

b&m-KL PLUG®

Closing and sealing system for holes with or without pressure load



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 established itself internationally as a supplier of innovative fastening and sealing technology. Customers for its products and services primarily include companies in the automotive, electrical and medical industries. With 500 employees worldwide, b&m recently generated sales of around 180 million euros (2021). The Würth Group, to which b&m has belonged since 1973, provides additional financial stability with more than 83,000 employees and over 17,08 billion Euro in sales worldwide.

baier & michels is now active in Europe, Asia and North America.



Closing and sealing of holes

WHY USE SEALING SYSTEMS?

In various areas and applications of the industry, from gearboxes and pumps to engine blocks, coolant and lubricant circuits or process-related bore holes are required to ensure the function of the component. These have to be closed or sealed.

Usually, screw plugs (with or without under-head seal) or expander solutions are used for sealing holes. In contrast to screw plugs, expanders cannot be removed without being destroyed.

In addition, these sealing elements close off the hole, but require complex preparation of the bore hole. For example, drilling, countersinking,

thread cutting, milling of the head contact surface and cleaning the thread when using screw plugs is very costly and time-consuming.

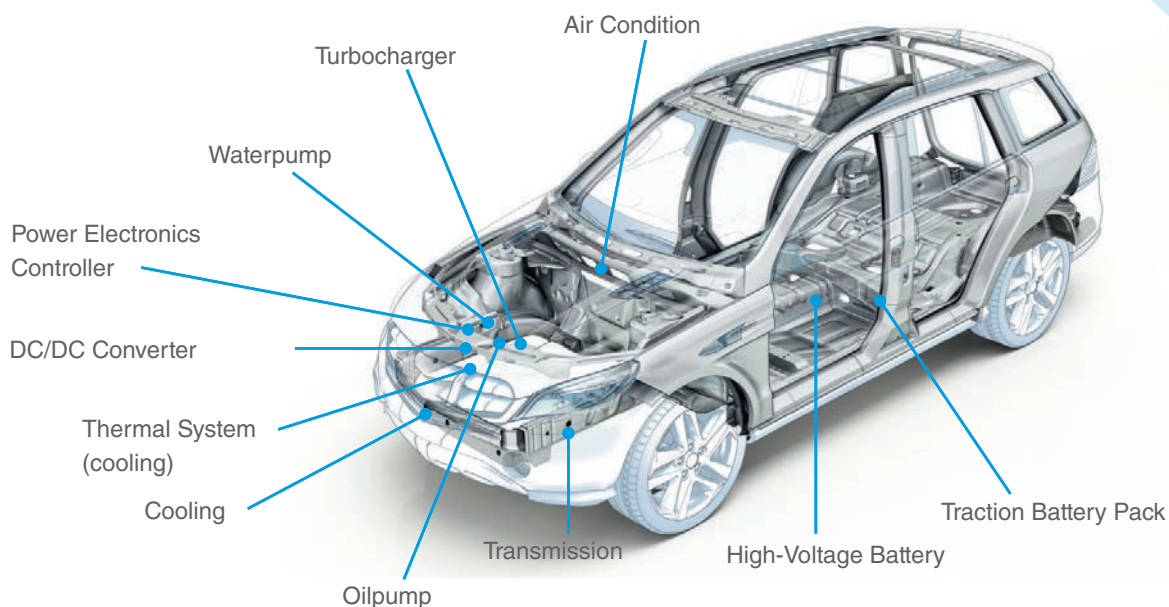
b&m-KL PLUG®



- One-piece element
- Cost and weight-optimized
 - Easy installation with standard tools possible
 - Chip, burr and particle-free assembly
 - Flexibly adaptable to customer applications
- Process stability
 - High degree of automation possible
 - Disassembly without damaging the counterpart

Application examples

New!



b&m-KL PLUG®

The b&m-KL PLUG® is a one-piece and universally applicable closing and sealing element for holes with and without pressure load. Due to the different materials and diameter ranges, it can be adapted to different customer applications and can seal up to 30 bar operating pressure. The element offers simple and efficient assembly without waste generation and also offers a number of other advantages over conventional closing and sealing systems for holes.

Pressure resistant sealing



CHALLENGE:

Problem with closing and sealing a hole with internal pressure

Sealing elements are subject to a variety of stresses due to the different areas of application. The different expansion coefficients mean that material pairings have to be selected so that permanent sealing can be ensured.

After defining the suitable materials, the hole or thread has to be prepared for the respective sealing element. This often requires narrow tolerance ranges

and high surface quality: these steps have to be designed so that reliable sealing against media is possible, e.g. water-glycol mixtures or oils.

As sealing elements are often used in areas with critical functions, process verification has to be designed to exclude incorrect use.

SOLUTION: Reliable closing and sealing under pressure

- Different materials are possible: steel, stainless steel and aluminum
- Drilling tolerance of only +0.2 mm necessary
- Pressure-resistant up to 30 bar
- Force/displacement-monitored use
- Low weight

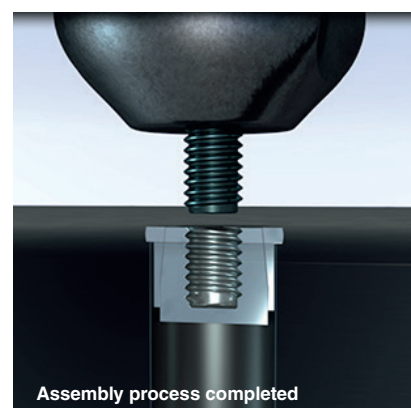
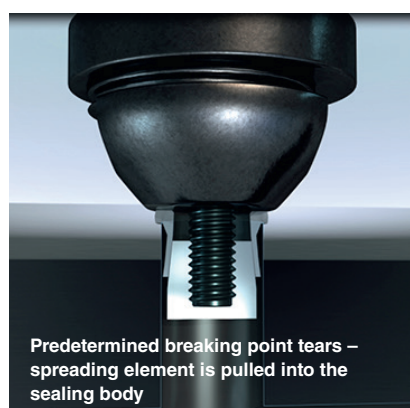
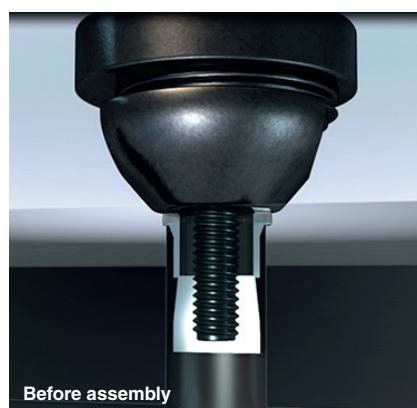
PRODUCT FEATURES:

- **Diameter:** 8mm - 24mm
- **Material:** steel, stainless steel and aluminum depending on the counterpart material
- **Coating:** according to specification
- **Operating pressure:** pressure resistance up to 30 bar
- **Operating temperature:** can be applied from -40°C up to + 200°C

AREAS OF USE:

- Seals bores as closure element
- Works as a metallic dowel by closing a hole that is too large for repair purposes and thus it provides a smaller thread
- Secure fixing of sensors and detectors possible
- Can be used as element for volume flow rate regulation

Non-destructive assembly and disassembly



CHALLENGE:

Placing and removing the sealing element without generating waste or dirt

Many sealing elements, e.g. expanders, generate a waste product (mandrel) during assembly which has to be removed and disposed of separately.

If screw plugs are used for sealing holes in aluminum die-cast components, it has to be ensured that the thread in the opposite component can absorb the required tightening torques and shearing forces again (in case of repeated assembly during repairs).

It is not possible to remove these sealing elements from the hole again without producing swarf (exception: screw plugs). Then the hole has to be drilled open to the next larger diameter required for the new sealing element, which is often not possible due to the available packaging space. To seal the hole again, the preparations listed above have to be carried out in addition to cleaning, to remove the swarf produced during disassembly of the sealing element.

SOLUTION: Efficient, low-cost sealing system

- One-piece element (without waste)
- Reduced risk of corrosion (no open predetermined breaking point)
- Non-destructive disassembly (no swarf)
- Hole can be reused (no repeat preparation required)
- Low investment costs (standard assembly device)



The b&m-KL PLUG® product family, manufactured in Germany, offers a wide range of materials and geometries for your application. Application-specific new developments are also possible.

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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