Product Specification

Recoflex® - The elastic particle board

Material composition	Recoflex consists of approx. the same percentages of • Wood granulates • Cork granulates • Latex granulates • Polyurethane binding agent	
Elasticity	The elasticity of Recoflex is achieved by • The elastomers polyurethane and latex • The porous consistency and low density of the material • The dimension of the granulates • The random, homogeneous material structure	
Delivery formats / versions	Thickness 3-19 mm Width max. 1.250 mm Length variable With corresponding order quantity, special formats are possible, various material density values, various percentages of cork and size of cork particles, various colors.	
Physical values	According to own test by BSW GmbH	
Color	Similar to wood or dyed in various colors	
Bulk weight	Approx. 440 kg/m³	
Weight per surface area	Approx. 440 g/m²/mm thickness	
Tensile strength	Approx. 0.95 N/mm²	DIN 53571 specimen B
Elongation at break	Approx. 16 %	DIN 53571 specimen B
Stress at 15 % compression	Approx. 0.90 N/mm²	DIN 53577
Resistance to weathering		

BSW

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Volume change in water after 72 hours
(Own test BSW)

Material:	Thickness at start	Thickness after 72 hours	Thickness in %	Increase in %
Recoflex	16.6 mm	16.7 mm	100.6%	< 0.6%
MDF panel	19.3 mm	23.3 mm	120.7%	20.7%
Particle board	19.0 mm	23.4 mm	123.2 mm	23.2%

Resistance to light	Perceptible discoloration comparable to wood
Deformation of Recoflex	Recoflex can be deformed manually in all directions easily. Three - dimensional deformations are also possible. Deformation can be accomplished: • manually • in vacuum presses • in thermal presses with positive/negative mold • in flat presses / veneer presses Recoflex does not retain the given shape by itself and therefore must be fixed. Two-dimensional deformations are possible within one part in various sequential directions. Recoflex allows large and, in comparison to other materials, very small radiuses. The degree of deformability increases with decreasing material thickness. Due to the material structure of Recoflex, three-dimensional deformations can also be achieved. Three-dimensional deformations stretch the material in various directions so that, in extreme cases, semi-spherical shapes are possible.
Paneling / Fixation	The following outer layers are suitable: • HDF • MDF • Topan beginning with thickness of 6 mm • thin plywood 2 mm • HPL, relatively thick • Veneer, beginning with thickness of 0.5 mm • 3-D veneer e.g. Reholz etc. • Formica • Synthetic resin

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Adhesive bond

2-component glue, e.g. Kaurit (BASF)	Solid, non-resilient glued joint	
PVAC dispersion glue (white glue)	Remains resilient and thereby slightly reduces stability	
1K polyurethane glue (foam glue)	Solid, reliable glued joint	
		Quantity per m² Approx. 200-250 g

Surface finish	Recoflex can also be used for various purposes even in the visible area of furniture and room elements. Unfinished edges of paneled and veneered shape parts also play a role for design reasons, specially when using coloured Recoflex material. Recoflex can be finished with highly varying types of paints. When treated with oil, Recoflex remains more resilient than after painting. It is possible to stain attached veneers. When foam glue is used, the excellent absorption properties of the material prevent the glue from showing through.
Dyeing	Recoflex can be dyed completely all the way through with dyeing powder or dyeing pastes during the production process. The color distributes uniformly throughout the entire material without streaks, inclusions or various degrees of saturation. Numerous colors are possible according to the RAL scale. The color saturation depends on the quantity of dye used. A number of tests are necessary to achieve a certain color, because little experience is available. The color saturation on the surface increases with sanding and painting. The cork particles contained do not absorb the dye, so that they retain their natural color. This interesting effect can be varied by modifying the size of the cork particles.

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Results of tests performed outside the company and reported to us.

Emission values	According to emission tests performed by LGA Qualitest GmbH, Nürnberg, Test Report No. QIWQ 7741188, 2004	
Formaldehyde emission	0.005 ppm	Permissible maximum value for wood material (E1) according to chemical prohibition law = 0.1 ppm Legal requirements fulfilled.
Effects on formaldehyde emission in composite material	It is now possible to laminate fewer panels to another while maintaining the same thickness of the molded part, with Recoflex core. This additionally reduces the formaldehyde emission when 2-component glues containing formaldehyde are used by reducing the quantity of glue.	
Emission of volatile organic compounds	CMT substances, all < 1 µg/m³ VOC 90 µg/m³ of these BTEX aromatics < 1 µg/m³	Legal requirements fulfilled (RAL-UZ 38).
Odor emission	2.5	Legal requirements fulfilled.
Combustion characteristics	according to test performed by Siemens AG, A&D SP, Report 2004-1776	
	Combustibility class S3 Smoke development class SR 2 Drop forming capacity, class ST 2	E DIN 5510-2: 2003-9
Fire classification	B 2	DIN 4102
Heat conductivity	according to MFPA, Weimar, DIN 52612-1:1979-09	
Heat conductivity	At 10 average temperature $ë_{10}$ = 0.0836 W/mK temperature difference on surface of two outer size: 10.2°C	Heat conductivity Styrene 0.03 Wood 0.13 Concrete 1.40
Heat transmission resistance	1/Ë = 0.19 m²K/W	

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Breaking strength test

Material: Recoflex 16 mm, veneered on both sides
Type of test 3-pooint bending tests
Support width: 380 mm

Test standard EN 3310
Test velocity 20 mm/min
Compare particle board 19 mm = E module 2.000 N/mm²
Compare MDF panel = E module 2.200 N/mm²

t	b	Breaking force	Resistance to bending	E module	t test	Veneer thickness
mm	mm	N	N/mm²	N/mm²	s	mm
19.3	50.0	508	15.5	2354	37	1.4
18.4	49.7	556	18.8	2661	40	1.4
18.5	49.7	516	17.4	2685	37	1.4
20.1	50.0	778	21.9	2583	52	2.4
20.1	49.8	811	23.0	2838	53	2.4
20.2	50.3	833	23.2	2744	56	2.4
16.8	49.6	292	11.9	1648	37	0.5 laminated
16.7	50.2	267	10.9	1634	33	0.5 laminated
16.7	50.2	264	10.8	1602	34	0.5 laminated
17.1	50.2	218	8.5	1762	20	0.5
17.3	50.3	211	8.0	1675	20	0.5
17.1	50.4	254	9.8	1709	27	0.5

Permanent impression following static load	according to CATAS, Italy	
Recoflex unplanked	3.2 mm	EN 433/94
Permanent impression following static load, Recoflex planked on both sides with HPL plastic laminate	0.06 mm	EN 433/94
Permanent impression following static load, Recoflex planked on both sides with wood veneer	0.16 mm	EN 433/94

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Minimum inner radiuses on following material combinations
(according to Claudio Waldesbühl, Technical School in Zug)

Material core 18 mm Recoflex

Paneling	Adhesive	Application
MDF 4mm two-sides	1K polyurethane glue (foam glue)	with restrictions, beginning with radius of 300 mm
MDF 4 mm + synthetic resin 1 mm	1K polyurethane glue (foam glue)	yes, beginning with radius of 300 mm
Topan 6 mm, one side	1K polyurethane glue (foam glue)	with restrictions, beginning with radius of 130 mm
Topan 6 mm, two sides	1K polyurethane glue (foam glue)	yes, beginning with radius of 130 mm
Synthetic resin 1 mm, two sides	1K polyurethane glue (foam glue)	yes, beginning with radius of 70 mm
Veneer 0.8 mm, two sides	1K polyurethane glue (foam glue)	yes, beginning with radius of 50 mm
Veneer 0.8 mm, two sides	Veneer glue	yes, beginning with radius of 50 mm
Topan + synthetic resin 1 mm	1K polyurethane glue (foam glue)	yes, beginning with radius of 130 mm
Synthetic resin 1 mm (outside) + veneer 0.8 mm (inside)	1K polyurethane glue (foam glue)	yes, beginning with radius of 50 mm

Suitability test for various types of veneer

Beech veneer

Thickness	Rating
0.5 mm	Good, slight irregularities in surface possible, girding is recommended
0.5 mm laminated	good
0.9 mm	good
1.4 mm	good
1.4 mm	good

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Tear-off test for glued-on surfaces	according to CATAS, Italy	
	Recoflex panels on both sides with HPL plastic laminate	0.86 Mpa
	Recoflex panel on both sides with wood veneer	0.91 Mpa
	MDF panel	1.2 Mpa

Connection techniques
Reliable strength values can be achieved for Recoflex with nearly all common connection techniques, by using if necessary foaming adhesive.

Test body; MDF panel, particle board, Recoflex veneered with cherry wood
specific connection per series MDF – Recoflex, particle board – Recoflex, Recoflex - Recoflex

Connection	**Execution**		**Rating**
Lamello 90°	glued	not glued	good
Lamello 45°	glued	not glued	good
Anchor 90°	glued	not glued	good
Anchor 45°	glued	not glued	good
Screwed 90°	glued		good
Screwed 90°		not glued	acceptable
Screwed surface	unglued, 2 types of screws		Screws with continuous thread are preferable
Screwed 90°	Screw comparison, breakout		Recoflex has advantages in edge zone in comparison to MDF
Butt 90°	glued	not glued	good
Butt 45°	glued	not glued	good
Butt, cross-grained	glued		good, even without anchors
Butt, surface	glued (untreated9		Caution on Recoflex – Recoflex: Glue moisture

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Attachment of fittings

Veneered Recoflex panels

Connection	Execution	Rating
Handle	from outside on Recoflex	good, even when screwed from outside
Cup hinge	screwed	good
Cup hinge	screwed and glued	very good

Resistance to screws pulling out axially

Paneled Recoflex panels

Recoflex, veneer, foam glue	210 N	EN 320/93
Recoflex, 4 mm MDF, foam glue	400 N	
MDF panel, 19 mm	1.200-1.600 N	EN 320/93
19 mm particle board, with white finish	469 N	

according to Claudio Waldesbühl, Technical School in Zug

Resistance to cup hinges., screwed, pulling out axially

Paneled Recoflex panels

Recoflex, veneer, foam glue	231 N
Recoflex, 4 mm MDF, foam glue	485 N
MDF panel, 19 mm	429 N
19 mm particle board, with white finish	514 N

according to Claudio Waldesbühl, Technical School in Zug

Special note due to novelty of product.	The application possibilities for Recoflex® are very versatile, so that it is not possible for us to evaluate its capability for processing and long term suitability for all applications. The previous description is based solely on the properties of Recoflex® determined by us and reports of experience obtained outside our company. It is therefore necessary for you to test the suitability of Recoflex® yourself for your specific application. Naturally we guarantee the perfect quality of our material according to our General Terms of Sale and Delivery.

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