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Quality Assessment

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Kronotex Fussboden GmbH & Co. KG
Wittstocker Chaussee 1

16909 Heiligengrabe

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Braunschweig, 2005-02-24

Test report No. B-506/05

Customer: Kronotex Fussboden GmbH & Co. KG
Wittstocker Chaussee 1
16909 Heiligengrabe

Material: Laminate floor covering: Engineered Flooring
Decor: Oak D 606

Object of the test: Testing of a laminate floor covering according to DIN EN 13329 „Laminate floor coverings - Specifications, requirements and test methods", table 1 and 2 (Level of use: 32)

Content of the report:

EC Notified 0765	Testing, Supervising and Certifying Body authorised by the Principal Authority for Supervision of Construction
Deutscher Akkreditierungs Rat DAR DAP-PL-2071.00	Testing laboratory authorised by DAP Deutsches Akkreditierungssystem Prüfwesen GmbH according to DIN EN ISO/IEC 17025. The requirements of the DIN EN ISO 9001 : 1994 are fulfilled. The authorisation covers the test methods listed in the certificate.

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1. Task

The Kronotex Fussboden GmbH & Co. KG, Heiligengrabe, authorised the Fraunhofer-Institut für Holzforschung, Wilhelm-Klauditz-Institut (WKI), with the testing of a laminate floor covering. The tests in accordance with DIN EN 13329 „Laminate floor coverings - Specifications, requirements and test methods", table 1 and 2 should be performed for the level of use 32.

2. Material to be tested and parameters

By the letter of the 2004-12-16 four packages (à 6 elements, 1380 mm x 132 mm x 10 mm; 2 elements, 915 mm x 132 mm x 10 mm; 2 elements, 455 mm x 132 mm x 10 mm) of a laminate floor covering were sent to the WKI. The material to be tested was selected by the customer and arrived at the WKI on 2004-12-21. One further package arrived at the WKI on 2005-02-10.

Name of the specimen: Laminate floor covering: Engineered Flooring
(according to the customer) Decor: Oak D 606

The material that has not been used up will be disposed of by the WKI one year after the completion of the tests.

3. Execution of the test

Following tests were performed in accordance with DIN EN 13329 „Laminate floor coverings - Specifications, requirements and test methods" (September 2000), table 1 and 2:

- Thickness, length, width, squareness, straightness and flatness
- Openings and height differences between elements
- Dimensional variations after changes in relative humidity
- Light fastness
- Residual indentation after static loading
- Surface soundness
- Abrasion resistance and abrasion classification
- Impact resistance and impact classification
- Resistance to staining
- Resistance to cigarette burns
- Effect of the simulated movement of a furniture leg
- Effect of a castor chair
- Thickness swelling

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4. Results

4.1 General requirements

Characteristic	Requirement	Result	Complies
Thickness of the element, t Nominal value*: 10,0 mm	$\Delta t_{average} \leq 0{,}50$ mm, relative to nominal value $t_{max} - t_{min} \leq 0{,}50$ mm	$\Delta t_{average} = 0{,}00$ mm $t_{max} - t_{min} = 0{,}10$ mm	Yes
Length of the surface layer, l Nominal values*: 1380,0 mm 915,0 mm 455,0 mm	For the nominal values given, no measured value shall exceed: $l \leq 1500$ mm: $\Delta l \leq 0{,}5$ mm $l > 1500$ mm: $\Delta l \leq 0{,}3$ mm/m	 $\Delta l = 0{,}1$ mm $\Delta l = 0{,}1$ mm $\Delta l = 0{,}2$ mm	Yes
Width of the surface layer, w Nominal value*: 132,0 mm	$\Delta w_{average} \leq 0{,}10$ mm, relative to nominal value $w_{max} - w_{min} \leq 0{,}20$ mm	$\Delta w_{average} = 0{,}05$ mm $w_{max} - w_{min} = 0{,}10$ mm	Yes
Squareness of the element, q	$q_{max} \leq 0{,}20$ mm	$q_{max} = 0{,}05$ mm	Yes
Straightness of the surface layer, s	$s_{max} \leq 0{,}30$ mm/m	$s_{max} = 0{,}00$ mm/m	Yes
Flatness of the element, f	Maximum single values: $f_{w,\,concave} \leq 0{,}15$ % $f_{w,\,convex} \leq 0{,}20$ % $f_{l,\,concave} \leq 0{,}50$ % $f_{l,\,convex} \leq 1{,}00$ %	 $f_{w,\,concave} = 0{,}14$ % $f_{w,\,convex}$ = --- $f_{l,\,concave} = 0{,}07$ % $f_{l,\,convex}$ = ---	Yes
Openings between elements, o	$o_{average} \leq 0{,}15$ mm $o_{max} \leq 0{,}20$ mm	$o_{average} = 0{,}00$ mm $o_{max} = 0{,}05$ mm	Yes
Height difference between elements, h	$h_{average} \leq 0{,}10$ mm $h_{max} \leq 0{,}15$ mm	$h_{average} = 0{,}05$ mm $h_{max} = 0{,}10$ mm	Yes
Dimensional variations after changes in relative humidity, δl, δw	$\delta l_{average} \leq 0{,}9$ mm $\delta w_{average} \leq 0{,}9$ mm	$\delta l_{average} = 0{,}5$ mm $\delta w_{average} = 0{,}5$ mm	Yes
Light fastness	Blue wool scale, not worse than 6, Grey scale, not worse than 4	Blue wool scale: > 6 Grey scale: > 4	Yes
Static indentation	No visible change, i.e. ≤ 0,01 mm indentation using a straight steel cylinder, Ø = 11,30 mm	No visible change, 0,00 mm indentation	Yes
Surface soundness	≥ 1,00 N/mm²	2,20 N/mm²	Yes

* Declaration of manufacturer

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4.2 Classification requirements and levels of use

	Levels of use						Result
	Domestic			Commercial			
	Moderate	General	Heavy	Moderate	General	Heavy	
Class	21	22	23	31	32	33	
Abrasion resistance*	AC1 IP ≥ 900	AC2 IP ≥ 1800	AC3 IP ≥ 2500		AC4 IP ≥ 4000	AC5 IP ≥ 6500	Abrasion class: AC4 (Average IP-value: 4900 revolutions)
Impact resistance	IC1				IC2	IC3	Impact class: IC2 (Small – diameter ball test: 13 N Large – diameter ball test: 1700 mm height of fall)
Resistance to staining	4, groups 1 and 2 3, group 3	5, groups 1 and 2 4, group 3					Groups 1 – 2: Grade 5 Group 3: Grade 5
Resistance to cigarette burns	---	≥ Grade 4					Grade 4 – 5
Effect of a furniture leg	---		No damage shall be visible, when tested with foot type 0				No visible damage according to EN 424
Effect of a castor chair	---		No change in appearance or damage, as defined in EN 425. Single-wheel castors, as defined in EN 12529:1998, 5.4.4.2 (Type W) shall be used.				No visible change or damage (according to EN 425 changes in gloss have not been taken into account)
Thickness swelling	≤ 20,0 %			≤ 18,0 %			10,6 %

* The abrasive wheels used at the test were harder than specified in the standard, wheels conforming to the standard are not available. From experience a higher IP-value should be determined using wheels conforming to the standard.

5. Evaluation of the results

The examined samples meet the requirements of the level of use 32 according to DIN EN 13329 „Laminate floor coverings - Specifications, requirements and test methods", table 1 and 2.

The test results exclusively relate to the objects tested.

Andreas Ritter

Official in Charge

Dipl.-Ing. Harald Schwab

Head of the Testing, Supervision and Certifying Body