

НОТИФИЦИРАНА ИЗПИТВАТЕЛНА ЛАБОРАТОРИЯ
към Солар Проджект ООД
Разрешение № CPR 04 - NB 2145/ от 25.09.14
Валидност до 01.09.2019
от регистъра на Европейската комисия
ФК 510.01

NOTIFIED TESTING LABORATORY
AT SOLAR PROJECT LTD
Permit № CPR 04 - NB 2145/ from 25.09.14
with validity 01.09.2019
FK 510.01-2



SOLAR PROJECT

София 1220, ул. Илиенско шосе 8
тел.: 02/8109 127 02/8109 155
факс: 02/8109 131
e-mail: laboratory@solarproject.bg
www.labsp.bg

Sofia 1220, 8 "Iliensko shose" str.
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PROTOCOL OF INITIAL TYPE TEST

№ ITT- 17 /04.09.2015

Designation of the product:	PVC window 5- chamber system Weiss Profil LTD
Producer:	„Weiss Profil“ LTD, Sofia 1120, 8 Iliensko shose str.
Client:	„Weiss Profil“ LTD Sofia 1120, 8 Iliensko shose str.
Assigning document:	Contract № 14 /31.08.2015
System of assessment for conformity:	System “3” as in Annex ZA of EN 14351-1 +1A:2010
Essential requirements:	<ol style="list-style-type: none">3. Dangerous substance and water penetration4. Safe operation (resistance to wind load)5. Noise protection6. Power and heat saving (power efficiency) air permeability
Test sample:	1 piece sample – request of 31.08.2015
Period for conducting the testing:	From 31.08.2015 to 04.09.2015



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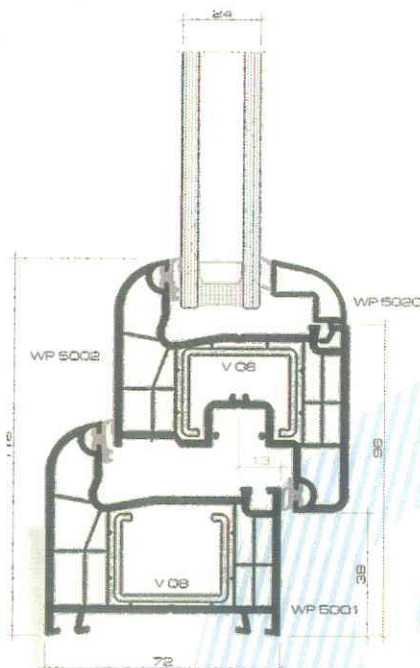


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Description of the product tested:



Overall dimension: 1230 mm x 1480 mm	Hardware: TGP Security
Frame: WP 5001	Locking: 7 number
Sash: WP 5002	Hinges: 2 number
Mullion: WP 5003	Drainage: 3 number
Glass bead: WP 5020	Type of glass: White + Low emission
Opening type: Two axial opening	Glass dimension: 24 mm (4/16/4)
Sealing: EPDM K01, K02	Filling: Argon



Results from testing

3. Dangerous substance and water penetration

№ in order	Indicator	Measure unit	Testing method	Test results	Requirements as in technical specification
1	2	3	4	5	6
1.	Watertightness	-	BDS EN 1027	Class A9	BDS EN 14351-1+A1

4. Safe operation (resistance to wind load)

№ in order	Indicator	Measure unit	Testing method	Test results	Requirements as in technical specification
1	2	3	4	5	6
1.	Resistant to wind load	-	BDS EN 12211	Class 5A/5B	BDS EN 14351-1+A1
2.	Resistance to operating forces		BDS EN 13115	Class 1	BDS EN 14351-1+A1
3.	Resistance to static torsion		BDS EN 13115	Class 4	BDS EN 14351-1+A1
3.	Soft and heavy body impact		BDS EN 13049	Class 3	BDS EN 14351-1+A1
4.	Mechanical durability		BDS EN 12400	Class 2	BDS EN 14351-1+A1

5. Sound insulation

№ in order	Indicator	Measure unit	Testing method	Test results	Requirements as in technical specification
1	2	3	4	5	6
1.	Sound insulation	dB	BDS EN ISO 10140-2	35	BDS EN 14351-1+A1

6. Power and heat saving (power efficiency) air permeability

№ in order	Indicator	Measure unit	Testing method	Test results	Requirements as in technical specification
1	2	3	4	5	6

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1.	Thermal transmittance	W/m ² K	BDS EN ISO 12567-1	1.1	BDS EN 14351-1+A1
2.	Air permeability	-	БДС EN 1026	Class 4	BDS EN 14351-1+A1



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USED TECHNICAL MEANS:

Indications of moving 1, 2, 3, 4, 5, 6 type 8712-50 - Certificate of calibration № 038A-E-15 / 27.03.2015g "Metrologiya Holding";

Shtrih measure to the U-shaped manometer, Type: Pa / UI-γ 0,88, ID № 1695 calibration certificate № 0331-D-03 / 03.27.2013, the "KALABSI" - LTD;

Flowmeter type: "Aqua metro" sensor type water: JMD / IFMA 0035, № Id 4628833 - calibration certificate № 02-OP-20 / 11.03.2013 "Kalibra-Bulgaria" LTD;

Mini Air 60 - Mini; 40 m / s Anemometer - pressure vacuum Protocol check № 22522 / 18.02.2014g. K.Schulten;

Pressure sensor PU +/- 4000 Pa -Protocol verification № 22521 / 18.02.2014, the K.Schulten;

Meter speed air type: Testo 416 Idn № 02512879, certificate of calibration from 03.04.2013 № 07 473 "TOTAL-TEST" LTD.



TECHNICAL DOCUMENTATION USED: (list of technical specifications with requirements and methods for testing, rules and regulations etc. documents related to initial type testing)

BDS EN 14351-1:2003+A1:2011 – Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics

BDS EN ISO 10077-1,2 – Thermal performance of windows, doors and shutters - Calculation of thermal transmittance Part 1: General (ISO 10077-1:2006)
Thermal performance of window, doors and shutters - Calculation of thermal transmittance - Part 2 : Numerical method for frames (ISO 10077-2:2012)

EN ISO 10140-2 – Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010)

BDS EN 1027:2003 – Windows and doors - Watertightness - Test method

BDS EN 1026:2003 - Windows and doors - Air permeability - Test method

BDS EN 12211:2003 - Windows and doors - Resistance to wind load - Test method

BDS EN 12210/AC:2012 classification;

BDS EN 12208:2012 classification;

BDS EN 12207:2012 classification

BDS EN 13115:2004 Windows - Classification of mechanical properties - Racking, torsion and operating forces

BDS EN 13049:2003 Windows - Soft and heavy body impact - Test method, safety requirements and classification

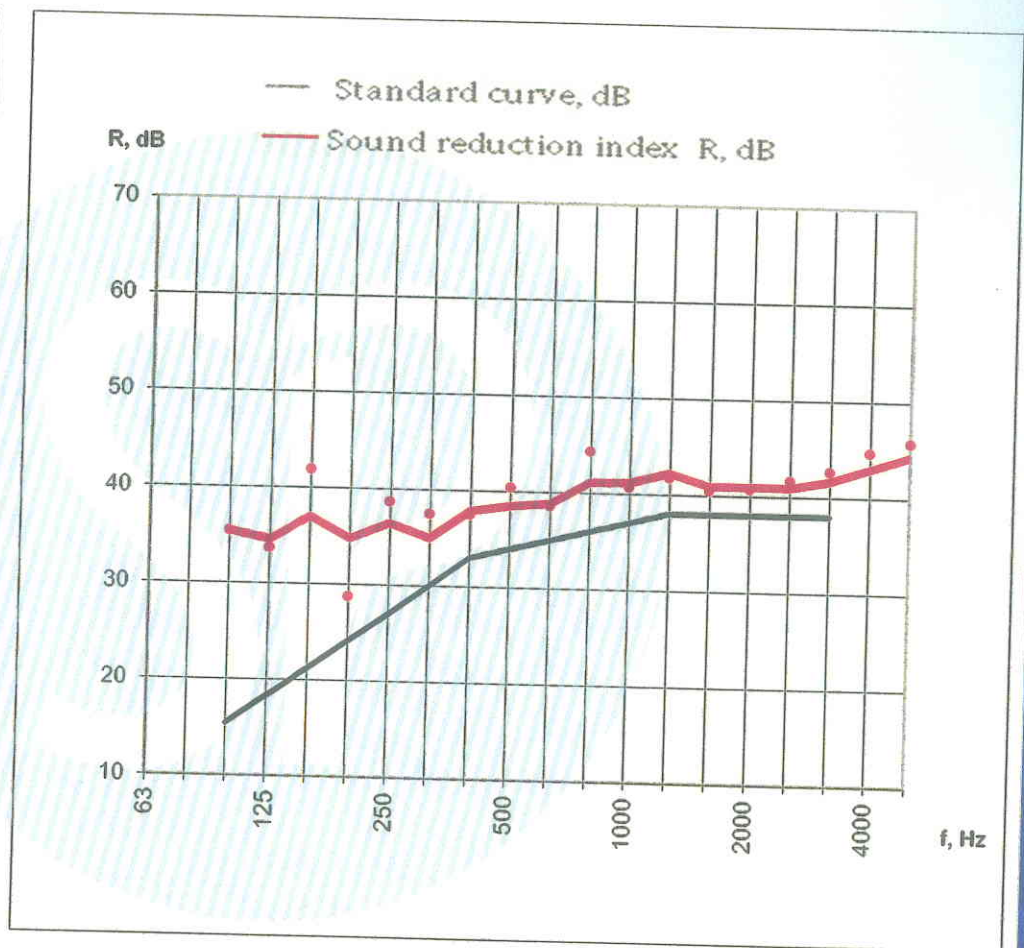
BDS EN 12400:2004 Windows and pedestrian doors - Mechanical durability - Requirements and classification



4. Sound insulation

EN ISO 10140-2 – Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010)

Frequency f Hz	L_n one-third octave dB
50	-
63	-
80	-
100	35.4
125	33.7
160	41.9
200	28.7
250	38.7
315	37.5
400	37.5
500	40.4
630	38.5
800	44.3
1000	40.6
1250	41.7
1600	40.4
2000	40.7
2500	41.6
3150	42.6
4000	44.7
5000	45.7



Legend: R-index, volume down, dB
f - frequency, Hz

Classification in accordance with ISO 717-1:

$$R_w (C; C_{tr}) = 35 (0; -1) \text{ dB} \quad C_{50-3150} = (-1, 0) \text{ dB}; C_{50-5000} = (-1, 0) \text{ dB}; C_{100-5000} = (0, 0) \text{ dB}$$

Evaluation based on results from laboratory measurements obtained engineering method:

$$C_{tr50-3150} = (-3, 0) \text{ dB}; C_{tr50-5000} = (-5, 0) \text{ dB}; C_{tr100-5000} = (-2, 0) \text{ dB}$$



5. Safe operation (resistance to wind load)

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

Wind resistance: EN 12210

Test Sequence	Pressure in Pa	
P1 for deflection	2000	-2000
P2 for cycles	1000	-1000
P3 for safety test	0	0

Deflection

Distance between the way transducers

a01 <-> c03 = 1300 mm

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

Wind resistance P1 pressure

3 Pressure pulses 2200 Pa implemented

Pressure		Distortion Absolute			Distortion Relative	Distortion %
Nominal	Estimated	a01=	b02=	c03=	f01=	
2000	2005	a01= -6.01	b02= -15.35	c03= -10.10	f01= -7.30	1 / 178
0	0	a01= 0.01	b02= -0.04	c03= -0.05	f01= -0.02	1 / 0

Class: 5A

Wind resistance P1 suction

3 Pressure pulses -2200 Pa implemented

Pressure		Distortion Absolute			Distortion Relative	Distortion %
Nominal	Estimated	a01=	b02=	c03=	f01=	
-2000	-2008	a01= 6.35	b02= 14.53	c03= 9.88	f01= 6.41	1 / 202
0	0	a01= 0.07	b02= 0.04	c03= 0.04	f01= -0.02	1 / 0

Class: 5B

Pressure pulses

50 Cycles 1000 Pa / -1000 Pa implemented

Remark :



6. Power and heat saving (power efficiency) air permeability

6.1. BDS EN ISO12567-1 – Thermal performance of windows and doors - Determination of thermal transmittance by the hot-box method - Part 1: Complete windows and doors (ISO 12567-1:2010)

Air temperature in hot chamber:	$T_h = 24.0 \text{ }^{\circ}\text{C}$
Air temperature in cold chamber:	$T_c = 1.5 \text{ }^{\circ}\text{C}$
Environment temperature:	$T_o = 24.2 \text{ }^{\circ}\text{C}$
Thermal stream:	$F = 59 \text{ W}$
Density of the thermal stream:	$f = 30 \text{ W/m}^2$
Total thermal resistance:	$R = 0.80 \text{ m}^2\text{K/ W}$
Thermal transmittance:	$U_w = 1.1 \text{ W/m}^2\text{K}$
Uncertainty in quantitative testing:	± 0.03



6.2.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: 3.960 m

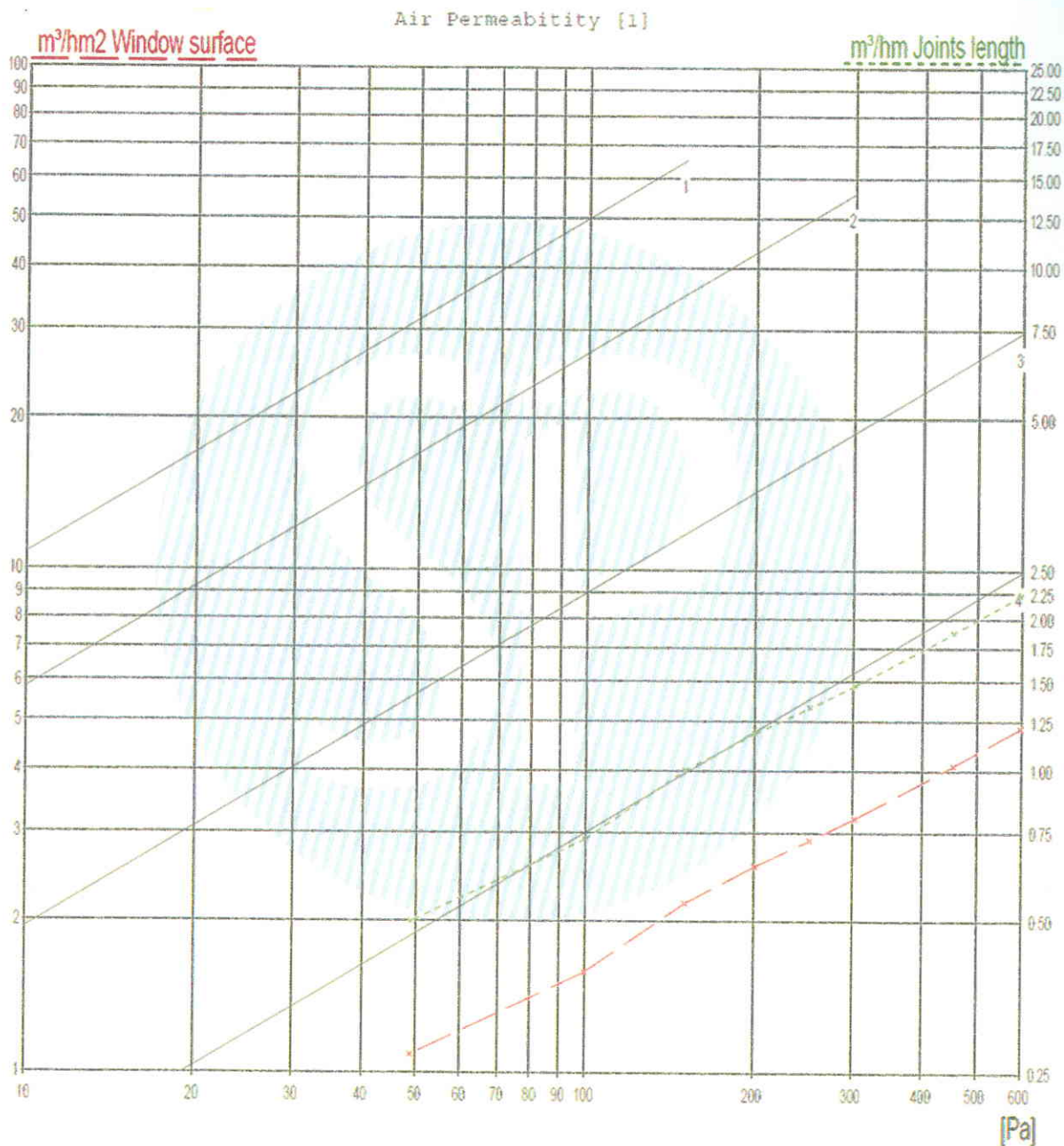
1. Air Permeability pressure / Air Permeability suction

Pressure Pa		Qc mih	Qtc mih	Window surface		Joints length	
Nominal	Real			mi/h/mi	class	mi/h/m	class
+							
50	49	0.00	1.97	1.08	4	0.49	3
100	100	0.00	2.88	1.58	4	0.72	4
150	151	0.00	3.95	2.17	4	0.99	3
200	201	0.00	4.68	2.57	4	1.18	4
250	252	0.00	5.27	2.89	4	1.33	4
300	303	0.00	5.83	3.20	4	1.47	4
450	454	0.00	7.43	4.08	4	1.87	4
600	599	0.00	8.83	4.85	4	2.23	4
-							
-50	-51	0.00	1.98	1.09	4	0.50	3
-100	-100	0.00	2.98	1.64	4	0.75	3
-150	-151	0.00	3.81	2.09	4	0.96	4
-200	-200	0.00	4.52	2.48	4	1.14	4
-250	-252	0.00	5.19	2.85	4	1.31	4
-300	-303	0.00	5.78	3.17	4	1.46	4
-450	-454	0.00	7.35	4.04	4	1.85	4
-600	-604	0.00	8.62	4.73	4	2.17	4
Average							
50	50	0.00	1.98	1.08	4	0.50	3
100	100	0.00	2.93	1.61	4	0.74	4
150	151	0.00	3.88	2.13	4	0.98	4
200	200	0.00	4.60	2.52	4	1.16	4
250	252	0.00	5.23	2.87	4	1.32	4
300	303	0.00	5.80	3.19	4	1.46	4
450	454	0.00	7.39	4.06	4	1.86	4
600	601	0.00	8.72	4.79	4	2.20	4

Pressure: 4 Suction: 4 Average value: 3



Air Permeability pressure:



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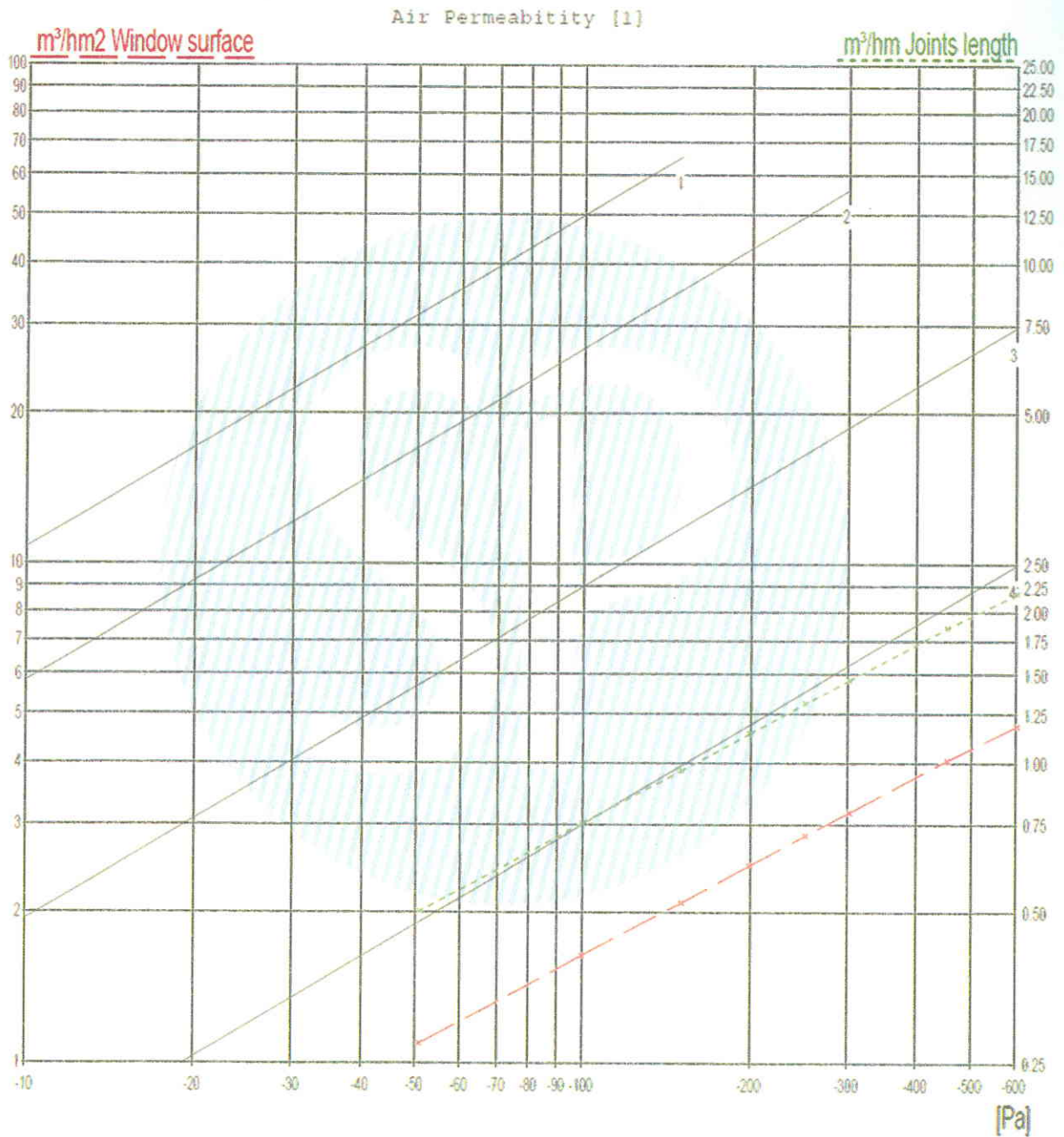


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Air Permeability suction:



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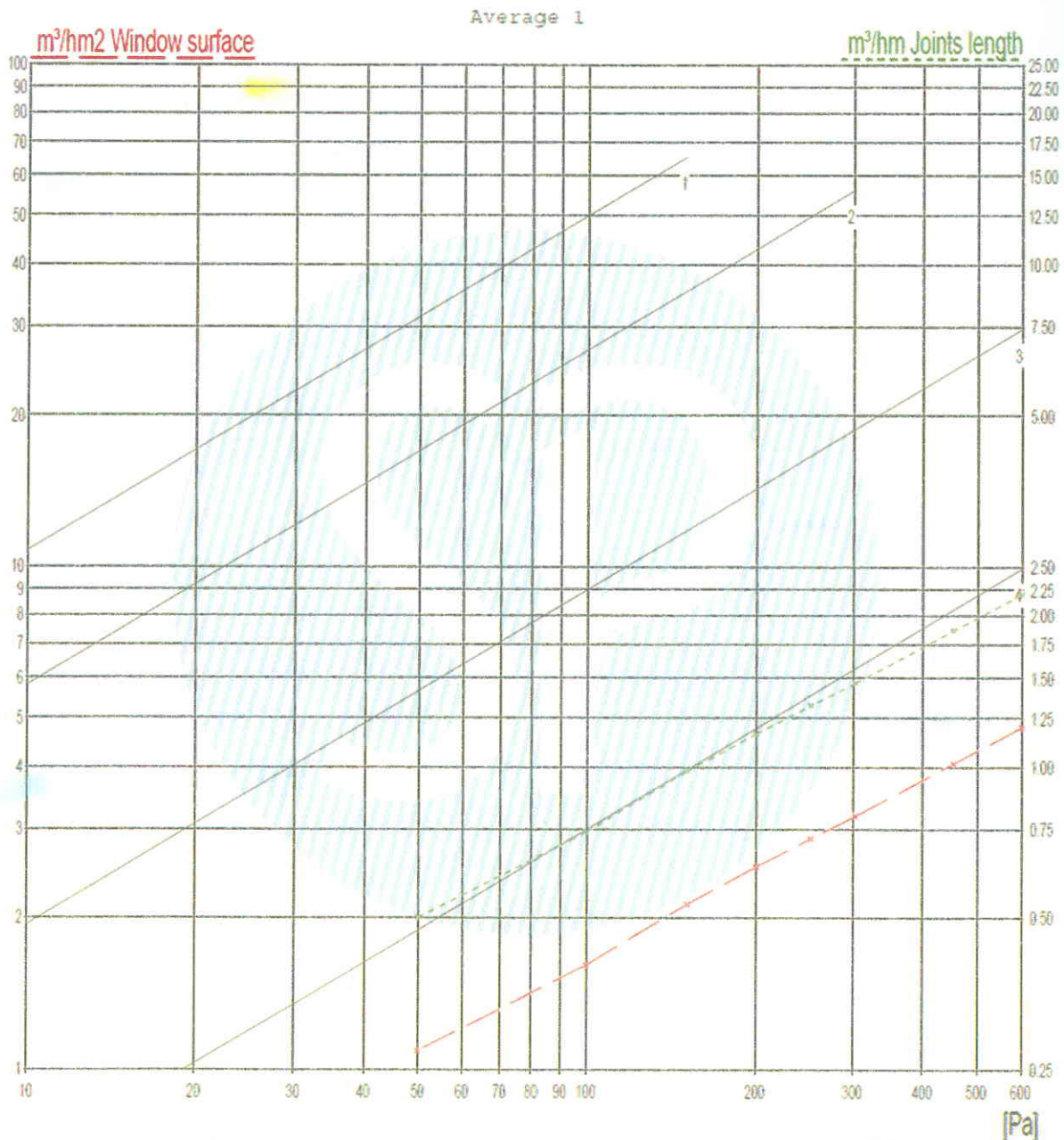


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Air Permeability Average:



Head of test:

I. Georgieva
/ Dipl eng. I. Georgieva/

Head of laboratory:

P. Naydenova
/ PhD eng. P. Naydenova/

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