

Henze BNP – Focused on Boron Nitride

Henze Boron Nitride Products AG based in Allgäu/DE is well-known on the global market as a specialist for innovative products made of hexagonal boron nitride. The company supplies more than 30 different sectors with technical precision parts, coatings, lubricant additives, sprays and powder. The team of 37 can again record a double-digit turnover growth this year and continues to be on track for further success with its future-oriented boron nitride product solutions.



Fig. 1
Matthias, Peter and Christoph Henze (f. l. t. r)

Henze BNP – an ambitious family-run company holds a trailblazer position

Henze Boron Nitrid Products AG was founded in 1993 by Peter Henze and has been dealing with the development of tailor-made product solutions made of hexagonal boron nitride for over 20 years now. Henze BNP is now run in the second generation by the two sons, Christoph and Matthias Henze. The company has established itself internationally as a leading boron nitride specialist and enjoys a high degree of confidence with its customers. Consistent quality and long-standing know-how are characteristic of Henze BNP, as well as the flexibility to be able to react to new market challenges quickly.

Keywords

boron nitride, components, coatings, powders, additives

A material with a future

The potential of boron nitride is by no means exhausted. This unique material is used in countless applications in a wide variety of industrial sectors. Known as “white graphite”, boron nitride shows related material properties to graphite – scores however with a significantly higher oxidation resistance. The high electrical insulation capability, combined with extremely good thermal conductivity, also facilitate further applications in electrical engineering. No wonder that this material is also becoming more and more interesting for the electric mobility sector.

Henze BNP processes this ceramic high-performance material in a production area of 2500 m² to a great variety of customised products, such as for example mechanically processed precision components, individual

powders, boron nitride oil or suspensions, in small and medium-sized series production. As the company uses exclusively raw materials from well-known manufacturers and has well trained specialist staff, the customers can always benefit from the highest quality and delivery reliability.

HeBoSint® – boron nitride sintered components in any geometry

Henze BNP has meanwhile produced more than 30 000 different sintered components in 20 different boron nitride sintered qualities. In doing so, the company produces plates, rods, spacers, hollow parts, tubes, rollers, crucibles, nozzles, stoppers as well as other complex special shapes. This is possible, as Henze BNP has invested in a modern equipment facility and can offer numerous machining processes with CNC, milling, turning or ultrasonic machinery. Both a great variety of geometries and efficient manufacturing in high quality and precision are therefore ensured.

Being a non-oxide ceramic, the HeBoSint® product line impresses above all with its easy machining properties, high temperature resistance (up to 900 °C in air and 2000 °C in vacuum or under inert gas), excellent electrical insulation and thermal

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Fig. 2
Machining precision components
of boron nitride

conductivity as well as low thermal expansion and optimum release properties.

Parts made of sintered boron nitride are used for example as insulating sleeves for high temperature furnaces or rings for PVD and plasma systems, as they offer high process reliability. Disruptions and downtimes can therefore be reduced to a minimum.

HeBoCoat® – boron nitride coatings also for prevention

HeBoCoat® Henze BNP offers a multifaceted portfolio of coatings. The liquid boron nitride coatings – water or ethanol-based – are preferably used as release and lubricating agents at high temperatures, in order to ensure the best possible surface protection. When processing light metal melts, boron nitride coatings especially protect the refractory materials used against the attack of aggressive melts. They also ensure the necessary lubrication in the case of hot forming processes and convince among other things by simple handling, high temperature resistance and optimum coating formation and adhesion. The use of HeBoCoat® also reduces the wear of tools, extends the maintenance intervals and therefore increases productivity.

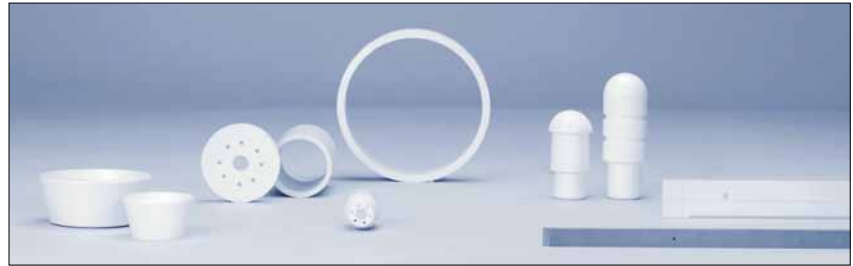


Fig. 3
HeBoSint® boron nitride sintered components



Fig. 4
HeBoSint® boron nitride sintered components

HeBoFill® – boron nitride powders for different types of applications

The company also offers a broad spectrum of boron nitride powder qualities in a variety of purities, grain sizes and crystallinities. These can be specially tailored to the respective application. HeBoFill® is used among other things for release and lubrication during aluminium extrusion moulding or as filler material in plastics to increase the thermal conductivity.

Above all, focus is on the thermal management for the electrical industry. For the efficiency and service life of electronic components and parts decrease rapidly with increasing warmth. Due to the ever-increasing power densities with increasingly compact design, as we know for example from laptops, tablets or smartphones, the removal of the heat generated plays an increasingly important role. Materials with high thermal conductivity and easy work-

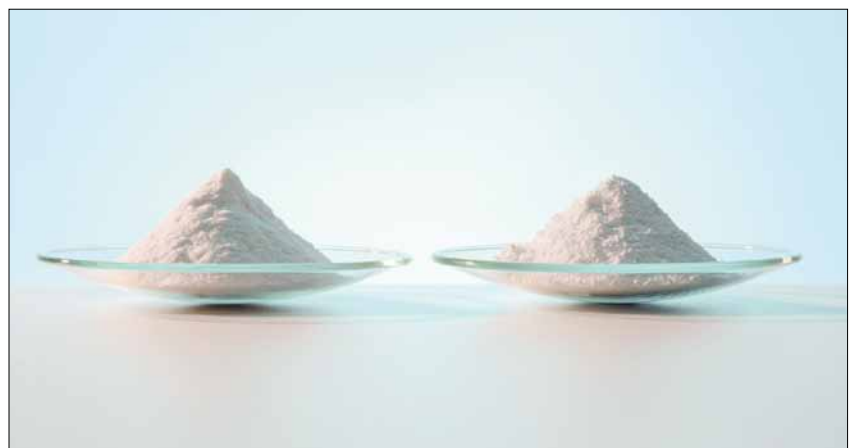


Fig. 5
HeBoFill® boron nitride powder



Fig. 6
Boron nitride products overview of Henze BNP

ability are required here. With agglomerated (HeBoFill® 490, a.m.m.) or flaky powders (HeBoFill® 641, a.m.m.) Henze BNP has the appropriate solution ready.

HeBoLub® – innovative lubricant additives

Ultra-fine hexagonal boron nitride particles and high-quality base oil make HeBoLub® a unique lubricant additive. The ultra-fine boron nitride particles reduce primarily: friction and wear, avert direct metal-metal contact and so prevent the components from seizing up. Roughness of the surface is also smoothed and the load capacity increased. Especially in the case of engines, gearboxes or machinery this ensures smoother operation and increases the service life. By using HeBoLub® maintenance intervals are extended and the economic greatly increased.

HeBoLub® products are currently available with a boron nitride content of 10 % and 30 %.

Advising is a core competence

The Henze BNP team has excellent market knowledge, long-standing experience and comprehensive know-how. Customers all over the world, from all industrial sectors, benefit from this specialist knowledge. They appreciate above all the advisory skills of the Bavarian company, especially when it comes to customer-specific solutions. Henze BNP develops the perfect product for nearly every customer requirement. Tailor-made solutions are created in close collaboration with the customer. As sales, research, development, production and quality assurance are all under one roof, rapid reaction times and personal contacts are guaranteed.

Hexagonal boron nitride – by no means exhausted

Henze BNP continues to develop innovations with curiosity and the urge to explore and initiates new development projects not only with customers, but also with famous raw material manufacturers or institutes.

According to the motto: standing still means taking a step backwards, the existing boron nitride product range is also continuously being developed and extended. Extensive tests up to market maturity take place in the company’s own in-house laboratory, among other things.

One research focus is for example on the further development of release layers in light metal casting. A new technology has established itself here, which makes a release and lubrication effect of boron nitride layers necessary – especially in the transition area – from liquid to solid. In order to be able to meet the increased application demands, the experienced research team is continuously busy with new product solutions.

In order to be able to maintain each boron nitride product at the highest quality level, Henze BNP invests continuously in the training and further training of its employees and makes investments in modern equipment and new technologies.

With the 3D-measuring technology system made by Zeiss that has recently been purchased, components can be measured more rapidly and with greater precision, which enables flexible and reliable quality assurance. In addition, a CAD/CAM system was introduced at the company not long ago for demanding construction and production tasks, which is implemented in planning and production.



Fig. 7
Henze company building