

**BOSSARD**

Proven Productivity



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## Anti-loosening Solutions

Bolting assemblies engineered to hold

**ANTI-LOOSENING SOLUTIONS**

# Bolting assemblies engineered to hold

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## Ensuring functional safety

Threaded fasteners are commonly used to facilitate assembly and disassembly of multiple mechanical parts. However, when undergoing transverse vibrations, threaded fasteners may experience self-loosening and fatigue, two common failures which can lead to disastrous accidents.

Understanding the magnitude of failures due to self-loosening, Bossard provides a diverse range of anti-loosening solutions to prevent bolting assembly failures.

### **Common industrial applications**

- Medical devices
- Wind power
- Commercial transportation
- Industrial machinery & automation

## ANTI-LOOSENING SOLUTIONS

# Bolting assemblies engineered to hold

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Irregardless of size, bolting failures in threaded fasteners can be disastrous incidents. These incidents may include compromises in workplace safety leading to injuries and death, or disruption and downtime to assembly lines leading to loss of business. Listed below are some of our product solutions. The product images shown are for illustration purposes only.

To find out more about our product solutions, do contact us at [pd.asiapacific@bossard.com](mailto:pd.asiapacific@bossard.com).

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### WEDGE LOCK WASHERS

- Independent institutional approval and certification
- Increased operational reliability and lower maintenance costs
- Reduced risks of production stops, accidents and warranty claims



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### DE-PITCHED LOCK NUTS

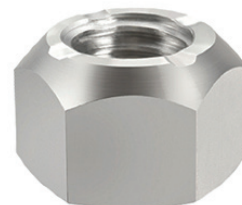
- Eliminates need for plastic inserts
- Withstands the harshest conditions, such as extreme temperatures and high levels of vibration
- Performs without bolt damage or galling



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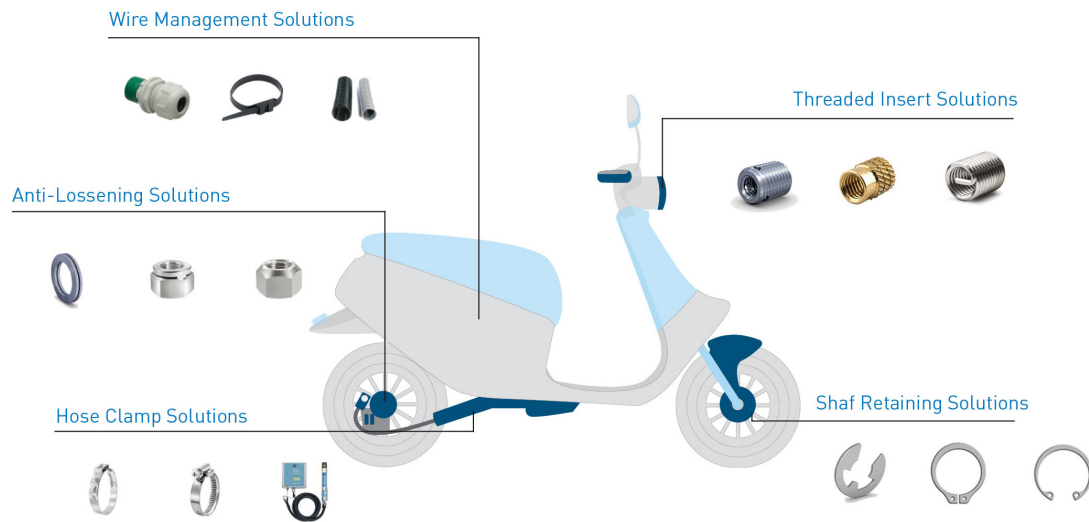
### ALL METAL HEX SELF-LOCKING PREVAILING NUTS

- Ensures reliability even in difficult screwed connections such as in turbochargers and exhaust manifolds
- Withstands high temperatures and corrosion
- Allows cost saving and space-effective automated assembly instead of using fasteners such as castellated nuts, counter nuts and split pins



## ANTI-LOOSENING SOLUTIONS

# Product Solutions for the Electric-Bike



The customer is a strategic partner to the World's Top Two-Wheel Vehicle Maker, that developed battery-swapping solutions for urban electric scooters, mopeds and motorcycles.



### CUSTOMER PAIN POINT

- Safety concerns were raised by the customer during Reliability Tests on the e-scooters
- Fastener loosening was detected at 'exit motor enclosure' due to high vibrations encountered during operations



### OPPORTUNITY

- While studying the existing assembly, the root cause was found to be linked to an unsecured socket-head fastener assembly
- Screws with an internal drive and small head height often have the disadvantage that the material recess for the drive leads to a weakening of the screw head



### ACTION

- Bossard proposed ecosyn®-grip combines the wide contact surface of a button socket head with locking teeth which help keep the fastening assembly locked in place
- ecosyn®-grip is a unique solution where the socket head fastener has an In-Built Anti-Loosening function – serrations under bolt head which help keep the fastening assembly locked in place with the customer's expectations during initial reliability tests



### WHAT ARE THE BENEFITS ?

- With ecosyn®-grip, issues relating to vibrational loosening were effectively resolved
- Assembly time of the sub-components improved by 38%
- Overall Cost Savings of 30% have been achieved as a result of ecosyn®-grip implementation