

More Than Tooling Resins: A Wide Variety of Solutions for Foundry Tooling

tooling resins blocks auxiliaries silicones



ebalta

solution takes shape

Tooling resins mean the world to us. Foundry tooling is our success story.

*Everything began back in 1974: with the founding of **ebalta**, high-performance tooling resins began to rapidly take hold in this field – along with a new standard in customer support that continues to set the standard for excellence to this very day. The result: a long-standing success story and unsurpassed expertise in foundry tooling.*



Performance: a wide variety of solutions is our forté

As a provider of polyurethane and epoxy resin systems and machinable block and board materials, **ebalta** has achieved a high degree of expertise and experience during its more than 30 years of development and production, along with an uncontested position within the foundry tooling market.

Our most important credo on our path to success has been customer support. By working closely with our clients, maintaining a continuous exchange of information with them and constantly optimizing our products, we have been able to amass a wide spectrum of individual solutions and newer, higher-performance technologies. Regardless of the task at hand: together we can find the right solution for you, one perfectly suited to your needs.

Customers are people. And not profit sheets.

What counts is your satisfaction. From our very first intensive consultation for the choice of product, to our continuous collaboration into the foundry, our international sales partners are on your side. Together with you, we will work on any material or process until your model comes out the way you want it: perfect.

Our experience brings you more: a complete product portfolio

The variety of specific demands determines the variety of available products: at **ebalta**, you will find all the materials you need to meet the demands of foundry tooling. All these materials exhibit high abrasion resistance and dimensional accuracy, properties that make them particularly valuable in this field. Our experts will be glad to advise you how to handle the materials properly.

- **Epoxy and polyurethane-based casting resins:** For highly abrasion resistant series models and core boxes
- **Resin systems:** For high-volume foundry patterns and back-filling
- **ebablock®:** Net-sized contour block materials available in individual dimensions and shapes
- **ebaboard:** Board materials available in various thicknesses
- **eba•ject** and **eba•safe:** Patented ejector system and fastening system
- **Processing auxiliaries from ebalta:** Comprehensive range of adhesives for board materials, repairing pastes, fillers, release agents, sealers etc.

Fast, guaranteed: worldwide distribution network

No matter what your request might be: **ebalta** will deliver your product quickly and reliably – including customer support, order assembly and shipping – so that you can concentrate on what's important to you: foundry patterns.

Special jobs require specialized know-how

We want your solutions to work. At **ebalta**, you will work together with experienced designers, master model-makers and foundry engineers to solve all your application and production issues. You benefit through our experts: people who understand your problems well and know how to fix them.

Your demand is our challenge

You have the job, we have the experience and the material – perfectly matched to meet your individual needs, tested in accordance with all quality standards by our own laboratory, and technically flawless. Our team of experts will provide you with all the help you need in selecting your materials. If you want, they will also assist you in the manufacturing of your model.



Always sound advice. Especially about the right product.

With the variety of materials and products available in the field of foundry tooling, numerous factors have to be considered when choosing materials. The following pages offer you both orientation and overview. If you need any further advice, just ask us.

Flexible for any job: our products

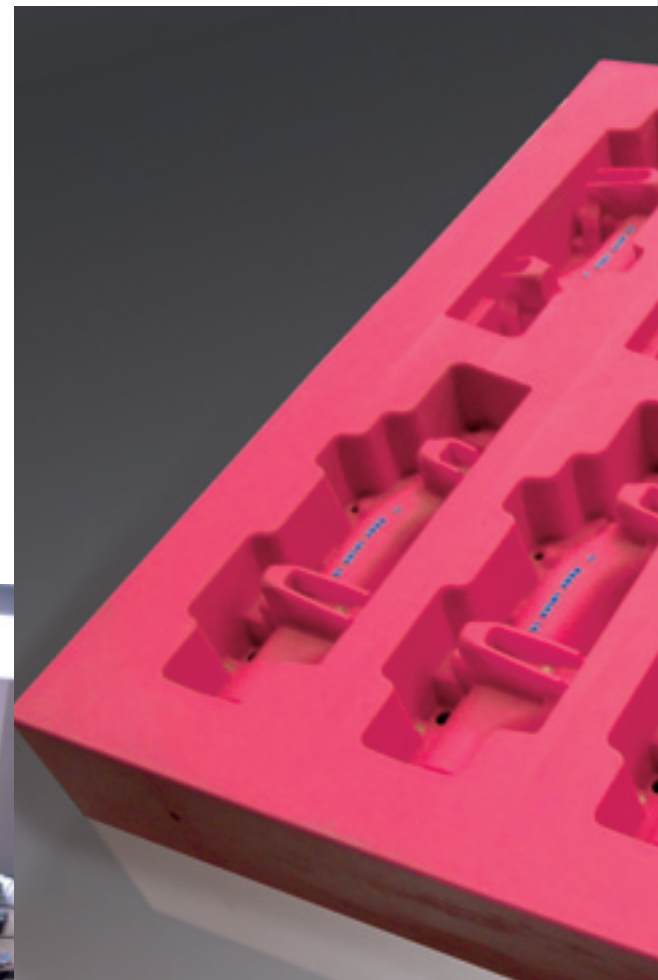
Economical, fast, precise: the demands made on foundry patterns are enormous and rapidly growing. **ebalta** offers you a wide range of products, including epoxy and polyurethane resin systems as well as board and block materials. Each product possesses different properties, depending on the requirements. The following questions can assist in determining the right choice of materials:

- What is supposed to be manufactured: a model, a core box or a negative?
- How many units does it need to produce?
- What size?
- What process (high pressure forming, multi-punch presses etc.) and/or core making process, e.g. cold box will be used?



Individual advice for your job

No matter what your question or application is, just ask our international sales partners. They recommend the right product or create your own individual tooling resin. They are happy to work with you on site at your facility for as long as it takes to get your model right.

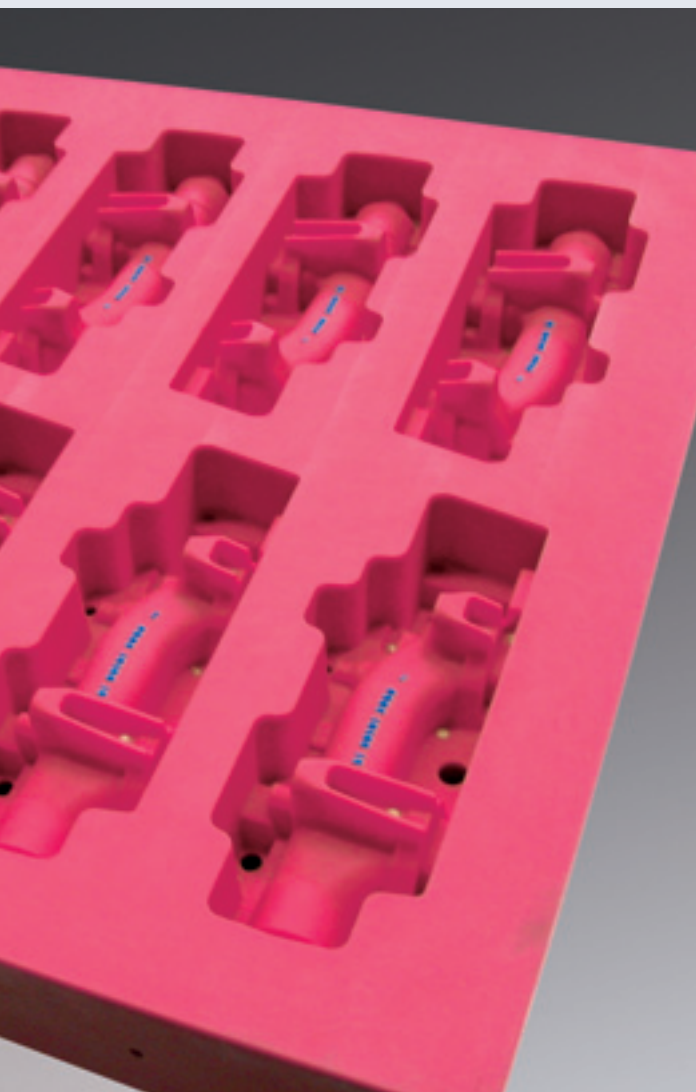


Individual jobs need individual solutions. And a flexible product range.

Anytime individual solutions are required, a flexible product range is the best foundation. **ebalta** offers a broad spectrum of specialized services and products for foundry tooling that meets all specific requirements, including expert customer support.

Custom solutions for your job

ebalta has the right material and an economical solution for any job. Our team can tell you exactly which product is the right one for your application. You can find all of our products for the most diverse manufacturing techniques on pages 6 – 19 as well as an overview in the index.



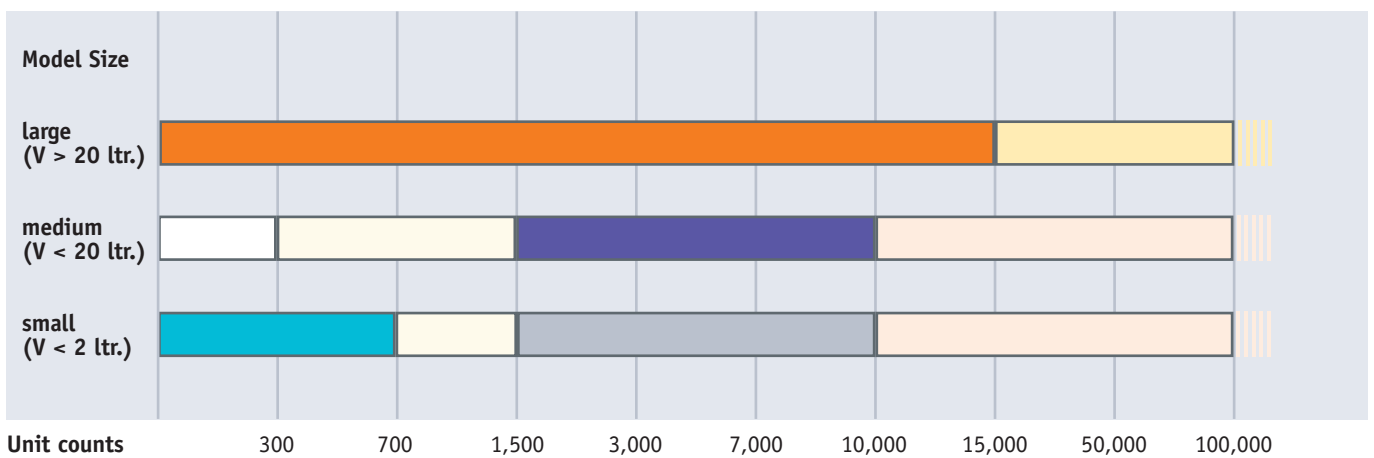
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Product recommendations for various manufacturing processes

Cast and laminated patterns

Which product is suitable for manufacturing cast pattern depends on the size of the model and the unit count. Whether it's a solid casting, face casting or lay-up process: all **ebalta** products are superbly user-friendly and have stood the test of time. Further benefits include high dimensional accuracy and low sand build-up.



Unit counts are non-binding and based on manufacturing process. For further possible applications of products and their detailed technical data, please see pages 11 – 15.

Volume > 20 Litres

- Model, laminated: OH 11, OH 6-1 with KP 6 and PS 03
- Model, laminated: OH 17 with KP 6 and PS 03

Volume < 20 Litres

- Model, back-filled: OH 4 with KP 6 and GM 725-7
- Solid casting, slow curing: GM 725-7
- Face casting: GH 760, GH 730, GH 706
- Face casting: GM 975, VP GM 995

Volume < 2 Litres

- Solid casting, fast curing: SG 130, SG 2000, SG 700, SG 900
- Solid casting, slow curing: GM 725-7
- Solid casting: GH 760
- Face casting: GM 975, VP GM 995



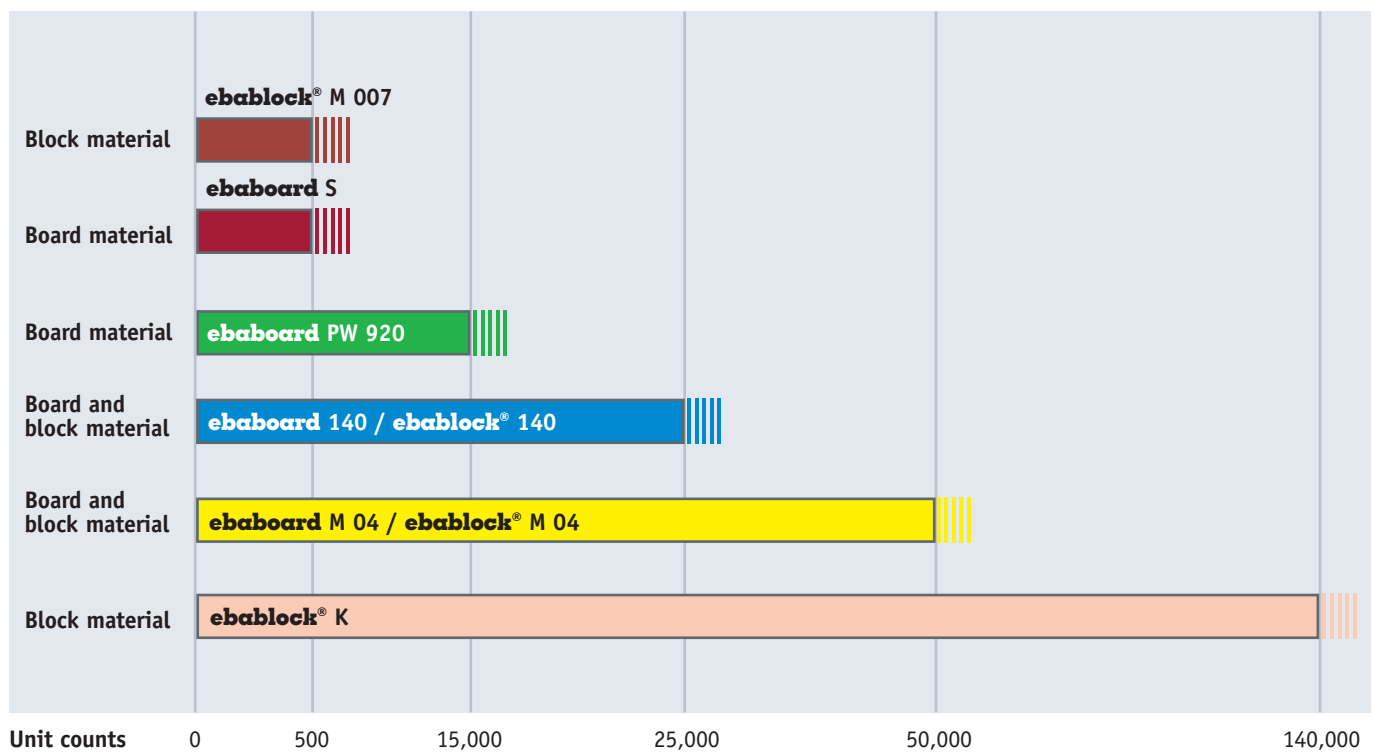
Pattern made of GM 725-7



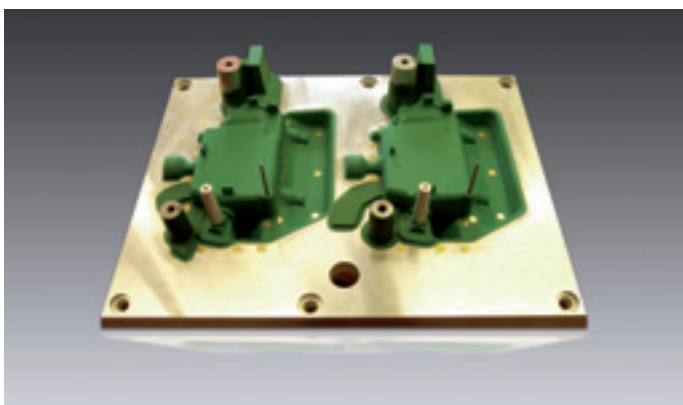
Pattern made of GH 760

Milled patterns

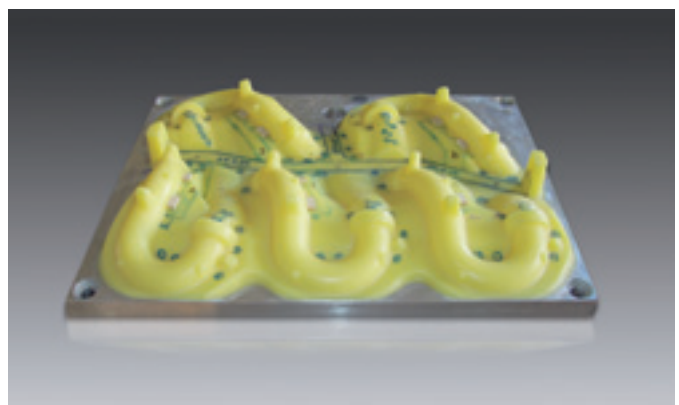
ebalta offers a broad spectrum of products for milled patterns where the choice of materials is based on the unit count. You can find the optimal solution for any unit count you require. Highest precision thanks to CNC technology and high abrasion resistance. Totally innovative: **ebablock**[®], a block material prefabricated to your individual specifications.



Unit counts are non-binding and based on manufacturing process. For specifications and other technical information, please see pages 16 – 17.



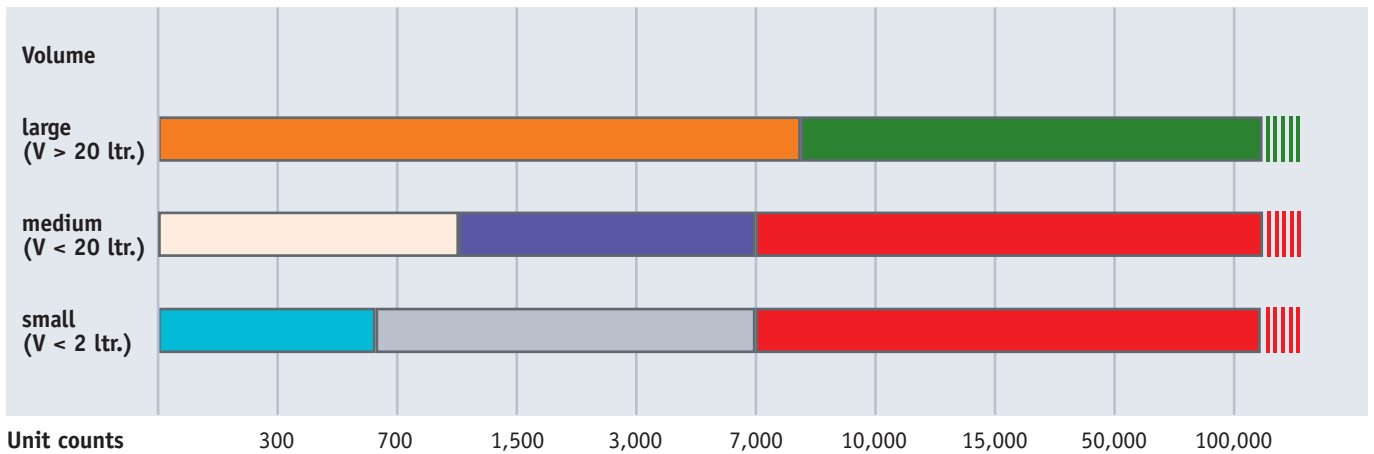
Pattern made of **ebaboard PW 920**



Pattern made of **ebablock[®] M 04**

Cast and laminated core boxes

Unit count and model size determine the choice of material for cast core boxes. Whether it's a solid casting, face casting or lay-up process – **ebalta** products are extremely abrasion resistant, withstand the high pressure and high stress of the core box process, and are chemical resistant. Even very high unit counts can be consistently produced with our products.



Unit counts are non-binding and based on manufacturing process. For specifications and other technical information, please see pages 11 – 15.

Volume > 20 Litres

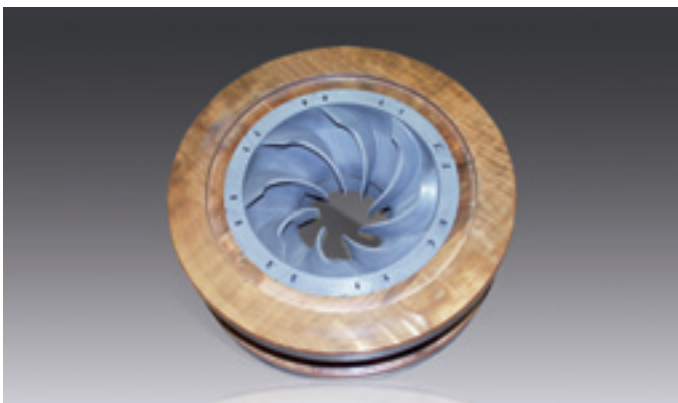
- Core box, laminated: OH 11 with KP 6 and PS 03
- Core box, laminated: OH 16 with KP 6 and PS 03

Volume < 2 Litres

- Solid casting, fast curing: SG 130, SG 2000, SG 700, SG 900
- Solid casting: GH 760
- Face casting: GM 974, VP GM 995

Volume < 20 Litres

- Solid casting, slow curing: GM 725-7
- Face casting: GH 706, GH 730, GH 760
- Face casting: GM 974, VP GM 995



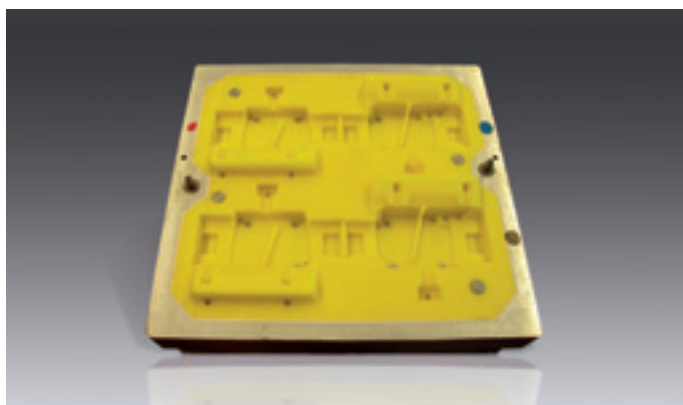
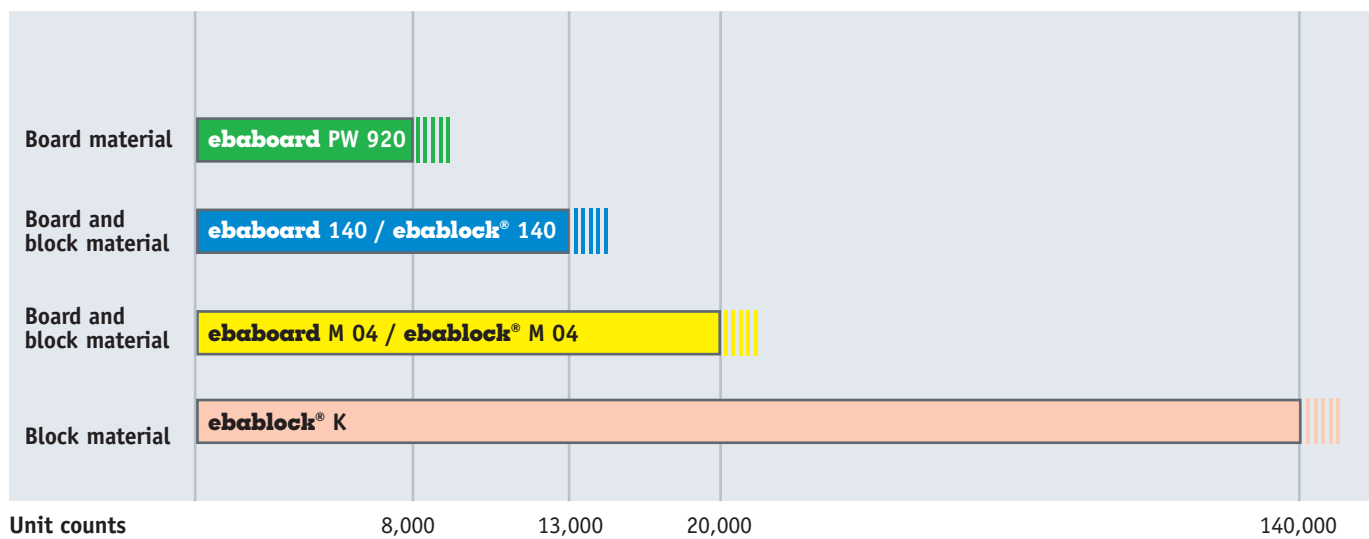
Core box made of GH 760



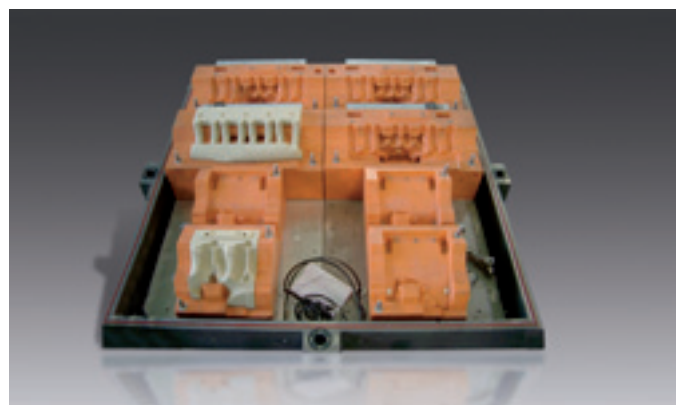
Core box made of GM 974

Milled core boxes

Just as with the milled models, **ebalta** also has the ideal solution for choosing the right materials for milled core boxes based on unit count. All products are highly precise thanks to CNC technology, extremely abrasion resistant and consistently produce very high unit counts. The material most commonly used for highest abrasion resistance is **ebablock® K**, which was specially developed for milled core boxes.



Core box made of **ebablock® M 04**



8-fold core box made of **ebablock® K** with core nests

Negatives

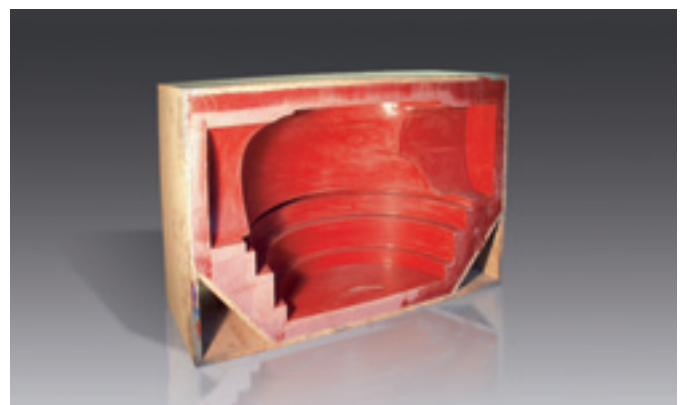
No matter which fabrication technique or quality you desire, we offer well-established, high-quality products for fast fabrication of negatives.

| Fabrication technique | Quality | |
|--|------------------------------------|--|
| | Standard | High-quality |
| Casting | SG 700 / SG 2000 | GM 725-7 |
| Laminating | OH 4 | OH 11 |
| Milling, boards ebaboard | ebaboard 60 | ebaboard PW 920 |
| Milling, contour blocks ebablock [®] | ebablock [®] M 007 | ebablock [®] W mineral |

For specifications and other technical information, please see pages 11 – 17.



Negative made of GM 725-7



Negative made of OH 11 with PS 03

Products and specifications

Gel coats

These materials are used mainly in lay-up processes for large-surface models with a gel coat and a corresponding resin backing. Our highly versatile products are easily applied and optimally bonded with coupling paste KP 6.

| Resin | OH 4 | OH 6-1 | OH 11 | OH 16 | OH 17 | VP OH 47 |
|------------------------------------|---|--|---|---|--|--|
| Hardener | SR | SR | PUR 3 | Comp. B | Comp. B | Comp. B |
| Color | white | blue | red brown | light green | white | white |
| Mixing ratio (p. b. w.) | 100 : 12.5 | 100 : 9 | 100 : 40 | 100 : 70 | 100 : 45 | 100 : 41 |
| Applications | Negatives, master models, foundry patterns | Foundry patterns, core boxes, pattern plates | Foundry patterns, core boxes, pattern plates, negatives | Core boxes, foundry patterns, pattern plates | Pattern plates, foundry patterns, core boxes | Pattern plates, foundry patterns, core boxes |
| Material properties | versatile, very well spreadable, easy to sand | very abrasion resistant, very hard, fine structure | abrasion resistant, impact resistant, polyurethane base | very abrasion resistant, hard flexible, very impact resistant | very abrasion resistant, very hard flexible, very impact resistant | very abrasion resistant, very hard flexible, very impact resistant, nontoxic |
| Processing data | | | | | | |
| Viscosity at 25°C (mPas) | thixotrope | thixotrope | thixotrope | thixotrope | thixotrope | thixotrope |
| Density at 20°C (g/cm³) | 1.40 ± 0.05 | 1.75 ± 0.05 | 1.27 ± 0.02 | 1.12 ± 0.02 | 1.18 ± 0.02 | 1.10 ± 0.02 |
| Pot life 200 g / 20°C (min.) | 15 - 20 | 15 - 20 | 30 - 40 | 10 - 15 | 10 - 15 | 14 - 20 |
| Curing time at RT (hrs.) | 3 - 5 | 5 - 8 | 3 - 5 | 6 - 8 | 8 - 10 | 8 - 10 |
| Physical data | | | | | | |
| Flexural strength (MPa) | 95 ± 5 | 105 ± 8 | 80 ± 7 | - | - | - |
| Flexural modulus (MPa) | 4815 ± 300 | 6650 ± 400 | 4230 ± 250 | - | - | - |
| Compressive strength (MPa) | 100 ± 5 | 104 ± 8 | 80 ± 5 | - | - | - |
| Impact resistance (Charpy) (kJ/m²) | 10 ± 2 | - | 7 ± 1 | - | - | - |
| Heat resistance (Martens) (°C) | 72 ± 3 | 89 ± 3 | 45 ± 2 | - | - | - |
| Shore hardness (Shore D) | 90 ± 3 | 85 ± 3 | 88 ± 3 | 58 ± 3 | 64 ± 3 | 64 ± 3 |
| Abrasion (Taber) (mg) | - | approx. 36 | approx. 72 | approx. 19 | approx. 18 | approx. 22 |
| Type / Application wt. / Rotations | - | H 18 / 500 / 250 | H 18 / 500 / 250 | H 18 / 500 / 500 | H 18 / 500 / 500 | H 18 / 500 / 500 |



Pattern made of OH 11 with PS 03



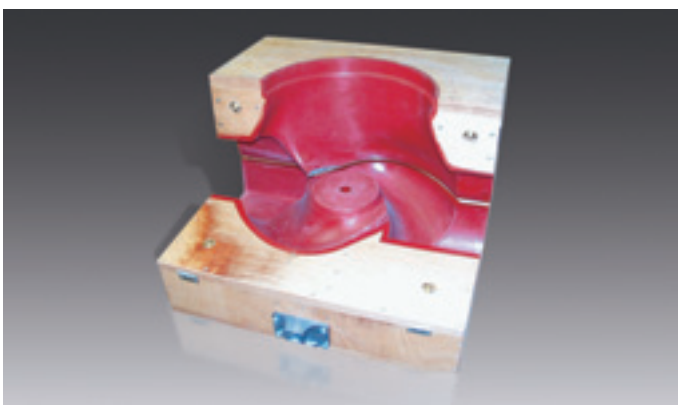
Application of the surface layer

General purpose resins and paste systems

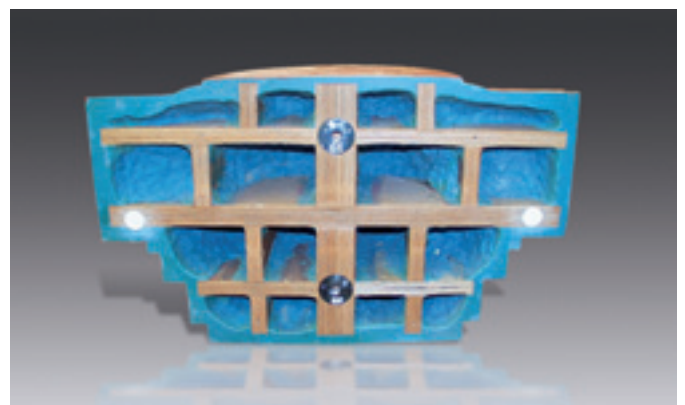
ebalta general purpose resins and paste systems are the products of choice for large-surface models with high accuracy. They are pleasant to work with and contract only slightly.

| Resin | AH 100 | AH 110 | KP 6 | PS 03 |
|--|--|--|--------------------------------------|---|
| Hardener | TGL* | TGL* | TGL | PS 03 Hardener |
| Color | yellow transparent | yellow transparent | grey | blue |
| Mixing ratio (p. b. w.) | 100 : 20 | 100 : 22 | 100 : 18 | 100 : 18 |
| Applications | Laminating resin for fabrics, bonding resin for fillers | Laminating resin for fabrics, bonding resin for fillers | Coupling paste for epoxy resins | Core boxes, foundry patterns, negatives |
| Material properties | unfilled, slow curing, large volume backfilling | unfilled, high strength, very heat resistant | fiberglass-filled, heat resistant | fiberglass-filled |
| Processing data | | | | |
| Viscosity at 25°C (mPas) | 550 ± 100 | 1000 ± 150 | thixotrope | pasty |
| Density at 20°C (g/cm ³) | 1.12 ± 0.02 | 1.13 ± 0.02 | 1.30 ± 0.05 | 0.92 ± 0.03 |
| Pot life 200 g / 20°C (min.) | 65 - 75 | 55 - 65 | 30 - 40 | 50 - 60 |
| Curing time at RT (hrs.) | 18 - 20 | 15 - 18 | 8 - 12 | 16 - 24 |
| Physical data | | | | |
| Flexural strength (MPa) | 105 ± 5 | 135 ± 10 | - | 45 ± 4 |
| Flexural modulus (MPa) | 3000 ± 200 | 3300 ± 300 | - | 3000 ± 300 |
| Flexural expansion at breakage (%) | 4.7 ± 0.5 | 6.3 ± 0.7 | - | 2 ± 0.25 |
| Compressive strength (MPa) | 100 ± 8 | 115 ± 10 | - | 45 ± 4 |
| Impact resistance (Charpy) (kJ/m ²) | 37 ± 10 | 16 ± 8 | - | 5.7 ± 1 |
| Heat resistance (Martens) (°C) | 82 ± 3 | 96 ± 3 | - | 36 ± 2 |
| Shore hardness (Shore D) | 87 ± 3 | 85 ± 3 | - | 75 ± 2 |

* The specifications and physical data for the general purpose resins can be individually selected, as different hardeners are available.



Core box made of OH 11 with PS 03



Back of pattern made of OH 11 with PS 03

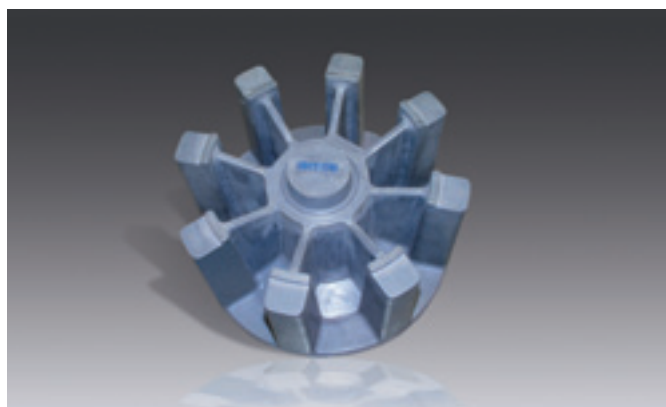
Epoxy casting resins

Filled systems, chemically resistant, dimensionally accurate – epoxy casting resins from **ebalta** are suitable for many applications.

| Material | GH 706 | GH 723 | GH 730 | GH 760 |
|---|--|--|--|--|
| Hardener | GL | D | BR | GL |
| Color | blue | green | black | grey |
| Mixing ratio (p. b. w.) | 100 : 10 | 100 : 7 | 100 : 10 | 100 : 10 |
| Applications | Foundry patterns, core boxes, pattern plates | Foundry patterns, core boxes, pattern plates, bonding resin for fillers | Foundry patterns, core boxes, pattern plates, negatives | Foundry patterns, core boxes, pattern plates |
| Material properties | very abrasion resistant, fine structure, very hard | low viscosity, very well castable | versatile, high strength | high dimensional accuracy, abrasion resistant, high strength, very good sliding properties |
| Processing data | | | | |
| Viscosity at 25°C (mPas) | 10000 ± 2000 | 1500 ± 250 | 8000 ± 1500 | 9500 ± 1000 |
| Density at 20°C (g/cm ³) | 2.05 ± 0.05 | 1.75 ± 0.05 | 2.20 ± 0.05 | 2.20 ± 0.05 |
| Pot life 200 g / 20°C (min.) | 30 - 40 | 55 - 65 | 35 - 45 | 45 - 55 |
| Curing time at RT (hrs.) | 12 - 16 | 16 - 20 | 12 - 14 | 18 - 24 |
| Physical data | | | | |
| Flexural strength (MPa) | 83 ± 2.6 | 65 ± 5 | 80 ± 5 | 100 ± 10 |
| Flexural modulus (MPa) | 8424 ± 380 | 6250 ± 400 | 7800 ± 400 | 7250 ± 500 |
| Compressive strength (MPa) | 104 ± 4 | 70 ± 7 | 105 ± 10 | 120 ± 10 |
| Impact resistance (Charpy) (kJ/m ²) | 7 ± 1 | 6.3 ± 0.5 | 6 ± 2 | 9 ± 1.5 |
| Heat resistance (Martens) (°C) | 55 ± 3 | 34 ± 2 | 57 ± 2 | 60 ± 3 |
| Shore hardness (Shore D) | 90 ± 3 | 87 ± 3 | 90 ± 3 | 89 ± 3 |
| Coefficient of thermal expansion (10 ⁻⁶ K ⁻¹) | approx. 53 | approx. 63 | approx. 42 | approx. 45 |
| Abrasion (Taber) (mg) Type / Application wt. / Rotations | - | - | approx. 19 CS 17 / 500 / 500 | approx. 20 CS 17 / 500 / 500 |



Pattern made of GH 760



Pattern made of GH 760

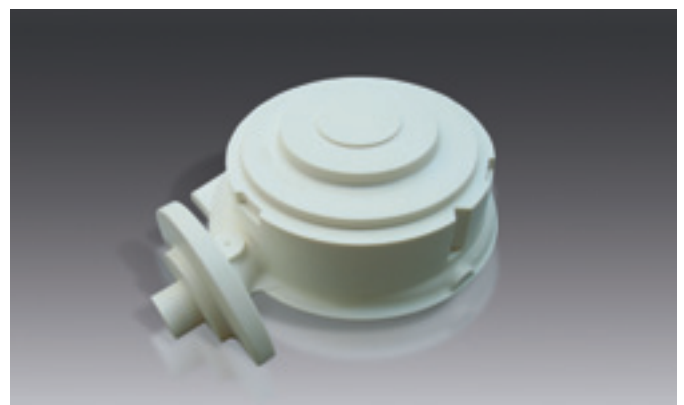
Polyurethane casting resins

Polyurethanes possess a wide range of properties, from very abrasion resistant elastomers to high-strength casting resins. Their low exothermic reactivity makes them dimensionally accurate and castable at high volumes. **ebalta** also offers nontoxic, very abrasion resistant elastomers.

| Material | GM 708 | GM 725-7 | GM 974 | GM 975 | VP GM 995 |
|---|--|---|--|--|--|
| Hardener | PUR 4 | PUR 13 | Comp. B | Comp. B | Comp. B |
| Color | brown | beige | reddish transparent | white | beige |
| Mixing ratio (p. b. w.) | 100 : 75 | 100 : 15 | 100 : 65 | 100 : 36 | 100 : 52 |
| Applications | Foundry patterns, negatives | Foundry patterns, pattern plates, core boxes, negatives | Core boxes, foundry patterns, pattern plates | Foundry patterns, pattern plates, core boxes | Core boxes, foundry patterns, pattern plates |
| Material properties | unfilled, slow curing, high filler content possible | castable in high volumes, high dimen- sional accuracy, good flow properties, well workable, long pot life | very abrasion resistant, hard flexible | very abrasion resistant, very hard flexible | very abrasion resistant, hard flexible, very well castable, nontoxic |
| Processing data | | | | | |
| Viscosity at 25°C (mPas) | 500 ± 100 | 6000 ± 500 | 2800 ± 500 | 6500 ± 700 | 2200 ± 400 |
| Density at 20°C (g/cm³) | 1.20 ± 0.03 | 1.75 ± 0.05 | 1.09 ± 0.02 | 1.07 ± 0.01 | 1.10 ± 0.03 |
| Pot life 200 g / 20°C (min.) | 45 - 60 | 40 - 50 | 20 - 25 | 12 - 15 | 12 - 16 |
| Curing time at RT (hrs.) | 16 - 24 | 12 - 16 | 10 - 12 | 8 - 10 | 8 - 10 |
| Physical data | | | | | |
| Flexural strength (MPa) | 110 ± 10 | 56 ± 5 | - | - | - |
| Flexural modulus (MPa) | 2250 ± 250 | 8025 ± 800 | - | - | - |
| Compressive strength (MPa) | 80 ± 8 | 76 ± 8 | - | - | - |
| Impact resistance (Charpy) (kJ/m²) | 58 ± 8 | 3.6 ± 0.5 | - | - | - |
| Heat resistance (Martens) (°C) | 50 ± 2 | 39 ± 2 | - | - | - |
| Shore hardness (Shore D) | 82 ± 3 | 87 ± 3 | 60 ± 3 | 70 ± 3 | 65 ± 3 |
| Coefficient of thermal expansion (10 ⁻⁶ K ⁻¹) | - | approx. 52 | - | - | - |
| Abrasion (Taber) (mg) | - | - | approx. 27 | approx. 10 | approx. 18 |
| Type / Application wt. / Rotations | - | - | H 18 / 500 / 500 | H 18 / 500 / 500 | H 18 / 500 / 500 |



Pattern made of GM 725-7



Pattern made of GM 725-7

Fast casting resins

For decades the fast curing resins from **ebalta** have been a force to be reckoned with in the field of foundry tooling. Fast, accurate and inexpensive, they are easy and economical to use.

| Material | SG 130 | SG 2000 | SG 700 | SG 900 |
|---------------------------------------|--|--|--|---|
| Hardener | PUR 11 | Comp. B | PUR 5 | Comp. B |
| Color | ivory | ivory | blue | beige |
| Mixing ratio (p. b. w.) | 100 : 100 | 100 : 100 | 100 : 15 | 100 : 100 |
| Applications | Foundry patterns, core boxes, pattern plates, negatives | Foundry patterns, core boxes, pattern plates, negatives | Foundry patterns, core boxes, negatives | Foundry patterns, core boxes, negatives |
| Material properties | unfilled, very low viscosity, high filler content possible | unfilled, very low viscosity, high filler content possible | filled, well castable, fine structure, dimensionally accurate | filled, well castable, dimensionally accurate |
| Processing data | | | | |
| Viscosity at 25°C (mPas) | 75 ± 20 | 50 ± 5 | 900 ± 100 | 900 ± 150 |
| Density at 20°C (g/cm³) | 1.10 ± 0.02 | 1.10 ± 0.02 | 1.70 ± 0.05 | 1.69 ± 0.05 |
| Pot life 200 g /20°C (min.) | 2.5 - 3.5 | 2.5 - 3.5 | 5 - 6 | 4 - 7 |
| Curing time at RT (hrs.) | 0.5 - 1.5 | 0.5 - 1 | 1 - 2 | 1 - 2 |
| Physical data | | | | |
| Flexural strength (MPa) | 60 ± 5 | 57 ± 5 | 40 ± 4 | 60 ± 5 |
| Flexural modulus (MPa) | 1000 ± 100 | 1500 ± 100 | 4500 ± 400 | 5500 ± 400 |
| Compressive strength (MPa) | 47 ± 5 | 45 ± 5 | 60 ± 5 | 65 ± 5 |
| Impact resistance (Charpy) (kJ/m²) | 26 ± 2.5 | 24 ± 4 | 4 ± 0.5 | 7 ± 1 |
| Heat resistance (Martens) (°C) | 45 ± 2 | 66 ± 3 | 51 ± 2 | 76 ± 3 |
| Shore hardness (Shore D) | 72 ± 2 | 72 ± 2 | 83 ± 3 | 82 ± 2 |



Pattern made of SG 2000 with filler F-A

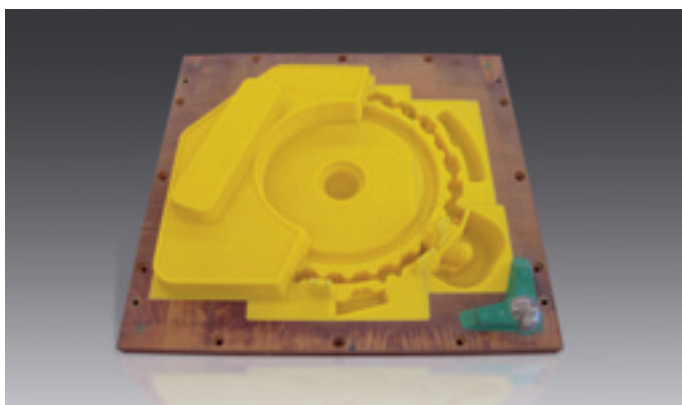


Pattern made of SG 700

ebaboard: board materials for foundry patterns

The **ebaboard** product series comprises board materials available in various thicknesses. **ebaboard** products have many advantages: dimensional accuracy and stability, durability, and highly stable edges. You benefit through superb machinability and very little dust build-up.

| Material | ebaboard 60 | ebaboard S | ebaboard M 04 | ebaboard PW 920 | ebaboard 140 |
|---|---|---|--|--|---|
| Color | red brown | red brown | yellow | green | blue |
| Applications | Master models, negatives, core centres | Master models, foundry patterns, core centres | Foundry patterns, core boxes, pattern plates | Foundry patterns, core boxes, pattern plates, negatives | Foundry patterns, core boxes, pattern plates |
| Material properties | dense surface, very well workable | dense surface, fine structure, very well workable | very abrasion resistant, highly impact resistant, dense surface, good edge strength | very well workable, good edge strength, dense surface, impact resistant, no generation of dust | low thermal expansion, highly abrasion resistant, fine structure, well workable, very good edge strength |
| Density at 20°C (g/cm ³) | 0.65 ± 0.02 | 0.70 ± 0.02 | 1.20 ± 0.02 | 1.21 ± 0.05 | 1.38 ± 0.03 |
| Delivery dimensions (mm) | 1500 x 500 x 25 1500 x 500 x 50 1500 x 500 x 75 1500 x 500 x 100 1500 x 500 x 200 | 1500 x 500 x 25 1500 x 500 x 50 1500 x 500 x 75 1500 x 500 x 100 1500 x 500 x 150 1500 x 500 x 200 | 1000 x 500 x 50 1000 x 500 x 75 1000 x 500 x 100 | 1000 x 500 x 30 1000 x 500 x 50 1000 x 500 x 75 1000 x 500 x 100 | 1000 x 500 x 50 1000 x 500 x 75 1000 x 500 x 100 |
| Physical Data | | | | | |
| Flexural strength (MPa) | 17 ± 3 | 25 ± 3 | 120 ± 5 | 72 ± 5 | 109 ± 5 |
| Flexural modulus (MPa) | - | - | 2950 ± 300 | 1807 ± 150 | 4175 ± 100 |
| Compressive strength (MPa) | 17 ± 3 | 24 ± 3 | 90 ± 5 | 56 ± 5 | 102 ± 5 |
| Impact resistance (Charpy) (kJ/m ²) | 5 ± 1 | 6 ± 1 | 66 ± 9 | 25 ± 3 | 19.5 ± 2 |
| Heat resistance (Martens) (°C) | 45 ± 2 | 50 ± 2 | 78 ± 2 | 62 ± 2 | 85 ± 3 |
| Heat resistance (°C) | 75 ± 5 | 75 ± 5 | - | 95 ± 5 | - |
| Shore hardness (Shore D) | 62 ± 3 | 65 ± 3 | 84 ± 3 | 79 ± 2 | 85 ± 3 |
| Coefficient of thermal expansion (10 ⁻⁶ K ⁻¹) | approx. 50 | approx. 55 | approx. 77 | approx. 109 | approx. 65 |
| Abrasion (Taber) (mg) | - | - | approx. 105 | approx. 101 | approx. 62 |
| Type / Application wt. / Rotations | - | - | H 18 / 500 / 500 | H 18 / 500 / 250 | H 18 / 500 / 500 |



Pattern made of **ebaboard M 04**

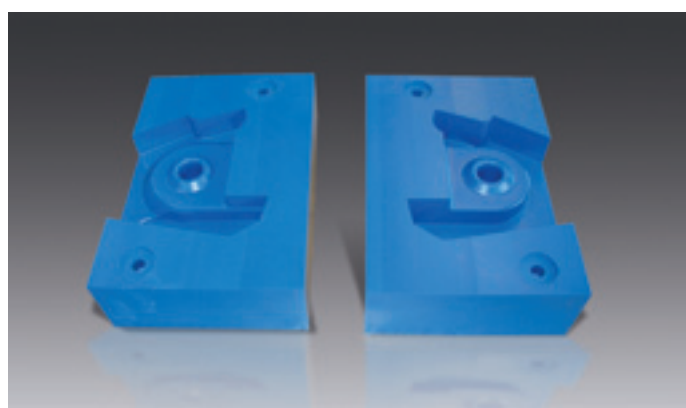


Pattern made of **ebaboard PW 920**

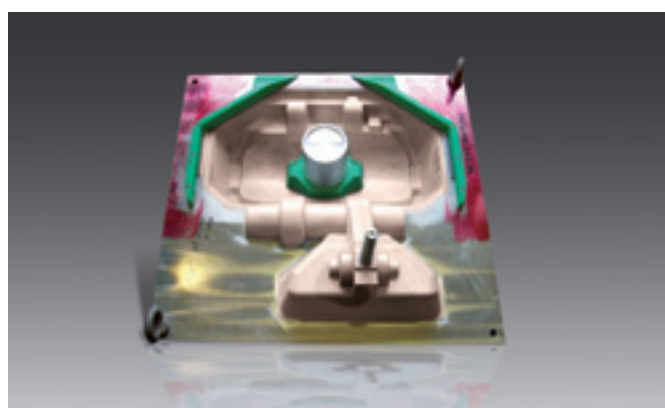
ebablock®: the net-sized contour block material for jointless foundry patterns

Customized block material for easier and more precise machining: **ebablock®** provides you with an individually created product to your specifications for the manufacture of jointless foundry patterns.

| Material | ebablock® M 007 | ebablock® M 04 | ebablock® K | ebablock® 140 | ebablock® W mineral |
|---|--|---|--|--|--|
| Color | brown | yellow | salmon pink | blue | beige |
| Applications | Master models, negatives, core centres, foundry patterns | Foundry patterns, core boxes, pattern plates | Core boxes, foundry patterns, pattern plates | Foundry patterns, core boxes, pattern plates | High-quality negatives, foundry patterns |
| Material properties | dense surface, fine structure, very well workable, no generation of dust | very abrasion resistant, highly impact resistant, dense surface, good edge strength | very high abrasion resistance, very impact resistant, dense surface, very well workable, no generation of dust | low thermal expansion, highly abrasion resistant, fine structure, well workable, very good edge strength | very low thermal expansion, high strength, well workable, fine structure |
| Density at 20°C (g/cm³) | 0.80 ± 0.02 | 1.20 ± 0.02 | 1.20 ± 0.02 | 1.38 ± 0.03 | 1.76 ± 0.03 |
| Physical Data | | | | | |
| Flexural strength (MPa) | 49 ± 4 | 120 ± 5 | - | 109 ± 5 | 72 ± 8 |
| Flexural modulus (MPa) | 2770 ± 250 | 2950 ± 300 | - | 4175 ± 100 | 9000 ± 300 |
| Compressive strength (MPa) | 41 ± 4 | 90 ± 5 | - | 102 ± 5 | 110 ± 10 |
| Impact resistance (Charpy) (kJ/m²) | 6.0 ± 1 | 66 ± 9 | - | 19.5 ± 2 | 6.0 ± 1.5 |
| Heat resistance (Martens) (°C) | 65 ± 2 | 78 ± 2 | - | 85 ± 3 | 70 ± 2 |
| Shore hardness (Shore D) | 73 ± 3 | 84 ± 3 | 62 ± 3 | 85 ± 3 | 90 ± 3 |
| Coefficient of linear expansion (10 ⁻⁶ K ⁻¹) | approx. 60 | approx. 77 | approx. 163 | approx. 65 | approx. 39 |
| Abrasion (Taber) (mg) | - | approx. 105 | approx. 32 | approx. 62 | approx. 160 |
| Type / Application wt. / Rotations | - | H 18 / 500 / 500 | H 18 / 500 / 500 | H 18 / 500 / 500 | H 18 / 500 / 250 |



Core box made of **ebablock® 140**



Pattern made of **ebablock® W mineral**

ebablock®: the net-sized contour block material for jointless foundry patterns

ebablock® can be used for a variety of applications. Our experts are happy to advise you from the choice of materials to the final foundry pattern.

A new technology for foundry tooling

ebablock® is produced in close collaboration with the customer. Available in block thicknesses of up to 500 mm, **ebablock®** can be custom made into blocks or net-sized contour blocks in accordance with your individual specifications. An outstanding performance feature is the excellent surface quality, resulting from the homogeneously cast and stress-free tempered blocks with no adhesive joints.

Higher performance, point by point

Every **ebablock®** makes foundry patterning easier and more efficient for you.

- You receive the block material to your specifications and dimensions, e.g. based on the size of the moulding box
- Models, negatives and patterns are jointless
- The net-sized contour cuts down milling times considerably
- Each **ebablock®** possesses outstanding dimensional stability
- No need to adhere anything; there are no adhesive joints
- Noticeable reductions in waste and refinishing

Altogether these plus points add up to one thing for you: higher quality foundry patterns.

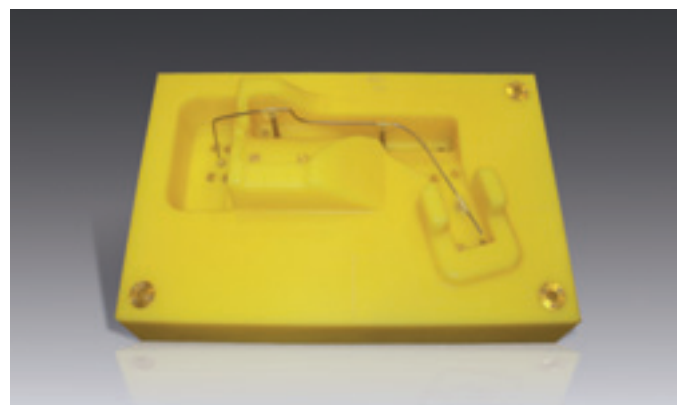
High performance in customer support

The **ebablock®** product series includes comprehensive customer support, from your first contact with us to the completion of your job.

- We accompany your project from beginning to end
- We quickly submit you with a precise and individualized offer
- We create your **ebablock®** based on your specifications, regardless of whether you provide them as a CAD file or a sketch
- We manufacture the moulds you need
- We provide you with the right milling parameters for processing your **ebablock®**
- **ebablock®** includes a comprehensive line of other products, for example, repair resins, which make it much easier to make modifications.



Core box made of **ebablock® K**



Core box made of **ebablock® M 04**

Step by step to **ebablock**[®]

It's easy to receive your individually manufactured block material. We will ship your ready-to-machine **ebablock**[®], depending on the complexity and volume of your order as quickly as possible.

1. Your order

You send us a drawing or CAD file with the specifications and dimensions for the **ebablock**[®] you require.

2. Mould making

We make a mould based on this data.

3. Mixing materials

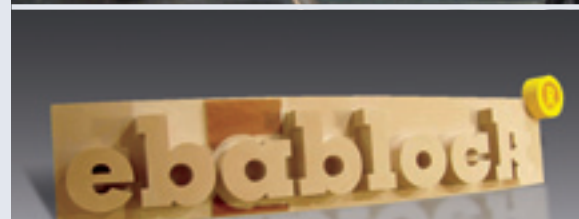
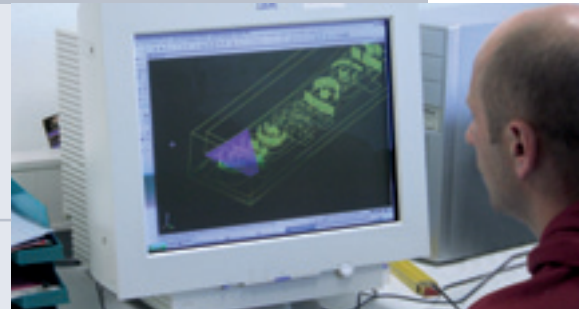
We convert the raw material into an homogeneous mixture to meet your requirements 100%.

4. Casting the **ebablock**[®]

Then we cast your individual block material. Our vacuum techniques prevent air bubbles from forming in the castings.

5. Postcuring the **ebablock**[®]

Once it has been cast, the **ebablock**[®] is postcured with an electronically controlled tempering process to rid the block of stresses and achieve optimal strength.



Other products from ebalta

eba•ject ejector system for core boxes

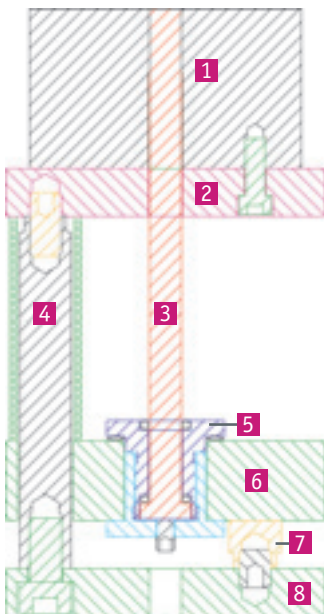
This patented innovation from **ebalta** provides for flawless moulding components, making repairs and production down times a thing of the past. **eba•ject** guarantees smooth production to the very last unit.

Simple technology – optimal results

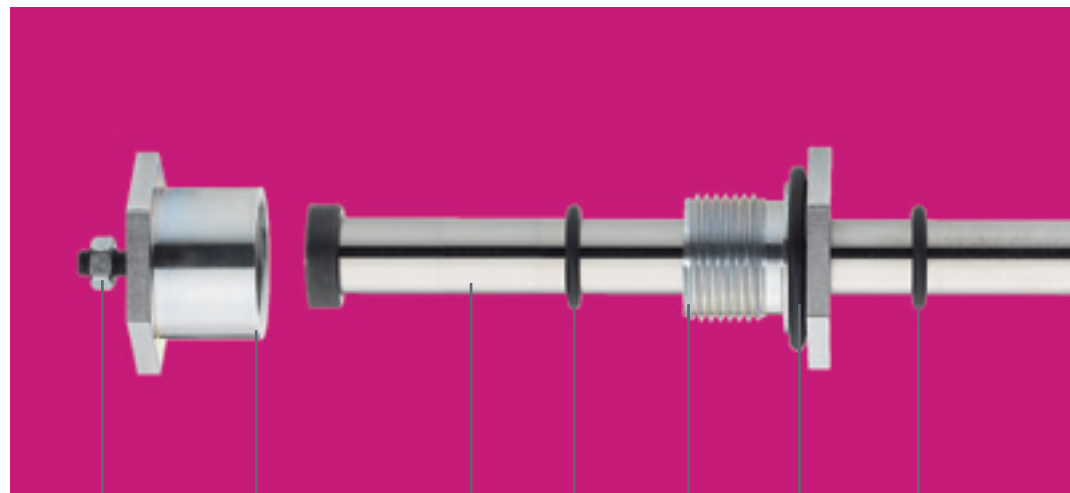
One investment that more than pays for itself: the new **eba•ject** ejector system from **ebalta** prevents all the technical problems that usually result with high unit counts. **eba•ject** compensates simply and precisely for the inevitable expansion differences between the tooling set-up and ejector. The result: flawless moulded components and a smooth production run free of disruptions. **eba•ject** is also available for use with inorganic materials as well as with an air valve. **eba•ject** is available in sizes 6, 8, 10, 12, 14 and 16 mm.

eba•ject – all the highlights at a glance

- Saves lots of time
- Ejector is easy to adjust
- No down times for repairs
- Protected against torsion
- Highly accurate for repetitive processes
- A very secure investment due to better longevity
- Reusability makes it very economical



1. Core box
2. Assembly base
3. Standard ejector
4. Guide pin for pressure plate
5. **eba•ject**
6. Pressure plate
7. Pressure plate stop
8. Base



Lock nut with
adjustment screw

Compression O-ring
for height
adjustment

O-ring to prevent
torsion

Cap nut
ø 25 mm, ø 32 mm

Standard ejector

Ejector base

Seal ring



eba•safe fastening system

No more deformations, no more blocks sliding out the side, no more burring on the edges: **eba•safe** sits perfectly on the base plate. For optimal production results with all conventional block materials and tooling resins.

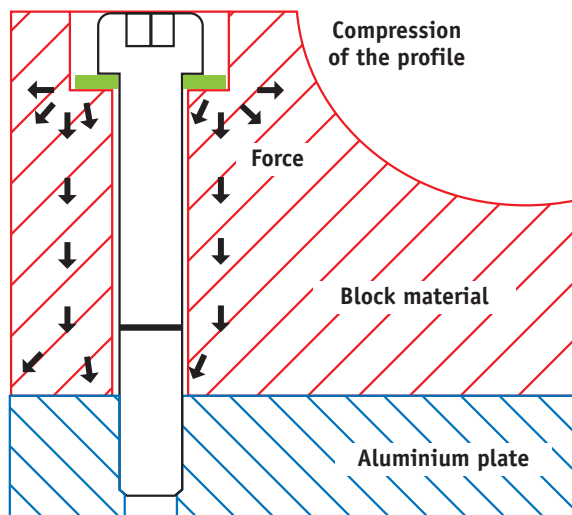
Better safe than sorry

eba•safe is a collar bushing that prevents the contour from becoming deformed and the core box from sliding out the side. **eba•safe** is attached to the block material from below for a firm hold. Your production run turns out perfectly formed components, unit for unit.

Perfect results, time after time

eba•safe is new because the collar bushing provides friction-fitted hold on the base plate. Unlike conventional screw joints, **eba•safe** counteracts the forces that can cause deformations, rendering them harmless to the material. With its Allen bolt, **eba•safe** is easy to screw in. The material remains completely undamaged, even if the mold has been dismantled multiple times.

eba•safe is available in sizes 6, 8, 10, 12 and 16 mm (internal thread).

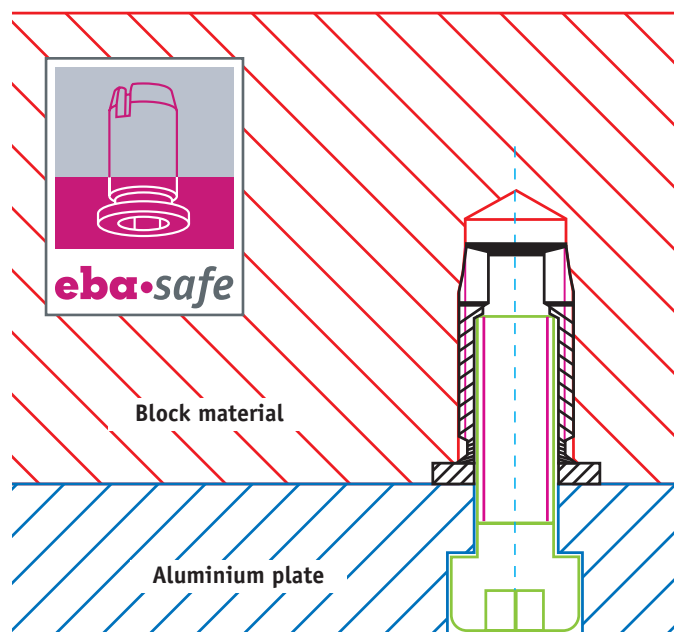


Conventional screw joint

The perfect duo for greater efficiency:

eba•safe und eba•ject

Unbeatably economical, **eba•safe** combined with **eba•ject** provides for smooth and efficient production. This duo prevents down times and damaged components from the start, while ensuring consistently reliable production quality.



eba•safe screw joint

ebalta production auxiliaries

ebalta offers a complete range of production aids for use in every stage of foundry tooling.

| | | |
|--|---|---|
| <i>Adhesives for boards</i> | Two-component system for adhering ebaboard and ebablock [®] in matching colors | Very strong Very well workable Weather and moisture resistant |
| <i>Repairing compounds for ebaboard PW 920, ebablock[®] K, ebablock[®] M 04</i> | Two-component system for repairing ebaboard and ebablock [®] | Very strong Well workable |
| <i>Fast adhesive AD 51</i> | Single-component adhesive for adhering ebaboard and ebablock [®] | Solvent-free Very fast curing Transparent |
| <i>Repairing paste aluminium</i> | Two-component system for repairing metal and synthetic resin tools and models (also for aluminium and iron casting parts) | Aluminium-filled Very resistant to high temperatures |
| <i>Fast curing model paste</i> | Two-component polyester-based putty for repairs and bonding | Very easy to sand Fine structure Very good surface adhesion |
| <i>T1-1 mould release agent</i> | For release of component surfaces (suitable for use with polyurethane, epoxy resins and polyester-based materials) | Very short drying time Easy to polish Apply with brush or spray |
| <i>Sealer</i> | Primer for sealing porous surfaces (wood, plaster), creates highly smooth surfaces | Fast drying Apply with brush or spray |
| <i>Wax sheets</i> | Normal and thermostable sheets, various types available in different thicknesses | Fast and easy handling Adhesive-backed |
| <i>Fillers</i> | Mineral-based and metallic fillers available as powders and granules | |

Little helpers from **ebalta**

Developed specially for **ebalta** materials, this multi-faceted spectrum of little helpers makes it as easy as possible for you to handle our products.

| | |
|-----------------------------------|---------------------|
| Brushes | |
| Flat brushes | 10 / 20 / 30 mm |
| Gussow brush | 12 mm |
| Gussow bristle brush | 20 mm |
| Stirrers | |
| Star stirrer | 90 / 130 mm |
| Spiral stirrer | 70 / 90 mm |
| Gloves | |
| Latex gloves with/without powder | S / M / L / XL |
| Vinyl gloves without powder | S / M / L / XL |
| Nitrile gloves without powder | M / L / XL |
| Cotton gloves | One size fits all |
| Mixing Cups | |
| Plastic mixing cup | 350 / 860 / 2100 ml |
| Cardboard mixing cup | Small / Large |
| Adhesives | |
| Dries-in-seconds adhesive AD 51 | 20 g bottle |
| Spray adhesive | 400 ml can |
| Plasticine (kneadable wax) | |
| Superplasticine | Yellow |
| Plasticine | Red |
| Plasticine | White |
| Miscellaneous | |
| Cleaning solvent | 5 / 25 kg canister |
| Preservative spray | 0.23 kg can |



You can find other production aids to make your work easier in our brochure titled "Little Helpers from **ebalta**".

tooling resins blocks auxiliaries silicones

Foundry tooling

Design model making

Rapid Prototyping

Mould and tool making

Composites

Electrical encapsulation

Further applications

*If you have any questions concerning technical and production help, please call us anytime to make an appointment with our experts.
We are looking forward to you!*

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solution takes shape