teckentrup-sperrkant®
The Original
Made in Germany

teckentrup SLI

NSK-E: Securing electrical bolted joints

- Bolt locking for busbar and cable lug connections
- Risk minimization in electrical bolted joints through optimal securing properties
- Standards in accordance with DIN 43671, DIN 46206, DIN/EN 50343, DIN 25201-3 and **NEW: DIN EN 17976…**
- Recommended by Deutsche Bahn

Challenges of electrical contact glands:

In the world of electrical engineering, loose bolted joints inevitably lead to system failures. Common causes for the failure of electrical contact glands are:

- **Loss of preload as a result of increased embedding due to**
  - The high number of interface surfaces when using multi-part screw locking devices
  - Different thermal expansion of the screws and conductor materials
  - Reduced torques when assembling conductive materials made of copper and aluminium
- **Loosening of bolted joints**
  - Due to inherent vibration and thermal expansion
- **Damage to conductor materials and chip formation**
  - The soft conductive materials are highly susceptible to damage
  - Chip formation is encouraged

Relevant criteria for securing electrical contact glands:

- Damage-free contact elements
- Equally distributed pressure cone
- Permanent contact pressure through defined tightening torques and friction coefficients
- Resilience (compensation of slackening effects)
- Anti-rotation lock effect (prevents self-acting loosening by rotation)
- Easy to install
- State of the art

Even the non-fulfillment of individual criteria leads to an increase of transition resistance and failure risks.

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NSK-E: Secure and lasting protection for electrical contact glands

Front

Bow shape geometry
Compensates for both embedding and expansion effects and maintains preload

Protects the bearing surface
through the skid-like contour on the underside

Securing against self-acting loosening
Locking effect below the screw head or nut through advanced toothing

Stainless steel (A4)
Spring effect through forming process

Easy to install thanks to the one-piece screw locking solution

Permanent contact pressure toothing allows constant coefficient of friction

Constant pressure cone leads to low contact resistance

Rear

Technical specifications:

- **Steel design, hardened, 430-470 HV10**
  - Surface: zinc/nickel coating
  - Corrosion resistance: 168h white rust, 720h red rust acc. to DIN EN ISO 9227 NSS
- **A4 stainless steel for challenging environments:**
  - Rust and acid resistance (PREN27)
  - Spring effect through forming process
- **Other applications:**
  - Also suitable for glass fibre reinforced plastics, non-ferrous metals and coated surfaces
- **Screw-and-washer or nut-and-washer assemblies available as captive variants upon request**

Variants:

Spring steel C60 / 1.1211 galvanised

NSK-E	Article No.	DI	DA	S	H	Weight/ 100 pcs
NSK-E3	070905	Ø 3.10+0.35	Ø 7.10-0.30	1.00±0.05	1.10+0.20	25 grammes
NSK-E4	070910	Ø 4.10+0.48	Ø 9.10-0.40	1.20±0.05	1.30+0.20	49 grammes
NSK-E5	070920	Ø 5.10+0.48	Ø 10.10-0.40	1.20±0.05	1.30+0.20	56 grammes
NSK-E6	070930	Ø 6.10+0.48	Ø 12.10-0.43	1.60±0.05	1.70+0.20	88 grammes
NSK-E8	070940	Ø 8.20+0.58	Ø 16.10-0.43	1.60±0.05	2.00+0.30	165 grammes
NSK-E10	070950	Ø 10.20+0.58	Ø 20.10-0.52	1.80±0.10	2.30+0.35	292 grammes
NSK-E12	070960	Ø 12.30+0.58	Ø 24.10-0.52	2.00±0.10	2.50+0.35	472 grammes
NSK-E16	070980	Ø 16.30+0.58	Ø 30.10-0.52	2.20±0.10	2.80+0.35	787 grammes

Subject to technical changes

Stainless steel A4 / 1.4401 bright*

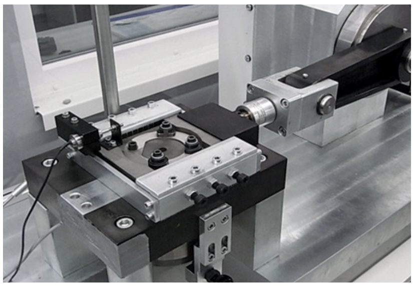
NSK-E	Article No.	DI	DA	S	H	Weight/ 100 pcs
NSK-E3	076905	Ø 3.10+0.35	Ø 7.30-0.40	1.00±0.05	1.10+0.20	27 grammes
NSK-E4	076910	Ø 4.10+0.48	Ø 9.10-0.40	1.20±0.05	1.30+0.20	53 grammes
NSK-E5	076920	Ø 5.10+0.48	Ø 10.10-0.40	1.20±0.05	1.30+0.20	63 grammes
NSK-E6	076930	Ø 6.10+0.48	Ø 12.10-0.43	2.25±0.075	2.20+0.30	122 grammes
NSK-E8	076940	Ø 8.20+0.58	Ø 16.10-0.43	2.25±0.075	2.80+0.30	227 grammes
NSK-E10	076950	Ø 10.20+0.58	Ø 20.10-0.52	2.40±0.10	3.00+0.35	389 grammes
NSK-E12	076960	Ø 12.20+0.58	Ø 24.10-0.52	2.70±0.10	3.10+0.35	637 grammes
NSK-E16	076980	Ø 16.30+0.58	Ø 30.10-0.52	3.00±0.10	3.60+0.35	1073 grammes

*can also be used for A2 stainless steel screws

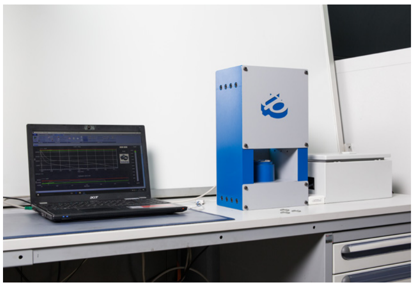
Our testing, your guarantee

The effectiveness of the NSK-E has been tested using the latest technology, including:

- Vibration test based on DIN 65151 / 25201-4 B
- Spring force test according to DIN 267-26
- Friction coefficient test according to DIN 16047
- Counter-surface, pressure cone and disc support analysis



Vibration test



Residual spring force analysis

Spring force test

NSK-E applications at Deutsche Bahn AG

In cooperation with DB Systemtechnik GmbH, the NSK-E was tested according to IEC 61373 / 61373. Based on the positive results, the NSK-E has been chosen for securing electrical contact glands, such as:

- Cable lugs
- Busbars
- Ground and power straps
- Potential equalisation rails

Other screw locking solutions

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

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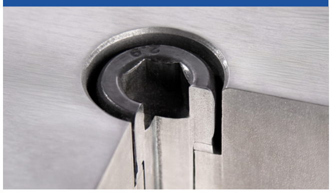
NSK-K

Electroconductive connections

NSK-S

Strength classes less than 8.8

SK-Z



Cylinder head screws

Screw, nut and washer assemblies

Simplify Assembly

Contact

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09/24 plakart.de