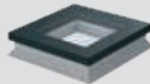
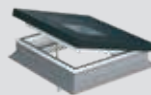
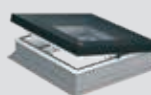


TECHNICAL SPECIFICATION

DXF, DMF, DEF
FLAT ROOF WINDOWS - TYPE F

WINDOW TYPE	DXF	DMF	DEF, DEF Solar	
				
I. APPLICATION				
Installation	installation angle 2°-15°, min. distance between two mounting holes 40 cm (for 2°-5° water ponding may occur)			
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs			
II. FEATURES				
Sash structure	multi-chamber PVC profile			
Profiles fixing roofing	profiles mechanically fixing roofing to the frame			
Opening method	non-opening	manual using the attached rod (2.2 m)	electric in Z-Wave wireless system	
Equipment	—	- one screw actuator, max. sash opening: 300mm - two screw actuators: for sizes 140x140cm , 120x220cm 150x100 and 200x100	- 1-2* ZWS 12 actuator – max. sash opening: 120mm - ZRH1 remote control - ZZ60h power supply - ZRD rain sensor	
Warranty	10 years for windows, 2 years for electric control elements in DEF flat roof window, 2 years for gas springs			
III. TECHNICAL PARAMETERS				
Wind load resistance	C5/B5 Class for the window width ≤ 140 cm and height ≤ 140 cm C2/B2 Class for the window width > 140 cm and height > 140 cm			as per EN 14351 – 1:2006+ A1:2010
Snow load resistance	6H-18-4H-18-44.2 6H-16-4H-18-55.2			
Fire resistance	B-s2, d0			
External fire resistance	Broof (t1)*			
Watertightness. Unshielded (A)	E1200			
Impact resistance	Class 5 – 950 mm			
Air permeability	Class 4			
IV. OPTIONS				
Glazing units	- DU6 in DXF, DMF Secure version			
Peripheral profile	- coating in colours of RAL Classic spectrum – ColourLine version			
	- non-standard size and shape of the window [cm] in the range from 60 x 60cm to 120 x 220cm			
Control	- Remote control: ZRS24, ZRH12, ZRH1 - Wall-mounted controls: ZRW7, ZRK24			
V. ADDITIONAL PRODUCTS TO BE USED				
Mounting accessories	- the XRD installation base allows raising the window above the roof by 15cm. Maximum two bases can be joined. - the XRD/W installation base allows raising the access roof light above the roof by 15cm. Maximum three bases XRD/W can be joined. - the XRD/A installation base allows raising the roof light mounting angle by 3°.			
External accessories	- AMZ/F Solar awning blinds			
Internal accessories	- ARF/D, ARF/D Z-Wave blackout blinds			

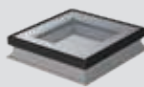
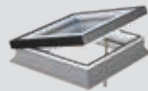
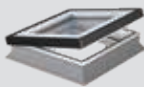
*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

VI. TECHNICAL PARAMETERS FOR WINDOWS WITH PARTICULAR GLAZING UNIT TYPES		
Technical parameters	Glazing unit type	
	DU6	DU8
Glazing structure	6H-18-4HT-18-44.2T 6H-16-4HT-18-55.2T for sizes from 120x120	6H-10-4HT-10-4HT-12-44.2T
glazing U-value as per EN 673	0.5 W/m²K	0.4 W/m²K
window U-value as per EN 14351-1:2006+A2:2016	0.70 W/m²K	0.64W/m²K
acoustic insulation Rw as per EN 1873:2006 p.5.10 (EN ISO 10140-2)	34(-1;-4)	33(-1;-3)
light transmittance factor τ _v as per EN 410	0.54	0.49
solar factor g as per EN 410	0.43	0.38
frame thermal insulation U _f as per PN-EN ISO 10077-2:2012	0.67 W/m²K	0.66 W/m²K
thermal insulation of frame and glazing connection Ψ as per PN-EN ISO 10077-2:2012	0.055 W/mK	0.055 W/mK

VII. TECHNICAL PARAMETERS FOR WINDOWS IN PARTICULAR SIZES															
commercial size [cm]	60x60	60x90	70x70	80x80	90x60	90x90	90x120	100x100	100x150	120x90	120x120	120x220	140x140	150x100	200x100
window size symbol	01K	02K	03K	04K	31K	05K	06K	07K	10K	32K	08K	11K	09K	33K	34K
															
window internal area [m²]	0.27	0.42	0.38	0.51	0.42	0.67	0.91	0.84	1.30	0.91	1.25	2.36	1.73	1.3	1.76
effective glazing area [m²]	0.23	0.37	0.33	0.46	0.37	0.60	0.83	0.77	1.21	0.83	1.16	2.23	1.63	1.21	1.64
DXF DU6 window weight [kg]±1kg	39	52	48	58	53	69	87	82	120	88	115	192	148	120	156
DMF DU6 window weight [kg]±1kg	40	54	50	60	54	71	88	83	121	89	116	198	152	122	158
DEF DU6 window weight [kg]±1kg	43	57	53	63	56	75	92	86	127	91	122	205	159	127	168
DEFSolar DU6 window weight [kg]±1kg	42	56	52	62	55	73	90	85	124	90	120	201	156	124	176
DXF DU8 window weight [kg]±1kg	43	58	53	65	58	77	97	91	127	98	122	204	157	127	-
DMF DU8 window weight [kg]±1kg	44	59	55	66	59	79	98	92	128	99	123	-	-	144	-
DEF DU8 window weight [kg]±1kg	47	62	58	69	62	82	102	96	134	101	129	-	-	134	-

TECHNICAL SPECIFICATION

DXG, DMG, DEG
FLAT ROOF WINDOWS - TYPE G

WINDOW TYPE	DXG	DMG	DEG
			
I. APPLICATION			
Installation	installation angle 2–15°, 5–15° for sizes larger than 120x120 (for 2°–5° water ponding may occur)		
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs		
II. FEATURES			
Sash structure	multi-chamber PVC profile		
Profiles fixing roofing	profiles mechanically fixing roofing to the frame		
Opening method	non-opening	manual using the attached rod (2.2 m)	electric in Z-Wave wireless system
Equipment	—	- one screw actuator (for sizes: 40x140cm , 120x220cm 150x100 and 200x100 two screw actuators); max. sash opening 300 mm	- 1-2* ZWS 12 actuator — max. sash opening: 120mm - ZRH1 remote control - ZZ60h power supply - ZRD rain sensor
Warranty	10 years for windows, 2 years for electric control elements in DEG flat roof window, 2 years for gas springs		
III. TECHNICAL PARAMETERS			
Wind load resistance	Class C5/B5 (1)		as per EN 14351-1:2006+A2:2016
Snow load resistance	4H+4H-14-33.2 (2,3) 6H+4H-14-33.2 (2,4)	4H+4H-14-33.4 (2,3) 6H+4H-14-33.4 (2,4)	
Fire resistance	B-s2,d0		
External fire resistance	B _{root} (t1) *		
Watertightness. Unshielded (A)	E1200		
Impact resistance	Class 5 — 950 mm		
Load-bearing capacity of safety device	npd		
Air permeability	Class 4		
Glazing units	P2		
IV. OPTIONS			
	- non-standard size and shape of the window [cm] in the range from 60 x 60cm to 120 x 220cm		
Peripheral profile	- coating in colours of RAL Classic spectrum		
Control	- Remote control: ZRS24, ZRH12, ZRH1 - Wall-mounted controls: ZRW7, ZRK24		
Glazing units	- possibility to manufacture with P4 glazing unit		
V. DODATKOWE PRODUKTY DO ZASTOSOWANIA			
Mounting accessories	- the XRD installation base allows raising the window above the roof by 15cm. Maximum two bases can be joined. - the XRD/W installation base allows raising the access roof light above the roof by 15cm. Maximum three bases XRD/W can be joined. - the XRD/A installation base allows raising the roof light mounting angle by 3°.		
External accessories	- AMZ/F Solar awning blinds		
Internal accessories	- ARF/D, ARF/D Z-Wave blackout blinds		

VI. TECHNICAL PARAMETERS FOR WINDOWS WITH PARTICULAR GLAZING UNIT TYPES	
Technical parameters	Glazing unit type
	P2
Glazing structure	4H – Tg14Ar- 33.2T + 4H (for sizes ≤ 100 x 100) 4H – Tg14Ar – 33.2T + 6H (for sizes > 100 x 100)
glazing U-value as per EN 673	1.1 W/m²K
window U-value as per EN 14351-1:2006+A2:2016	0.92 W/m²K (size 123 x 148 cm)
acoustic insulation Rw as per EN 1873:2006 p.5.10 (EN ISO 10140-2)	36 (-1,-4)
light transmittance factor τ _v * as per EN 410	0.64
solar factor g** as per EN 410	0.49 (sizes ≤ 100 x 100 cm) 0.48 (sizes > 100 x 100 cm)

** FAKRO internal test results
npd – no performance determined

VII. TECHNICAL PARAMETERS FOR WINDOWS IN PARTICULAR SIZES															
commercial size [cm]	60x60	60x90	70x70	80x80	90x60	90x90	90x120	100x100	100x150	120x90	120x120	120x220	140x140	150x100	200x100
window size symbol	01K	02K	03K	04K	31K	05K	06K	07K	10K	32K	08K	11K	09K	33K	34K
															
window internal area [m²]	0.27	0.42	0.38	0.51	0.42	0.67	0.91	0.84	1.30	0.91	1.25	2.36	1.73	1.3	1.76
effective glazing area [m²]	0.23	0.37	0.33	0.46	0.37	0.60	0.83	0.77	1.21	0.83	1.16	2.23	1.63	1.21	1.64
DXG P2 window weight [kg]±1kg	35	47	43	52	44	61	76	72	107	73	102	170	129	104	131
DMG P2 window weight [kg]±1kg	35	46	43	51	48	60	74	70	105	77	101	169	131	110	141
DEG P2 window weight [kg]±1kg	39	51	47	57	50	66	81	76	115	80	111	173	141	114	151

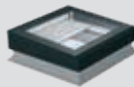
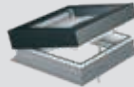
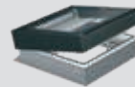
*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

TECHNICAL SPECIFICATION

DXZ-A AMZ/Z, DMZ-A AMZ/Z, DEZ-A AMZ/Z

FLAT ROOF WINDOWS - TYPE Z

WITH AMZ Z-WAVE AWNING BLIND

WINDOW TYPE	DXZ-A AMZ/Z Z-Wave	DMZ-A AMZ/Z Z-Wave	DEZ-A AMZ/Z Z-Wave
			
I. APPLICATION			
Installation	installation angle 0°-15°		
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs		
II. FEATURES			
Sash structure	multi-chamber PVC profile		
Profiles fixing roofing	profiles mechanically fixing roofing to the frame		
Opening method	non-opening	manual by means of included 2.2 m long control rod	electric in Z-Wave wireless system
Equipment	Windows as standard are factory-fitted with AMZ/Z.		
	- ZRH1 remot control	- one screw actuator, max. sash opening: 300 mm - ZRH1 remot control	- one actuator ZWS12 (for sizes ≥ 120 x 120: two actuators); max. sash opening 120 mm - ZRH1 remote control - ZZ60h power supply - ZRD rain sensor
Warranty	10 years for windows, 2 years for electric control elements in DEZ flat roof window , 2 years for AMZ/Z Z Wave awning blind, 2 years for gas springs		
III. TECHNICAL PARAMETERS			
Wind load resistance	Class C5/B5 (1)		as per EN 14351-1:2006+A2:2016
Snow load resistance	4H+4H-14-33.2 (2,3) 6H+4H-14-33.2 (2,4)	4H+4H-14-33.4 (2,3) 6H+4H-14-33.4 (2,4)	
Reaction to fire	B-s2,d0		
External fire performance	B _{root} (t1) *		
Watertightness. Unshielded (A)	E1200		
Impact resistance	Class 3 - 450 mm		
Load-bearing capacity of safety device	npd		
Acoustic insulation (dB)	npd		
Air permeability	Class 4		
Glazing units	P2		
IV. OPTIONS			
Control	- Remote control: ZRS24, ZRH12, ZRH1 - Wall-mounted controls: ZRW7, ZRK24		
Peripheral profile	- non-standard window size [cm] in the range from 60x60 to 120x120		
Glazing units	- option to produce windows with P4 glazing unit - option to produce riveted glass section (D_Z-B)		
V. ADDITIONAL PRODUCTS TO BE USED			
Mounting accessories	- 15 cm high XRD installation base to raise the window. A maximum of two bases can be joined. - 15 cm high reinforced XRD/W installation base to raise the window. A maximum of three bases can be joined under one window.		
External accessories	-		
Internal accessories	ARF/D, ARF/D Z-Wave blackout blinds		

VI. TECHNICAL PARAMETERS FOR WINDOWS WITH PARTICULAR GLAZING UNIT TYPES	
Technical parameters	Glazing unit type
	P2
Glazing unit structure	4H – Tg14Ar- 33.2T + 4H (for sizes ≤ 100 x 100) 4H – Tg14Ar – 33.2T + 6H (for sizes > 100 x 100)
glazing U-value as per EN 673	1.1 W/m²K
window U-value as per EN ISO 10077-1:2007	0.95 W/m²K
Acoustic insulation Rw as per EN 1873:2006 p.5.10 (EN ISO 10140-2)	npd
light transmittance factor τ _v as per EN 410	0.64
solar factor g** as per EN 410	0.49 (for sizes ≤ 100 x 100 cm) 0.48 (for sizes > 100 x 100 cm)

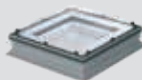
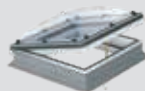
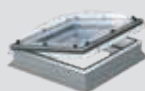
** FAKRO internal test results
npd – no performance determined

VII. TECHNICAL PARAMETERS FOR WINDOWS IN PARTICULAR SIZES										
commercial size [cm]	60x60	60x90	70x70	80x80	90x90	90x120	100x100	120x120	90x60	120x90
window size symbol	01K	02K	03K	04K	05K	06K	07K	08K	31K	32K
										
window internal area [m²]	0.27	0.42	0.38	0.51	0.67	0.91	0.84	1.25	0.42	0.91
effective glazing area [m²]	0.23	0.37	0.33	0.46	0.60	0.83	0.77	1.16	0.37	0.83
DXZ-A AMZ/Z P2 window weight [kg]±1kg	46.47	59.16	54.82	65.37	75.93	91.62	80	121.87	59.16	91.62
DMZ-A AMZ/Z P2 window weight [kg]±1kg	49.52	61.69	58.31	67.68	77.89	92.89	88.75	122.41	61.69	92.89
DEZ-A AMZ/Z P2 window weight [kg]±1kg	50.33	63.75	60.14	69.96	75	96.28	92	121	63.75	96.28

*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

TECHNICAL SPECIFICATION

DXC-C, DMC-C, DEC-C
FLAT ROOF WINDOWS WITH TRANSPARENT DOME – TYPE C

WINDOW TYPE	DXC-C		DMC-C	DEC-C
				
I. APPLICATION				
Installation	installation angle 0°-15°, min. distance between two mounting holes 40 cm			
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs			
II. FEATURES				
Sash structure	multi-chamber PVC profile			
Dome	transparent, UV-stabilized polycarbonate with a thickness of 3mm (sizes up to 06K – 90x120) or 4mm (sizes from 07K - 100x100)			
Installation set	set fixing dome and hindering its removal - material resistant to weather conditions (alloy of Al-Zn)			
Profiles fixing roofing	profiles mechanically fixing roofing to the frame			
Opening method	non-opening	manual using the attached rod (2.2 m)		electric in Z-Wave wireless system
Equipment	—	- one screw actuator, max. sash opening: 300mm		- one actuator ZWS12 (for sizes 140 x 140, 120 x 220: two actuators); max. sash opening 150 mm - ZRH12 remote control - ZZ60h power supply - ZRD rain sensor
Warranty	10 years for windows, 2 years for electric control elements in DEC flat roof window, 2 years for gas springs			
III. TECHNICAL PARAMETERS				
Tearing out load resistance			UL 1500	
Clamping load resistance			DL 2500	
Watertightness			meets	
Impact resistance small hard body			meets	
Impact resistance large soft body			SB 1200	
Fire resistance			B-s2, d0	
External fire resistance			B _{root} (t1) *	
Air permeability	class A3		class 4	
Glazing units	P2, U6, U8(VSG) and in SECURE/PK -P4 versions			
IV. OPTIONS				
Control	- Remote control: ZRS24, ZRH12, ZRH1 - Wall-mounted controls: ZRW7, ZRK24			
Glazing units	- possibility to manufacture DXC, DMC windows in P4 Secure version - possibility to manufacture with U6 glazing unit			
Dome	- possibility to manufacture an opaque dome (D_C-M)			
V. ADDITIONAL PRODUCTS TO BE USED				
Mounting accessories	- the XRD installation base allows raising the window above the roof by 15cm. Maximum two bases can be joined. - the XRD/W installation base allows raising the access roof light above the roof by 15cm. Maximum three bases XRD/W can be joined.			
External accessories	- AMZ/C Z-Wave awning blinds			
Internal accessories	- ARF/D, ARF/D Z-Wave blackout blinds, APF/D pleated blinds			

VI. TECHNICAL PARAMETERS FOR WINDOWS WITH PARTICULAR GLAZING UNIT TYPES		
Technical parameters	Glazing unit type	
	P2	U8 (VSG)
Glazing unit structure	4H-14-33.2T	4H-10-4HT-12-4HT-12-33.2T
glazing U-value as per EN 673	1,1 W/m²K	0,3 W/m²K
window U-value as per EN 12567-2	1,2 W/m²K	0,72 W/m²K
acoustic insulation Rw as per EN 1873:2006 p.5.10 (EN ISO 10140-2)	35(-1;-3)	36(-1;-3)
light transmittance factor τ _v as per EN 410	0,577 (0,219*)	0,397 (0,159*)
solar factor g** as per EN 410	0,435	0,221
frame thermal insulation U _f as per PN-EN ISO 10077-2, PN-EN 1873:2006 p.5.9	0,90 W/m²K	0,72 W/m²K
thermal insulation of frame and glazing connection Ψ as per PN-EN ISO 10077-2, PN-EN 1873:2006 p.5.9	0,036 W/mK	0,038 W/mK

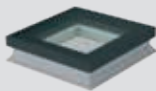
* for D_C-M
** FAKRO internal test results
npd – no performance determined

VII. TECHNICAL PARAMETERS FOR WINDOWS IN PARTICULAR SIZES											
commercial size [cm]	60x60	60x90	70x70	80x80	90x90	90x120	100x100	100x150	120x120	140x140	120x220
window size symbol	01K	02K	03K	04K	05K	06K	07K	10K	08K	09K	11K
											
window internal area [m²]	0.27	0.42	0.38	0.51	0.67	0.91	0.84	1.30	1.25	1.73	2.36
effective glazing area [m²]	0.23	0.37	0.33	0.46	0.60	0.83	0.77	1.21	1.16	1.63	2.23
DXC P2 window weight [kg]±1kg	30	40	37	45	53	65	64	87	84	106	136
DMC P2 window weight [kg]±1kg	30	39	37	44	52	64	62	85	81	105	135
DEC P2 window weight [kg]±1kg	39	49	46	54	62	75	73	97	93	120	152
DEC U8(VSG) window weight [kg]±1kg	47	59	55	67	79	98	94	120	138	–	–

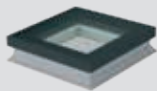
*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

TECHNICAL SPECIFICATION

DXW FLAT ROOF WINDOW

WINDOW TYPE	DXW
	
I. APPLICATION	
Installation	installation angle 0–15°
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs
II. FEATURES	
Sash structure	multi-chamber PVC profile
Profiles fixing roofing	profiles mechanically fixing roofing to the frame
Opening method	non-opening
Glazing unit	DW6, highly energy-efficient, toughened outer pane, laminated inner pane (class P2A)
Warranty	10 years for windows
III. TECHNICAL PARAMETERS	
Wind load resistance	Class C5/B5
Snow load resistance	888.44H-16-4H-18-66.2
Fire resistance	B-s2,d0
External fire resistance	B _{root} (t1) *
Impact resistance	Class 5 – 950 mm
Air permeability	Class 4
Watertightness. Unshielded (A)	E1200
Glazing units	DW6

*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

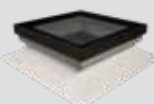
WINDOW TYPE	DXW
	
IV. OPTIONS	
	- non-standard size and shape of the window [cm] in the range from 60 x 60cm to 120 x 120cm
V. ADDITIONAL PRODUCTS TO BE USED	
Mounting accessories	- the XRD/W installation base allows raising the access roof light above the roof by 15cm. Maximum three bases XRD/W can be joined.
External accessories	—
Internal accessories	- ARF/D, ARF/D Z-Wave blackout blinds,

VI. TECHNICAL PARAMETERS FOR WINDOWS WITH PARTICULAR GLAZING UNIT TYPES	
Technical parameters	Glazing unit type
	DW6
Glazing structure	888.44-16-4HT-18-66.2T
glazing U-value as per 673	0.5 W/m²K
window U-value as per EN 14351-1:2006+A2:2016	0.7 W/m²K
acoustic insulation Rw as per EN 14351-1:2006+A2:2016	npd
light transmittance factor τ _v as per EN1279-5+A2:2010	npd
solar factor g as per EN1279-5+A2:2010	0.35
frame thermal insulation U _f as per EN 14351-1:2006+A2:2016	0.67 W/m²K
thermal insulation of frame and glazing connection Ψ as per EN 14351-1:2006+A2:2016	0.055 W/m²K

VII. TECHNICAL PARAMETERS FOR WINDOWS IN PARTICULAR SIZES								
commercial size [cm]	60x60	60x90	70x70	80x80	90x90	90x120	100x100	120x120
window size symbol	01K	02K	03K	04K	05K	06K	07K	08K
								
window internal area [m²]	0.27	0.42	0.38	0.51	0.67	0.91	0.84	1.25
effective glazing area [m²]	0.23	0.37	0.33	0.46	0.60	0.83	0.77	1.16
DXW DW6 window weight [kg]	72	97	90	110	132	167	157	212

TECHNICAL SPECIFICATION

DXA, DEA
RENOVATION FLAT ROOF WINDOWS

WINDOW TYPE	DXA	DEA
		
I. APPLICATION		
Installation	installation angle 0°-15° (for 0°-5° water ponding may occur)	
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs	
II. FEATURES		
Sash structure	multi-chamber PVC profile	
Aluminium frame profiles	aluminium frame profiles	
Opening method	non-opening	electric in Z-Wave wireless system
Equipment	—	- 1-2* ZWS 12 actuator — max. sash opening:250mm - ZRH1 remote control - ZZ60h power supply - ZRD rain sensor - PV panel
Warranty	10 years for windows, 2 years for electric control elements in DEA flat roof window	
III. TECHNICAL PARAMETERS		
Clamping load resistance	UL 1500	as per 1873:2005
Clamping load resistance	DL2500	
Snow load resistance	G33 4H—14—33.2 G53 4H—10—4H—8—33.2	
Fire resistance	npd	
External fire resistance	npd	
Watertightness	meets	
Impact resistance - small hard body	meets	
Impact resistance - large soft body	SB1200	
Window U-value	D_A G33=1,7 W/m²K D_A G53=1,5 W/m²K Class A4 (DXA) Class 3 (DEA)	
Air permeability		
IV. OPTIONS		
Glazing units	- G33 (single chamber), G53 (double-chamber)	
Peripheral aluminium profile	- as standard, the aluminum perimeter window profile and the D_A step are finished in RAL 9005 (black).	
	- non-standard size and shape of the window [cm] in the range from 50 x 50 cm to 120 x 120 cm	
	- remote control and wall mounted controls ZRS24, ZRH12, ZRH1, ZRW7, ZRK24	
V. ADDITIONAL PRODUCTS TO BE USED		
Mounting accessories	- the XRD-R installation base allows raising the window above the roof by 6 cm	
External accessories	- AMZ/F Solar awning blinds	
Internal accessories	- ARF/D, ARF/D Z-Wave blackout blinds	

VI. TECHNICAL PARAMETERS FOR WINDOWS WITH PARTICULAR GLAZING UNIT TYPES		
Technical parameters	Glazing unit type	
	G33	G53
Glazing structure	G33 4H—14—33.2	G53 4H—10—4H—8—33.2
glazing U-value as per 673	1,1 W/m²K	1,1 W/m²K
window U-value as per EN 14351-1:2006+A2:2016	1,7 W/m²K	1,5 W/m²K
window Urc as per EN 1873:2014+A1:2016	1,3 W/m²K	1,1 W/m²K
acoustic insulation Rw as per EN 1873:2006 p.5.10 (EN ISO 10140-2)	npd	npd
light transmittance factor τ _v as per EN 410	0,51	0,46
solar factor g as per EN 410	0,43	0,38

VII. TECHNICAL PARAMETERS FOR WINDOWS IN PARTICULAR SIZES																
commercial size [cm]	40x40	40x70	40x100	40x130	40x140	45x45	45x75	45x105	50x50	50x70	50x80	50x100	50x110	50x140	50x170	55x55
glazing area [m²]	0,13	0,23	0,34	0,45	0,48	0,16	0,29	0,41	0,21	0,30	0,34	0,44	0,48	0,62	0,75	0,26
DEA G33 window weight [kg]±1kg	-	-	-	-	-	-	-	-	36	41	44	50	52	61	69	39
DEA G53 window weight [kg]±1kg	-	-	-	-	-	-	-	-	40	47	51	57	61	-	-	44
DXA G33 window weight [kg]±1kg	26	33	40	47	50	29	36	43	31	36	39	44	47	55	62	34
DXA G53 window weight [kg]±1kg	29	38	47	56	58	32	42	51	35	42	45	52	55	65	74	39

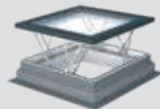
commercial size [cm]	60x60	60x80	60x90	60x120	60x130	60x150	60x180	60x200	70x70	70x100	70x130	70x150	70x160	70x200	70x220	
glazing area [m²]	0,31	0,42	0,48	0,64	0,70	0,81	0,98	1,09	0,43	0,63	0,82	0,95	1,02	1,28	1,41	
DEA G33 window weight [kg]±1kg	42	48	51	60	63	69	-	-	48	58	-	-	-	-	-	
DEA G53 window weight [kg]±1kg	48	55	59	-	-	-	-	-	56	-	-	-	-	-	-	
DXA G33 window weight [kg]±1kg	36	42	45	54	57	62	71	76	42	52	61	67	70	83	89	
DXA G53 window weight [kg]±1kg	42	50	53	64	67	75	85	92	50	62	73	81	85	101	109	

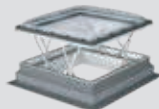
commercial size [cm]	75x75	75x105	75x125	75x165	75x175	80x80	80x110	80x130	80x140	80x160	80x170	80x180	85x85			
glazing area [m²]	0,50	0,71	0,85	1,13	1,20	0,57	0,80	0,95	1,02	1,18	1,25	1,33	0,65			
DEA G33 window weight [kg]±1kg	52	62	69	-	-	55	66	-	-	-	-	-	59			
DEA G53 window weight [kg]±1kg	60	-	-	-	-	64	-	-	-	-	-	-	-			
DXA G33 window weight [kg]±1kg	45	55	62	75	78	49	59	66	69	76	79	82	52			
DXA G53 window weight [kg]±1kg	54	66	74	91	95	58	71	79	84	92	96	101	62			

commercial size [cm]	90x90	90x120	90x150	100x100	100x130	100x150	100x160	105x105	110x110	110x140	120x120					
glazing area [m²]	0,73	0,99	1,25	0,91	1,20	1,39	1,49	1,01	1,11	1,43	1,34					
DEA G33 window weight [kg]±1kg	62	-	-	70	-	-	-	-	-	-	-					
DEA G53 window weight [kg]±1kg	-	-	-	-	-	-	-	-	-	-	-					
DXA G33 window weight [kg]±1kg	56	67	78	63	75	83	87	67	71	84	79					
DXA G53 window weight [kg]±1kg	67	81	94	76	91	101	106	81	86	103	97					

TECHNICAL SPECIFICATION

DSF, DSC
FLAT ROOF, SMOKE VENTILATION WINDOWS.

WINDOW TYPE	DSF DU6	
		
I. APPLICATION		
Installation	installation angle 0°-15° window must be level (water ponding may occur)	
Roofing base type	roofing felt paper, membrane, green roofs, gravel roofs, terraces	
II. FEATURES		
Sash structure	multi-chamber PVC profile	
Dome	domeless	
Installation set	domeless	
Profiles fixing roofing	profiles mechanically fixing roofing to the frame	
Opening method	The sash raises to a height of 23cm when used for everyday ventilation, but in the event of fire it raises to 50cm.	
Equipment	- opening mechanism and actuators - seals: three - number of actuators: 4	
Warranty	10 years for access roof light, 2 years for opening elements	
III. TECHNICAL PARAMETERS		
Wind load resistance	WL3000	as per EN 12101-2003
Snow load resistance	SL1200	
Low ambient temperature	T(-05)	
Reliability	Re 1000	
Resistance to heat	B300	
Fire resistance	F	
IV. OPTIONS		
Peripheral profile	- coating in colours of RAL Classic spectrum (ColourLine version)	
V. ADDITIONAL PRODUCTS TO BE USED		
Mounting accessories	frame for DS_ window (max. 2 frames under a window) - available on request	

WINDOW TYPE	DSC-C P2	
		
I. APPLICATION		
Installation	installation angle 0°-15° window must be level	
Roofing base type	roofing felt paper, membrane, green roofs, gravel roofs, terraces	
II. FEATURES		
Sash structure	multi-chamber PVC profile	
Dome	transparent, UV-stabilized polycarbonate	
Installation set	set fixing dome and hindering its removal – material resistant to weather conditions (alloy of Al-Zn)	
Profiles fixing roofing	profiles mechanically fixing roofing to the frame	
Opening method	The sash raises to a height of 23cm when used for everyday ventilation, but in the event of fire it raises to 50cm.	
Equipment	– opening mechanism and actuators – seals: three – number of actuators: 2 (DSC-C2) or 4 (DSC-C4)	
Warranty	10 years for access roof light, 2 years for opening elements	
III. TECHNICAL PARAMETERS		
Wind load resistance	WL2000	as per EN 12101-2003
Snow load resistance	SL 450 (DSC-C2 P2) SL1200 (DSC-C4 P2)	
Low ambient temperature	T (-05)	
Reliability	Re 1000	
Resistance to heat	B300	
Fire resistance	F	
IV. OPTIONS		
Dome	– transparent dome can be produced (DSC-M)	
V. ADDITIONAL PRODUCTS TO BE USED		
Mounting accessories	frame for DS_ window (max. 2 frames under a window) – available on request	

VI. TECHNICAL PARAMETERS FOR PARTICULAR SMOKE VENTLITATION WINDOWS			
Technical parameters	Smoke ventilation window type	Technical parameters	Smoke ventilation window type
	DSF DU6		DSC-C P2
Glazing structure	6H-16-4HT-18-55.2T	Glazing structure	4H-14-33.2T
Ug value as per EN 673	0.5 W/m²K	Ug value as per EN 673	1.1 W/m²K
Uw value as per PN-EN ISO 10077-1:2007	0.79 W/m²K (for the size 120x120)	Uw value as per PN-EN ISO 10077-1:2007	1.0 W/m²K (for the size 120x120)
light transmittance factor τ _v as per EN 410	0.54	light transmittance factor τ _v as per EN 1873:2005	0,577

VII. TECHNICAL PARAMETERS FOR ACCESS ROOF LIGHTS IN PARTICULAR SIZES					
commercial size [cm]	105x105	120x120	commercial size [cm]	100x100	120x120
roof light symbol	12K	08K	roof light symbol	07K	08K
					
internal area [m²]	1.00	1.32	internal area [m²]	0.90	1.32
effective glazing area [m²]	1.00	1.32	effective glazing area [m²]	0.90	1.32
smoke ventilation active area Aa [m²]	0.49	0.61	smoke ventilation active area Aa [m²]	0.44	0.57
DSF DU6 window weight [kg]±1kg	183	217	DSC-C2 P2 window weight [kg]±1kg	138	169
			DSC-C4 P2 window weight [kg]±1kg	142	172



TECHNICAL SPECIFICATION

DRF DU6, DRG P2,
INSULATED FLAT ACCESS ROOF LIGHTS

WINDOW TYPE	DRF DU6
	
I. APPLICATION	
Installation	installation angle 2°-15°
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs
II. FEATURES	
Sash structure	multi-chamber PVC profile
Dome	no dome
Profiles fixing roofing	profiles mechanically fixing roofing to the frame
Opening	up to an angle of 80° (90x90, 100x100) up to an angle of 60° (90x120, 120x120)
Equipment	gas springs to facilitate operation of the sash profiles with anti-slip protection
Warranty	10 years for access roof light, 2 years for gas springs
III. TECHNICAL PARAMETERS	
Wind load resistance	Class C5/B5
Snow load resistance	6H*-18-4H-18-44.2** 6H*-18-4H-18-44.4** 6H*-16-4H-18-55.2** 6H*-16-4H-18-55.4**
*external glass toughened **internal glass laminated	
Reaction to fire	B-s2,d0
External fire rating	B _{roof} (t1) *
Watertightness Unshielded (A)	E1200
Impact resistance	Class 5 - 950mm
Air permeability	Class 4
Load bearing capacity of safety devices	Threshold value (350N)
IV. OPTIONS	
Glazing unit	DU6
Steppe, peripheral seal	- coating in colours of RAL Classic spectrum (ColourLine version)
Non-standard sizes	90x90 cm - 120x120 cm
V. ADDITIONAL PRODUCTS TO BE USED	
Mounting accessories	- XRD/W reinforced installation base with a height of 15 cm to raise the window above the roof. A maximum of three bases can be joined under one window. - XRD/A base to increase installation angle by 3 degrees
External accessories	AMZ/F Solar awning blinds.
Internal accessories	ARF/D blackout blinds

WINDOW TYPE	DRG P2
	
I. APPLICATION	
Installation	installation angle 2°-15°
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs
II. FEATURES	
Sash structure	multi-chamber PVC profile
Dome	no dome
Profiles fixing roofing	profiles mechanically fixing roofing to the frame
Opening	up to an angle of 80° (90x90, 100x100) up to an angle of 60° (90x120, 120x120)
Equipment	gas springs to facilitate operation of the sash profiles with anti-slip protection
Warranty	10 years for access roof light, 2 years for gas springs
III. TECHNICAL PARAMETERS	
Wind load resistance	Class C4/B4
Snow load resistance	4H* + 4H-14-33.2** 6H* + 4H-14-33.2**
*external glass toughened **internal glass laminated	
Reaction to fire	B-s2,d0
External fire rating	B _{roof} (t1)
Watertightness Unshielded (A)	E1200
Impact resistance	Class 5 - 950mm
Air permeability	Class 4
Load bearing capacity of safety devices	Threshold value (350N)
IV. OPTIONS	
Glazing unit	P2
Steppe, peripheral seal	-
Non-standard sizes	90x90 cm - 120x120 cm
V. ADDITIONAL PRODUCTS TO BE USED	
Mounting accessories	- XRD/W reinforced installation base with a height of 15 cm to raise the window above the roof. A maximum of three bases can be joined under one window. - XRD/A base to increase installation angle by 3 degrees
External accessories	AMZ/F Solar awning blinds.
Internal accessories	ARF/D blackout blinds

VI. TECHNICAL PARAMETERS FOR PARTICULAR ACCESS ROOF LIGHTS					
Technical parameters	Access roof light type		Technical parameters	Access roof light type	
	DRF DU6			DRG P2	
Glazing unit structure***	6H-18-4HT-18-44.2T 6H-16-4HT-18-55.2T		Glazing unit structure***	4H + 4H-14-33.2 6H + 4H-14-33.2	
glazing U-value as per EN 1279-5+A2:2010	0.5 W/m²K		glazing U-value as per EN 1279-5+A2:2010	1.1 W/m²K	
roof light U-value as per EN 14351-1:2006+A1:2010	0.74 W/m²K		roof light U-value as per EN 14351-1:2006+A1:2010	1.0 W/m²K	
acoustic insulation Rw wg normy EN 14351-1:2006+A1:2010	38 (-1;-3)		acoustic insulation Rw wg normy EN 14351-1:2006+A1:2010	35 (-2;-5)	
light transmittance factor τ _v as per EN 1279-5+A2:2010	0.54		light transmittance factor τ _v as per EN 1279-5+A2:2010	0.69	
solar factor g as per EN 1279-5+A2:2010	0.43		solar factor g as per EN 1279-5+A2:2010	0.49	
frame thermal insulation U _f as per EN 14351-1:2006+A1:2010	0.78 W/m²K		frame thermal insulation U _f as per EN 14351-1:2006+A1:2010	0.84 W/m²K	
thermal insulation of frame and glazing connection Ψ as per EN 14351-1:2006+A1:2010	0.055 W/mK		thermal insulation of frame and glazing connection Ψ as per EN 14351-1:2006+A1:2010	0.034 W/mK	

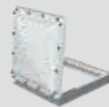
***depending on access roof light type

VII. TECHNICAL PARAMETERS FOR ACCESS ROOF LIGHTS IN PARTICULAR SIZES				
commercial size [cm]	90x90	90x120	100x100	120x120
access roof light symbol	05K	06K	07K	08K
				
access roof light internal area [m²]	0.67	0.91	0.84	1.25
effective glazing area [m²]	0.60	0.83	0.77	1.16
access roof light weight DRF DU6 [kg]	89	109	103	139
access roof light weight DRG P2 [kg]	82	99	94	127

*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

TECHNICAL SPECIFICATION

DRC-C P2,
INSULATED FLAT ACCESS ROOF LIGHTS

WINDOW TYPE	DRC-C P2	
		
I. APPLICATION		
Installation	installation angle 0°- 15°	
roofing base type	roofing felt paper, membrane, green roofs, gravel roofs	
II. FEATURES		
Sash structure	multi-chamber PVC profile	
Dome	transparent, UV-stabilized polycarbonate with a thickness of 3mm (sizes up to 06K) or 4mm (sizes from 07K)	
Installation set	set fixing dome and hindering its removal - material resistant to weather conditions (alloy of Al-Zn)	
Profiles fixing roofing	profiles mechanically fixing roofing to the frame	
Opening method	manually, up to an angle of 80°	
Equipment	gas springs to facilitate operation of the sash	
Warranty	10 years for access roof light, 2 years for gas springs	
III. TECHNICAL PARAMETERS		
Tearing out load resistance	UL 1500	as per EN 1873:2005
Clamping load resistance	DL 2500	
Watertightness	meets	
Impact resistance small hard body	meets	
Impact resistance large soft body	SB 1200	
Air permeability	Class 4	
External fire rating	B _{roof} (t1) *	
Laminated inner pan	P2A as per EN 356	
Toughened outer pane	1C3 as per EN 12600	
IV. OPTIONS		
Glazing unit	U6, U8 (VSG), P4	
Dome	transparent dome can be produced (DRC-M)	
V. ADDITIONAL PRODUCTS TO BE USED		
Mounting accessories	the XRD/W installation base allows raising the access roof light above the roof by 15cm. Maximum three bases XRD/W can be joined.	
External accessories	AMZ/F Solar awning blinds	
Internal accessories	ARF/D blackout blinds, APF/D pleated blind	

VI. TECHNICAL PARAMETERS FOR PARTICULAR ACCESS ROOF LIGHTS	
Technical parameters	Access roof light type
	DRC-C P2
Glazing structure	4H-14-33.2T
glazing U-value as per EN 673	1.1 W/m²K
izolacyjność cieplna okna U as per EN 1873:2005	0.93 W/m²K
izolacyjność cieplna okna Urc as per EN 1873:2014+A1:2016; A:4,1m2	0.76 W/m²K
acoustic insulation Rw as per EN 1873:2014	35(-1;-3)
light transmittance factor τ _v as per EN 1873:2014	0.577

VII. TECHNICAL PARAMETERS FOR ACCESS ROOF LIGHTS IN PARTICULAR SIZES				
frame external size [cm]	90x90	90x120	100x100	120x120
window size symbol	05K	06K	07K	08K
				
window internal area [m²]	0.67	0.91	0.84	1.25
effective glazing area [m²]	0.60	0.83	0.77	1.16
access roof light weight DRC-C P2 [kg]	89	109	103	139

**According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B_(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.*

TECHNICAL SPECIFICATION

DRL
FLAT ROOF ACCESS DOOR

ROOF ACCESS TYPE	DRL
	
I. APPLICATION	
Installation	installation angle 0°-5°
roofing base type	roofing felt paper, membrane,green roofs, gravel roofs
II. FEATURES	
Structure	The frame is constructed of multi-chamber PVC profiles filled with insulation material, while the whole structure is insulated. Insulated sash equipped with a rubber seal ensures perfect thermal insulation performance.
Profiles fixing roofing	profiles mechanically fixing roofing to the frame
Opening method	manually, up to an angle of 60°
Equipment	gas springs to facilitate operation of the sash
Warranty	10 years for access roof light, 2 years for gas springs

ROOF ACCESS TYPE	DRL
III. TECHNICAL PARAMETERS	
Wind load resistance	Class C5/B5
Snow load resistance	npd
Reaction to fire	B-s3,d0
External fire rating	B _{roof} (t1)
Watertightness. Unshielded (A)	E900
Impact resistance	Class 5 – 950 mm
Air permeability	Class 4
IV. OPTIONS	
Sizes	– sizes compatible with the size of LML loft ladders (sold separately)
V. ADDITIONAL PRODUCTS TO BE USED	
Mounting accessories	the XRD/W installation base allows raising the access roof light above the roof by 15cm. Maximum three bases XRD/W can be joined.

VII. TECHNICAL PARAMETERS FOR PARTICULAR FLAT ROOF ACCESS DOOR	
Uw value as per EN 14351-1:2006+A2:2016	0.67 W/m²K
acoustic insulation Rw as per EN 14351-1:2006+A2:2016	30 (0; -2) dB
frame thermal insulation Uf as per EN 14351-1:2006+A2:2016	npd
thermal insulation of frame and glazing connection Ψ as per EN 14351-1:2006+A2:2016	npd

VI. TECHNICAL PARAMETERS FOR FLAT ROOF ACCESS DOOR IN PARTICULAR SIZES						
Rozmiar handlowy / wymiar otworu w suficie [cm]	60x120	70x120	70x130	70x140	86x130	92x130
						
Access roof light symbol	13K	14K	15K	16K	17K	18K
Frame size [cm] [cm]	81x165	90x165	90x175	90x185	106x175	112x175
Frame interal dimensions [cm]	50.6x134.8	59.6x134.8	59.6x144.8	59.6x154.8	75.6x144.8	81.6x144.8
LML box internal dimensions [mm]	506x1121	596x1121	596x1221	596x1321	756x1221	816x1221
Heigh [cm]	20,2					
Flat roof access door weight DRL [kg]±1kg	63	67	70	73	76	79

*According to the standard, the obtained class pertains to the tested window along with the roof structure in which it was tested. Products marked with class B(roof)(t1) are characterized by at least limited fire spread both vertically and horizontally, no internal combustion in the form of smoldering, and no flaming materials (droplets or particles) on the side exposed to fire.

