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RAKU-TOOL® Close Contour Products

Resin	Hardener	MTO[1)]	Mix ratio (pbw)	Color	Pot life 25°C (min)	Max. layer thickness (mm)	Density g/cm³ (ISO 1183) ca.		Key Properties	Applications
RAKU-TOOL® Close Contour Pastes (machine applied) 1000 ml										
CP-6050	CP-6050		100 : 100	light brown	30 – 40	40	0.50		Very smooth, homogeneous surface, easy to machine, very little dust, can be machined after 10 h RT cure	Design and styling models, molds
CP-6060	CP-6060	√	100 : 100	gray	30 – 40	25	0.6		Very fine and homogeneous surface, easy to machine, low dust, low exotherm, can be machined after 9 h RT cure	Large-scale models, wind turbine blade models, boat models
CP-6070	CP-6070		100 : 100	brown	30 – 40	40	0.75		Fine, homogeneous surface, easy to machine, can be machined after 10 h RT cure	Design and styling models, master models, molds
CP-6070	CP-6072		100 : 100	brown	50 – 60	40	0.75		Very smooth, homogeneous surface, easy to machine, very little dust, can be machined after 14 h RT cure	Design and styling models, master models, molds
CP-6080	CP-6080	√	100 : 100	gray	30 – 40	40	0.85		Good edge strength and high compressive strength, very fine and homogeneous surface, easy to machine, low dust, can be machined after 14 h RT cure	Master models, data control models, molds
CP-6083	CP-6083	√	100 : 100	gray	50 – 60	40	0.85		Good edge strength and high compressive strength, easy to machine, low dust, low exothermic, layer thickness 40 mm without slump on vertical surfaces, can be machined after 10 h RT cure	Large-scale models, wind turbine blade models, boat models
CP-6083	CP-6084	√	100 : 100	gray	50 – 60	40	0.85		Good edge strength and high compressive strength, easy to machine, low dust, low exothermic, layer thickness 40 mm without slump on vertical surfaces, can be machined after 14 h RT cure	Large-scale models, wind turbine blade models, boat models
CP-6102	CP-6102	√	100 : 100	gray	50 – 60	40	1.0		Very fine and homogeneous surface, easy to machine, low dust, low exothermic, can be machined after 10 h RT cure, layer thickness 40mm without slump on vertical surfaces	Large-scale models, wind turbine blade models, boat models
RAKU-TOOL® Repair Systems for Epoxy Close Contour Pastes 100 ml										
CP-6050	EH-2936-1	√	100 : 70	light brown	15 – 20		0.55		> Slump resistant on vertical surfaces in layers up to 20 mm thickness > Sufficient pot life with rapid cure > Similar mechanical properties to those of cured Close Contour Pastes	Repair of Close Contour Paste CP-6050 R/H
CP-6060	EH-2936-1	√	100 : 50	gray	15 – 20		0.6			Repair of Close Contour Paste CP-6060 R/H
CP-6070	EH-2936-1	√	100 : 50	brown	15 – 20		0.65			Repair of Close Contour Paste CP-6070 R/H
CP-6080	EH-2936-1	√	100 : 40	gray	15 – 20		0.75			Repair of Close Contour Paste CP-6080 R/H
RAKU-TOOL® Epoxy Pastes (hand applied) 500 ml										
EP-2301	EH-2931	√	100 : 100	brown	40 – 45	40	0.7		Easily shaped with wood working tools, good adhesion to most supporting structures	Styling and design models, master models, patterns
EP-2342	EH-2942	√	100 : 100	apricot	30 – 35	40	0.53		Easily shaped with wood working tools, good adhesion to most supporting structures	Styling and design models, master models, patterns

[1)]MTO Made to order
CB Close Contour Block is supplied as a customized size of a rectangular, unmachined block.
CCC Close Contour Casting is supplied as a three dimensional shape which is already a close contour of your final shape.

CP Close Contour Paste (R= Resin, H= Hardener)
EH Epoxy Hardener
EP Epoxy Paste/Resin

RAKU-TOOL® Close Contour Casting (CCC) / Close Contour Blocks (CB)										
	Color	**MTO[1)]**	**Density g/cm³ (ISO 1183) ca.**	**Shore Hardness D (ISO 868)**	**Coefficient of thermal expansion 10^{-6} K^{-1} (ISO 11359)**	**Deflection temperature °C (ISO 75)**	**Compressive strength MPa (ISO 604)**	**Compressive modulus MPa (ISO 604)**	**Key Properties**	**Applications**
CC-6010 / CB-6010	brown		0.80	65 – 70	65 – 70	75 – 80	35 – 40	1300 – 1600	> Fine surface structure > Easily machined > Similar properties to RAKU-TOOL modeling boards	Master models, cubing models, patterns
CC-6012 / CB-6012	brown	√	0.88	65 – 70	70 – 90	55 – 65	35 – 40	1000 – 1500	> Seamless, very fine surface structure > Easy to machine, little dust > Very high edge strength > Similar quality to RAKU-TOOL® Modeling Boards	Styling models, master models, data control models, shell castings in large volumes (approx. up to 2000 litres)
CC-6503 / CB-6503	blue		1.85	85 – 90	40 – 45	80	95 – 105	9500	> Very dense structure > Very homogeneous, fine surface and as a result, very good surface of nickel bowl, i.e. little finishing required and therefore large cost savings > Easily machined like board material WB-1600 > Low coefficient of thermal expansion > Good abrasion resistance	Galvanobath models, lay-up tools, RIM tools
CC-6504 / CB-6504	beige	√	1.87	85 – 90	40	80	90 – 100	10000	> Very dense structure > Easily machined like board material WB-1600 > Low coefficient of thermal expansion > High compressive strength / stiffness > Good abrasion resistance > Tools do not need to be polished = time saving > Tools weigh less (vs Zamak) = easy handling and transport > Changes are easily possible	Metal sheet forming, Jigs
CC-6506 / CB-6506	dark gray		1.90	90 – 95	35	110	120 – 130	13000	> Very dense surface structure > Can be polished > Good heat resistance > High compressive strength > Good resistance to chemicals > Time savings through direct milling of mold via surface data > Better pressing of sheet metal parts	Molds for ceramic pressure casting, Metal sheet forming, vacuum forming tools, Lay- up tools
CC-6507 / CB-6507	olive		1.40	85 – 90	50 – 55	75 – 80	85 – 95	3500 – 4000	> Dense surface structure > Very easily machined > Good dimensional stability > Good abrasion resistance and impact strength	Pattern plates and core boxes, Machined negatives and positives, Models, molds and tools, Hammer forms and jigs
CB-6691	light blue	√	0.69	70 – 75	35 – 45	100 – 110	55 – 60	2000 – 2500	> Epoxy based material > Very fine surface structure > Excellent machinability > Good dimensional stability > Heat resistant up to 110 °C	Lay-up tools for low temperature tooling prepregs Vacuum forming molds Medium temperature applications
CB-6700	light green		0.70	65 – 70	35 – 45	130 – 140	50 – 55	2000 – 2500	> Epoxy based material > Very fine surface structure > Excellent machinability > Good dimensional stability > Heat resistant up to 130 °C	Lay-up tools for prepreg, vacuum forming molds, high temperature applications

Offset requirements for CC and CB products: CB: The general rule is that RAMPF Tooling Solutions only adds an offset for shrinkage to the dimensions indicated on the customer's order. The customer has to assess how many mm machining/processing offset is needed for the unmachined block he receives. We recommend a machining/processing offset of minimum 10 mm. Dimensions ordered = dimensions supplied, within the specifications. Close Contour Blocks are unmachined, only basic cleaned cast blocks. Some release agent residue on the surface is possible. Sharp edges are milled due to risk of injury.

CC: For a dimension of up to 1000 mm, an offset of 20 mm per surface to be worked on must be added. All larger dimensions need to have a shrinkage offset of 0.5-2 % (dependant on product) + offset for processing of minimum + 10 mm per surface. However, each project still needs to be discussed with the responsible project manager at RAMPF Tooling Solutions.

RAMPF Tooling Solutions GmbH & Co. KG

Robert-Bosch-Straße 8-10 I 72661 Grafenberg | Germany
T +49.7123.9342-1600 I F +49.7123.9342-1666
E tooling.solutions@rampf-gruppe.de

www.rampf-gruppe.de

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RAKU-TOOL® Repair Systems for Close Contour Casting (CCC) 500 ml										
CC-6010	CC-6010	√	100 : 50	brown	4 – 5	60 – 65	0.8		> Flows very well and allows for easy gap filling > Good mechanical properties > Good adhesion to CC > Quick RT cure	Surface repair of CC-6010
CC-6012	CC-6012	√	100 : 50	brown	4 – 5	60 – 65	0.8			Surface repair of CC-6012
CC-6503	CC-6503	√	100 : 25	blue	4 – 5	80 – 85	1.6			Surface repair of CC-6503
CC-6506	CC-6506	√	100 : 40	dark gray	3 – 4	80 – 85	1.5			Surface repair of CC-6506
CC-6507	CC-6507	√	100 : 50	olive	3 – 4	80 – 85	1.4			Surface repair of CC-6507

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CC: For a dimension of up to 1000 mm, an offset of 20 mm per surface to be worked on must be added. All larger dimensions need to have a shrinkage offset of 0.5-2 % (dependant on product) + offset for processing of minimum + 10 mm per surface. However, each project still needs to be discussed with the responsible project manager at RAMPF Tooling Solutions.

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