gentle to contact surface – even to coated or powder coated surfaces



RIPP LOCK®
(painted surfaces)



RIPP LOCK®
(aluminium)



DIN 127
(aluminium)

Benefits

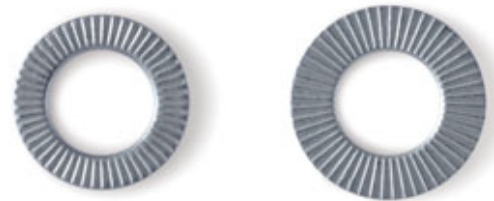
- Perfectly suitable also for slotted-hole applications



- Universal use –
outside diameter = DIN 125/ISO 7089



- Smaller external diameter for joints with counter-bored pan head

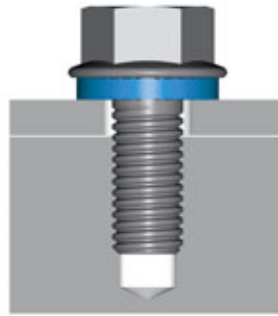


Further benefits

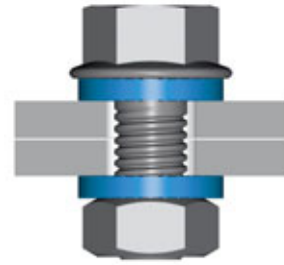
- Easy assembly and removal – multiple reuse
- Economic benefits due to reduction and standardisation of assortment
- Small space requirements
- Not affected by contact with lubricants or greases
- Perfectly suitable for low-strength metals (aluminium, copper, aluminium and magnesium casting alloys, etc.)
- Suitable for all property classes up to 12.9
- Particularly suitable for sensitive surfaces such as zinc coated, chromium-plated, coated or powder coated surfaces
 - Immediate effect – no curing
 - Same temperature range as high-tensile screws
 - Longevity – no ageing, no embrittling or weathering
 - Almost no mechanical abrasion – no chip formation
 - Retrofitting into almost every construction
 - Effective in adjustable fastenings of components (e.g. prestressing of belt drive)
 - Very small relaxation
 - CAD data available on request
 - The RIPP LOCK® defines friction values of most diverse materials and surfaces



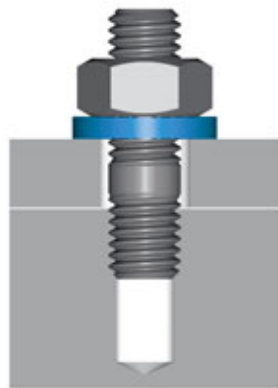
Possible applications



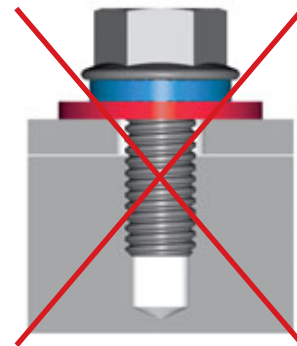
RIPP LOCK® screw fastening in tapped holes



Through screw joints with two RIPP LOCK® washers



With RIPP LOCK®, adhesion of studs is not required anymore

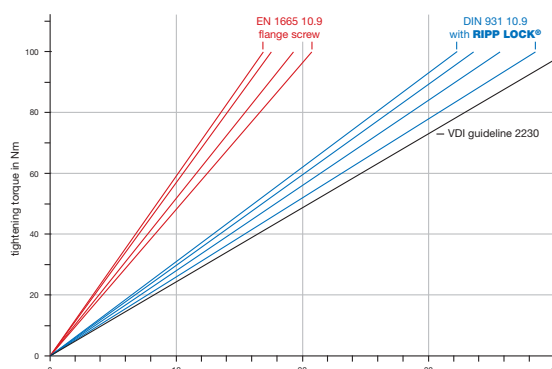


RIPP LOCK® shall not be used on loose plain washers

Tightening torques

To minimise creep and relaxation, screws with a large head support are used in many applications. However, particularly for light metals, friction values often are so high that the desired preload forces are not achieved (see red lines in diagram). With the use of RIPP LOCK® lock washers which only allow a relative movement between screw head and washer, defined friction values and thus defined clamping forces are always achieved – even for most diverse materials and surfaces (see blue lines in diagram).

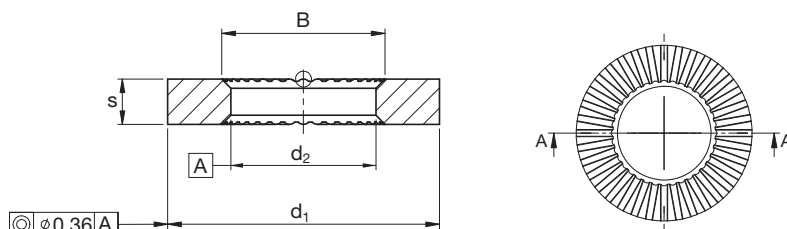
Tested on aluminum



Tightening torques determined in accordance with VDI guideline 2230 (Association of German Engineers – VDI) can thus be applied to almost all other applications.

SCHATZ
ADVANCED QUALITY

Technical information



Material Steel

Hardness 400–500 HV
Surface Zinc flake
480 h

Size (nominal dimension)	Diameter of hole d_2 min.	Outside diameter d_1 max.	Thickness s nominal dimension	B max.	Order No.
4	4.3	9	2.0	5.0	53065STZL4
5	5.3	10	2.0	6.0	53065STZL5
6	6.4	12	2.0	8.0	53065STZL6
8	8.4	16	2.5	10.0	53065STZL8
10	10.5	20	2.5	12.1	53065STZL10
12	12.5	24	3.0	14.1	53065STZL12
14	14.5	28	3.0	16.1	53065STZL14
16	16.5	30	4.0	18.1	53065STZL16
20	20.5	37	4.0	22.1	53065STZL20
24	24.5	44	5.0	26.1	53065STZL24
27	27.5	50	5.0	29.1	53065STZL27
30	30.5	56	5.0	32.1	53065STZL30

Smaller external diameter

Size (nominal dimension)	Diameter of hole d_2 min.	Outside diameter d_1 max.	Thickness s nominal dimension	B max.	Order No.
6	6.4	11	2.0	8.0	53065STSZL6
8	8.4	15	2.5	10.0	53065STSZL8
10	10.5	18	2.5	12.1	53065STSZL10
12	12.5	20	3.0	14.1	53065STSZL12

Material Stainless Steel 1.4404 Surface hardened*

Hardness ≥ 800 HV

Size (nominal dimension)	Diameter of hole d_2 min.	Outside diameter d_1 max.	Thickness s nominal dimension	B max.	Order No.
4	4.3	9	2.0	5.0	53065A44
5	5.3	10	2.0	6.0	53065A45
6	6.4	12	2.0	8.0	53065A46
8	8.4	16	2.5	10.0	53065A48
10	10.5	20	2.5	12.1	53065A410
12	12.5	24	3.0	14.1	53065A412
16	16.5	30	4.0	18.1	53065A416



All RIPP LOCK® lock washers comply with ELV, RoHS and WEEE directives and are thus Cr(VI)-free.
Further surfaces and dimensions on request.

*The production and hardening process can have an influence on the corrosion behavior.

RIPP LOCK® lock screws and nuts – Approvals



General technical approval

Registration number: Z-14.4-664

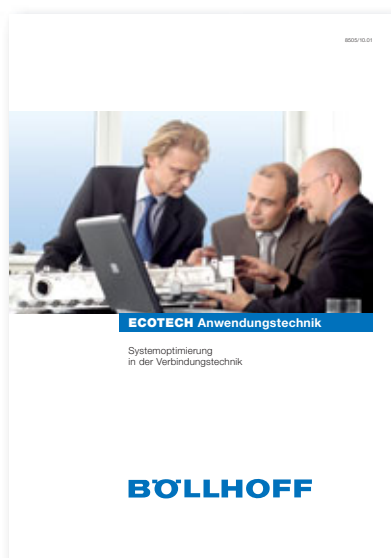
Object of approval:

Bolted connection with RIPP LOCK® screw lock washers

The general technical approval verifies the screw-locking performance of the RIPP LOCK® washers in accordance with state building regulation.

RIPP LOCK® washers are tested and approved to secure the bolted connection, suitable even under high dynamic loads and under extreme vibration.

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<http://www.boellhoff.de/de-en/ecotech>



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