GELCOATS AND RESINS
Smother, safer, faster

A no-limit Conductive Mould-Making System!
Safer, faster and more attractive!

Even more effective for better tools

OUR GOAL:

Our aim is to develop a revolutionary moulding system based on the latest findings in polymer chemistry to deliver a highly efficient process which produces even better tools within a shorter time.

OUR SOLUTION:

Providing cutting-edge solutions thanks to continuous improvements in nanotechnology and curing processes.

- Dissipative surface
- Enhanced surface quality
- Moulds with extremely high dimensional stability

The new BÜFA Tooling System is always the right choice for efficiency. It helps you save time, use less material and even do your part for the environment – all while staying on top of the game in terms of product quality. The resulting tool combines top-notch mechanical properties with brilliant surface finishing. And its antistatic properties also help to enhance occupational safety.
AT A GLANCE:

- Increased process safety
- Reliably prevents electrostatic build-up and discharge
- Minimised dust adhesion
- Significantly reduced cycle times
- High-quality component surfaces with significantly reduced waviness
- Significantly improved efficiency

Rostock-based firm EIKBOOM GmbH is a mid-sized, family-run company with over 60 years of experience producing GRP components. Their products are used in a wide range of sectors, including the wind power and shipbuilding industries. The company also specialises in manufacturing and supplying chassis components and interior GRP parts to the automotive industry.

EIKBOOM uses the new BÜFA Tooling System, which comprises the antistatic BÜFA® Conductive Tooling Gelcoat, the first-layer resin BÜFA® Resin VE 0910, and the low-profile tooling resin BÜFA® Resin VE 7100.

The new antistatic BÜFA® Conductive Tooling Gelcoat and the BÜFA mould tooling resins can be processed effortlessly. Safety is an important consideration for us – the antistatic system helps prevent electrostatic discharge during demoulding.

Another crucial factor is that the system produces high-quality surfaces. This system is an absolute asset.

Meyk Rohde, Head of Sales
EIKBOOM GmbH
Perhaps the most innovative component of the new Tooling System is the new Conductive Tooling Gelcoat. It uses single-walled carbon nanotubes (SWCNT), which make the Gelcoat conductive and allow it to efficiently discharge static electricity (uniform electric conductivity, adaptable from $10^5$ to $10^9$ ohms).

The keyword here is “triboelectric effect”. Plastics are non-conductive by nature; this is why a tool and a moulded part have opposite charges during demoulding. The result is a force of attraction between the two objects. Electrostatic build-up not only increases the force required for demoulding, it also causes dust to adhere to surfaces, and this takes a great deal of time and effort to remove.

Our Conductive Tooling Gelcoat solves these problems. The nanotubes act like tiny strands of wire in the synthetic resin, creating nanoscopic “electrical lines” that run through the material. This allows the static electricity which builds up during demoulding to be easily discharged using a typical earthing system.

Using SWCNT in our gelcoat offers the following advantages: Easier and quicker demoulding. Mould cleaning takes less effort. Lower scrap rates and higher component quality. Massive improvements in occupational safety.

The gelcoat’s electrical conductivity has been tested and certified by TÜV Nord (08/2018) based on a test sample made using the BÜFA Conductive Tooling System. Feel free to request a copy of the certificate should you require one for your in-house risk assessment. Simply get in touch with us.
High-tech for high gloss!
First-layer resin: BÜFA® Resin VE 0910

Waviness is always a concern when assessing synthetic resin surfaces. We are setting new standards in this regard with our new first-layer resin BÜFA® Resin VE 0910.

Designed for application directly underneath the gelcoat’s visible side, this high-tech resin exhibits significantly improved curing properties. One of the benefits is better curing of the product. Another advantage is its low residual monomer content, which greatly limits the amount of undesirable laminate shrinkage during curing. This helps prevent problems with waviness right from the start. Furthermore, our new first-layer resin also has improved thermal dimensional stability. It can help extend the service life of tools used in high-temperature applications.

FEATURES OF OUR FIRST LAYER RESIN:

1. Class A-surface quality
2. Moulds with higher heat resistance
3. Mechanical durability (longer-lasting moulds)

AT A GLANCE:

- Reduced surface waviness
- Improved curing properties
- Higher thermal dimensional stability
- Quicker wetting of fibres at low monomer content
An innovative problem solver

The mould tooling resin: BÜFA® Resin VE 7100 Tooling

Our new BÜFA® Resin VE 7100 Tooling is a vinylester that contains highly specialised low-profile additives and fillers which cleverly inhibit the shrinking process. A special aspect of this low-profile tooling resin are its exceptional curing properties. Its heat generation response is designed for both thin- and thick-walled laminated structures. This means that you are now finally able to produce extremely thin laminates (2 mm). At the same time, it is also possible to manufacture laminates as thick as 12 mm. A single work step is all it takes – thus saving you time and cost.

BÜFA® Resin VE 7100 Tooling is both delicate and powerful, enabling you to efficiently manufacture not only tools with exceptionally thin walls, but also large-scale products. Needless to say, this BÜFA tooling resin exhibits excellent mechanical properties when fully cured.

BÜFA® Resin VE 7100 Tooling has exceptionally low VOC content; in spite of this, this low-profile resin is still easy to process. This means it also offers top-end performance in terms of its fibre-wetting ability and viscosity. The result: extremely high process reliability.

AT A GLANCE:
- Excellent mechanical properties, exceptional thermal dimensional stability (120°C)
- Outstanding fibre-wetting ability at low VOC content
- Even laminates as thin as 2 mm can be fully cured while ensuring consistency and reliability
- A single work step is all it takes to create layers with thicknesses of up to 12 mm – offering significant time savings
- Can be applied using either a hand lay-up or spray-up method
Processing tips:

The properties of the master pattern play a crucial role in determining the quality of the mould and its surface. The master pattern’s gloss level as well as any unevenness will be transferred to the mould. Special attention must therefore be given to the surface of the master pattern. Ensure that the environment is dust-free when making moulds. We recommend using our BF 700 carnauba wax (BÜFA® BF 700 Mould Release Wax Paste) for releasing moulds from their master pattern.

THE STEP-BY-STEP LAMINATING PROCESS:

1. GELCOAT APPLICATION:
The gelcoat can be applied by brushing or spraying. A coating thickness gauge is used to ensure that the layer has been evenly applied (recommended thickness: 1000 µm). When the gelcoat has cured slightly, the earth connection point can be installed.

2. FIRST LAYER OF LAMINATE:
After the gelcoat has cured fully, the process of applying the laminate can begin. The first layer of laminate after the gelcoat should be applied with great care. During this process, it is especially important that all air bubbles between the gelcoat and this first layer are eliminated by rolling. Fibreglass mats with an area density of 150 g/m² or 225 g/m² and with a fibre weight of 15 tex should be used for the first layer.

3. LAMINATION:
After the first layer of laminate has been left to fully cure overnight, it can be sanded down using sandpaper. Any dust created should be removed. Depending on the mould’s purpose and the required wall thickness, more laminate layers can be added to the structure until the mould meets the specifications.

4. POST CURE:
The laminated mould should be post-cured on the master pattern for 8 hours at an elevated temperature of approx. 70-80°C. We then recommend reinforcing the mould.

Products from the BÜFA® Conductive Tooling System are very well suited to processing using machinery. We recommend using the sophisticated, robust and easy-to-operate equipment made by BÜFA Tec.

Examples:
- Dosing unit:
  BÜFA®-Tec Polybar
- Gelcoat spraying unit:
  BÜFA®-Tec GSU ES1 „Easy Lift“
  BÜFA®-Tec Delta EVO-LINE
  BÜFA®-Tec Sigma 6 EVO-LINE
- Laminate rolling unit:
  BÜFA®-UNI 150 EVO-Line
  BÜFA®-UNI 275 EVO-Line
- Fibreglass spraying unit:
  BÜFA®-Tec Delta EVO-LINE
  BÜFA®-Tec Sigma 6 EVO-LINE

Visit our online shop at: buefatec.de
### PRODUCT OVERVIEW

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<tr>
<th>Products</th>
<th>Item no.</th>
<th>Colour</th>
<th>Application method</th>
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