teckentrup-sperrkant®
The Original
Made in Germany

teckentrup SLI

NSK-Screw Locking Innovation

The versatile & multifunctional screw locking system for your applications

Fastening solutions

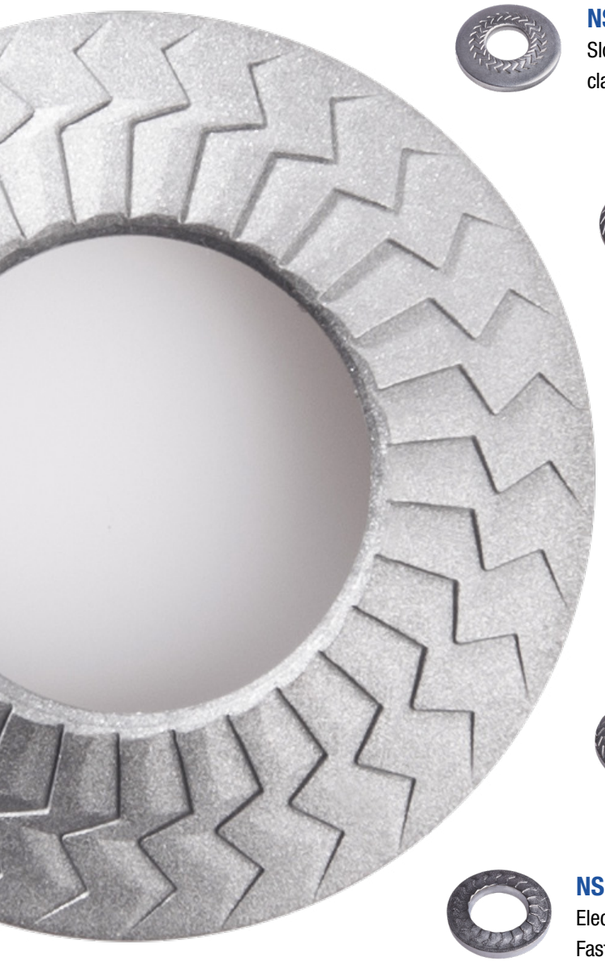
Highly stressed screws

Electrical contact glands

Electroconductive connections

NSK-Screw Locking Innovation

The versatile & multifunctional screw locking system for your applications



NSK-L
Standard bores & slotted hole fastenings for strength classes up to 12.9

NSK-B
Slotted hole fastenings for strength classes up to 12.9

NSK-M
Strength classes up to 8.8

SK-Z
Cylindrical head bolts for strength classes up to 8.8

NSK-S
Strength classes less than 8.8

NSK-K
Electroconductive connections for strength classes up to 8.8

NSK-E
Electrical glands
Fastening solutions

Customized special solutions

- One system for many applications
- Increases the resilience of the bolted joint
- Secures multifunctional against slackening and loosening
- Application for many property classes up to 12.9
- Effective securing for standard bores & slotted hole fastenings
- Constant friction coefficient for all washer variants
- One-piece, easy to assemble, economical and risk minimizing

Why secure the bolted joint

Dynamic loads, vibrations as well as embedding and creeping effects lead to loosening bolted joints. Slackening and loosening effects often overlap.

Loosening of screws

Slackening effect ↔ Interaction ↔ **Loosening effect**

Embedding
Flattening of joint surfaces

Creeping
Time-dependent plastic deformation

Overloading
Plasticisation of bolted components

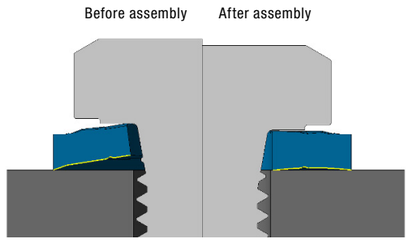
Relative rotational movements
Transverse to the bolt axis

Breathing of the nut threads
due to high axial load

The all-round solution NSK:
A multifunctional system for compensation of slackening and loosening effects.
Suitability as a screw locking element in accordance with DIN 267-26, DIN 25201, pr EN 17976.

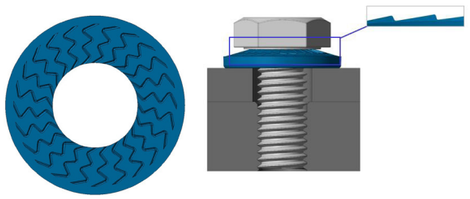
Operating principle of the NSK

The operating principle of the locking washer was invented by teckentrup in 1990. Due to increased requirements for securing elements the proven securing element (SK washer) was further developed into NSK washer. Consequently the requirements for residual spring force in accordance with DIN 267-26 (status 2008) could be fulfilled.



Force-locking, resilient with bow shape geometry matched to the preload depending on property class (variants ≥ 8.8 corresponding tension washers. For A4-stainless steel higher residual spring force than tension washers)

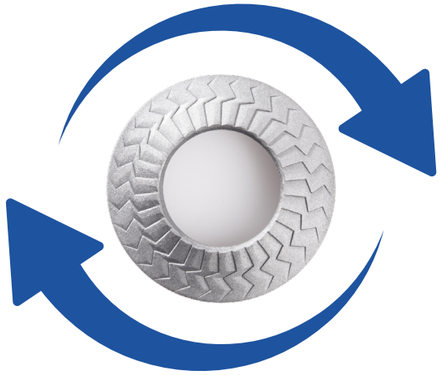
Prevents the slackening and supports the securing effect against self-acting loosening by rotation



Positiv-locking effect through toothing below the screw head or on the nut

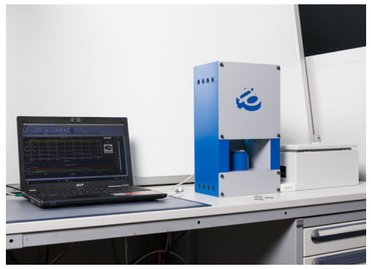
Supports the securing effect against self-acting loosening by rotation

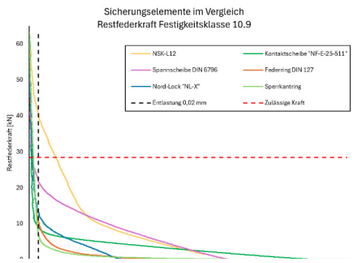
Technical support from one source



- Telephone advice
- Product presentation and application advice
- Online webinars
- In-house user training
- Application-specific tests at our in-house test laboratory
- Optimization recommendations based on many years of expertise

Assurance of quality requirements

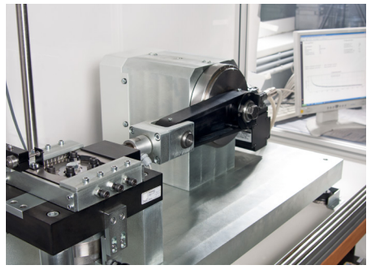


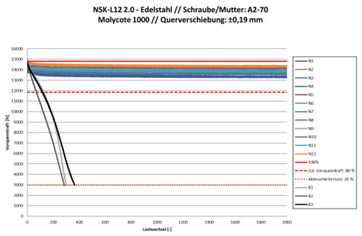


Resilience and residual spring force

Residual spring force test acc. DIN 267-26

Slackening effect compensation





Loosening safety

Vibration test acc. DIN 65151 / 25201-4 Attachment B

Loosening effect compensation

- Coefficient of friction according to DIN16047
- Pressure cone test via color procedure
- Customized tests
- Material analysis, hardness test,
- Salt spray test etc. (external)

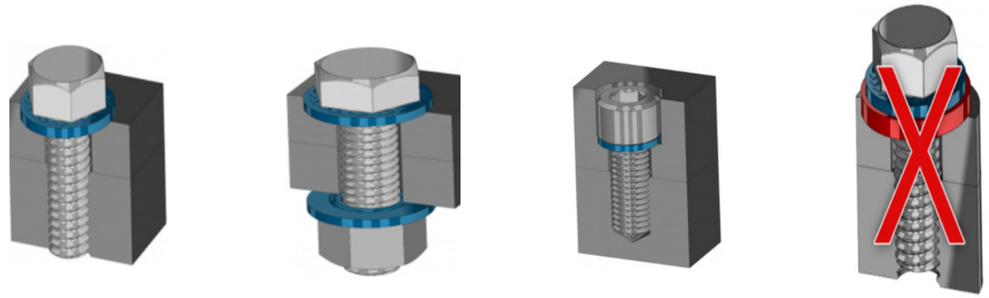
Further testing procedures

Technical information

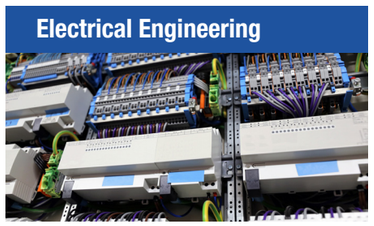
	Spring steel EN 1.1211	Stainless steel (A4) EN 1.4401
Hardness / Strength	≥ 430 HV10	≥ 595 N/mm2
Surface	Zinc flake	
Corrosion protection	> 720h salt spray test (acc. ISO 9227)	PREN 27 (related to the base material)
Temperature range	-40C to 150C	-40C to 150C
Property classes	5.6 / 8.8 / 10.9 / 12.9	up to and including A2/A4-70/-80
Dimensions	M3-M30	M3 - M24

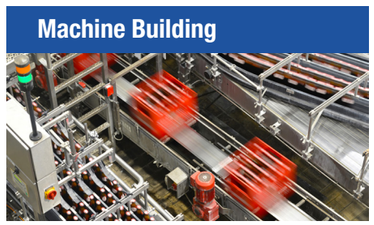
Further materials and surfaces are possible

Examples of assembly



Applications





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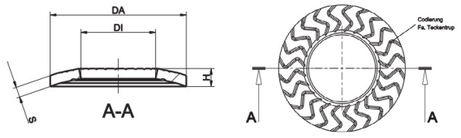
Dimensions



NSK-M (medium) for strength classes ≤ 8.8

NSK-M	Article No. spring steel with zinc flake	Article No. Stainless steel A4 / 1.4401	DI	DA	S	H	Weight kg/1.000 pcs.	Pcs. per unit
NSK-M4	070010	076010	Ø 4.10+0.48	Ø 10.20-0.40	1.00±0.04	1.45±0.20	0,53 kg	1.000
NSK-M5	070020	076020	Ø 5.10+0.48	Ø 12.20-0.40	1.20±0.04	1.75±0.20	0,90 kg	1.000
NSK-M6	070030	076030	Ø 6.10+0.48	Ø 14.20-0.43	1.40±0.04	2.15±0.20	1,40 kg	1.000
NSK-M8	070040	076040	Ø 8.20+0.58	Ø 18.30-0.52	1.40±0.04	2.70±0.25	2,30 kg	1.000
NSK-M10	070050	076050	Ø 10.20+0.58	Ø 22.25-0.52	1.60±0.05	3.10±0.25	3,90 kg	500
NSK-M12	070060	076060	Ø 12.40+0.58	Ø 27.25-0.52	1.80±0.05	3.65±0.25	6,50 kg	500
NSK-M14	070070	076070	Ø 14.40+0.58	Ø 30.25-0.62	2.40±0.06	3.90±0.25	10,50 kg	500
NSK-M16	070080	076080	Ø 16.40+0.58	Ø 32.50-0.62	2.50±0.06	4.60±0.30	12,00 kg	250
NSK-M18	070090	-	Ø 18.50+0.75	Ø 35.00-0.62	3.00±0.07	4.80±0.30	16,30 kg	250
NSK-M20	070100	076100	Ø 21.00+0.75	Ø 40.00-0.62	3.00±0,07	5.00±0.30	22,00 kg	100
NSK-M22	070110	-	Ø 23.00+0.75	Ø 45.00-0.62	3.50±0.07	5.60±0.40	33,00 kg	100
NSK-M24	070120	076120	Ø 25.00+0.75	Ø 50.00-0.62	3.50±0.07	5.80±0.40	41,00 kg	100
NSK-M30	070140	-	Ø 31.00+0.85	Ø 70.00-0.75	4.50±0.08	7.00±0.50	109,00 kg	30

NSK-B (wide) for large pressure transfer surfaces and slotted hole connections ≤ 12.9

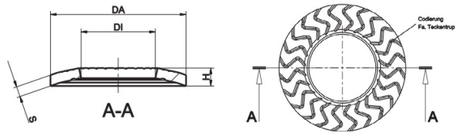
NSK-B	Article No. spring steel with zinc flake	Article No. Stainless steel A4 / 1.4401	DI	DA	S	H	Weight kg/1.000 pcs.	Pcs. per unit
NSK-B5	070520	076520	Ø 5.10+0.48	Ø 18.20-0.52	1.40±0.04	2.60±0.20	2,50 kg	1.000
NSK-B6	070530	076530	Ø 6.10+0.48	Ø 18.20-0.52	1.40±0.04	2.60±0.20	2,50 kg	1.000
NSK-B8	070540	076540	Ø 8.20+0.58	Ø 22.25-0.52	1.90±0.05	3.10±0.25	5,00 kg	500
NSK-B10	070550	076550	Ø 10.20+0.58	Ø 27.25-0.52	2.40±0.05	3.60±0.25	9,40 kg	500
NSK-B12	070560	076560	Ø 12.40+0.58	Ø 32.30-0.62	2.80±0.06	4.80±0.25	15,40 kg	250
NSK-B16	070580	076580	Ø 16.40+0,58	Ø 45,00-0,62	3,50±0.07	6,10±0.50	37,90 kg	100

NSK-L for slotted hole connections with limited assembly space ≤ 12.9

NSK-L	Article No. spring steel with zinc flake	Article No. Stainless steel A4 / 1.4401	DI	DA	S	H	Weight kg/1.000 pcs.	Pcs. per unit
NSK-L6	070230	076230	Ø 6.10+0,48	Ø 14.20-0,43	2.40±0.04	3.10±0.20	2,13 kg	1.000
NSK-L8	070240	076240	Ø 8.20+0.58	Ø 18.20-0.52	2.40±0.05	3.40±0.25	3,94 kg	1.000
NSK-L10	070250	076250	Ø 10.20+0.58	Ø 22.25-0.52	2.80±0.06	3.70±0.25	6,83 kg	500
NSK-L12	070260	076260	Ø 12.40+0.58	Ø 27.25-0.52	2.80±0.06	4.30±0.25	10,11 kg	500
NSK-L14	070270	076270	Ø 14.40+0.58	Ø 30.25-0,52	3.50±0.06	4.70±0.25	15,30 kg	250
NSK-L16	070280	076280	Ø 16.40+0.58	Ø 32.50-0.52	3.50±0.07	4.90±0.30	16,80 kg	250
NSK-L20	070300	076300	Ø 21,00+0,58	Ø 40,00-0,52	4.00±0.07	6.00±0.30	26,10 kg	100

The securing effect of the NSK-B and NSK-L on slotted holes is verified using a wide range of test methods. The hole clearance in the transverse direction corresponds to normal holes (DIN EN 20273; tolerance class H 13, medium). Furthermore, slotted hole edges are always deburred. For your own applications, it is recommended that you carry out your own tests with specialised personnel.

Dimensions

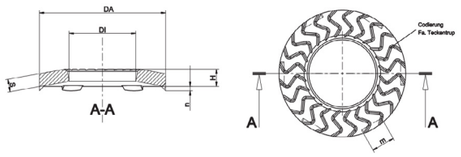


NSK-S (small) for strength classes < 8.8

NSK-S	Article No. spring steel with zinc flake	Article No. Stainless steel A4 / 1.4401	DI	DA	S	H	Weight kg/1.000 pcs.	Pcs. per unit
NSK-S4	070810	076810	Ø 4.10+0.48	Ø 8.20-0.40	1.00±0.04	1.30±0.20	0,30 kg	1.000
NSK-S5	070820	076820	Ø 5.10+0.48	Ø 10.20-0.40	1.00±0.04	1.50±0.20	0,43 kg	1.000
NSK-S6	070830	076830	Ø 6.10+0.48	Ø 12.20-0.43	1.20±0.04	1.75±0.20	0,80 kg	1.000
NSK-S8	070840	076840	Ø 8.20+0.58	Ø 16.20-0.43	1.40±0.04	2.40±0.25	1,70 kg	1.000
NSK-S10	070850	076850	Ø 10.20+0.58	Ø 20.25-0.52	1.60±0.05	2.75±0.25	3,00 kg	1.000
NSK-S12	070860	076860	Ø 12.40+0.58	Ø 24.25-0.52	1.60±0.05	3.00±0.25	4,30 kg	500

SK-Z for cylindrical head bolts

SK-Z	Article No. spring steel with zinc flake	Article No. Stainless steel A4 / 1.4401	DI	DA	S	H	Weight kg/1.000 pcs.	Pcs. per unit
SK-Z6	090630	096630	Ø 6.10+0.48	Ø 9.90-0.36	1.40±0.10	1.60+0.20	0,50 kg	1.000
SK-Z8	090640	096640	Ø 8.20+0.58	Ø 12.70-0.36	1.40±0.10	1.70+0.20	0,90 kg	1.000
SK-Z10	090650	096650	Ø 10.20+0.58	Ø 16.10-0.36	1.60±0.10	2.00+0.20	1,50 kg	500
SK-Z12	090660	096660	Ø 12.40+0.58	Ø 18.30-0.52	1.80±0.10	2.40+0.20	2,00 kg	500
SK-Z14	090670	096670	Ø 14.40+0.58	Ø 21.40-0.52	2.40±0.10	2.90+0.20	3,70 kg	500
SK-Z16	090680	096680	Ø 16.40+0.58	Ø 24.60-0.52	2.50±0.10	3.10+0.20	5,10 kg	500



NSK-K for electroconductive connections

NSK-K	Article No. spring steel with zinc flake	Article No. Stainless steel A4 / 1.4401	DI	DA	S	H	Width tooth m	height tooth n	Weight kg/1.000 pcs.	Pcs. per unit
NSK-K4	070710	076710	Ø 4.10+0.48	Ø 8.20-0.40	1.00±0.03	1.30±0.20	1.20±0.10	0.20+0.20/-0.10	0,30 kg	1.000
NSK-K5	070720	076720	Ø 5.10+0.48	Ø 10.20-0.40	1.00±0.03	1.50±0.20	2.00±0.10	0.40+0.30/-0.10	0,43 kg	1.000
NSK-K6	070730	076730	Ø 6.10+0.48	Ø 12.20-0.40	1.20±0.04	1.90±0.20	2.00±0.20	0.40+0.30/-0.10	0,80 kg	1.000
NSK-K8	070740	076740	Ø 8.20+0.58	Ø 16.20-0.50	1.40±0.04	2.40±0.25	2.00±0.20	0.40+0.30/-0.10	1,60 kg	1.000
NSK-K10	070750	076750	Ø 10.20+0.58	Ø 20.25-0.50	1.60±0.04	2.75±0.25	2.00±0.20	0.40+0.30/-0.10	2,80 kg	500
NSK-K12	070760	076760	Ø 12.40+0.58	Ø 24.25-0.50	1.60±0.04	3.00±0.25	2.00±0.20	0.40+0.30/-0.10	4,00 kg	500
NSK-K16	070780	076780	Ø 16.40+0.58	Ø 32.30-0.62	2.50±0.06	5,00±0.30	2.00±0.20	0.40+0.30/-0.10	12,00 kg	250

Contact washers are used for establishing electroconductive connections (eg for earth and ground connections) of coated equipment parts with coating thicknesses of up to 100µm. See also SN 70093.

Technical changes reserved

Further screw locking solutions

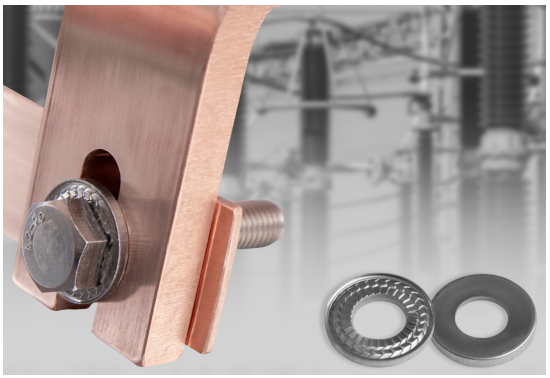
Securing electrical bolted joints

NSK-E

Securing electrical bolted joints

NSK-EL

Securing electrical bolted joints with slotted holes



Risk minimization in electrical engineering through optimal bolted joints

- ✓ Increases the resilience of the bolted joint
- ✓ Compensates embedding and creeping effects
- ✓ Permanent contact pressure
- ✓ Securing against self-acting loosening
- ✓ Slackening safety due to high spring effect
- ✓ Protects the soft conductor materials
- ✓ One-piece, easy to assemble and economical

Contact

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