



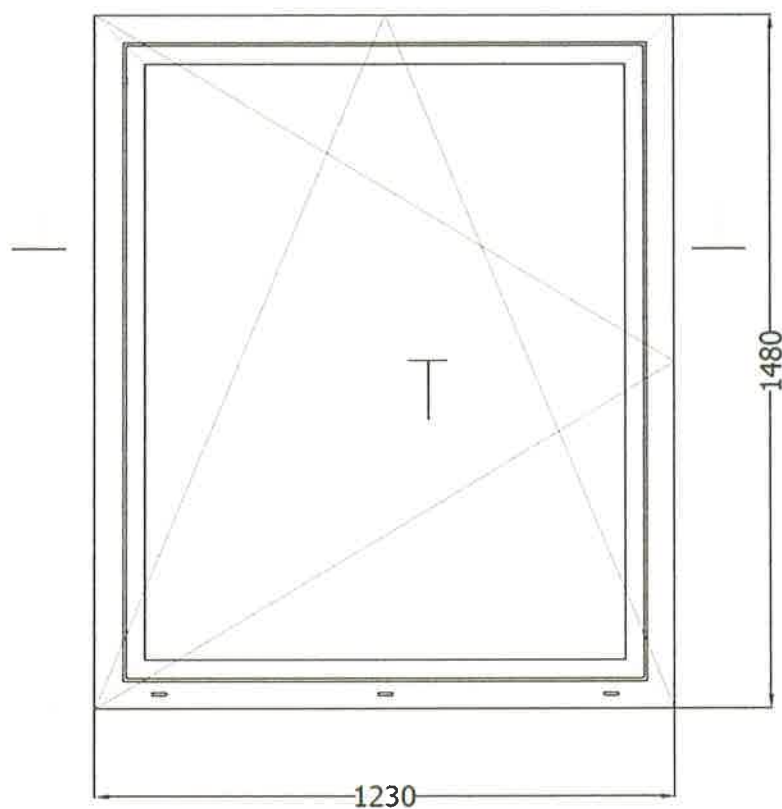
TEST PROTOCOL

№ 15-K / 12.02.2024

Designation of the product:	AL window - Orbis for windows
Producer:	„Profilink” LTD, Plovdiv 4023, 55 Nestor Abadjiev Str.
Client:	„Profilink” LTD, Plovdiv 4023, 55 Nestor Abadjiev Str
Assigning document:	Contract: № 13/15.09.2023
System of assessment for conformity:	System “3”
Standard:	BDS EN 14351-1:2006+A2:2016
Essential requirements:	
	3. Watertightness
	4. Resistant to wind load
	6.3. Air permeability
Test sample:	1 piece sample – request of 15.09.2023
Period for conducting the testing:	12.02.2024



Description of the product tested:



Overall dimension: 1230 mm x 1480 mm

Hardware: SIEGENIA

Frame: 200000

Locking: 5

Sash: 200001

Hinges: 2

Glass bead: 390003

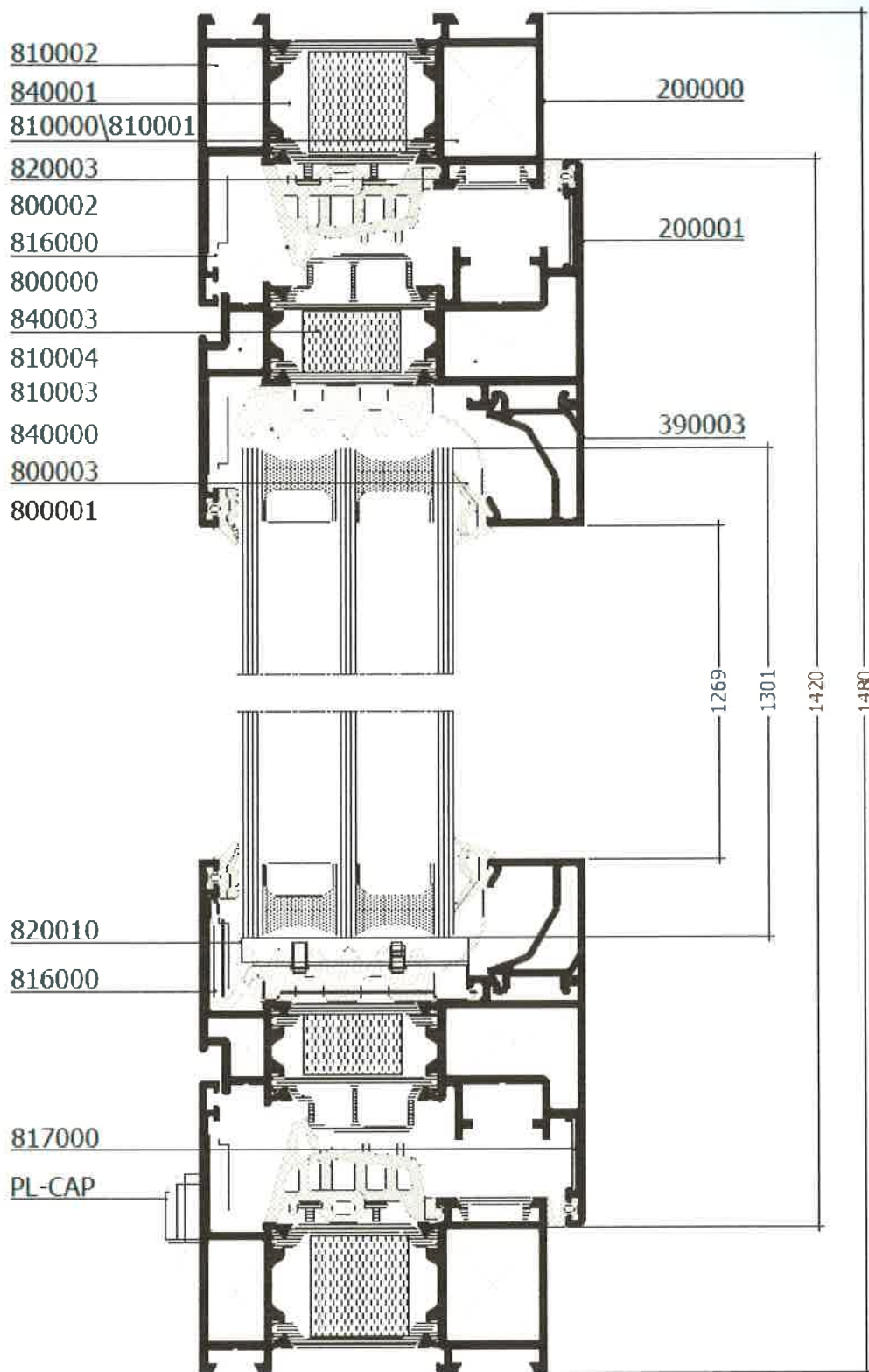
Drainage: 3

Opening type: Tilt & Turn

Type of glass: White/ White/ White

Sealing: EPDM

Glass thickness: 45 mm (5/16/4/16/4)





Results from testing

№ in order	Essential characteristics	Measure unit	Testing method	Performance	Harmonised technical specification
1	2	3	4	5	6
1.	Watertightness	-	BDS EN 1027	Class 9A	BDS EN 14351-1+A2
2.	Resistant to wind load	-	BDS EN 12211	Class 5C	BDS EN 14351-1+A2
3.	Air permeability	-	BDS EN 1026	Class 4	BDS EN 14351-1+A2



Technical devices used:

Indications of moving 1, 2, 3, 4, 5, 6 type 8712-50 - Certificate of calibration № 1457A-D-21/13.05.2021 г, № 1458A-D-21/13.05.2021 г., № 1459A-D-21/13.05.2021 г, № 1460A-D-21/13.05.2021 г, № 1461A-D-21/13.05.2021 г, № 1462A-D-21/13.05.2021 г "Metrologiya Holding";

Shtrih measure to the U-shaped manometer, Type: Pa / UI-γ 0,88, ID № 1695 calibration certificate №1453A-D-22 от 08.04.2022 , "Mertologia Holding";

Flowmeter type: "Aqua metro" sensor type water: JMD / IFMA 0035, № Id 4628833 - calibration certificate № 02-OP-02/14.02.2022 "Kalibra-Bulgaria" LTD;

Mini Air 60 - Macro - 40 m / s Anemometer pressure - Inspection report № 30499 / / 09.06.2022 - K.Schulten;

Mini Air 60 -Macro - 40 m / s Vacuum anemometer - Inspection report № 30500 / 09.06.2022 Serial № 16311/001 - K.Schulten;

Mini Air 60 - Mini; 40 m / s Anemometer pressure - Inspection report № 30498 / 09.06.2022 Serial № 67080 - K.Schulten;

Mini Air 60 - Mini; 40 m / s Vacuum anemometer - Inspection report: № 30497 / 09.06.2022 Serial № 67080 - K.Schulten Pressure sensor PU +/- 4000 Pa -Protocol verification № 22521 / 18.02.2014, the K.Schulten;

Meter speed air type: Testo 415 Idn № 02512879, certificate of calibration from : № 18047 от 31.03.2022 "Total-Test" LTD;

Vacuum sensor PU +/- 4000 Pa - Inspection report: № 30496 / 09.06.2022 Serial № 9002.1998.KF25545 +/- 4000Pa - K.Schulten;

Pressure sensor PU +/- 4000 Pa - Inspection report: № 30495 / 09.06.2022 Serial № 9002.1998.KF25545 +/- 4000Pa - K.Schulten;



TECHNICAL DOCUMENTATION USED: (list of technical specifications with requirements and methods for testing, rules and regulations etc. documents related with a performance evaluation.).

BDS EN 14351-1:2006+A2:2016– Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets.

BDS EN 1027:2016 – Windows and doors - Watertightness - Test method

BDS EN 1026:2016 - Windows and doors - Air permeability - Test method

BDS EN 12211:2016 - Windows and doors - Resistance to wind load - Test method

BDS EN 12210:2016 - Windows and doors - Resistance to wind load – Classification;

BDS EN 12208:2003 - Windows and doors - Watertightness – Classification;

BDS EN 12207:2017- Windows and doors - Air permeability – Classification

Applications:

3. Watertightness

BDS EN 1027 – Windows and doors - Watertightness - Test method

Watertightness: EN 12208 -

Spaying method A Number of nozzles: 3 Vol. Water: 360.0 litre/hour
Spaying angle: 24 Degree : 6.0 litre/minute
Add. spraying pipe Number of nozzles: 0 Vol. Water: 0.0 litre/hour
(1.0 litre/nozzle) : 0.0 litre/minute

1. Watertightness pressure

Pressure Pa		Time	Remark
Nominal	Real		
0	0	00:15:00	OK
50	51	00:05:00	OK
100	99	00:05:00	OK
150	150	00:05:00	OK
200	201	00:05:00	OK
250	251	00:05:00	OK
300	302	00:05:00	OK
450	450	00:05:00	OK
600	601	00:05:00	OK

Watertightness Class: A9

Point of water ingress :

Probable cause of leakage :



4. Resistant to wind load

BDS EN 12211 - Windows and doors - Resistance to wind load - Test method

Wind Resistance: EN 12210

Temperature: 20 Celsius Humidity: 45 % Air pressure: 1013.0 HPa

Wind Resistance: EN 12210		
P1 for deflection	2000	-2000
P2 for cycles	-1000	1000
P3 for safety test	-3000	3000

Deflection:

Distance between the way transducers

a01 <-> c03 = 1470 mm a04 <-> c06 = 1470 mm

A = 1/150 B = 1/200 C = 1/300

Wind Resistance P1 pressure

3 Pressure pulses 2200 Pa implemented

Pressure Desired	Pressure Actual	Distortion Absolute			Distortion Relative	Distortion class
2000	2013	a01= -1.42	b02= -2.18	c03= -1.83	f01= -0.56	C (1/ >999)
2000	2013	a04= -1.00	b05= -1.73	c06= -1.20	f02= -0.63	C (1/ >999)
0	0	a01= 0.02	b02= 0.05	c03= 0.05	f01= 0.02	
0	0	a04= 0.01	b05= 0.01	c06= 0.01	f02= 0.00	

Class: 5

Wind Resistance P1 suction

3 Pressure pulses -2200 Pa implemented

Pressure Desired	Pressure Actual	Distortion Absolute			Distortion Relative	Distortion class
-2000	-2002	a01= 0.95	b02= 1.53	c03= 1.16	f01= 0.47	C (1/ >999)
-2000	-2002	a04= 0.82	b05= 1.29	c06= 0.91	f02= 0.42	C (1/ >999)
0	0	a01= 0.00	b02= 0.00	c03= -0.01	f01= 0.00	
0	0	a04= 0.00	b05= 0.00	c06= 0.01	f02= 0.00	

Class: 5

Rolling shutter box

Roll shutter box P1 pressure

3 Pressure pulses 2200 Pa implemented

Pressure Desired	Pressure Actual	Distortion Absolute			Distortion Relative	Distortion %
2000	1997	a01= -1.48	b02= -2.24	c03= -1.88	f01= -0.56	1 / 2196
2000	1997	a04= -1.00	b05= -1.69	c06= -1.13	f02= -0.63	1 / 1952
0	0	a01= 0.01	b02= 0.02	c03= 0.02	f01= 0.00	1 / 0
0	0	a04= 0.02	b05= 0.04	c06= 0.04	f02= 0.01	1 / -807

Deflection OK



6.3. Air permeability

BDS EN 1026 - Windows and doors - Air permeability - Test method

Air Permeability: EN 12207 in accordance with BS EN 1026

Window surface: 1.820 m² Seal length: 5.140 m

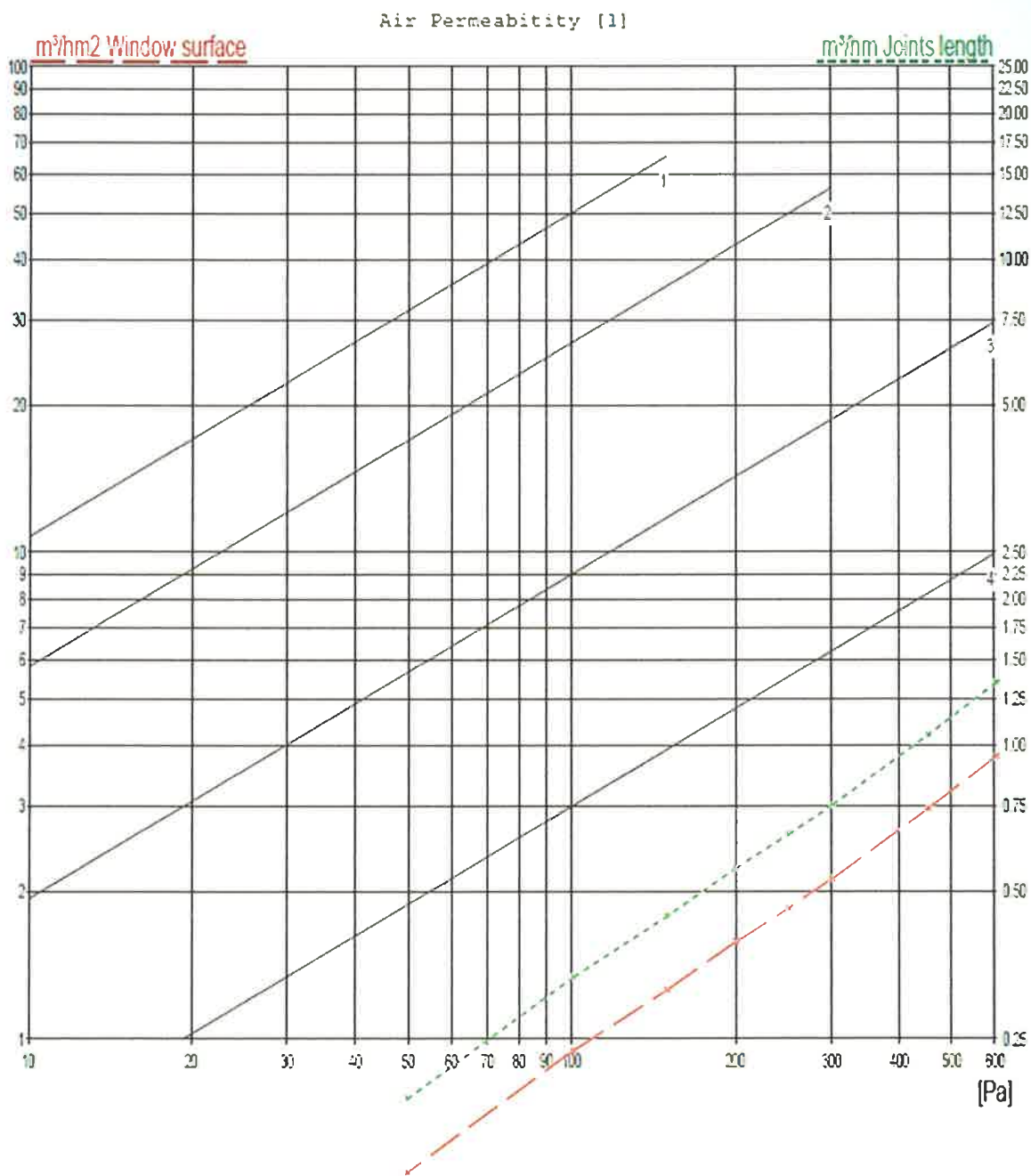
1. Air Permeability pressure / Air Permeability suction

Pressure Pa Nominal	Real	Qc mih	Qtc mih	Window surface m ² /h/m ²	class	Joints length m/h/m	class
+							
50	50	0.00	0.97	0.53	4	0.18	4
100	101	0.00	1.72	0.94	4	0.33	4
150	150	0.00	2.29	1.26	4	0.44	4
200	201	0.00	2.88	1.58	4	0.56	4
250	251	0.00	3.37	1.85	4	0.65	4
300	302	0.00	3.87	2.13	4	0.75	4
450	454	0.00	5.40	2.96	4	1.05	4
600	606	0.00	6.91	3.80	4	1.34	4
-							
-50	-51	0.00	0.97	0.53	4	0.18	4
-100	-100	0.00	1.60	0.88	4	0.31	4
-150	-149	0.00	2.16	1.18	4	0.42	4
-200	-201	0.00	2.62	1.44	4	0.51	4
-250	-250	0.00	3.02	1.66	4	0.58	4
-300	-301	0.00	3.42	1.88	4	0.66	4
-450	-455	0.00	4.44	2.44	4	0.86	4
-600	-602	0.00	5.18	2.84	4	1.00	4
Average							
50	50	0.00	0.97	0.53	4	0.18	4
100	100	0.00	1.66	0.91	4	0.32	4
150	149	0.00	2.22	1.22	4	0.43	4
200	201	0.00	2.75	1.51	4	0.53	4
250	250	0.00	3.20	1.75	4	0.62	4
300	301	0.00	3.65	2.00	4	0.71	4
450	454	0.00	4.92	2.70	4	0.95	4
600	604	0.00	6.04	3.32	4	1.17	4

Pressure: 4 Suction: 4 Average value: 4

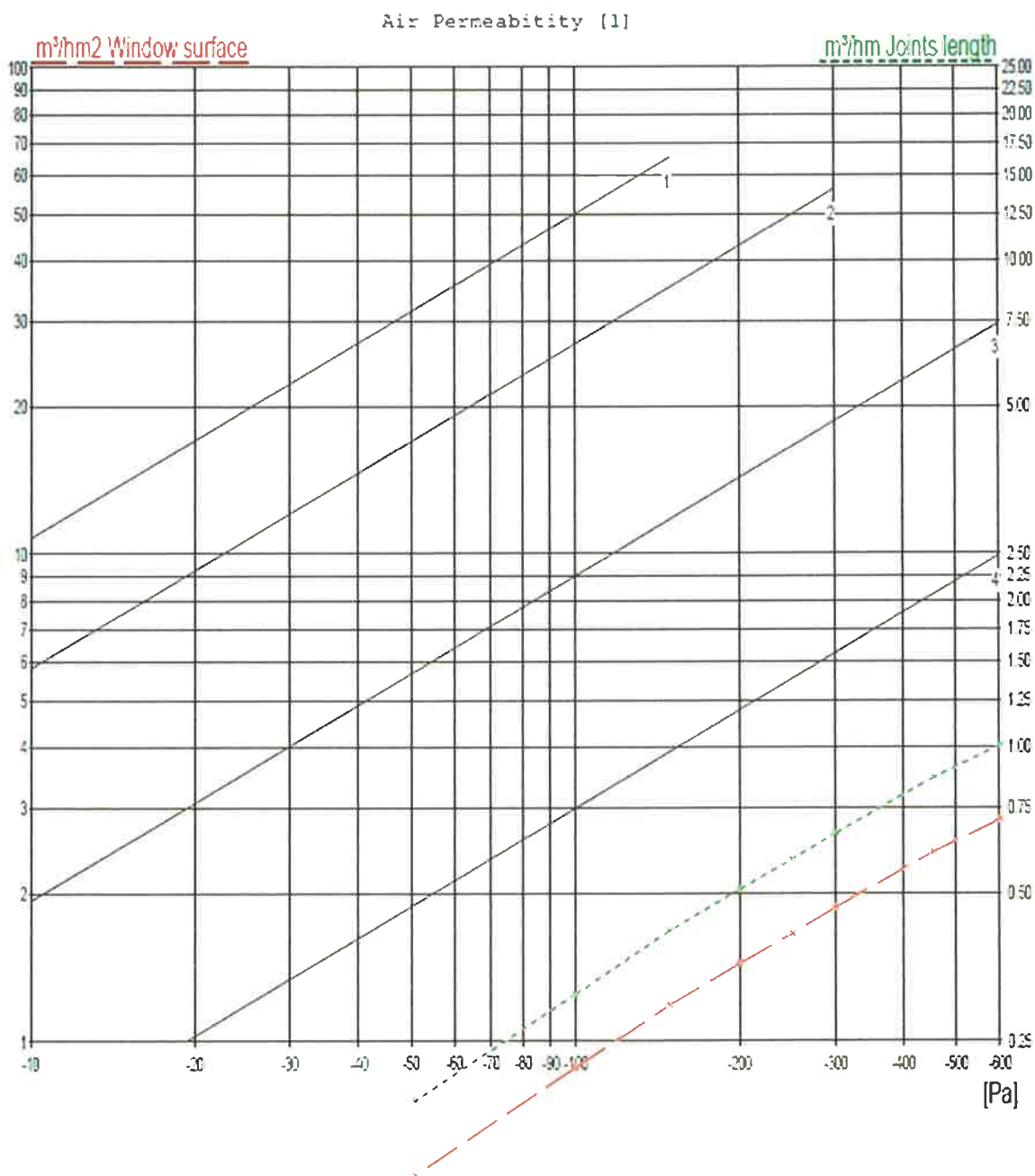


Air Permeability pressure:



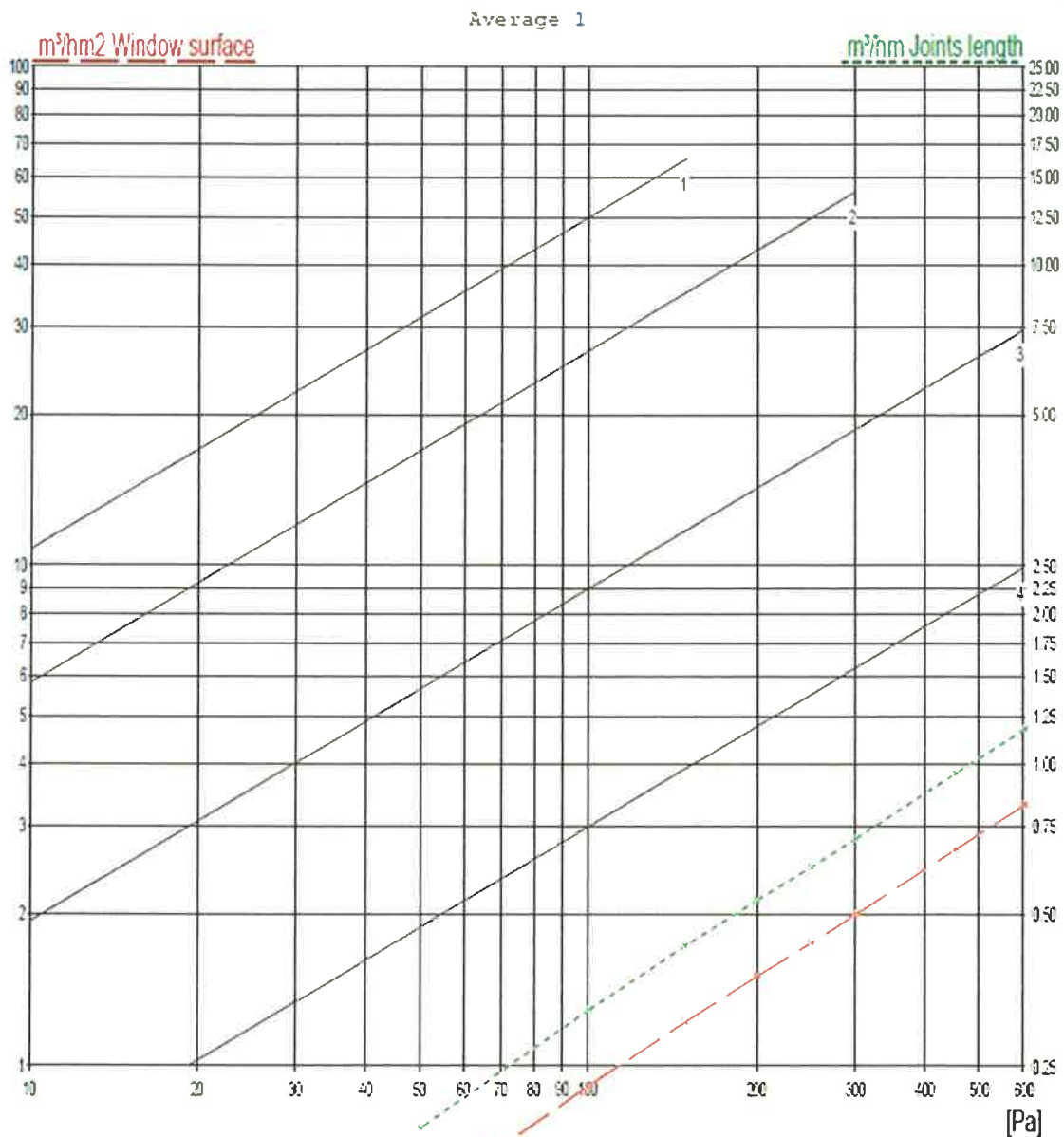


Air Permeability suction:





Air Permeability Average:



Head of test: 
/eng. I. Georgieva/

Head of laboratory: 
(PhD eng. H. Georgieva)
