Test Report

Number	18-001088-PR01 (PB-K20-06-en-01)
Owner (Client)	ETEM COMMERCIAL AND INDUSTRIAL LIGHT METALS S.A. 1, Iroon Polytechniou Str., 190 18 Magoula Greece
Product	Metal profiles with thermal break
Designation	**System: E32**
Details	Material Aluminium alloy - painted - powder coated; Projected width from - to 90 mm - 178 mm; Structural depth 32 mm; Thickness of infill 21 mm; Edge cover of infill 12 mm / 17 mm; Casement; Designation E32200 / E32205 / E32210 / E36220; Additional casement profiles; Designation E32600; Frame; Designation E32100 / E32103 / E32106 / E32108 / E32650; Additional frame profiles; Designation E32620 / E32651 / E32101; Thermal break; Material Polyamide 6.6 with 25 % glass fibre (PA 6.6 GF25); Surface treatment untreated;
Special features	
Order	Calculation of thermal transmittance
Contents	The test report contains a total of 5 pages and annexes (106 pages).
Note	The test report shall only be published in its unabbreviated form. The “Guidance Sheet for the Use of ift Test Documents” applies.

ift Rosenheim GmbH
Theodor-Gietl-Str. 7-9
D-83026 Rosenheim

Contact
Phone: +49 8031 261 0
Fax: +49 8031 261-290
www.ift-rosenheim.de

2 Detailed results

Calculation of thermal transmittance

Project-No.	18-001088-PR01
Basis	EN ISO 10077-2:2017-07 Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2 - Numerical method for frames SG 06-mandatory NB-CPD/SG06/11/083 2011-09 EN 14351-1:2006 Treatment of unventilated rectangular cavities when calculating thermal properties to EN ISO 10077-2
Test equipment	Sim/029204 - flixo 8.0
Test specimen	Metal profiles with thermal break
Test specimen No.	18-001088-PK01
Date of test	29.05.2018
Test engineer in charge	Till Stübben
Test engineer	Till Stübben

Implementation of tests
Deviations — There have been no deviations from the test method as specified in the standard/basis.

Determination of thermal transmittance U_f

Thermal transmittance of a frame profile is calculated as described below:

$$U_f = \frac{L_f^{2D} - U_p \cdot b_p}{b_f}$$

mit

$$L_f^{2D} = \frac{\Phi_{ges}}{\Delta T}$$

	Definitionen	Units
U_f	thermal transmittance of frame profile	W/(m²K)
b_f	projected width of frame profile	m
b_p	visible width of replacement panel	m
d_p	thickness of replacement panel	m
U_p	thermal transmittance replacement panel	W/(m²K)
Φges	linear heat flow rate	W/m
L_f^{2D}	two-dimensional thermal conductance	W/(mK)
ΔT	temperature differnce (external-internal)	K

Sp-No.	b_f	b_p	U_p	Equ. thermal conductivity method		Radiosity-Method	
				L_f^{2D}	U_f	L_f^{2D}	U_f
-01	0,104	0,190	1,299	0,639	**3,8**	0,618	**3,6**
-02	0,104	0,190	1,299	0,637	**3,8**	0,616	**3,6**
-03	0,104	0,190	1,299	0,633	**3,7**	0,612	**3,5**
-04	0,104	0,190	1,299	0,632	**3,7**	0,610	**3,5**

-05	0,104	0,190	1,299	0,677	**4,1**	0,666	**4,0**
-06	0,104	0,190	1,299	0,676	**4,1**	0,665	**4,0**
-07	0,104	0,190	1,299	0,711	**4,5**	0,697	**4,3**
-08	0,104	0,190	1,299	0,710	**4,5**	0,696	**4,3**
-09	0,104	0,190	1,299	0,677	**4,1**	0,666	**4,0**
-10	0,104	0,190	1,299	0,675	**4,1**	0,664	**4,0**
-11	0,104	0,190	1,299	0,690	**4,3**	0,677	**4,1**
-12	0,104	0,190	1,299	0,689	**4,3**	0,676	**4,1**
-13	0,104	0,190	1,299	0,676	**4,1**	0,665	**4,0**
-14	0,104	0,190	1,299	0,677	**4,1**	0,665	**4,0**
-15	0,104	0,190	1,299	0,677	**4,1**	0,666	**4,0**
-16	0,104	0,190	1,299	0,676	**4,1**	0,665	**4,0**
-17	0,104	0,190	1,299	0,638	**3,8**	0,617	**3,6**
-18	0,104	0,190	1,299	0,677	**4,1**	0,665	**4,0**
-19	0,104	0,190	1,299	0,715	**4,5**	0,701	**4,4**
-20	0,104	0,190	1,299	0,678	**4,1**	0,666	**4,0**
-21	0,104	0,190	1,299	0,681	**4,2**	0,670	**4,1**
-22	0,090	0,380	1,299	0,813	**3,5**	0,780	**3,2**
-23	0,178	0,380	1,299	1,094	**3,4**	1,058	**3,2**
-24	0,104	0,190	1,299	0,577	**3,2**	0,559	**3,0**
-25	0,104	0,190	1,299	0,598	**3,4**	0,547	**2,9**
-26	0,104	0,190	1,299	0,628	**3,7**	0,569	**3,1**
-27	0,104	0,190	1,299	0,677	**4,1**	0,665	**4,0**
-28	0,104	0,190	1,299	0,890	**6,2**	0,893	**6,2**
-29	0,104	0,190	1,299	0,675	**4,1**	0,663	**4,0**
-30	0,104	0,190	1,299	0,754	**4,9**	0,737	**4,7**
-31	0,104	0,190	1,299	0,895	**6,2**	0,897	**6,2**
-32	0,104	0,190	1,299	0,676	**4,1**	0,665	**4,0**
-33	0,104	0,190	1,299	0,759	**4,9**	0,741	**4,8**
-34	0,104	0,190	1,299	0,908	**6,4**	0,902	**6,3**
-35	0,104	0,190	1,299	0,675	**4,1**	0,664	**4,0**
-36	0,104	0,190	1,299	0,890	**6,2**	0,892	**6,2**
-37	0,104	0,190	1,299	0,675	**4,1**	0,664	**4,0**
-38	0,104	0,190	1,299	0,753	**4,9**	0,735	**4,7**
-39	0,104	0,190	1,299	0,888	**6,2**	0,890	**6,2**
-40	0,104	0,190	1,299	0,675	**4,1**	0,664	**4,0**
-41	0,104	0,190	1,299	0,757	**4,9**	0,740	**4,7**
-42	0,104	0,190	1,299	0,911	**6,4**	0,905	**6,3**

The calculated values of the thermal transmittance can be used for profiles made of aluminium with lacquered or powder coated surface and with an untreated surface in the thermal break.