

TÜRKAK TÜRK AKREDİTASYON KURUMU

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DENEY SERTİFİKASI / Test Certificate



Test
TS EN ISO/EC 17025
AB-0531-T

AB-0531-T

020.158.2 / 2013

11 / 2013



Müşterinin Adı ve Adresi / Customer's Name & Address: ASİST Alüminyum Profil A.Ş.

Prof. Dr. Nevzat Pisak Cad. Doğu Sanayi Sitesi 8. Blok No : 3 Yenibosna / İstanbul / TÜRKİYE

Referans No / Reference No: 2013.217

Numunenin Adı ve Tanımı / Sample's Name & Description: Asistal TH 68 Window and Door System (Tild & Turn)

Numunenin Kabul Tarihi / Receipt Date of Test Item: 06.06.2013

Uygulanan Normlar / Norms Applied: TS EN 1026, TS EN 1027 and TS 4644 EN 12211

Sonuçlar / Results: Air Permeability : TS EN 12207 - Class 4 (600 Pa)

Watertightness : TS EN 12208 - Class 9 A (600 Pa)

Wind Resistance : TS EN 12210 - Class C 3

Test Tarihi / Date of Test

26.10.2013

Sayfa Sayısı / Number of Pages

1 / 14

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanınma anlaşması imzalamıştır.

The Turkish Accreditation Agency (TURKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation (EA) and of the International Laboratory Accreditation (ILAC) for the Mutual recognition of test reports.

Uygulanan metodlar, test sonuçları ve genişletilmiş ölçüm belirsizlikleri (talep edilirse), bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir. Bu sertifika yalnız test edilen numuneye ait sonuçları içerir ve ekte sunulan ilgili test raporu ile birlikte geçerlidir.

The applied methods, test results and the uncertainties (if requested) with confidence probability are given on the following pages which are part of this report. This certificate includes the test specimen which is identified above and its valid with the related test report which is presented as annex.



Mühür / Seal

Tarih / Date

11.11.2013

Test Müh./ Testing Eng.

M. Sarhat Çolak

Lab. Müdürü / Lab. Manager

Oktay Usta

F.15.22 REV NO: C HAZİRAN 2012

PERFORMANCE TEST REPORT

Air Permeability, Watertightness and Resistance to Wind Load

Test Report No: 020.158.2 / 2013



Rendered to	: ASIST Alüminyum Profil A.Ş.	Norms Applied	: EN 1026
			: EN 1027
			: EN 12211
Product	: Asistal TH 68 Window and Door System		:
		Classification Norms	: EN 12207
			: EN 12208
			: EN 12210
Sample Size	: 1230 x 1480 mm		:
Sample Description	: Tild and Turn Sash Mechanism		:
	: 6 / 12 / 6 mm Insulated Glass		:
	:	Test Comp. Date	: 26.10.2013
Test Performed	: Air Permeability - Static	Report Date	: 11.11.2013
	: Watertightness - Static	Record Retention Date	: 11.11.2018
	: Wind Resistance - Static	Number of Pages	: 2 / 14

Test Results : The Test sample performed in accordance of to following classifications

Air Permeability	: EN 12207 - Class 4 (600 Pa)
Watertightness	: EN 12208 - Class 9 A (600 Pa)
Wind Resistance	: EN 12210 - Class C 3

*This Test Report includes specific test data, results, photographic documentation and build drawings of the sample submitted for testing only and thus does not prejudge other related products.

* This certificate is valid with the related test report which is presented together.


Oktay Usta
Testing Manager




M. Serhat Çolak
Testing Engineer



TEST REPORT

Report Number : 020.158.2 / 2013

Report Date : 11.11.2013

Testing Reference : TS EN 14351-1+A1 Windows and Doors – Product standard, performance characteristics – Part 1: Windows and external pedestrain doorsets without resistance to fire and/or smoke leakage characteristics

Product : Asistal TH 68 Window and Door System (Tild & Turn)

Client : ASIST Alüminyum Profil A.Ş.



1. PREFACE

This report comprises of tests and results, which were performed by FTI Façade Testing Institute at the address; Çakıl Village – Casualty Lieutenant Tamer Aydın Street, No:76 34540 Çatalca - Istanbul/ TURKIYE.

Test sample comprises of a part of window and door system which name is Asistal TH 68 Window & Door System which has been designed by Asistal Aluminium. **Technoform heat barrier** was used this aluminium system. Tests were carried out on 01.08.2013 – 26.10.2013 for the determination of the air infiltration, water penetration (under static pressure), resistance to wind load, resistance to repeated opening and closing, determination of the resistance to vertical load and horizontal, thermal cycling regime.

Test sample has been sent to FTI Façade Testing Institute's testing laboratories on 06.06.2013.

2. CLIENT

ASIST Alüminyum Profil A.Ş.

Prof.Dr. Nevzat Pisak Cad. Doğu Sanayi Sitesi 8. Blok No : 3

Yenibosna / İstanbul / TÜRKİYE

3. TEST METHODS

The above mentioned tests have been carried out as per the test methods provided in project specifications and classified on the standards indicated below. Tests have been reported as the number of 020.158.2 / 2013.

EN 14351-1+A1	* Windows and Doors – Product standard
EN 1026	*Windows and doors - Air permeability - Test method
EN 12207	*Windows and doors - Air permeability - Classification
EN 1027	*Windows and doors - Watertightness - Test method
EN 12208	*Windows and doors - Watertightness – Classification
EN 12211	*Windows and doors - Wind Load - Test Method
EN 12210	* Windows and doors - Wind Load – Classification



4. TEST DATE AND PARTICIPANTS

Tests were performed on 01.08.2013 - 26.10.2013 with the following participants:

OktaY USTA	FTI	Laboratory Manager
M.Serhat ÇOLAK	FTI	Testing Engineer
Öner ARSLAN	FTI	Testing Engineer
Ayfer Dincel	FTI	Testing Assistant

and partially by

Fatma PİR	Techonoform Bautec
Gökhan ÇAYLI	Asistal Alüminyum

5. DESCRIPTION OF TEST SAMPLE

* Type of sample	Window and Door System
* System name	Asistal TH 68 (Tild & Turn)
* Dimensions of sample (LxH)	1230 mm x 1480 mm
* Surface area of sample	1,82 m²
* Fixed joint length	- m
* Number of openable part(s)	1
* Opening Type	Right Hang Sash
* Surface area of openable parts	1,65 m²
* Opening joint length	5,16 m
* Glass type	6 / 12 / 6 mm Insulated Glass

System Components (Please refer to the annexes)

6. CONDITIONS

Local Temperature	:	19	°C
Atmospheric Pressure	:	1009	Mbar
Ambient Humidity	:	66	%
Test Stand	:	Stand	3 – 12 - 10

7. TEST PERFORMANCE

7.1. Pressure Sequence

STEPS		POSITIVE PRESSURE (Pa)	NEGATIVE PRESSURE (Pa)
1	P1=PD	1200	1200
2	P2=PE	1800	1800

PD: Pressure Design ; PE: Pressure Extreme

7.2. Air Permeability

Before starting the test, 3 pulses at 660 Pa is applied to the sample.

During the tests, the pressure at the following values is applied for 10 seconds.

Air permeability measurements based on overall area ;

POSITIVE PRESSURE			
$\phi 1$	Test Pressure (Pa)	Air Leakage (m ³ /h)	Air Leakage (m ³ /h/m ²)
$\phi 1$	50	1,74	0,96
$\phi 1$	100	2,84	1,56
$\phi 1$	150	3,99	2,19
$\phi 1$	200	4,77	2,62
$\phi 1$	250	6,10	3,35
$\phi 1$	300	7,30	4,01
$\phi 1$	450	8,89	4,88
$\phi 1$	600	12,83	7,05
$\phi 1$	600	12,83	7,05

Test No : 2013.217.08 / 01.08.2013

NEGATIVE PRESSURE			
$\phi 1$	Test Pressure (Pa)	Air Leakage (m ³ /h)	Air Leakage (m ³ /h/m ²)
$\phi 1$	50	1,34	0,74
$\phi 1$	100	2,20	1,21
$\phi 1$	150	2,91	1,60
$\phi 1$	200	3,32	1,83
$\phi 1$	250	3,92	2,15
$\phi 1$	300	4,18	2,29
$\phi 1$	450	5,48	3,01
$\phi 1$	600	6,61	3,63
$\phi 1$	600	6,61	3,63

Test No : 2013.217.09 / 01.08.2013

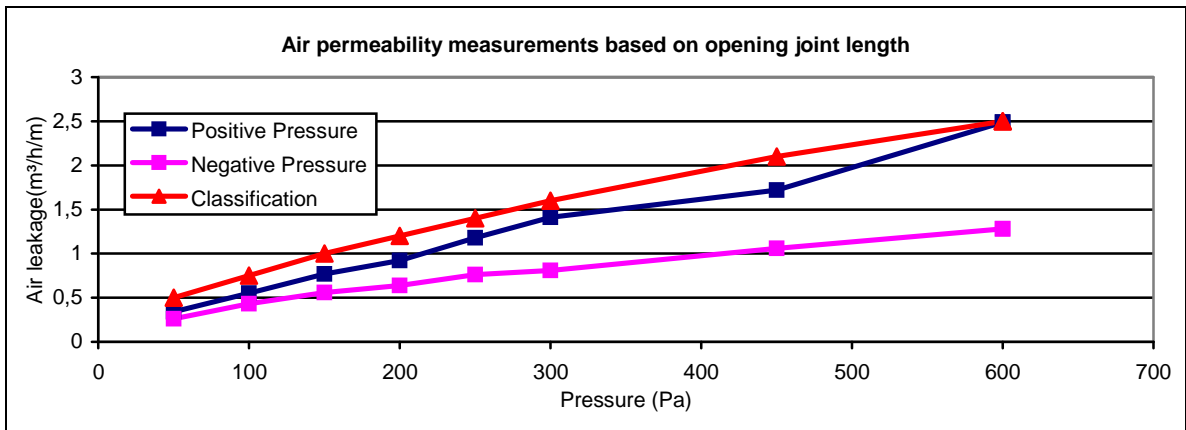
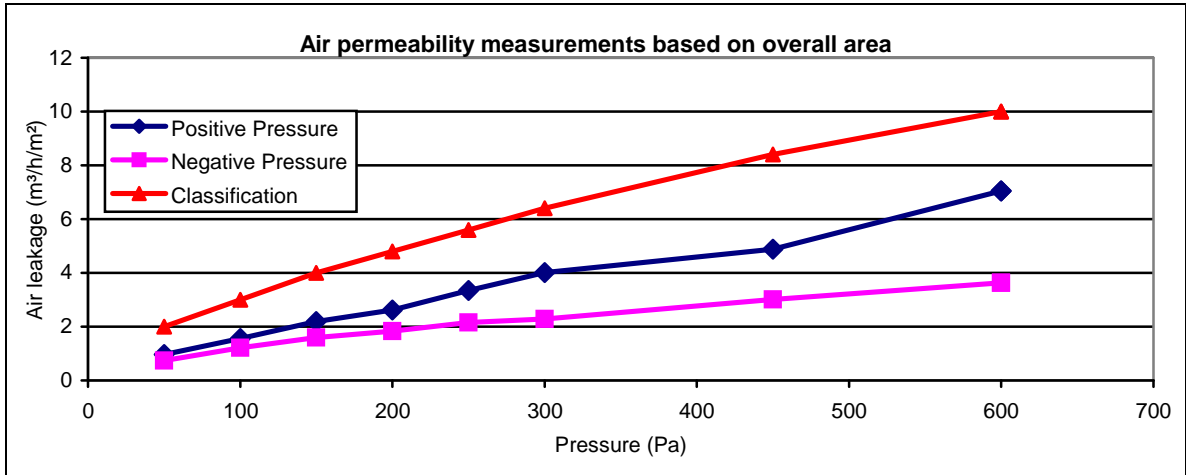
Air permeability measurements based on opening joint length;

POSITIVE PRESSURE			
$\phi 1$	Test Pressure (Pa)	Air Leakage (m ³ /h)	Air Leakage (m ³ /h/m)
$\phi 1$	50	1,74	0,34
$\phi 1$	100	2,84	0,55
$\phi 1$	150	3,99	0,77
$\phi 1$	200	4,77	0,92
$\phi 1$	250	6,10	1,18
$\phi 1$	300	7,30	1,41
$\phi 1$	450	8,89	1,72
$\phi 1$	600	12,83	2,49
$\phi 1$	600	12,83	2,49

Test No : 2013.217.08 / 01.08.2013

NEGATIVE PRESSURE			
$\phi 1$	Test Pressure (Pa)	Air Leakage (m ³ /h)	Air Leakage (m ³ /h/m)
$\phi 1$	50	1,34	0,26
$\phi 1$	100	2,20	0,43
$\phi 1$	150	2,91	0,56
$\phi 1$	200	3,32	0,64
$\phi 1$	250	3,92	0,76
$\phi 1$	300	4,18	0,81
$\phi 1$	450	5,48	1,06
$\phi 1$	600	6,61	1,28
$\phi 1$	600	6,61	1,28

Test No : 2013.217.09 / 01.08.2013



7.3. Watertightness Under Static Pressure

Before starting the test, 3 pulses at 660 Pa were applied to the sample. Waiting duration between each impacts were 3 seconds Water spray nozzles are arranged in 1 row, such that the first nozzle is apart 250 mm from the side. The number of nozzles at each row is 3 pieces.

The amount of water applied to the mockup (First row) = 2 l/min x 3 = 6 l/min = 360 l/h

Observations

Pressure Value (Pa)	Time Period (min)	Observations
0	15	No water leakage was observed.
50	5	No water leakage was observed.
100	5	No water leakage was observed.
150	5	No water leakage was observed.
200	5	No water leakage was observed.
250	5	No water leakage was observed.
300	5	No water leakage was observed.
450	5	No water leakage was observed.
600	5	No water leakage was observed.

Test No : 2013.217.10 / 01.08.2013

7.4. Resistance to Wind Load

Before starting the test, 3 pulses at 1320 / -1320 Pa are applied to the sample. Waiting duration between each impacts 3 seconds. During the tests, the pressure values are applied for 30 seconds.

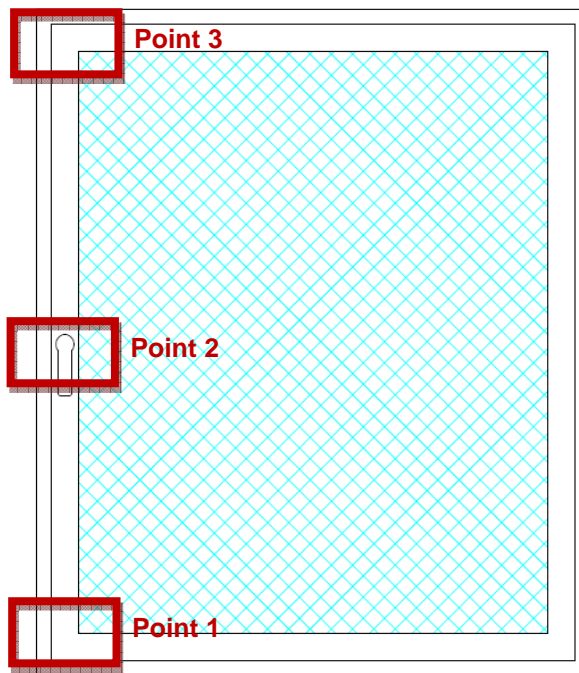
Position: Vertical distance for mullion at middle axis

Scale: **Vertical 1230 mm**

The measured frontal deflection between points of the structural support should not exceed the minimum of **1/300** of the framing member's span under the positive and negative design loads:

Vertical 1230 / 300 = 4,10 mm

Positions of the transducers which deflection measurements have been carried out on Test Samples



Specimen dimensions and sensor replacement coordinates;

	X coordinates (mm)	Y coordinates (mm)
External Dimensions	1230	1480
Sensor 3 Replacement	1200	1450
Sensor 2 Replacement	1200	740
Sensor 1 Replacement	1200	30

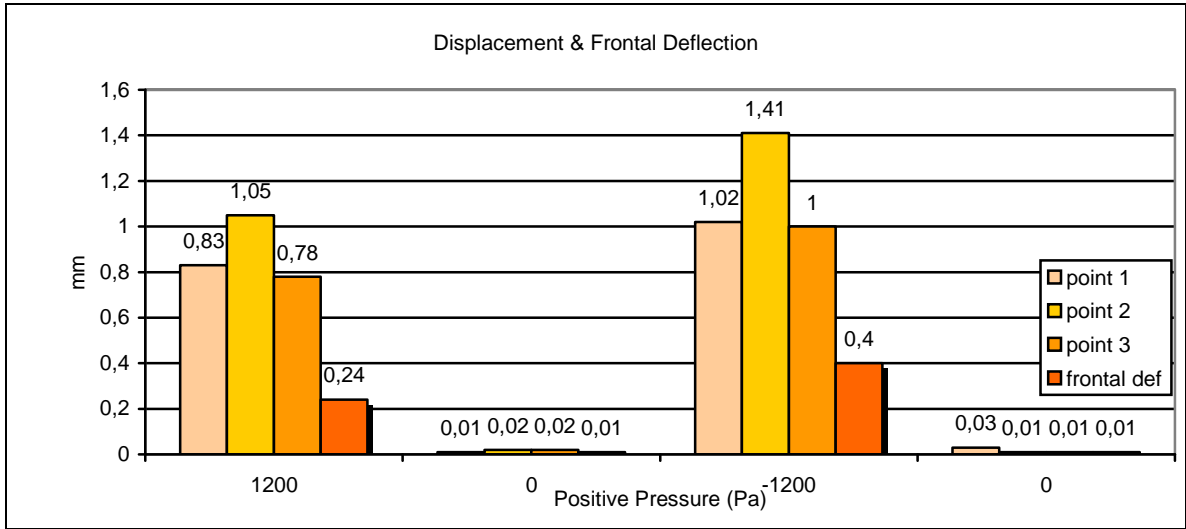
Frontal deflection measurement results on the vertical mullion;

Positive Pressure (Pa)	Point 1 (mm)	Point 2 (mm)	Point 3 (mm)	Frontal Deflection (mm)
1200	0,83	1,05	0,78	0,24
0	0,01	0,02	0,02	0,01

Test No : 2013.217.11 / 01.08.2013

Negative Pressure (Pa)	Point 1 (mm)	Point 2 (mm)	Point 3 (mm)	Frontal Deflection (mm)
-1200	1,02	1,41	1,00	0,40
0	0,03	0,01	0,01	0,01

Test No : 2013.217.12 / 01.08.2013



7.5. Repeated Pressure Test

Positive and negative test pressure was applied to 50 cycles at 600 Pa. Duration time between each impact was 5 seconds.

Test Pressure (Pa)	Cycle	Observation
PC = ± 600	50	No damage was observed

Test No : 2013.217.13 / 01.08.2013

7.6. Increased Load Test (Safety Test – Secure Load)

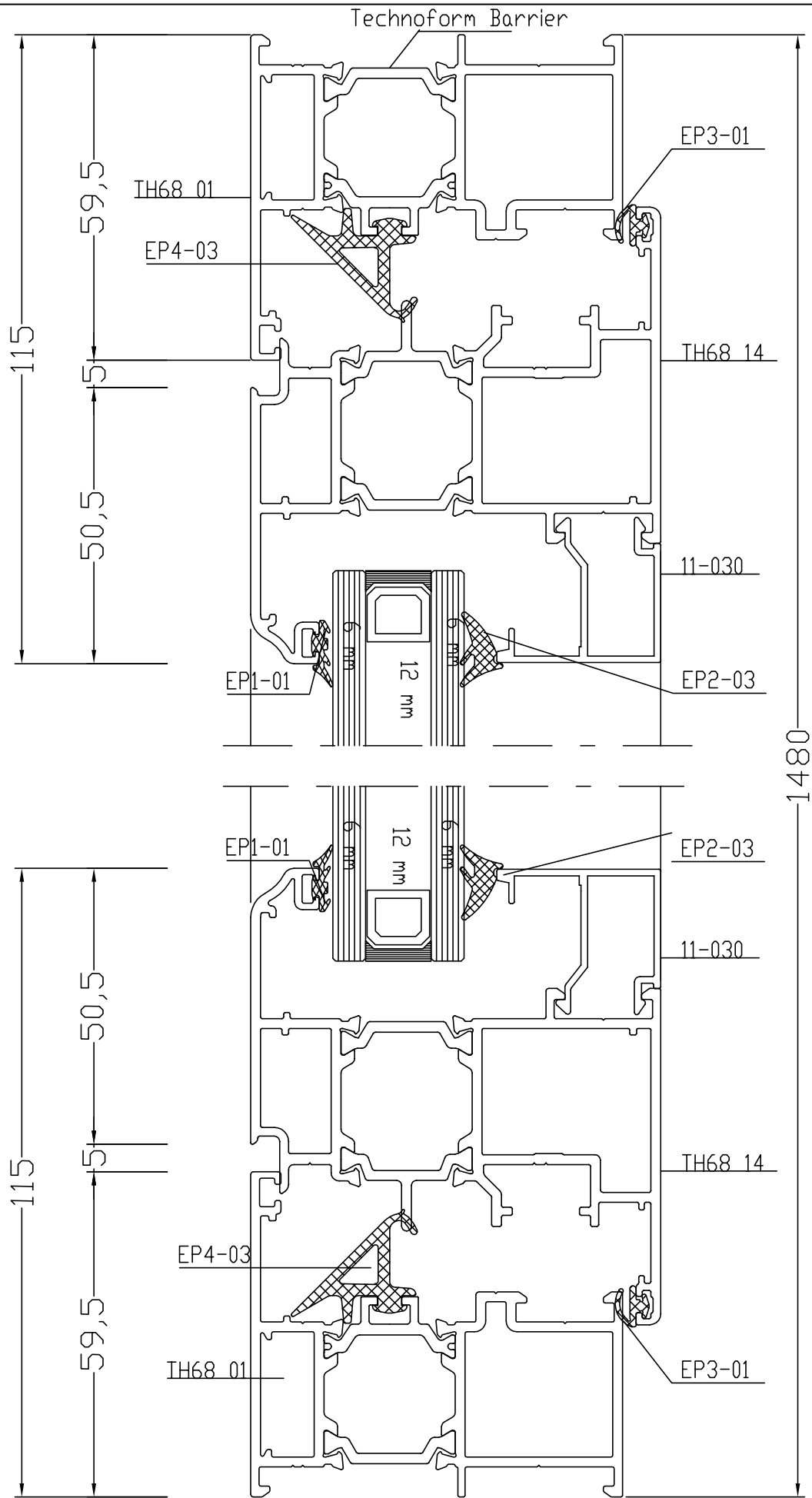
Safety load increased to 1,5 times the design load were applied to the sample.

Test Pressure	Applied		Observations
	Positive	Negative	
PE = ± 1800 Pa	+ 1800 Pa	- 1800 Pa	No damage was observed on the sample

Test No : 2013.217.14 / 01.08.2013

8. TEST PERFORMANCE

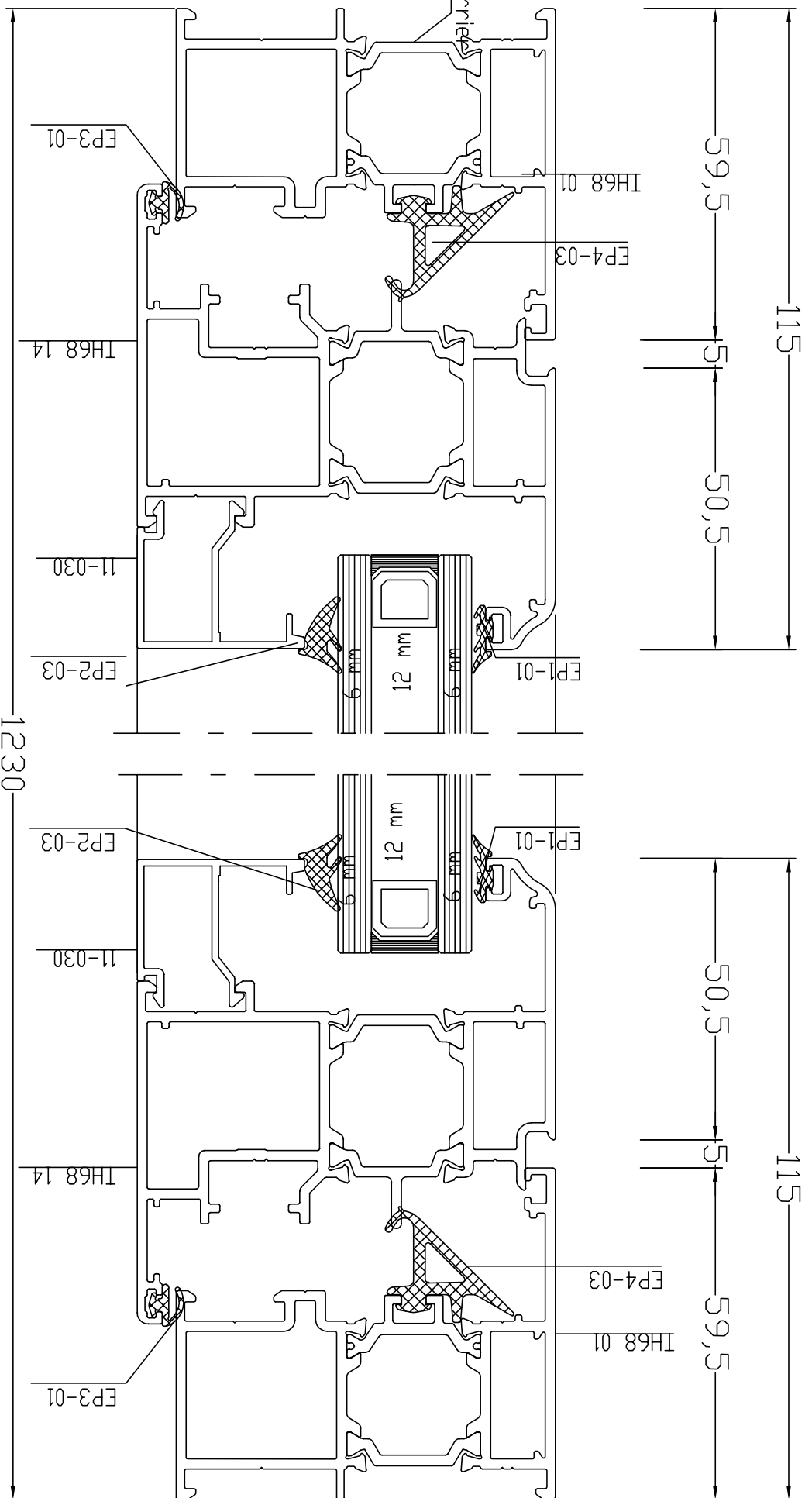
	CONDITIONS	RESULTS		CLASSIFICATION
AIR PERMEABILITY EN 12207 (overall area)	600 Pa < 10 m ³ /h,m ²	Positive Pressure	7,05	4
	600 Pa < 10 m ³ /h,m ²	Negative Pressure	3,63	4
AIR PERMEABILITY EN 12207 (openable lenght)	600 Pa < 2,5 m ³ /h,m	Positive Pressure	2,49	4
	600 Pa < 2,5 m ³ /h,m	Negative Pressure	1,28	4
WATER- TIGHTNESS (Static Pressure) EN 12208	There will be no water leakage at 600 Pa	No water leakage was observed		9 A
RESISTANCE TO WIND LOAD EN 12210	Deflection < 4,1 mm for L/300 Pressure will be ± 1200 Pa	OK (max. 0,24 mm) (max. -0,4 mm)		C 3
	There will not be any damage at cycle test ± 600 Pa x 50 cycle	None of any damage was observed		
	There will not be any damage at secure load ± 1800 Pa	None of any damage was observed at positive or negative pressure		



REPORT NO:
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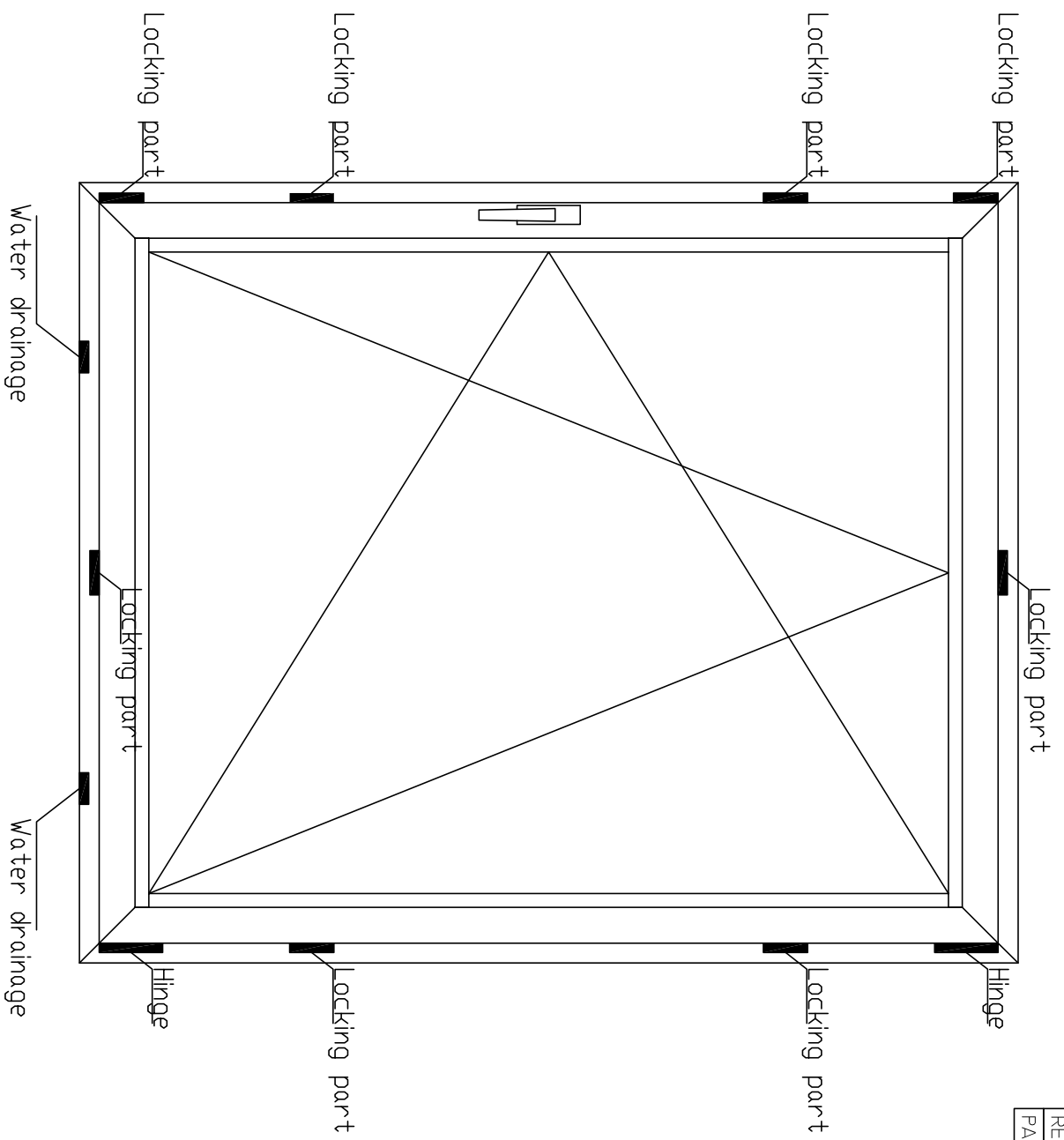
NOTIFIED BODY NO:		DETAIL: TOP - BOTTOM DETAIL (TECHNOFORM HEAT BARRIER)			
ACCREDITATION NO:	AB-0531-T	ASISTAL TH 68 WINDOW AND DOOR SYSTEM			
REPORT NO:	020.158.2/2013	PROJECT CODE:	2013.217	DATE:	11.11.2013
PREPARED BY:	S.COLAK	CLIENT:	TECHNOFORM BAUTEC ITALIA SPA	REV.NO:	A
CONTROL BY:	O.USTA	EXPLANATION:	AIR PERMEABILITY, WATERTIGHTNESS AND WYND RESISTANCETEST		





NOTIFIED BODY NO		DETAIL:	
ACCREDITATION NO	AB-0531-T	LEFT-RIGHT DETAIL (TECHNOFORM HEAT BARRIER)	
REPORT NO	0201584_2/2013	ASISTAL TH 68 WINDOW AND DOOR SYSTEM	
PREPARED BY	S.COŁAK	CLIENT	TECHNOFORM BAUTEC ITALIA SPA
CONTROL BY	O.USTA	EXPLANATION	AIR PERMEABILITY, WATER TIGHTNESS AND WIND RESISTANCE TEST
		SAMPLE NO	2013_217
		DATE	11.11.2013
		REV.NO	A





NOTIFIED BODY NO		DETAIL:	SASH MECHANISM DETAIL	
ACCREDITATION NO	AB-0531-T	SAMPLE NO	2013.217	ASISTAL TH 68 WINDOW AND DOOR SYSTEM
REPORT NO	020.158.2/2013	CLIENT	TECHNOFORM BAUTEC ITALIA SPA	
PREPARED BY	S.COIAK	EXPLANATION	AIR PERMEABILITY, WATERTIGHTNESS AND WIND RESISTANCE TEST	
CONTROL BY	O.JUSTA	DATE	11.11.2013	
		REV.NO	A	



Roto NT

Drehkipp-Beschlag K / A

Grundsicherheit



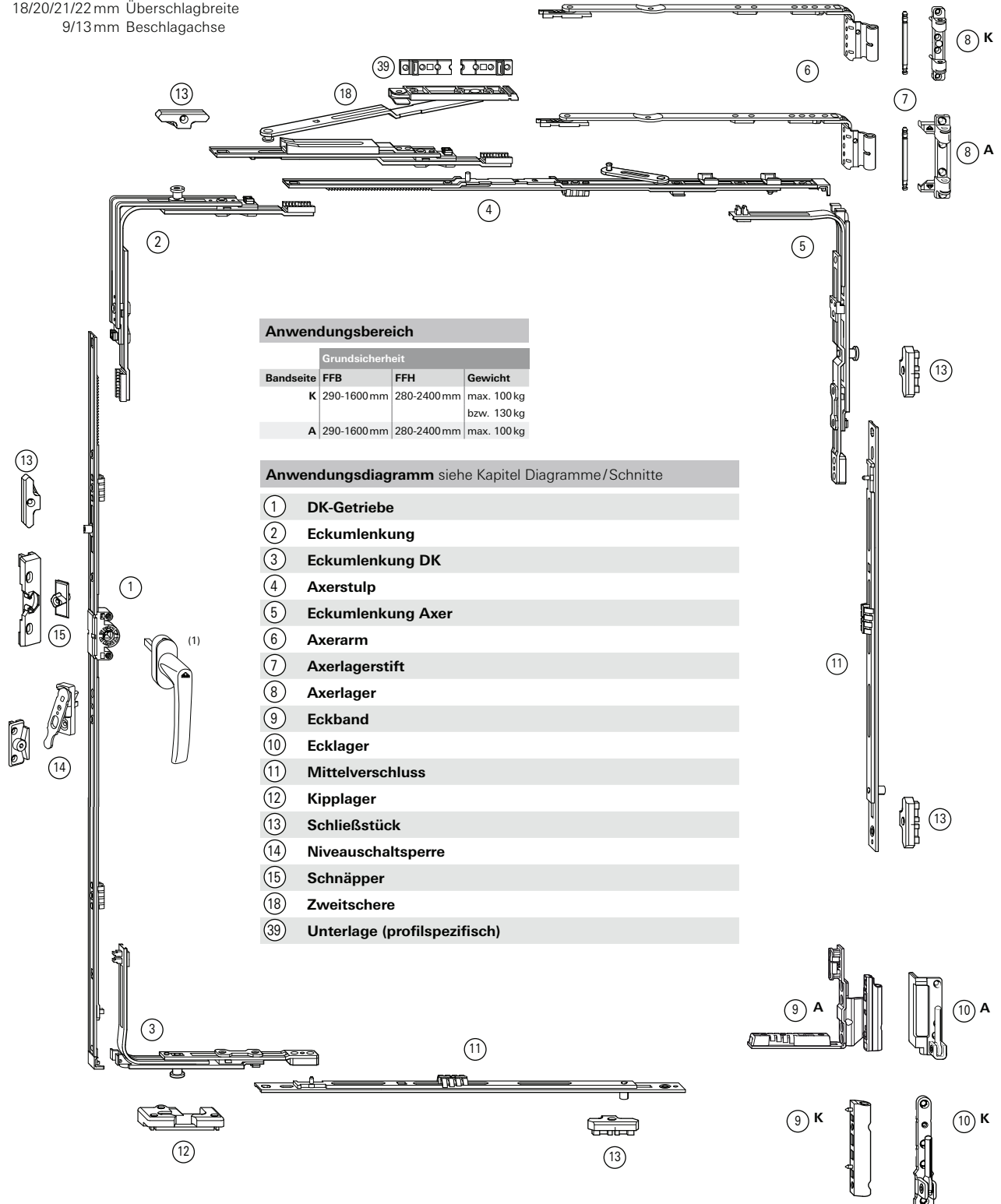
Bandseite K, Systeme 12/18(20)-9 und 12/20(21,22)-13

Bandseite A, Systeme 12/18(20)-9 und 12/20-13

12mm Falzluf

18/20/21/22mm Überschlagbreite

9/13mm Beschlagachse



⁽¹⁾ siehe Katalog „Roto Griffe“ BK 5