



# **b&m-REPTO® Family**

Threaded inserts and bolts for embedding  
in plastics



# Welcome to baier & michels



Group headquarters in an idyllic location in  
Ober-Ramstadt near Frankfurt

Dear customer,  
Dear business partner,

The globally oriented b&m group has built up a strong position as a partner for connection technology and C-parts management in the automotive industry. This is based on innovations in products, processes and systems, and confidence through competence, commitment and soundness.

New innovative products are being developed as problem solvers for customers in the field of technology. Our application engineers support customers with their requirements. A unique standardization tool with an online portal can substantially reduce the variety of parts the customer uses.

As a manufacturer, the b&m Group has the know-how to ensure very high and reliable product quality. With b&m Logistics, the b&m Group has a company that optimizes the customer supply chain worldwide through modern systems such as RFID.

Enjoy reading

**Peter Federolf**  
Managing Director

baier & michels, founded in 1932, has developed a strong position as a supplier of joining technology in the automotive industry and now employs more than 400 people worldwide. The Würth Group, to which b&m has belonged since 1973, provides additional financial stability with more than 78.686 employees and over 14,27 billion Euro in sales worldwide. baier & michels is now active in Europe, Asia and North America.



# Threaded inserts

## WHY THREADED INSERTS?

**Through threaded inserts, plastic components can be provided with a metallic nut thread and fastened with a metric screw connection.**

In the installation process, the inserts create a form-fit connection to the plastic component by overmolding, ultrasonic or heat embedding, and by screwing in inserts with external

threads. Through this, a reliable connection of plastic components, also with repeat screwing processes, can be ensured. Depending on the embedding method, the outer contour features knurls, grooves, hexagon contours or threads, which are dimensioned to accommodate tensile and torque loads.

## BENEFITS:

- Repeated screwing possible
- No preload force losses
- High load capacity
- Geometry adaptable to customer requirements

## b&m-REPTO® Family:

Threaded inserts and bolts for plastics with different embedding methods

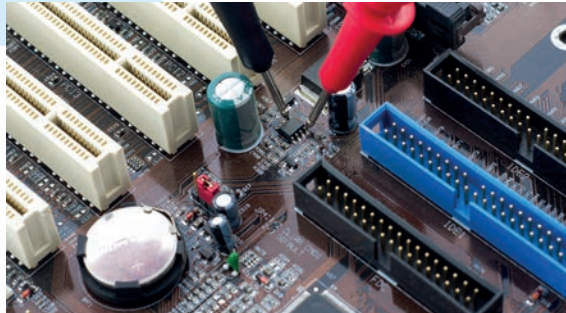


Threaded Inserts	Areas of use
b&m-REPTO® M	<ul style="list-style-type: none"> <li>• Non-reinforced thermoplastics</li> <li>• Highly reinforced thermoplastics (up to 50% fiber content)</li> <li>• Non-reinforced and reinforced thermosets</li> </ul>
b&m-REPTO® S	<ul style="list-style-type: none"> <li>• Non-reinforced thermoplastics</li> <li>• Highly reinforced thermoplastics (up to 30%)</li> </ul>
b&m-REPTO® U	<ul style="list-style-type: none"> <li>• Non-reinforced thermoplastics</li> <li>• Highly reinforced thermoplastics (up to 30%)</li> </ul>
b&m-REPTO® W	<ul style="list-style-type: none"> <li>• Non-reinforced thermoplastics</li> <li>• Highly reinforced thermoplastics (up to 50%)</li> <li>• Especially suitable for plastics sensitive to stress cracks, e.g. PC</li> </ul>
b&m-REPTO® B	<ul style="list-style-type: none"> <li>• Embedding using ultrasound and heat: Unreinforced and reinforced thermoplastics with up to 50% glass fiber content</li> <li>• Overmolding: Unreinforced and reinforced thermoplastics and thermosets with up to 50% glass fiber content</li> </ul>



# Application examples

The threaded inserts and bolts of the b&m-REPTO® Family reliably connect plastic components in a wide range of applications:



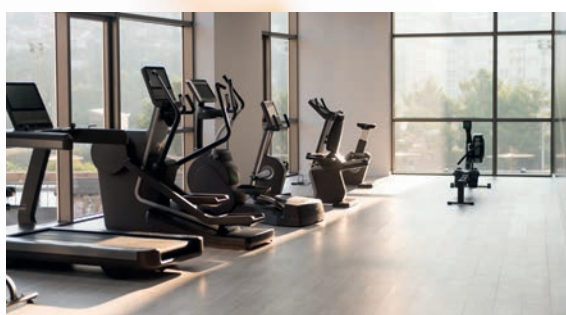
Electronics



Automation and  
sensor technology



Construction  
and agricultural  
machinery



Sports and life-  
style equipment



Surveillance and  
security cameras



Household  
appliances



Rail vehicles



Garden and  
forestry equipment



Lights



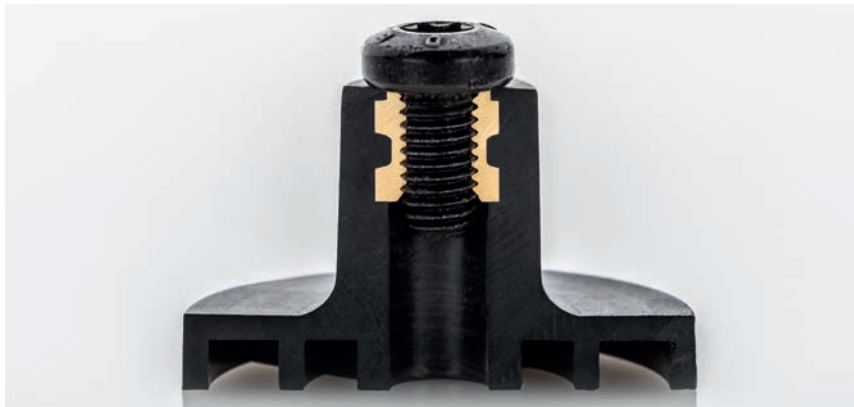
Automotive





# b&m-REPTO® M

Threaded insert for overmolding with different outer contours in plastics



b&m-REPTO® M microsection



b&m-REPTO® M

**The b&m-REPTO® M is a threaded insert for overmolding with the function of connecting screws with plastic components in a reliable and reproducible manner.**

Plastic flows around it in a form-fit already during the production of the component. With this method the outer contour can be given any

desired undercut and anti-rotation elements, where the design focus is on the future load. With this optimized surface contour, which creates a form-fit with the plastic in injection molding, large force transmissions can be achieved.

## PRODUCT FEATURES:

- **Diameter:** M3 - M8
- **Length:** 6.9mm - 12.7mm
- **Material:** according to table
- **Special characteristics:** customer-specific undercuts and contours
- **Torque absorption:** hexagon and knurl
- **Axial force absorption:** circular grooves and knurls

## BENEFITS:

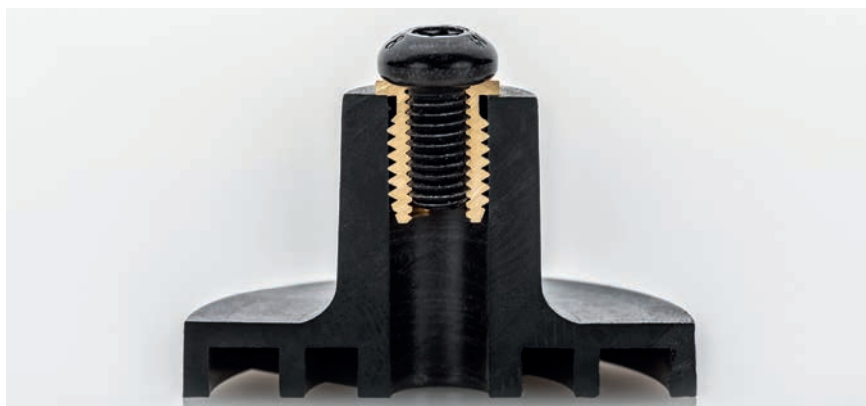
- Installation by overmolding allows undercuts to be filled in a form-fit and forces to be transmitted optimally
- High reproducibility
- Minor acquisitions necessary
- In case of special demands, the geometry can be adapted to customer requirements without limitation
- Universal application for a large variety of materials

Overmolding



# b&m-REPTO® S

Threaded insert for screwing into plastics



b&m-REPTO® S microsection



b&m-REPTO® S

**The b&m-REPTO® S is a threaded insert for screwing-in, and serves with its internal thread as connection point for reliable and reproducible repeating assemblies of metric screws.**

The outer contour corresponds to an external thread and is installed in the plastic like a screw. Because of the

large contact surface between insert and plastic much higher loads can be accommodated than with direct screwing connections.

## BENEFITS:

- No special tools necessary
- Simple process implementation
- High tensile loads possible
- Surface contour adaptable to customer requirements

## PRODUCT FEATURES:

- **Diameter:** M3 - M8
- **Length:** 6mm - 15mm
- **Material:** according to table
- **Special characteristics:** simple assembly
- **Torque absorption:** friction and contact of screw head
- **Axial force absorption:** thread



Screwing-in

# b&m-REPTO® U

Threaded insert for ultrasonic embedding into plastics



b&m-REPTO® U microsection



b&m-REPTO® U

**The b&m-REPTO® U is a threaded insert for ultrasonic embedding with the function of connecting screws with plastic components in a reliable and reproducible manner.**

The outer contour is characterized by knurls and grooves, optimally designed for tensile and torque loads, making them suitable for

embedding via ultrasound. During assembly, the surface of the plastic is melted through the generated friction and axial pressure, thus adapting itself to the outer contour.

## BENEFITS:

- Fast process
- Reduced inherent stresses in the tube
- Surface contour adaptable to customer requirements
- High reproducibility

## PRODUCT FEATURES:

- **Diameter:** M3 - M8
- **Length:** 5.7mm - 12.7mm
- **Material:** according to table
- **Special characteristics:** simple process
- **Torque absorption:** knurl
- **Axial force absorption:** circular grooves and knurls

Ultrasonic embedding





# b&m-REPTO® W

Threaded insert for heat-embedding into plastics



b&m-REPTO® W microsection

**The b&m-REPTO® W is a threaded insert for heat-embedding with the function of connecting screws with plastic components in a reliable and reproducible manner.**

The inserts have a conical, knurled outer contour to allow for a large contact surface for the heat transfer during the embedding process.

The plastic is melted at the surface through the heat and pressure and adapts to the outer contour. The latter is surrounded by the plastic in a form-fit and is able to absorb both tensile and torque loads well.



b&m-REPTO® W

## BENEFITS:

- Fast and robust process
- Reduced inherent stresses in the tube
- High reproducibility
- Universal application for a large variety of materials

## PRODUCT FEATURES:

- **Diameter:** M3 - M8
- **Length:** 5mm - 12mm
- **Material:** according to table
- **Special characteristics:** material-preserving embedding process
- **Torque absorption:** knurl
- **Axial force absorption:** circular grooves and knurls



Heat-embedding

# b&m-REPTO® B

Threaded bolt for embedding in plastics



b&m-REPTO® B

**The b&m-REPTO® B is a threaded bolt for embedding in thermoplastics and duroplastics.**

The external thread of the bolt, which can be designed both as metric and as customer-specific, can be used

for joining and assembling further components. It ensures a process-reliable and highly repeatable connection.

## PRODUCT FEATURES:

- **Diameter:** M3 - M8
- **Length:** depending on diameter
- **Material:** according to table
- **Thread:** metric or customer-specific solutions can be produced
- **Embedding process:** ultrasonic, heat embedding or overmolding
- **Torque absorption:** takes place via the knurling designed for the installation process
- **Axial force absorption:** takes place via additionally attached circular grooves and knurls



b&m-REPTO® B microsection

## BENEFITS:

- Customer and application-specific bolt geometries can be manufactured
- Form-fitting connection, for ideal absorption of torques and axial forces
- Highly repeatable and process-reliable connection
- Higher thread strength for cold forming
- More material-efficient production, due to constant-volume production process with cold forming
- Short embedding time

## Threaded bolts



# Material selection

## A selection of different materials is available for the b&m-REPTO® Family.

Our threaded inserts are available in stock in brass as standard. In addition, these threaded inserts can also be manufactured in other materials according to your individual requirements. Detailed information about the available materials can be found in the table below.

For special requirements baier & michels also offers lead-free materials with a maximum lead content of 0.1%. This means that the EU directives requirements for end-of-life vehicles and electronic waste can already be met today. Lead-free brass achieves the same high strength and corrosion resistance as leaded brass. This material is therefore suitable as an alternative to standard brass for the

use in mechanical components and in components exposed to chemical corrosion.

Whether entertainment electronics, Medical technology, automotive electronics, transportation industry, leisure industry or many more, we have the right answer for each application.

Material	Standard	Lead free (Pb max 0.1%)
Brass*, **	x	x
Aluminum	x	x
Steel*	x	x
Stainless steel	x	x

\* The products b&m-REPTO® BU, BW and BM are only available in brass and steel

\*\* All standard dimensions of the variants b&m-REPTO® U, W, M and S are available in stock in brass



Material selection



# baier & michels worldwide

## Call us!

We analyze your screwing situation and offer you a non-binding technical consultation, upon request also on site. Our technical services include:

- Application engineering
- Process optimization
- Development of new connection systems

We also support you in the areas of procurement and logistics.

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