

Quickly en route on 2 wheels? – Bossard will ensure that safety goes with you

Quality bikes - from children's bikes to downhill bikes - are the core business of our client BMC Switzerland. The fasteners used previously were generally inadequate for the high demands of BMC. A new bolt with built-in safety function developed jointly by Bossard and BMC now considerably increases the level of safety for cyclists.

[BMC Switzerland](#) may not yet be one of the big bicycle manufacturers. But that is what makes the BMC Bicycle Manufacturing Company strong. A small customer-oriented company with its headquarters in Grenchen (Switzerland) that has made it its goal to provide pleasure with time-trial bikes, children's bikes, electric bikes or downhill machines. BMC stands for Swiss quality, which the company last proved with strong performances of the racing team in the Tour de France, thereby developing into a world-renowned bicycle manufacturer.



BMC bikes must withstand high loads.

The high standards of quality and precision are shown as soon as the Head of Development, Mr Stefan Christ, begins to talk about the multifaceted challenges when manufacturing a bike: "Bolts are often the components which we find a hard nut to crack. Whether it's bolts or other fasteners which are critical points in the structure of the bike and can strongly affect safety when using it," continues Stefan Christ.

"In internal and external stress tests, it is the bolts which often cannot withstand the extreme loads," explains Herr Christ. Not because they are poor quality but because the important element is often given too little attention.

Another focus of the high-tech bike manufacturer is on design. A BMC bike should stand out from the crowd, even without color and logos. This requirement poses a further challenge to the engineer looking for the ideal fastening solution. Generally the bolts must be coated black to match the uniform quality look and feel of BMC. Furthermore the bikes must be able to withstand the toughest requirements relating to vibration and corrosion in various standardized stress tests. Not until the lightest possible bolt is found at the best price-performance ratio is the solution ideal.

Newly developed product with certification for the bicycle industry

Bossard Technical Center Taiwan has developed a special bolt for the needs of the bicycle industry. This is based on the one hand on client-specific requirements but also on the standard regulations of EN14766 for mountain bikes. The standard includes safety regulations for bikes and describes the corresponding test methods. For example, the handlebar and stem must withstand 200,000 cycles during the endurance test. At the same time Bossard has carried out a detailed analysis of the existing design as well as various tests to evaluate the mechanical properties and behavior under vibration.



The result is the newly developed Bossard [ecosyn®-grip](#) bolt with improved anti-vibrations properties. The Bossard's innovative solution has improved resistance to material fatigue.

Bossard [ecosyn®-grip](#) was awarded the Taipei Cycle Design & Innovation Award in 2012.

Fatigue test confirms quality

The client was further interested in how the bolt would react in a test under the most extreme conditions. For this purpose endurance was measured over a whole month with over 4,000,000 pedal turns at high vibrations and under harsh environmental conditions. This definitively proved the quality and performance of the newly developed fasteners. The tests took place not only in the company's own laboratories but were also certified by the external independent laboratory SGS.

On the ecosyn®-grip the washer has been replaced by a scalloped edge on the bolt head, which further reduces the risk of loss. Overall fewer fasteners and washers are required in the assembly process with the Bossard ecosyn®-grip, which increases productivity and considerably reduces material costs. The most important thing however in this is that safety for cyclists has been increased thanks to the new bolt and it is bedded unobtrusively into the simple BMC design.



Thanks to the collaboration between Bossard and BMC in Taiwan, safety and design were able to be combined.

The highlights of Bossard ecosyn®-grip at a glance:

- High anti-vibration capability
- High fatigue-strength
- Economical assembly
- Savings on material costs
- Awarded with the TAIPEI CYCLE Design & Innovation Award 2012

Profile:

Bossard is a leading provider of intelligent solutions for industrial connection technology. The complete range around the bolt encompasses worldwide sales, technical consultation (engineering) and inventory management (logistics).

Customers include local and multinational industrial companies whom Bossard is helping to a higher productivity with its solutions. With over 1,800 employees at over 60 locations worldwide the group achieved a turnover in 2012 of 487 million Swiss francs. Bossard is listed on the SIX Swiss Exchange.