

AB-0391-T

020118-01-01

01-18

FUDELFırat Uygunluk Değerlendirme Laboratuvarı
Türkoba Mah. Fırat Plastik Cad. No:23 34537 Büyükçekmece-
İstanbul**DENEY RAPORU, Testing Report**

Müşteri Customer	Fırat Plastik ve Kauçuk San. Tic. A.Ş. / Profile Export
Ürün Tanımı Product Identification	Hollanda Frame / Tilt and Turn Window

SINIFLANDIRMA SONUÇLARI Classification Results

Rüzgar Yüküne Dayanım / TS EN 12210 Windload Resistance
CLASS C3
Su Sızdırmazlık / TS EN 12208 Water Permeability
CLASS A6
Hava Geçirgenliği / TS EN 12207 Air Permeability
CLASS 4
Güvenlik Tertibatlarının Yük Taşıma Kapasitesi / TS EN 13115 Load Carrying Capacity of Security Mechanism
CLASS 4

Deney laboratuvarı olarak faaliyet gösteren FUDEL, TÜRKAK'tan AB-0391-T ile TS EN ISO 17025 standardına göre akredite edilmiştir.
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The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report

Not 1: Bu test raporu ile pencerenin yukarıdaki özelliklere göre sınıflandırması yapılmıştır, pencere kalitesi ile ilgili herhangi bir yorum içermemektedir.

Note 1 : The classification of the window according to the above mentioned criteria has been concluded with this test report and no further evaluation with regard to quality has been included in the report.

Not 2: Bu deney sonuçları yalnızca deneyi yapılan numuneye aittir.

Note 2: The test results belong only to the sample tested.

Not 3: Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılama, imzasız ve mühürsüz raporlar geçersizdir

Note 3: This report can't be partially copied and published without the written consent of the laboratory. Reports without seal and signature are invalid

Numune Kabul Tarihi: 30.12.2017

Date of Sample Acceptance

Deney Periyodu: 02.01.2018 - 02.01.2018

Test Period

Onay Tarihi: 02.01.2018

Date of Approval

Laborant / Laboratorian

Deney Sorumlusu

Test Supervisor

Teknik Yönetici / Techn. Manager

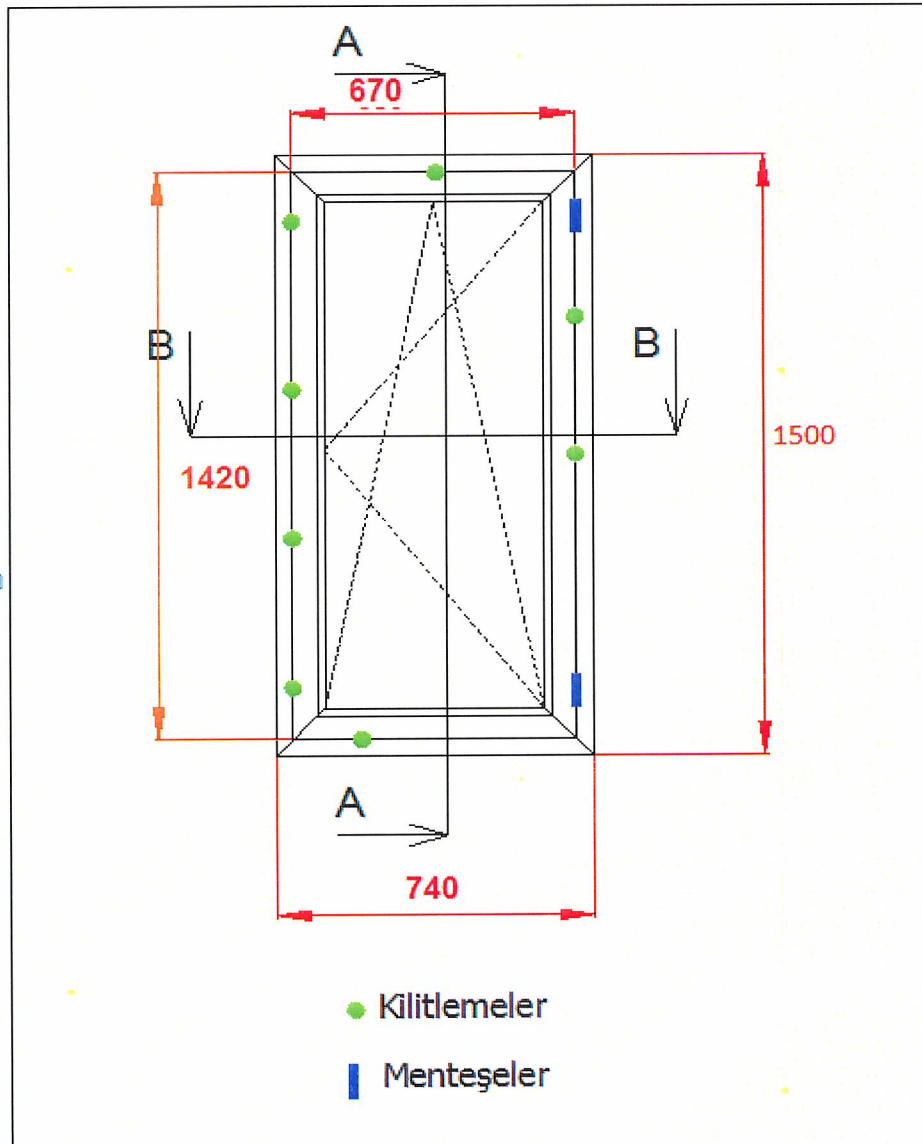
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Approval

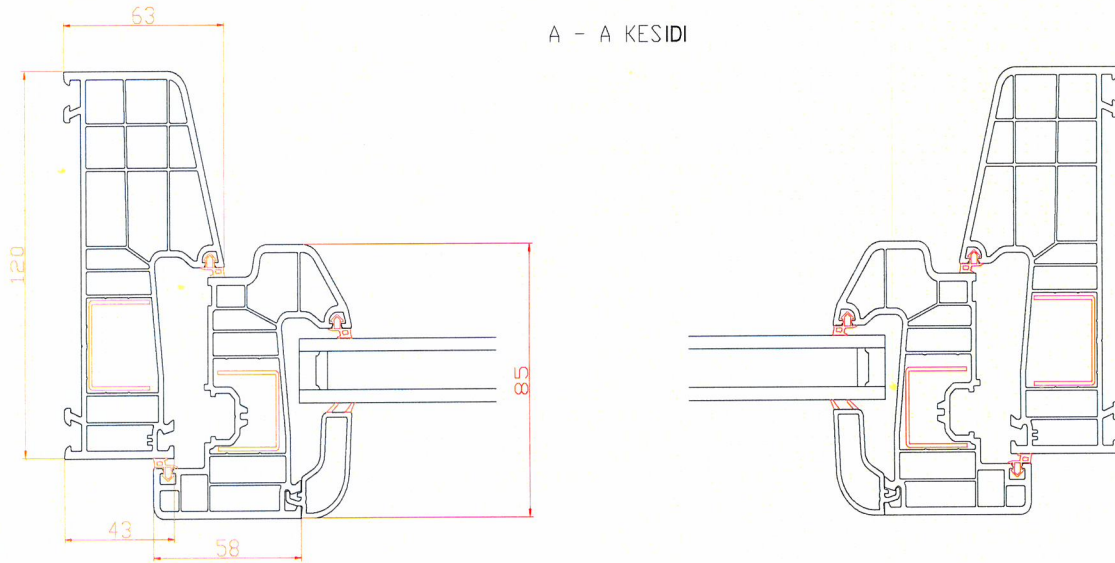
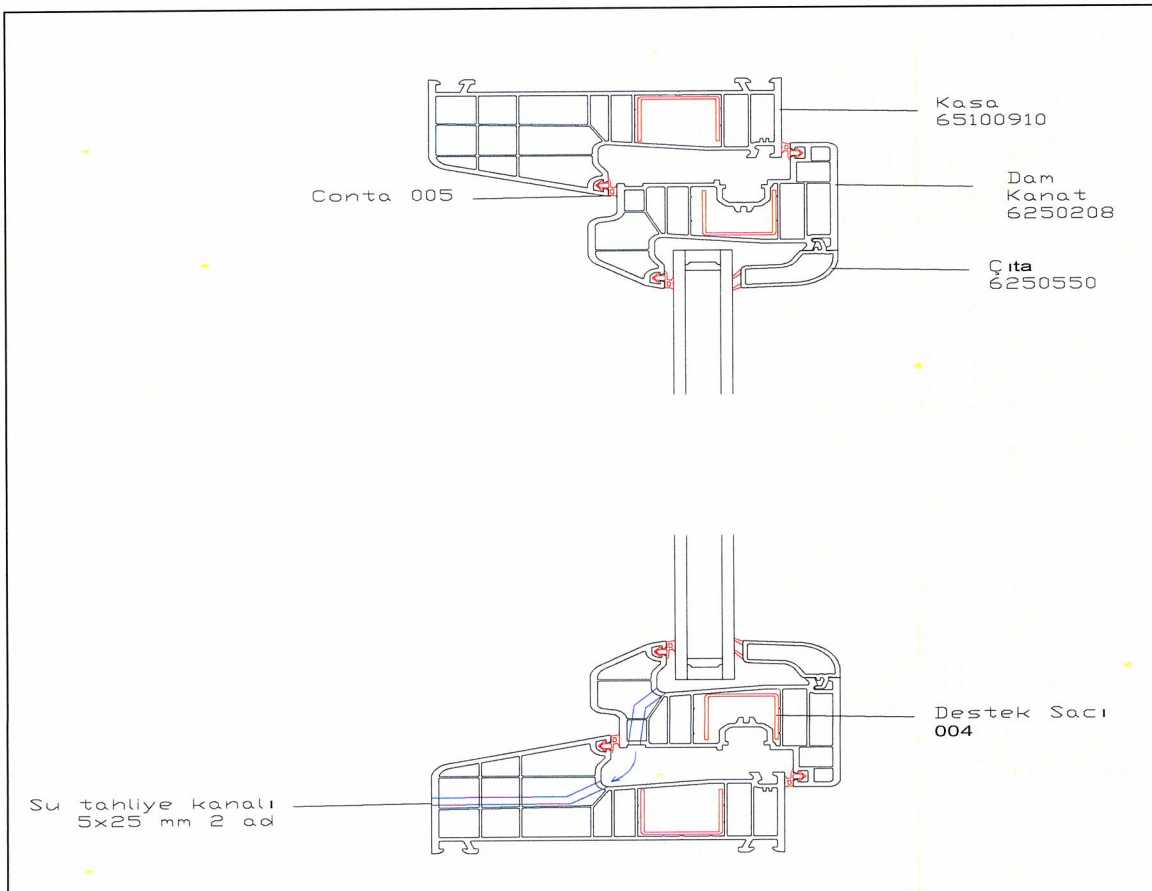
 FIRAT UYGUNLUK DEĞERLENDİRME LABORATUVARI	FUDEL Firat Conformity Evaluation Laboratory		AB-0391-T
			020118-01-01
			01.18
1 Product Details			
1.1 Identification of the Test Sample			
Product	Tilt and turn window. 1st position fully openable 2nd position Was-ist-das position.		
Manufacturer	Firat Plastik Kauçuk San. Tic. A.Ş.		
Manufacturer Date	22.12.2017		
Serial Name	Hollanda Frame		
Opening Type and Director	Tilt and turn window. 1st position fully openable 2nd position Was-ist-das position.		
Material	PVC-U White		
Case Size	747x1500 mm		
Sash Size	670x1420 mm		
Window Weight			
Window Details	Shown in technical diagrams.		
Case Connection	Joint by welding		
Meeting Rail Connection	Shown in technical diagrams.		
Mullion Connector			
Welding Parameters	245 °C - Welding:30 sn - Waiting:25 sn		
Screw Interval	Connection achived by screwing		
Water Disposal	2 holes in dimensions of 5×25 mm		
Water Disposal Design	Shown in technical diagrams.		
Seal Design	Shown in technical diagrams.		
Inner Seals			
Manufacturer	Firat Plastik Kauçuk San. Tic. A.Ş.		
Material and Corner Joints	TPE Seal / Corner joints by welding		
Profile Seals			
Manufacturer	Firat Plastik Kauçuk San. Tic. A.Ş.		
Material	TPE Seal		
Outer Seals			
Manufacturing Comapny	Firat Plastik Kauçuk San. Tic. A.Ş.		
Material and Corner Joints	TPE Seal / corner joints by welding		

 FRAT UYGUNLUK DEĞERLENDİRME LABORATUVARI	FUDEL Fırat Conformity Evaluation Laboratory		AB-0391-T 020118-01-01 01.18
Window Qualification			
Manufacturing Company	Şişecam / Isıcam		
Window Size	4 - 12 - 4 mm		
Lamination Coating	N/A		
Gas Application	Air		
Accessories			
Espagnolette			
Manufacturing Company	FWG		
Type/Code of Espagnolette	Tilt and turn Hardware/Espagnolette		
Strike Plates			
Manufacturing Company	FWG		
Material/Code	Zamak		
No of Locks	7		
Locking Positions			
Hinges			
Manufacturing Company	FWG		
Material /Code	Steel		
No of Hinges	2		
Hinge Interval			
Reinforcement Profiles			
Manufacturing Company	Fırat Plastik ve Kauçuk A.Ş.		
Material/Code	Galvanized Steel		
Design	Shown in Technical Diagrams		
Thickness	1,2 mm		
Moment of Inertia			

1.2 Technical Drawing of the Test Sample

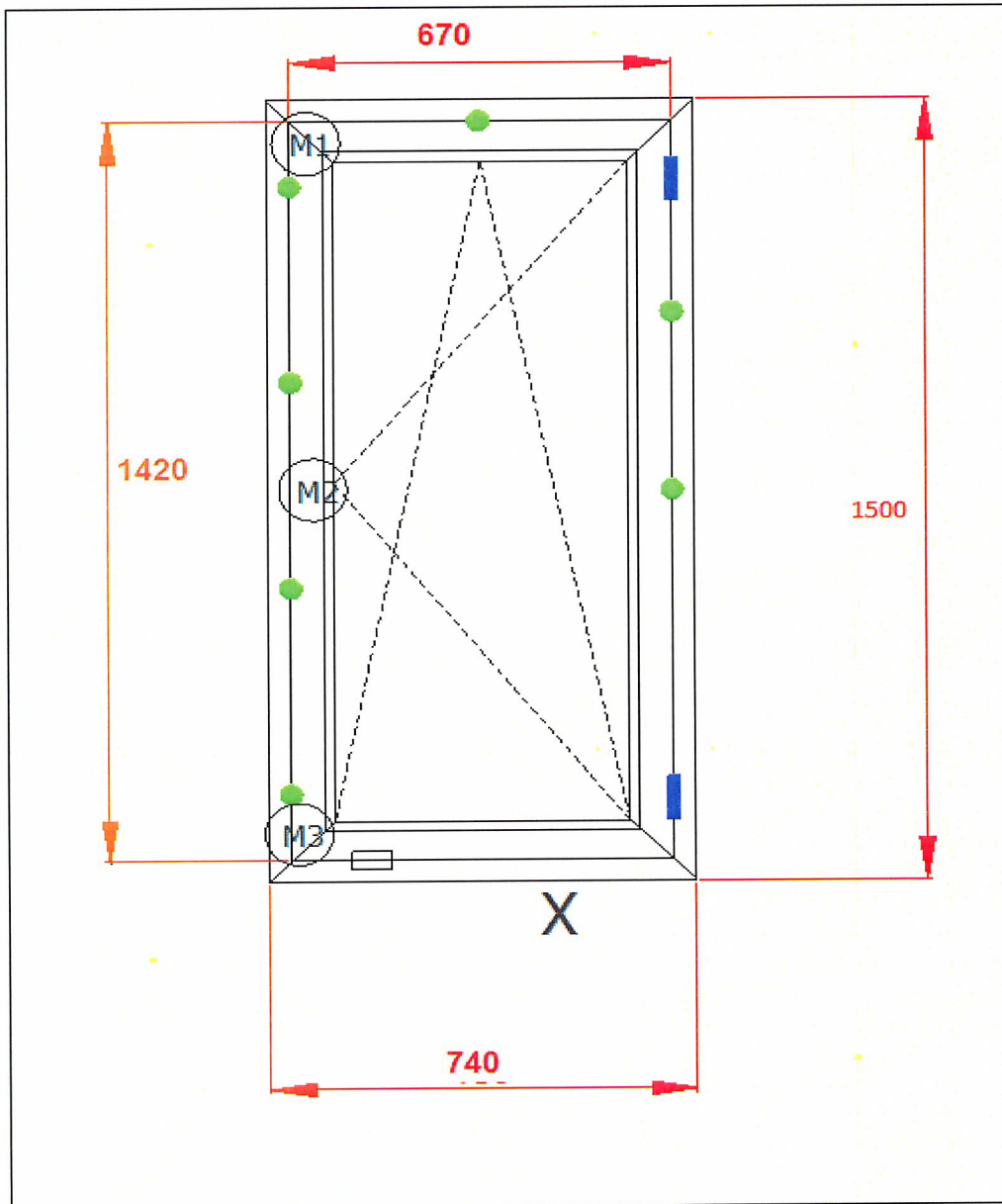


Poz1.	Technical drawing of the test sample
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**Poz2. A-A Section****Poz3. B-B Section**

 FIRAT UYGUNLUK DEĞERLENDİRME LABORATUVARI	FUDEL Firat Conformity Evaluation Laboratory		AB-0391-T 020118-01-01 01.18
2 Process			
2.1 Sample The test samples have been chosen by the customers			
No		020118-01-01	
Date of Acceptance		02.01.2018	
Reg. No		020118-01-01	
2.2 Test Methods			
Basic Standards			
TS EN 1026		Door and Windows - Air Permeability - Test Method	
TS EN 1027		Door and Windows - Water Impermeability - Test Method	
TS EN 12211		Door and Windows - Windload Resistance - Test Method	
TS EN 14609		Windows - Determination of Resistance to Static Torsion Effect	
TS EN ISO 10077		Door and Windows - Thermal Transmittance	
Classification Standards			
TS EN 12207		Door and Windows - Air Permeability - Classification	
TS EN 12208		Door and Windows - Water Impermeability - Classification	
TS EN 12210		Door and Windows - Windload Resistance - Classification	
TS EN 13115		Windows-Mechanical Properties-Classification	
Limited Conditions		Standart requirements apply	
Deviation		Deviation from test requirements not allowed	
2.3 Test Equipments			
Name of Device		Number	
Windows Testing Equipment		1240LC069	
Comparator		1240LC070	
2.4 Test			
Date	02.01.2018		
By	Nurullah TATAR		

 FIRAT UYGUNLUK DEĞERLENDİRME LABORATUVARI	FUDEL Firat Conformity Evaluation Laboratory	AB-0391-T 020118-01-01 01.18	
2.5 Test Operation Sequence			
No	Test Type	Test Std.	Classification St.
1	Air Permeability	TS EN 1026	TS EN 12207
2	Windload Resistance 3.1. Deviation 3.2. Re-test in +/- pressure	TS EN 12211	TS EN 12210
3	Air Permeability Re-test	TS EN 1026	TS EN 12207
4	Water Impermeability	TS EN 1027	TS EN 12208
5	Windload Resistance-Security	TS EN 12211	TS EN 12210
6	Load carrying capacity of the security mechanisms	TS EN 14609	TS EN 13115
3 Test Info			
Records			
Sample	Tilt and Turn Window		
Test No	020118-01-01	Case Size	747 x 1500
Customer	Firat	Sash Size	670 x 1420
System		Measuring Distance	1360
Material	U-PVC Beyaz	Area	1,12 m ²
Test Date	02.01.2018	Environment	4,18 m
Num. No.	020118-01-01	Pressure	1002 hPa
Acceptance Date	02.01.2018	Temperature	20 °C
Manufacture Date	22.12.2017	Humidity	55 %
Symbols			
Hinges Lock Points X Most Distant Lock Distance △ High Rate of Water Leak Water Leak as Seepage Ⓜ Deflection Measurement Points			



Poz 4 Test Data

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4.1. Load Carrying Capacity of Security Mechanisms

Load Carrying Capacity testing of Security Mechanisms have been carried out under 350N of load for 60 s. No malfunction or defect has been observed.

$a_0 = 142,8 \text{ mm}$ $a_1 = 166,64 \text{ mm}$ $a_2 = 143,68 \text{ mm}$

According to TS EN 13115

Class 4

4.2. Air Permeability - According to EN 1026

Table 1 Air Permeability Classification Values According to EN 12207

Classification	Test Pressure (Pa)	10	50	100	150	200	250	300	450	600
Class 1	(m ³ /hm ²)	10,77	31,50	50,00	65,52					
	(m ³ /hm)	2,69	7,87	12,50	16,38					
Class 2	(m ³ /hm ²)	5,82	17,01	27,00	35,38	42,86	49,73	56,16		
	(m ³ /hm)	1,45	4,25	6,75	8,85	10,71	12,43	14,04		
Class 3	(m ³ /hm ²)	1,94	5,67	9,00	11,79	14,29	16,58	18,72	24,53	29,72
	(m ³ /hm)	0,48	1,42	2,25	2,95	3,57	4,14	4,68	6,13	7,43
Class 4	(m ³ /hm ²)	0,65	1,89	3,00	3,93	4,76	5,53	6,24	8,18	9,91
	(m ³ /hm)	0,16	0,47	0,75	0,98	1,19	1,38	1,56	2,04	2,48

Table2 Positive pressure air permeability

Values recorded under positive pressure	Test Pressure (Pa)	50	100	150	200	250	300	450	600	Genel Sınıf
	Air volume (m ³ /h)	1,49	2,27	2,84	3,33	3,78	4,20	5,25	6,15	
	Tot. Air Perm.(m ³ /hm ²)	1,33	2,02	2,53	2,98	3,38	3,75	4,69	5,49	
	Class	4	4	4	4	4	4	4	4	
	Cas.Prof Air.Perm (m ³ /hm)	0,36	0,54	0,68	0,80	0,90	1,00	1,25	1,47	
	Class	4	4	4	4	4	4	4	4	

General Classification

4

Table 3 Negative pressure air permeability

Values recorded under negative pressure	Test Pressure (Pa)	50	100	150	200	250	300	450	600	Genel Sınıf
	Air volume (m ³ /h)	1,62	2,44	3,07	3,60	4,07	4,49	5,60	6,55	
	Tot. Air Perm.(m ³ /hm ²)	1,45	2,17	2,74	3,22	3,63	4,01	5,00	5,85	
	Class	4	4	4	4	4	4	4	4	
	Cas.Prof Air.Perm (m ³ /hm)	0,39	0,58	0,73	0,86	0,97	1,07	1,34	1,56	
	Class	4	4	4	4	4	4	4	4	

General Classification

4

Table 4 Avarage Air permeability under Pozitive and Negative Pressure

Avarage of Positive and Negative Pressure	Test Pressure (Pa)	50	100	150	200	250	300	450	600	Genel Sınıf
	Air volume (m ³ /h)	1,55	2,35	2,95	3,47	3,93	4,35	5,43	6,35	
	Tot. Air Perm.(m ³ /hm ²)	1,39	2,10	2,64	3,10	3,50	3,88	4,84	5,67	
	Class	4	4	4	4	4	4	4	4	
	Cas.Prof Air.Perm (m ³ /hm)	0,37	0,56	0,71	0,83	0,94	1,04	1,29	1,52	
	Class	4	4	4	4	4	4	4	4	

General Classification

4

Diagram 1.0: Air permeability pressure EN 12207

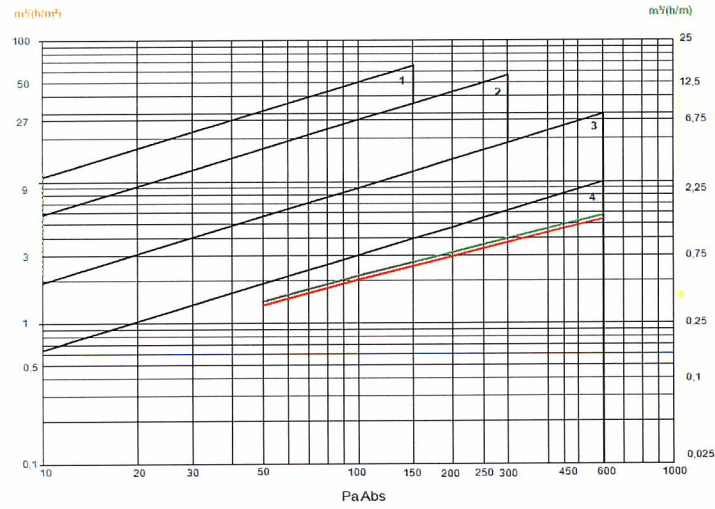


Diagram 2.0: Air permeability suction EN 12207

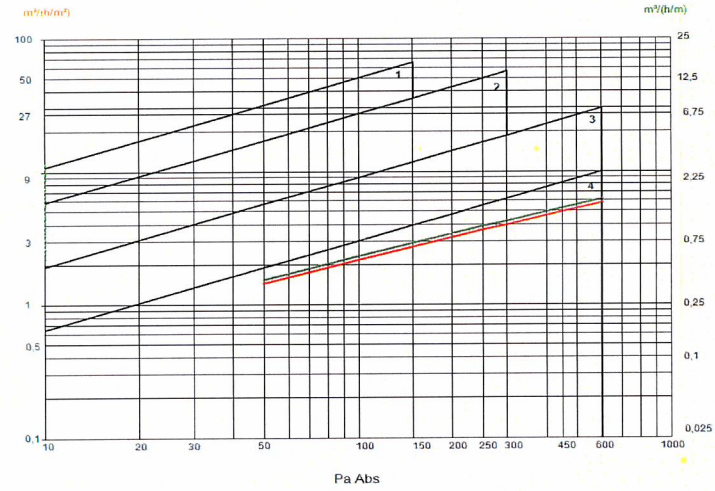
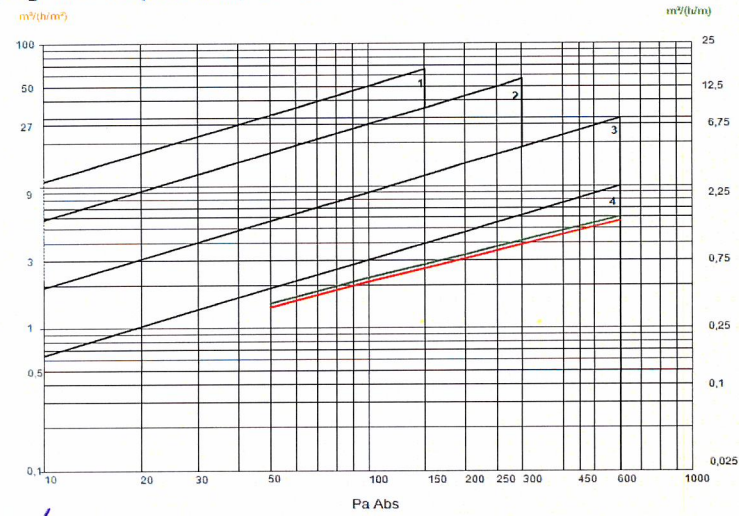


Diagram 3.0: Air permeability average value of pressure and suction EN 14351



4.3. Windload Resistance - According to EN 12211
4.3.1 Deviation under Windload

Table.1 Maximum Deviation Values Allowed

Class		1.Group	2. Group	3. Group	4. Group
		L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)
		1360			
A	L/150	9,93	0,00	0,00	0,00
B	L/200	7,45	0,00	0,00	0,00
C	L/300	4,97	0,00	0,00	0,00

Triple Pressure Amount 1307 Pa

Table.2 Deviation Values Recorded under Pozitive and Negativ

Pressure	W1	W2	W3	f	1/	Class
1203	0,50	1,06	0,39	0,62	2211	C
0	0,10	0,00	0,00	0,05	135000	
-1202	0,40	0,91	0,33	0,55	2495	C
0	0,00	0,00	0,00	0,00	135000	

4.3.2 Re-test with positive and negative pressure

Table 6 Negative/Pozitive re-test

	Class	1	2	3	4	5
P2	Pa	200	400	600	800	1000
OK				×		

No deformation under 600 Pa pressure 50 cycles.

According to EN 12210

Class 3

4.4. Air Permeability Re-test - According to EN 1026

There has been a 20% less increase in the air permeability increase resulting from the P1 and P2 windload resistance tests when compared with the permeability test conducted according to EN 12207.

Result according to EN 12210 **Requirement fulfilled**

4.5. Water Impermeability- According to EN 1027

No water leakage or permeability under 250 Pa pressure.

Class according to EN 12208 **Class A6**

4.6. Windload Resistance Security Test - According to EN 12211

Table 7 Security test classification

Class	1	2	3	4	5	1	2	3	4	5
P3 (Pa)	600	1200	1800	2400	3000	-600	-1200	-1800	-2400	-3000
OK			x					x		

Passed Security Test 1800 Pa.

Class according to EN 12210 **Class 3**

General Classification according to EN 12211	Pressure (Pa)	Class
Classification according to P1 Pressure	1200	C3
Classification according to P2 Pressure	600	3
Classification according to P3 Pressure	1800	3

Windload Resistance

C3