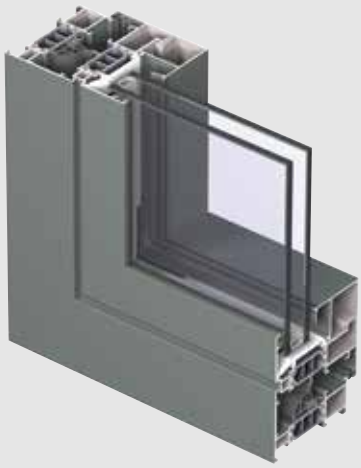
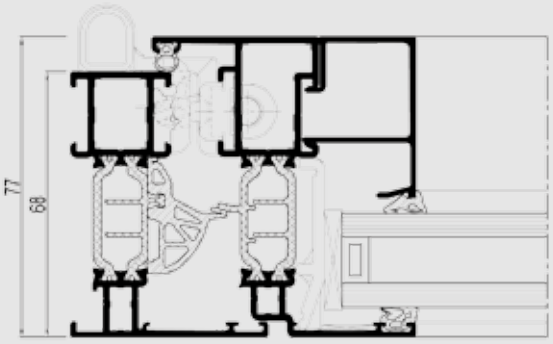
Arch. Stramien cvba

CS 77

Optimised safety and comfort

REYNAERS aluminium





Concept System® 77 is a high insulation window and door system that meets elevated requirements regarding thermal insulation, stability and security. The system's HI+ variant achieves Uf values down to 1.2 W/m²K. The Uf value of a frame/vent section with 115 mm visible width is 1.7 W/m²K.

CS 77 is available in a variety of aesthetic styles to match the current trends whilst offering all types of both inward and outward opening windows and doors. An additional asset is the possibility to combine this system with Ventalis®.

The system's performance regarding acoustics, water- and air tightness, but also for specific applications like Bullet - and Fire Resistance, meets the most severe European standards. Moreover, CS 77 is available in different burglar resistance levels (RC2 & RC3) making it an extremely secure system.

TECHNICAL CHARACTERISTICS



Style variants		FUNCTIONAL	RENAISSANCE	HIDDEN VENT
Min. visible width inward opening window	Frame	51 mm	51 mm	76 mm
	Vent	33 mm	33 mm	not visible
Min. visible width outward opening window	Frame	17.5 mm	-	-
	Vent	76 mm	-	-
Min. visible width inward opening flush door	Frame	68 mm	-	-
	Vent	76 mm	-	-
Min. visible width outward opening flush door	Frame	42 mm	-	-
	Vent	102 mm	-	-
Min. visible width T-profile		76 mm	76 mm	126 mm
Overall system depth window	Frame	68 mm	77 mm	68 mm
	Vent	77 mm	86 mm	72.5 mm
Rebate height		25 mm	25 mm	18.5 mm
Glass thickness		up to 53 mm	up to 53 mm	up to 48 mm
Glazing method		dry glazing with EPDM or neutral silicones		
Thermal insulation		32 mm omega and/or hollow chamber –shaped fibreglass reinforced polyamide strips		
High Insulation variant (HI)		Available	Available	Not Available
High Insulation Plus variant (HI+)		Available	Not Available	Not Available

PERFORMANCES

	ENERGY										
	Thermal insulation (1) EN ISO 10077-2	Uf-value down to 1.2 W/m²K depending on the frame/vent combination and the glass thickness.									
	COMFORT										
	Acoustic performance (2) EN ISO 140-3; EN ISO 717-1	Rw (C; Ctr) = 36 (-1; -4) dB / 42 (-2; -4) dB, depending on glazing type									
	Air tightness, max. test pressure (3) EN 1026; EN 12207	1 (150 Pa)		2 (300 Pa)		3 (600 Pa)		4 (600 Pa)			
	Water tightness (4) EN 1027; EN 12208	1A (0 Pa)	2A (50 Pa)	3A (100 Pa)	4A (150 Pa)	5A (200 Pa)	6A (250 Pa)	7A (300 Pa)	8A (450 Pa)	9A (600 Pa)	E900 (900 Pa)
	Wind load resistance, max. test pressure (5) EN 12211; EN 12210	1 (400 Pa)		2 (800 Pa)		3 (1200 Pa)		4 (1600 Pa)	5 (2000 Pa)		Exxx (> 2000 Pa)
	Wind load resistance to frame deflection (5) EN 12211; EN 12210	A (≤ 1/150)				B (≤ 1/200)			C (≤ 1/300)		
	SAFETY										
	Burglar resistance (6) EN 1627-1630	RC 1				RC 2			RC 3		
	Fire resistance (7) - EN 13501-2, EN 1364-1, EN 1634-1 - NEN 6069	EI 30 EI 60, EI 45 EW 30									
	Bullet resistance (8) EN 1522	FB 1		FB 2		FB 3		FB 4	FB 5		FB 6
						FSG			Kalashnikov		

This table shows possible classes and values of performances. The values indicated in red are the ones relevant to this system.

(1) The Uf-value measures the heat flow. The lower the Uf-value, the better the thermal insulation of the frame.
(2) The sound reduction index (Rw) measures the capacity of the sound reduction performance of the frame.
(3) The air tightness test measures the volume of air that would pass through a closed window at a certain air pressure.
(4) The water tightness testing involves applying a uniform water spray at increasing air pressure until water penetrates the window.
(5) The wind load resistance is a measure of the profile's structural strength and is tested by applying increasing levels of air pressure to simulate the wind force. There are up to five levels of wind resistance (1 to 5) and three deflection classes (A,B,C). The higher the number, the better the performance.
(6) The burglar resistance is tested by statistical and dynamic loads, as well as by simulated attempts to break in using specified tools.
(7) The performance is defined by directly exposing the construction to fire in order to determine the stability, thermal insulation and radiation insulation over a certain amount of time.
(8) The bullet resistance of the window or door is evaluated for different classes of weapons and ammunition: hand guns, (automatic) rifles and shot guns.

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PRODUCT PASS

1 GENERAL EXPLANATION

The following paragraphs indicate the performances which can be declared on the Declaration of Performance (DoP) in accordance with Regulation (EU) no. 305/2011 of the European Parliament and of the Council of 9 March 2011.

The listed characteristics are the essential characteristics for external pedestrian doorsets according to hEN 14351-1:2006+A2:2016 Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets.

All essential characteristics should be mentioned on the DoP. Where no performance is required, NPD (No Performance Declared) can be used.

The mentioned performances are performances which can be achieved for the given dimensions when the product is fabricated following the Reynaers instruction manual (catalogue). The performances as mentioned will meet the requirements of the majority of projects.

Higher performances for smaller dimensions or lower performances for larger dimensions might be possible. In this case contact your Reynaers office. For AWW performances, the maximum dimensions indicated in the system catalogue must be respected.

It is obviously allowed to declare lower performances than those mentioned in the product pass. E.g. when resistance to wind load of 1600 Pa was tested, also 1200 Pa can be declared.

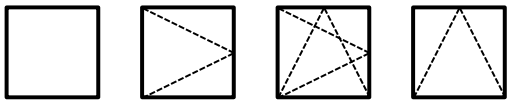
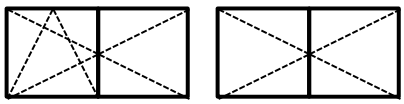
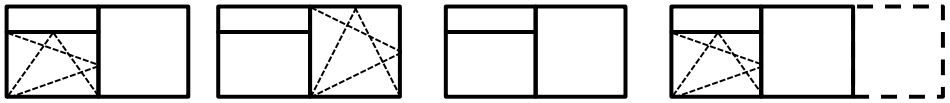
In the second part of the table the non-essential characteristics are indicated. These are the characteristics which give information about the performance of a product, but which are not legally required in any European country and thus not mandatory to declare.

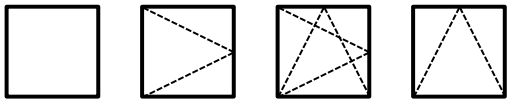
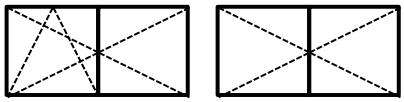
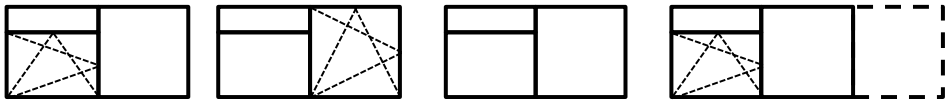
2 NOTIFIED BODIES

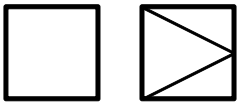
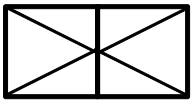
ID	Name	Address	Country
0074	CENTRE D'EXPERTISE DU BÂTIMENT ET DES TRAVAUX PUBLICS	Domaine De Saint-Paul – 102, Route de Limours 78471 Saint-Remy-Les-Chevreuse Cedex	France
0432	MATERIALPRÜFUNGSAMT NORDRHEIN-WESTFALEN	Auf den Thränen 2 59597 Erwitte	Germany
0679	CENTRE SCIENTIFIQUE ET TECHNIQUE DU BÂTIMENT	84, Avenue Jean Jaurès Champs-sur-Marne F-77447 Marne-la-Vallée Cedex 2	France
0744	SOCOTEC	Les Quadrants – 3,Avenue du Centre – Guyancourt 78182 St-Quentin en Yvelines	France
0749	BELGIAN CONSTRUCTION CERTIFICATION ASSOCIATION	Aarlenstraat 53 1040 Brussel	Belgium
0757	IFT ROSENHEIM	Theodor-Gietl-Strasse 7-9 83026 Rosenheim	Germany
0845	DANISH INSTITUTE OF FIRE AND SECURITY TECHNOLOGY	Jernholmen, 12 2650 Hvidovre	Denmark
0960	SKG-IKOB	Poppenbouwing 56 4191 NZ Geldermalsen	Netherlands
1136	BELGIAN BUILDING RESEARCH INSITUTE	Lombardstraat 42 1000 Brussel	Belgium
1234	EFECTIS NEDERLAND	Brandpuntlaan Zuid 16, Postbus 554 2665 ZN Bleiswijk	Netherlands
1288	WINTECH ENGINEERING LIMITED	Halesfield 2 Telford,Shropshire TF7 4QH	United Kingdom
1309	PRÜFINSTITUT SCHLÖSSER UND BESCHLÄGE, VELBERT	Wallstrasse 41 42551 Velbert	Germany
1488	INSTYTUT TECHNIKI BUDOWLANEJ	ul. Filtrowa 1 00-611 Warszawa	Poland
1671	PEUTZ	Lindenlaan 41, Molenhoek PO Box 66 6585 ZH MOOK	Netherlands
1749	TNO DEFENCE, SECURITY AND SAFETY	Lange Kleiweg 137, Postbus 45 2280 AA Rijswijk	Netherlands
1769	UNIVERSITY OF GENT	Sint-Pietersnieuwstraat 41 9000 Gent	Belgium
2211	INSTITUTO DE INVESTIGAÇÃO E DESENVOLVIMENTO TECNOLÓGICO PARA A CONSTRUÇÃO, ENERGIA, AMBIENTE E SUSTENTABILIDADE	Rua Pedro Hispano Pólo II da Universidade de Coimbra 3030-289 Coimbra	Portugal

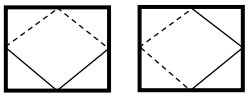
3 VARIANTS

Different variants have been grouped based on similar design and following the guidelines of the harmonised standard.

Inward opening	
5.1	
5.2	
5.3	

Inward opening Hidden Vent	
5.4	
5.5	
5.6	

Outward opening	
5.7	
5.8	

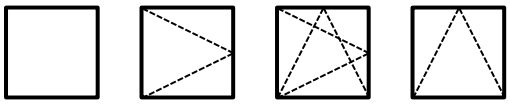
Pivot Window	
5.9	

4 EXPLANATIONS AND SYMBOLS

H: Element Height
B: Element Width
Fh: Vent Height
Fb: Vent Width
npd: No Performance Declared
CWFT: Classification Without Further Testing

5 PERFORMANCE

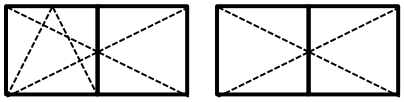
5.1 Inward opening



Characteristic			Performance		Notified body - Report	Limits (mm)
Essential characteristics						
EN 14351-1	4.2	Resistance to wind load	**C4** (1600 Pa) **C5** (2000 Pa)		[1488] – NL-0766/C/LL-219/K/08/1a [0960] – 13.00946	FbxFh < 1352x2052 FbxFh < 1056x2442
	4.5	Watertightness	**E750** (750 Pa) **E900** (900 Pa) **E1200** (1200 Pa)		[0960] – 13.00946 [0757] – 101 27799 [2211] - CXL 099/17	FbxFh < 1056x2442 FbxFh < 1261x1721 FbxFh < ……
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.			
	4.8	Load-bearing capacity of safety devices	**Pass** (350N/60s)		[1488] – NL-0766/C/LL-219/K/08/1a [0960] – 10.135 (1)	FbxFh < 1352x2052 FbxFh < 1401x2396
	4.11	Acoustic performance	Glass: **34 (-1;-4)** **42 (-1;-5)** **51 (-2;-7)**	Window: **36 (-1;-4)** **40 (-2;-4)** **42 (-2;-4)**	[1136] – AC 3724 [1136] – AC 3725 [1136] – AC 3726	WxH = 1230x1480
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Pre-calculated U-values for dimensions 1230x1480mm and 1480x2180 can be found in the Uf-value tables. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.			
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass			
	4.14	Air permeability	**4**		[1488] – NL-0766/C/LL-219/K/08/1a [0960] – 13.00946	FbxFh < 1352x2052 FbxFh < 1056x2442
Non-essential characteristics						
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**		EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd			
	4.16	Operating forces	**1**		[1488] – NL-0766/C/LL-219/K/08/1a [0757] – 101 27799 [0960] – 10.135 (1)	FbxFh < 1352x2052 FbxFh < 1261x1721 FbxFh < 1401x2396
	4.17	Mechanical strength	**4**		[1488] – NL-0766/C/LL-219/K/08/1a [0757] – 101 27799 [0960] – 10.135 (1)	FbxFh < 1352x2052 FbxFh < 1261x1721 FbxFh < 1401x2396
	4.18	Ventilation	Npd			
	4.19	Bullet resistance (BP version)	**FB4 (NS)** **FB6 (S)** **FB6 (NS)** **FSG (S)**		[1749] – 05BP735 [1749] – 05BP2217 [1749] – 05BP2214 [1749] – 05BP2224	Remark: classes S or NS depending on ammunition
	4.20	Explosion resistance	Npd			
	4.21	Resistance to repeated opening and closing	**2** (10 000) **3** (20 000)		[0757] – 101 27799 [0960] – 10.135 (1)	FbxFh < 1261x1721 FbxFh < 1401x2396
	4.22	Behaviour between different climates	npd			
	4.23	Burglar resistance (AP version)	**WK2 / RC2** **WK 3**		[0960] – SKG.0837.0285 [0960] – SKG.0837.0246	See report

(1) Because of the same profile design, characteristics are based on test results for CS68

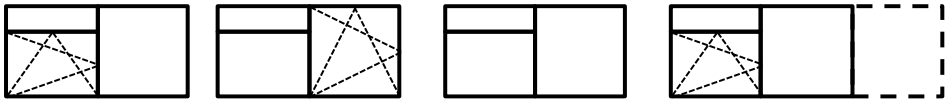
5.2 Inward opening



Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C3** (1200 Pa)	[0960] – 09.1067 [0960] – 10.186	FbxFh < 1125x2258
	4.5	Watertightness	**9A** (600 Pa)	[0960] – 09.1067 [0960] – 10.186	FbxFh < 1125x2258
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	**Pass** (350N/60s)	[1488] – NL-0766/C/LL-219/K/08/1a [0960] – 10.135 (1)	FbxFh < 1352x2052 FbxFh < 1401x2396
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	[0960] – 09.1067 [0960] – 10.186	FbxFh < 1125x2258
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	**1**	[0960] – 09.1067 [0960] – 10.135 (1)	FbxFh < 1125x2258 FbxFh < 1401x2396
	4.17	Mechanical strength	**4**	[0960] – 09.1067 [0960] – 10.135 (1)	FbxFh < 1125x2258 FbxFh < 1401x2396
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	**2** (10 000) **3** (20 000)	[0757] – 101 27799 [0960] – 10.135 (1)	FbxFh < 1261x1721 FbxFh < 1401x2396
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	**WK2 / RC2**	[0960] – SKG.0837.0285	See report

(1) Because of the same profile design, characteristics are based on test results for CS68

5.3 Inward opening



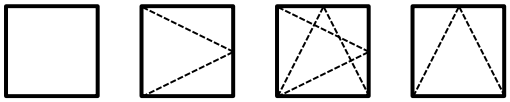
Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C4** (1600 Pa)	[1488] – NL-0766/C/LL-219/K/08/1a	(3)
	4.5	Watertightness	**9A** (600 Pa)	[1488] – NL-0766/C/LL-219/K/08/1a (2)	(3)
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	See relevant test reports for opening parts		
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	[1488] – NL-0766/C/LL-219/K/08/1a (2)	(3)
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	See relevant test reports for opening parts		
	4.17	Mechanical strength	See relevant test reports for opening parts		
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	See relevant test reports for opening parts		
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	**WK2 / RC2** **WK 3**	[0960] – SKG.0837.0285 [0960] – SKG.0837.0246	See report

(1) Deflection to be calculated in function of wind load and allowable deformation.

(2) Test report proves the watertightness and air permeability of a T-connection.

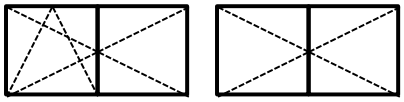
(3) For dimensions of the opening parts: see relevant section for the opening elements.

5.4 Inward opening Hidden Vent



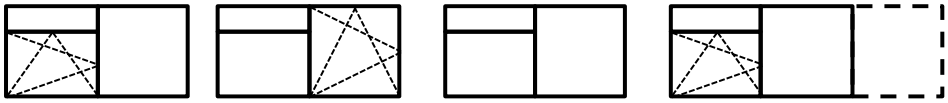
Characteristic			Performance		Notified body - Report	Limits (mm)
Essential characteristics						
EN 14351-1	4.2	Resistance to wind load	**C3/B4** (1200/1600Pa) **C4** (1600 Pa)		[1488] – LK-02344/09/3 [1488] – LK-02344/09/4	FbxFh < 1250x1600 FbxFh < 1008x1800
	4.5	Watertightness	**9A** (600 Pa) **9A** (600 Pa) **E750** (750 Pa)		[1488] – LK-02344/09/3 [1488] – LK-02344/09/4 [1488] – NL-0766/C/LL-219/K/08/2a	FbxFh < 1250x1600 FbxFh < 1008x1800 FbxFh < 888x1758
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.			
	4.8	Load-bearing capacity of safety devices	**Pass** (350N/60s)		[1488] – LK-02344/09/3 [0960] – 09.1157	FbxFh < 1250x1600 FbxFh < 982x2283
	4.11	Acoustic performance	Glass: **34 (-1;-4)** **41 (-2;-4)** **48 (-2;-8)** **51 (-1;-4)**	Window: **34 (-1;-4)** **39 (-1;-4)** **47 (-3;-8)** **46 (-1;-4)**	[1488] – LA/1482_d1/07 [1488] – LA/1482_d2/07 [1488] – LA/1482_d3/07 [0757] – 14-002142-PR01	WxH = 1230x1480
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Pre-calculated U-values for dimensions 1230x1480mm and 1480x2180 can be found in the Uf-value tables. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.			
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass			
	4.14	Air permeability	**4**		[1488] – LK-02344/09/3 [1488] – LK-02344/09/4	FbxFh < 1250x1600 FbxFh < 1008x1800
Non-essential characteristics						
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**		EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd			
	4.16	Operating forces	**1**		[1488] – LK-02344/09/3 [0960] – 09.1157	FbxFh < 1250x1600 FbxFh < 982x2283
	4.17	Mechanical strength	**4**		[1488] – LK-02344/09/3 [0960] – 09.1157	FbxFh < 1250x1600 FbxFh < 982x2283
	4.18	Ventilation	npd			
	4.19	Bullet resistance (BP version)	npd			
	4.20	Explosion resistance	npd			
	4.21	Resistance to repeated opening and closing	**3** (20.000)		[0960] – 09.1157	FbxFh < 982x2283
	4.22	Behaviour between different climates	npd			
	4.23	Burglar resistance (AP version)	**WK2 / RC2**		[0960] – SKG.0837.0285	See report

5.5 Inward opening Hidden Vent



Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C4** (1600 Pa)	[1488] – NL-0766/C/LL-219/K/08/2a	FbxFh < 888x1758
	4.5	Watertightness	**E750** (750 Pa)	[1488] – NL-0766/C/LL-219/K/08/2a	FbxFh < 888x1758
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	**Pass** (350N/60s)	[1488] – LK-02344/09/3 [0960] – 09.1157	FbxFh < 1250x1600 FbxFh < 982x2283
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Pre-calculated U-values for dimensions 1230x1480mm and 1480x2180 can be found in the Uf-value tables. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	[1488] – NL-0766/C/LL-219/K/08/2a	FbxFh < 888x1758
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	**1**	[0960] – 09.1157	FbxFh < 982x2283
	4.17	Mechanical strength	**4**	[0960] – 09.1157	FbxFh < 982x2283
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	**3** (20.000)	[0960] – 09.1157	FbxFh < 982x2283
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	**WK2 / RC2**	[0960] – SKG.0837.0285	See report

5.6 Inward opening Hidden Vent



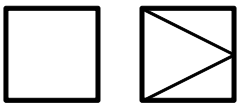
Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C3/B4** (1200/1600 Pa)	[1488] - LK-02344/09/3 (1)	(3)
	4.5	Watertightness	**9A** (600Pa)	[1488] - LK-02344/09/3 (2)	(3)
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	See relevant test reports for opening parts		
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	[1488] - LK-02344/09/3 (2)	(3)
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	See relevant test reports for opening parts		
	4.17	Mechanical strength	See relevant test reports for opening parts		
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	See relevant test reports for opening parts		
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	**WK2 / RC2**	[0960] – SKG.0837.0285	See report

(1) Deflection to be calculated in function of wind load and allowable deformation.

(2) Test report proves the watertightness and air permeability of a T-connection.

(3) For dimensions of the opening parts: see relevant section for the opening elements.

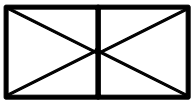
5.7 Outward opening



Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C3** (1200 Pa)	TCD03_004 (1)	FbxFh < 698x1098
	4.5	Watertightness	**E1050** (1050 Pa)	TCD03_004 (1)	FbxFh < 698x1098
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	npd		
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	TCD03_004 (1)	FbxFh < 698x1098
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	npd		
	4.17	Mechanical strength	npd		
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	npd		
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	**WK2 / RC2**	[0960] – SKG.0837.0285	See report

(1) Because of the same profile design, characteristics are based on test results for CS68

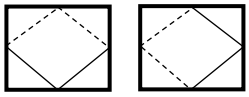
5.8 Outward opening



Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C3** (1200 Pa)	TCD03_004 (1)	FbxFh < 698x1098
	4.5	Watertightness	**E1050** (1050 Pa)	TCD03_004 (1)	FbxFh < 698x1098
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	npd		
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	TCD03_004 (1)	FbxFh < 698x1098
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	npd		
	4.17	Mechanical strength	npd		
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	npd		
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	**WK2 / RC2**	[0960] – SKG.0837.0285	See report

(1) Because of the same profile design, characteristics are based on test results for CS68

5.9 Pivot Window



Characteristic			Performance	Notified body - Report	Limits (mm)
Essential characteristics					
EN 14351-1	4.2	Resistance to wind load	**C4** (1600 Pa)	[1488] – 00948-14-R79NK	FbxFh < 2200x2000 (*1)
	4.5	Watertightness	**9A** (600 Pa)	[1488] – 00948-14-R79NK	FbxFh < 2200x2000 (*1)
	4.6	Dangerous substances	In the materials delivered by Reynaers, no dangerous substances as indicated in hEN 14351-1 are used.		
	4.8	Load-bearing capacity of safety devices	npd		
	4.11	Acoustic performance	npd (See 6)		
	4.12	Thermal transmittance	Uw to be calculated in function of the project. Pre-calculated U-values for dimensions 1230x1480mm and 1480x2180 can be found in the Uf-value tables. Uf-values are calculated under certification of BCCA: certificate BPCB-420-72-10077/2.		
	4.13	Radiation properties	These properties must be evaluated by the CE-label of the glass		
	4.14	Air permeability	**4**	[1488] – 00948-14-R79NK	FbxFh < 2200x2000 (*1)
Non-essential characteristics					
EN 14351-1	4.4.1	Reaction to fire	Anodized: **A1** Painted: **A2** Gaskets: **E**	EC decision 96/603/EC certificate P155748 [0432] – 230006500-4	
	4.7	Impact resistance	npd		
	4.16	Operating forces	npd		
	4.17	Mechanical strength	npd		
	4.18	Ventilation	npd		
	4.19	Bullet resistance (BP version)	npd		
	4.20	Explosion resistance	npd		
	4.21	Resistance to repeated opening and closing	npd		
	4.22	Behaviour between different climates	npd		
	4.23	Burglar resistance (AP version)	npd		

(*1) Vertical Pivot Window

6 INFORMATION ACOUSTIC PERFORMANCE

6.1 Window Rw (C;Ctr) declaration based on tabulated values

According to annex B of EN 14351-1, when no test results are available, the determination of the acoustic performances can be done as follows:

a) IGU Rw → Window Rw

IGU Rw (dB)	Window Rw (dB)	Required seals
27	30	1
28	31	1
29	32	1
30	33	1
32	34	1
34	35	1
36	36	2
38	37	2
40	38	2

b) IGU Rw+Ctr → Window Rw+Ctr

IGU Rw+Ctr (dB)	Window Rw+Ctr (dB)	Required seals
24	26	1
25	27	1
26	28	1
27	29	1
28	30	1
30	31	1
32	32	2
34	33	2
36	34	2

c) C = -1 dB

d) Ctr = (Window Rw+Ctr) – (Window Rw)

⇨ CE marking Window: Rw (C;Ctr) based on steps a), c) and d)

Example:

IGU Rw = 34 (-1;-4)

→ Window Rw = 35 dB

→ IGU Rw+Ctr = 30 dB → Window Rw+Ctr = 31 dB

→ C = -1 dB

→ Ctr = 31 dB – 35 dB = -4 dB

► CE marking Window: 35 dB (-1;-4), valid for window size 1,23 x 1,48 m

6.2 Extrapolation rules for different window sizes

For windows with other dimensions, the extrapolation rules for test results and tabulated values are indicated in following table:

Window size range		**Sound insulation value for window**
Test results for test specimen of any size (see 5)	**Tabulated values (see 6.1)**	
-100% to +50% of test specimen overall area	overall area ≤ 2,7 m^2	Rw and Rw+Ctr are correct
+50% to +100% of test specimen overall area	2,7 m^2 < overall area ≤ 3,6 m^2	Correct Rw and Rw+Ctr with -1 dB
+100% to +150% of test specimen overall area	3,6 m^2 < overall area ≤ 4,6 m^2	Correct Rw and Rw+Ctr with -2 dB
> +150% of test specimen overall area	4,6 m^2 < overall area	Correct Rw and Rw+Ctr with -3 dB