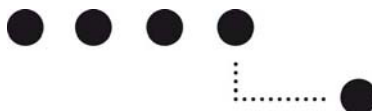


Test Certificate

Bern University of Applied Science
Architecture, Wood and Civil Engineering
Burgdorf, Biel



Test object	Horizontal sliding window
Product code	TH⁺
Certificate No	9107-PZ-01
Test report No	9107-PB-01
Order No	9107.DPE
Customer	VITROCSA Orchidées Constructions SA Mr. Joray Route Cantonale CH – 1425 Onnens
Construction	Horizontal sliding window, 1 sliding sash, 1 fixed sash Dimension of frame: width x height: 3400 mm x 2388 mm
Relevant standards	EN 1026 (06/2000) – Air permeability EN 1027 (06/2000) – Water tightness EN 12211 (06/2000) – Resistance to wind load,
Classification	Class 4 - EN 12207 (11/1999) – Air permeability Class 9A - EN 12208 (11/1999) – Water tightness Class B3 - EN 12210 (11/1999) – Resistance to wind load
Date of issue	17.12.2010
Validity	This certificate will expire if the construction or the material of the test product or one of its components changes or if the content or validity of the underlying standard changes.
Address of test laboratory	Bern University of Applied Sciences R&D Department, Facades, Finishing and Furniture Solithurnstrasse 102, CH-2504 Biel
Person in charge	Stephan Hofer 
Head R&D Facades, Finishing and Furniture	Urs Uehlinger 



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SUMMARY OF RESULTS

Test object

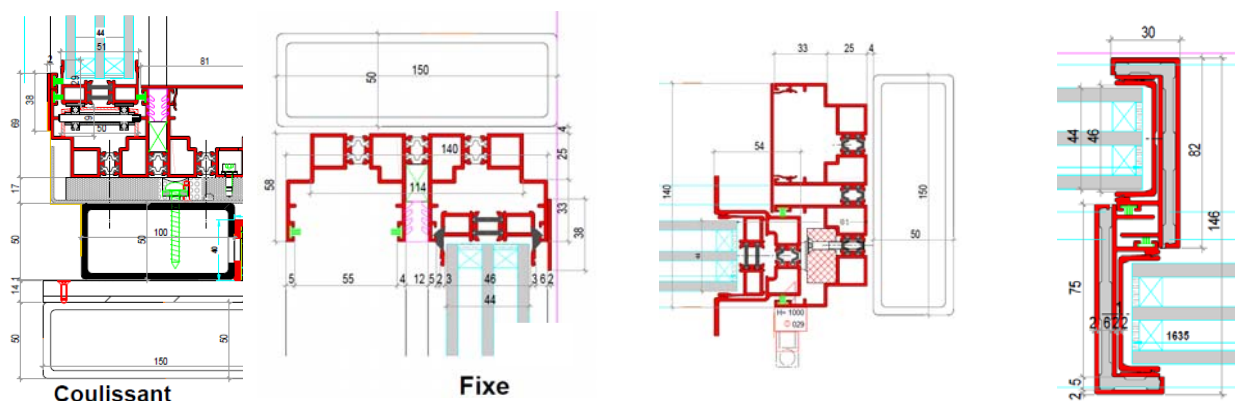
Horizontal sliding window, system: „TH+“
single sash right,
manufactured by VITROCSA Orchidées Constructions SA

frame: thermally separated aluminium profile;
Corner joint: mitre joint with corner plate, bolted and bonded;
Profile depth: 140 mm; profile width: 58 mm;
second threshold
Gaskets EPDM, brush gaskets, sealant;
Drilled holes and trenches for drainage of frame into the
sub drainage profile.



Sliding sash: thermally separated aluminium profile;
U-profile bonded to insulating glass unit, surrounding entire glass, no corner joint;
Profile depth: 51 mm; profile width: 29 mm

Length of joint: $L = 7.698 \text{ m}$
Test area: $A = 8.1192 \text{ m}^2$



Test results

Air permeability – EN 1026		
Pressure P in Pa	Air volume V_L in m^3/hm	Air volume V_A in m^3/hm^2
0		
50	1.1	1.0
100	1.8	1.7
150	2.4	2.3
200	3.0	2.8
250	3.5	3.3
300	4.0	3.8
450	5.3	5.1
600	6.6	6.3

Water tightness – EN 1027		
Class Test method A	Time t in min	Water penetration
1A	15	no
2A, 3A, 4A	each with 5	no
5A, 6A, 7A	each with 5	no
8A, 9A	each with 5	no

Resistance to wind load – EN 12211		
Class	Test	Pressure P in Pa
B3	Deflexion (P1)	± 1200
	Dynamic wind load (P2)	± 600
	Safety test (P3)	± 1800

The test was conducted on November 23th and 29th 2010 at the BFH in Biel.