



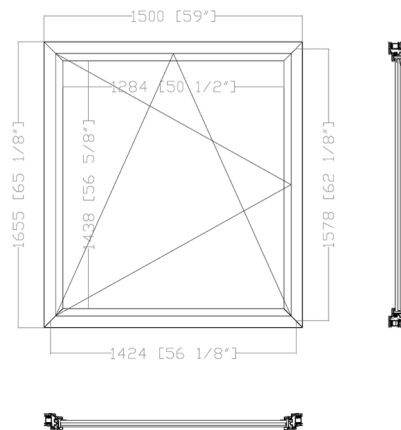
BLACKWATER

TESTING LAB



IAS Accreditation Number: **TL-802**

Miami-Dade Certification: **18-0920.03**



ASTM E283-04, ASTM E331-00, TAS 202-94, TAS 201-94, TAS 203-94 & ASTM F588-14

TEST REPORT

Rendered to:

OKNOPLAST Sp. z o.o.

SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032



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ASTM E283-04, ASTM E331-00, TAS 202-94, TAS 201-94, TAS 203-94 & ASTM F588-14

TEST REPORT

Rendered to:

OKNOPLAST Sp. z o.o.

Ochmanów 117, 32-003 Podłęże, Niepołomice

Poland

ph: +48 12 279 71 71

fax: +48 12 279 71 72

Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Project Summary: BLACKWATER TESTING srl was contracted by OKNOPLAST Sp. z o.o. to perform testing per **PIXEL TILT AND TURN**. The objects evaluated are identified and mentioned above, the results presented in this report concern only the objects tested as received by the customer. Test/Tests was/were performed at BLACKWATER TESTING srl facility:

via Piroleri 19,

31030 | Altivole (TV)

ITALIA

Test Procedure: the test specimens were evaluated in accordance with the following protocols and standards:

Specimen 1: #22.028.004 Pixel tilt and turn

NAME	STANDARD/PROTOCOL	NOTE
AIR LEAKAGE	ASTM E283-04(2012)	P= 300Pa = 6.27PSF
WATER STATIC PEN.	ASTM E331-00(2009)	P= 646Pa = 13.50PSF
UNIFORM LOAD DEFL.	TAS 202-94	P= ± 4309 Pa = ± 90.0 PSF
UNIFORM LOAD STRUCT.	TAS 202-94	P= ± 6464 Pa = ± 135.0 PSF
LARGE MISSILE IMPACT	TAS 201-94	TYPE D
CYCLIC LOAD	TAS 203-94	P= ± 4309 Pa = ± 90.0 PSF

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Specimen 2: #22.028.005: Pixel tilt and turn

NAME	STANDARD/PROTOCOL	NOTE
UNIFORM LOAD DEFL.	TAS 202-94	P= $\pm 4309\text{Pa}$ = $\pm 90.0\text{PSF}$
UNIFORM LOAD STRUCT.	TAS 202-94	P= $\pm 6464\text{Pa}$ = $\pm 135.0\text{PSF}$
LARGE MISSILE IMPACT	TAS 201-94	TYPE D
CYCLIC LOAD	TAS 203-94	P= $\pm 4309\text{Pa}$ = $\pm 90.0\text{PSF}$

Specimen 3: #22.028.006 Pixel tilt and turn

NAME	STANDARD/PROTOCOL	NOTE
UNIFORM LOAD DEFL.	TAS 202-94	P= $\pm 4309\text{Pa}$ = $\pm 90.0\text{PSF}$
UNIFORM LOAD STRUCT.	TAS 202-94	P= $\pm 6464\text{Pa}$ = $\pm 135.0\text{PSF}$
LARGE MISSILE IMPACT	TAS 201-94	TYPE D
CYCLIC LOAD	TAS 203-94	P= $\pm 4309\text{Pa}$ = $\pm 90.0\text{PSF}$
FORCE ENTRY	ASTM F588-14	TYPE B / GRADE 10

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SPECIMEN 1 [#22.028.004]

Series/Models: Pixel tilt and turn

Product Type: Tilt and turn

Material: PVC profile

Overall size: 4' 11-1/16" W x 5' 5-3/16" H (1500mm W x 1655mm H)

Rough Opening: 4' 11-13/16" W x 5' 5-15/16" H (1520mm W x 1675mm H)

Configuration: X

Panel size: 4' 8-1/16" W x 5' 2-1/8" H (1424mm W x 1578mm H)

Panel weight: 220 lb (100 kg)

Drawing Reference: huraganowe DP90.dwg

Arrival Date: 10/03/2022

SPECIMEN 2 [#22.028.005]

Series/Models: Pixel tilt and turn

Product Type: Tilt and turn

Material: PVC profile

Overall size: 4' 11-1/16" W x 5' 5-3/16" H (1500mm W x 1655mm H)

Rough Opening: 4' 11-13/16" W x 5' 5-15/16" H (1520mm W x 1675mm H)

Configuration: X

Panel size: 4' 8-1/16" W x 5' 2-1/8" H (1424mm W x 1578mm H)

Panel weight: 220 lb (100 kg)

Drawing Reference: huraganowe DP90.dwg

Arrival Date: 10/03/2022

SPECIMEN 3 [#22.028.006]

Series/Models: Pixel tilt and turn

Product Type: Tilt and turn

Material: PVC profile

Overall size: 4' 11-1/16" W x 5' 5-3/16" H (1500mm W x 1655mm H)

Rough Opening: 4' 11-13/16" W x 5' 5-15/16" H (1520mm W x 1675mm H)

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Configuration: X

Panel size: 4' 8-1/16" W x 5' 2-1/8" H (1424mm W x 1578mm H)

Panel weight: 220 lb (100 kg)

Drawing Reference: huraganowe DP90.dwg

Arrival Date: 10/03/2022

Disclaimer

This is a general statement and does not supersede the specific product descriptions in this report. The samples are in conformance with the attached drawings. These drawings have been marked to indicate the appropriate portions descriptive of this test series.

Blackwater Testing srl does not take responsibility for product performance and whose only purpose is to test and gather pertinent data under test report format for the client.

X 

Inq. Andrea Turcato
Director of laboratory

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INDEPENDENCE STATEMENT

To: Whom it may concern

From: Blackwater Testing srl

Manufacturer: OKNOPLAST Sp. z o.o.

Ochmanów 117, 32-003 Podłęże, Niepołomice

Poland

Dear Madam and Sir,

Please note that Blackwater Testing srl does not have, nor will I acquire, a financial interest in any company manufacturing or distributing the product(s) for which this report is realized. Blackwater Testing srl was contracted by OKNOPLAST Sp. z o.o. to perform the test(s) and to elaborate report(s) for the following product(s).

Respectfully submitted,

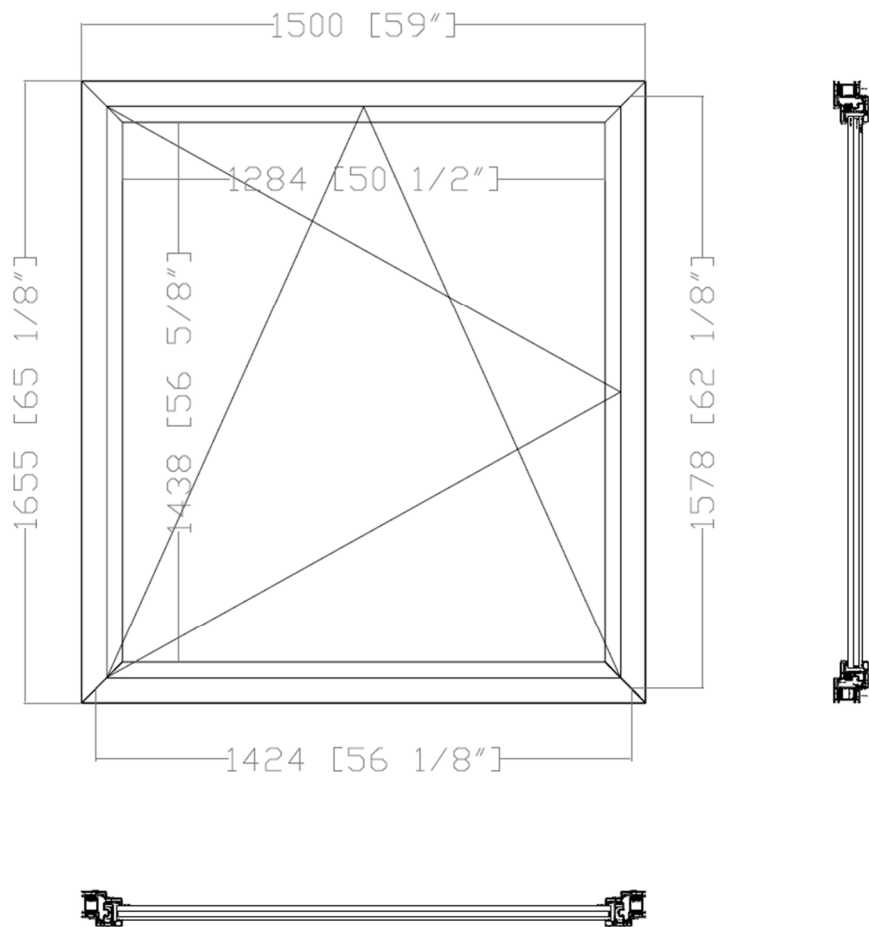


Inq. Andrea Turcato
Director of Laboratory

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PRODUCT DESCRIPTION



SPECIMEN 1 [#22.028.004]
SPECIMEN 2 [#22.028.005]
SPECIMEN 3 [#22.028.006]

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FRAME CONSTRUCTION

A PVC "L-shape" (ref. PPV-101-304) of 2-3/4" (70mm) of depth and 2-5/8" (67mm) of height (ref. PPV-101-304) is used as a frame profile. Corners are thermoplastic welded at 45° and a steel square-shape reinforcement (ref. PWV-113-025-25) 1-3/16" x 1-3/16" x 10mil (30 x 30 x 1.25 mm) is inserted inside the central profile chamber.

SASH CONSTRUCTION

A PVC "Z-shape" profile (ref. PPV-103-372) of 2-15/16" (74mm) of depth and 2-5/8" (70mm) of height is used as a sash profile. Corners are thermoplastic welded at 45° and a steel bent plate reinforcement (ref. PWV-113-370-52) is inserted inside the central profile chamber of the head and sill. Otherwise, a different steel bent plate reinforcement (ref. PWV-113-370-53) is inserted inside the central profile chamber of jambs. A PVC coextruded glazing bead (ref. PPV-AP817) is snapped on the sash profile.

GLAZING DETAILS

COMPOSITION

EXTERNAL PANE	GAP WIDTH	INTERNAL PANE
1/4"+1/4" Float glass w/ 75mil Saflex VS02 Storm ¹	1/2" Alu spacer ²	1/8" Tempered glass
66.8 Float glass w/ 1.91mm Saflex VS02 storm ¹	12mm Alu spacer ²	6mm Tempered glass

¹ See appendix for Saflex PVB datasheet.

² See appendix for spacer datasheet.

METHOD

Glass is installed from the interior, a PVCP gasket (ref. PIV-112-323) and snapped from inside by a PVC coextruded glazing bead (ref. PPV-107-135). Four glazing pads are used to balance the glass, two on the lower hinges side, and two on the upper corner handle side. The insulated glass unit is also sealed between the IGU bottom and the sash profile using Dow Corning DC 776.

DAYLIGHT OPENING

50-9/16" W x 56-5/8" H (1284mm W x 1438mm H).

GLASS BITE

5/8" (15.5mm).

WEATHERSTRIPPING

Two PVCP gasket lines (ref. PIV-112-324) are used, the first line installed in the frame profile, and the second installed in the sash profile. On the bottom frame profile, a PVCP gasket (ref. PIV-112-380) is used to fill a profile groove.

HARDWARE

A multipoint locking system Wink Haus (ref. POW 5030348);

- Head section: 5" (127mm), 22-3/16" (564mm), and 39" (991mm) (measurements from left exterior frame corner);

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- Sill section: 30-7/16" (774mm), and 53-15/16" (1371mm), and extra closing point (ref. POW 5030360) is installed at 5-7/16" (138mm) (measurements from left exterior frame corner);
- Jamb hinge side: 5-7/8" (149mm), 23-7/8" (607mm), 43-9/16" (1107mm), and 60-1/16" (1526mm) (measurements from bottom exterior frame corner);
- Jamb handle side: 5-1/8" (130mm), 17-1/16" (434mm), 41-5/16" (1049mm), and 60-5/16" (1533mm) (measurements from bottom exterior frame corner).

The hinge bottom type (ref. POW 2844602 and POW 5026987) is installed at 2-7/8" (73mm) from the bottom frame corner, and the hinge top type (ref. POW 2844434) is installed at 62-5/16" (1583mm) from the bottom corner. The first locking point installed in the sill member (ref. POW 5030360) allows the tilt and turn movement.

SEALANT

The insulated glass unit is also sealed between the IGU bottom and the sash profile using Dow Corning DC 776. Dow Corning DC795 is used also to seal the air gap between the frame profile and wood subframe, filled with a backed rod.

DRAINAGE

No drainage holes are realized.

REINFORCEMENT

A steel square-shape reinforcement (ref. PWV-113-025-25) (30 x 30 x 1.25 mm) is inserted inside the central frame profile chamber, and a steel bent plate reinforcement (ref. PWV-113-370-53) is inserted inside the central sash profile chamber of head and sill, and otherwise, a different steel bent plate reinforcement (ref. PWV-113-370-52) is inserted inside the central sash profile chamber of jambs.

ANCHOR DETAILS

Wood screw No. 12 x 4-3/8" (M6 x 110) are used at:

- Head and sill: 5-7/8" (150mm), 20-1/8" (510mm), 39" (990mm), and 53-1/8" (1350mm) (measurements from left exterior frame corner);
- Jamb: 5-7/8" (150mm), 18-1/2" (470mm), 31" (786mm), 46-1/2" (1181mm), and 59-1/4" (1505mm) (measurements from bottom exterior frame corner).

TESTING BUCK

Wood beam 3-7/8" x 4-3/4" (100 mm x 120 mm).

SUBSTRATE

Wood beam substrate 3-1/2" x 1-5/8" (90mm x 40mm).

TEST RESULTS FOR SPECIMEN

#22.028.004

ASTM E283-04: AIR INFILTRATION TEST

SPECIMEN	#22.028.004
TEMP.SPECIMEN (°C / °F)	16.1 / 61.0

PRESSURE		SYSTEM LEAKAGE cfm	TOTAL LEAKAGE cfm	SPECIMEN LEAKAGE cfm	SPECIFIC LEAKAGE cfm/ft ²	ALLOWED LEAKAGE cfm/ft ²
Pa	PSF					
75	1.57	3.35	3.50	0.15	0.006	0.100
300	6.27	5.70	6.10	0.40	0.015	0.060

NOTE:

No modification to the specimen was made in order to obtain the results above indicated.
AREA used in the calculation is equal to 26.64 ft².
Pressure is exerted from outside to inside.

The air infiltration test was conducted as indicated in ASTM E283-04.

ASTM E331-00: WATER STATIC PENETRATION TEST

SPECIMEN	#22.028.004
TEMP.SPECIMEN (°C / °F)	19.6 / 67.3
WATER APPLICATION TIME @ ZERO PRESSURE	60 sec

PRESSURE		TEST TIME	RESULTS
Pa	PSF	sec	
646	13.50	900	NO LEAKAGE

NOTE:

No modification to the specimen was made in order to obtain the results above indicated.
Pressure is exerted from outside to inside.

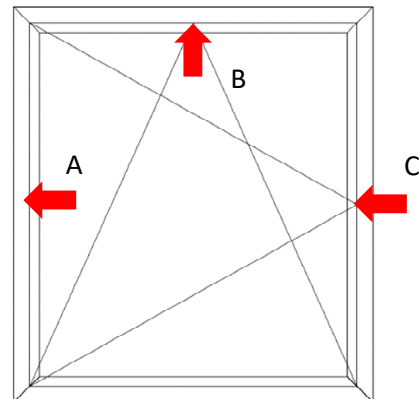
The water infiltration test was conducted as indicated in ASTM E331-00. A uniform water spray was applied to the exterior surface of the window at a rate minimum of 5.0 gph/sqft.

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TAS 202-94: STATIC LOAD TEST

SPECIMEN	#22.028.004	
TEMP.SPECIMEN (°C / °F)	19.7 / 67.3	
DESIGN PRESSURE (DP)	± 4309 Pa	± 90.0 PSF
LOAD TIME (sec)	30 sec	
PAUSE TIME (sec)	180 sec	



	LOAD			A		B		C	
	% DP	Pa	PSF	FLEX in	P.SET in	FLEX in	P.SET in	FLEX in	P.SET in
POS	0.75 DP	3232	67.5	0.063	0.000	0.125	0.000	0.125	0.000
	DP	4309	90.0	0.063	0.000	0.125	0.000	0.188	0.000
	1.5 DP	6464	135.0	0.063	0.000	0.188	0.000	0.250	0.000
NEG	0.75 DP	-3232	-67.5	0.063	0.000	0.125	0.000	0.125	0.000
	DP	-4309	-90.0	0.063	0.000	0.125	0.000	0.125	0.000
	1.5 DP	-6464	-135.0	0.125	0.000	0.188	0.000	0.250	0.063

NOTE:

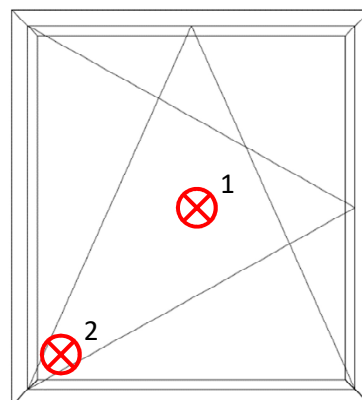
No damage or failures occur during the test.
Pressure is exerted from outside to inside. The tape was used to reduce air leakage.

The static load test was conducted as indicated in ASTM E330/E330M-14.

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TAS 201-94: IMPACT TEST

SPECIMEN	#22.028.004
TEMP.SPECIMEN (°C / °F)	21.8 / 71.2
TYPE OF MISSILE	LARGE MISSILE
LENGTH	8 ft
WEIGHT	9 lb



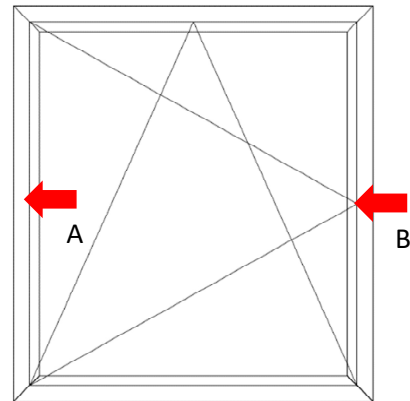
SHOT	AREA	x in	y in	VELOCITY ft/s	RESULT
1	Center of glass	29-1/2	32-1/4	49.8	OK
2	Lower left corner	12-3/16	12-3/16	50.3	OK
NOTE: No damage or failures occurred during the test. Measurements are kept from the left corner, bottom of the glass The impact test was conducted as indicated in TAS 201-94.					

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TAS 203-94: IMPACT TEST

SPECIMEN	#22.028.004	
TEMP. SPECIMEN (°C / °F)	22.7 / 72.9	
DESIGN PRESSURE (DP)	± 4309 Pa	± 90.0 PSF
LOAD TIME (sec)	1 sec	



CYCLES	LOAD RANGE			A		B	
	%	Pa	PSF	FLEX in	DEF in	FLEX in	DEF in
3500	20 to 50	862 to 2155	18 to 45	0.063	0.000	0.188	0.000
300	0 to 60	0 to 2586	0 to 54	0.063	0.000	0.313	0.000
600	50 to 80	2155 to 3447	45 to 72	0.063	0.000	0.313	0.000
100	30 to 100	1293 to 4309	27 to 90	0.125	0.000	0.375	0.000
50	30 to 100	-1293 to -4309	-27 to -90	0.125	0.000	0.375	0.063
1050	50 to 80	-2155 to -3447	-45 to -72	0.125	0.000	0.313	0.000
50	0 to 60	0 to -2586	0 to -54	0.063	0.000	0.313	0.000
3550	20 to 50	-862 to -2155	-18 to -45	0.063	0.000	0.188	0.000

NOTE:

No damage or failures occurred during the test.
Pressure is exerted from outside to inside.

The static load test was conducted as indicated in TAS 203-94.

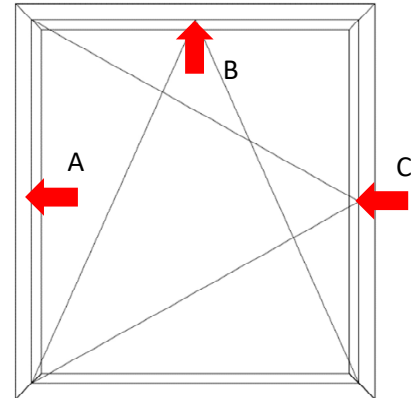
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TEST RESULTS FOR SPECIMEN

#22.028.005

TAS 202-94: STATIC LOAD TEST

SPECIMEN	#22.028.005
TEMP. SPECIMEN (°C / °F)	16.8 / 62.2
DESIGN PRESSURE (DP)	± 4309 Pa ± 90.0 PSF
LOAD TIME (sec)	30 sec
PAUSE TIME (sec)	180 sec



	LOAD			A		B		C	
	% DP	Pa	PSF	FLEX in	P.SET in	FLEX in	P.SET in	FLEX in	P.SET in
POS	0.75 DP	3232	67.5	0.063	0.000	0.125	0.000	0.125	0.000
	DP	4309	90.0	0.063	0.000	0.125	0.000	0.125	0.000
	1.5 DP	6464	135.0	0.063	0.000	0.250	0.000	0.250	0.000
NEG	0.75 DP	-3232	-67.5	0.063	0.000	0.125	0.000	0.125	0.000
	DP	-4309	-90.0	0.063	0.000	0.125	0.000	0.125	0.000
	1.5 DP	-6464	-135.0	0.125	0.000	0.188	0.000	0.188	0.063

NOTE:

No damage or failures occur during the test.
Pressure is exerted from outside to inside. The tape was used to reduce air leakage.

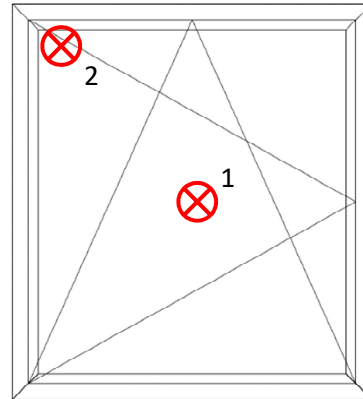
The static load test was conducted as indicated in ASTM E330/E330M-14.

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TAS 201-94: IMPACT TEST

SPECIMEN	#22.028.005
TEMP.SPECIMEN (°C / °F)	16.8 / 62.2
TYPE OF MISSILE	LARGE MISSILE
LENGTH	8 ft
WEIGHT	9 lb

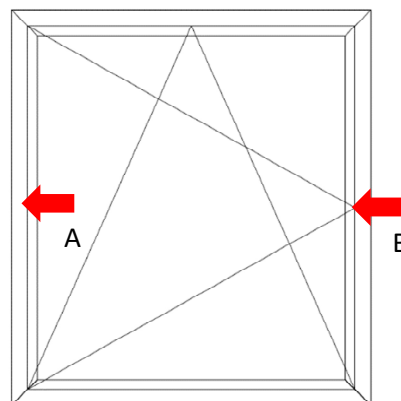


SHOT	AREA	x in	y in	VELOCITY ft/s	RESULT
1	Center of glass	28-3/8	31-1/2	49.8	OK
2	Upper left corner	11-7/16	53-15/16	49.6	OK
NOTE: No damage or failures occurred during the test. Measurements are kept from the left corner, bottom of the glass The impact test was conducted as indicated in TAS 201-94.					

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TAS 203-94: IMPACT TEST

SPECIMEN	#22.028.005	
TEMP.SPECIMEN (°C / °F)	19.7 / 67.5	
DESIGN PRESSURE (DP)	± 4309 Pa	± 90.0 PSF
LOAD TIME (sec)	1 sec	



CYCLES	LOAD RANGE			A		B	
	%	Pa	PSF	FLEX in	DEF in	FLEX in	DEF in
3500	20 to 50	862 to 2155	18 to 45	0.063	0.000	0.250	0.000
300	0 to 60	0 to 2586	0 to 54	0.063	0.000	0.188	0.000
600	50 to 80	2155 to 3447	45 to 72	0.063	0.000	0.250	0.000
100	30 to 100	1293 to 4309	27 to 90	0.125	0.000	0.375	0.000
50	30 to 100	-1293 to -4309	-27 to -90	0.188	0.000	0.438	0.000
1050	50 to 80	-2155 to -3447	-45 to -72	0.125	0.000	0.313	0.000
50	0 to 60	0 to -2586	0 to -54	0.063	0.000	0.188	0.000
3550	20 to 50	--862 to -2155	-18 to -45	0.063	0.000	0.188	0.000

NOTE:

No damage or failures occurred during the test.
Pressure is exerted from outside to inside.

The static load test was conducted as indicated in TAS 203-94.

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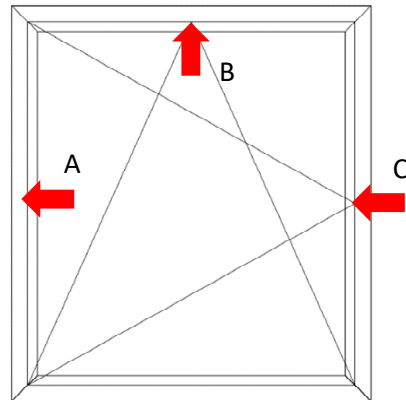


TEST RESULTS FOR SPECIMEN

#22.028.006

TAS 202-94: STATIC LOAD TEST

SPECIMEN	#22.028.006	
TEMP.SPECIMEN (°C / °F)	16.2 / 61.2	
DESIGN PRESSURE (DP)	± 4309 Pa	± 90.0 PSF
LOAD TIME (sec)	30 sec	
PAUSE TIME (sec)	180 sec	



	LOAD			A		B		C	
	% DP	Pa	PSF	FLEX in	P.SET in	FLEX in	P.SET in	FLEX in	P.SET in
POS	0.75 DP	3232	67.5	0.063	0.000	0.125	0.000	0.125	0.000
	DP	4309	90.0	0.063	0.000	0.125	0.000	0.125	0.000
	1.5 DP	6464	135.0	0.063	0.000	0.188	0.000	0.250	0.000
NEG	0.75 DP	-3232	-67.5	0.063	0.000	0.063	0.000	0.125	0.000
	DP	-4309	-90.0	0.063	0.000	0.125	0.000	0.125	0.000
	1.5 DP	-6464	-135.0	0.063	0.000	0.188	0.000	0.188	0.000

NOTE:

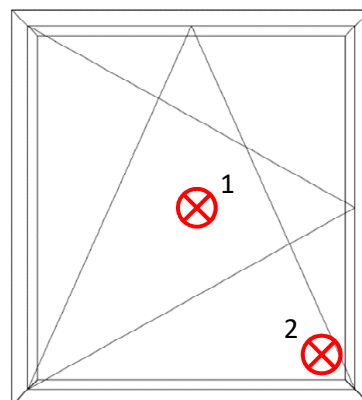
No damage or failures occur during the test.
Pressure is exerted from outside to inside. The tape was used to reduce air leakage.

The static load test was conducted as indicated in ASTM E330/E330M-14.

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TAS 201-94: IMPACT TEST

SPECIMEN	#22.028.006
TEMP.SPECIMEN (°C / °F)	18.1 / 64.6
TYPE OF MISSILE	LARGE MISSILE
LENGTH	8 ft
WEIGHT	9 lb



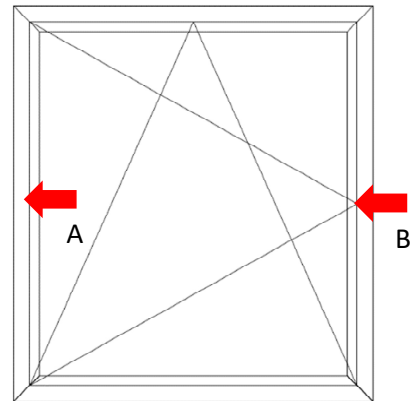
SHOT	AREA	x in	y in	VELOCITY ft/s	RESULT
1	Center of glass	30-5/16	32-1/4	49.7	OK
2	Lower right corner	46-1/16	11	49.65	OK
NOTE: No damage or failures occurred during the test. Measurements are kept from the left corner, bottom of the glass The impact test was conducted as indicated in TAS 201-94.					

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TAS 203-94: IMPACT TEST

SPECIMEN	#22.028.006	
TEMP.SPECIMEN (°C / °F)	17.4 / 63.3	
DESIGN PRESSURE (DP)	± 4309 Pa	± 90.0 PSF
LOAD TIME (sec)	1 sec	



CYCLES	LOAD RANGE			A		B	
	%	Pa	PSF	FLEX in	DEF in	FLEX in	DEF in
3500	20 to 50	862 to 2155	18 to 45	0.063	0.000	0.250	0.000
300	0 to 60	0 to 2586	0 to 54	0.063	0.000	0.250	0.000
600	50 to 80	2155 to 3447	45 to 72	0.063	0.000	0.313	0.000
100	30 to 100	1293 to 4309	27 to 90	0.125	0.000	0.375	0.000
50	30 to 100	-1293 to -4309	-27 to -90	0.125	0.000	0.438	0.000
1050	50 to 80	-2155 to -3447	-45 to -72	0.063	0.000	0.313	0.063
50	0 to 60	0 to --2586	0 to --54	0.063	0.000	0.250	0.063
3550	20 to 50	--862 to -2155	-18 to -45	0.063	0.000	0.188	0.000

NOTE:

No damage or failures occurred during the test.
Pressure is exerted from outside to inside.

The static load test was conducted as indicated in TAS 203-94.

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ASTM F588-88: FORCE ENTRY TEST

SPECIMEN	#22.028.006
TEMP. SPECIMEN (°C / °F)	15.9 / 60.6
TYPE	B
GRADE PERFORMANCE	10

TEST	TIME sec	RESULTS
DISASSEMBLY TEST	300	OK
LOCKING MANIPULATION	300	OK
SASH MANIPULATION	300	OK
NOTE: No damage or failures occurred during the test. For testing, purposes were used: a putty knife, a head screw-driver, slot-type pliers, and 50cm of black annealed 16gage wire. The force entry test was conducted as indicated in ASTM F588-14.		

TEST	TIME sec	LOAD N	APPL. POINT	RESULTS
PULL TEST B1 – AWNING	60	L ₂ = 333	Upper corner	OK
PULL TEST B2 – AWNING	60	L ₁ = 667 L ₂ = 333	Upper corner	OK
PULL TEST B3 - AWNING	60	L ₁ = 667 L ₂ = 333	Upper corner	OK
PULL TEST B1 – CASEMENT	60	L ₂ = 333	Handle side corner	OK
PULL TEST B2 – CASEMENT	60	L ₁ = 667 L ₂ = 333	Handle side corner	OK
PULL TEST B3 - CASEMENT	60	L ₁ = 667 L ₂ = 333	Handle side corner	OK
NOTE: The force entry test was conducted as indicated in ASTM F588-14.				

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SUMMARY OF ASTM E283-04, ASTM E331-00, TAS 202-94, TAS 201-94, TAS 203-94 & ASTM F588-14 TEST REPORT

rendered to:

OKNOPLAST Sp. z o.o.

Ochmanów 117, 32-003 Podłęże, Niepołomice

Poland

SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

AIR LEAKAGE [ASTM E283-04]: Specimen 1 [#22.028.004] was tested following procedure ASTM E283-04. Specimen 1 [#22.028.004] and specimen 3 [#22.028.006] successfully passed the air infiltration test criteria for Florida Building Code.

WATER PENETRATION [ASTM E331-00]: Specimen 1 [#22.028.004] was tested following procedure ASTM E331-00. Specimen 1 [#22.028.004] and specimen 3 [#22.028.006] successfully passed the water penetration test criteria for Florida Building Code.

STATIC LOAD [TAS 202-94]: Specimen 1 [#22.028.004], specimen 2 [#22.028.005], and specimen 3 [#22.028.006] were tested following procedure TAS 202-94. Specimen 1 [#22.028.004], specimen 2 [#22.028.005], and specimen 3 [#22.028.006] successfully passed the static load test criteria for Florida Building Code.

IMPACT TEST [TAS 201-94]: Specimen 1 [#22.028.004], specimen 2 [#22.028.005], and specimen 3 [#22.028.006] were tested following procedure TAS 201-94. Specimen 1 [#22.028.004], specimen 2 [#22.028.005], and specimen 3 [#22.028.006] successfully passed the large missile impact test criteria for Florida Building Code.

CYCLIC LOAD [TAS 203-94]: Specimen 1 [#22.028.004], specimen 2 [#22.028.005], and specimen 3 [#22.028.006] were tested following procedure TAS 203-94. Specimen 1 [#22.028.004], specimen 2 [#22.028.005], and specimen 3 [#22.028.006] successfully passed the cyclic load test criteria for Florida Building Code.

FORCED ENTRY [ASTM F588-88]: Specimen 3 [#22.028.006] was tested following procedure ASTM F588-14. Specimens 3 [#22.028.006] successfully passed the forced entry test criteria for Florida Building Code.

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List of Observer

Name	Company
Andrea Turcato	Blackwater Testing srl
Sergio Nardin	Blackwater Testing srl
Roberto Archila	Blackwater Testing srl
Edoardo Onisto	Blackwater Testing srl
Jaroslav Rudka	Oknoplast Sp. z o. o.

Test/s was/were performed by:



Edoardo Onisto
Lab Technician

Representative samples of the test specimen and a copy of this report will be retained by Blackwater Testing srl for a period of ten years from the original test date. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory.

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For BLACKWATER TESTING srl:

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Digitally signed
by roberto
archila
Date:
2022.09.30
01:07:58 -04'00'

X 

PE Roberto Archila
Lead Engineer

X 

Inq. Andrea Turcato
Director of laboratory

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Revision Log

<u>Rev.#</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
A	29/09/2022	90	Original report issue

Attachment (pages):

- Appendix A: Drawings
- Appendix B: Datasheets
- Appendix C: Bill of material
- Appendix D: Die drawings
- Appendix E: Photo

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APPENDIX A

Drawings

rendered to:

OKNOPLAST Sp. z o.o.

SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

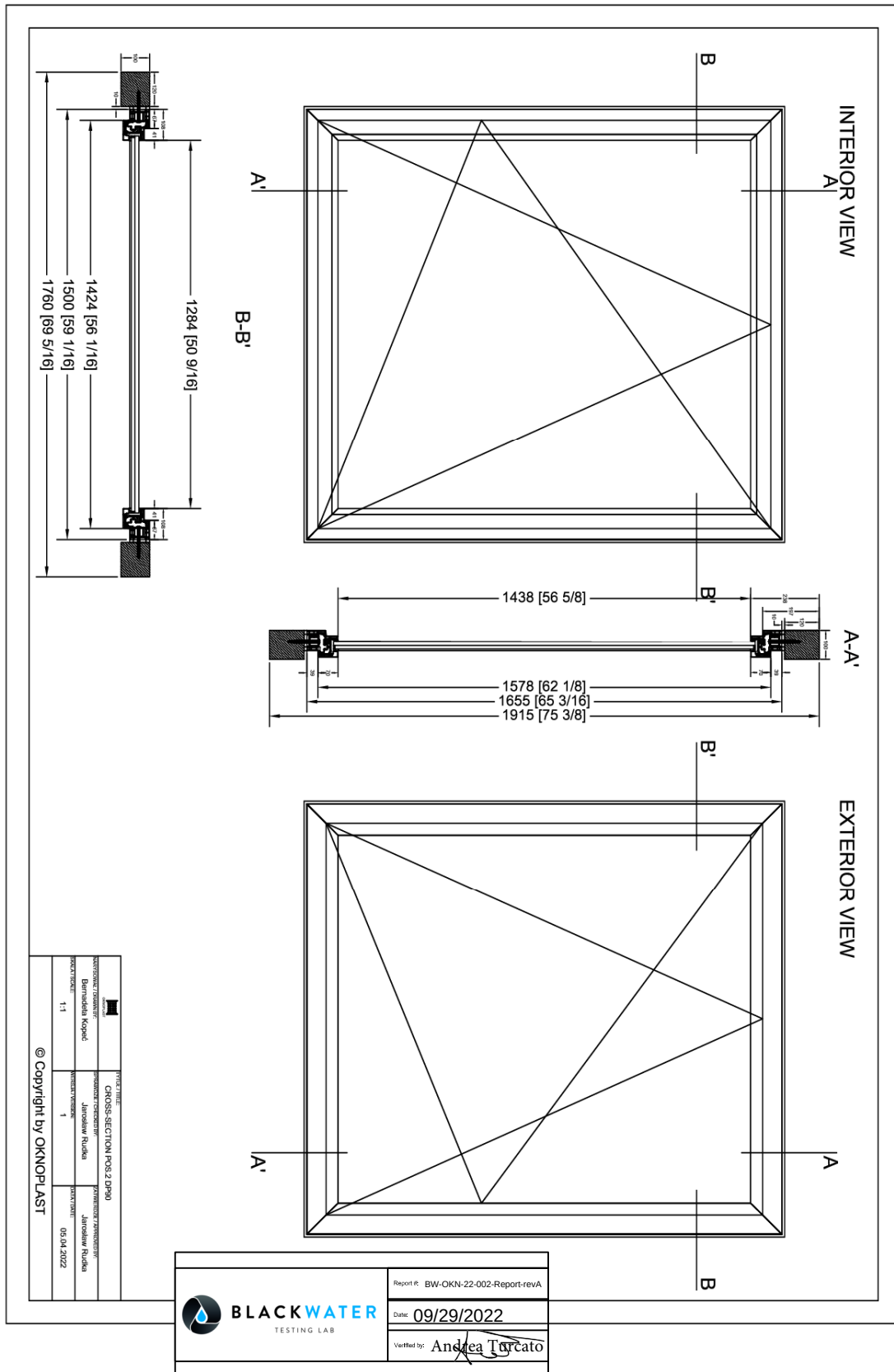
Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032

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SECTION B-B'



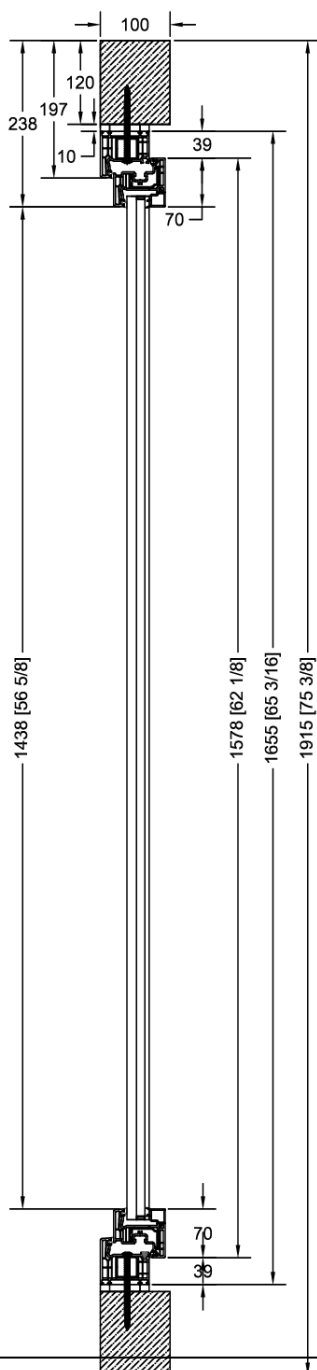
PRODOTTORE	PRODOTTORE	PRODOTTORE
Bernardini Kopel	Jacobus Rucka	Jacobus Rucka
PRODOTTORE	PRODOTTORE	PRODOTTORE
1:1	1	05.04.2022

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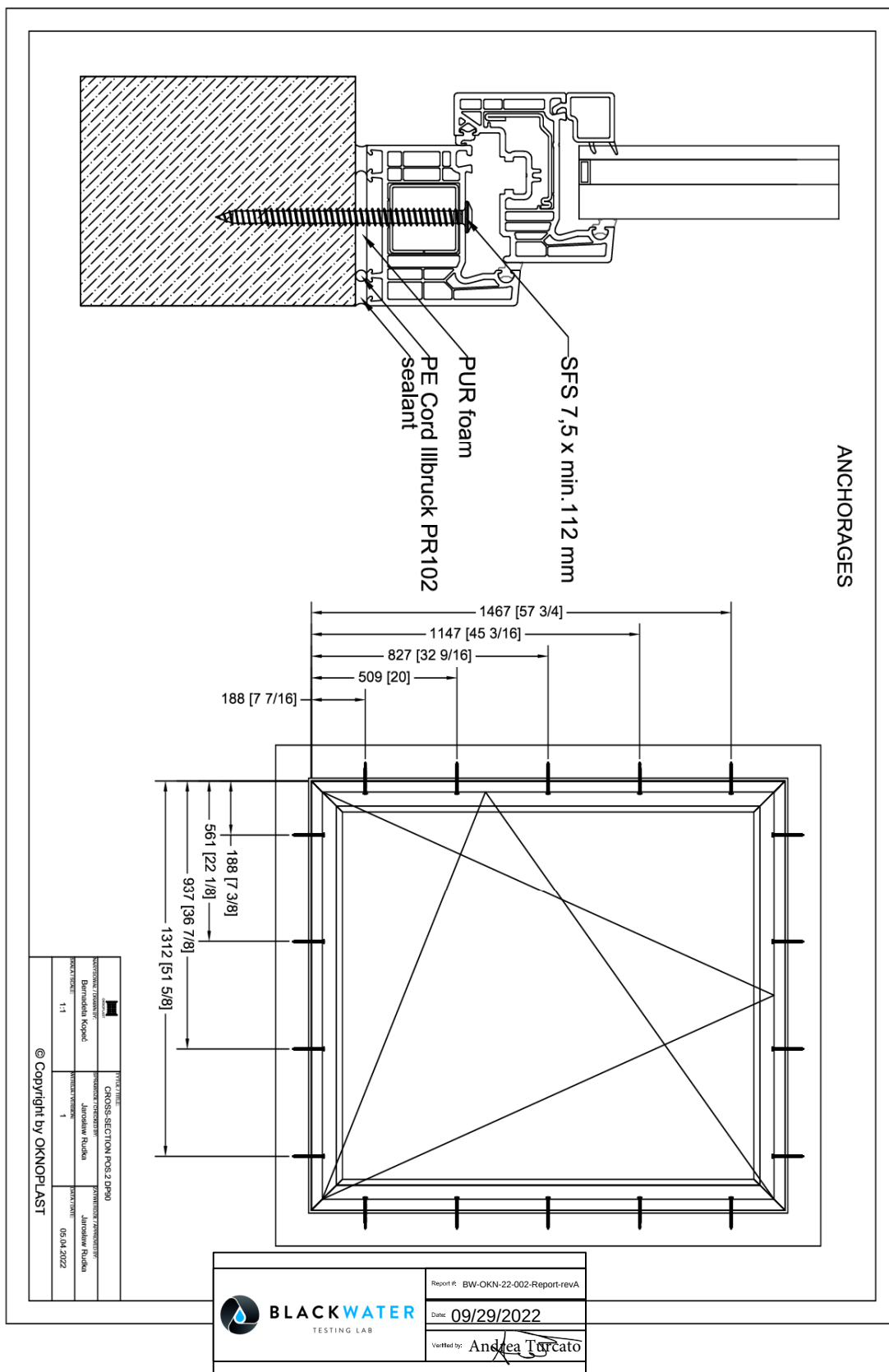
	Report #: BW-OKN-22-002-Report-revA
	Date: 09/29/2022
	Verified by: Andrea Torcato

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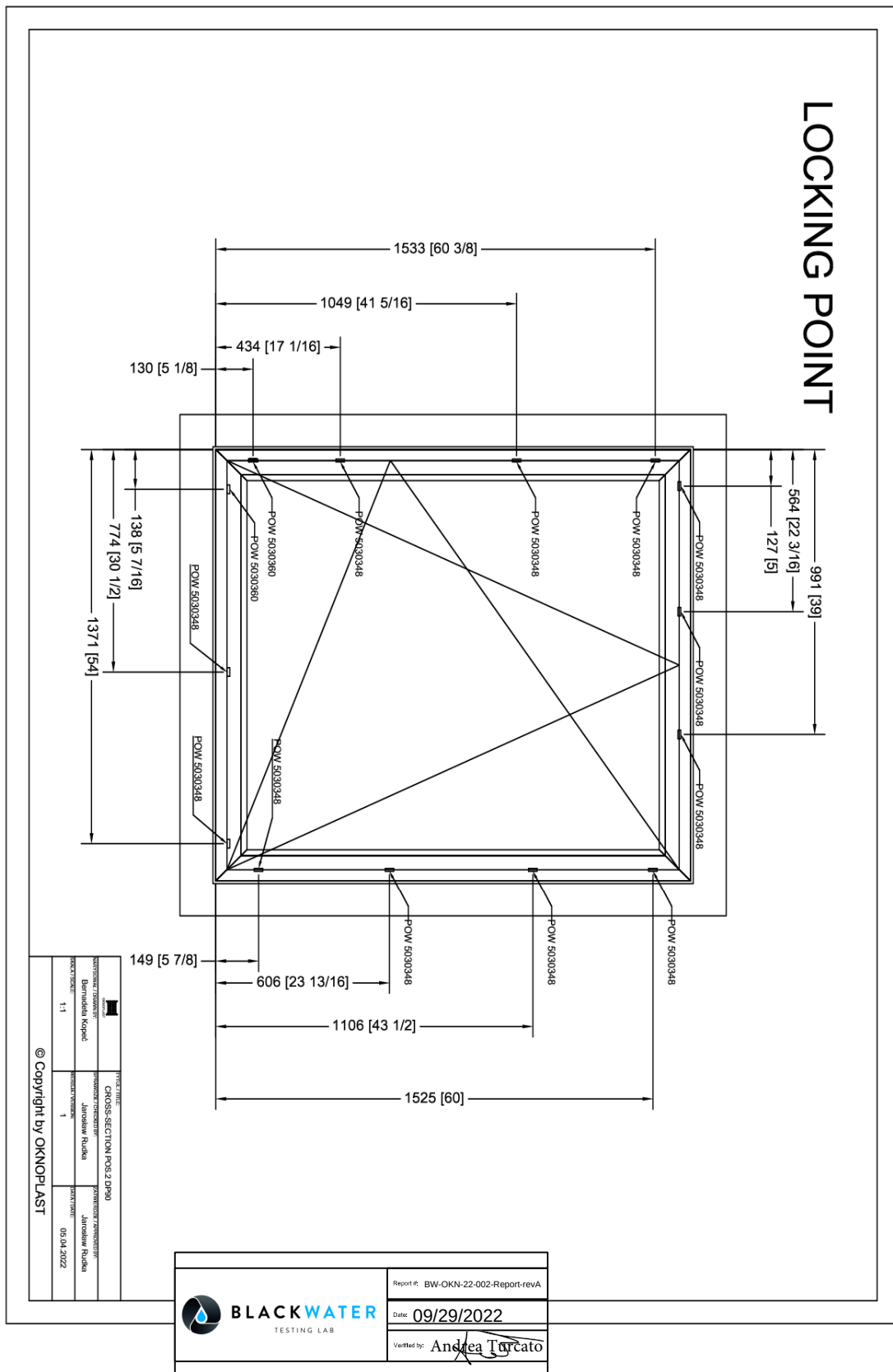
SECTION A-A'



PROJECT FILE		
CROSS-SECTION POS.2 DP90		
DESIGNED BY	DRAWN BY	APPROVED BY
Bernadeta Kopeć	Jaroslav Rudka	Jaroslav Rudka
PROJECT SCALE	REVISION	DATE
1:1	1	05.04.2022



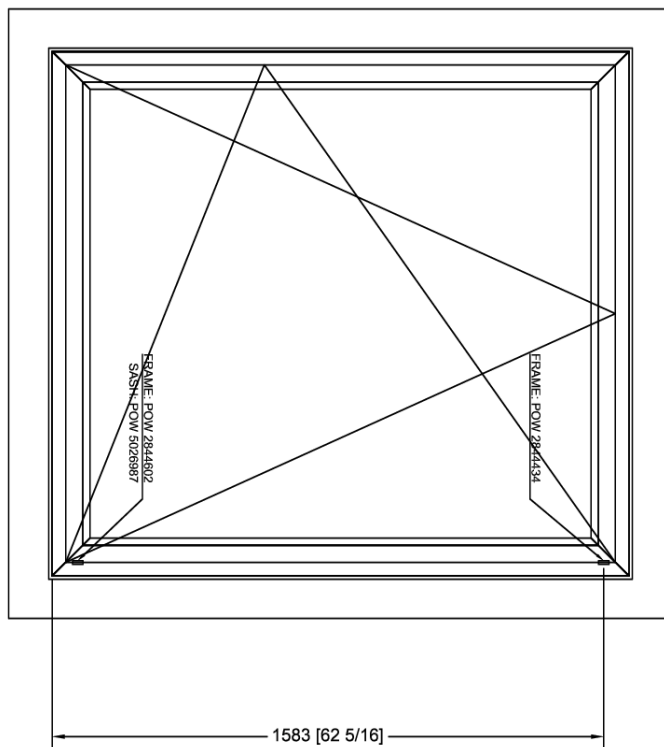
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HINGES



PRODOTTORE	PRODOTTORE	PRODOTTORE
Bernardini Kopel	Jacobus Rucka	Jacobus Rucka
PRODOTTORE	PRODOTTORE	PRODOTTORE
1:1	1	05.04.2022

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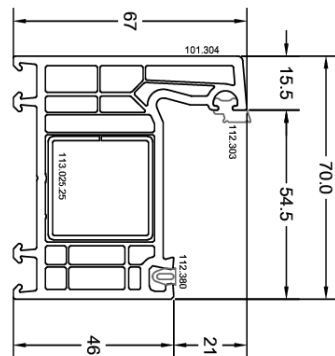
	Report #: BW-OKN-22-002-Report-revA
	Date: 09/29/2022
	Verified by: <u>Andrea Tarcato</u>

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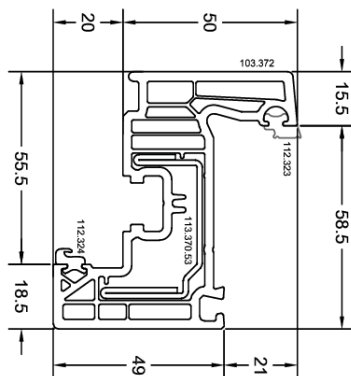
REINFORCEMENT

BILL OF STEEL

ELEMENT	HORIZONTAL	CROSS-SECTION (4:1)	VERTICAL	CROSS-SECTION (4:1)
SASH	PWV-113-370-52 1,5 mm		PWV-113-370-53 1,5 mm	
FRAME	PWV-113-025-25 1,25 mm		PWV-113-025-25 1,25 mm	



PPV-101-304
Steel PWV-113-025-25



PPV-103-372
Steel PWV-113-370-53

PROJECT NAME	PROJECT LOCATION	PROJECT DATE
PPV-101-304	PPV-101-304	05.04.2022
PPV-103-372	PPV-103-372	05.04.2022
PPV-113-025-25	PPV-113-025-25	05.04.2022
PPV-113-370-53	PPV-113-370-53	05.04.2022

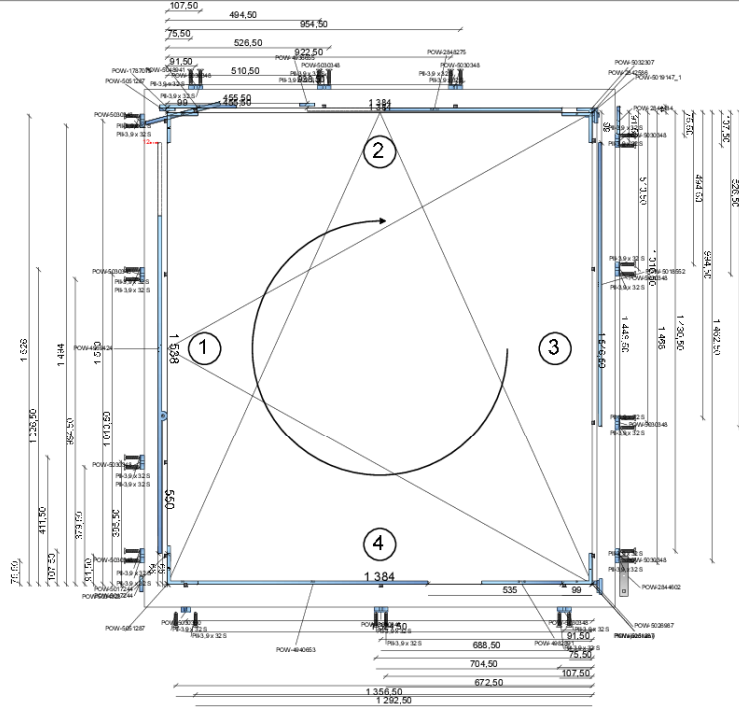
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Supplier:WINKHAUS_2019_05_RC2 HardwareSet:W_B_RC2_RUP_7,5 Page:1



Segment	Reference	X-Distance	Length
1	POW-5017244	0.00	0.00
1	POW-5017244	0.00	0.00
1	PII-3,9 x 32 S	75.50	0.00
1	POW-5030348	91.50	0.00
1	POW-4969424	99.00	1340.00
1	POW-5034328	99.00	0.00
1	PII-3,9 x 32 S	107.50	0.00
1	PII-3,9 x 32 S	379.50	0.00
1	POW-5030348	395.50	0.00
1	PII-3,9 x 32 S	411.50	0.00
1	PII-3,9 x 32 S	994.50	0.00
1	POW-5030348	1010.50	0.00
1	PII-3,9 x 32 S	1026.50	0.00
1	PII-3,9 x 32 S	1494.00	0.00
1	POW-5030348	1510.00	0.00
1	PII-3,9 x 32 S	1526.00	0.00
2	POW-1787079	0.00	0.00
2	POW-5051287	0.00	99.00
2	PII-3,9 x 32 S	75.50	0.00
2	POW-5030348	91.50	0.00
2	POW-5048941	99.00	250.00
2	PII-3,9 x 32 S	107.50	0.00
2	POW-2848275	455.50	829.50
2	POW-4936655	455.50	0.00
2	PII-3,9 x 32 S	494.50	0.00
2	POW-5017244	526.50	0.00
2	POW-5017244	526.50	0.00
2	POW-5017244	526.50	0.00
2	POW-5017244	526.50	0.00

	5-16 BW-OKN-22-002-Report-revA
	09/29/2022
	922.50
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APPENDIX B

Datasheets

rendered to:

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SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032

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ALUPRO ALUMINIUM PROFILES s.r.l.	TECHNICAL FICHE PROFILE H 65	Rev 02 of 30/01/06 Page 1 of 2
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The technical fiche of standard profile height 6,5 mm describes synthetically the main technical characteristics of the product deducible from the drawings and the technical specifications of the suppliers.

Specifications of raw materials (UNI EN 485-2)

ALLOY	STATE	THICKNESS	Rm	Rp	A5%	A50 %
3003	H28	0,28 - 0,25 - 0,32 - 0,45	≥ 190	≥ 160	≥ 2	≥ 2
3005	H18	0,25 - 0,28	210 + 250	≥ 190	≥ 3	--
3005	H26 *	0,32 - 0,35 - 0,39	195 + 240	≥ 155	≥ 9	--
3005	H24 *	0,35	170 + 225	≥ 130	≥ 12	≥ 6
3105	H18	0,32 - 0,35	≥ 195	≥ 180	≥ 1	--
3105	H28	0,28 - 0,32 - 0,45	≥ 215	≥ 190	≥ 1	--
3105	H29	0,32 - 0,35 - 0,39	≥ 210	≥ 190	≥ 5	--

Tolerance on the thickness 0,01 mm

* Material used in the production of bendable profile.

Legend:
Rm = unit breaking load in traction
Rp = yield load
A = elongation per cent

Composition of raw material (UNI EN 573-3)

ALLOY 3003										
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	other cad.	other tot.	Al
0,6	0,70	0,05 + 0,20	1,0 + 1,5	--	--	0,10	--	0,05	0,15	rest

ALLOY 3005										
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	other cad.	other tot.	Al
0,60	0,70	0,30	1,0 + 1,5	0,20 + 0,60	0,10	0,25	0,10	0,05	0,15	rest

ALLOY 3105										
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	other cad.	other tot.	Al
0,60	0,70	0,30	0,30 - 0,80	0,20 + 0,80	0,20	0,40	0,10	0,05	0,15	rest

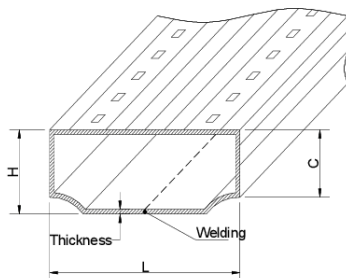
Specifications of the finished product

Tolerance on the wideness	± 0,1 mm
Tolerance on the height	± 0,1 mm
Tolerance on the length	- 5 mm / + 10 mm
Check on the welding	Test with penetrating liquid (0 points/m) Check ultrasounds in line (Eddy Sensor)
Fogging test and volatile content	According to part "C" and "G" of the rules UNI (absent)
Residual greases	Test for the difference of weight after the degreasing (< 5 mg/m)
Permeability of holes	Test with flow meter (171 ± 26 l/m)
Painting (if made)	Paintings 100% polyester (thickness > 12 µm)
Oxidation (if made)	According to the type of colour thickness between 1- 5 µm

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	Date: 09/29/2022
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ALU-PRO ALUMINIUM PROFILES s.r.l.	TECHNICAL FICHE PROFILE H 65	Rev 02 of 30/01/06 Page 2 of 2
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Dimensions and tolerances

Profile	L ± 0,1 mm	H ± 0,1 mm	C ± 0,2 mm	Thickness ± 0,01 mm (Standard)	Thickness ± 0,01 mm (Thicker)	Thickness ± 0,01 mm (Bendable)
A040	4,00	6,50	4,50	0,28	-	-
A055	5,50	6,50	4,60	0,28	0,32	0,35
A065	6,50	6,50	5,10	0,28	-	0,35
A075	7,50	6,50	5,10	0,28	0,32	0,35
A085	8,50	6,50	5,10	0,28	0,32	0,35
A095	9,50	6,50	5,10	0,28	0,32	0,35
A105	10,50	6,50	5,10	0,28	-	0,35
A115	11,50	6,50	5,10	0,28	0,32	0,35
A125	12,50	6,50	5,10	0,32	-	0,35
A135	13,50	6,50	5,10	0,32	-	0,35
A145	14,50	6,50	5,10	0,32	-	0,35
A155	15,50	6,50	5,10	0,32	-	0,35
A165	16,50	6,50	5,10	0,32	-	0,35
A175	17,50	6,50	5,10	0,32	-	0,35
A195	19,50	6,50	5,10	0,32	-	0,39
A215	21,50	6,50	5,10	0,39	-	0,39
A235	23,50	6,50	5,10	0,39	-	0,39
A265	26,50	6,50	4,50	0,45	-	-

For painted spacers, outside dimensions are oversized of a level variable between 12 and 20 µ
For anodized spacers, outside dimensions are oversized of a level variable between 3 and 5 µ

ALU-PRO srl
Quality dept

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	Date: 09/29/2022
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www.saflex.com

PRODUCT TECHNICAL DATA

Saflex® Storm (VSO2) Composite PVB Interlayer

Saflex® Storm, also known as Saflex VSO2 is the name given to a composite interlayer by Eastman Chemical Company that is manufactured to meet the high-performance glazing requirements for applications needing significant impact, along with rigidity, tear resistance and the ability to retain glass shards in a post breakage mode. Applications where this product is commonly used are safety glazing, hurricane and security (such as forced entry, air-blast and ballistic).

Further information about Eastman's offering of tough, resilient, protective interlayers can be obtained at www.saflex.com and www.vanceva.com. Saflex Storm is designed to enable the production of laminates with high PVB to glass high adhesion.

Product Overview:

Saflex® Storm products have been specifically formulated and developed to meet the exacting requirements for glass to glass laminates used in architectural glazing for hurricane regions and other high risk associated regions. These products have demonstrated that when using the minimum interlayer thickness of 1.91 mm (0.075 in), and being properly selected, laminated, and installed, they can meet or exceed many of the regulations and standards for laminated glazings including those set forth by the CPSC, ASTM, UL, and DIN standards. Saflex® Storm products were specifically formulated to provide exceptional durability and a long-life cycle. Typical applications for Saflex® Storm are:

- Large Missile Cyclone/Hurricane/Typhoon (4.5 kg (9 lb.) 2 x 4 timber at 15 m/sec (50 ft. /sec))
- Large Size Glazing (>4.65 sqm (50 sqft))
- High Wind Loads (>4.3 kPa (90 psf))
- Blast Loads (>69kPa (10 psi) @ 621 kPa*msec (90 psi*msec))

Saflex® Storm can also be utilized for small missile protection with no known size limitations or special glazing techniques required. Dade County Product Approval (Dade County Florida) has granted Saflex® Storm a component Notice of Acceptance (NOA) under its product approval protocol that mandates the identification of interlayer in a laminate. Solutia provides this number for the authorized use of qualified laminators and their fenestration manufacturing customers.

Saflex® Storm products have been shown to be compatible with most reflective and low emissivity metal coated glasses although the compatibility of each coating with the interlayer should be verified with the laminator.

Available Forms:

Saflex® Storm products are supplied in two thicknesses and roll lengths depending on the product form, and variety of roll widths. All Saflex® Storm product is supplied in roll form on 15.2 cm (6 inch) diameter cores.

The thicknesses of the interlayers are documented as nominal 1.91 mm (0.075 in) and 2.29 mm (0.090 in) within our product tracking systems to accommodate our nomenclature system. The actual target thickness for Saflex® Storm products are 1.96 mm (0.077 in) and 2.34 mm (0.092 in) respectively. The only difference in the nominal and target gauges are for product control and tracking purposes. It is very common to see the product referenced as an "075" product or an "090" product for this reason.

Applications Technical Documentation (ATD)
730 Worcester Street | Springfield, MA 01151
glazing@eastman.com | www.saflex.com | www.vanceva.com
product technical sheet - saflex storm_vso2_060820.docx
Page 1 of 10

EASTMAN
The results of insight

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	Date: 09/29/2022
	Verified by: Andrea Torcato

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www.saflex.com

Saflex® Storm interlayer		
Product Designation	VSO2	VSR8 #216500 or # 218000
Thickness	1.96 mm (0.077 inch)	2.34 mm (0.092 inch)
Color	Clear	Diffuse White

Saflex® Storm is available in clear or diffuse white. The diffuse white products are produced using high durability colorants that have been shown to undergo minimal change in hue after years of exposure to natural sunlight.

Hurricane applications require the use of only one layer of Saflex Storm to be laminated between two pieces of glass. Multiple layers of Saflex Storm, Saflex or Vanceva® interlayers can be constructed to achieve some of the highest targeted performance for blast resistant and other security applications as well.

Storage Conditions:

Saflex Storm interlayer should be stored inside the moisture barrier bag that the roll is shipped in. Saflex interlayers are supplied as refrigerated rolls that must be stored between 5°C and 10°C (41°F to 50°F) to prevent the material from sticking to itself (blocking) or as rolls interleaved with polyethylene (additional charge applies) that do not require refrigeration. Interleaving is not available for all products.

It is recommended that the interlayer be used within a two-year period from purchase to minimize this blocking tendency.

Laminating Conditions:

A Laminating Guide which details recommended practices for storage, handling, and lamination is available to Eastman's laminating partners. This technical guide is available only from your Saflex Technical Service (TS) Representative or Saflex Sales Manager.

Please contact your Saflex Sales Manager, Customer Service Representative or visit www.saflex.com for further information.

Select Saflex® Storm Properties:

Physical	Gauge Tolerance	Nominal	Property Details		
	VSO2	1.96 mm	Nominal gauge +3 mm / – 2.5 mm (+0.002 in/ - 0.001 in)		
	VSR8	2.34 mm	Nominal gauge +3 mm / – 2.5 mm (+0.002 in/ - 0.001 in)		
	Description	Test Method	Units	Test Conditions	Result
	Specific Gravity	ASTM D 792		23°C	1.11
	Specific Heat (Cp)	ASTM D 1461	Joules/g-K	25°C	1.27

Applications Technical Documentation (ATD)
730 Worcester Street | Springfield, MA 01151
glazing@eastman.com | www.saflex.com | www.vanceva.com
product technical sheet - saflex_storm_vso2_060820.docx
Page 2 of 10

EASTMAN
The results of insight.

 BLACKWATER TESTING LAB	Report #: BW-OKN-22-002-Report-revA
	Date: 09/29/2022
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www.saflex.com

	Description	Test Method	Units	Test Conditions	Result
Mechanical	Compressive Strength	ASTM D 695	MPa	@ 10% strain	8.55
	Compressive Strength	ASTM D 695	MPa	@ 25% strain	17.5
	Poisson's Ratio	ASTM D 638			0.50
	Shear Storage Modulus*	See tables below			
	Tensile Strength	ASTM D 638	MPa	@ 10% strain	25.4
	Young's Modulus*	See tables below			

Optical	Refractive Index	ASTM D 542		21°C	1.65
----------------	------------------	------------	--	------	------

Thermal	Thermal Conductivity	ASTM D 1461	W/(m*K)		0.161
	Thermal Diffusivity	ASTM D 1461	cm/m		0.00104
	Emissivity	ASTM C 1371			0.085

	Description	Test Method	Glass Color	Test Conditions	Result	Description
Solar**	UV Screening	Spectral Analysis	Clear	280 – 380 nm		>99%
		Transmitted Solar (%)	Glass Color	Transmitted Visible (%)	Absorbed Solar (%)	SHGC
	VSO2	71	Clear	87	21	0.77
	VSR8 # 2165	49	Clear	57	46	0.63
	VSR8 # 2180	62	Clear	78	32	0.71

* Modulus supplied for PVB layer of composite only. Default 0.500 Poisson's ratio is used in the calculation of Young's modulus.

**Solar Properties based upon laminated samples with 3 mm (1/8 in) clear glass

Shear storage modulus and Young's modulus data versus load duration are provided in the tables below. It should be noted that only the Saflex PVB component of the composite is reported in the below data. The composite material is expected to exceed the below values, however accurate composite data cannot be obtained using the standard methods of plate to plate evaluation in torsion mode.

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Load Duration	Saflex® Storm (VSO2) shear relaxation modulus G(t) (MPa)											
	Temperature (°C)											
	10	15	20	25	30	35	40	45	50	55	60	
3 sec	217	134	63	21	5.7	1.8	0.80	0.52	0.42	0.39	0.36	
10 sec	184	96	36	9.62	2.6	1.0	0.58	0.43	0.39	0.36	0.32	
30 sec	148	68	21	5.1	1.5	0.68	0.47	0.40	0.37	0.33	0.26	
1 min	128	52	14	3.3	1.1	0.58	0.43	0.39	0.36	0.30	0.21	
5 min	79	23	5.0	1.4	0.63	0.44	0.39	0.36	0.30	0.20	0.12	
10 min	63	16	3.2	0.99	0.54	0.42	0.38	0.34	0.26	0.15	---	
30 min	39	7.4	1.7	0.67	0.45	0.39	0.36	0.29	0.18	---	---	
1 hour	26	4.9	1.2	0.58	0.42	0.38	0.34	0.24	0.14	---	---	
6 hours	9.1	1.7	0.64	0.43	0.39	0.34	0.24	0.14	---	---	---	
12 hours	5.6	1.2	0.55	0.41	0.37	0.31	0.19	---	---	---	---	
1 day	3.7	0.90	0.48	0.40	0.35	0.26	0.15	---	---	---	---	
5 days	1.5	0.57	0.41	0.37	0.29	0.17	---	---	---	---	---	
1 week	1.2	0.53	0.40	0.36	0.26	0.15	---	---	---	---	---	
3 weeks	0.80	0.44	0.39	0.32	0.20	---	---	---	---	---	---	
1 month	0.71	0.43	0.38	0.30	0.18	---	---	---	---	---	---	
1 year	0.43	0.38	0.29	0.04	---	---	---	---	---	---	---	
10 years	0.38	0.30	0.16	---	---	---	---	---	---	---	---	
15 years	0.37	0.28	0.14	---	---	---	---	---	---	---	---	
50 years	0.35	0.20	---	---	---	---	---	---	---	---	---	

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Load Duration	Saflex® Storm (VSO2) Young's relaxation modulus E(t) (MPa)										
	Temperature (°C)										
	10	15	20	25	30	35	40	45	50	55	60
3 sec	650	401	189	64	17	5.3	2.4	1.6	1.3	1.2	1.1
10 sec	553	288	108	29	7.9	3.0	1.7	1.3	1.2	1.1	1.0
30 sec	445	203	63	15	4.5	2.0	1.4	1.2	1.1	1.0	0.8
1 min	384	155	41	9.8	3.3	1.7	1.3	1.2	1.1	0.9	0.6
5 min	238	69	15	4.1	1.9	1.3	1.2	1.1	0.9	0.6	0.4
10 min	189	47	9.6	3.0	1.6	1.3	1.1	1.0	0.8	0.4	---
30 min	116	22	5.0	2.0	1.3	1.2	1.1	0.9	0.5	---	---
1 hour	79	15	3.7	1.7	1.3	1.1	1.0	0.7	0.4	---	---
6 hours	27	5.0	1.9	1.3	1.2	1.0	0.7	0.4	---	---	---
12 hours	17	3.7	1.6	1.2	1.1	0.9	0.6	---	---	---	---
1 day	11	2.7	1.4	1.2	1.1	0.8	0.5	---	---	---	---
5 days	4.4	1.7	1.2	1.1	0.9	0.5	---	---	---	---	---
1 week	3.7	1.6	1.2	1.1	0.8	0.5	---	---	---	---	---
3 weeks	2.4	1.3	1.2	1.0	0.6	---	---	---	---	---	---
1 month	2.1	1.3	1.1	0.9	0.5	---	---	---	---	---	---
1 year	1.3	1.1	0.9	0.1	---	---	---	---	---	---	---
10 years	1.1	0.9	0.5	---	---	---	---	---	---	---	---
15 years	1.1	0.8	0.4	---	---	---	---	---	---	---	---
50 years	1.0	0.6	---	---	---	---	---	---	---	---	---

Young's Modulus calculated using formula $E=2G(1+\nu)$ where ν = Poisson's ration of 0.500

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Saflex Storm has been physically tested and subsequently modeled at various temperatures for glass strength. The glass strength charts developed for 8 in 1000 probability of failure for Saflex Storm (VSO2) are provided below. Due to the increased nominal thickness of the interlayer (1.91 mm (0.075 in)) versus standard product (0.76 mm (0.030 in)), the glass thickness designations on the charts have been revised to reflect the actual nominal thickness. Laminated glass is constructed with standard nominal thicknesses from 2.5 through 12 mm glass in symmetrical configurations as is acceptable practice for designation in ASTM E1300; however significant additional strength can be gained with this product using the effective thickness calculation (or the charts below). The glass strength continues at the same level as standard Saflex PVB interlayers when the design load is acting on the laminate at temperatures above 35°C.

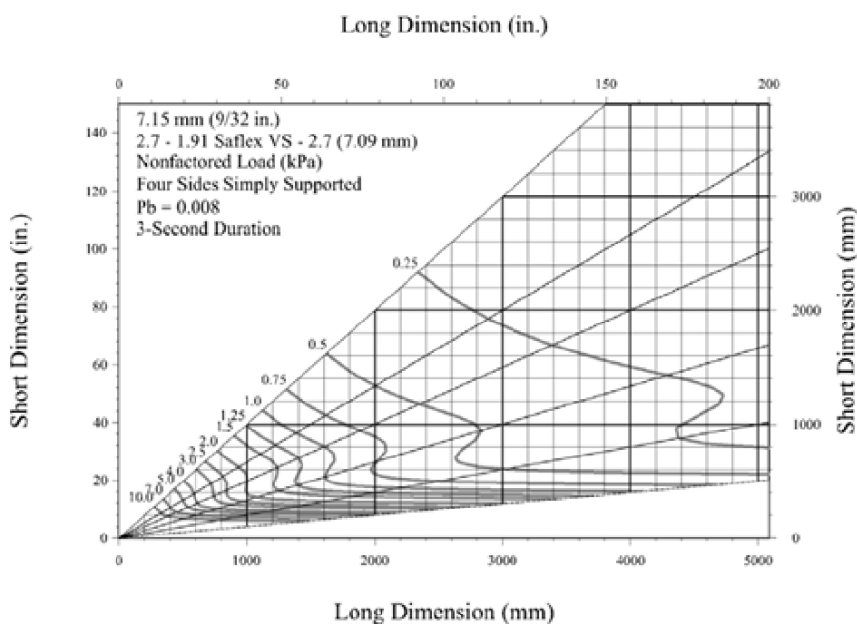


Figure 1: Glass strength chart Saflex Storm/VSO2 with 2.7 mm glass

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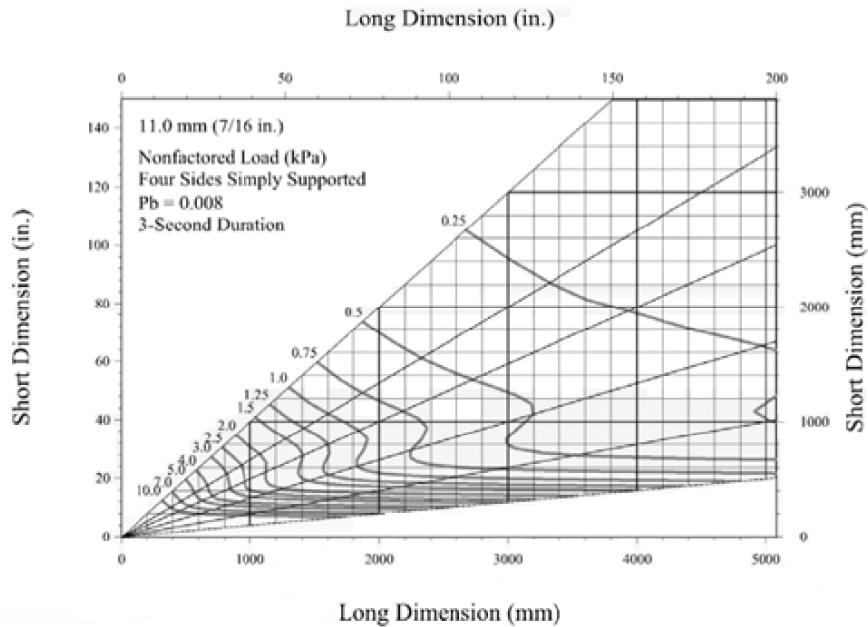


Figure 2: Glass strength chart Saflex® Storm/VSO2 with 5 mm glass

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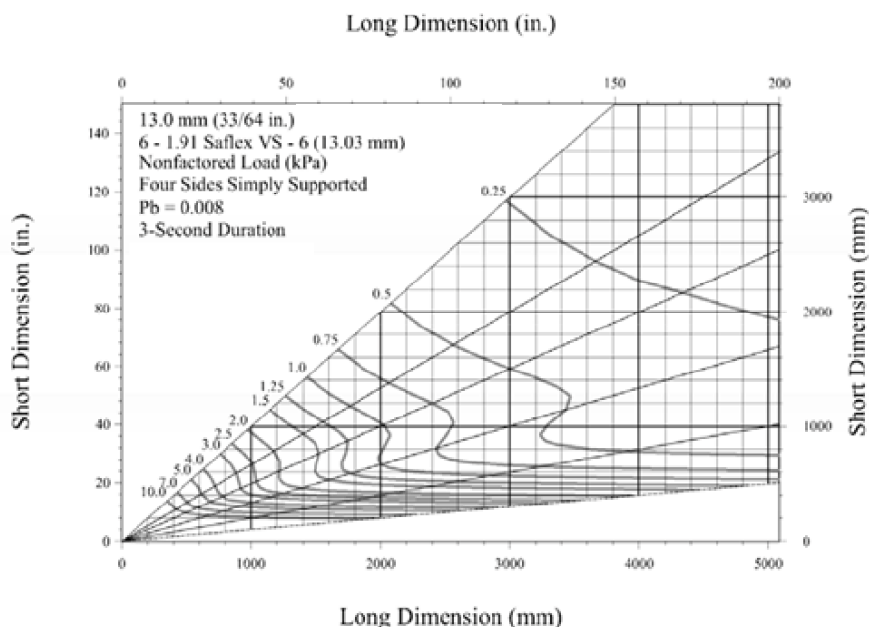


Figure 3: Glass strength chart Saflex® Storm/VS02 with 6 mm glass

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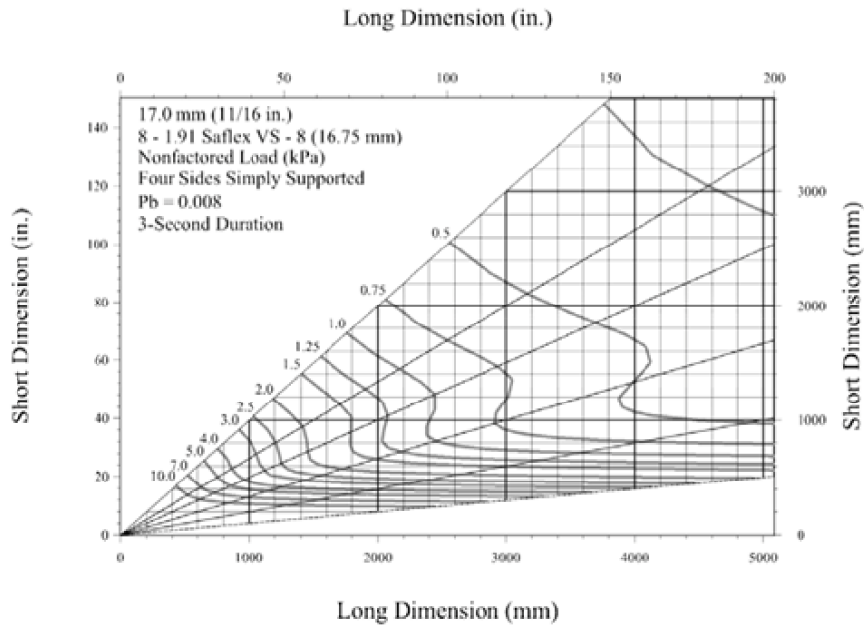


Figure 4: Glass strength chart Saflex® Storm/VS02 with 8 mm glass

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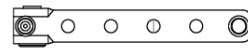
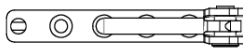
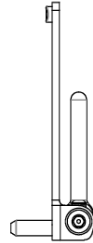
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WINKEL
HAUS
Eckkugel K6-3-36
1336010419022020
-technische Änderungen vorbehalten-

PW-2844602 Frame hinge bottom

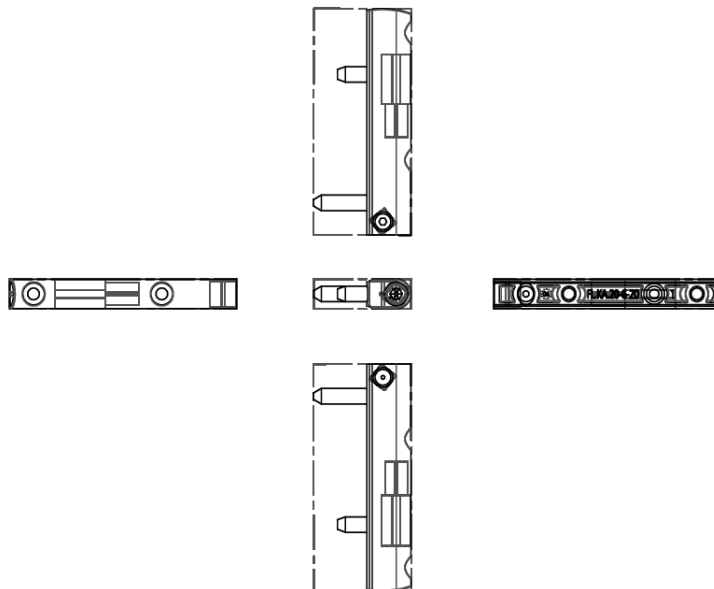


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P0W-5026987 Sash hinge



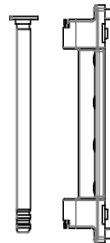
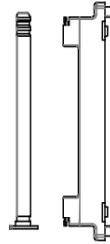
UNIK
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Fertigung/PLAN 20-4-1-20
ZUMMER-HERZOG
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WINK
HAUS
Schwenk-SLKS-6
13942102/032019
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PW-2844434 Frame hinge top

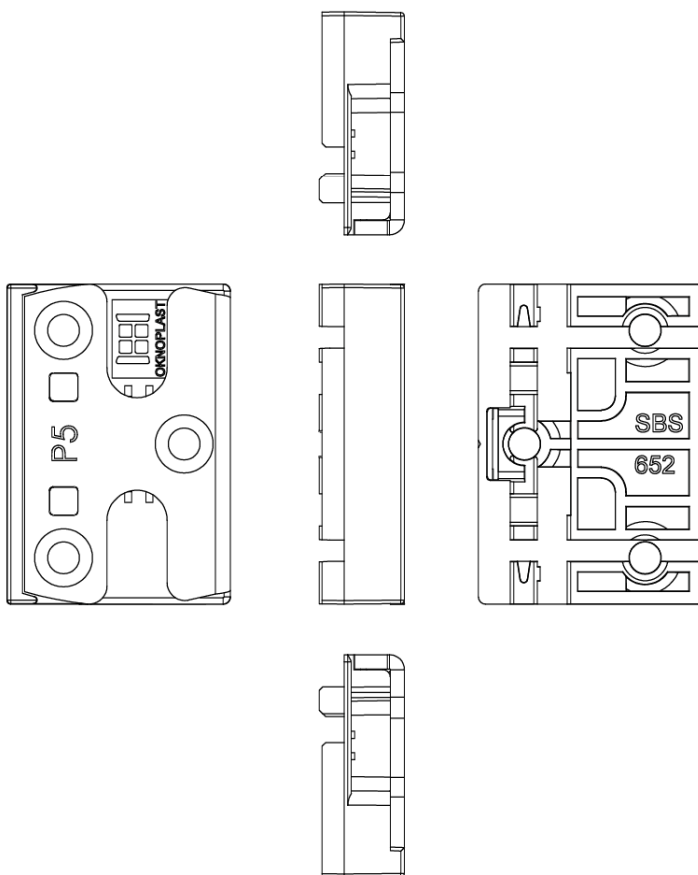


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WINK
HAUS
Schweiss- und Schweiß-
technik
Technische Änderungen vorbehalten

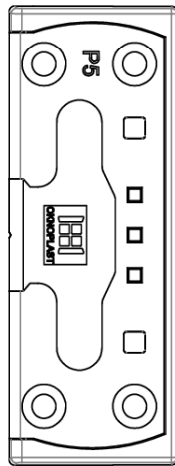
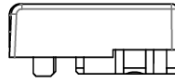
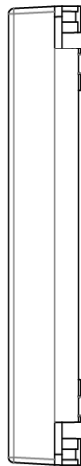


PW-54030348 Locking point

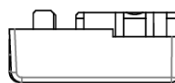
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WINKEL Kippblech, SKK.652.P5
Z0110001617017012020
HAUS - Technische Änderungen vorbehalten -



PW-5030360 Locking point



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Safety Data Sheet

SOULDAL Soudafoam Door & Window Genius Gun

Section 1. Identification

Product Identifier	SOULDAL Soudafoam Door & Window Genius Gun		
Synonyms	461800		
Manufacturer Stock Numbers	128990		
Recommended use	Refer to Technical Information		
Uses advised against	Refer to Technical Information		
Manufacturer Contact			
Address	Soudal 350 Ring RD Elizabethtown, KY, 42701 USA		
Phone	Emergency Phone	Fax	
(270) 769-3385	(800) 424-9300 CHEMTREC	(270) 765-2412	

Section 2. Hazards Identification

Classification	CARCINOGENICITY - Category 2 EYE DAMAGE/IRRITATION - Category 2A FLAMMABLE AEROSOLS - Category 1 GASES UNDER PRESSURE - Liquefied gas SENSITIZATION - RESPIRATORY - Category 1 SENSITIZATION - SKIN - Category 1 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (Single Exposure) - Category 3
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Signal Word
Pictogram

Danger



Hazard Statements

Causes serious eye irritation
Causes skin irritation
Contains gas under pressure; may explode if heated
Extremely flammable aerosol
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause damage to organs through prolonged or repeated exposure.
May cause respiratory irritation.
Suspected of causing cancer.

Precautionary Statements
Response

Call a poison center or doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
If experiencing respiratory symptoms: Call a poison center/doctor.
If exposed or concerned: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If on skin: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Specific treatment (see label)
Take off contaminated clothing and wash it before reuse.
Wash contaminated clothing before reuse.

Prevention

Avoid breathing dust/fume/gas/mist/ vapors/spray.
Contaminated work clothing must not be allowed out of the workplace.
Do not handle until all safety precautions have been read and understood.
Do not spray on an open flame or other ignition source.
Keep away from heat.
Obtain special instructions before use.
Pressurized container: Do not pierce or burn, even after use.
Use only outdoors or in a well-ventilated area.
Wash hands thoroughly after handling.
Wear eye protection/face protection.

Storage

Protect from sunlight. Do not expose to temperatures exceeding 50C/122F.
Protect from sunlight. Store in a well-ventilated place.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local, state and federal regulations.

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Ingredients of unknown toxicity 0%

Hazards not Otherwise Classified

Other Hazards Gas/vapor spreads at floor level: Ignition hazard.

Section 3. Ingredients

CAS	Ingredient Name	Weight %
75-28-5	Isobutane	5% - 10%
115-10-6	Dimethyl ether	5% - 10%
9016-87-9	Polymeric diphenylmethane diisocyanate	30% - 40%
63449-39-8	Chlorinated paraffin waxes and hydrocarbon waxes	20% - 30%
13674-84-5	2-Propanol, 1-chloro-, phosphate (3:1)	1% - 5%
74-98-6	Propane	1% - 5%

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-Aid Measures

Inhalation	Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
Skin	Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.
Ingestion	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
Eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician.
Most Important Symptoms/Effects	Acute Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. May cause respiratory irritation. May cause drowsiness or dizziness. Delayed Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure: thyroid gland, liver.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically and supportively.

Section 5. Fire Fighting Measures

Suitable Extinguishing Small fires: Quick-acting ABC-powder extinguisher, Quick-acting BC-powder

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Media	extinguisher.
Unsuitable Extinguishing Media	Small fires: Quick-acting CO2 extinguisher, Water (water can be used to control jet flame), foam. In case of major fire and large quantities: Water (water can be used to control jet flame), foam.
Special Hazards Arising from the Chemical	Extremely flammable aerosol. Contains gas under pressure; may explode if heated. Pressurized container: Do not pierce or burn, even after use. May polymerize with evolution of heat.
Hazardous Combustion Products	On burning: Irritating and toxic gases or fumes may be released during a fire: oxides of carbon, phosphorus, hydrogen chloride, nitrous vapors. On heating: May release toxic gases and combustible. gases: hydrogen cyanide.
Advice for firefighters	Eliminate all sources of ignition. Do not spray on an open flame or other ignition sources. If safe to do so, move undamaged containers from the fire area. Keep unnecessary people away, isolate hazard area and deny entry. Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Let the fire burn. Stay away from the ends of tanks. Prevent entry into sewers, drains, ditches, underground or confined spaces and waterways. Avoid inhalation of material or combustion by-products.
Special Protective Equipment and Precautions for Firefighters	Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures	Wear personal protective clothing and equipment, see Section 8.
Methods and Materials for Containment and Cleaning Up	Eliminate all ignition sources if safe to do so. Stop leak if safe to do so. Reduce vapors with water spray. Small spills: Absorb spill with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.
Environmental Precautions	Avoid release to the environment.

Section 7. Handling and Storage

Precautions for Safe Handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Do not spray on an open flame or other ignition sources. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating /lighting equipment. Take action to prevent static discharges. Do not breathe vapor or spray. Use non-sparking tools. Contaminated work clothing must not be allowed out of the workplace. Do not eat, drink, or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling.
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Conditions for Safe
Storage, Including any
Incompatibilities
Incompatible Materials

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

strong acids, strong bases, amines

Section 8. Exposure Controls/Personal Protection

Occupational Exposure
Limits

Ingredient Name	ACGIH TLV	OSHA PEL	STEL
Isobutane	1000 ppm	N/A	1000 ppm
Dimethyl ether	N/A	400 ppm	N/A
Polymeric diphenylmethane diisocyanate	0.005 ppm	0.02 mg/m ³	N/A
Chlorinated paraffin waxes and hydrocarbon waxes	N/A	N/A	N/A
2-Propanol, 1-chloro-, phosphate (3:1)	N/A	N/A	N/A
Propane	1000 ppm TWA	1000 ppm PEL	N/A

Personal Protective
Equipment

Goggles, Gloves

ACGIH - Threshold Limit
Values - Biological
Exposure Indices (BEI)
Engineering Controls

There are no biological limit values for any of this product's components.

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection
Measures, such as
Personal Protective
Equipment

Eye/face protection

Wear splash resistant safety goggles with a faceshield.

Skin Protection

Wear fire/flammable resistant/retardant clothing. Refer to NFPA 2112, Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire and NFPA 2113, Standard on the Selection, Use, Care and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Short-duration Thermal Exposures from Fire (2015).

Respiratory Protection

If airborne contaminant levels may exceed recommended exposure limits, NIOSH approved respiratory protection appropriate for employee exposure levels is recommended. Consult with a health and safety professional for specific respirators appropriate for your use.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Section 9. Physical and Chemical Properties

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Physical State	Aerosol
Color	Champagne
Odor	Characteristic
Odor Threshold	Not available
Solubility	Insoluble in water
Partition coefficient Water/n-octanol	Not available
VOC%	18% (by wt) 175 g/L
Viscosity	No data available
Specific Gravity	0.92 at 20C
Density lbs/Gal	N/A
Pounds per Cubic Foot	N/A
Flash Point	Not available
FP Method	N/A
pH	Not available
Melting Point	Not available
Boiling Point	Not available
Boiling Range	N/A
LEL	N/A
UEL	N/A
Evaporation Rate	Not available
Flammability	Extremely flammable aerosol
Decomposition Temperature	Not available
Auto-ignition Temperature	Not available
Vapor Pressure	Not available
Vapor Density	>1 (relative)

Note

The above information is not intended for use in preparing product specifications. Contact Soudal before writing specifications.

Section 10. Stability and Reactivity

Reactivity

Reacts violently with acids bases. May be ignited by heat, sparks or flames. Gas/vapor spreads at floor level: Ignition hazard.

Chemical Stability

Stable under normal conditions of storage and handling.

Possibility of Hazardous Reactions

May polymerize: strong bases, amines.

Conditions to Avoid

Keep away from heat, sparks and naked flames. Keep away from ignition sources - No smoking. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Avoid contact with incompatible materials.

Incompatible Materials

strong acids, strong bases, amines

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Hazardous decomposition products On heating. May release toxic gases, combustible gases, vapors: hydrogen cyanide. On burning: Irritating and toxic gases or fumes may be released during a fire: oxides of carbon, phosphorus, hydrogen chloride, nitrous vapors.

Section 11. Toxicological Information

Information on Likely Routes of Exposure

Inhalation

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.

Skin Contact

Causes skin irritation. May cause allergic skin reaction.

Eye Contact

Causes serious eye irritation. May cause redness, pain, and tearing.

Ingestion

No information on significant adverse effects.

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Polymethylene polyphenylene isocyanate (9016-87-9)

Oral LD50 Rat 49 g/kg

Dermal LD50 Rabbit >9.4 g/kg

Inhalation LC50 Rat 11 mg/L 4 h

Chlorinated paraffin waxes and hydrocarbon waxes (63449-39-8)

Oral LD50 Rat >21500 µL/kg

Glyceryl polypropylene glycol triether (25791-96-2)

Oral LD50 Rat 2830 µL/kg

Dermal LD50 Rabbit >20 mL/kg

Isobutane (75-28-5)

Inhalation LC50 Rat 658 mg/L 4 h

Dimethyl ether (115-10-6)

Inhalation LC50 Rat 164000 ppm 4 h

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

Oral LD50 Rat 1500 mg/kg

Dermal LD50 Rabbit >5000 mg/kg (no deaths occurred)

Inhalation LC50 Rat >5.05 mg/L 4 h

Propane (74-98-6)

Inhalation LC50 Rat >800000 ppm 15 min

Acute and Chronic Toxicity

Immediate Effects

Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause respiratory irritation. May cause drowsiness or dizziness.

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Delayed Effects

Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure: thyroid gland, liver.

Irritation/Corrosivity Data

eye irritation, skin irritation, respiratory tract irritation

Respiratory Sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Dermal Sensitization

May cause an allergic skin reaction

Germ Cell Mutagenicity

No information available for the product.

Tumorigenic Data

No information available for the product.

Reproductive Toxicity

No information available for the product.

Specific Target Organ Toxicity - Single Exposure

No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure

liver, thyroid gland

Aspiration hazard

Not expected to be an aspiration hazard.

Medical Conditions Aggravated by Exposure

No information available for the product.

Product Toxicity Data

Acute Toxicity Estimate

Dermal > 2000 mg/kg

Oral > 2000 mg/kg

Component

Carcinogenicity

Polymethylene polyphenylene isocyanate 9016-87-9

IARC: Supplement 7 [1987] ; Monograph 19 [1979] (Group 3 (not classifiable))

DFG: Category 4 (no significant contribution to human cancer)

Chlorinated paraffin waxes and hydrocarbon waxes 63449-39-8

IARC: Monograph 48 [1990] (Group 2B (possibly carcinogenic to humans))

DFG: Category 3B (could be carcinogenic for man)

OSHA: Present

Suspected of causing cancer.

Section 12. Ecological Information

Component Analysis -

Chlorinated paraffin waxes and hydrocarbon waxes (63449-39-8)

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Aquatic Toxicity

Fish:

LC50 96 h Lepomis macrochirus >300 mg/L [static]
LC50 96 h Oncorhynchus mykiss >0.0109 mg/L [flow-through]
LC50 96 h Oncorhynchus mykiss 94.5 - 271 mg/L [static]
LC50 96 h Lepomis macrochirus >0.1 mg/L [flow-through]
LC50 96 h Pimephales promelas >100 mg/L [static]

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

Fish:

LC50 96 h Brachydanio rerio 56.2 mg/L [static]
LC50 96 h Pimephales promelas 98 mg/L [static]
LC50 96 h Poecilia reticulata 30 mg/L [static]

Algae:

EC50 72 h Desmodesmus subspicatus 45 mg/L IUCLID
EC50 96 h Pseudokirchneriella subcapitata 4 mg/L IUCLID

Invertebrate:

EC50 48 h Daphnia magna 63 mg/L IUCLID

Persistence and
Degradability

Not readily biodegradable (according to OECD criteria).

Bioaccumulative Potential

No information available for the product.

Mobility in Soil

No information available for the product.

Bioconcentration

No information available for the product.

Other Toxicity

No additional information available for the product.

Section 13. Disposal

Disposal Methods

Dispose of contents/container in accordance with local/regional/national /international regulations.

Component Waste
Numbers

The U.S. EPA has not published waste numbers for this product's components.

Section 14. Transport Information

UN Number

1950

UN Proper Shipping Name

AEROSOLS

DOT Classification

Hazard Class 2.1

Packing Group

2.1

IATA Information

Shipping Name: AEROSOLS, FLAMMABLE
Hazard Class: 2.1
UN#: UN1950
Required Label(s): 2.1

ICAO Information

Shipping Name: AEROSOLS, FLAMMABLE
Hazard Class: 2.1
UN#: UN1950
Required Label(s): 2.1

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**International Bulk
Chemical Code**

This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.
Polymethylene polyphenylene isocyanate (9016-87-9)
IBC Code: Category Y
Glyceryl polypropylene glycol triether (25791-96-2)
IBC Code: Category Z

Section 15. Regulatory Information

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.
Polymethylene polyphenylene isocyanate (9016-87-9)
SARA 313: 1 % de minimis concentration

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Flammable; Gas Under Pressure; Carcinogenicity; Skin Corrosion/Irritation;
Respiratory/Skin Sensitization; Serious Eye Damage/Eye Irritation; Specific
Target Organ Toxicity

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Polymethylene polyphenylene isocyanate (9016-87-9)
NJ

Chlorinated paraffin waxes and hydrocarbon waxes (63449-39-8)
MA

Isobutane (75-28-5)
MA, NJ, PA

Dimethyl ether (115-10-6)
MA, MN, NJ, PA

Propane (74-98-6)
MA, MN, NJ, PA

**California Safe Drinking
Water and Toxic
Enforcement Act
(Proposition 65)**

Not listed under California Proposition 65.

Section 16. Other Information

Revision Date

10/17/2019

HMIS and NFPA Rating

HMIS
Health: 2*
Fire: 3
Reactivity: 0

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NFPA
Health: 2
Fire: 3
Reactivity: 0

Hazard Scale:
0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe
* = Chronic hazard

Disclaimer

The data contained herein is based upon information that Soudal believes to be reliable. Users of this product have the responsibility to determine that suitability of use and to adopt all necessary precautions to ensure the safety and protection of property and persons involved in said use. All statements or suggestions are made without warranty, expressed or implied, regarding the accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof.

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Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 07.05.2020

Version number 6

Revision: 24.04.2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
 - Trade name: **illbruck PR102**
 - **MSDS code:** B-I-PR102
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
 - No further relevant information available.
 - **Application of the substance / the mixture** Sealing
- **1.3 Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:**
tremco illbruck GmbH
Werner-Haepf-Straße 1, D - 92439 Bodenwöhr
T: +49 (0) 9434 2080, F: +49 (0) 9434 208230
msds@tremco-illbruck.com
 - **Further information obtainable from:**
Tremco CPG UK Ltd
tremco illbruck Ltd
Coupland Road, Hindley Green, Wigan, WN2 4HT
T: +44 (0) 1942251400, F: +44 (0) 1942251410
www.tremco-illbruck.co.uk, uk.info@tremco-illbruck.com
- **1.4 Emergency telephone number:**
During office hours tel.: +44 (0) 1942251400. At all other times it is recommended to call NHS 111 (England/Wales/Scotland), your local GP/pharmacist (NI), 01 809 2166 (ROI), or otherwise to contact a doctor.

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
 - **Classification according to Regulation (EC) No 1272/2008**
Not applicable.
The product is not classified, according to the CLP regulation.
- **2.2 Label elements**
 - **Labelling according to Regulation (EC) No 1272/2008** Void
 - **Hazard pictograms** Void
 - **Signal word** Void
 - **Hazard statements** Void
- **2.3 Other hazards**
 - **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.

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SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Article of substances listed below with non-hazardous additions.
- **Dangerous components:** Void
- **SVHC -**
- **Additional information:**
For the wording of the listed hazard phrases refer to section 16.
This product is an "article" as defined under the REACH Regulation (EC) 1907/2006 Title I, Chapter 2, Article 3.
Out of scope for safety data sheet requirements under the REACH Regulation (EC) 1907/2006 Title IV, Article 31.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:** Not applicable.
- **After skin contact:** Not applicable.
- **After eye contact:** Not applicable.
- **After swallowing:** Not applicable.
- **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Information for doctor:** No further relevant information available.
- **Hazards** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** No special measures required.
- **6.3 Methods and material for containment and cleaning up:** Pick up mechanically.

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· **6.4 Reference to other sections**

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** No special measures required.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:**
Use suitable respiratory protective device in case of insufficient ventilation.
For further guidance,
please refer to HSE HSG53 "Respiratory Protective Equipment at work - A Practical Guide".
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves** Not applicable.
- **Penetration time of glove material** Not applicable.
- **Eye protection:** Not required.

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· **Body protection:**



Protective work clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Solid
Colour:	According to product specification
Odour:	Characteristic
Odour threshold:	Not determined.

· pH-value: Not applicable.

· Melting point/freezing point: Undetermined.

· Initial boiling point and boiling range: Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gas): Not determined.

· Decomposition temperature: Not determined.

· Auto-ignition temperature: Product is not selfigniting.

· Explosive properties: Product does not present an explosion hazard.

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· Vapour pressure: Not applicable.

· Density: Not determined.

· Relative density: Not determined.

· Vapour density: Not applicable.

· Evaporation rate: Not applicable.

· Solubility in / Miscibility with water: Insoluble.

· Partition coefficient: n-octanol/water: Not determined.

· **Viscosity:**

Dynamic:	Not applicable.
Kinematic:	Not applicable.

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9.2 Other information

No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Stable
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** Heavily biodegradable
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not hazardous for water.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

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SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation** Disposal must be made according to official regulations.
- **European waste catalogue** 2008/98/EC (UK WM3) : n/a
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- | | |
|--|-----------------|
| · 14.1 UN-Number | |
| · ADR, ADN, IMDG, IATA | Void |
| · 14.2 UN proper shipping name | |
| · ADR | Void |
| | Void |
| · ADN, IMDG, IATA | Void |
| · 14.3 Transport hazard class(es) | |
| · ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · 14.4 Packing group | |
| · ADR, IMDG, IATA | Void |
| · 14.5 Environmental hazards: | |
| · Marine pollutant: | No |
| · 14.6 Special precautions for user | Not applicable. |
| · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |
| · UN "Model Regulation": | Void |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- "CLP" Regulation (EC) No 1272/2008 (OJ L 353, 31.12.2008, p.1).
- "REACH" Regulation (EC) No 1907/2006 (OJ L 396, 30.12.2006, p.1, with subsequent amendments).
- COMMISSION REGULATION (EU) 2015/830 of 28 May 2015.
- HSE EH40/2005 Workplace Exposure Limits (as amended)
- Guidance on the classification and assessment of waste | Technical Guidance WM3 (1st edition 2015)
- 2001/118/EC as regards the list of wastes
- 2008/98/EC on waste

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- **National regulations:**
- **Additional classification according to Decree on Hazardous Materials, Annex II:**
No further relevant information available.
- **Information about limitation of use:** No further relevant information available.
- **Other regulations, limitations and prohibitive regulations**
- **Substances of very high concern (SVHC) according to REACH, Article 57** Not applicable.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:**
Prepared and verified in accordance with "REACH" Regulation (EC) No 1907/2006, Annex II, Part A, 0.2.3.
- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative

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C/S/B			
CAW P22		n6	
Uniclass L6751:P7108			



Description

PR102 is a closed cell polyethylene (PE) circular foam suitable for providing a backer to sealant joints, avoiding three-sided adhesion. PR102 is rot-proof and chemically neutral.

Colour

White

Sizes / Packaging

Dimensions	Packaging
6 mm diameter	2,500 m/box
10 mm diameter	1,150 m/box
13 mm diameter	750 m/box
15 mm diameter	550 m/box
20 mm diameter	350 m/box
25 mm diameter	200 m/box
30 mm diameter	160 m/box
40 mm diameter x 2 m lengths	270 m/box
50 mm diameter x 2 m lengths	180 m/box



Technical Information

Characteristic	Classification
Material Type	Closed cell PE foam
Specific Gravity	25
Thermal Conductivity	0.04 W/m.K
Water Vapour Transmission	< 4 g/m ² /24 h/50 mm
Water Absorption	< 1% volume after 24 h
Service Temperature	-70°C to +90°C
Storage	Store in original containers. Do not compress. Store between +1°C and +20°C
Shelf Life	Unlimited when stored as recommended in original, unopened containers

Surface Preparation

- Ensure the joint surfaces are clean, free from grease, stable and dry. Use a brush to remove loose particles.

Application

- Select a diameter greater than the joint width to ensure the backer rod is compressed and held firmly when installed (typically 25% compression is acceptable).
- Push into the joint to a depth appropriate to the required depth of sealant. Ensure the depth is consistent along the joint length.
- Take care not to puncture the material as gas may be emitted from the cell structure which can react with the applied sealant. If this does happen, wait minimum of 30 minutes before applying sealant.

PR102

PE Joint Backer Rod

Usage / Purpose

PR102 is used as a foam backing rod behind the sealant joint, for exterior and interior use. When positioned correctly it ensures correct joint dimensions. PR102 avoids 3-sided adhesion, allowing the joint to move more efficiently.

Key Benefits

- Ensures correct sealant geometry
- Prevents excess material usage
- Avoids three-sided adhesion

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PR102

PE Joint Backer Rod



Please Note

For joints with significant width variation along the length, TP300 Joint Backer Plus is recommended. This impregnated tape is capable of accommodating joint width tolerance, and also provides weather resistance and thermal insulation.

Health & Safety Precautions

Safety data sheet must be read and understood before use.

Technical Service

tremco illbruck has a team of experienced Technical Sales Representatives who provide assistance in the selection and specification of products. For more detailed information, service and advice, please call Customer Services on 01942 251400.

Guarantee / Warranty

tremco illbruck products are manufactured to rigid standards of quality and have been applied (a) in ac

illbruck written instructions and (b) in any application recommended by Tremco illbruck, but which is proved to be defective, will be replaced free of charge. No liability can be accepted for the information provided in this leaflet although it is published in good faith and believed to be correct. tremco illbruck Limited reserves the right to



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www.tremco-illbruck.co.uk

PR102 | 2016-08 v1

are manufactured to		alter product specifications without prior notice,	
Any product which		in line with Company policy of continuous	
and in line with		and in line with	
BLACKWATER		Date: 09/29/2022	
TESTING LAB		Verified by: Andrea Toffato	

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Technical Data Sheet

DOWSIL™ 795 Silicone Building Sealant

Neutral, one part silicone sealant

Features & Benefits

- Suitable for most new construction and remedial sealing applications
- Versatile – high performance structural glazing and weather sealing from a single product
- Available in 15 standard colors; custom colors also available
- Excellent weatherability virtually unaffected by sunlight, rain, snow, ozone and temperature extremes of -40°F (-40°C) to 300°F (149°C)
- Excellent unprimed adhesion to a wide variety of construction materials and building components, including anodized, alodined, most coated and many Kynar painted aluminums
- Ease of application – ready to use as supplied
- Ease of use – all temperature gunnability, easy tooling and low-odor cure byproduct
- Meets global standards (Americas, Asia and Europe)

Composition

- One-part, neutral cure, RTV silicone sealant

Applications

- Structural and nonstructural glazing
- Structural attachment of many panel systems
- Panel stiffener applications
- Weather sealing of most common construction materials including glass, aluminum, steel, painted metal, EIFS, granite and other stone, concrete, brick and plastics

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
As Supplied			
ASTM C 679	Tack Free Time, 50%RH	hours	3
	Curing Time at 25°C (77°F) and 50%RH	days	7–14
	Full Adhesion	days	14–21
ASTM C 639	Flow, Sag or Slump	inches (mm)	0.1 (2.54)
	Working Time	minutes	20–30
	VOC Content ²	g/L	30

1. ASTM: American Society for Testing and Materials.
2. Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds.

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Form No. 61-885-01-0421 S2D

	Report #: BW-OKN-22-002-Report-revA
	Date: 09/29/2022
	Verified by: <i>Andrea Torcato</i>

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Typical Properties (Cont.)

Test	Property	Unit	Result
As Cured After 21 Days at 25°C (77°F) and 50% RH			
ASTM D 2240	Durometer Hardness, Shore A	points	35
ASTM C 794	Peel Strength	lb/in (kg/cm)	32 (5.7)
ASTM C 1135	Tension Adhesion Strength		
	At 25% Extension	psi (MPa)	45 (0.310)
	At 50% Extension	psi (MPa)	60 (0.414)
ASTM C 719	Joint Movement Capability	percent	±50
ASTM C 1248	Staining (Granite, Marble, Limestone, Brick and Concrete)		None
As Cured After 21 Days at 25°C (77°F) and 50% RH Followed by 10,000 Hours in a QUV Weatherometer, ASTM G 53			
ASTM C 1135	Tension Adhesion Strength		
	At 25% Extension	psi (MPa)	35 (0.241)
	At 50% Extension	psi (MPa)	50 (0.345)

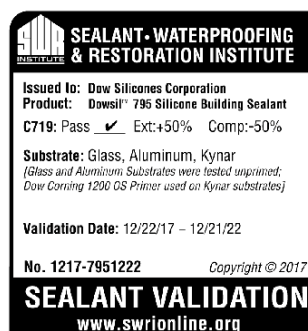
Description

DOWSIL™ 795 Silicone Building Sealant is a one-part, neutral-cure, architectural-grade sealant that easily extrudes in any weather and cures quickly at room temperature. This cold-applied, non-sagging silicone material cures to a medium modulus silicone rubber upon exposure to atmospheric moisture. The cured sealant is durable and flexible enough to accommodate ± 50 percent movement of original joint dimension when installed in a properly designed weather seal joint. In a properly designed structurally glazed joint, the sealant is strong enough to support glass and other panel materials under high wind load.

Approvals/ Specifications

DOWSIL™ 795 Silicone Building Sealant meets the requirements of:

- Federal Specification TT-S 001 543A (COM-NBS) Class A for silicone building sealants
- Federal Specification TT-S-00230C (COM-NBS) Class A for one-part building sealants
- ASTM Specification C 920 Type S, Grade NS, Class 50, Use NT, G, A and O
- ASTM Specification C 1184 for structural silicone sealants
- Canadian Specification CAN2-19.13- M82



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Colors

DOWSIL™ 795 Silicone Building Sealant is available in 15 colors: white, limestone, champagne, natural stone, gray, black, bronze, sandstone, adobe tan, dusty rose, rustic brick, blue spruce, anodized aluminum, charcoal, and ivy green. Custom colors may be ordered to match virtually any substrate.

How to Use

Please consult the *Dow Americas Technical Manual*, Form No. 62-1112, for detailed information on state-of-the-art application methods and joint design.

Preparation

Clean all joints, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

Application Method

Install backing material or joint filler, setting blocks, spacer shims and tapes. Mask areas adjacent to joints to ensure neat sealant lines. Primer is generally not required on non-porous surfaces, but may be necessary for optimal sealing of certain porous surfaces. A test placement is always recommended. Apply DOWSIL™ 795 Silicone Building Sealant in a continuous operation using positive pressure. (The sealant can be applied using many types of air-operated guns and most types of bulk dispensing equipment.) Before a skin forms (typically within 15 minutes), tool the sealant with light pressure to spread the sealant against the backing material and joint surfaces. Remove masking tape as soon as the bead is tooled.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

When stored at or below 27°C (80°F), DOWSIL™ 795 Silicone Building Sealant has a shelf life of 12 months from the date of manufacture. Refer to product packaging for "Use By Date."

Packaging Information

DOWSIL™ 795 Silicone Building Sealant is supplied in 10.3 fl oz. (305 mL) disposable plastic cartridges that fit ordinary caulking guns, 20 fl oz. (590 mL) sausages and 2 and 4.5 gal (7.5 and 17 L) bulk containers.

Limitations

DOWSIL™ 795 Silicone Building Sealant should not be used:

- In structural applications without prior review and approval by your local sales application engineer
- In below grade applications
- When surface temperatures exceed 50°C (122°F) during installation
- On surfaces that are continuously immersed in water
- On building materials that bleed oils, plasticizers or solvents that may affect adhesion
- On frost laden or wet surfaces
- In totally confined joints (the sealant requires atmospheric moisture for cure)
- If the sealant is intended to be painted (paints do not typically adhere to most silicone sealants)
- To surfaces in direct contact with food or other food-grade applications

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Limitations (Cont.)	This product is neither tested nor represented as suitable for medical or pharmaceutical uses.
Health and Environmental Information	To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area. For further information, please see our website, dow.com or consult your local Dow representative.
Disposal Considerations	Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner. It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.
Product Stewardship	Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.
Customer Notice	Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

dow.com

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	Date: 09/29/2022
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APPENDIX C

Bill of material

rendered to:

OKNOPLAST Sp. z o.o.

SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032

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ID	Reference	Description	Material
2	PII-Podkładka 1-44	Glazing Pad 1/44	PE
3	PII-Podkładka 2-44	Glazing Pad 2/44	PE
4	PII-Podkładka 3-44	Glazing Pad 3/44	PE
5	PII-Podkładka 4-44	Glazing Pad 4/44	PE
6	PIV-112-022	Gasket Black	PVC
7	PIV-112-380/001	Filling gasket	TPE
8	POI-1004A/8/42L-9016	Window handle with key	Aluminum
9	POW-2844434	Frame hinge top	Zamak and steel
10	POW-2844602	Frame hinge bottom	Steel
11	POW-5026987	Sash hinge	Zamak
12	POW-5030348	Locking point standard	Steel
13	POW-5030360	Locking point tilt and turn	Steel
14	PPV-101-304-14/001	Frame 70x67mm	PVC
15	PPV-103-372-14/001	Sash 74x70mm	PVC
16	PPV-107-135	107-135 / Glazing bead	PVC
17	PWV-113-025-25	Reinforcement - 1,25mm	Steel
18	PWV-113-370-52	Reinforcement - 52	Steel
19	PWV-113-370-53	Reinforcement - 53	Steel

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APPENDIX D

Die drawings
rendered to:
OKNOPLAST Sp. z o.o.

SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

Report ID: BW-OKN-22-002

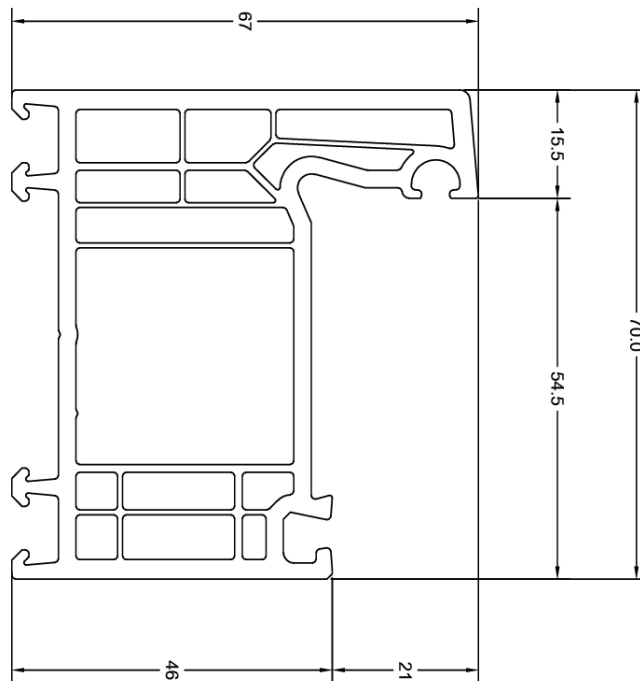
Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032

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PPV 101-304



PRODOTTORE Barnabè Kopé	PRODOTTORE Jatrodaw Rudka	PRODOTTORE Jatrodaw Rudka
PRODOTTORE 1:1	PRODOTTORE 1	PRODOTTORE 05.04.2022

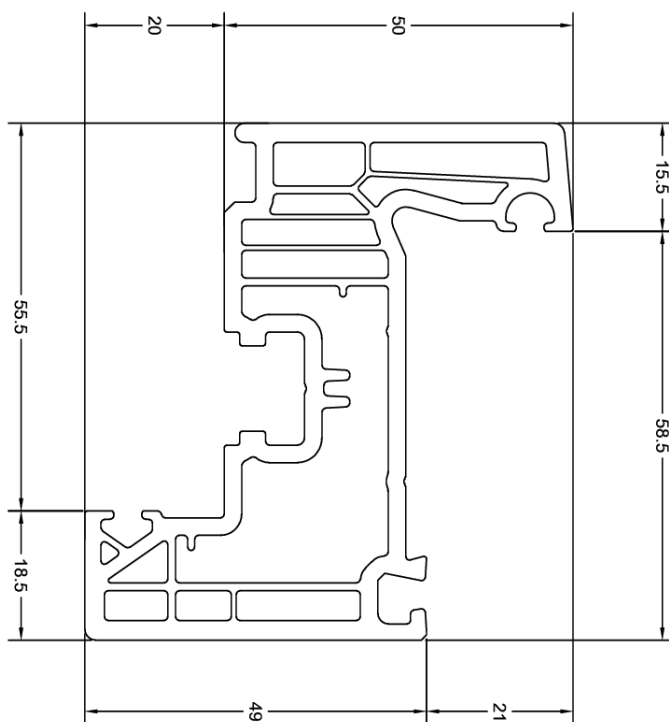
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	Date: 09/29/2022
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PPV 103-372



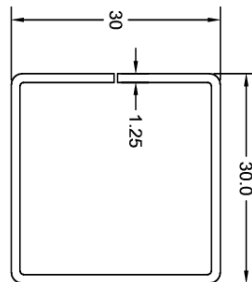
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	CONSTRUCTION	CROSS-SECTION POS. 2.090
	DESIGNER	PROF. ING. J. RUDOLPH
	DATE	09.04.2022
1:1	1	

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PWV 113 025 25



IDENTIFICATION	PRODOTTORE	PRODOTTORE	PRODOTTORE
	Bernardini Kopel	Jacobus Rucka	Jacobus Rucka
PRODOTTORE	1:1	1	05.04.2022

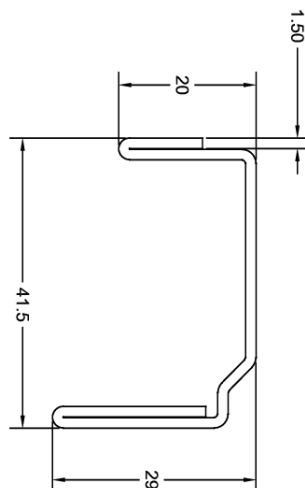
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PPV 113-370-53



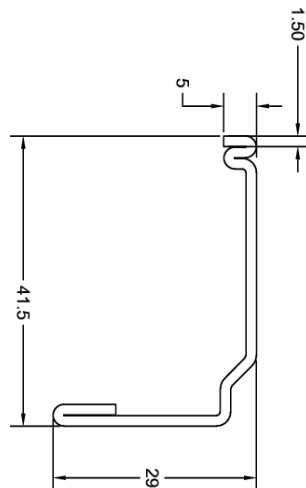
PRODOTTORE Barnabè Kopé	PRODOTTORE János Ruda	PRODOTTORE János Ruda
PRODOTTORE 1:1	PRODOTTORE 1	PRODOTTORE 09.04.2022

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PPV 113-370-52



	CROSS-SECTION POS. 2.090		
	DESIGNED BY	DESIGNED BY	DESIGNED BY
1:1	Bernardo Kopeč	Jaroslav Růžka	Jaroslav Růžka
	1	1	05.04.2022

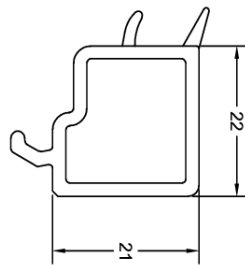
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PPV 107-135

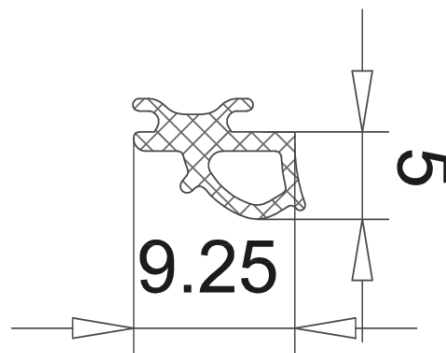


	TESTING LAB	PRODOTTORE	PRODOTTORE
	Bernardo Kopeč	Ing. Giulio Ruda	Ing. Giulio Ruda
	PRODOTTORE	PRODOTTORE	PRODOTTORE
	1:1	1	05.04.2022

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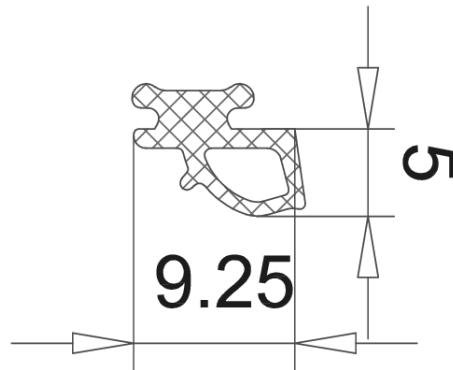


	TESTING LAB	TESTING LAB	TESTING LAB
	Bernardo Kopel	Jacopo Ruda	Jacopo Ruda
	PRODOTTORE	PRODOTTORE	PRODOTTORE
	1	05.04.2022	05.04.2022

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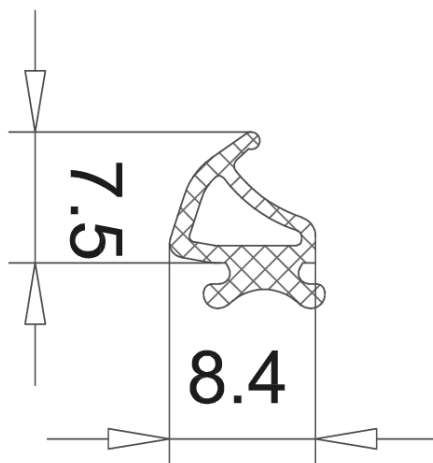


PRODOTTORE	PRODOTTORE	PRODOTTORE
Bernardini Kopel	Jacobus Rucka	Jacobus Rucka
PRODOTTORE	PRODOTTORE	PRODOTTORE
1	1	05.04.2022

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	Bernardin Kopel	Jacopo Ruda
	PRODOTTORE	PRODOTTORE
	1	05.04.2022

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APPENDIX E

Photo

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SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032

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SPECIMEN 3 [#22.028.006]

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END OF TEST REPORT

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SERIES/MODEL: Pixel tilt and turn

PRODUCT TYPE: Tilt and turn

.Report ID: BW-OKN-22-002

Test Date: 24/03/2022

Report Date: 29/09/2022

Record Detention End Date: 29/09/2032

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