



REPORT

No. 45-2/24

Client

SUNFLEX Aluminiumsysteme GmbH
Im Ruttenberge 12
D-57482 Wenden



Name of the
Test object

SF60/80

Test order / test basis

Testing according to DIN EN 1627-1630:2021-11

Date of the test

18 January 2024,
February 21, 2024

Place of exam

The test was carried out on the test bench of
SUNFLEX Aluminiumsysteme GmbH, Im
Ruttenberge 12, D-57482 Wenden by the
Testing Institute Schlösser und Beschläge
Velbert, Wallstr. 41, D-42551 Velbert.

Date of test report

March 13, 2024

Scope of the test report

1 page cover sheet
11 pages test report
46 pages appendix

Test result

RC 2, alternatively RC 2 N
For details of the test, see the following pages.

Signature


S. Wold, State-recognized Technician
Laborleitung




D. Zimmermann
tester

Additional conditions for this test report:

The test results refer only to the tested test object. The test report may not
be changed and may only be published as a whole.

Accredited testing center according to DIN EN ISO/IEC 17025 · RAL quality mark testing center for locks and fittings · recognized testing center DIN CERTCO

Management of PIV Testing Institute for Locks and Fittings Velbert: Andrea Horsthemke (B. Eng.)
Management of the Quality Association for Locks and Fittings eV: Dipl.-Ing. Stephan Schmidt

Our general terms and conditions apply
at: www.piv-velbert.de

FB_1_45_03_24

Test order data

Product name:

SF60/80

Design type:

1-leaf sliding window with fixed panel



Closing state:

closed, locked and barred

Material wings:

aluminum

System:

SF60

Profile:

600001, 450054

Frame material:

aluminum

System:

SF60

Profile:

600033; 600010; 600011; 600007; 600017;
600015; 600013

Material glass retaining
strips: Description:

aluminum
Glazing bead 12 mm

Profile:

450054

Tested wing size:

Width	1,989mm	Height	2,038mm
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Tested fixed field size:

Width	1,955mm	Height	2,038mm
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Other than the tested size:

For windows, +/- 25% of the area is permitted if Annex C of DIN EN 1627 is met. Distance of the locking from the corner + 5% / - 20% / distance from locking to locking + 5% / -30%. The number of locking points may only be reduced if the distances between the locking points are not greater than for the tested size.

Tested blade thickness:

60mm

Tested fixed field thickness:

85mm

Attack side:

Locking side / locking surface according to DIN 107 (is the opposite hinge side)

Resistance class:

RC2

Product of the group:

2

Sample quantity:

2

The samples were taken by the applicant. A sampling report is not available.

**Sample receipt:**

No samples received, the test was carried out at SUNFLEX Aluminiumsysteme GmbH in D-57482 Wenden.

Measuring instruments used:

Test benches used:

MM	98	MM	104	MM	113	MM	---
PS	Test location __ *						

* The test station/test bench of SUNFLEX Aluminiumsysteme GmbH was visually inspected in accordance with the standard requirements (DIN EN 1627) and the required stiffness was measured using the hydraulic piston and the MM 98 caliper.

The measuring instruments and test benches listed here have been tested for functionality and suitability and are in perfect condition.

The measurement uncertainties resulting from the measurement methods and the test equipment used were determined. Their evaluation can be made available on request.

Ambient conditions: Temperature: 15 °C - Humidity: 35 % - Air pressure: 955 hPa The ambient conditions correspond to the standard requirements.

Video documentation available: Yes

Photo documentation available: Yes

Annexes to the test report

Drawings: 9 pages

Assembly instructions: 36 pages

Parts list: 1 page

The drawings, parts lists and installation instructions are based on the client's documents. No checks for factual accuracy have been carried out.

Internal attachments to the audit report

Sample description: available

Information about the specimen**fitting**

Designation:

Company:

GAMMA 2300-3
SUNFLEX Aluminiumsysteme GmbH Im
Ruttenberge 12,
D-57482 Wenden

Lockable window handle

Designation:

Company:

Turning knob with sliding handle inside

SUNFLEX Aluminiumsysteme GmbH Im

Ruttenberge 12,

D-57482 Wenden

Number:

1 piece.

Profile cylinder

Designation:

Company:

janus profile half cylinder 4601, 45/10

BKS GmbH

Heidestrasse 71,

D-42549 Velbert

Table 1

EN 1627: 2021-11	DIN18252: 2006-12	DIN18252:2018-05		DIN18257:2015-06
		3rd place	4 Position	
RC 2 N	21, 31, 71 - BZ	4	C	0
RC2	21, 31, 71 - BZ	4	C	1
Alternatively				
EN 1627: 2021-11	DIN18252: 2006-12	DIN18252:2018-05		DIN18257:2015-06
		3rd place	4 Position	
RC 2 N	21, 31, 71 - BS	4	A	ES 1 - ZA
RC2	21, 31, 71 - BS	4	A	ES 1 - ZA

Construction joints according to manufacturer specifications

Castle side 3mm ± 1mm

Band page 3mm ± 1mm

upper transverse side 3mm ± 1mm

lower transverse side 3mm ± 1mm

Measured

Castle side 3.40mm

Band page not measurable

upper transverse side not measurable

lower transverse side not measurable

Installation dimensions of the security locking points	position	Horizontal	Vertical
Measured from the sash rebate edge to the center of the first safety locking point (locked state)	Above center Below	= --- = --- = ---	= 460mm = 1,290mm = 640mm

Glazing type

Resistance class	Resistance class of the glass according to EN 356
RC 2 N	No requirement
RC2	P4 A

The glass used must be specified in the installation instructions.

Specification of the type of glazing and its structure (installed during the test):

Designation: LSG / Eurolamex 44.4

P4A: Eurofloat 4mm – PVB 1.52 mm – Eurofloat 4 mm

Thickness: 9.17 mm, glued all around the frame

Manufacturer: Euroglas Polska Sp. zoo



Requirements and results for Group 1 and 2 products

Static load of group 1 and 2 products

	Gap gauge	Test stamp	Resistance class (RC)			
			1 / 1 N 2 / 2 N	3	4	5, 6
			Test load	Test load	Test load	Test load
Stress points	Type	Type	kN	kN	kN	kN
F1 Filling corners	B	1	3	6	10	15
F2 Wing corners	B	1 or 2	1.5	3	6	10
F3 Locking points	A	1 or 2	3	6	10	15
F3.a Products of Group 1 ^a and 2 ^b Locking points (additional loads)	A	---	1.5	---	---	---
^a Group 1 products exclusively in resistance class 1. ^b Group 2 products exclusively in resistance classes 1 and 2.						

Test execution for sliding elements / product group 2

Requirements

Filling corners (wings)

static load on the filling corners

F1 = 3 kN

Gap gauge B

Filling corners (fixed field)

static load on the filling corners F1 = 3 kN

Gap gauge B

Wing corners

static load on the wing corners

F2 = 1.5 kN

Gap gauge B

Locks

static load on locking points F3 = 3 kN

additional lifting load F3.a = 1.5

kN

Gap gauge A

PZ = mushroom cone

Results

position	Result
Bottom right	OK
Bottom left	OK
Top right	OK
Top left	OK

position	Result
Bottom right	OK
Bottom left	OK
Top right	OK
Top left	OK

position	Result
Bottom right	OK
Bottom left	OK
Top right	OK
Top left	OK

Locks	execution	Result
V1	PZ	OK
V2	PZ	OK
V3	PZ	OK

Description of the condition of the tested element after the static test

After the static load, the tested element shows no traces of deformation but destruction of the glass.

Photo of the specimen after static loading:



Drop height for dynamic testing

Resistance class	Mass of the impactor in kg	Fall height in mm
2 / 2 N	50	450

Impact body 50 kg / pendulum length 1000 mm

Requirements

every wing corner	1x
Wing center	3x
every filling corner	1x
Faceplate area top/bottom	1x

Results

Endured:	Yes
Endured:	Yes
Endured:	Yes
Endured:	Yes

Description of the condition of the tested element after the dynamic test:

The tested element shows no traces of deformation after the dynamic load but further signs of destruction on the glass.

Photo of the specimen after dynamic loading:



Manual break-in attempt class 2

Vulnerability testing

Item 1

Tool set A1 and A2

Class 2 = 3 minutes Total test time max. 15 minutes

Preliminary check for each attack area

Minimum test time 25% of the resistance time

Handle side

Time: 0:04 minutes – locking points overcome,
Wings opened.

Time: 0:04 minutes Total test time: 0:21 minutes



Assessment: NiO, a passable opening could be created.

Time: 0:47 minutes – top cover removed Time: 1:35 minutes – inner cover removed Time: 1:52 minutes – plastic wedge installed Time: 1:56 minutes – 2nd plastic wedge installed
Time: 3:10 minutes – no further incidents to document
Time: 3:10 minutes Total test time: 6:56 minutes



Assessment: OK, no passable opening could be created.

threshold

Time: 2:37 minutes – 2 plastic wedges set
Time: 3:13 minutes – no further incidents to document
Time: 3:13 minutes Total test time: 5:10 minutes



Assessment: OK, no passable opening could be created.

Faceplate area

Time: 0:39 minutes – Seal pulled
Time: 0:58 minutes – 2nd seal completely pulled
Time: 3:03 minutes – no further incidents to document
Time: 3:03 minutes Total test time: 6:10 minutes



Assessment: OK, no passable opening could be created.

Glass connection, wing

Time: 1:26 minutes – seal pulled

Time: 3:02 minutes – no further incidents to document

Time: 3:02 minutes Total test time: 4:47 minutes



Assessment: OK, no passable opening could be created.

Glass connection, fixed field

Time: 1:08 minutes – seal pulled

Time: 3:07 minutes – no further incidents to document

Time: 3:07 minutes Total test time: 5:34 minutes



Assessment: OK, no passable opening could be created.

Frame connection, fixed field

Time: 1:08 minutes – seal pulled Time: 3:04 minutes – plastic wedge set
Time: 3:06 minutes – no further incidents to document
Time: 3:06 minutes Total test time: 5:15 minutes



Assessment: OK, no passable opening could be created.

Main examination from 21.02.2024

Remark:

The element was reinforced by the customer with an additional locking point (609958) on the ceiling rail, which is triggered by the gear rail. The sliding door is locked on the opening side by a plastic block (609959) anchored in the ceiling rail.

At the customer's request, 2 attacks with different variations will take place on the handle side, which are considered the main attacks.

During the first attack, the sliding window is locked by the locking point of the ceiling rail, without any additional locking points.

During the second attack, the sliding window is locked with 3 stainless steel mushroom pin locks, without the locking point of the ceiling rail.

Resistance time of the main test 1.

Attack

Class 2 = 3 minutes Total test time max.15 minutes

Total test time = 7:50 minutes

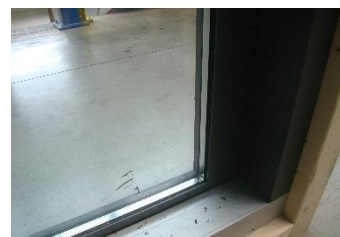
Selected attack area:

Handle side

Walk-through opening:

No

Time: 1:23 minutes – wooden wedge placed below
Time: 3:00 minutes – no further incidents to document
Time: 3:00 minutes Total test time: 7:50 minutes



Assessment: OK, no passable opening could be created.



Resistance time of the main test 2nd attack

Class 2 = 3 minutes Total test time max.15 minutes

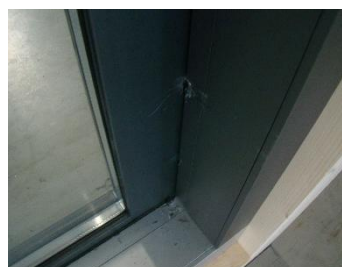
Total test time = 5:15 minutes

Selected attack area: Handle side

Walk-through opening: No

Time: 3:00 minutes – no further incidents to document

Time: 3:00 minutes Total test time: 5:15 minutes



Assessment: OK, no passable opening could be created.

<u>Component</u>	<u>Requirement Table 3</u>	<u>Test report/test certificate</u>
Lock cylinder according to DIN 18252, DIN EN 1303 or DIN EN 15684		OK, proof is available
Window handle after DIN 18267, DIN EN 13126-3 or RAL-GZ 607/9		OK

Table 3 of DIN EN 1627 Requirements for locks and fittings

Only applies if the evidence is not available in the form of test reports, test certificates or similar documentation at the time of the test.

Screw connections from the EH element compared with the drawing or the application:

Yes

Applying for PIV CERT:

No

The tested element can be marked as follows:

DIN EN 1627 RC2 / RC2 N

Overall assessment

The test object **Fulfills** the requirements of DIN EN 1627-1630:2021-11 in resistance class RC2 / RC2N.

Date of the exam: 18.01.2024 and 21.02.2024

Examiners: Daniel Zimmermann and Daniel Ruprecht-Kohn

Persons present at the examination on behalf of the applicant: Mr. Sebastian Simon, SUNFLEX Aluminiumsysteme GmbH Mr. Michael Schurig, SUNFLEX Aluminiumsysteme GmbH

D-42551 Velbert, 13 March 2024