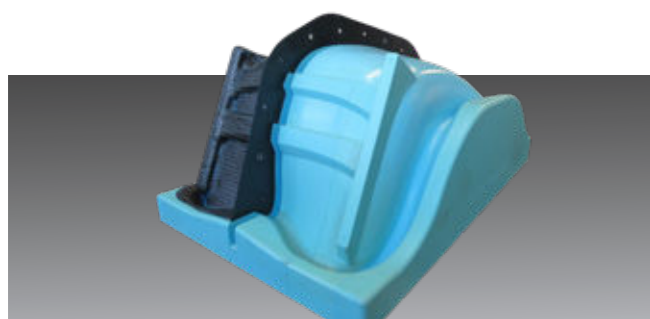


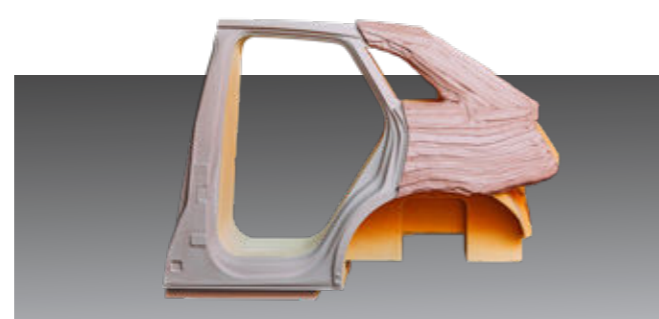
ebalta boards, blocks and lay-up paste for mould making. Market leader quality for each geometry.

We've been supporting model and tool makers as well as foundry pattern makers with innovative products for over 50 years. Our board and block materials and our lay-up pastes are especially developed for the requirements of your geometries.

Boards/Blocks/ Lay-up paste	ebaboard VP EP 120	ebaboard EP 138	ebaboard EP 139	ebaboard VP EP 180	ebablock® P 185
Colour	blue	light blue	ice blue	green	blue
Density at 20 °C [g/cm³]	0.90 ± 0.02	0.68 ± 0.02	0.66 ± 0.02	0.70 ± 0.02	1.86 ± 0.02
Applications	Prepreg tooling, master models for prepreg tools, moulds and tools for composites	Prepreg tooling, master models for prepreg tools, moulds and tools for composites	Prepreg tooling, master models for prepreg tools, moulds and tools for composites	Direct tooling, composite moulds, prepreg tools, vacuum forming tools	Master models even for very big prepreg and nickel shell tools, tools for low temperature prepreps
Properties	Low coefficient of thermal expansion, fine surface structure, low generation of dust during machining	Low coefficient of thermal expansion, high heat resistance, low coefficient of thermal expansion	Very fine surface structure, high heat resistance, low coefficient of linear expansion, low generation of dust during machining	Very fine surface structure, very high heat resistance, low generation of dust during machining	PU block material low coefficient of thermal expansion, good heat resistance, big volume blocks available
Coefficient of thermal expansion [10-6K-1]	approx. 38	approx. 36	approx. 34	approx. 56	approx. 39
Heat resistance HDT [°C]	120 ± 3	145 ± 3	>150	174 ± 3	115 ± 5
Sales units	1524 x 609 x 50 mm 1524 x 609 x 75 mm 1524 x 609 x 100 mm 1524 x 609 x 150 mm	1524 x 609 x 50 mm 1524 x 609 x 75 mm 1524 x 609 x 100 mm 1524 x 609 x 150 mm	1524 x 609 x 50 mm 1524 x 609 x 75 mm 1524 x 609 x 100 mm 1524 x 609 x 150 mm	1524 x 609 x 50 mm 1524 x 609 x 75 mm 1524 x 609 x 100 mm 1524 x 609 x 150 mm	ebablock®: individual dimensions
Adhesive, repair putty and casting resins	Adhesive 552	Adhesive 552	Adhesive 552	Adhesive 552	Adhesive and putty P 185 blue



Prepreg tooling made of EP 138



Original size design model made of lay-up paste P 26



Roding Roadster R1 made with AH 140



From: Roding Automobile GmbH Roding CPK-chassis made of AH 140 from vacuum infusion

High-performance Epoxy Resins For your strongest ideas

ebalta epoxy resin systems for composites have been especially developed for the manufacture of high-strength components reinforced with glass and carbon fibres. They are used, for example, in high-tech fields such as racing, boatbuilding, the automotive industry, rail vehicle construction and wind turbines.

Epoxy resins	Temperature range	up to 80 °C			up to 100 °C				up to 120 °C		up to 180 °C	up to 200 °C						
	Resin Hardener	IP 25	AH 150 IP 55	IP 430	LH 25 LH 25	AH 120 TL-1	AH 110 H 2017 TGL	AH 140 LI 20-1 LI 130-2	AH 140 TC 60	TC 90-2	LH 28-1 TM	LH 30 LH 30						
	Mixing ratio (p.b.w.)	100:30			100:15	100:25	100:30 100:22	100:35		100:30	100:32	100:40	100:42					
	Pot life approx. [min] 200 g (20 °C)	15-25	50-60	300-430	50-60	80-90	20-25 55-65	18-22 120-140	55-65	90-105	240-360	160-200						
	Mixing viscosity [mPas] (25 °C)	550 ± 80	350 ± 80	250 ± 50	950 ± 100	430 ± 80	1300 ± 200 1000 ± 150	600 ± 75 550 ± 75	600 ± 75	425 ± 75	750 ± 100	2200 ± 500						
	Glass transition temperature T_g approx. [°C] after curing	80 (HDT)	78 (HDT)	79 (HDT)	89 (90 HDT)	100 (HDT)	101 (HDT) 102 (101 HDT)	83 (91 HDT*) 100 (107 HDT*)	93 (97 HDT)	114 (110 HDT*)	182 (175 HDT)	200 (181 HDT)						
	Curing [h / °C]	3-5 / 80	3-5 / 80	3-5 / 80	12-16 / 80	6-8 / 50-60 + 3-5 / 80-90		12 / 80 4 / 60 + 4 / 80 + 4 / 120	4-6 / 60 + 5-6 / 80	4-6 / 60 + 5-6 / 80	Gradual post curing up to 160°C	Gradual post curing up to 150°C						
	Properties and applications	<ul style="list-style-type: none"> • Infusion and laminating resin for components and moulds for the automotive industry, aerospace or boatbuilding • Low viscosity, good fibre wetting, long flow paths, adjustable potlife • Economically priced 			<ul style="list-style-type: none"> • Flameproof laminating resin (DIN 5510-2) for precision components 		<ul style="list-style-type: none"> • High strength • Vehicle construction 		<ul style="list-style-type: none"> • High-strength laminating resin • Bonding resin for fillers 		<ul style="list-style-type: none"> • Cures tack free • Vacuum infusion of carbon- and glass fibre parts • Hand lay-up of carbon- and glass fibre parts 		<ul style="list-style-type: none"> • Temperature resistant, low-viscosity system e.g. carbon fibre visible parts • With hardener TC 60 also cures well at room temperature 		<ul style="list-style-type: none"> • High-temperature resistant infusion and laminating resin for components and moulds 		<ul style="list-style-type: none"> • High-temperature resistant laminating and bonding resin for moulds 	

*at additional post curing within 4h / 120 °C

Resin / Hardener	OH 4 / H 2017	OH 6-1 / H 2017	OH 35 / H 2017	OH 38 / HM	OH 82 / TM
Mixing ration (p.b.w.)	100 : 13	100 : 9	100 : 14	100 : 13	100 : 31
Pot life approx. [min] 200 g (20 °C)	20-25	40-50	20-25	20-30	220-260
Heat resistance (HDT)	85 ± 5	101 ± 3	96 ± 3	145 ± 5	175 ± 5
Post curing [h / °C]	24/RT + 8 / 80	24 / RT + 8 / 80	24 / RT + 8 / 80	6 / 60 4 / 80 4 / 120	16 / 60 + 8 / 130 + 4 / 160
Properties and applications	Multi purpose useable, negatives	Polishable, vacuum forming tools	Polishable, composite tooling	High heat resistance, prepreg tools	Very high heat resistance, prepreg tools

Additives and ancillary equipment	Glass fibres / Gypsum	Release agents and sealer
	Glass filament fabrics thin, middle, thick 163 g/m², 280 g/m², 445 g/m², 600 g/m², high strength	T 1-1 Liquid, fast drying, polishable, also available as spray T 03-1 Liquid, heat resistant up to approx. 105 °C T 7 Pasty, well polishable, heat resistant up to approx. 80 °C
Synthetic gypsum ebacryl laminating system, Ludur XL	Release agent 17 Semi-permanent release agent for multiple demoulding, high-heat resistance Sealer 02 Sealer 09 Sealing of EP and PU Board materials, heat resistance over 200°C	

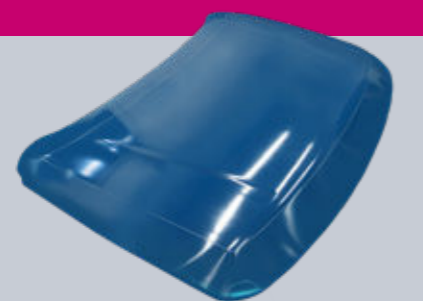


Our Product Manager Stefan Koppmair is your expert for Composites and fabrication of moulds and parts. In addition we offer in-house training on vacuum infusion.

Please feel free to contact Stefan Koppmair directly:
mobile: + 49 171 7 99 81 54
e-mail: skoppmair@ebalta.com

ebablock® P 185. The individual cast-to-size block for your prepreg and electroformed nickel shell master models.

Product	ebablock® P 185
Colour	blue
Applications	Master models even for very big prepreg tools master models for nickel shell tools low temperature prepreg tools moulding tools
Properties	Polyurethane block material low thermal expansion high heat resistance big volume blocks available very dense surface self-extinguishing according to UL 94 V0, fileE191776
Sales units	Individual cast-to-size block material with variable dimensions. application example: master model for a prepreg tool of a turbine engine cowling. size: 3760 x 2990 x 1640 mm volume: 3000 litres
Physical data	
Density at 20 °C (g/cm³)	1.86 ± 0.05
Shore hardness D	90 ± 3
Flexural strength (MPa)	70 ± 5
Flexural modulus (MPa)	11350 ± 200
Compressive strength (MPa)	120 ± 5
Impact resistance (Charpy) (kJ/m²)	3 ± 0.5
Heat resistance (HDT) (°C)	115 ± 5
Coefficient of thermal expansion 20 – 50°C (10-6K-1)	approx. 39



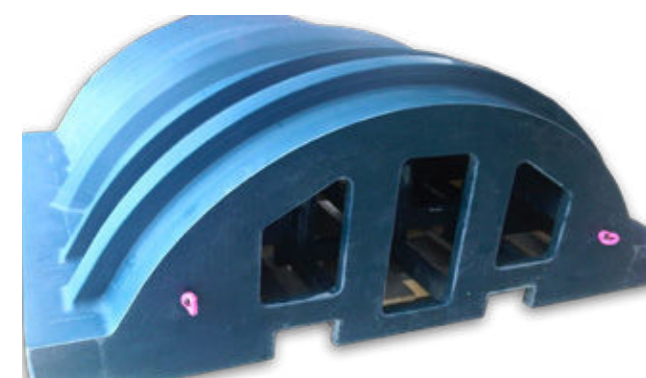
Master model made of ebablock® P 185



Nickel shell tool produced on ebablock® P 185



Prepreg tool produced on ebablock® P 185



Master model for prepreg tool made of ebablock® P 185. Size: 3760 x 2990 x 1640 mm, volume: 3000 litres

ebalta composites resins.

The high-performance programm for tooling, prepregs and parts.

Polyurethane and Epoxy Resins Boards and Blocks Silicones Auxiliaries



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