FIRE RATED AND SMOKE EXHAUST SYSTEMS

ALUPROF

CONTENT

Fire rated and smoke exhaust systems by Aluprof

A wide range of systems offered by Aluprof facilitate a variety of structural elements that are responsible for "fire protection zones" in buildings, and provide the right conditions for evacuation of its occupants. These solutions include both a window wall & door system option, extending to a typical "stick assembly" curtain wall system solution. The fire resistance performance of these solutions, depending on the project requirements, are available in a variety of classes, from as low as EI 15 (15 minutes) up to a an EI class of 120 (2 hours) for vertical assemblies, and achieve a class of REI30 / RE30 for roof glazing.

The following solutions, categorised by their common fire retardant properties, are responsible for the safety of a building's occupants during a fire: **MB-60E E**I internal & external partition walls & doors (classes EI 15, EI 30), **MB-78EI** internal & external partition walls & doors (classes EI 15 to EI 90), **MB-78EI DPA** automatic sliding doors (EI 30), **MB-118EI** fire walls (EI 120), **MB-SR50N EI** curtain wall (classes EI 15 to EI 60), **MB-SR50 EI EFEKT** and **MB-SR50N EI EFEKT** curtain walls (classes EI60), glazed fire roofs (REI 30 / RE 30), **MB-45D** smoke-tight door & smoke exhaust windows & valves.

An important feature of the Aluprof fire rated solutions is their ability to interface with each other, one system to the next, whilst maintaining the necessary fire resistance. This is demonstrated with the integration of the **MB-78EI** door into the **MB-SR50N EI** curtain wall, enabling the whole structure to achieve a common EI 30 or EI 60 class performance. The same **MB-78EI** door possibility exists, with implementation into the **MB-118EI** wall system.

All products featured in this publication have been successfully tested in laboratories & research institutes in Poland & across Europe.

GAIN VALUABLE TIME!

Technical requirements as to fire-resisting constructions in buildings.

In accordance with the requirements of the building regulations as to buildings and their location, fire-resisting door and windows that are to be installed in the openings of vertical separating elements in a building should be designed and constructed in such a way, that in case of fire:

- prevent fire from spreading
- limit the spread of fire and smoke in the building to other rooms and zones,
- limit the spread of fire to other buildings,
- allow the evacuation of building occupants by limiting the level of heat radiation,
- ensure safety and facilitate the operation of emergency crews

The required fire resistance rating for partitions is determined by the provisions in force in the respective countries, and can be dependent on the fire resistance class, to which the building is suited. This is shown in the table below:

Fire resistive rating (building)	Fire resistance rating (partition wall)
A	EI 60
B	EI 30
C	EI 15
D	-
E	-

Symbols in the classification of fire resistance of a construction.

E – integrity

- no flames
- no smoke
- high temperature

Integrity (E) is the ability of a component or construction to maintain the integrity of the element on one side only, without spreading the fire to a non-heated side as a result of penetration of flames or hot gases.

EW – integrity and radiation reduction

- no flames
- no smoke
- lower thermal radiation

Reduction of radiation (W) is the ability of a component or construction to maintain the integrity of the element on one side only, to reduce the likelihood of fire spreading that may result from significant thermal radiation or through an element, or from its non-heated surface to adjacent materials.

EI – integrity and insulation

- no flames
- no smoke
- high temperature insulation

Insulation (I) is the ability of a component or construction to maintain the integrity of the element on one side only, without spreading the fire as a result of a significant heat flow from a heated side to a non-heated side. During the fire, the construction on the non-heated side reaches a temperature of not more than +140°C up to +180 °C.

All the above-mentioned parameters are given in minutes. The number after a given symbol gives the laboratory time from starting of a fire, in which a parameter is maintained.

Research, reports, certificates.

Aluprof S.A. strives to continuously improve the quality of its products. The company's quality management system meets the requirements of standards **EN ISO 9001 / EN ISO 14001**, which has been confirmed by the inspection body **TÜV NORD**. The products offered by **Aluprof** meet all the requirements of the European standards as to the quality of alloys, tolerance and resistance characteristics. The company cooperates with many European research centres and building research laboratories, also specializing in the fire-resisting constructions: Building Research Institute (Poland), IFT Rosenheim (Germany), Warrington Certificate Exova (Great Britain), Fires Institute (Slovakia), ÉMI Institute (Hungary) Incerc Institute (Romania), Efectis Institute (Netherlands), and others. The cooperation involves fire testing and reviews of the company's documents (reports and classifications). These documents enable ALUPROF systems-based products to be applied in fire-resisting constructions throughout Europe and beyond.

Examples of documents issued for ALUPROF systems-based fire-resisting constructions


Instytut Techniki Budowlanej

APROBATA TECHNICZNA ITB
AT-15-6006/2012

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

Drzwi przeciwpożarowe systemów ALUPROF® MB-78EI i ALUPROF® MB-78EI DPA oraz zestaw wyrobów do wykonywania przeciwpożarowych ścian wewnętrznych i zewnętrznych systemu ALUPROF® MB-78EI oraz ścian wewnętrznych systemu ALUPROF® MB-118EI

DYREKTOR

Warszawa, 14 grudnia 2012 r.


certifire

CERTIFICATE OF APPROVAL
No CF 5138

ALUPROF S.A.

Ul. Warszawska 153,
43-300 Bielsko-Biała, Poland
Tel: +48 33 891 53 00

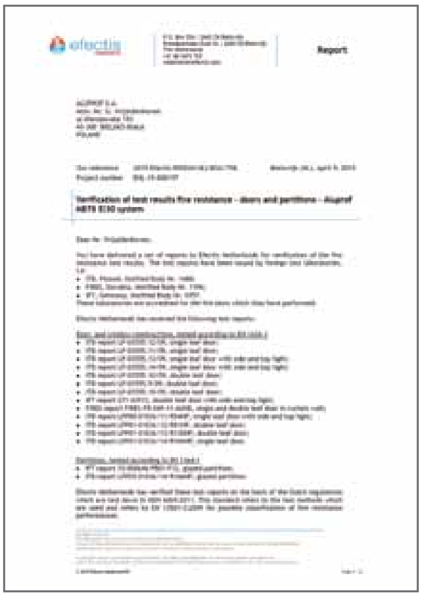
CERTIFIED PRODUCT

Aluminium Framing Systems Type MB 78 EI for Glazed Walls and Doors

TECHNICAL SCHEDULE

TS25 Fire Resistant Glass, Glazing Systems and Materials


Feuerschutzabschluss


efectis

Report


FIRES

FIRE RESISTANCE EXPERT JUDGEMENT REPORT
WITH CLASSIFICATION FIRES-JR-112-13-NURE

Single leaf and double leaf sliding automatic door, type MB 78 EI

www.fires.sk


GRYFIT

TEST REPORT No. LBO-446/13E


certifire

CERTIFICATE OF APPROVAL
No CF 5139

ALUPROF S.A.

Ul. Warszawska 153, 43-300 Bielsko-Biała, Poland

CERTIFIED PRODUCT

TECHNICAL SCHEDULE


ÉMI

Vizsgálati jegyzőkönyv

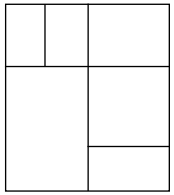

Instytut Techniki Budowlanej

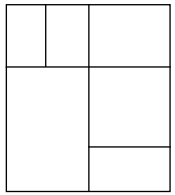
FIRE RESEARCH DEPARTMENT
FIRE TESTING LABORATORY

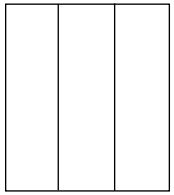
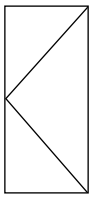
TEST REPORT Nº LP02-1036/14/R167NP/e

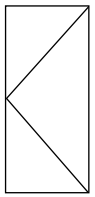
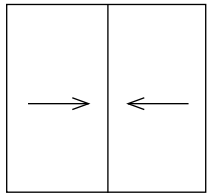
Maximum dimensions of a fire-resisting construction fabricated using ALUPROF's systems, types and maximum glass dimensions

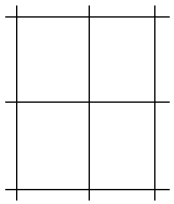
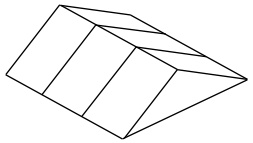
The following table lists the maximum dimensions of fire-resisting constructions with notations and maximum glass dimensions depending on the type of construction and its fire resistance rating. For notations/dimensions of glass that are not listed in the table, please contact our Technical Support Department.

Construction	System	Class	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction /leaf -W x H	Max dims. of the glass-vertical rectangle [mm]	Max dims. of the glass-horizontal rectangle [mm]
 Fixed partitions	MB-60E EI	EI30	Polflam (Glass-Team)	Polflam EI30	20	no limit x 4000	1500x3000	
	MB-78EI	EI15	AGC	Pyrobel 8	9,3	no limit x 4000	1200x2000	2000x1200
				Pyrobel 8 EG	13,1			
			Polflam (Glass-Team)	Polflam EI15	20	no limit x 4000	1500x3000	3000x1500
			Vetrotech (Saint-Gobain)	Swissflam Lite	14	no limit x 4000	1280x1780	1780x1280
				Contraflam Lite 30	13, 15, 19		1500x3000	3000x1500
				Contraflam Lite 60	14, 16, 20	no limit x 4000	1500x3000	3000x1500
	MB-78EI	EW30	Vetrotech (Saint-Gobain)	Contraflam Lite 30	13, 15, 19	no limit x 4000	1500x3000	3000x1500
				Contraflam Lite	13		1500x3000	3000x1500
				Contraflam Lite	15		1800x3500	3500x1800
				Contraflam Lite	13		2300x3800	3800x2300
	MB-78EI	EI30	AGC	Pyrobel 16	17,3	no limit x 4000	1400x2900	2900x1400
				Pyrobel 16 EG	21,2			
			Polflam (Glass-Team)	Polflam EI30	20	no limit x 4300	2200x4200	3000x1500
			Pilkington	Pyrostop 30-10	15	no limit x 4000	1400x2400	2400x1400
				Pyrostop 30-20	18		1400x3000	3000x1400
				Pyrostop 30-25	32-36		1400x2400	2400x1400
				Pyrostop 30-35	32-36			
			Promat Top	Promaglas	17	no limit x 4000	1500x2700	2700x1500
				Promaglas F1	22		1500x2000	2000x1500
				Promaglas F1	24		1950x3500	3500x1950
			Schott	Pyranowa 30 S2.0	15	no limit x 4000	1300x2400	2400x1300
				Pyranowa 30 S2.1	19			
			Vetrotech (Saint-Gobain)	Swissflam	17	no limit x 4000	1300x2400	2400x1300
				Contraflam 30	16		1500x3000	3000x1500
				Contraflam 30	18		1800x3412	3412x1800
				Contraflam 30	22		2300x3800	3800x2300
				Contraflam 30-2	33		1500x3000	3000x1500
				Contraflam 30-2	36		1550x3500	3500x1550
				Contraflam 30-2	42		1510x3600	3600x1510

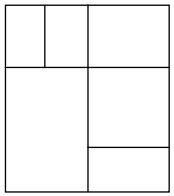
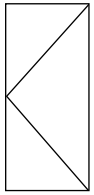
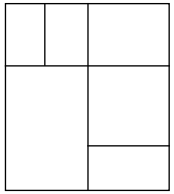
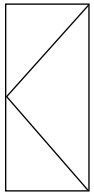
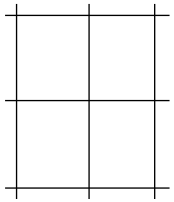
Construction	System	Class	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction /leaf -W x H	Max dims. of the glass- vertical rectangle [mm]	Max dims. of the glass- horizontal rectangle [mm]
 Fixed partitions	MB-78EI	EI30	Vitroszlif (Glas Troesch AG)	Fireswiss FSF 30-15	15	no limit x 4000	2000x2840	2840x2000
				Fireswiss FSF 30-16	16			
				Fireswiss FSF 30-19	19			
				Fireswiss FSF 30-20	20			
			Q4glass	Q4Firestop	16,5	no limit x 4000	1400x2700	2350x1400
	MB-78EI	EI45	AGC	Pyrobel 17	17,4	no limit x 4000	1400x2700	2700x1400
				Pyrobel 17 EG	21,2			
	MB-78EI	EI60	AGC	Pyrobel 25	26,6	no limit x 4000	1400x2700	2700x1400
				Pyrobel 25 EG	30,4			
			Polflam (Glass-Team)	Polflam EI60	25	no limit x 4000	1500x3000	3000x1500
			Pilkington	Pyrostop 60-101	23	no limit x 4000	1400x2400	2400x1400
				Pyrostop 60-201	27			
				Pyrostop 60-251	41-45			
				Pyrostop 60-351	41-45			
			Promat Top	Promaglas	25	no limit x 4000	1300x2500	2500x1300
				Promaglas F1	28		1500x2000	2000x1500
				Promaglas F1	30		1950x3500	3500x1950
			Schott	Pyranowa 60 S2.0	23	no limit x 4000	1300x2400	2400x1300
				Pyranowa 60 S2.1	27			
			Vetrotech (Saint-Gobain)	Swissflam	25	no limit x 4000	1300x2400	2400x1300
				Contraflam 60	25		1500x2500	2500x1500
				Contraflam 60	26		1500x3000	3000x1500
				Contraflam 60	29		1800x2600	2600x1800
				Contraflam 60	33		1800x3210	3210x1800
				Contraflam 60	35		2200x3210	3210x2200
				Contraflam 60-3	27, 29, 31		1500x3000	3000x1500
				Contraflam 60-3	41		1510x3600	3600x1510
			Vitroszlif (Glas Troesch AG)	Fireswiss FSF 60-23	23	no limit x 4000	1500x2500	2500x1500
				Fireswiss FSF 60-24	24			
				Fireswiss FSF 60-27	27			
				Fireswiss FSF 60-28	28			
			Q4glass	Q4Firestop	27	no limit x 4000	1400x2700	2350x1400
	MB-78EI	EI90	Polflam (Glass-Team)	Polflam EI90	32	no limit x 4000	1500x3000	
	MB-118EI	EI120	Polflam (Glass-Team)	Polflam EI120	35	no limit x 4000	1500x3000	1508x1467
			Pilkington	Pyrostop 120-10	58	no limit x 4000	1400x2500	1400x1068

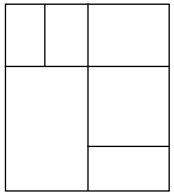
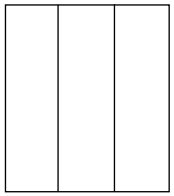
Construction	System	Class	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction /leaf -W x H	Max dims. of the glass-vertical rectangle [mm]	Max dims. of the glass-horizontal rectangle [mm]
 Silicone joined glazed walls	MB-78EI	EI30	Vetrotech (Saint-Gobain)	Contraflam Strukture	23	no limit x 3600	1500x3600	1800x3000
	MB-78EI	EI60	Vetrotech (Saint-Gobain)	Contraflam Strukture	31	no limit x 3400	1500x3400	1700x3000
 doors and windows	MB-60E EI	EI30	Polflam (Glass-Team)	Polflam EI30	20	1400x2475 / 2580x2475		
	MB-78EI	EI15	AGC	Pyrobel 8	9,3	1200x2000		
				Pyrobel 8 EG	13,1			
			Polflam (Glass-Team)	Polflam EI15	20	1400x2500 / 2500x2500		
			Vetrotech (Saint-Gobain)	Swissflam Lite	14	1280x1780		
				Contraflam Lite 30	13, 15, 19	1400x2500		
				Contraflam Lite 60	14, 16, 20			
	MB-78EI	EW30	Vetrotech (Saint-Gobain)	Contraflam Lite	13, 15, 19	1400x2500		
	MB-78EI	EI30	AGC	Pyrobel 16	17,3	1400x2500		
				Pyrobel 16 EG	21,2			
			Polflam (Glass-Team)	Polflam EI30	20	1400x2500		
			Pilkington	Pyrostop 30-10	15	1400x2400		
				Pyrostop 30-20	18	1400x2500		
				Pyrostop 30-25	32-36	1400x2400		
				Pyrostop 30-35	32-36			
			Promat Top	Promaglas	17	1400x2500		
				Promaglas F1	22	1400x2000		
				Promaglas F1	24	1400x2500		
			Schott	Pyranowa 30 S2.0	15	1300x2400		
				Pyranowa 30 S2.1	19			
			Vetrotech (Saint-Gobain)	Swissflam	17	1300x2400		
				Contraflam 30	16, 18, 22	1400x2500		
				Contraflam 30-2	33, 36, 42			
			Vitroszlif (Glas Troesch AG)	Fireswiss FSF 30-15	15	1400x2500		
				Fireswiss FSF 30-16	16	1400x2500		
				Fireswiss FSF 30-19	19	1400x2500		
				Fireswiss FSF 30-20	20	1400x2500		
			Q4glass	Q4Firestop	16,5	1260x2300		
	MB-78EI	EI45	AGC	Pyrobel 17	17,4	1400x2500		
				Pyrobel 17 EG	21,2			

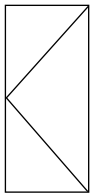
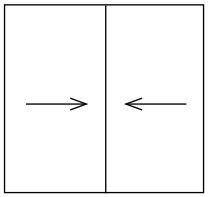
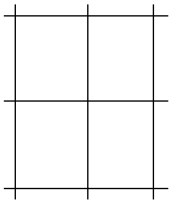
Construction	System	Class	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction /leaf -W x H	Max dims. of the glass- vertical rectangle [mm]	Max dims. of the glass- horizontal rectangle [mm]
 doors and windows	MB-78EI	EI60	AGC	Pyrobel 25	26,6	1400x2500		
				Pyrobel 25 EG	30,4			
			Polflam (Glass-Team)	Polflam EI60	25	1400x2500		
			Pilkington	Pyrostop 60-101	23	1400x2500		
				Pyrostop 60-201	27			
				Pyrostop 60-251	41-45			
				Pyrostop 60-351	41-45			
	MB-78EI	EI60	Promat Top	Promaglas	25	1300x2500		
				Promaglas F1	28	1400x2000		
				Promaglas F1	30	1400x2500		
			Schott	Pyranowa 60 S2.0	23	1300x2400		
				Pyranowa 60 S2.1	27			
			Vetrotech (Saint-Gobain)	Swissflam	25	1300x2400		
				Contraflam 60	25, 26, 29, 33, 35	1400x2500		
				Contraflam 60-3	27, 29, 31, 41			
			Vitroszlif (Glas Troesch AG)	Fireswiss FSF 60-23	23	1400x2500		
				Fireswiss FSF 60-24	24			
				Fireswiss FSF 60-27	27			
				Fireswiss FSF 60-28	28			
			Q4glass	Q4Firestop	27	1260x2300		
	MB-78EI	EI90	AGC	Pyrobel 90/35	36	360x460		
			Pilkington	Pyrostop 90-102	37	1265x2300		
			Vetrotech (Saint-Gobain)	Contraflam 90	40	1260x2360		
 Automatic sliding doors	MB-78 EI DPA	EI30	Polflam (Glass-Team)	Polflam EI30	20	1350x2550/1350x2710		
			Vetrotech (Saint-Gobain)	Contraflam 30	16, 18, 22	1350x2550		

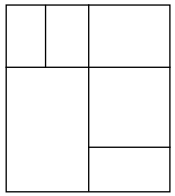
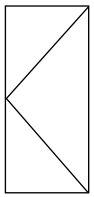
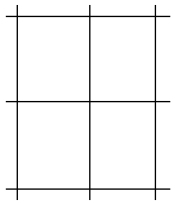
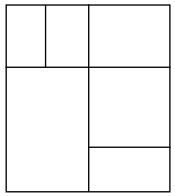
Construction	System	Class	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction /leaf -W x H	Max dims. of the glass-vertical rectangle [mm]	Max dims. of the glass-horizontal rectangle [mm]
 curtain wall	MB-SR50N EI	EI15	AGC	Pyrobel 8	9,3		1400x2400	1800x1200
			Vetrotech (Saint-Gobain)	Swissflam	14		1400x2400	1800x1200
	MB-SR50N EI	EI30	AGC	Pyrobel 16	17,3		1400x2400	1800x1200
			Polflam (Glass-Team)	Polflam EI30	20		1500x3000	2400x1500
			Pilkington	Pyrostop 30-10	15		1400x2400	1800x1200
				Pyrostop 30-20	18			
			Promat Top	Promaglas	17		1400x2400	1800x1200
			Schott	Pyranowa	16		1400x2400	1800x1200
			Vetrotech (Saint-Gobain)	Swissflam 30	17		1400x2400	1800x1200
				Contraflam 30	16		1500x3000	1700x1200
	MB-SR50N EI	EI45	AGC	Pyrobel 17	17,4		1400x2400	1800x1200
	MB-SR50N EI	EI60	AGC	Pyrobel 25	26,6		1400x2400	1800x1200
			Polflam (Glass-Team)	Polflam EI60	25		1500x3000	2400x1500
	MB-SR50N EI	EI60	Pilkington	Pyrostop 60-101	23		1400x2400	1800x1200
				Pyrostop 60-201	27			
			Promat Top	Promaglas	21		1400x2400	1800x1200
			Schott	Pyranowa	21		1400x2400	1800x1200
			Vetrotech (Saint-Gobain)	Swissflam 60	25		1400x2400	1800x1200
				Contraflam 60	25		1500x3000	1700x1200
	MB-SR50N EI EFEKT	EI30	Polflam (Glass-Team)	Polflam EI30	20		1500x3000	2000x1500
		EI60	Vetrotech (Saint-Gobain)	Contraflam	25, 29		1576x3146	
			Q4glass	Q4Firestop	30		1500x3000	2000x1500
 skylight	MB-SR50N EI	REI30/RE30	Polflam (Glass-Team)	Polflam H EI30	22		1200x2200	
			Vetrotech (Saint-Gobain)	Contraflam Lite 30 Horizontal	20		1100x2100	

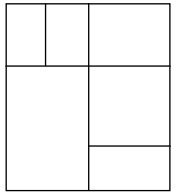
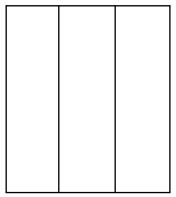
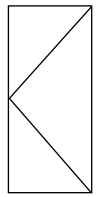
List of constructions available in different fire resistance classes

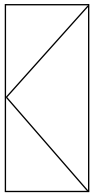
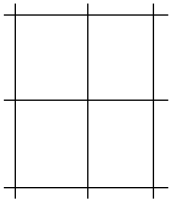
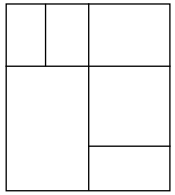
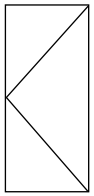
Class	Construction	S ystem	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EW30	 Fixed partitions	MB-78EI	Vetrotech (Saint-Gobain)	Contraflam Lite 30	13, 15, 19	no limit x 4000	1500x3000	3000x1500	22
				Contraflam Lite	13		1500x3000	3000x1500	
				Contraflam Lite	15		1800x3500	3500x1800	
				Contraflam Lite	13		2300x3800	3800x2300	
EW30	 Doors and windows	MB-78EI	Vetrotech (Saint-Gobain)	Contraflam Lite	13, 15, 19	1400x2500			22
EI15	 Fixed partitions	MB-78EI	AGC	Pyrobel 8	9,3	no limit x 4000	1200x2000	2000x1200	22
				Pyrobel 8 EG	13,1				
			Polflam (Glass-Team)	Polflam EI15	20	no limit x 4000	1500x3000	3000x1500	
			Vetrotech (Saint-Gobain)	Swissflam Lite	14	no limit x 4000	1280x1780	1780x1280	
				Contraflam Lite 30	13, 15, 19		1500x3000	3000x1500	
				Contraflam Lite 60	14, 16, 20	no limit x 4000	1500x3000	3000x1500	
EI15	 Doors and windows	MB-78EI	AGC	Pyrobel 8	9,3	1200x2000			22
				Pyrobel 8 EG	13,1				
			Polflam (Glass-Team)	Polflam EI15	20	1400x2500/2500x2500			
			Vetrotech (Saint-Gobain)	Swissflam Lite	14	1280x1780			
				Contraflam Lite 30	13, 15, 19	1400x2500			
				Contraflam Lite 60	14, 16, 20				
EI15	 curtain wall	MB-SR50N EI	AGC	Pyrobel 8	9,3		1400x2400	1800x1200	40
			Vetrotech (Saint-Gobain)	Swissflam	14		1400x2400	1800x1200	

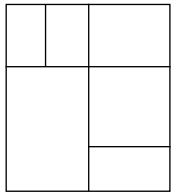
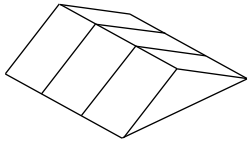
Class	Construction	System	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EI30	 Fixed partitions	MB-60E EI	Polflam (Glass-Team)	Polflam EI30	20	no limit x 4000	1500 x 3000		18
		MB-78EI	AGC	Pyrobel 16	17,3	no limit x 4000	1400x2900	2900x1400	22
				Pyrobel 16 EG	21,2				
			Polflam (Glass-Team)	Polflam EI30	20	no limit x 4300	2200x4200	3000x1500	
			Pilkington	Pyrostop 30-10	15	no limit x 4000	1400x2400	2400x1400	
				Pyrostop 30-20	18		1400x3000	3000x1400	
				Pyrostop 30-25	32-36		1400x2400	2400x1400	
				Pyrostop 30-35	32-36				
			Promat Top	Promaglas	17	no limit x 4000	1500x2700	2700x1500	
				Promaglas F1	22		1500x2000	2000x1500	
				Promaglas F1	24		1950x3500	3500x1950	
			Schott	Pyranowa 30 S2.0	15	no limit x 4000	1300x2400	2400x1300	
				Pyranowa 30 S2.1	19				
			Vetrotech (Saint-Gobain)	Swissflam	17	no limit x 4000	1300x2400	2400x1300	
				Contraflam 30	16		1500x3000	3000x1500	
				Contraflam 30	18		1800x3412	3412x1800	
				Contraflam 30	22		2300x3800	3800x2300	
				Contraflam 30-2	33		1500x3000	3000x1500	
				Contraflam 30-2	36		1550x3500	3500x1550	
				Contraflam 30-2	42		1510x3600	3600x1510	
			Vtroszlif (Glas Troesch AG)	Fireswiss FSF 30-15	15	no limit x 4000	2000x2840	2840x2000	
				Fireswiss FSF 30-16	16				
				Fireswiss FSF 30-19	19				
				Fireswiss FSF 30-20	20				
			Q4glass	Q4Firestop	16,5	no limit x 4000	1400x2700	2350x1400	
EI30	 Silicone joined glazed walls	MB-78EI	Vetrotech (Saint-Gobain)	Contraflam Strukture	23	no limit x 3600	1500x3600	1800x3000	28

Class	Construction	System	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EI30	 Doors and windows	MB-60E EI	Polflam (Glass-Team)	Polflam EI30	20	1400x2475/2580x2475			18
		MB-78EI	AGC	Pyrobel 16	17,3	1400x2500			22
				Pyrobel 16 EG	21,2				
			Polflam (Glass-Team)	Polflam EI30	20	1400x2500			
			Pilkington	Pyrostop 30-10	15	1400x2400			
				Pyrostop 30-20	18	1400x2500			
				Pyrostop 30-25	32-36	1400x2400			
				Pyrostop 30-35	32-36				
			Promat Top	Promaglas	17	1400x2500			
				Promaglas F1	22	1400x2000			
				Promaglas F1	24	1400x2500			
			Schott	Pyranowa 30 S2.0	15	1300x2400			
				Pyranowa 30 S2.1	19				
			Vetrotech (Saint-Gobain)	Swissflam	17	1300x2400			
				Contraflam 30	16, 18, 22	1400x2500			
				Contraflam 30-2	33, 36, 42				
			Vtroszlif (Glas Troesch AG)	Fireswiss FSF 30-15	15	1400x2500			
				Fireswiss FSF 30-16	16	1400x2500			
				Fireswiss FSF 30-19	19	1400x2500			
				Fireswiss FSF 30-20	20	1400x2500			
			Q4glass	Q4Firestop	16,5	1260x2300			
EI30	 Automatic sliding doors	MB-78 EI DPA	Polflam (Glass-Team)	Polflam EI30	20	1350x2550/1350x2710			34
			Vetrotech (Saint-Gobain)	Contraflam 30	16, 18, 22	1350x2550			
EI30	 curtain wall	MB-SR50N EI	AGC	Pyrobel 16	17,3		1400x2400	1800x1200	40
			Polflam (Glass-Team)	Polflam EI30	20		1500x3000	2400x1500	
			Pilkington	Pyrostop 30-10	15		1400x2400	1800x1200	
				Pyrostop 30-20	18				
			Promat Top	Promaglas	17		1400x2400	1800x1200	
			Schott	Pyranowa	16		1400x2400	1800x1200	
			Vetrotech (Saint-Gobain)	Swissflam 30	17		1400x2400	1800x1200	
				Contraflam 30	16		1500x3000	1700x1200	
		MB-SR50N EI EFEKT	Polflam (Glass-Team)	Polflam EI30	20		1500x3000	2000x1500	44

Class	Construction	System	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EI45	 Fixed partitions	MB-78EI	AGC	Pyrobel 17	17,4	no limit x 4000	1400x2700	2700x1400	22
				Pyrobel 17 EG	21,2				
EI45	 Doors and windows	MB-78EI	AGC	Pyrobel 17	17,4	1400x2500			22
				Pyrobel 17 EG	21,2				
EI45	 curtain wall	MB-SR50N EI	AGC	Pyrobel 17	17,4		1400x2400	1800x1200	40
EI60	 Fixed partitions	MB-78EI	AGC	Pyrobel 25	26,6	no limit x 4000	1400x2700	2700x1400	22
				Pyrobel 25 EG	30,4				
			Polflam (Glass-Team)	Polflam EI60	25	no limit x 4000	1500x3000	3000x1500	
			Pilkington	Pyrostop 60-101	23	no limit x 4000	1400x2400	2400x1400	
				Pyrostop 60-201	27				
				Pyrostop 60-251	41-45				
				Pyrostop 60-351	41-45				
			Promat Top	Promaglas	25	no limit x 4000	1300x2500	2500x1300	
				Promaglas F1	28		1500x2000	2000x1500	
				Promaglas F1	30		1950x3500	3500x1950	
			Schott	Pyranowa 60 S2.0	23	no limit x 4000	1300x2400	2400x1300	
				Pyranowa 60 S2.1	27				

Class	Construction	System	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EI60	 Fixed partitions	MB-78EI	Vetrotech (Saint-Gobain)	Swissflam	25	no limit x 4000	1300x2400	2400x1300	22
				Contraflam 60	25		1500x2500	2500x1500	
				Contraflam 60	26		1500x3000	3000x1500	
				Contraflam 60	29		1800x2600	2600x1800	
				Contraflam 60	33		1800x3210	3210x1800	
				Contraflam 60	35		2200x3210	3210x2200	
				Contraflam 60-3	27, 29, 31		1500x3000	3000x1500	
				Contraflam 60-3	41		1510x3600	3600x1510	
			Vtroszlif (Glas Troesch AG)	Fireswiss FSF 60-23	23	no limit x 4000	1500x2500	2500x1500	
				Fireswiss FSF 60-24	24				
				Fireswiss FSF 60-27	27				
				Fireswiss FSF 60-28	28				
			Q4glass	Q4Firestop	27	no limit x 4000	1400x2700	2350x1400	
EI60	 Silicone jointed glazed walls	MB-78EI	Vetrotech (Saint-Gobain)	Contraflam Strukture	31	no limit x 3400	1500x3400	1700x3000	28
EI60	 Doors and windows	MB-78EI	AGC	Pyrobel 25	26,6	1400x2500			22
				Pyrobel 25 EG	30,4				
			Polflam (Glass-Team)	Polflam EI60	25	1400x2500			
			Pilkington	Pyrostop 60-101	23	1400x2500			
				Pyrostop 60-201	27				
				Pyrostop 60-251	41-45				
				Pyrostop 60-351	41-45				
			Promat Top	Promaglas	25	1300x2500			
				Promaglas F1	28	1400x2000			
				Promaglas F1	30	1400x2500			
			Schott	Pyranowa 60 S2.0	23	1300x2400			
				Pyranowa 60 S2.1	27				
			Vetrotech (Saint-Gobain)	Swissflam	25	1300x2400			
				Contraflam 60	25, 26, 29, 33, 35	1400x2500			
				Contraflam 60-3	27, 29, 31, 41				

Class	Construction	System	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EI60	 Doors and windows	MB-78EI	Vtroszlif (Glas Troesch AG)	Fireswiss FSF 60-23	23	1400x2500			22
				Fireswiss FSF 60-24	24				
				Fireswiss FSF 60-27	27				
				Fireswiss FSF 60-28	28				
			Q4glass	Q4Firestop	27	1260x2300			
EI60	 Curtain wall	MB-SR50N EI	AGC	Pyrobel 25	26,6		1400x2400	1800x1200	40
			Polflam (Glass-Team)	Polflam EI60	25		1500x3000	2400x1500	
			Pilkington	Pyrostop 60-101	23		1400x2400	1800x1200	
				Pyrostop 60-201	27				
			Promat Top	Promaglas	21		1400x2400	1800x1200	
			Schott	Pyranowa	21		1400x2400	1800x1200	
			Vetrotech (Saint-Gobain)	Swissflam 60	25		1400x2400	1800x1200	
				Contraflam 60	25		1500x3000	1700x1200	
		MB-SR50N EI EFEKT	Vetrotech (Saint-Gobain)	Contraflam	25,29		1576x3146		44
			Q4glass	Q4Firestop	30		1500x3000	2000x1500	
EI90	 Fixed partitions	MB-78EI	Polflam (Glass-Team)	Polflam EI90	32	no limit x 4000	1500x3000		22
EI90	 Doors and windows	MB-78EI	AGC	Pyrobel 90/35	36	360x460			22
			Pilkington	Pyrostop 90-102	37	1265x2300			
			Vetrotech (Saint-Gobain)	Contraflam 90	40	1260x2360			

Class	Construction	System	Glass manufacturer	Type of single or inner pane in insulating glass unit	Thickness [mm]	Max dims. of the construction-/ leaf - W x H [mm]	Max dims. of the glass - vertical rectangle [mm]	Max dims. of the glass - horizontal rectangle [mm]	Page
EI120	 Fixed partitions	MB-118EI	Polflam (Glass-Team)	Polflam EI120	35	no limit x 4000	1500x3000	1508x1467	22
			Pilkington	Pyrostop 120-10	58	no limit x 4000	1400x2500	1400x1068	
REI30/RE30	 Skylight	MB-SR50N EI	Polflam (Glass-Team)	Polflam H EI30	22		1200x2200		46
			Vetrotech (Saint-Gobain)	Contraflam Lite 30 Horizontal	20		1100x2100		

Fire rated partitions with doors

MB-60E EI

EI 15 **EI 30**

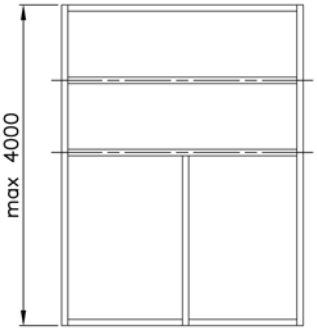
MB-60E EI enables the fabrication of fire-resisting internal or exterior single or double leaf doors. It also enables the fabrication of "technical windows" and fire-resisting partitions. MB-60E EI-based constructions are classified EI15 or EI30 to PN-EN 13501-2+A1:2010. The system is classified as non-fire spreading (NRO).

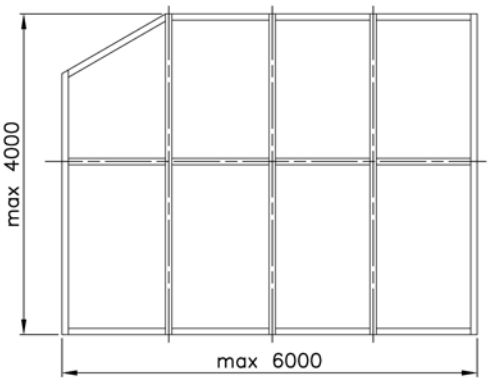
This solutions is based on aluminium profiles with thermal break (system MB-60E) with the structural depth of profiles of 60 mm. The fire resistance of the construction is ensured by its fire insulation components that are mounted in internal chambers of its profiles. In addition, constructions are equipped with intumescent tapes, which stop the fire from spreading.

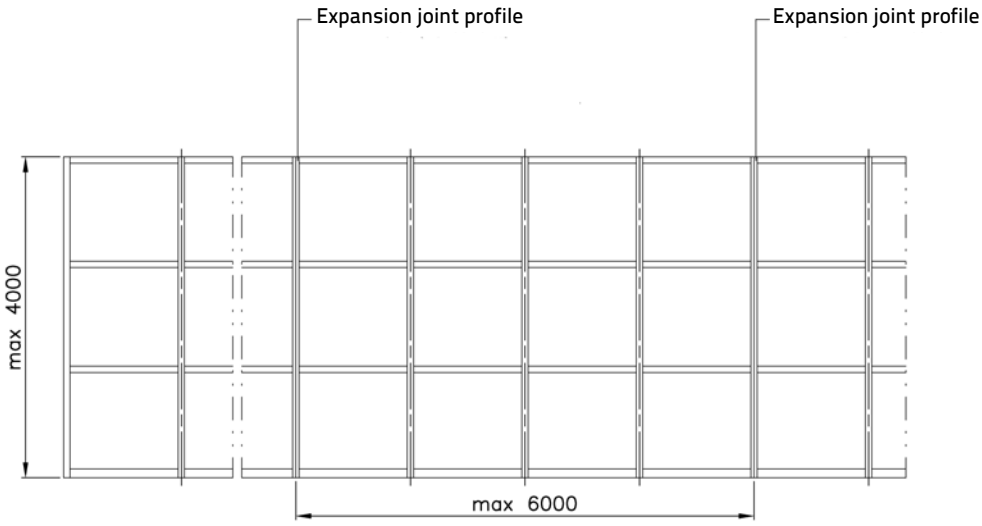
The system enables the application of all common fire-resisting glass classified EI15 and EI30 (thickness from 5 to 41 mm). Unlike other fire-resisting systems, MB-60 E EI glass is fastened on the inner face using glazing strips. Special steel elements are an important element in securing the glass before falling out during the fire.

MB-60E EI enables the fabrication of doors of the following max. leaf dimensions: W up to 1.4 m, H up to 2.475 m. Double leaf door can be 2.58 m wide. Design capabilities and compatibility with other MB systems makes this solution a very attractive proposition in that class of products, whilst providing an excellent fire protection.

Max. dims. of the construction

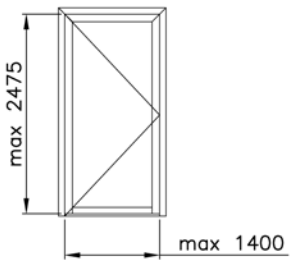


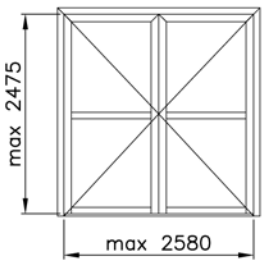


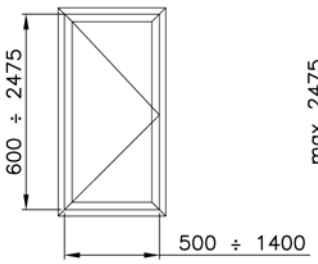


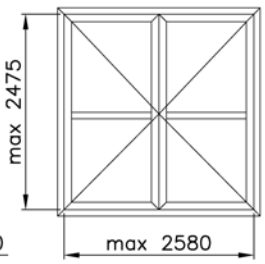
Doors

Technical window





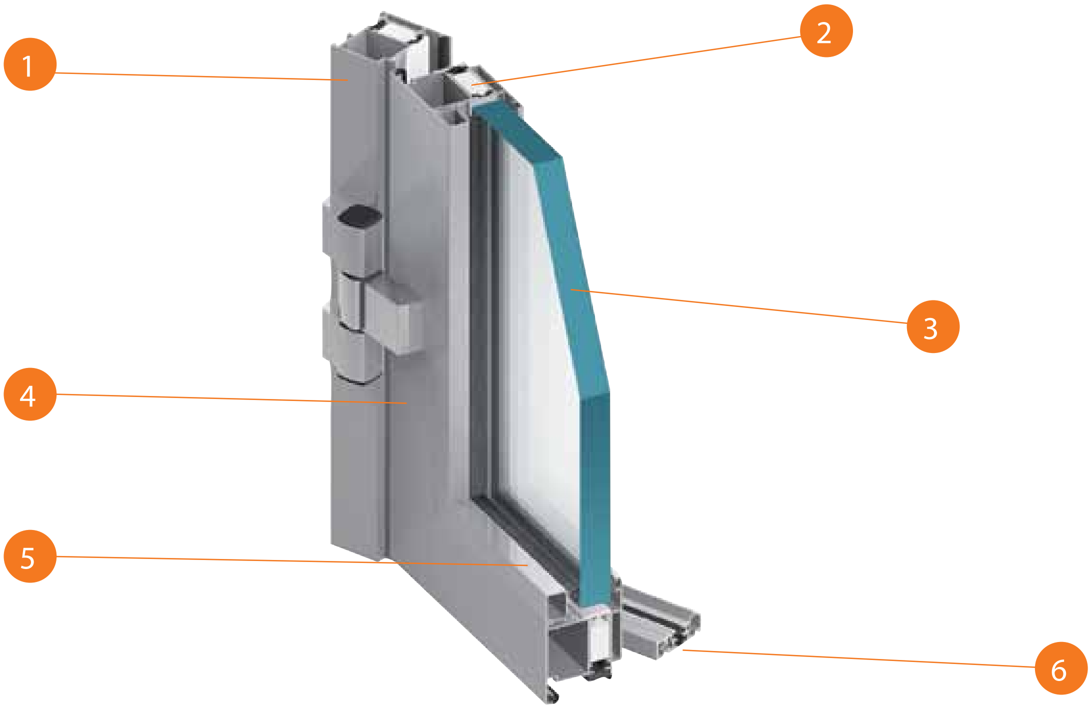




TECHNICAL INFORMATION		TECHNICAL PARAMETERS	
Depth of the partition frame & door	60 mm	Air tightness	class 2, PN-EN 12207:2001
Depth of the door leaf	60 mm	Water tightness	class 3A, PN-EN 12208:2001
Range of glazing	5 – 41 mm	Fire resistance rating	EI15, EI30, EN 13501-2 +A1

Fire rated partitions with doors

MB-60E EI



1. MB-60E-based fire system enables the use of common elements and allows a simple and fast prefabrication
2. Constructions classified EI15, EI30
3. The system enables the application of all common fire-resisting glass of different classes and of a thickness ranging from 5 to 41 mm.
4. Structural depth of profiles: 60 mm
5. Glazing strips used for glazing on the inner face
6. Available solutions with or without threshold

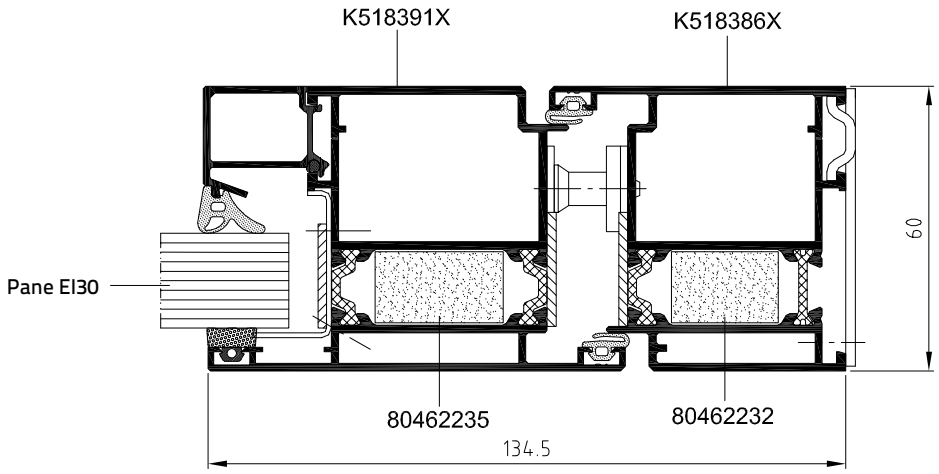
Instytut Techniki Budowlanej

RAPORT Z BADAŃ NR LP02-01036/14/R167NP

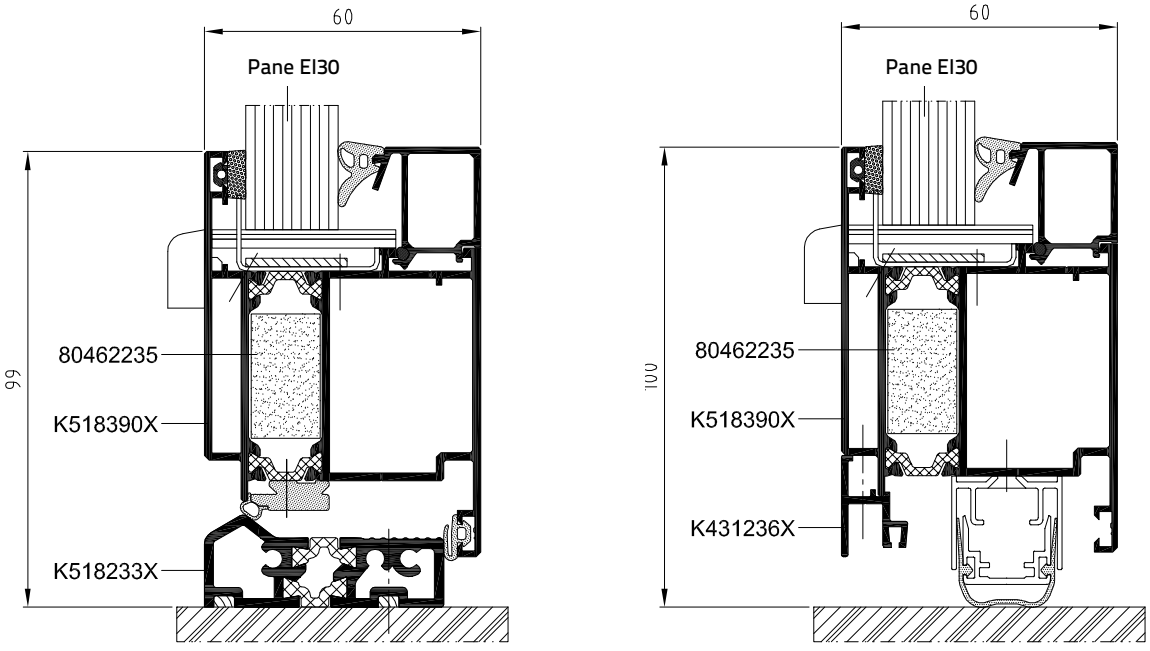
Instytut Techniki Budowlanej

MB-60E EI-based constructions are covered by test reports ITB and classification 01036/14/R167NP.

Door – side view



Door, lower section view



MB-78EI

EW 15 **EW 30**

EI 15 **EI 30** **EI 45** **EI 60** **EI 90**

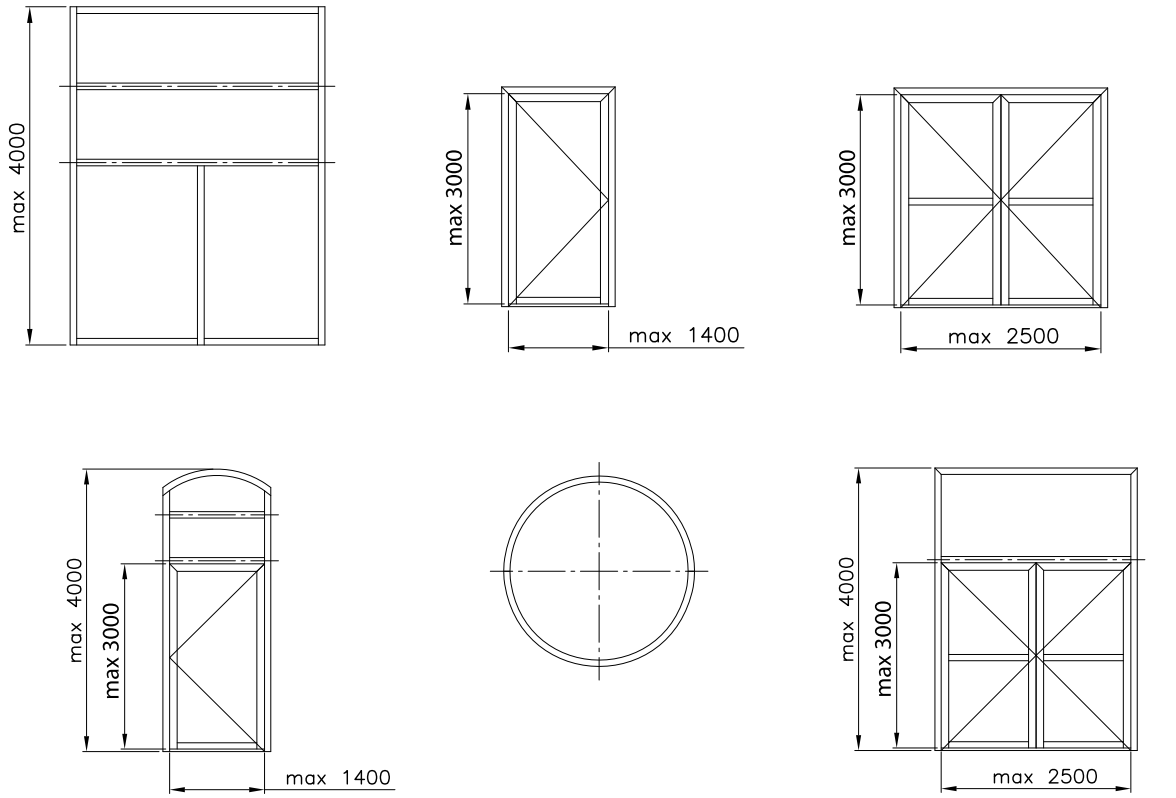
The **MB-78EI** system has been developed for the producing of internal or external fire rated partition walls, with single- or double-leaf doors featured by a fire resistance class of EI 15, EI 30, EI45 EI 60 or EI 90, according to the PN-EN 13501-2:2010 standard. Numerous tests and calculations have shown that MB-78EI-based products have a very good thermal and acoustic insulation. Due to its characteristics, optimized technology & production costs, the compatibility with other ALUPROF window and door systems and the constant technical development, it is a very popular product, widely used by the construction professionals.

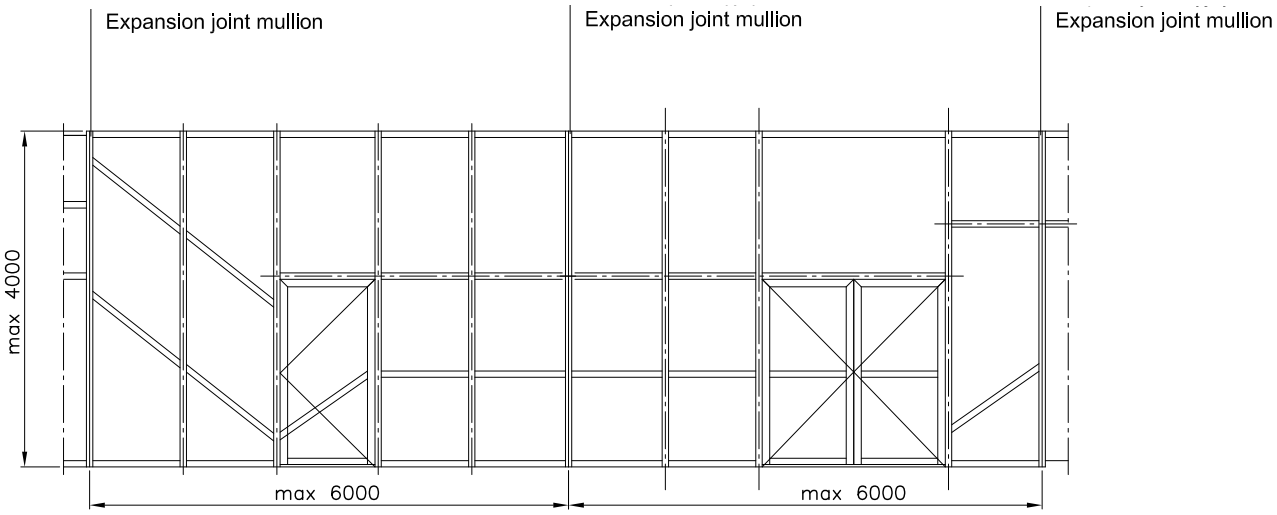
The structure of the **MB-78 EI** system is based on the thermally-insulated, 78 mm deep aluminium profiles. They are characterized by a low overall heat transfer coefficient "U," thanks in the main, to specialist design thermal break, 34mm in width. The resistance to high temperature is assured by special fire insulation elements – GKF or CI – introduced into the inner chambers of the profiles and into insulating spaces between profiles and steel accessories and joints.

Angular wall connections are achievable with the system, as is the possibility of bending & curving profiles, in order to satisfy the glazing of typical, if not traditional, "arch head" openings. Further architectural frame features that would have an effect on the aesthetics of a building, are available in the form of decorative muntins & glass applied "Georgian effect" bars.

The maximum limitations of the system would permit a fixed wall up to 4 m in height, and hinged doors of a maximum leaf size 1.4 m x 2.5 m. The **MB-78EI** door system can exist as an individual "goal-post frame," as part of a larger composite "window wall" or in fire resistant curtain wall facades, our **MB-SR50EI** and **MB-SR50N EI** systems. Structures & door sets of this type, both single & double leaf door arrangements, have been successfully tested in a notified laboratory, obtaining fire resistance classes of EI 30 & EI 60.

Max. dimensions of the wall segments

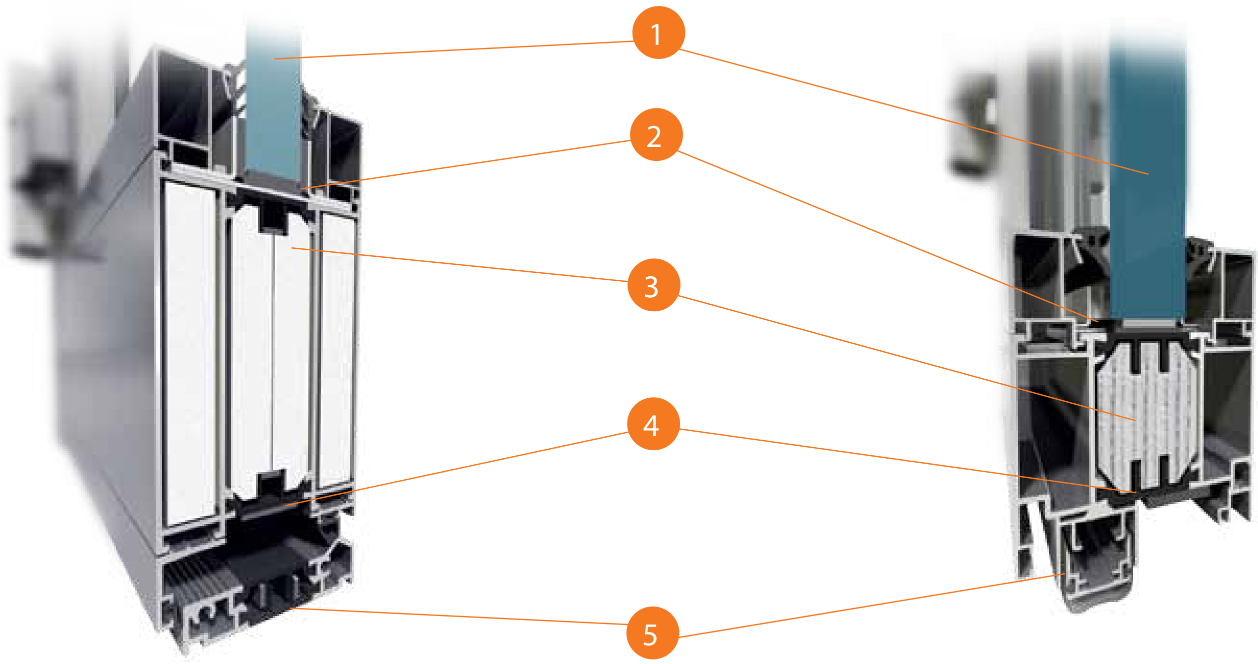




TECHNICAL SPECIFICATION		TECHNICAL PARAMETERS	
Depth of wall & door frame	78 mm	Air Permeability	Class 2, PN-EN 12207:2001
Depth of leaf	78 mm	Watertightness	Class 5A, PN-EN 12208:2001
Width of wall & door frame	51 mm / 72 mm	Fire resistance	Classes EI 15, EI 30, EI45, EI 60, EI 90 in accordance with EN 13501-2, classes EI 15, EI 30, EI45, EI 60 in accordance with AT-15-6006/2011 and AT-15-6006/2012
Width of door leaf profiles	72 mm / 51 mm	Thermal insulation (coeff.)	from 1,6 W/(m^{2}K)
Glazing range	6 – 49 mm	Acoustic Insulation (coeff. R_w)	up to 41 dB

Fire rated doors and wall partitions

MB-78EI



1. Single or double fire-resistant glass of a thickness of up to 49 mm
2. Steel accessories and expanding tapes that protect the structure from high temperatures
3. GKF or CI type fire protection inserted inside the profiles, enables performance classes EI15 to EI 90
4. Profiled thermal break that provides adequate protection against heat loss (U_f from 1.6 m^{2}K)
5. Different door bottom rail seal solutions: with & without threshold profile option, obtaining a smoke-proof class S_m S_a

Extensive design possibilities, a wide range & variety of hinge products, locks, door closers & other hardware, alongside an optimised manufacturing process, are not the only advantages of this system. It also allows the realisation of the product solutions contained on the following pages: **MB-78EI DPA** automatic sliding door of an EI 15 or EI 30 class & **MB-118EI** walls of an EI 120 class.

Range of possible fire-resistant glazing for use in the MB-78EI systems includes:
- Pyrobel of a thickness of 9.3 mm – 36 mm
- Polflam of a thickness of 20 mm – 25 mm
- Swissflam of a thickness of 14 mm – 25 mm
- Contraflam Lite of a thickness of 13 mm – 22 mm
- Contraflam 30 of a thickness of 16 mm – 20 mm
- Contraflam 60 of a thickness of 25 mm – 35 mm
- Contraflam 90 of a thickness of 40 mm
- Pyrostop of a thickness of 15 mm – 45 mm
- Pyrodur of a thickness of 9 mm – 13 mm
- Promaglas of a thickness of 17 mm – 30 mm
- Pyranowa of a thickness of 15 mm – 27 mm
- Fireswiss of a thickness of 15 mm – 28 mm
- Q4Firestopof a thickness of 16,5 mm – 27 mm

The MB-78EI system has a Technical Approval of the No. AT-15-6006/2012 with annexes No. 1, 2 and a certificate CERTIFIRE by the Institute of Warrington Certification Ltd No. CF 5138.

Building Research Institute

00 611 WARSZAWA, ul. FILTROWA 1 | Tel. (48 22) 325 04 71 (48 22) 825 76 55 | Fax (48 22) 825 52 86

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Member of the European Organisation for Technical Approvals – EOTA

Issue: TECHNICAL APPROVALS

TECHNICAL APPROVAL ITB
AT-15-6006/2012

Pursuant to the Regulation of the Minister of Infrastructure dated 8th November 2004 on technical approvals and certification bodies (J. of L. 249 of 2004, Item 2497) and following the approval procedure carried out at the Building Research Institute in Warsaw at the request of:

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

it is hereby stated that the following construction product(s):

Fire-resisting door of the ALUPROF® MB-78EI & ALUPROF® MB-78EI DPA systems and the set of products to fabricate fire-resisting internal and external walls of the ALUPROF® MB-78EI system & internal walls of the ALUPROF® MB-118EI system

are suitable for use in the construction industry to the extent and on the terms set forth in the Annex, which forms an integral part of this Technical Approval.

Valid until: 14th December 2017

p.p. DIRECTOR
Deputy Director for Co-operation with the Economy
Marek Kaproń

Annex:
General and Technical Terms and Conditions

Warsaw, 14th December 2012

Technical Approval ITB AT-15-6006/2012 is an amendment to the Technical Approval ITB AT-15-6006/2011. This Technical Approval contains 195 pages and may be reproduced only in its entirety. No part of this Technical Approval may be published or distributed without a written agreement with the Building Research Institute.

certifire

CERTIFICATE OF APPROVAL
No CF 5138

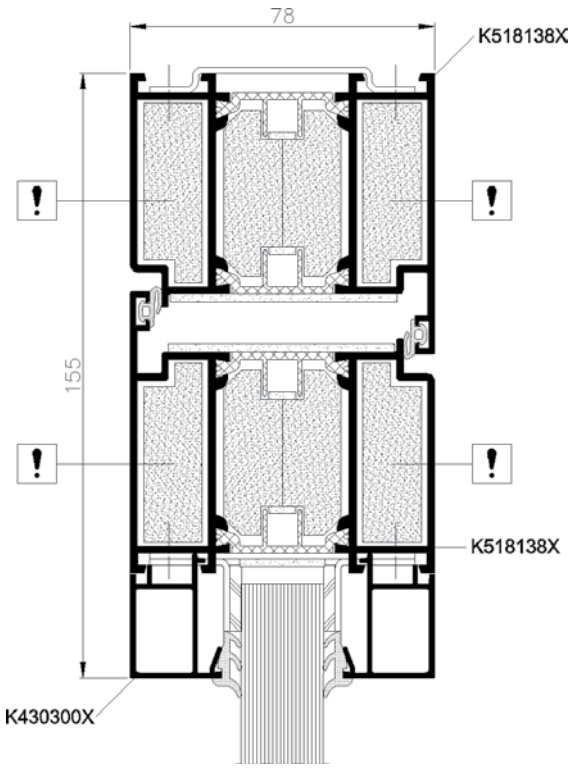
ALUPROF S.A.

Ul. Warszawska 153,
43-300 Bielsko-Biala, Poland
Tel: +48 33 891 83 00

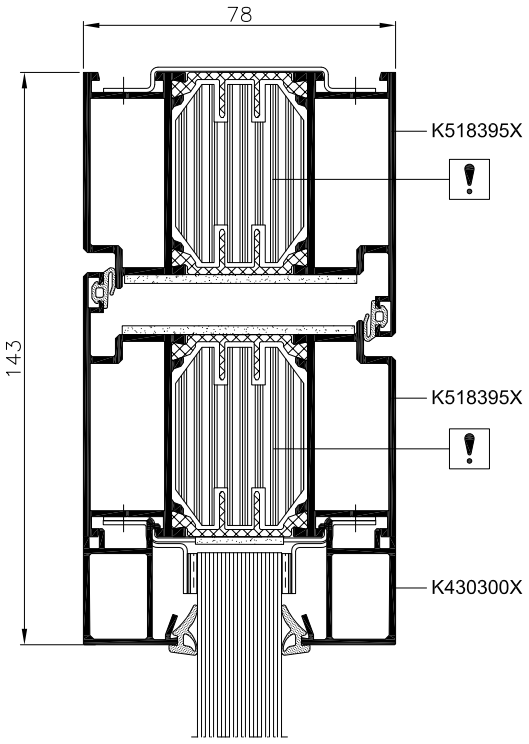
CERTIFIED PRODUCT: Aluminium Framing Systems Type MB 78 EI for Glazed Walls and Doors

TECHNICAL SCHEDULE: TS25 Fire Resistant Glass, Glazing Systems and Materials

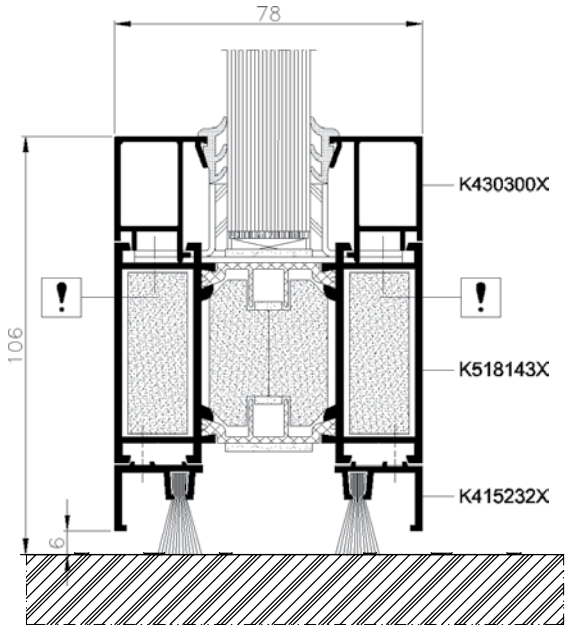
Door frame and door leaf – cross-section



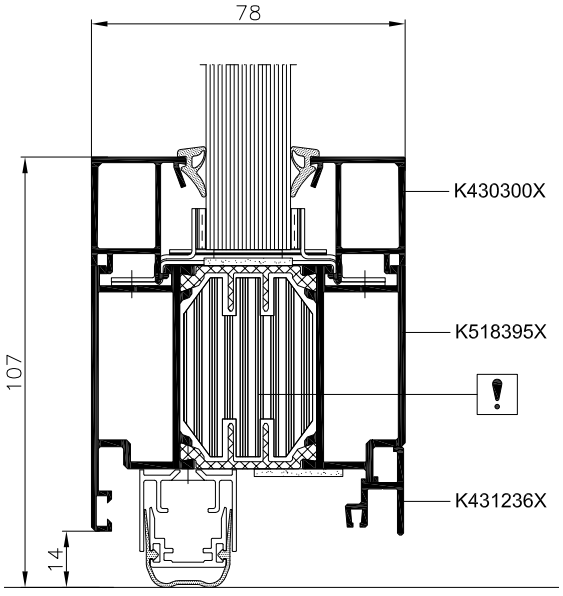
Door frame and door leaf with CI infills – cross-section



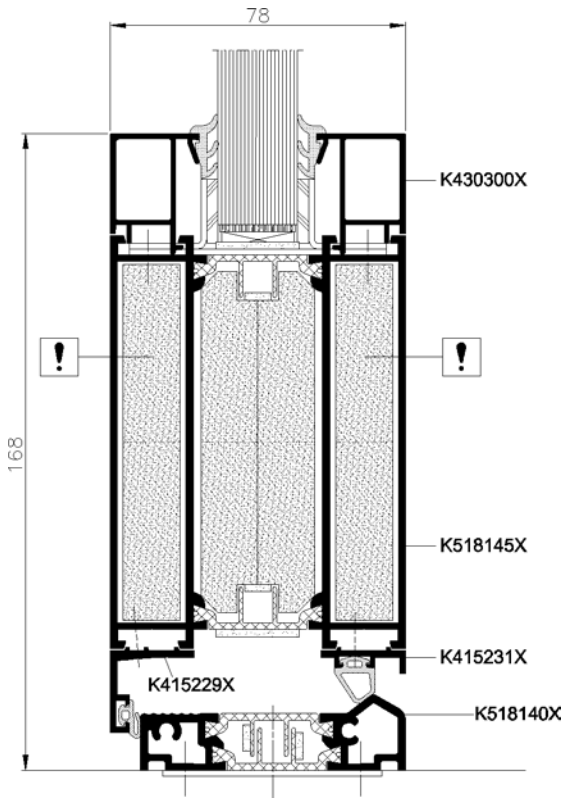
Door without a threshold – bottom cross-section



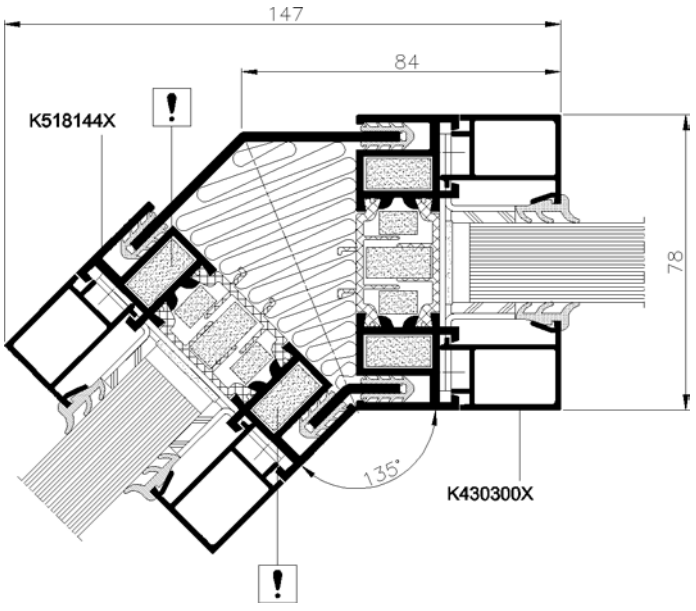
Door frame and door leaf with drop seal – cross-section



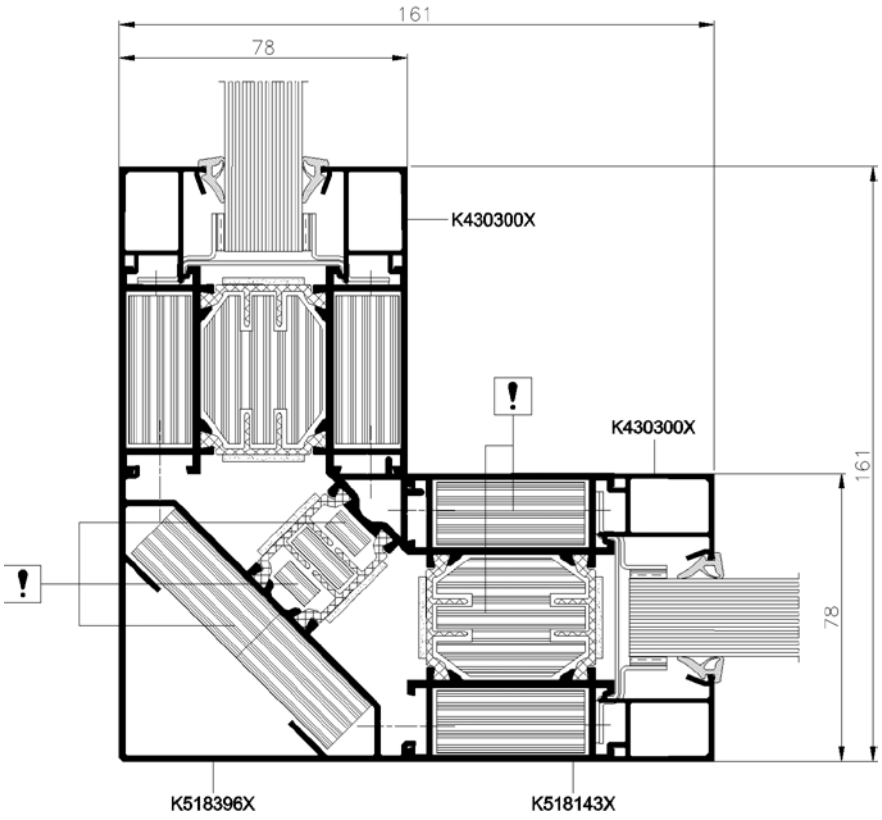
Bottom cross-section with threshold



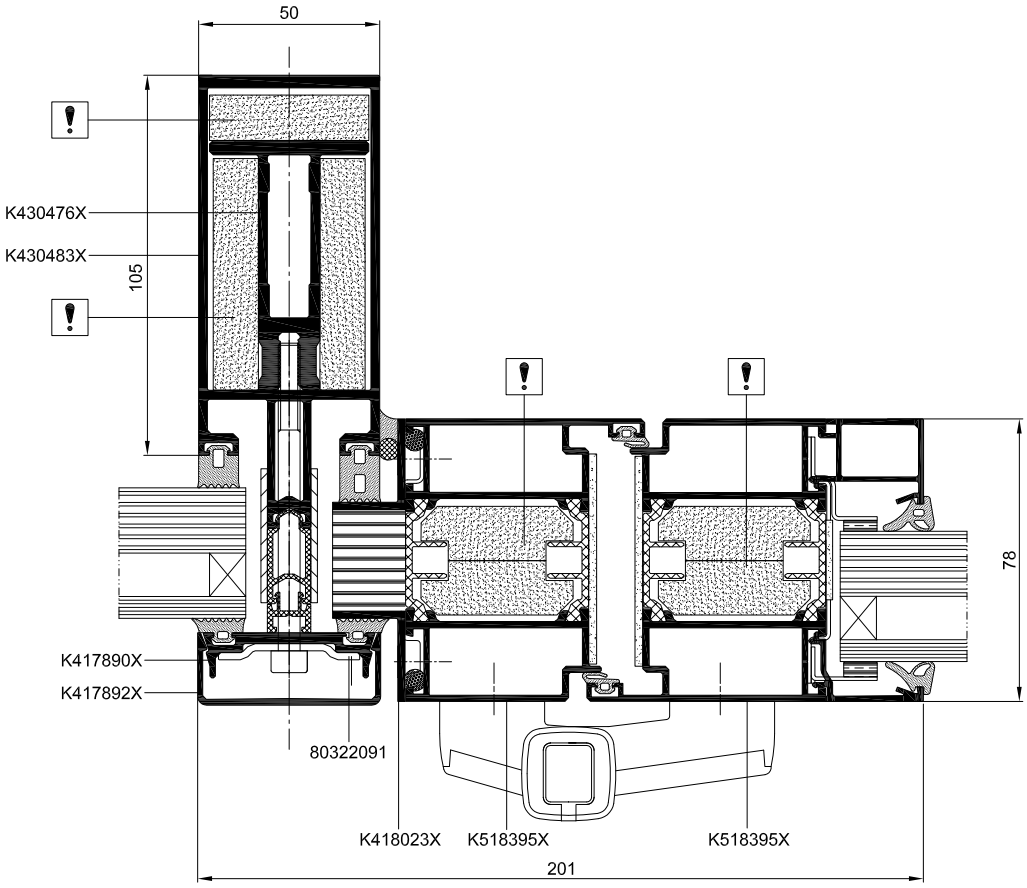
Angle joint of the fixed walls 135°



Angle joint of the fixed walls 90°



MB-78EI doors cross-section in the MB-SR50 EI façade

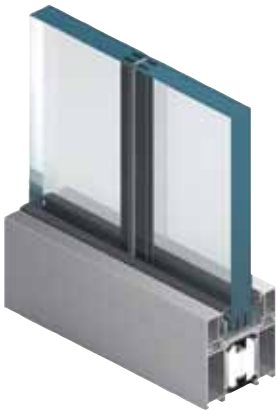


Silicone joined fire-rated glazed walls

MB-78EI

EI 30 **EI 60**

Aluprof offers MB-78EI system-based solution for transparent fire-resisting walls, the so-called "silicone joined glazed walls". It enables the fabrication of internal partitions without the visible vertical profiles that separate the individual modules of the wall, whilst preserving the full fire resistance. The gap between the glass panes is only 4 mm and is filled with firestop intumescent material and non-flammable silicone. The silicone is available in three colours (black, grey, or white). That way, fire-resisting partitions can be up to 3.6 m high, with modules' width of up to 1.8 m. Fire tests carried out at the Building Research Institute (ITB) included a "free edge" model, so there is no limit as to the maximum length of this type of wall.

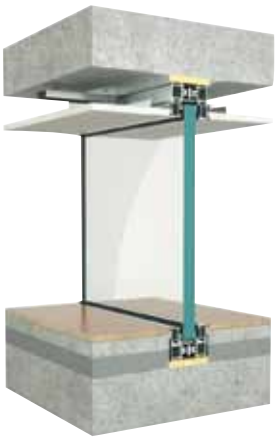


Silicone joined fire-rated glazed walls

MB-78EI

EI 30 **EI 60**

MB-78EI-based silicone joined glazed walls enable to freely design and build very large internal partition walls. With their transparent modules, the constructions made of this system make every room optically bigger. What's more, the system provides security and helps to organize fire zones in the building, whilst ensuring the appropriate conditions for the evacuation of building occupants.



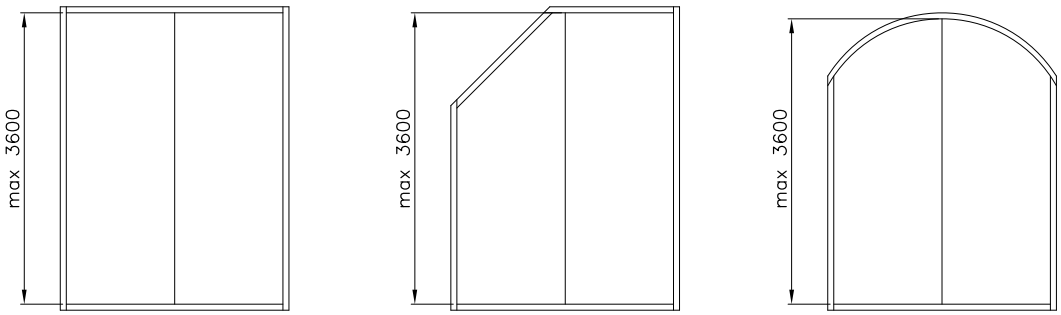
Silicone joined fire-rated glazed walls

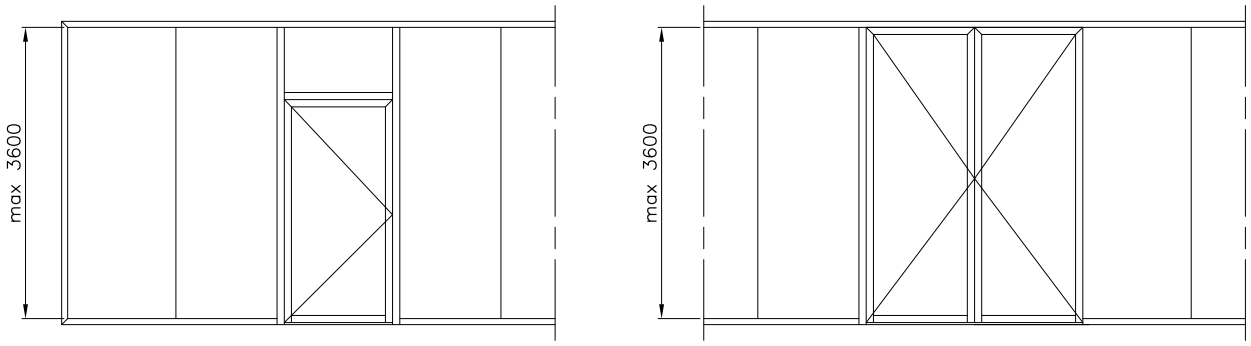
MB-78EI

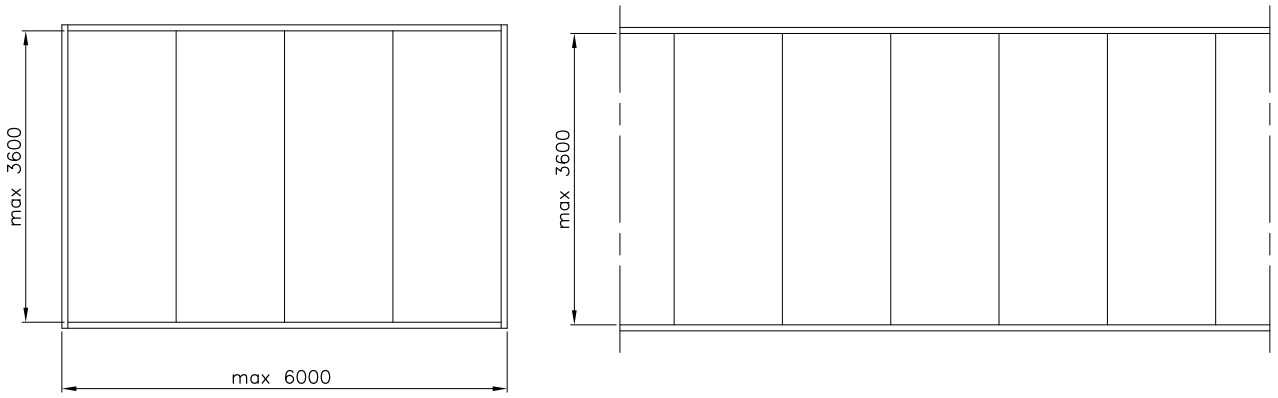
EI 30 **EI 60**

Aluprof offers also a version with profiles fitted in the floor, walls and ceiling. Hidden wall mount enhances this optical effect, while maintaining the full fire protection of the construction.

Silicone joined glazed wall MB-78EI - examples

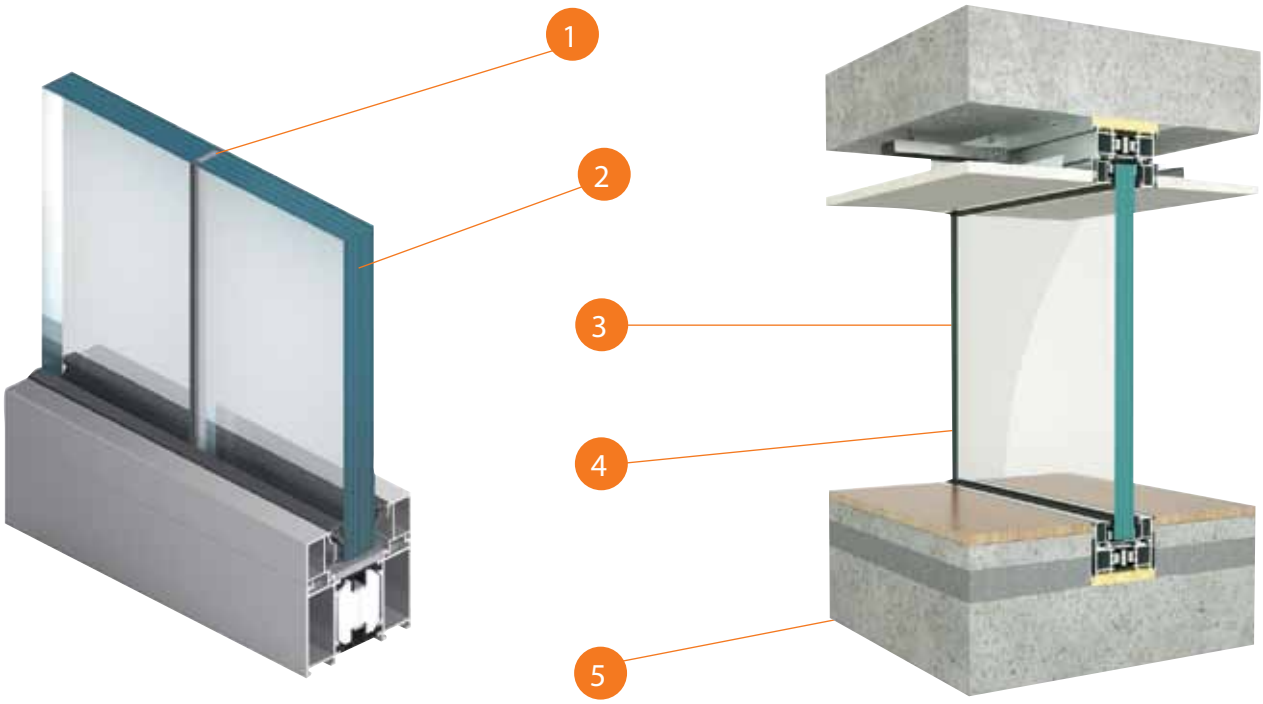




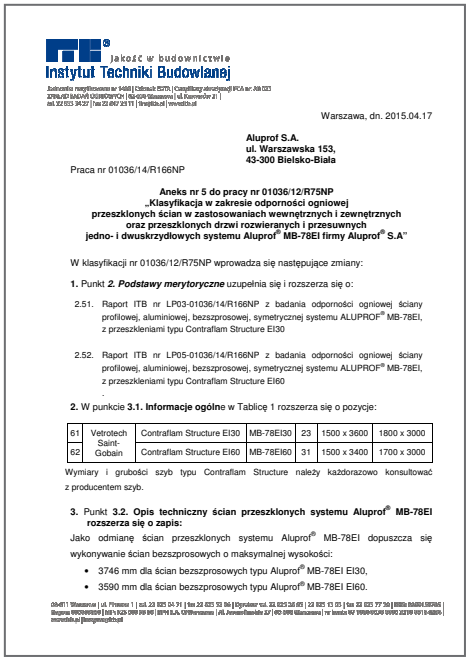


Silicone joined fire-rated glazed walls

MB-78EI



1. The gap between the modules is only 4 mm wide
2. Fire glass thickness: 23 mm (EI30) or 31 mm (EI60)
3. The maximum height of the partitions: 3.6 m; no limits as to the maximum length
4. The maximum width of glass modules: 1.5 m (max height: 3.6 m) and 1.8 m (max height 3.0 mm)
5. Solution available with profiles fitted in the floor, walls and ceiling



Jakość w budownictwie
Instytut Techniki Budowlanej

Warszawa, dn. 2015.04.17

Aluprof S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

Praca nr 01036/14/R166NP

Aneks nr 5 do pracy nr 01036/12/R75NP
„Klasyfikacja w zakresie odporności ogniowej przeszklonych ścian w zastosowaniach wewnętrznych i zewnętrznych oraz przeszklonych drzwi rozwieranych i przesuwnych jedno- i dwuskrzydłowych systemu Aluprof® MB-78EI firmy Aluprof® S.A"

W klasyfikacji nr 01036/12/R75NP wprowadza się następujące zmiany:

1. Punkt ***2. Podstawy merytoryczne*** uzupełnia się i rozszerza się o:

2.51. Raport ITB nr LP03-01036/14/R166NP z badania odporności ogniowej ściany profilowej, aluminiowej, bezszprosowej, symetrycznej systemu ALUPROF® MB-78EI, z przeszkleniami typu Contraflam Structure EI30

2.52. Raport ITB nr LP05-01036/14/R166NP z badania odporności ogniowej ściany profilowej, aluminiowej, bezszprosowej, symetrycznej systemu ALUPROF® MB-78EI, z przeszkleniami typu Contraflam Structure EI60

2. W punkcie **3.1. Informacje ogólne** w Tablicę 1 rozszerza się o pozycje:

61	Vetrotech Saint-Gobain	Contraflam Structure EI30	MB-78EI30	23	1500 x 3600	1800 x 3000
62		Contraflam Structure EI60	MB-78EI60	31	1500 x 3400	1700 x 3000

Wymiary i grubości szyb typu Contraflam Structure należy każdorazowo konsultować z producentem szyb.

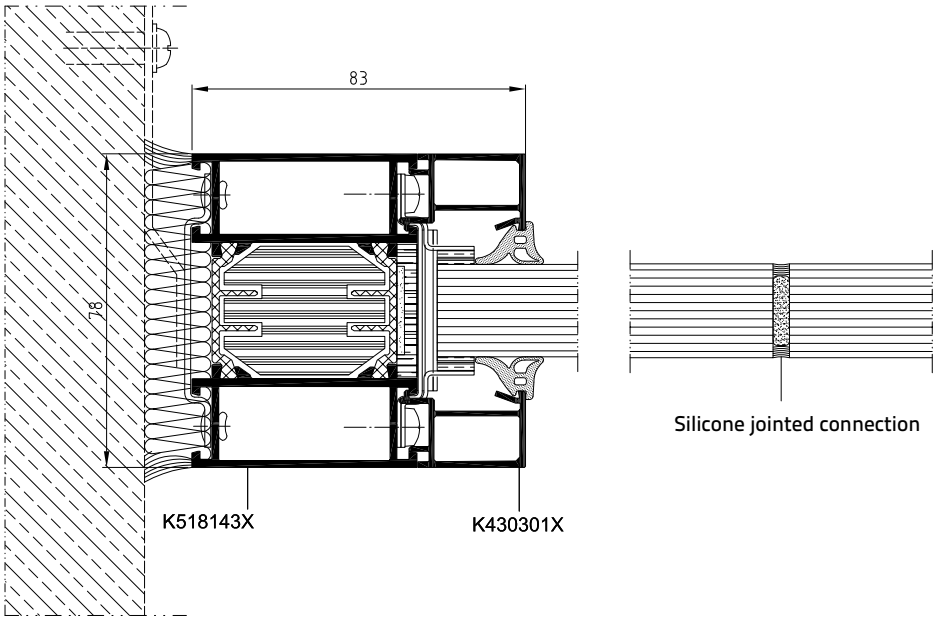
3. Punkt **3.2. Opis techniczny ścian przeszklonych systemu Aluprof® MB-78EI rozszerza się o zapis:**

Jako odmianę ścian przeszklonych systemu Aluprof® MB-78EI dopuszcza się wykonywanie ścian bezszprosowych o maksymalnej wysokości:

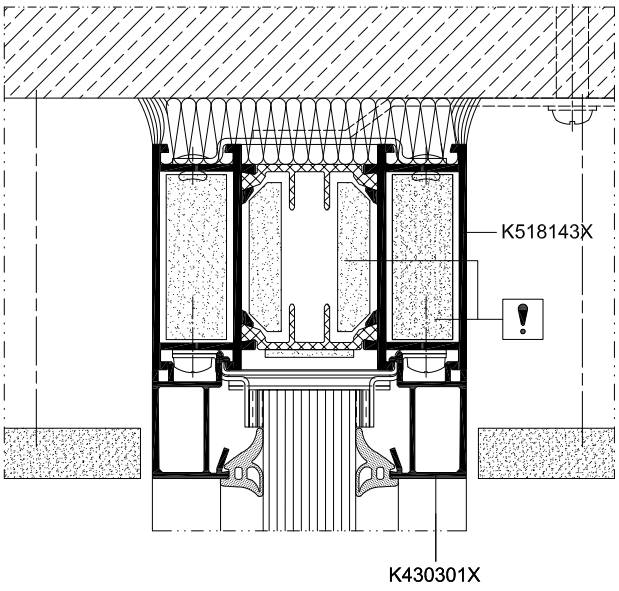
- 3746 mm dla ścian bezszprosowych typu Aluprof® MB-78EI EI30,
- 3590 mm dla ścian bezszprosowych typu Aluprof® MB-78EI EI60.

Silicone joined glazed wall MB-78EI are covered by the Annex 5 to the classification ITB 01036/12/R75NP

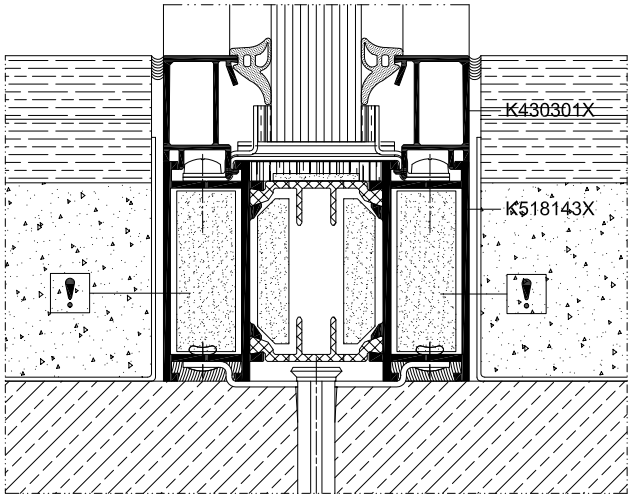
Silicone joined glazed wall MB-78EI, Horizontal view



Partition with a ceiling-integrated profile, section view

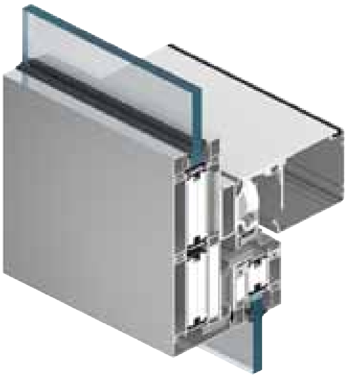


Partition with a floor-integrated profile, section view



Automatic fire rated sliding doors

MB-78EI DPA



EI 15 **EI 30**

The **MB-78EI DPA** system is intended to make fire rated partitions with automatic, single and double leaf sliding doors. Their fire resistance class of EI 15 and EI 30 is kept when they are exposed to fire both from the outside and the inside.

The structure is based on the system of fire walls with the **MB-78EI** doors, from which comes most of the production technology and components, including main profiles, glazing beads, cooling inserts, expanding tapes, gaskets, and most of the accessories. A wide range of glazing of these structures is the same as in the basic system and allows the installation of all common fire-resistant glazing of EI 15 and EI 30 class, including any fusion into an insulation package.

The **MB-78EI DPA** sliding door's drive can be installed on walls/system walls. Mechanisms that are intended to be used in this system allow a smooth and trouble-free operation of the door with a 200 kg leaf.

Max. dimensions of the structure in clear opening:
- height of a single and double leaf door : up to 2450 mm.
- width of a single door: up to 1100 mm.
- width of a double door: up to 2125 mm.

The **MB-78EI DPA** system holds an ITB's Technical Approval No. AT-15-6006/2012 with annexes No. 1, 2 and a certificate CERTIFIRE delivered by Warrington Certification Ltd No. CF 5138

ITB Building Research Institute

Issue: TECHNICAL APPROVALS

TECHNICAL APPROVAL ITB
AT-15-6006/2012

Pursuant to the Regulation of the Minister of Infrastructure dated 8th November 2004 on technical approvals and certification bodies (J. of L. 249 of 2004, Item 2497) and following the approval procedure carried out at the Building Research Institute in Warsaw at the request of:

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

it is hereby stated that the following construction product(s):

Fire-resisting door of the ALUPROF® MB-78EI & ALUPROF® MB-78EI DPA systems and the set of products to fabricate fire-resisting internal and external walls of the ALUPROF® MB-78EI system & internal walls of the ALUPROF® MB-118EI system

are suitable for use in the construction industry to the extent and on the terms set forth in the Annex, which forms an integral part of this Technical Approval.

Valid until: 14th December 2017

p.p. DIRECTOR
Deputy Director for Co-operation with the Economy

Marek Kapron

Annex:
General and Technical Terms and Conditions

Warsaw, 14th December 2012

Technical Approval ITB AT-15-6006/2012 is an amendment to the Technical Approval ITB AT-15-6006/2011. This Technical Approval contains 195 pages and may be reproduced only in its entirety. No part of this Technical Approval may be published or distributed without a written agreement with the Building Research Institute.

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CERTIFICATE OF APPROVAL
No CF 5138

ALUPROF S.A.

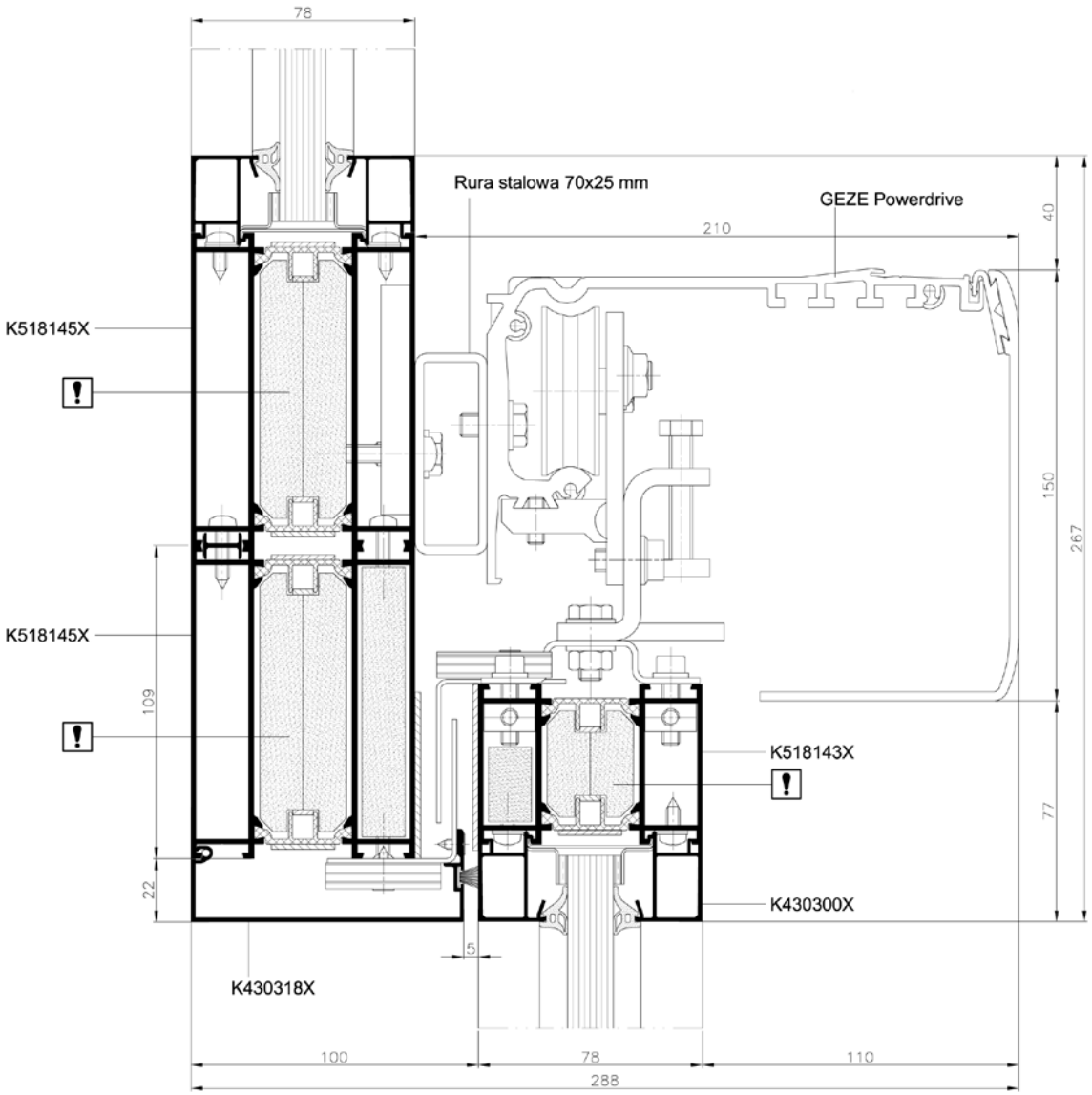
Ul. Warszawska 153,
43-300 Bielsko-Biała, Poland
Tel: +48 33 891 83 00

CERTIFIED PRODUCT
Aluminium Framing Systems Type MB 78 EI for Glazed Walls and Doors

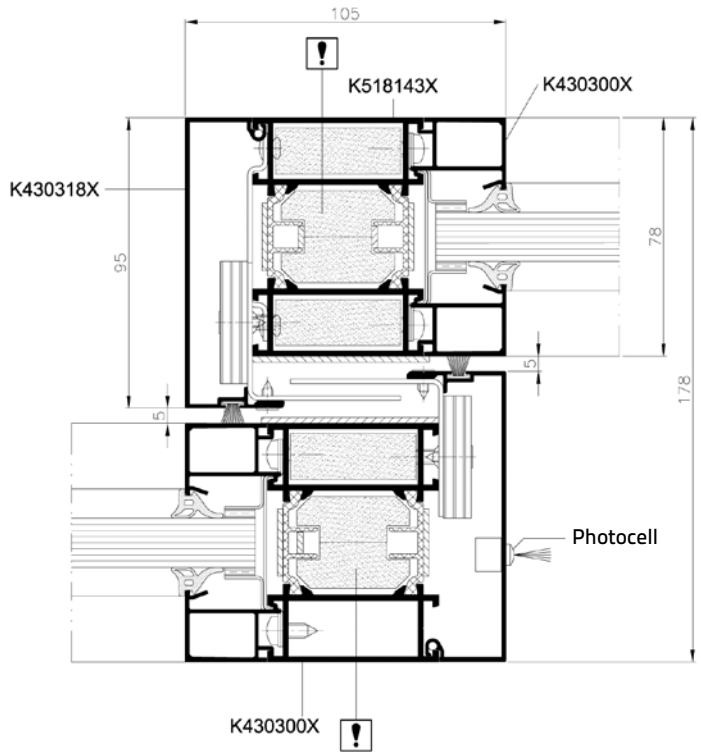
TECHNICAL SCHEDULE
TS25 Fire Resistant Glass, Glazing Systems and Materials

Only valid when bearing CERTIFIRE seal in place

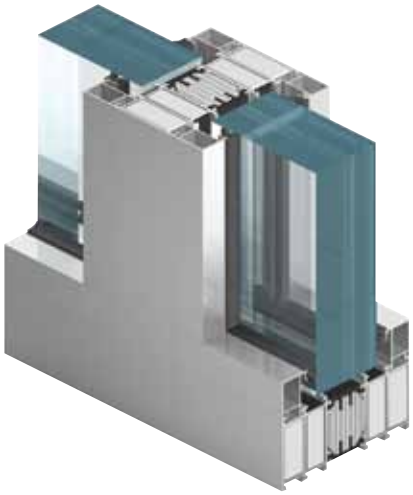
Upper sliding doors – cross-section



Lateral sliding doors – cross-section



MB-118EI



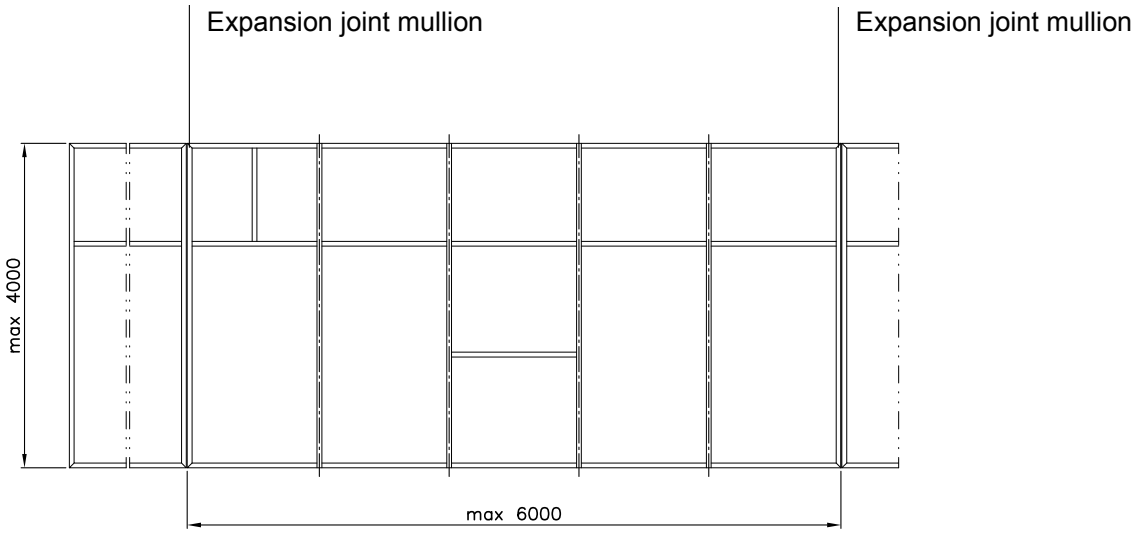
EI 120

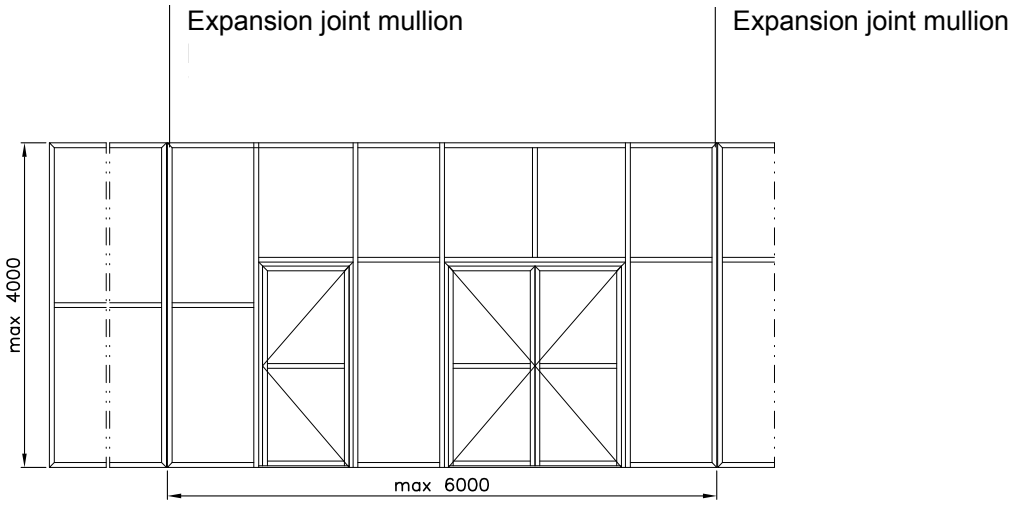
The **MB-118 EI** fire rated walls are used to make fire partitions with fire resistance class of EI 120. The system is classified as non-fire spreading (NRO). It's design & construction is such that, it provides a technical connection with the MB-78EI door, which means a number of common components (such as glazing beads, cooling inserts, expanding tapes, seals and most accessories) and also similar to the basic system, production and installation technology.

The **MB-118EI** system has been developed on the basis of a five chamber insulated aluminium profile, with a front to back depth of 118 mm. The inner chamber profiles, as well as insulating space between them, are filled with fire insulation elements. On the outer surfaces there are expanding tapes which are additionally mounted, and the whole structure is completed by steel accessories components, joining both sides of the profiles. The **MB-118EI** system can accommodate glazing units, panels or other similar glazing substrates of a thickness 31-35 mm or 48- 84mm.

Thanks to its symmetrical composition, the structures that are made of it remain fire resistant in EI 120 class, both exposed to fire from the outside and the inside. An important feature affecting the functionality of the division of these partitions is the possibility to install the **MB-78EI** doors.

Max. dimensions of the walls

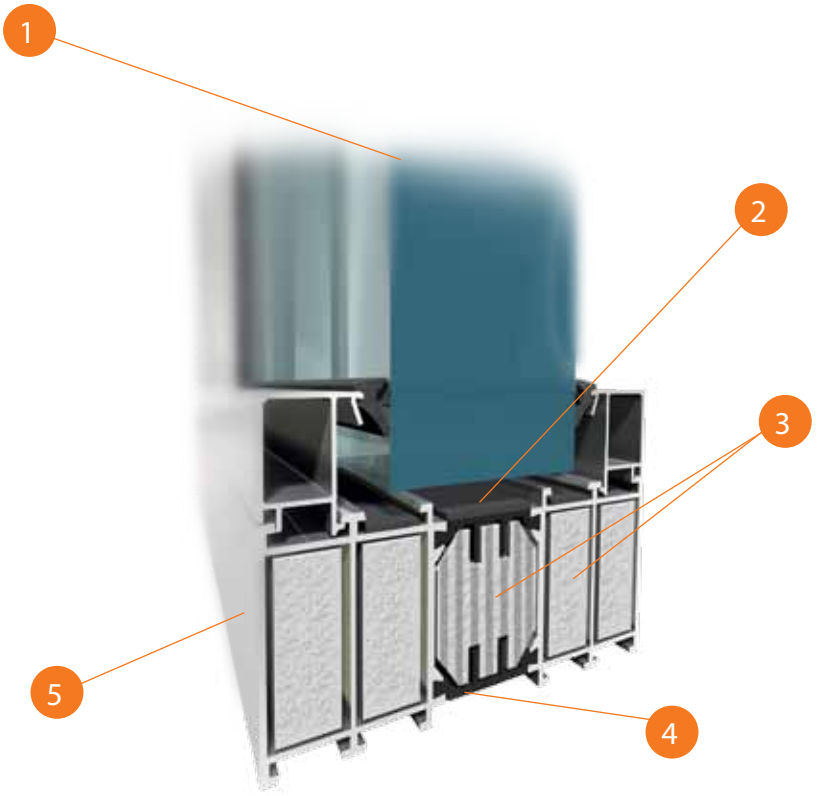




TECHNICAL SPECIFICATION		TECHNICAL PARAMETERS	
Depth of wall frame	118 mm	Air Permeability	Class A4, PN-EN 12152:2004
Width of frame / batten plate	83 mm / 110 mm	Watertightness	Class RE 750, PN-EN 12154:2004
Glazing range	48 - 84 mm	Fire resistance	Class EI 120, EN 13501-2

Fire rated wall partitions

MB-118EI



1. Single or double (sealed unit) fire resistant glasses, of a thickness of 31-35 or 48 -84 mm.
2. Steel accessories and expanding tapes that protect the structure from high temperatures
3. GKF or CI type fire protection infills inside the profiles allowing to obtain EI120 class
4. Profiled thermal break that provides adequate protection against heat loss
5. 5-chamber, symmetrical design, where fire resistance is maintained regardless the side of the fire

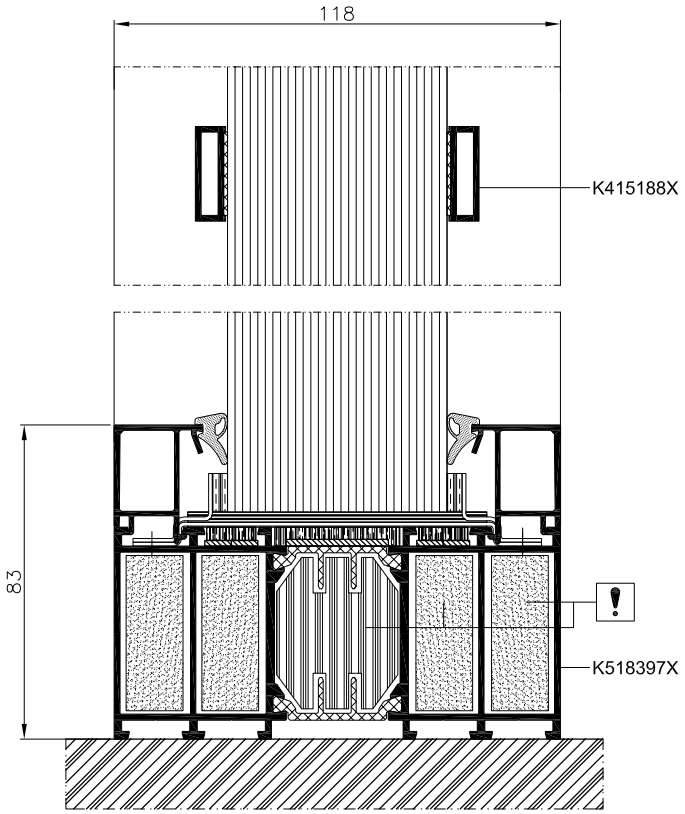
Instytut Techniki Budowlanej

ITB TECHNICAL APPROVAL
AT-15-9186/2013

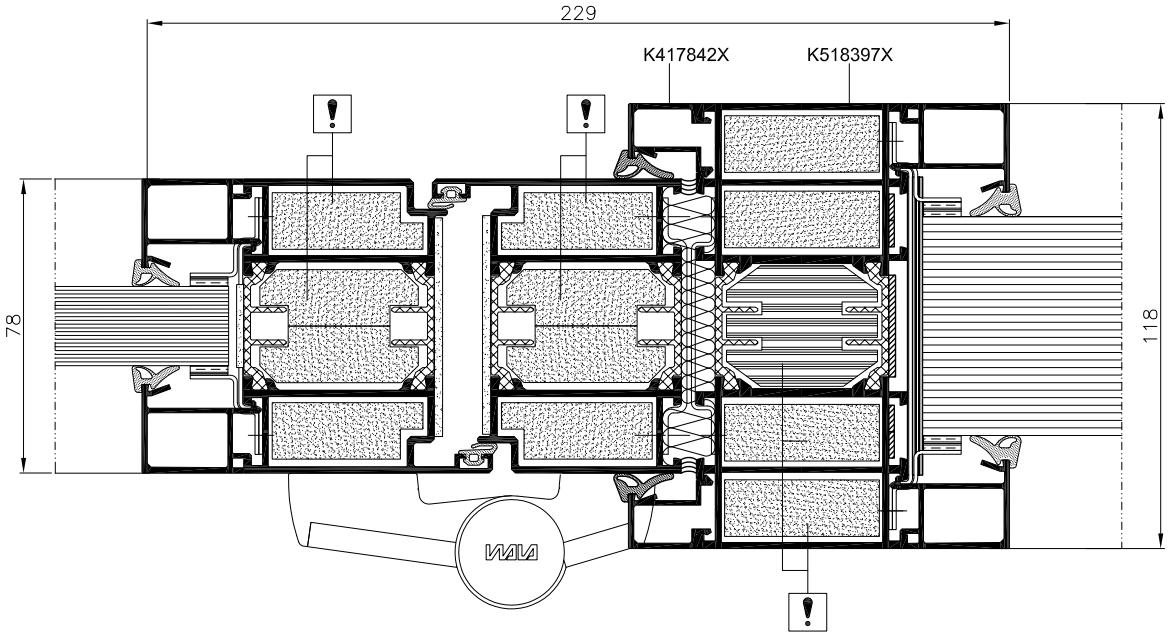
The kit of products for internal and external fire walls of the ALUPROF® MB-118EI system

As regards the internal and external walls the MB-118EI system holds an ITB's Technical Approval No. AT-15-9186/2013

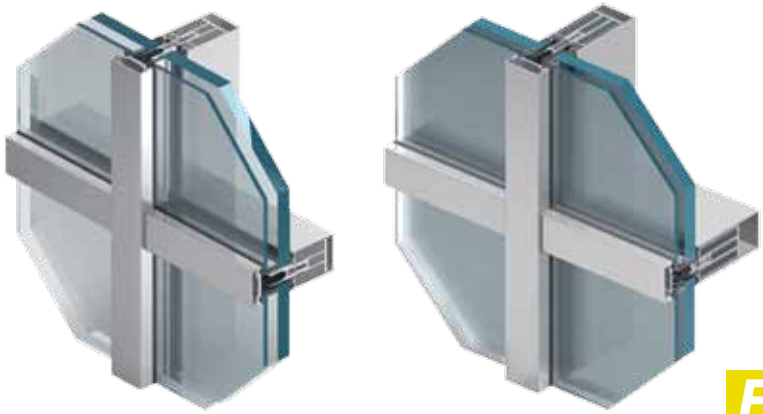
Max. dimensions of the walls



Joining of the MB-118EI wall and MB-78EI doors – cross-section



MB-SR50 EI
MB-SR50N EI



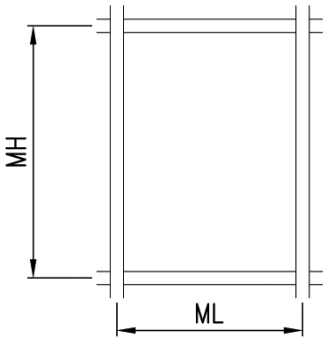
EI 15 **EI 30** **EI 45** **EI 60**

The **MB-SR50 EI** and **MB-SR50 EI** curtain wall fire rated systems have been developed to provide a light-weight curtain & fire resistant wall, of classes EI 15, EI 30, EI45, EI 60 classes according to PN-EN 1364-3 and PN-EN 1364-1 and of fire-resistant glass-covered roofs. The system is classified as non-fire spreading (NRO).

These solutions use profiles of the basic, **MB-SR50** and **MB-SR50N** façade systems: mullions of a depth of between 85 and 225 mm and transoms of a depth of 65+ 185 mm. Both systems are linked technologically and functionally, the main difference between them lies in the shape and depth of the profiles: rounded profiles with a radius of 2.5 mm characteristic of the **MB-SR50** are replaced by the "sharp edge" in the **MB-SR50N** system. This affects substantially the aesthetics of the structure – the **MB-SR50N** system design is such that, like size transoms & mullions will provide a flush internal finish of the "box aspect" of the profiles, creating a desirable, unified grid appearance. This allows the glazing building to be a unified-looking grid.

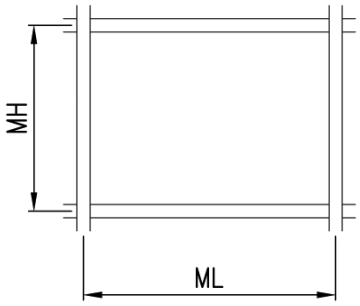
The design of the fire rated curtain wall system allows the use of angled connections to ± 7.5° per side and building façades tilted from the vertical at an angle of ± 15°. It is also possible to install the **MB-78EI** fire doors while maintaining the fire resistance of the whole structure in classes EI 30 or EI 60.

Max. dimensions of the panels in curtain walls



MHmax=3000 mm
MLmax=1500 mm

kg - 300 kg



MHmax=1200 mm
MLmax=1800 mm

kg - 300 kg

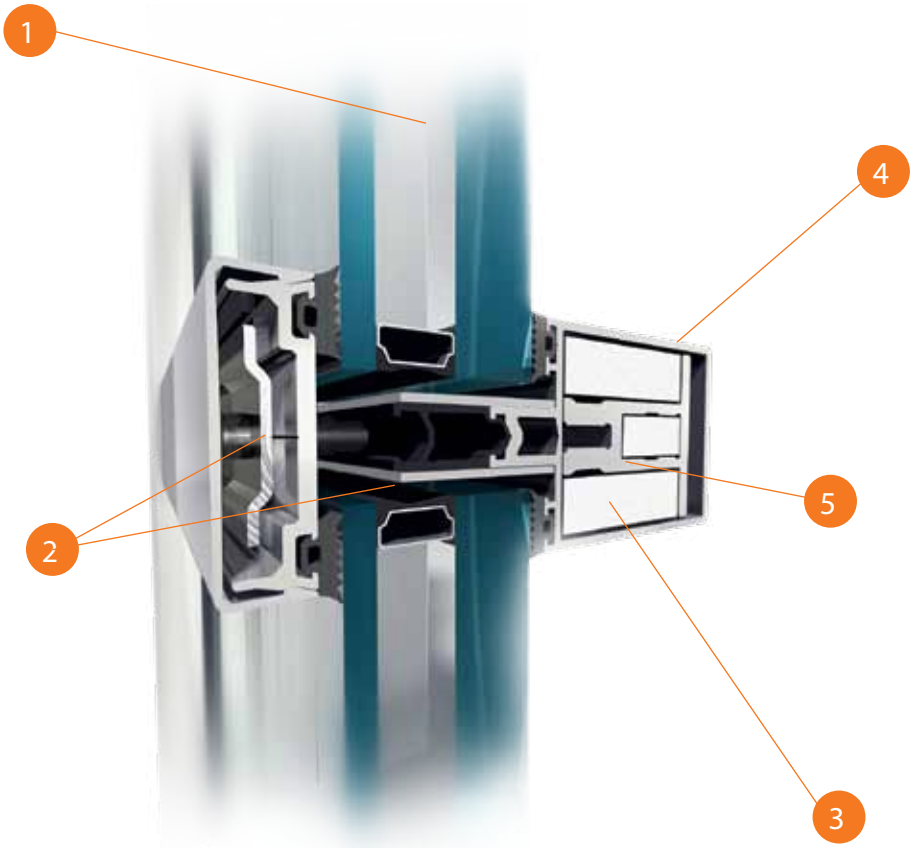
kg - max. infill weight

TECHNICAL SPECIFICATION	MB-SR50 EI	MB-SR50N EI
Mullions depth	85 – 185 mm	85 – 225 mm
Transoms depth	65 – 145 mm	69,5 – 189,5 mm
Inertia mullions (coeff. range I_x)	88,47 – 725,81 cm^4	81,34 – 1222,14 cm^4
Inertia transoms (coeff. range I_z)	42,02 – 263,48 cm^4	87,34 – 629,54 cm^4
Width of profiles	50 mm	
Glazing range	15 – 52 mm	
TECHNICAL PARAMETERS		
Air Permeability	Class AE, PN-EN 12152	
Watertightness	Class RE 1200, PN-EN 12154	
Fire resistance	Classes EI 15, EI 30, EI45, EI 60, EN 13501-2	
Thermal insulation (coeff. U_f)	from 1.9 W/(m^2K)	

Curtain wall fire rated systems

MB-SR50 EI

MB-SR50N EI



1. Single or double (sealed unit) fire resistant glasses, mechanical fix, glazed infill system, accommodating glass of a thickness up to 52 mm
2. Steel accessories, special bolts and expanding tapes that protect the structure from high temperatures
3. GKF or CI type fire protection inserted inside the profile, enabling performance classes of EI 15 – EI 60
4. Mullion and transom supporting structure gives the possibility to build vertical facades, inclined from the vertical position by an angle of ± 7.5° + glazings
5. The inner core aluminium profile insert, provides the necessary integrity of the construction in the event of a fire

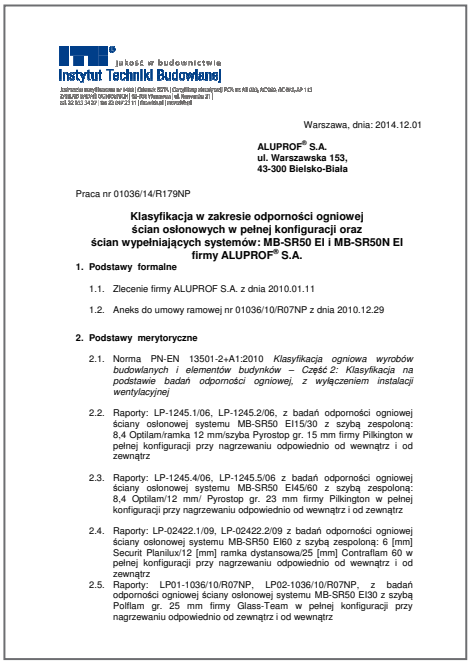
The view of the fire resistant façade does not differ from the basic system. In order to gain fire resistance, mullions and transoms are fitted with special fireproof inserts. These inserts consist of an aluminium profile serving as a reinforcement element, clad round with fire-proof board.

The glazing or other fire-proof fillings are "loaded" into their respective "zones," against the internal glazing rebate of both the transoms & mullions, & held fast in place via an external pressure plate or clamping strip. In order to achieve optimal heat and sound insulation in construction we use continuous thermal break profile of HPVC and EPDM seals. In addition, the side surfaces of the insulator are equipped with fire-proof tape that under high temperature expands and fills the space between the areas of the façade.

The pressure plate is fixed to the grid profiles by a machine screw and stainless steel plate. Such a method of fix provides the necessary technical parameter, in order to achieve performance, & protect against the glass or other similar fire resistant infill from unwanted displacement.

The design of the fire resistant curtain wall system allows the use of angled joinings up to ± 7.5° per site and building façades deflected from the vertical by an angle of ± 15°, it is also possible to mount the fire resistant doors of the **MB-78EI** system while maintaining the fire resistance of the whole structure within EI 30 or EI 60 classes

TheMB-SR50EI and MB-SR50N EI systems holds a certificate CERTIFIRE delivered by Warrington Certification Ltd No. CF 5139



Instytut Techniki Budowlanej

Warszawa, dnia: 2014.12.01

ALUPROF® S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

Praca nr 01036/14/R179NP

Klasyfikacja w zakresie odporności ogniowej ścian osłonowych w pełnej konfiguracji oraz ścian wypełniających systemów: MB-SR50 EI i MB-SR50N EI firmy ALUPROF® S.A.

1. Podstawy formalne

1.1. Zlecenie firmy ALUPROF S.A. z dnia 2010.01.11

1.2. Aneks do umowy ramowej nr 01036/10/R07NP z dnia 2010.12.29

2. Podstawy merytoryczne

2.1. Norma PN-EN 13501-2+A1:2010 *Klasyfikacja ogniowa wyrobów budowlanych i elementów budynków – Część 2: Klasyfikacja na podstawie badań odporności ogniowej, z wyłączeniem instalacji wentylacyjnej*

2.2. Raporty: LP-1245.1/06, LP-1245.2/06, z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI15/30 z szyba zespoloną: 8,4 Optilam/ramka 12 mm/szyba Pyrostop gr. 15 mm firmy Pilkington w pełnej konfiguracji przy nagrzewaniu odpowiednio od wewnątrz i od zewnątrz

2.3. Raporty: LP-1245.4/06, LP-1245.5/06 z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI45/60 z szybą zespoloną: 8,4 Optilam/12 mm/ Pyrostop gr. 23 mm firmy Pilkington w pełnej konfiguracji przy nagrzewaniu odpowiednio od wewnątrz i od zewnątrz

2.4. Raporty: LP-02422.1/09, LP-02422.2/09 z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI60 z szybą zespoloną: 6 [mm] Securit Planilux/12 [mm] ramka dystansowa/25 [mm] Contraflam 60 w pełnej konfiguracji przy nagrzewaniu odpowiednio od wewnątrz i od zewnątrz

2.5. Raporty: LP01-1036/10/R07NP, LP02-1036/10/R07NP, z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI30 z szybą Polflam gr. 25 mm firmy Glass-Team w pełnej konfiguracji przy nagrzewaniu odpowiednio od zewnątrz i od wewnątrz

certifire

CERTIFICATE OF APPROVAL
No CF 5139

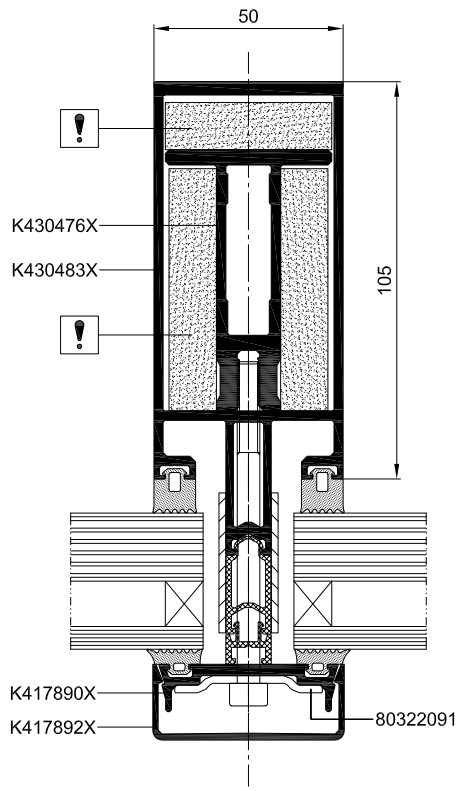
ALUPROF S.A.

Ul. Warszawska 153, 43-300 Bielsko-Biala, Poland
Tel. +48 33 891 92 60

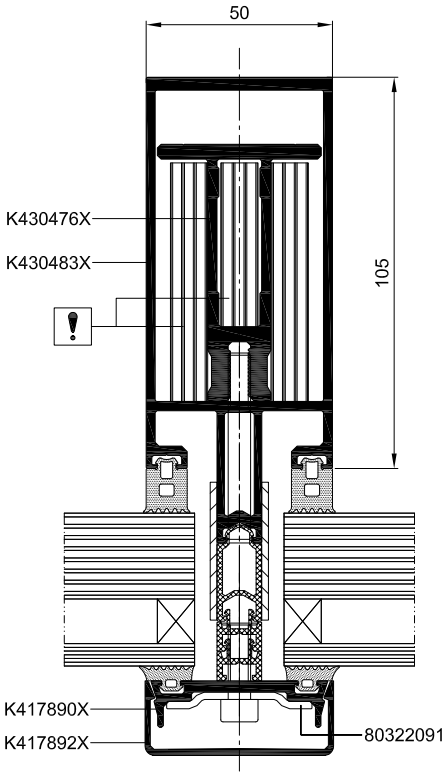
CERTIFIED PRODUCT

TECHNICAL SCHEDULE

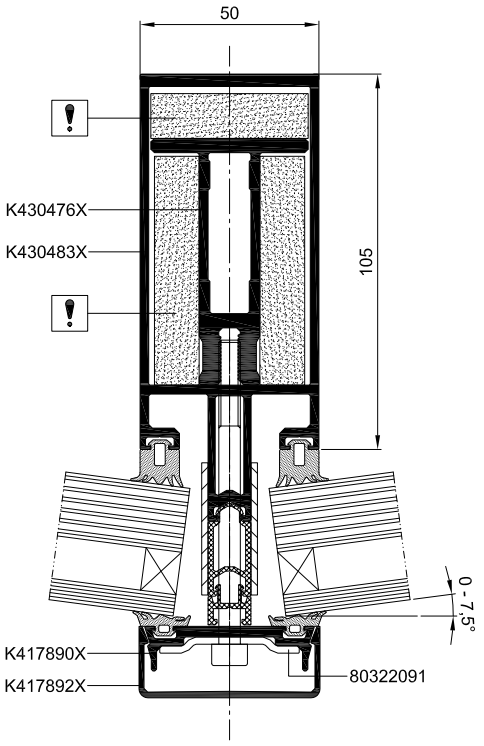
Mullion cross-section EI 15, EI 30



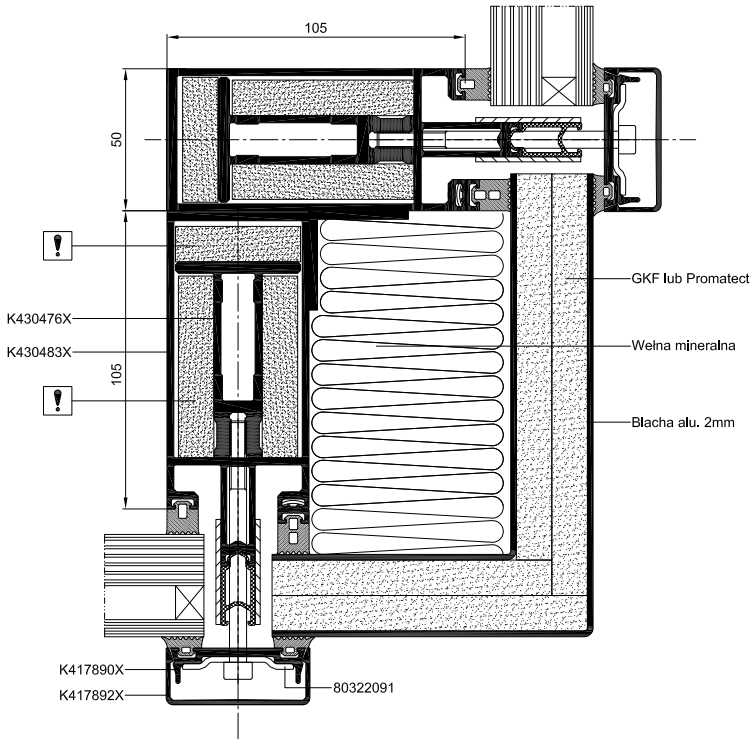
Mullion cross-section EI 45, EI 60



Mullion cross-section (-7.5°) – 7.5°. EI 15, EI 30

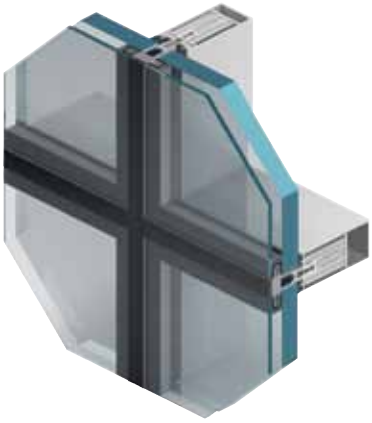


Mullion cross-section 90° EI 15, EI 30



Façade system

MB-SR50N EI EFEKT



EI 30 **EI 60**

MB-SR50 EI EFEKT system is designed for fabrication of firerated (EI30, EI60) infill curtain walls, to a height of 3170 mm and a maximum spacing between mullions up to 1600 mm. What distinguishes this product, is the external appearance of the façade, which is free from any aluminium capping profiles, giving the elevation effect of smooth, contemporary glass surface. In its profiles, the mullion and transom support structure has a special core protected by fire-retardant inserts. It may be inclined from the vertical by an angle of ±15°.

MB-SR50N EI EFEKT systems is covered by the ITB classification no 01036/10/R60NP and certified CERTIFIRE by the Warrington Certification Ltd (certificate no CF 5139).

certifire

CERTIFICATE OF APPROVAL
No CF 5139

ALUPROF S.A.

Ul. Warszawska 153, 43-300 Bielsko-Biała, Poland
Tel: +48 33 891 93 60

CERTIFIED PRODUCT

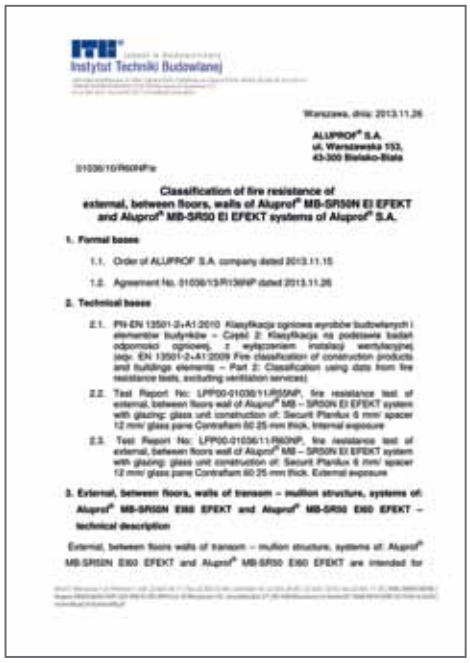
Aluminium Curtain Walling
Systems Type:
MB® SR50 EI
MB® SR50N EI
MB® SR50N EI EFEKT
for Glazed Curtain Walls, Screens and Roof Glazing including internal and external single and double leaf MB 70EI fire rated doors and single and double leaf sliding automatic MB 70EI DFS fire rated doors

TECHNICAL SCHEDULE

TS25 Fire Resistant Glass, Glazing Systems and Materials

Issued: 15th January 2014
Valid to: 14th January 2019

warrington certification



ITB
Instytut Techniki Budowlanej

Warszawa, dnia: 2013.11.26

ALUPROF® S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

01036/10/R60NPw

Classification of fire resistance of external, between floors, walls of Aluprof® MB-SR50N EI EFEKT and Aluprof® MB-SR50 EI EFEKT systems of Aluprof® S.A.

1. Formal bases

1.1. Order of ALUPROF S.A. company dated 2013.11.15

1.2. Agreement No. 01036/13/R136NP dated 2013.11.26

2. Technical bases

2.1. PN-EN 13501-2+A1:2010 Klasyfikacja ogniowa wyrobów budowlanych i elementów budynków – Część 2: Klasyfikacja na podstawie badań odporności ogniowej, z wyłączeniem instalacji wentylacyjnej. (ang. EN 13501-2+A1:2009 Fire classification of construction products and buildings elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services)

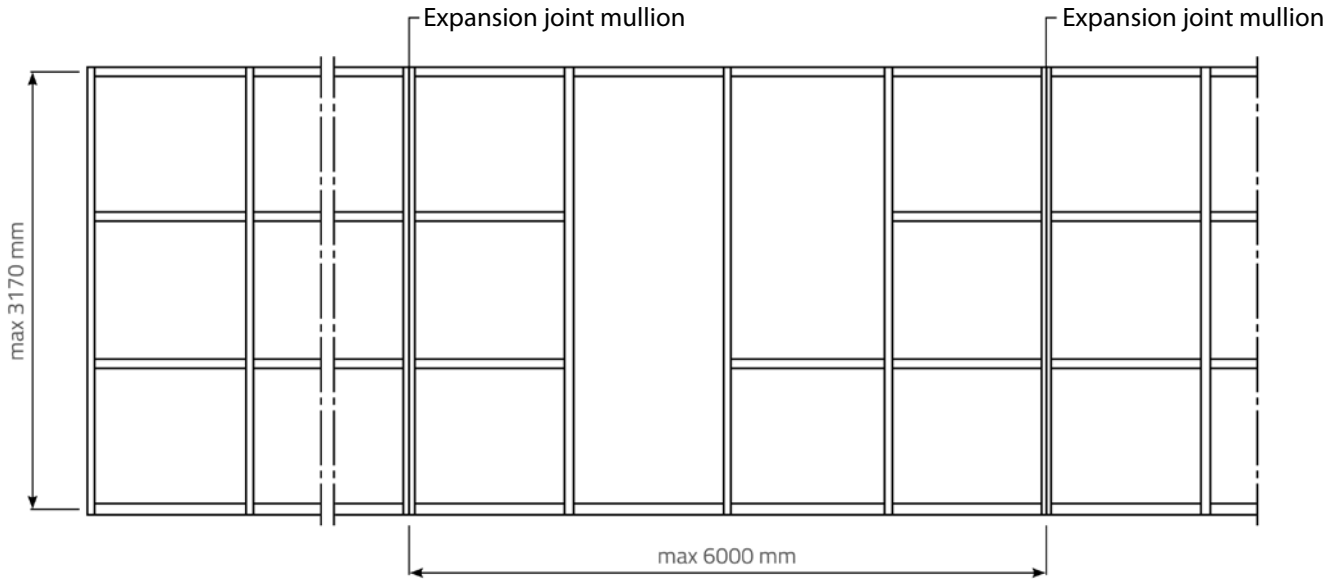
2.2. Test Report No: LPP00-01036/11/R60NP, fire resistance test of external, between floors wall of Aluprof® MB – SR50N EI EFEKT system with glazing: glass unit construction of: Securit Planilux 6 mm/ spacer 12 mm/ glass pane Contraflam 60 25 mm thick, Internal exposure

2.3. Test Report No: LPP00-01036/11/R60NP, fire resistance test of external, between floors wall of Aluprof® MB – SR50N EI EFEKT system with glazing: glass unit construction of: Securit Planilux 6 mm/ spacer 12 mm/ glass pane Contraflam 60 25 mm thick, External exposure

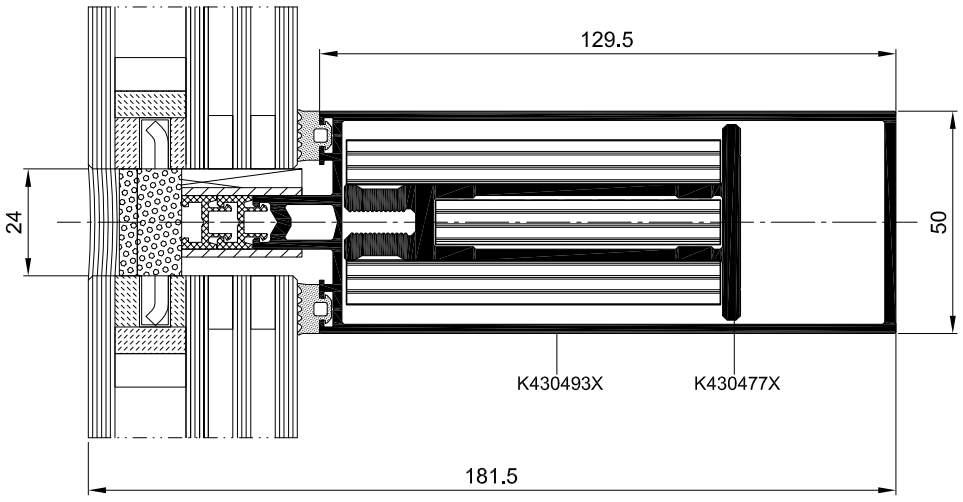
3. External, between floors, walls of transom – mullion structure, systems of: Aluprof® MB-SR50N EI60 EFEKT and Aluprof® MB-SR50 EI60 EFEKT – technical description

External, between floors walls of transom – mullion structure, systems of: Aluprof® MB-SR50N EI60 EFEKT and Aluprof® MB-SR50 EI60 EFEKT are intended for

Max. dimensions of the walls



Transom cross-section



TECHNICAL SPECIFICATION	MB-SR50N EI EFEKT
Frame/mullion depth	85 – 225 mm
Leaf/transom depth	69,5 – 189,5 mm
Mullion stiffness (coeff. range Ix)	81,34 – 1222,14 cm^4
Transom stiffness (coeff. range Iz)	49,54 – 629,54 cm^4
Profiles width	50 mm
Glazing range	15 – 52 mm
TECHNICAL PARAMETERS	
Air permeability	class AE1200 Pa; PN-EN 12153:2004
Water-tightness	class RE1200; PN-EN 12155:2004
Wind resistance	2400 Pa +/- 3600 Pa; PN-EN 12179:2004
Impact resistance	class I5/E5; PN-EN 13049:2004, PN-EN 14019:2006

Fire resistant glazed roofs

REI 30 **RE 30**

Based on the **MB-SR50 EI** and **MB-SR50N EI** façade systems, it is possible to perform roof glazing with fire resistance class REI30 / RE30 according to PN-EN 13501-2 + A1: 2010.

Regular curtain wall mullions & transoms are used as roof glazing rafters & purlins, suitably joined to each other to form an aluminium grid structure, which is in turn mounted to the building structure by means of appropriate supports. Similar to the vertical curtain wall offer, these rafter & purlin profiles are fitted with fire resistant inserts, consisting of an aluminium insert profile acting as reinforcement, and surface clad with fire-proof board. The standard solution does not require any additional support such as steel.

Fire tests performed on two versions: flat and inclined, have assured classification of roofs with an inclination of 0° to 80° from the horizontal level. Rafters with a depth of 85 + 225 mm and purlins with a depth of 65 + 189.5 mm may be used in this structure. Window inserts are installed into the glazing rebate of the rafter & purlin formed grid, & fixed securely by the pressure plate clamping strip, screw fixed back to the carrier profiles. Within this system, it is possible to apply glazing thicknesses ranging from 36 to 52 mm. The maximum dimensions of the glass are 2100 mm x 1100 mm, however, changing these dimensions is acceptable, providing there is no exceeding of the maximum surface area of the glass. Fire resistant glass can be used in a composite set with any glass placed in the system on the outside. Glazed fire resistant roofs can be combined with the **MB-SR50 EI** and EI **MB-SR50N** vertical façades.

ITB
Instytut Techniki Budowlanej

Warszawa, dnia: 2012.06.28

ALUPROF® S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

01036/10/R07NPa

Classification of fire resistance of curtain walls and external, between floors, walls of ALUPROF® S.A.: MB-SR50N EI, MB-SR50 EI systems.

1. Formal bases

1.1. Order of ALUPROF S.A. company dated 2012 .06.20

1.2. Agreement No. 01036/12/R07NP dated 2012.03.14

2. Technical bases

2.1. PN-EN 13501-2+A1:2010 Klasyfikacja ogniowa wyrobów budowlanych i elementów budynków – Część 2: Klasyfikacja na podstawie badań odporności ogniowej, z wyłączeniem instalacji wentylacyjnej (eqv. EN 13501-2+A1:2009 Fire classification of construction products and buildings elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services)

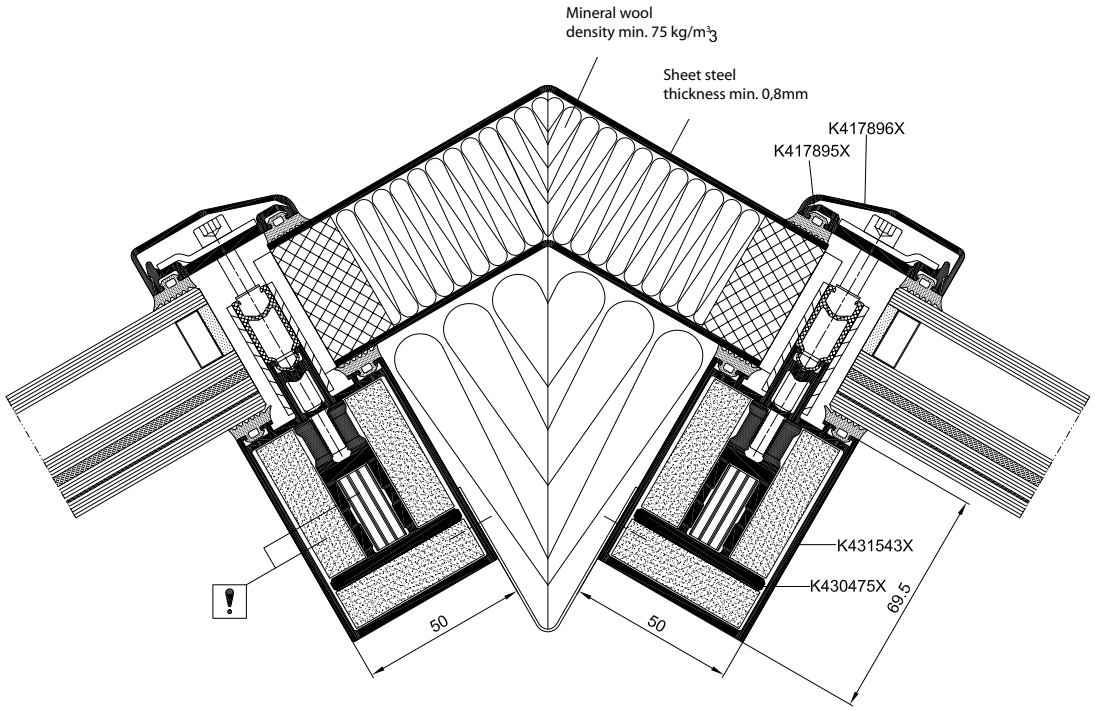
2.2. Test Reports No: LP-1245.1/08, LP-1245.2/08, of fire resistance tests of curtain wall, system of: ALUPROF® MB-SR50 EI15/30 with glazing: 8.4 Optiterm/spacer 12 mm/glass pane Pilkington Pyrostop 15 mm thick, complete assembly, internal and external exposure respectively

2.3. Test Reports No: LP-1245.4/08, LP-1245.5/08 of fire resistance tests of curtain wall, system of: ALUPROF® MB-SR50 EI45/60 with glazing: 8.4 Optiterm/ spacer 12 mm / glass pane Pilkington Pyrostop 23 mm thick, complete assembly, internal and external exposure respectively

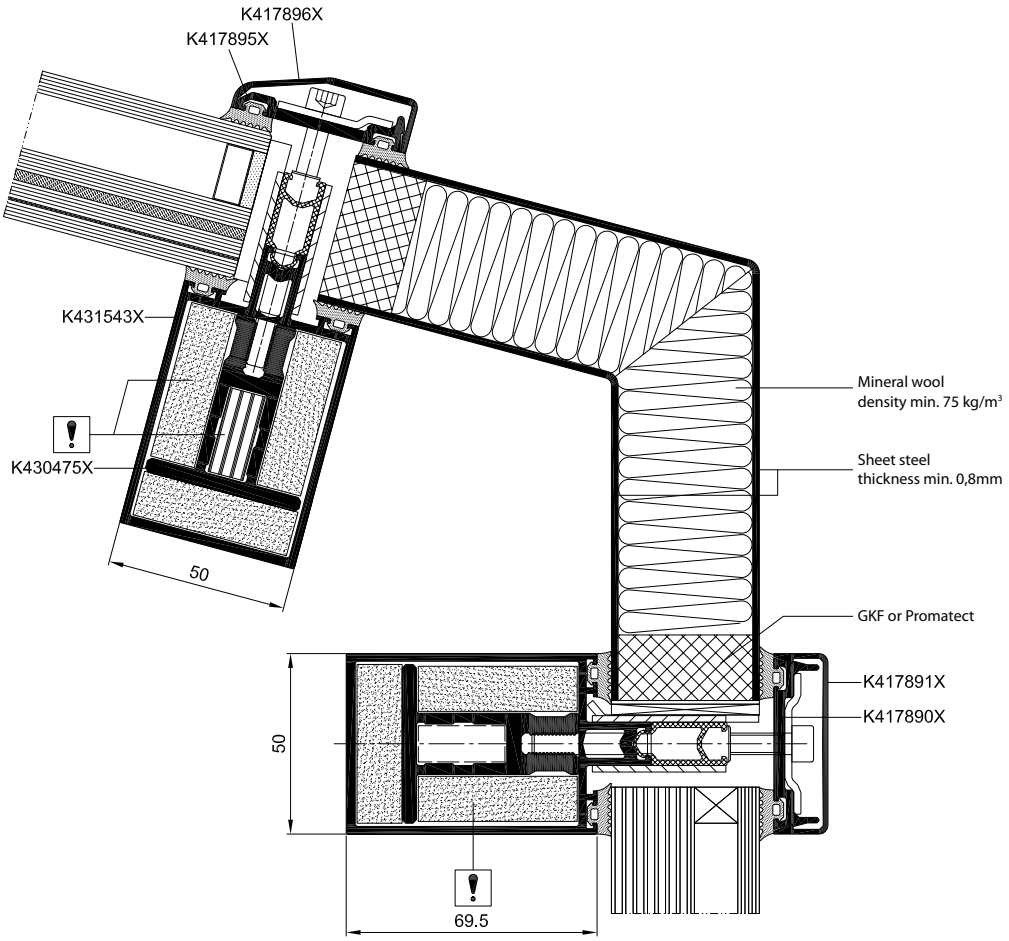
2.4. Test Reports No: LP-02402.1/09, LP-02422.2/09 of fire resistance tests of curtain wall, system of: ALUPROF® MB-SR50 EI60 with glazing: 6 [mm] Securit Planitvar/ spacer 12 [mm]/ 25 [mm]/ Contraflam 60, complete assembly, internal and external exposure respectively

The **MB-SR50 EI** and EI **MB-SR50N** fire roofs are subject to the classification No. 1036/11/R35NP by the ITB.

Cross section of the fire roof ridge



Cross section of the roof combined with a fire façade



MB-45D

S_m S_a

MB-45D partition system is intended for producing partition walls with smoke exhaust single- or double-leaf doors with a class of Sm and Sa according to the PN-EN 13501-2 standard. Its construction is based on the elements of internal partitions of the **MB-45** system. Proper performance of the smoke-tightness function is conditioned by the correct application of the leaf peripheral sealings, rear glazing and other fillings as well as the application of threshold seals.

Building Research Institute

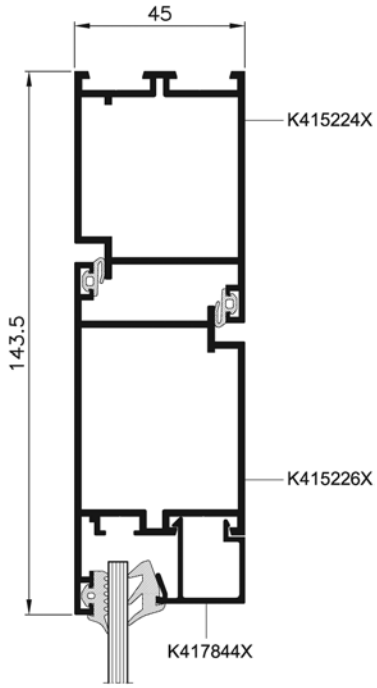
TECHNICAL APPROVAL ITB AT-15-5163/2009

ALUPROF S.A.

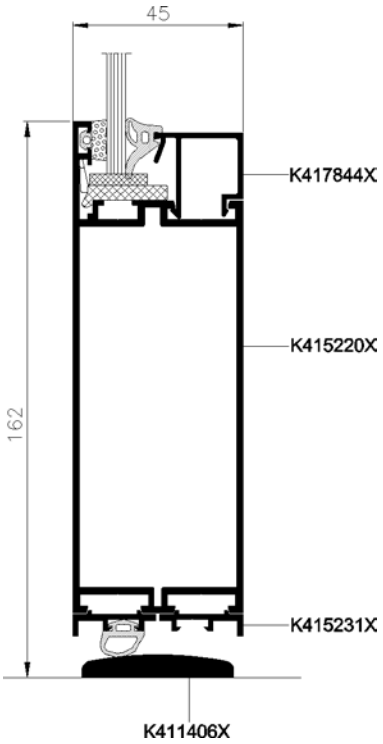
ALUPROF® MB-45D smoke-proof doors

The MB-45D doors are subject to the Technical Approval No. AT-15-5163/2009 by the ITB.

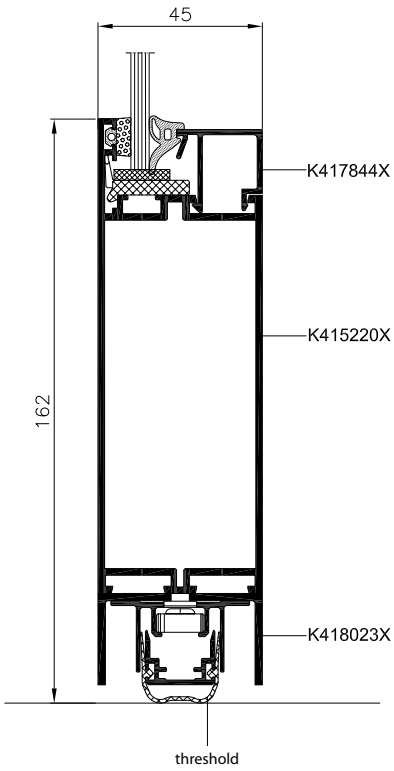
Door frame and door leaf – cross-section



Door with threshold – bottom cross-section



Door without threshold – bottom cross-section



TECHNICAL SPECIFICATION			
Door frame depth	45 mm	Glazing range	2 - 25 mm
Door leaf depth	45 mm	Max. leaf door dimension	H up to 2400 mm (2200 mm), L up to 1250 mm (1400 mm)
Door frame width	66,5 mm	Max. leaf door weight	120 kg
Door leaf width	72 mm		

Smoke exhaust windows

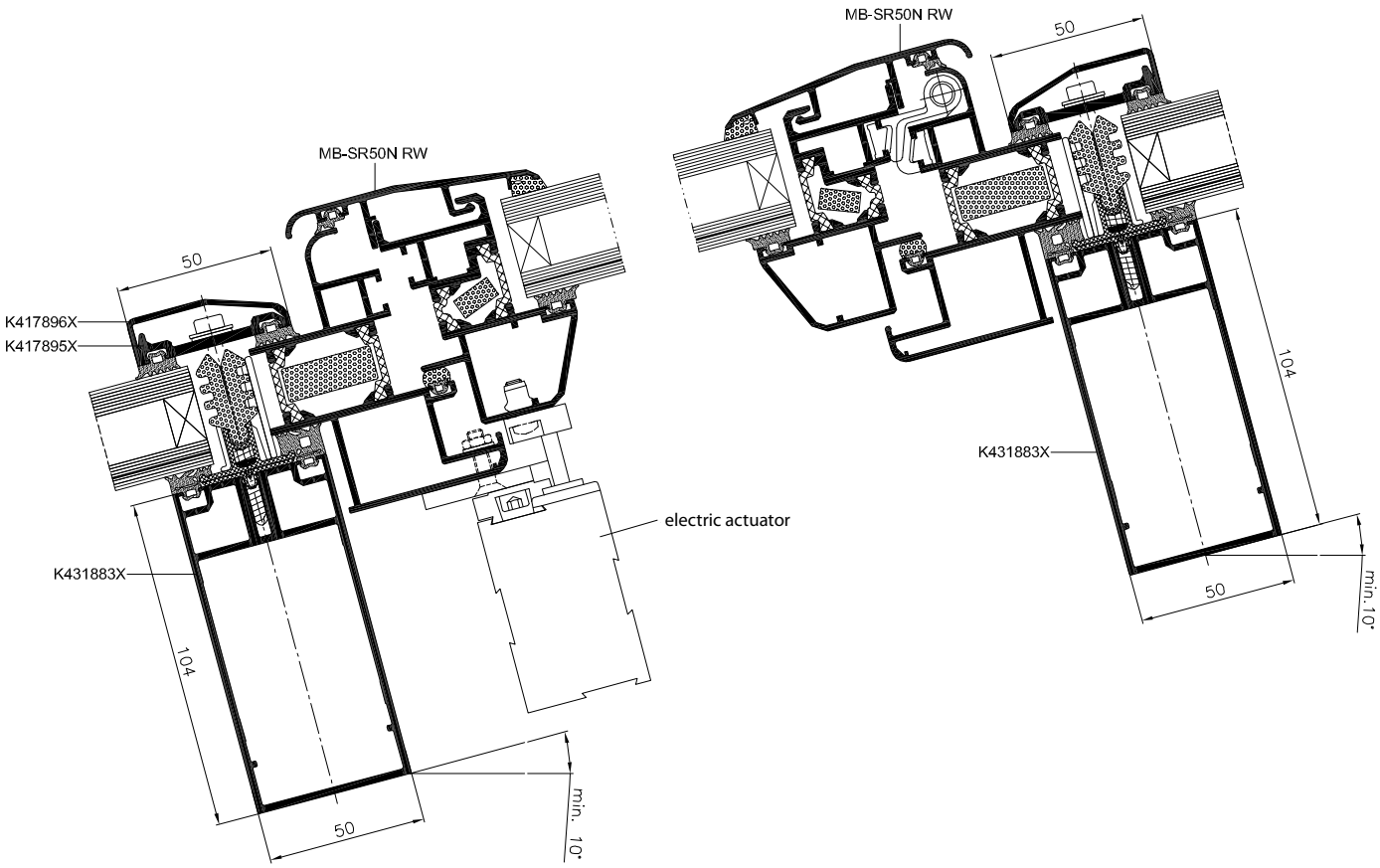
Maximum window size up to 4 m²

Smoke exhaust windows play a particular role in ensuring safety and comfort for the people staying in the building. When properly selected, they are the elements of gravity ventilation, and when necessary they can help to quickly get rid of smoke & toxic vapours which can be hazardous to health or worse.

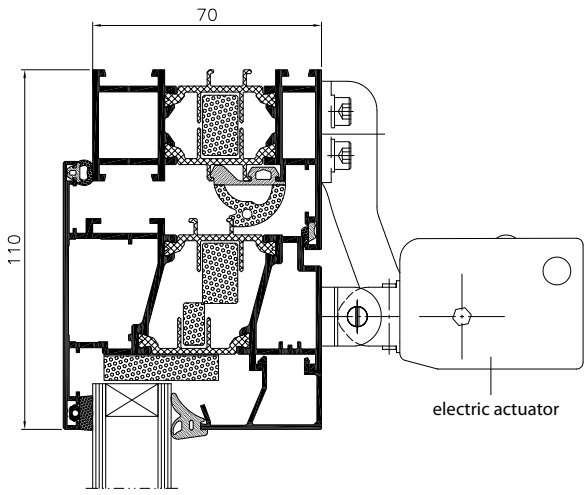
The offer for these products is characterised by the diversity of solutions so they can be used in an individual development, as well as elements integrated with aluminium façades or roof glazed panels.

Smoke exhaust structures can be based on window systems such as **MB-59S**, **MB59S-Casement**, **MB-60**, **MB-60US**, **MB-70**, **MB-70US**, **MB-86**, **MB-86US**, and on the dedicated solutions for façades, such as tilt windows (**MB-SR50N OW**) and skylights (**MB-SR50N RW**). There are various options of windows opening – side hinged or tilted inward or outward (top/bottom) as well as the dormers used with tilted façades or with skylights. Smoke exhaust and ventilation system is completed by the aerating windows or doors.

Cross-sections through the MB-SR50N RW smoke exhaust window in MB-TT50 system



Cross-section of the the MB-70 system's smoke exhaust window

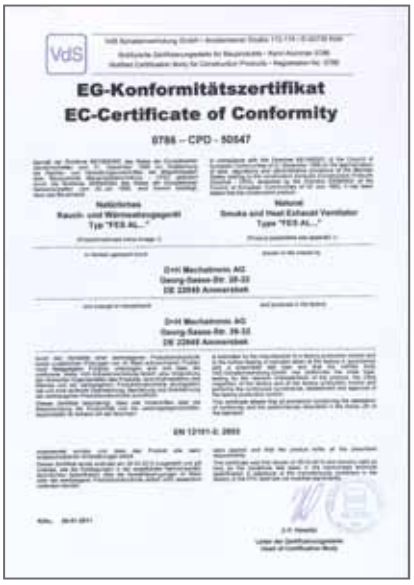


TECHNICAL SPECIFICATION	
Max. dimensions of window leaf (horizontal)	L up to 2500 mm, H up to 1600 mm
Max. dimensions of window leaf (vertical)	L up to 1600 mm, H up to 2500 mm
Max. dimensions of roof window leaf	L up to 1500 mm, H up to 2200 mm or L up to 2200 mm, H up to 1500 mm
Max. surface of vertical/roof smoke exhaust window	up to 4.0 m^2 / do 3.3 m^2
Max. opening angle of the smoke exhaust window	up to 90°

The smoke exhaust windows and flaps

The smoke exhaust windows and flaps can be equipped with reliable and silent mechanisms by D+H, GEZE, and for roof windows – also with drives by ESCO. Different types of actuators, including drives with a large opening force (up to 3,000 N) are available. They can be installed in a single window or in synchronised "Tandem" systems. In spite of their responsible function in building, these structures can be characterised by high aesthetics, which is ensured by the possibility of using small-sized drives installed parallel to the window surface.

Producers of drives for smoke exhaust windows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EC-Certificate of Conformity
0786 – CPD – 50547


EG-Konformitätszertifikat


EG-Konformitätszertifikat

EN 12101-2 standard which is the legal basis for the operation of smoke exhaust windows, requires that the equipment used for smoke and heat evacuation would work reliably and correctly every time it is started, during the period of use. Smoke exhaust structures based on Aluprof systems have been tested in accordance with the above standard in the Institutes of IFT and VdS both in terms of effective ventilation area, operational reliability and proper behavior under various operating conditions: the wind load, snow load and also under the influence of low and high temperatures. Through the smoke exhaust window made using Aluprof's systems have appropriate documents confirming the required technical parameters.

REFERENCE PROJECTS

completed using fire protection and smoke exhaust systems by ALUPROF








www.aluprof.eu/en/projects

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