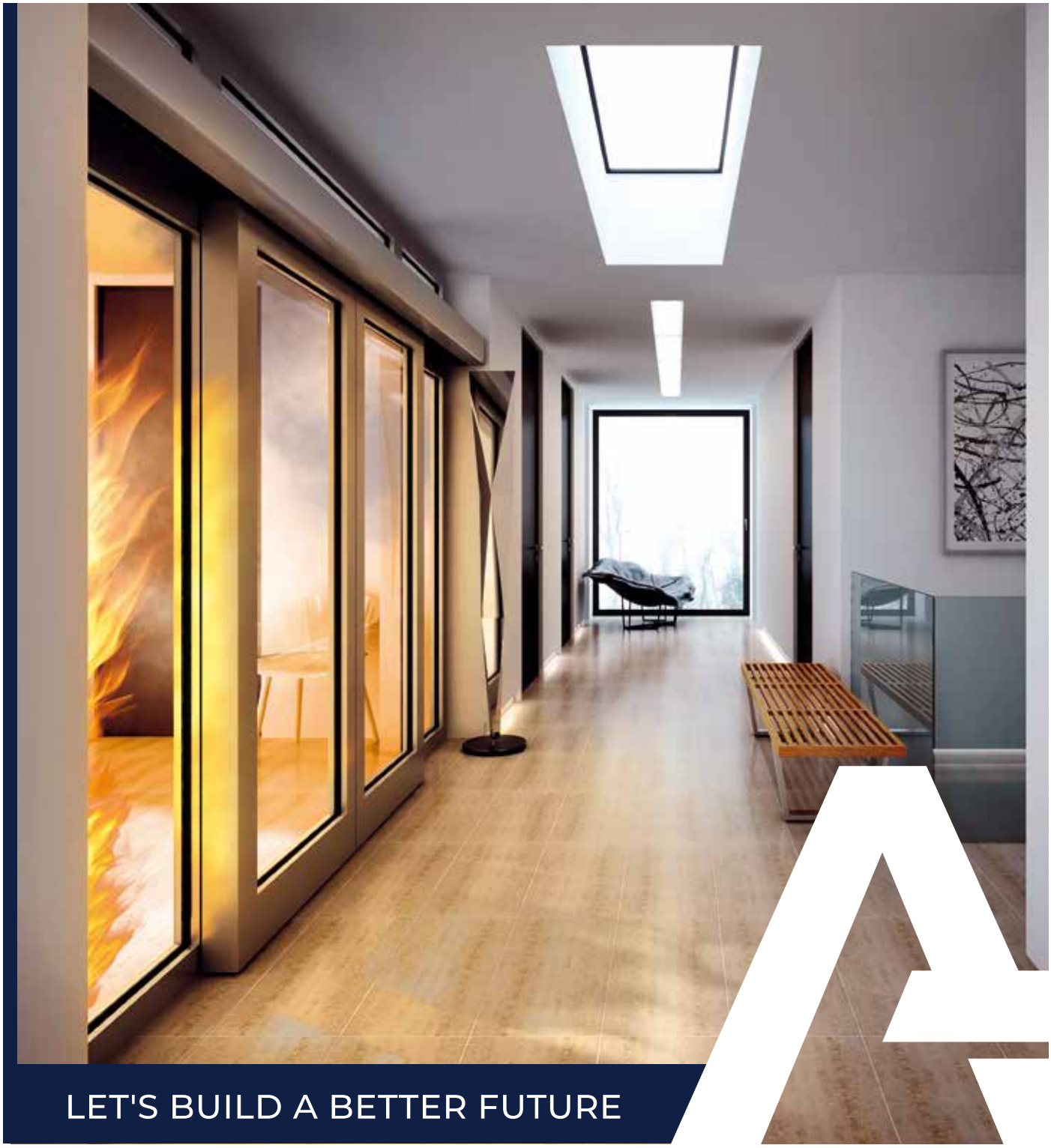
ALUPROF
ALUMINIUM SYSTEMS



FIRE RATED AND SMOKE EXHAUST SYSTEMS

FIRE-RATED, SMOKE-TIGHT & SMOKE EXHAUST SYSTEMS BY ALUPROF

A wide range of systems offered by Aluprof allows for fabrication of a variety of structural elements that are responsible for “fire protection zones” in buildings, and provide appropriate conditions for evacuation of their occupants. These solutions include products linked to window & door systems, extending to a typical “stick assembly” curtain wall system solution. The fire resistance performance of these solutions, depending on the project requirements, is available in a variety of classes, from EI 15 to EI 120 for vertical assemblies, and achieves a class of REI30 / RE45 for roofs.

Aluprof’s products that ensure safety of buildings’ users in the event of a fire include internal partition walls with doors MB-45EW (EW30), internal & external partition walls with doors MB-78EI (EI15 to EI90), internal partition walls with doors MB-60E EI (EI15, EI30), automatic sliding doors MB-78EI DPA (EI15 to EI30), external partition walls, windows and doors MB-86EI (EI30), fire-rated walls MB-118EI (EI120), fire-rated facades MB-SR50N EI (EI30, EI60) and MB-SR50N EI EFEKT (EI30, EI60), glazed fire roofs (RE20, RE30, REI20, REI30), smoke control doors MB-45D (S_a, S_{200} [S_m]) and smoke exhaust windows & vents.

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 a facade, enabling the whole structure to achieve a EI 30 or EI 60 class performance.

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

Gain valuable time!

Note: the content contained in this brochure is for information purposes only, details can be found in the ALUPROF system catalogues."

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.

Gain valuable time!

CLASSIFICATION OF FIRE RESISTANCE CONSTRUCTIONS

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 nonheated 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 nonheated 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 AND DEVELOPMENT, TESTING, CERTIFICATION

Aluprof SA 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), UBAtc (Belgium), 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

EXTENDED APPLICATION REPORT FOR FIRE RESISTANCE


Instytut Techniki Budowlanej

EXTENDED APPLICATION REPORT FOR FIRE RESISTANCE


Instytut Techniki Budowlanej

CLASSIFICATION OF FIRE RESISTANCE
IN ACCORDANCE WITH EN 13501-2:2016


Instytut Techniki Budowlanej

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

Classification of fire resistance of Aluprof® S.A. curtain walls in full coefficiation and panel walls of Aluprof MB-SR50 EI EFFECT and Aluprof MB-SR50N EI EFFECT systems

1. Formal bases

2. Technical bases

2.1. Codes


Member of EOTA

European Technical Assessment

ETA-21/0516
of 30/06/2021


Efectis

PROCES-VERBAL


efectis

PROCES-VERBAL


IBS institut für Brandschutztechnik und Sicherheitsforschung

NATIONALER ANHANG FÜR ÖSTERREICH

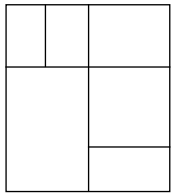
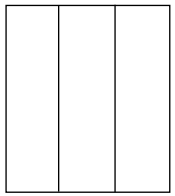
BEWERTUNG FÜR DIE VERWENDBARKEIT


UBAtc

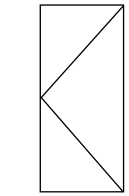
ATG 3039

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

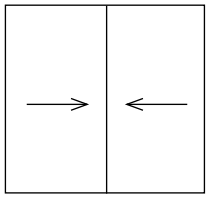
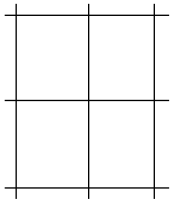
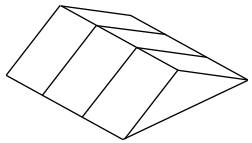
The following table lists the maximum dimensions of fire-resisting constructions with notations and maximum glass dimensions depending on the type of construction and its fire resistance rating. For notations/dimensions of glass that are not listed in the table, please contact our Technical Support Department.

Construction	System	Class	Glass manufacturer	Type of glass	Thickness [mm]	Max dims. of the construction/leaf - W × H [mm]	Max dims. of the glassvertical rectangle [mm]	Max dims. of the glass horizontal rectangle [mm]
 Fixed partitions	MB-60E EI	EI30	POLFLAM	POLFLAM EI30	20	no limit × 4000	1500 × 3000	-
			AGC	Pyrobel 16	17		1500 × 3000	-
			Vetrotech Saint - Gobain	Contraflam 30	16		1500 × 3000	-
	MB-78 EI	EI30	POLFLAM	POLFLAM EI30	20	no limit × 4800	1650 × 3300	2548 × 1615
					22		2200 × 4200	-
			Vetrotech Saint - Gobain	Contraflam 30	16		1800 × 3600	3000 × 1800
			Pyroguard	Pyroguard T-EI30/18-2	18		1470 × 2800	-
		EI60	POLFLAM	POLFLAM EI60	25	no limit × 5160	1500 × 3000	2856 × 1436
					41-64		1500 × 3000	
					27		2640 × 5040	-
			Pyroguard	Pyroguard T-EI60/25-3	25		1617 × 3080	-
					45		1443 × 2420	2500 × 1500
			AGC	Pyrobel 25	27		1400 × 3000	1500 × 1500
			Vetrotech Saint - Gobain	Contraflam 60-3	27		1500 × 3000	
		EI90	POLFLAM	POLFLAM EI90	32	no limit × 4000	1500 × 3000	
	MB-118EI	EI120	POLFLAM	POLFLAM EI120	35	no limit × 4000	1650 × 3300	-
			Pilkington	Pyrostop 120-10	58		1400 × 2500	-
	MB-86EI	EI30	POLFLAM	POLFLAM EI30	42-64	no limit × 4000	1500 × 3000	
 Silicone joined glazed walls	MB-78EI	EI30	Vetrotech Saint - Gobain	Contraflam Strukture	23	no limit × 3700	1800 × 3600	
			AGC	Pyrobel 16 VL	17	no limit × 3000	1000 × 2900	
			POLFLAM	POLFLAM BR	30	no limit × 3700	1800 × 3600	
		EI60	Vetrotech Saint - Gobain	Contraflam Strukture	31	no limit × 3400	1650 × 3300	
			AGC	Pyrobel 25 VL	26	no limit × 3000	1000 × 2900	
			POLFLAM	POLFLAM BR	35	no limit × 3700	1800 × 3600	

Aluprof is constantly extending its testing and classifications for approved glazing. Kindly contact your local Aluprof representative to receive the latest actual information.

Construction	System	Class	Glass manufacturer	Type of glass	Thickness [mm]	Max dims. of the construction/leaf - W × H [mm]	Max dims. of the glassvertical rectangle [mm]	Max dims. of the glass horizontal rectangle [mm]
 Doors and windows	MB-60E EI	EI30	POLFLAM	POLFLAM EI30	20	2644 × 2475	1158 × 2333	
			AGC	Pyrobel 16	17,3		1160 × 2160	
			Vetrotech Saint - Gobain	Contraflam 30	16		1158 × 2173	
	MB-78EI	EI30	POLFLAM	POLFLAM EI30	20	2984 × 3006	2678 × 2886	
					33		2678 × 2886	
					46		1258 × 2358	
			AGC	Pyrobel 16	17		1260 × 2360	
					53		1258 × 2358	
			Vetrotech Saint - Gobain	Contralflam 30	16		1512 × 2832	
			Promat	Promaglass 30/17	17		1118 × 2358	
			Pilkington	Pyrostop 30	32		1260 × 2348	
		EI60	POLFLAM	POLFLAM EI60	25	2984 × 3006	1210 × 2866	
					28		962 × 2866	
					41		870 × 2358	
					55		1358 × 2358	
			AGC	Pyrobel 25	26,6		1260 × 2360	
					62		1258 × 2358	
			Vetrotech Saint - Gobain	Contraflam 60	25		1230 × 2360	
				Contraflam 60-3	27		1258 × 2358	
			Pilkington	Pyrostop EI60	38		1260 × 2348	
			Pyroguard	Pyroguard T-EI60/25-3	25		1108 × 2358	
					40		1118 × 2358	
		EI90	POLFLAM	POLFLAM EI90	32	2784 × 2500	1262 × 2360	
			Vetrotech Saint - Gobain	Contraflam 90	40		1262 × 2360	
			Pilkington	Pyrostop EI90	37		1260 × 2360	
	MB-86EI	EI30	POLFLAM	POLFLAM EI30	41-64	2587 × 2500	1138 × 2338	
	MB-86EI	EI30	POLFLAM	POLFLAM EI30	41-64	3256 × 2550	1385 × 2185	2336 × 1136

Aluprof is constantly extending its testing and classifications for approved glazing. Kindly contact your local Aluprof representative to receive the latest actual information.

Construction	System	Class	Glass manufacturer	Type of glass	Thickness [mm]	Max dims. of the construction/leaf - W × H [mm]	Max dims. of the glassvertical rectangle [mm]	Max dims. of the glass horizontal rectangle [mm]
 Sliding doors	MB-78EI	EI30	POLFLAM	POLFLAM EI30	20	3000 × 2550	1392 × 2364	
			Vetrotech Saint - Gobain	Contraflam 30	16		1015 × 2318	
			POLFLAM	POLFLAM EI30	20	1500 × 2550	1392 × 2364	
			Vetrotech Saint - Gobain	Contraflam 30	16		1015 × 2318	
 Curtain wall	MB-SR50N EI	EI30	POLFLAM	POLFLAM EI30	20-64		1500 × 3000	
			Vetrotech Saint - Gobain	Contraflam 30	16-64		1500 × 3000	
			Pilkington	Pyrostop 30	16-64		1400 × 2400	
		EI60	POLFLAM	POLFLAM EI60	25-64		1500 × 3000	
			Vetrotech Saint - Gobain	Contraflam 60	25-64		1500 × 3000	
			Pilkington	Pyrostop 60	23-64		1400 × 2400	
	MB-SR50N EI Effekt	EI30	POLFLAM	POLFLAM EI30	20-64		1500 × 3000	
			Vetrotech Saint - Gobain	Contraflam 30	16-64		1500 × 3000	
		EI60	POLFLAM	POLFLAM EI60	25-64		1500 × 3000	
			Vetrotech Saint - Gobain	Contraflam 60	25-64		1500 × 3000	
 Skylight	MB-SR50N EI	REI30/ RE30	POLFLAM	POLFLAM H EI30	40		1250 × 2350	
					54		1200 × 2200	
			Vetrotech Saint - Gobain	Contraflam Lite 30 Horizontal	42		1100 × 2100	

Aluprof is constantly extending its testing and classifications for approved glazing. Kindly contact your local Aluprof representative to receive the latest actual information.

GLAZED PARTITION SYSTEMS:

- silicone joined glazed walls **MB-78EI** rated **EI30** & **EI60**
- architecturally-striking shopfronts and igh-quality moveable & folding doors **MB-EXPO** & **MB-EXPO MOBILE**
- office partitions with transparent door **MB-45 OFFICE**
- double glazed office partitions **MB-80 OFFICE**

ALUPROF
ALUMINIUM SYSTEMS

MODERN OFFICE SOLUTIONS AT YOUR FINGERTIPS

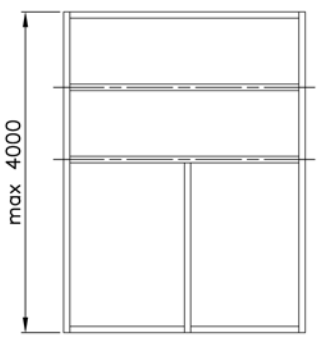
FIRE RATED PARTITIONS WITH DOORS

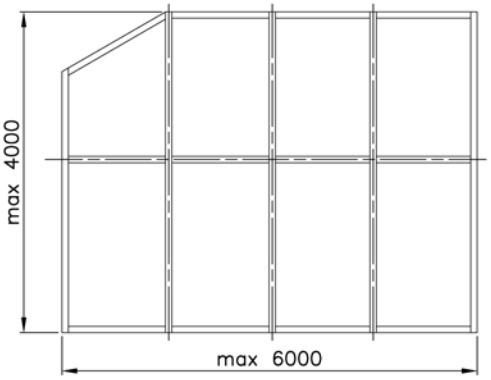
MB-60E EI

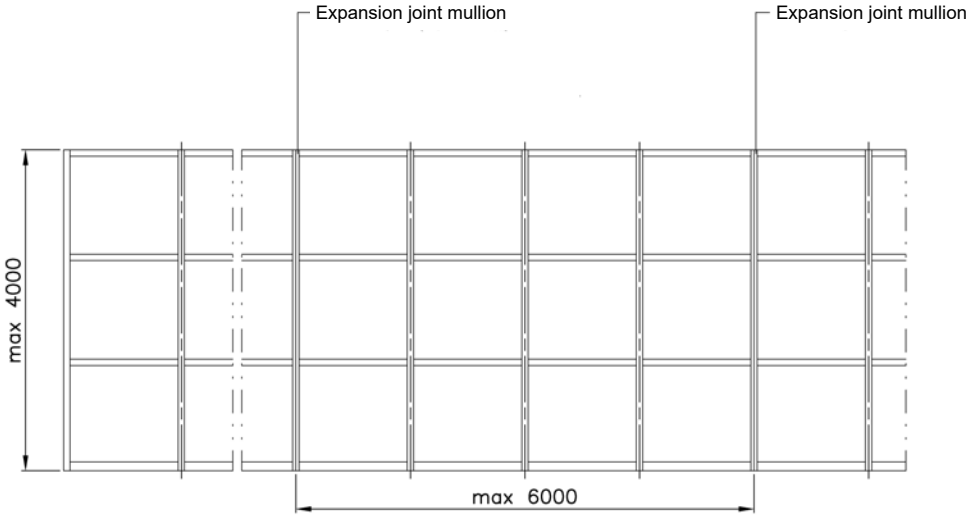
MB-60E EI enables the fabrication of fire-resisting internal or exterior single or double leaf doors. It also enables the fabrication of “technical windows” and fireresisting partitions. MB-60E EI-based constructions are classified EI15 or EI30 to EN 13501-2+A1, doors can additionally meet smoke-tightness requirements in class S200, Sa to EN 13501-2 + A1. 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 8 to 20 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.

EI 15 **EI 30**

Max. dims. of the construction

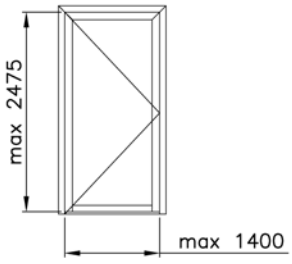


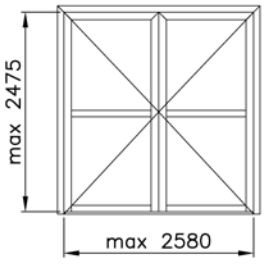


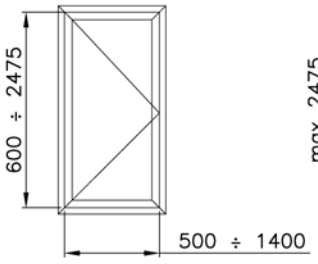


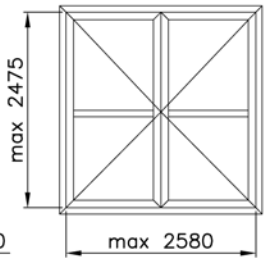
Doors

Technical window

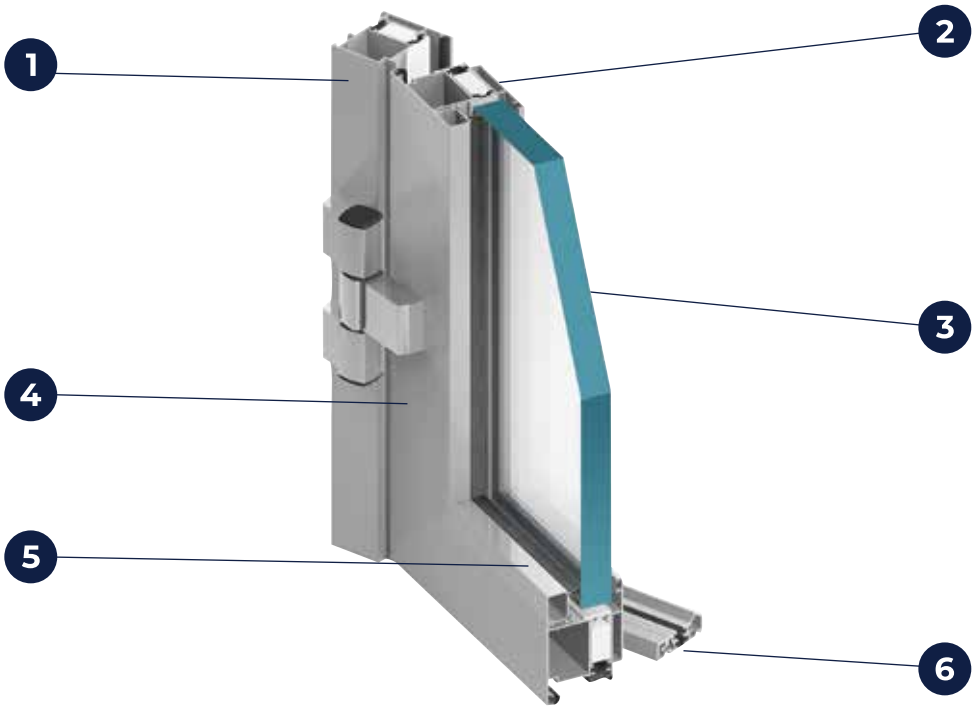








TECHNICAL INFORMATION		TECHNICAL PARAMETERS	
Depth of the partition frame & door	60 mm	Fire resistance rating	EI15, EI30, EN 13501-2 +A1
Depth of the door leaf	60 mm		
Range of glazing	8 - 20 mm		



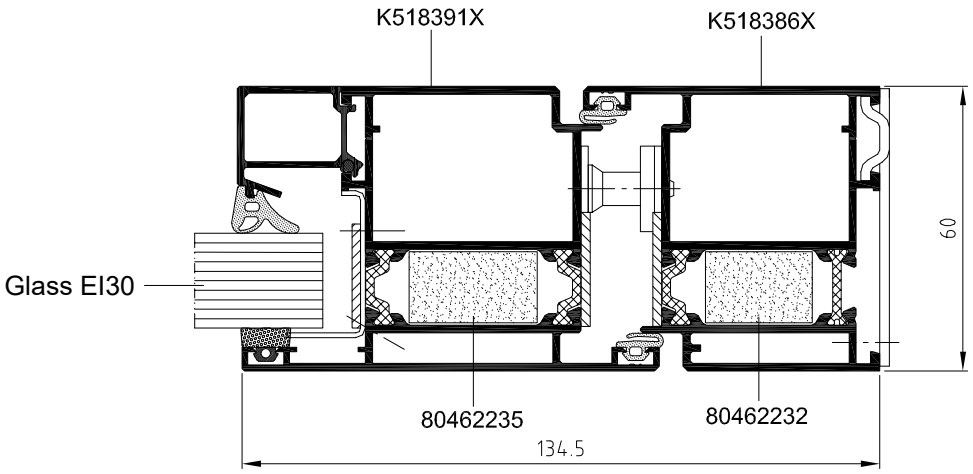
1 MB-60E-based fire system enables the use of common elements and allows a simple and fast prefabrication
2 Constructions classified EI15, EI30
3 The system enables the application of all common fire-resisting glass of different classes and of a thickness ranging from 5 to 41 mm
4 Structural depth of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

MB-60E EI-based constructions are classified in accordance with EN 13501-2:2016 (Extended Application Report No. 01036/20/R492NZP) and the European Technical Assessment ETA-18/091

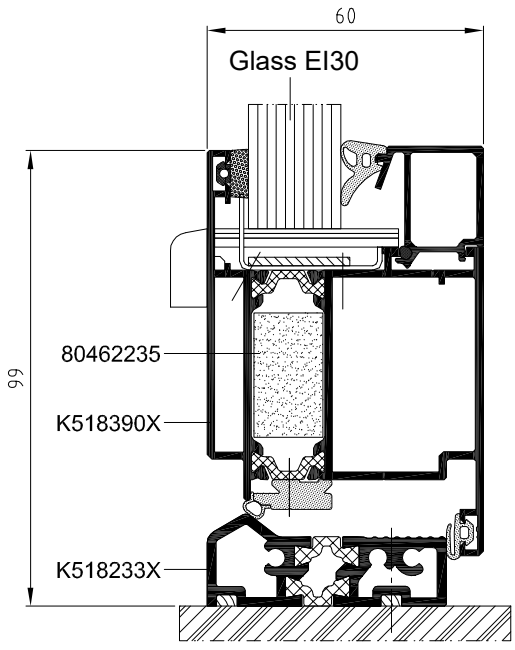

European Technical Assessment
ETA-18/0914 of 17/12/2018


EXTENDED APPLICATION REPORT FOR FIRE RESISTANCE

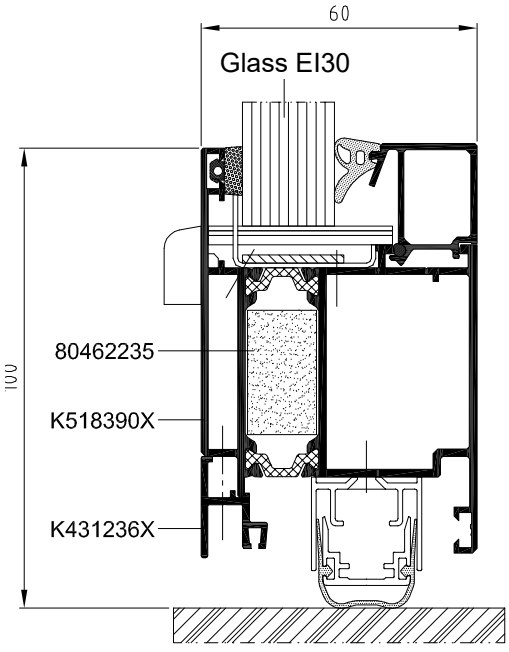
Door frame and door leaf – cross-section



Bottom cross-section with threshold

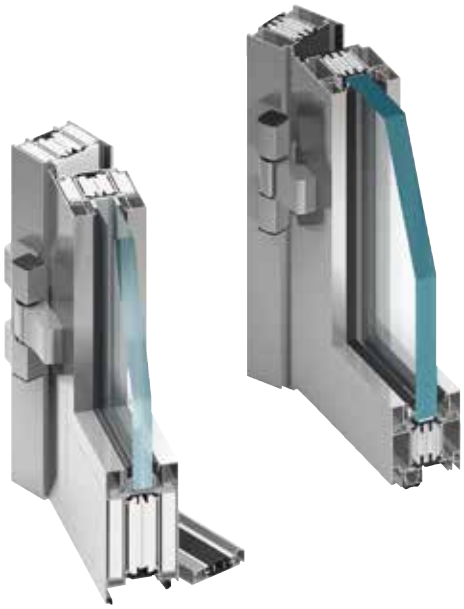


Door leaf with drop seal – cross-section



FIRE RATED DOORS AND WALL PARTITIONS

MB-78EI



EI 30

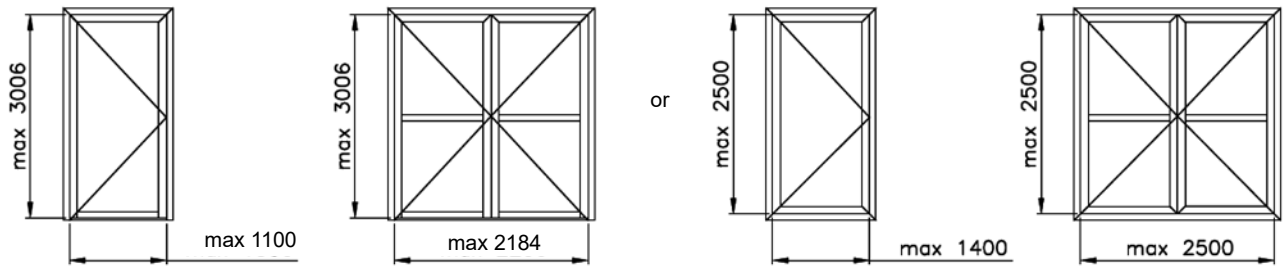
EI 60 EI 90

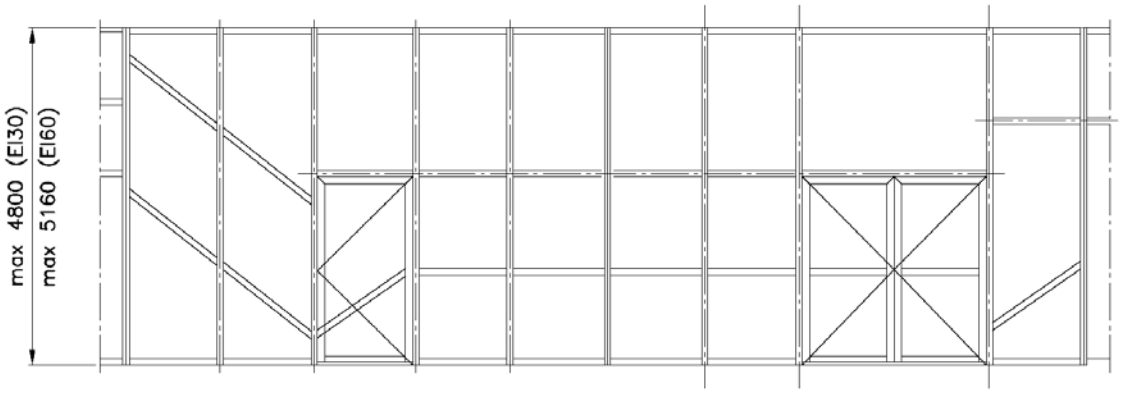
The MB-78EI system has been developed for the producing of internal or external fire-rated partition walls, with single- or double-leaf doors featured by a fire resistance class of EI 30, EI 60 or EI 90 to EN 13501-2. In most cases, these constructions can also have smoke control characteristics (classes S200 & Sa). Numerous tests and calculations have shown that MB-78EIbased 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, 34 mm 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.

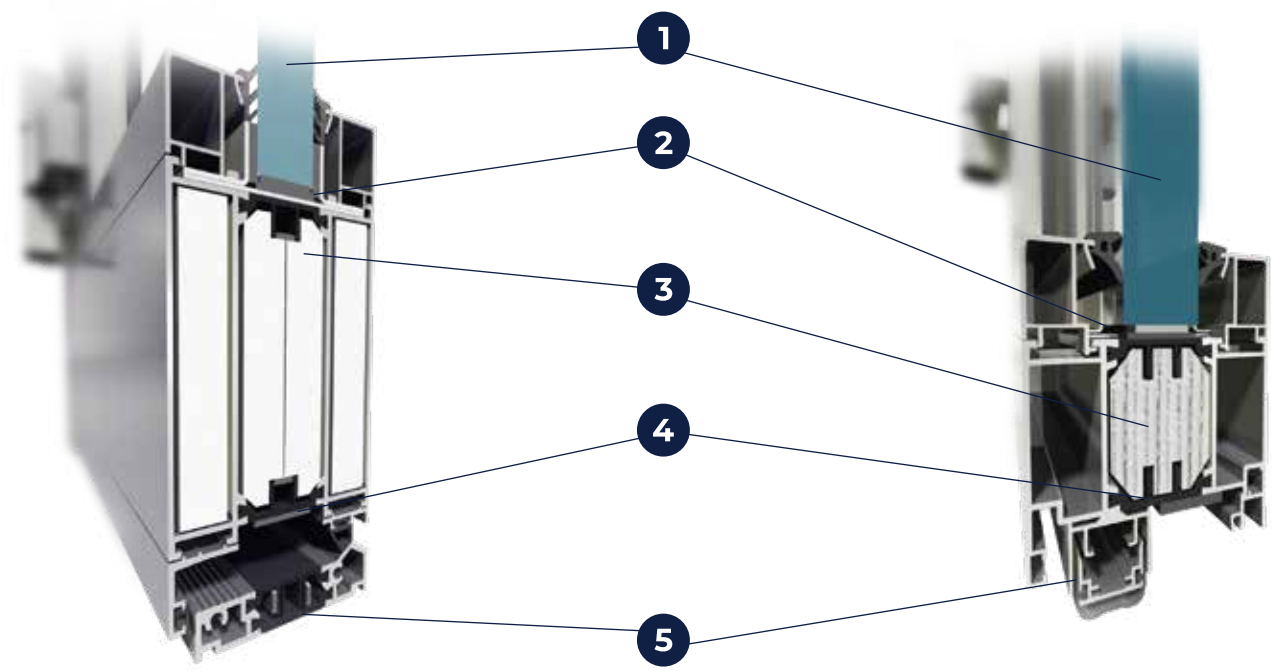
The range of permissible dimensions of the construction includes fixed partitions up to 5.16 m high and single-swing doors with leaf dimensions: W up to 1.4 m; H up to 3.0 m; the width of double doors may achieve 2.5 m. The MB-78EI door system can exist as an individual “goal-post frame” as part of a larger composite “window wall” or in fire resistant facade, our MB-SR50N EI system. 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, EN 12207:2001
Depth of leaf	78 mm	Watertightness	class 5A, EN 12208:2001
Width of wall & door frame	51 mm / 72 mm	Fire resistance	classes EI 30, EI 60, EI 90 in accordance with EN 13501-2
Width of door leaf profiles	72 mm / 51 mm	Thermal insulation (coeff. U_f)	from 1,6 W/(m²K)
Glazing range	8 – 65 mm	Acoustic Insulation (coeff. R_w)	up to 41 dB

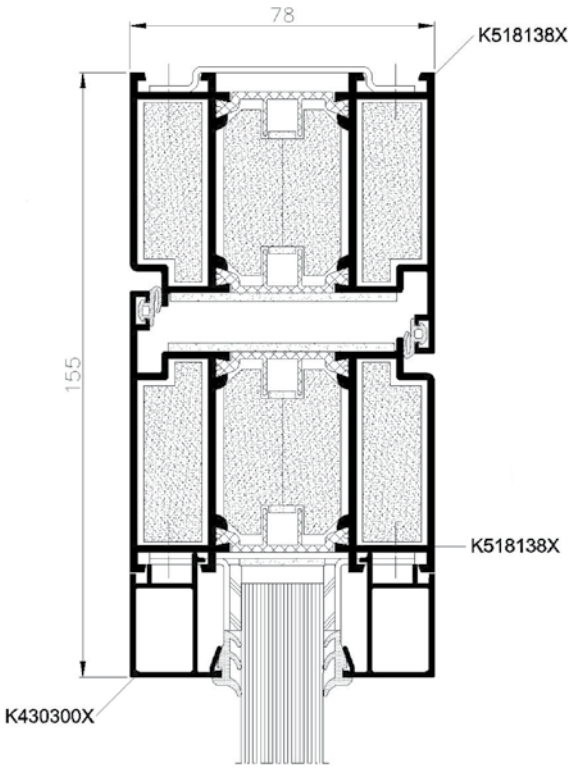


1 Single or double fire-resistant glass of a thickness of up to 65 mm
2 Steel accessories and expanding tapes that protect the structure from high temperatures
3 GKF or CI type fire protection inserted inside the profiles, enables performance classes EI15 to EI 90
4 Profiled thermal break that provides adequate protection against heat loss (U_f from 1,6 m²K)
5 Different door bottom rail seal solutions: with & without threshold profile option, obtaining a smoke-proof class S_{200}, S_a

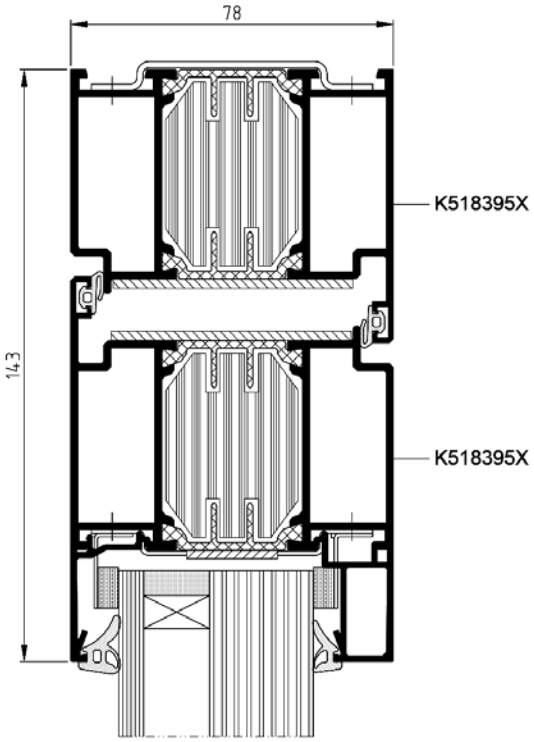
Extensive design possibilities, a wide range & variety of hinge products, locks, door closers & other hardware, alongside an optimised manufacturing process, are not the only advantages of this system. It also allows the realisation of the product solutions contained on the following pages: MB-78EI DPA automatic sliding door of an EI 15 or EI 30 class & MB-118EI walls of an EI 120 class.
The thickness of infills achievable with the MB-78EI system is from 8 to 65 mm. Infills may include all typical fire-resistant glass panes, as well as layered opaque elements consisting of sheet metal and appropriate panels that ensure the required fire resistance.

The MB-78EI system is classified in accordance with EN 13501-2 (Classifications No. 2-01036/19/R465NZE, 01036.1/20/R492NZE).

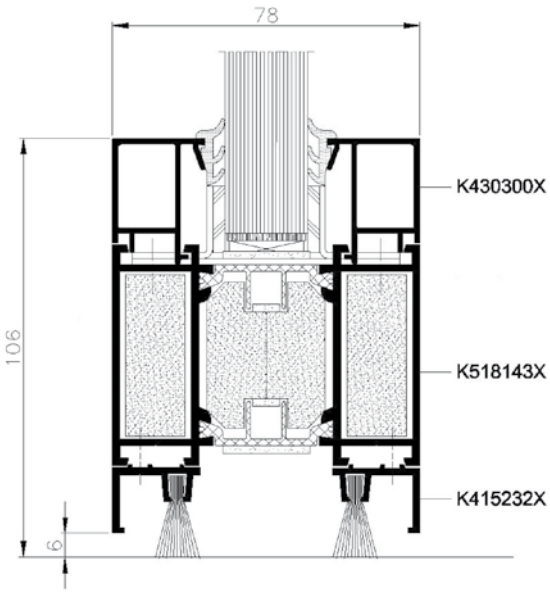
Door frame and door leaf – cross-section



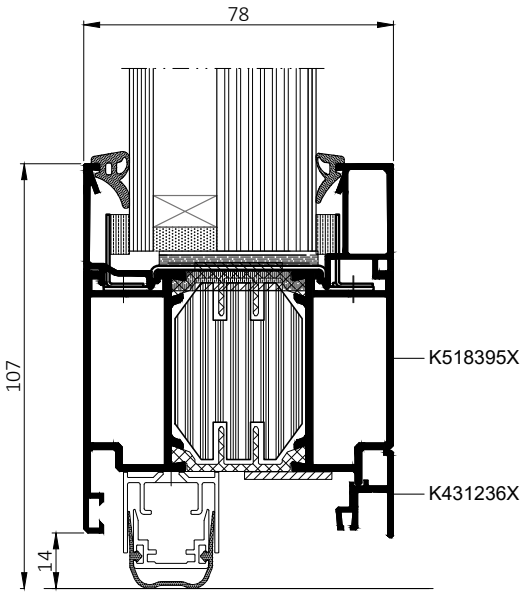
Door frame and door leaf with CI infills – cross-section



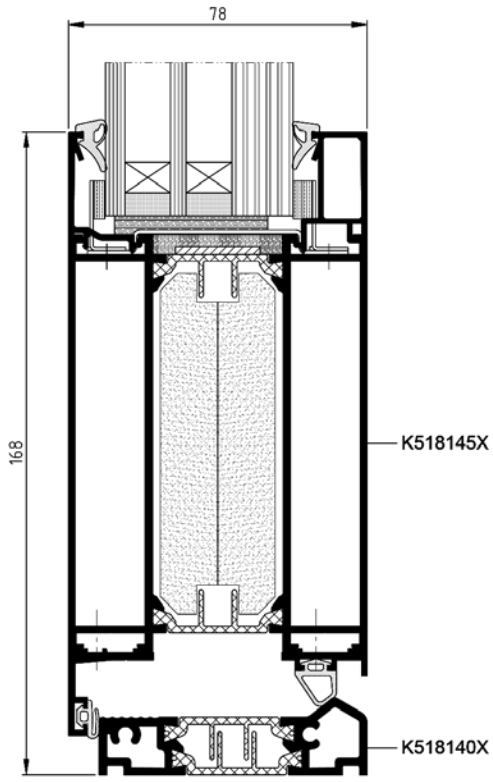
Door without a threshold – bottom cross-section



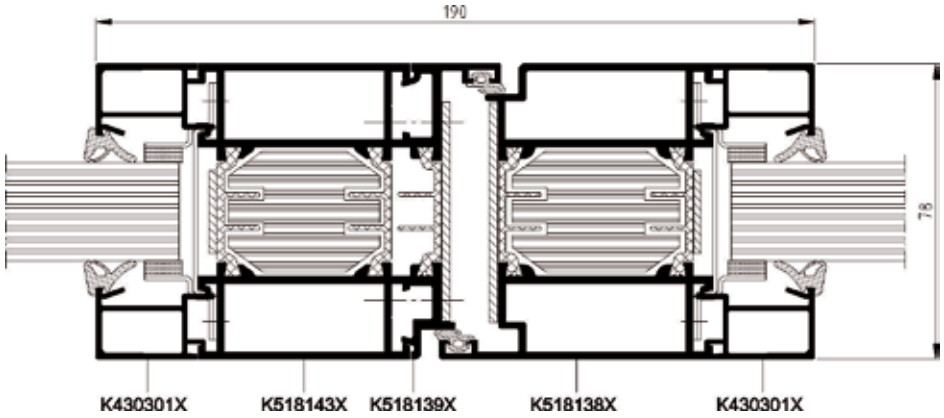
Door leaf with drop seal – cross-section



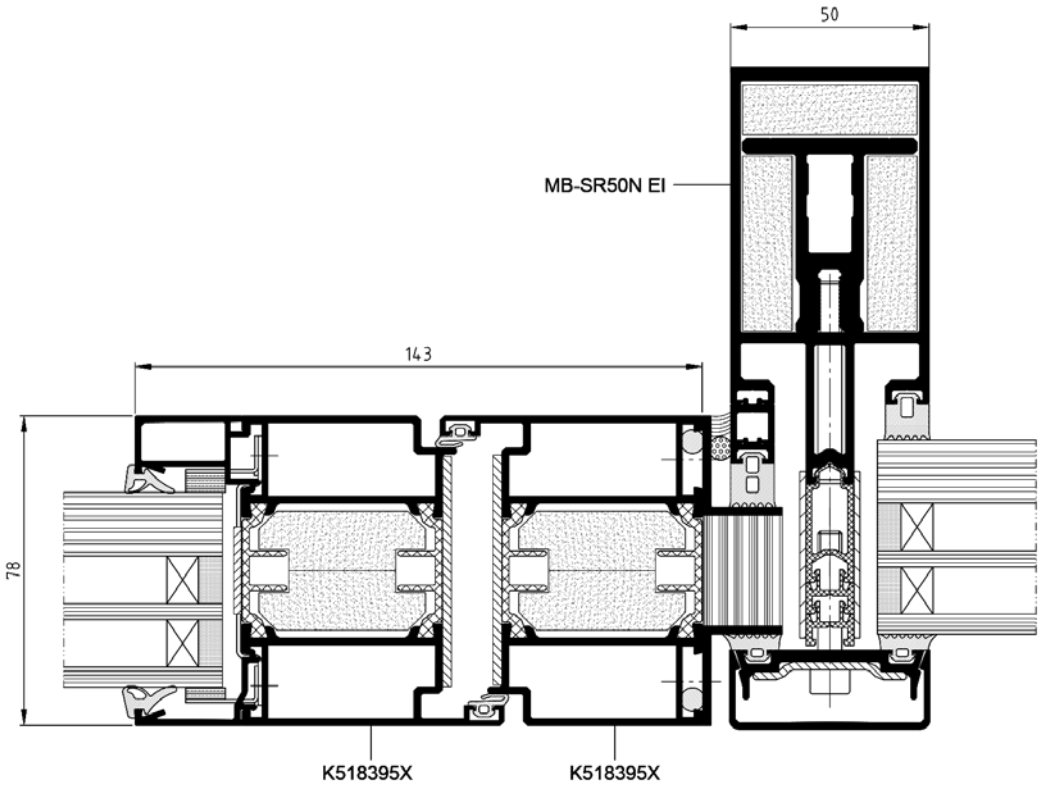
Bottom cross-section with threshold



Door in display window assembly - cross section



MB-78EI doors cross-section in the MB-SR50N EI façade

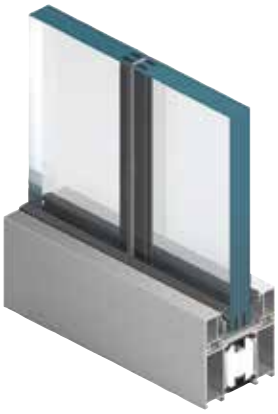


SILICONE JOINED FIRE-RATED GLAZED WALLS

MB-78EI

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.

EI 30 **EI 60**

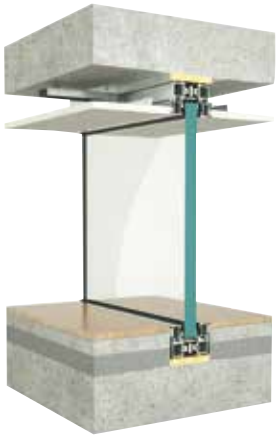


SILICONE JOINED FIRE-RATED
GLAZED WALLS

MB-78EI

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.

EI 30 **EI 60**



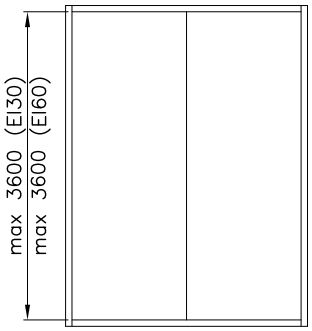
SILICONE JOINED FIRE-RATED
GLAZED WALLS

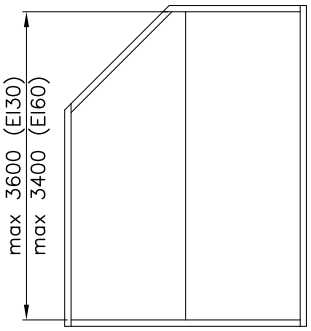
MB-78EI

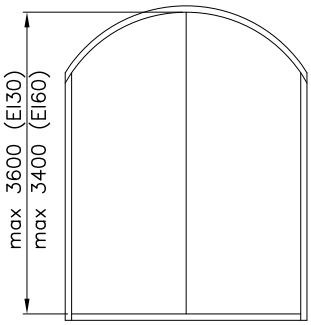
Aluprof offers also a version with profiles fitted in the floor, walls and ceiling. Hidden wall mount enhances this optical effect, while maintaining the full fire protection of the construction.

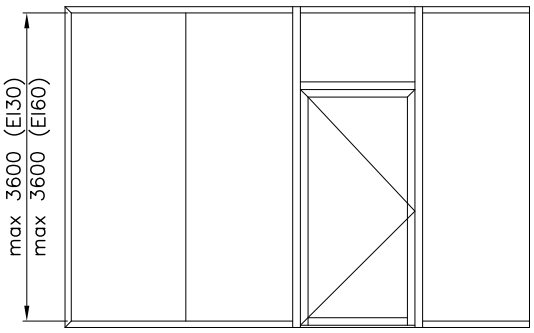
EI 30 **EI 60**

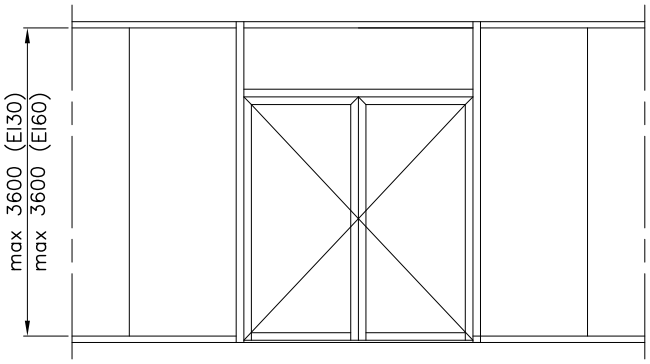
Silicone joined glazed wall MB-78EI - examples

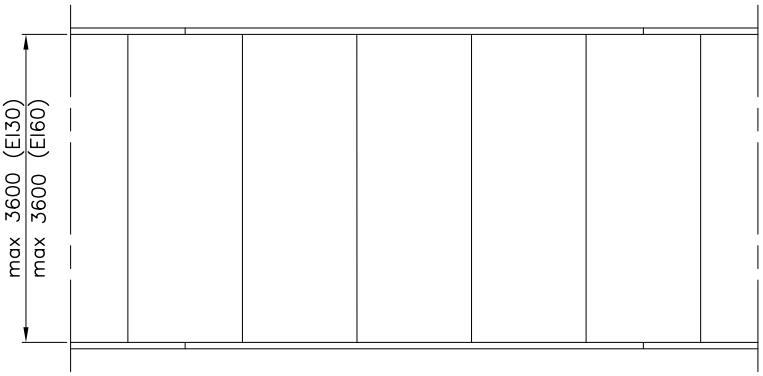


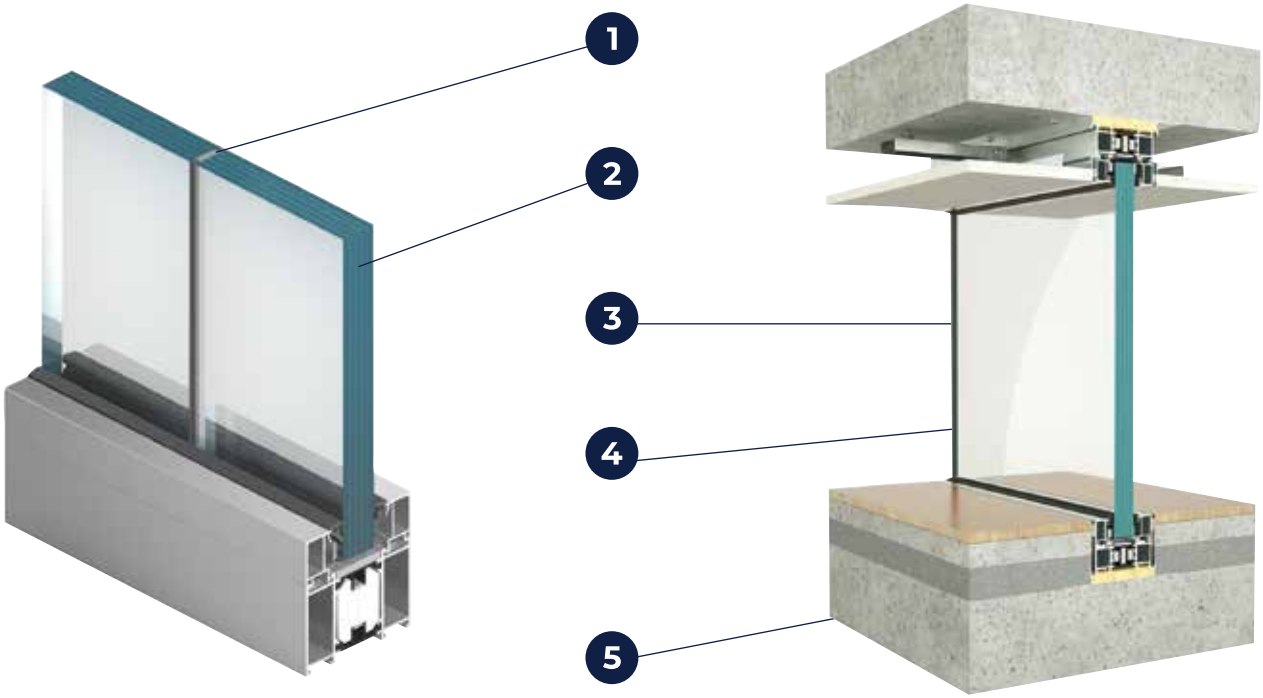












1 The gap between the modules is only 2 or 4 mm wide
2 Fire glass thickness: 17 mm or 23 mm (EI30), 26 mm or 31 mm (EI60)
3 The maximum height of the partitions: 3.6 m; no limits as to the maximum length
4 The maximum width of glass modules: 1.5 m (max height: 3.6 m) and 1.8 m (max height 3.0 m)
5 Solution available with profiles fitted in the floor, walls and ceiling

Silicone joined glazed walls MB-78EI have ITB's Classifications No 01036.1/21/R562NZP, 01036/21/R562NZP and European Technical Assessment No ETA-21/0516


Instytut Techniki Budowlanej

CLASSIFICATION OF FIRE RESISTANCE

IN ACCORDANCE WITH EN 13501-2:2016

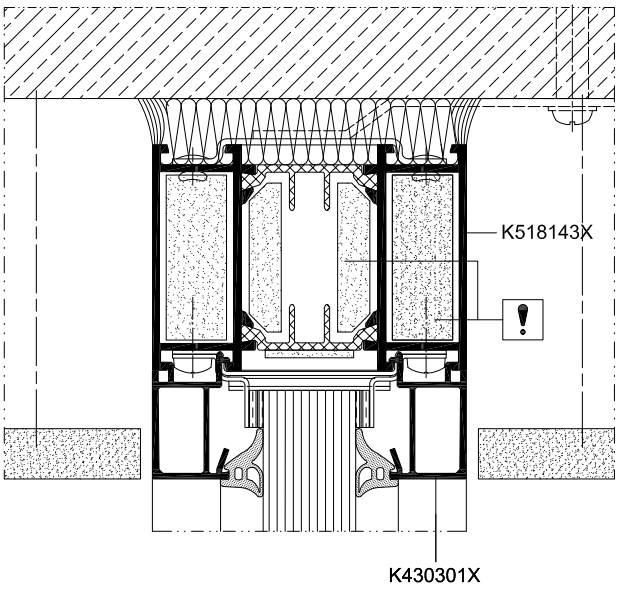

Instytut Techniki Budowlanej

EXTENDED APPLICATION REPORT
FOR FIRE RESISTANCE

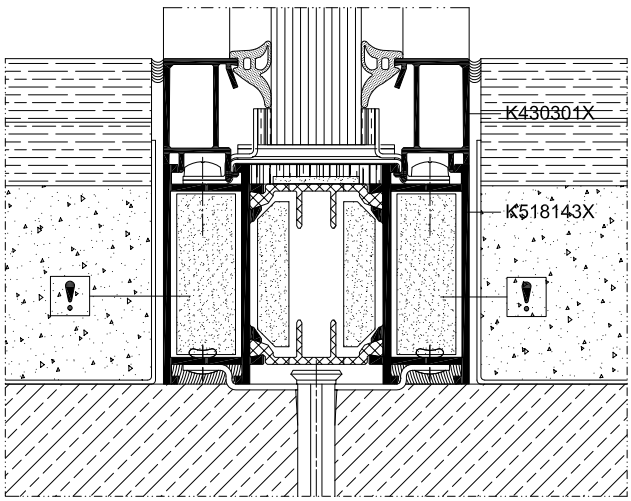

European Technical Assessment

ETA-21/0516 of 30/06/2021

Partition with a ceiling-integrated profile, cross-section

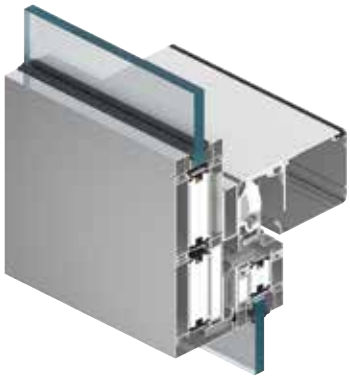


Partition with a floor-integrated profile, cross-section



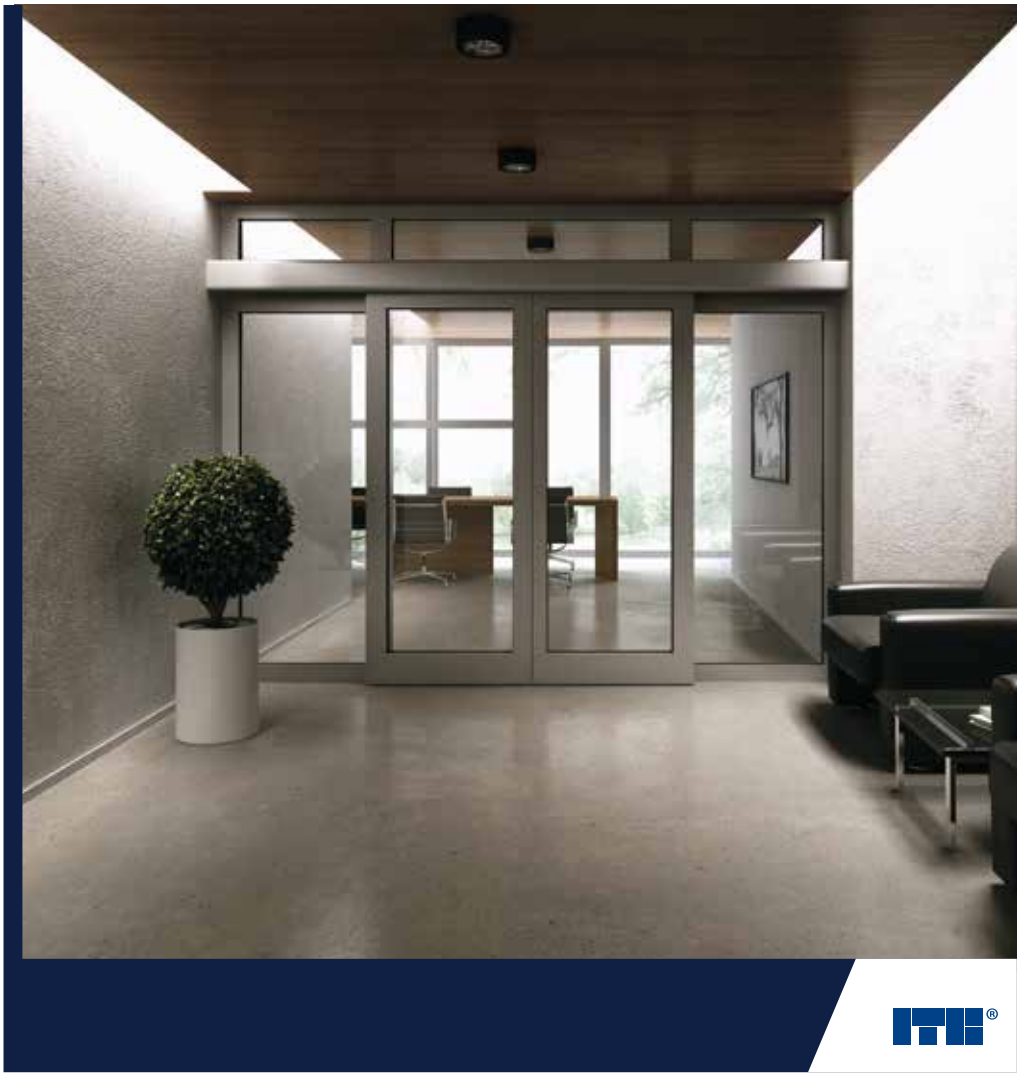
AUTOMATIC FIRE RATED SLIDING DOORS

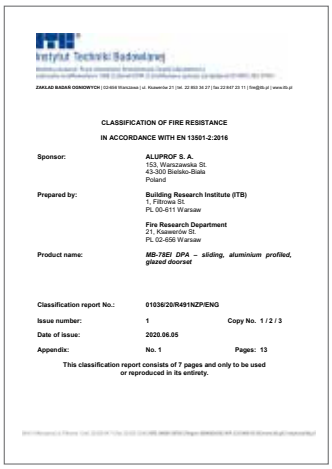
MB-78EI DPA



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 2550 mm.
- width of a single door: up to 1350 mm.
- width of a double door: up to 2710 mm.

EI 30





Instytut Techniki Budowlanej

ZAKŁAD BADAŃ OGNIOWYCH | 02-656 Warszawa | ul. Ksawerów 21 | tel. 22 853 39 27 | fax 22 647 23 11 | fire@itb.pl | www.itb.pl

CLASSIFICATION OF FIRE RESISTANCE

IN ACCORDANCE WITH EN 13501-2:2016

Sponsor: ALUPROF S. A.
153, Warszawska St.
43-300 Bielsko-Biała
Poland

Prepared by: Building Research Institute (ITB)
1, Filtrowa St.
PL 00-611 Warsaw

Fire Research Department
21, Ksawerów St.
PL 02-656 Warsaw

Product name: *MB-78EI DPA – sliding, aluminium profiled, glazed doorset*

Classification report No.: 01036/20/R491NZP/ENG

Issue number: 1 **Copy No.** 1 / 2 / 3

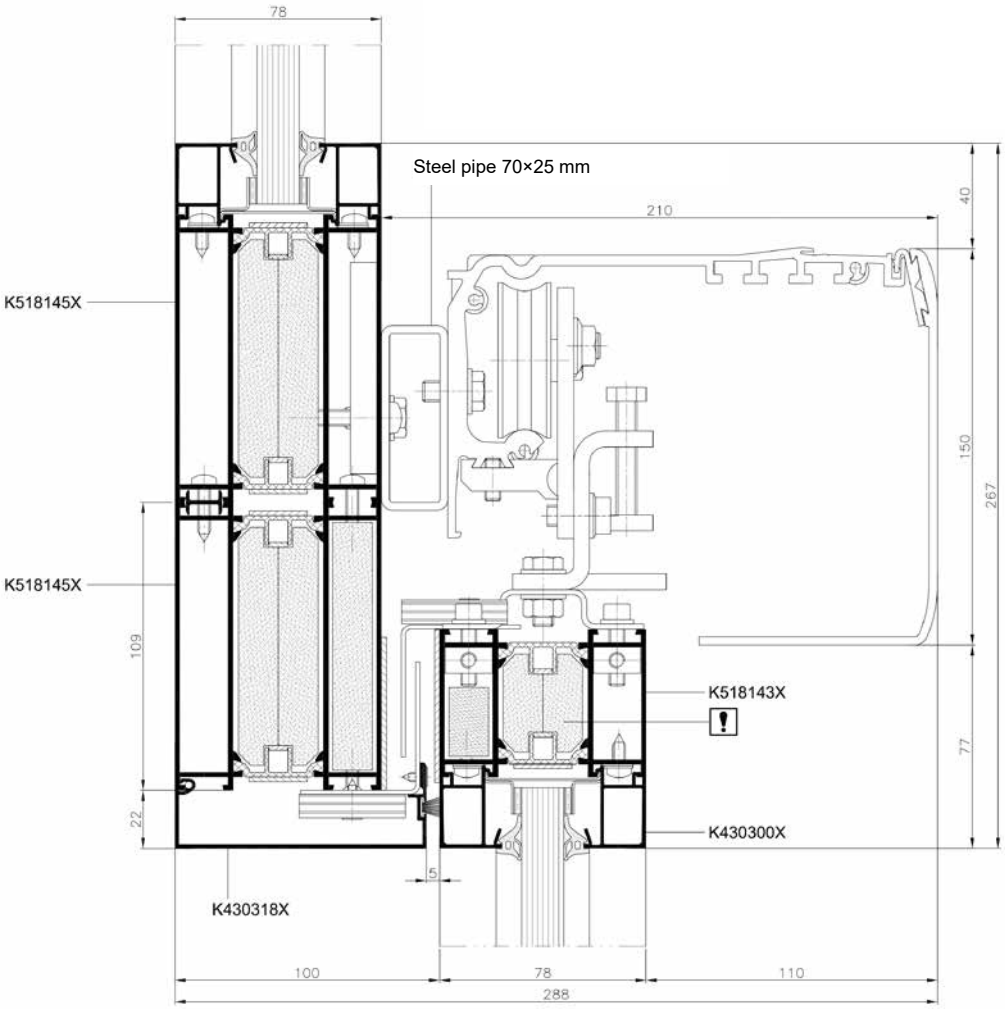
Date of issue: 2020.06.05

Appendix: No. 1 **Pages:** 13

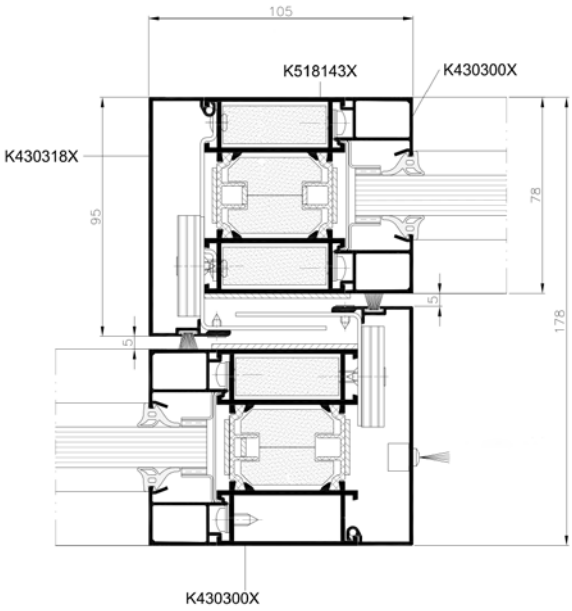
This classification report consists of 7 pages and only to be used or reproduced in its entirety.

The MB-78EI DPA system holds an ITB's Classification report No.: 01036/20/R491NZP

Upper sliding doors – cross-section



Lateral sliding doors – cross-section



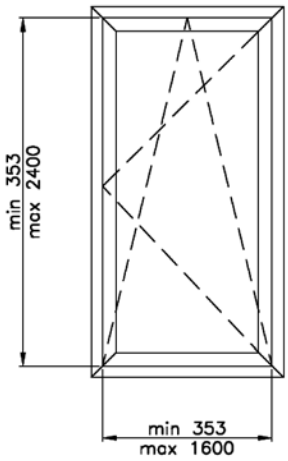
FIRE-RATED WINDOWS,
DOORS AND PARTITION WALLS

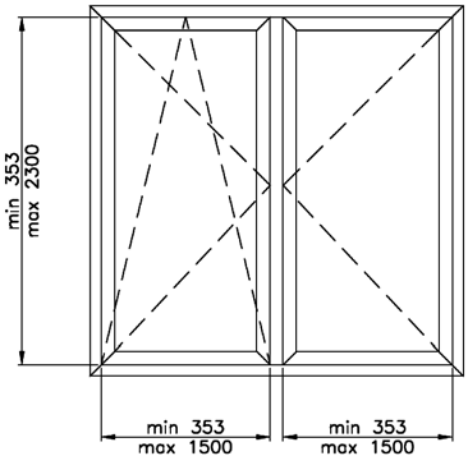
MB-86EI

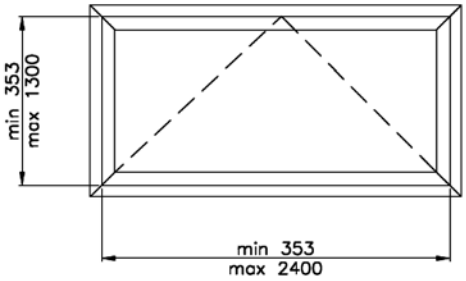
The MB-86EI is a system of thermally insulated, fire-rated windows, doors and partitions. It is designed to be used for building external fire compartments fitted with operable windows and doors and fixed partitions with a primary firerating of EI30, EW30 and EI15, in line with the EN 13501-2 standard. The structure is based on our MB-86 system, meaning that it features high thermal and acoustic insulation, along with excellent water- and airtight parameters.

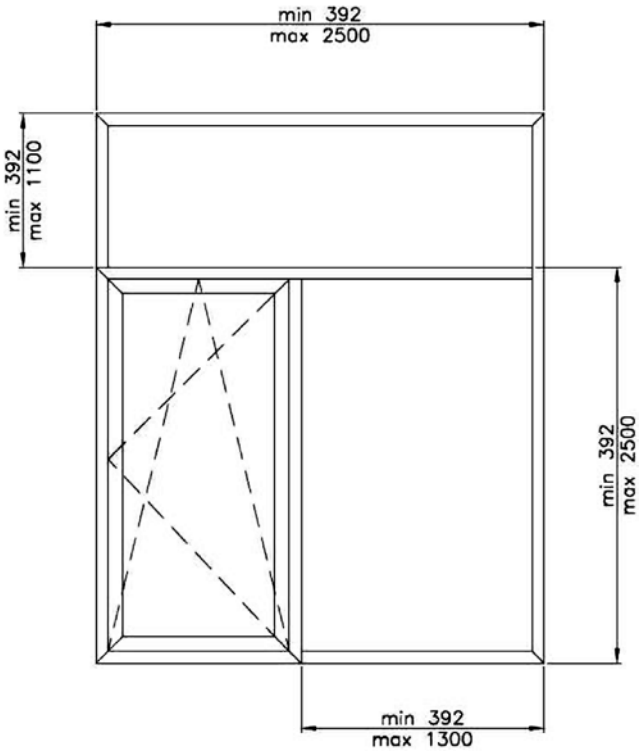
EI 30

Upper sliding doors – cross-section





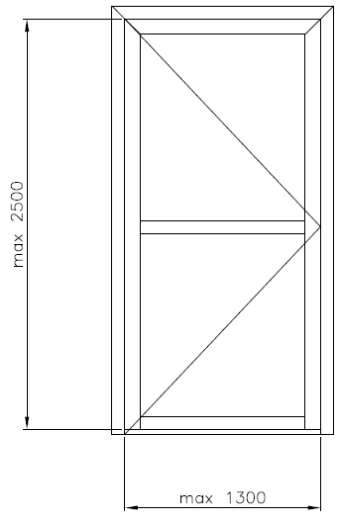


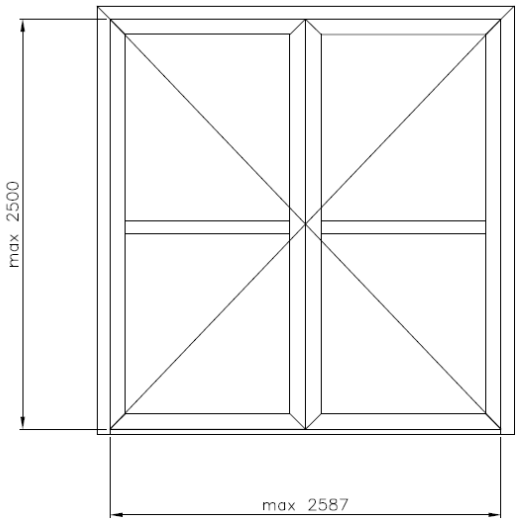


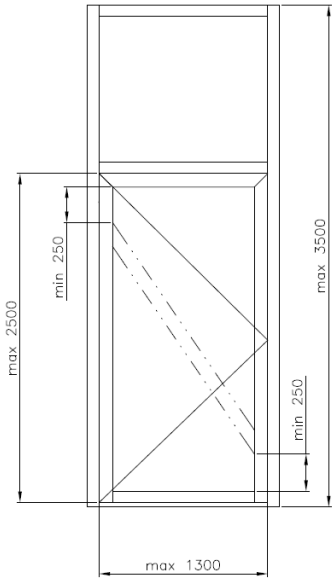
TECHNICAL SPECIFICATION	WINDOWS MB-86EI	DOORS MB-86EI
Frame depth	77 mm	77 mm
Casement depth	86 mm	77 mm
Glazing thickness	frame: 13 to 61 mm, casement: 22 up to 70 mm	41-61 mm H to 3000 mm, L to 1300 mm
Max casement weight	130 kg	200 kg
TECHNICAL PARAMETERS	**WINDOWS MB-86EI**	**DOORS MB-86**
Air leakage	class 4, EN 12207	class 4, EN 12207
Water resistance	class E 1500, EN 12208	class E 1350, EN 12208
Wind resistance	class C5, EN 12210	class C5/B5, EN 12210
Thermal insulation	U_f from 1,07 W/(m²K), U_w from 0,86 W/(m²K)*	U_f from 1,76 W/(m²K)
Fire resistance rating	class EI30	class EI30

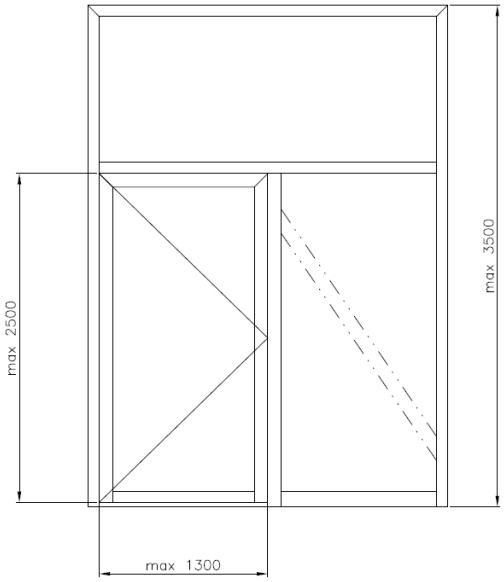
* - for a 2000 × 1100 mm window with triple glazing unit U_g=0.5 W/(m²K), warm spacer and EI30-rated fire-resisting glazing pane

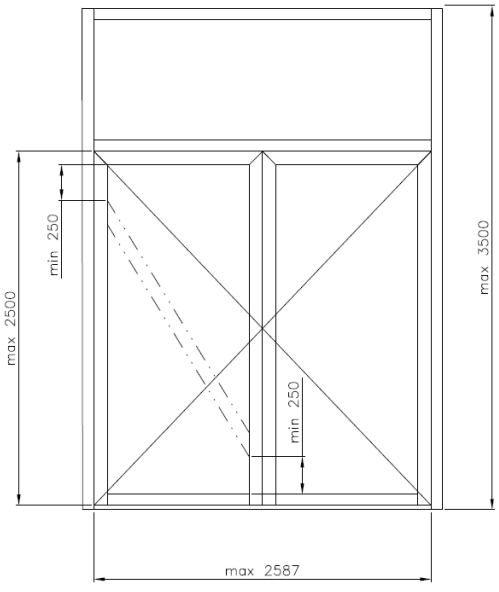
Max dimensions of doors and partition walls

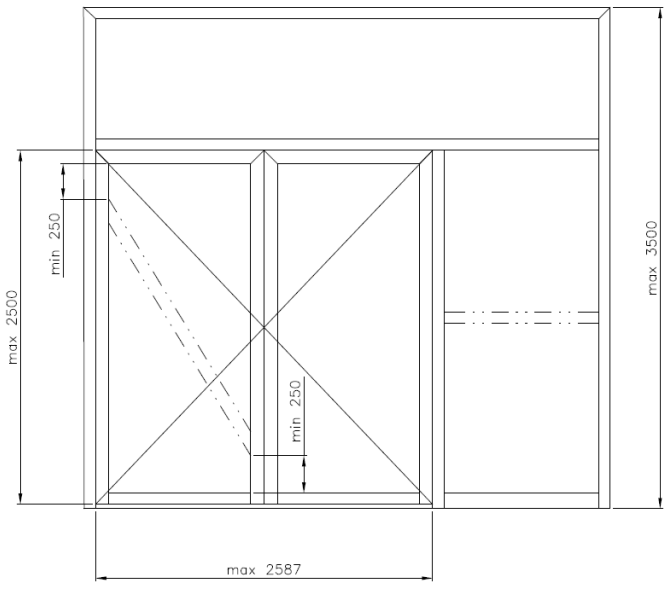


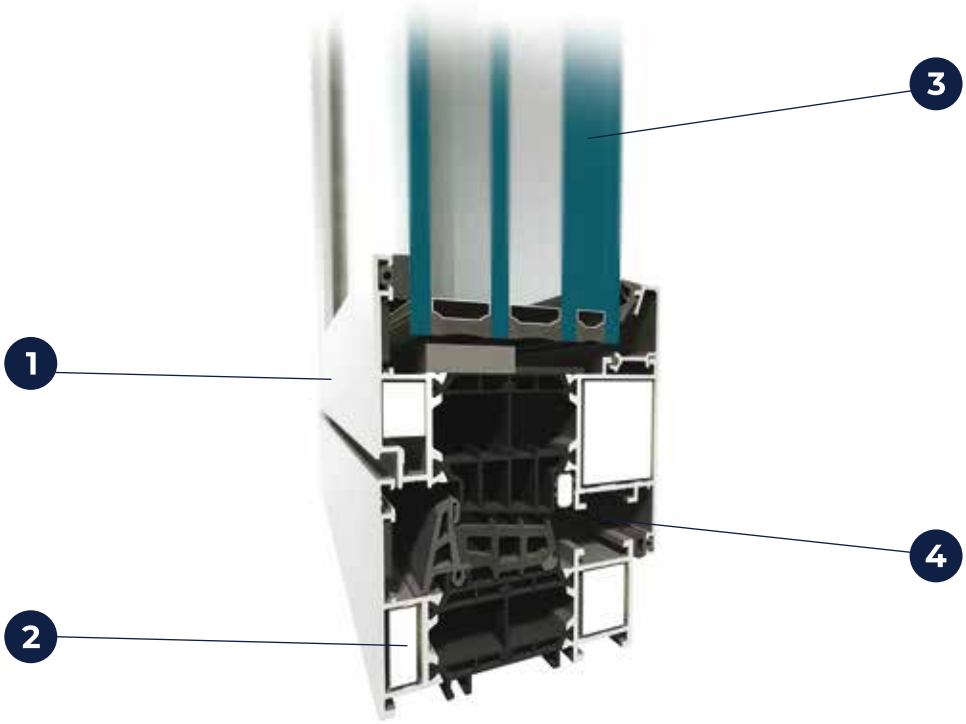












1 three-chambered profiles, with a 43 or 42 mm-wide insulation chamber between thermal breaks as a central part
2 fire resistance is ensured by the appropriately rated glass panes, fire insulation elements in the internal chambers of aluminium profiles and special accessories and materials used in the space between aluminium profiles and the glazing
3 wide range of glazing thickness allows for use of different types of insulated glass, including triple glazing units
4 hardware used in MB-86EI is typically RC2 burglar-resistant-rated

MB-86 EI-based constructions hold an ITB's Classifications No. 1036/19/R419NZP, 1036/18/R360NZP and 1036/20/R547NZP


Instytut Techniki Budowlanej

CLASSIFICATION OF FIRE RESISTANCE
IN ACCORDANCE WITH EN 13501-2:2016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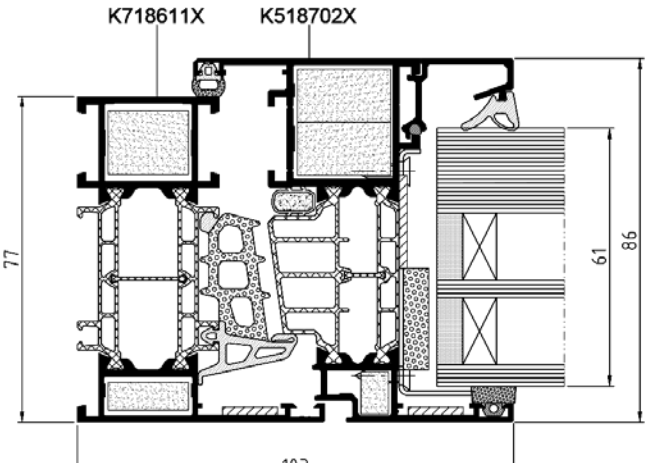
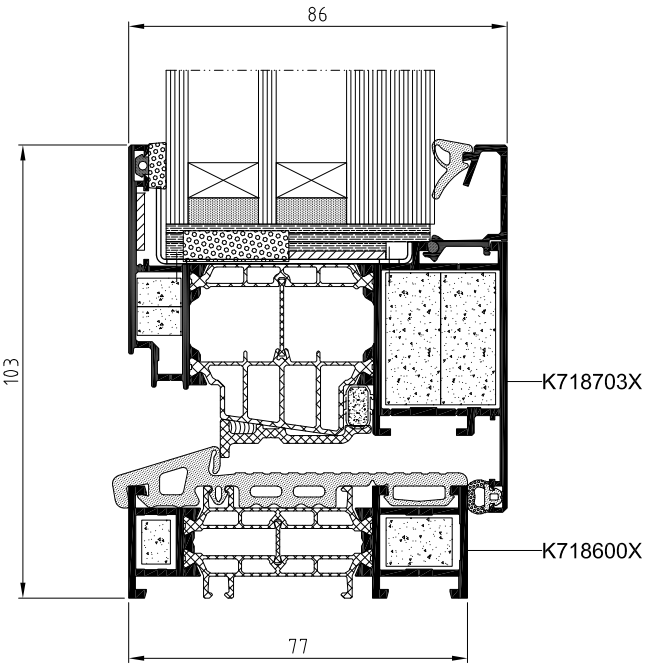
CLASSIFICATION OF FIRE RESISTANCE
IN ACCORDANCE WITH EN 13501-2:2016


Instytut Techniki Budowlanej

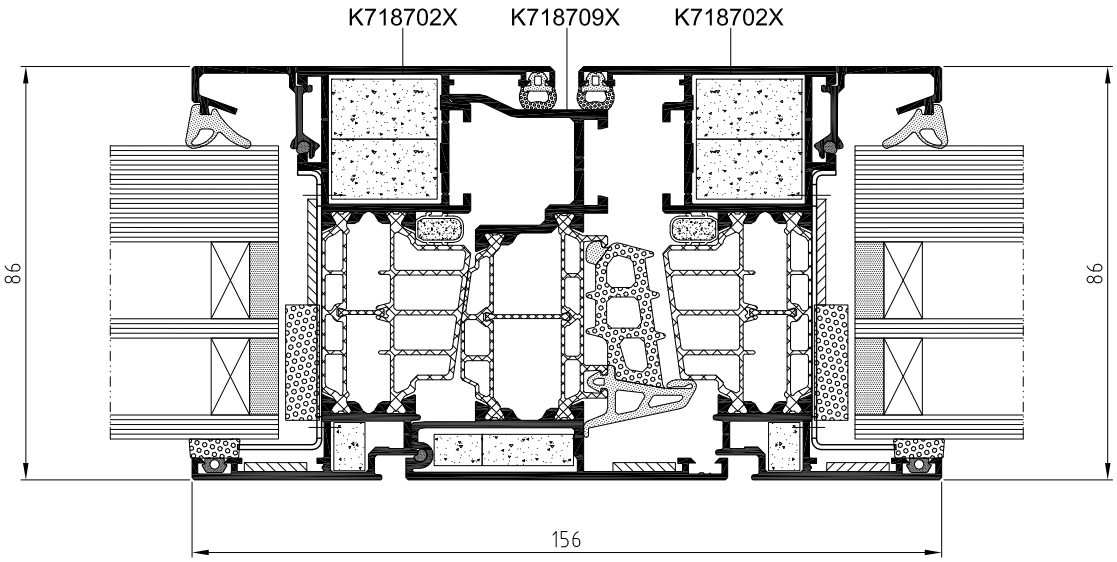
Window cross-section



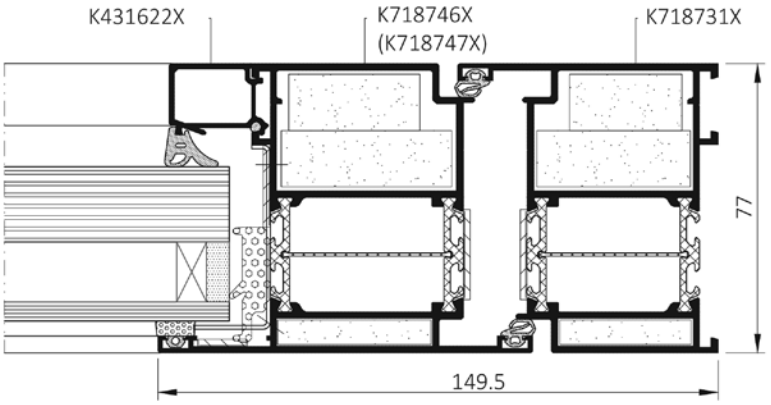
Balcony door with low-level threshold, cross-section

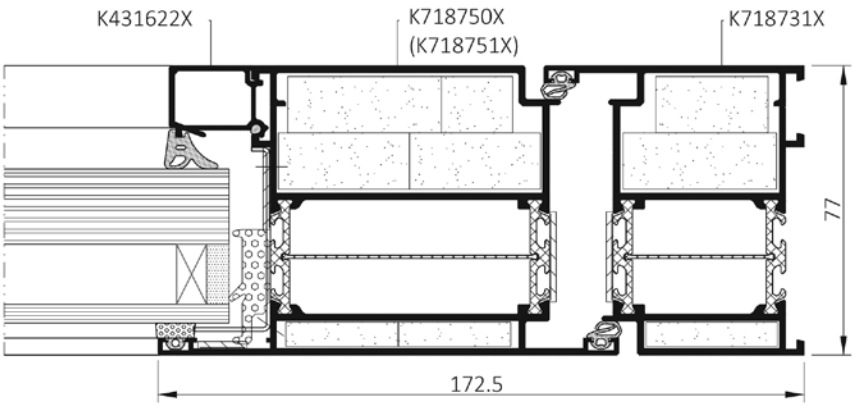


Double window with floating mullion, cross-section

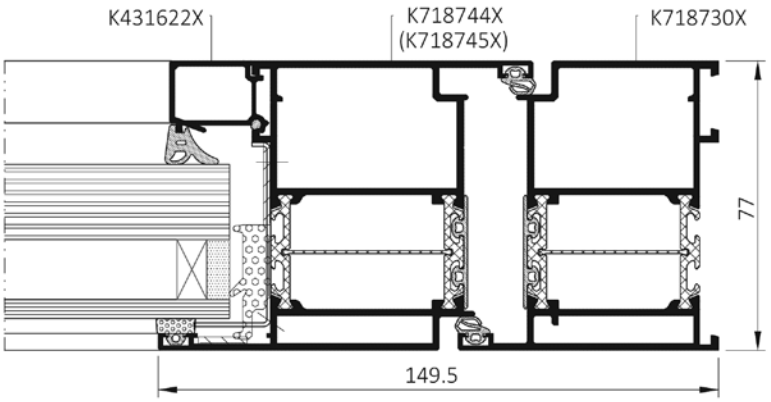


Door EI_1 – cross-section



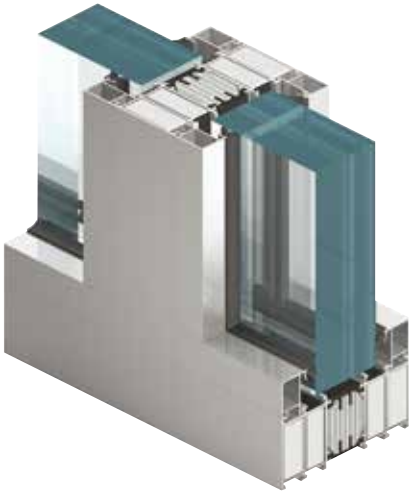


Door EI_2 – cross-section



FIRE RATED PARTITION WALLS

MB-118EI



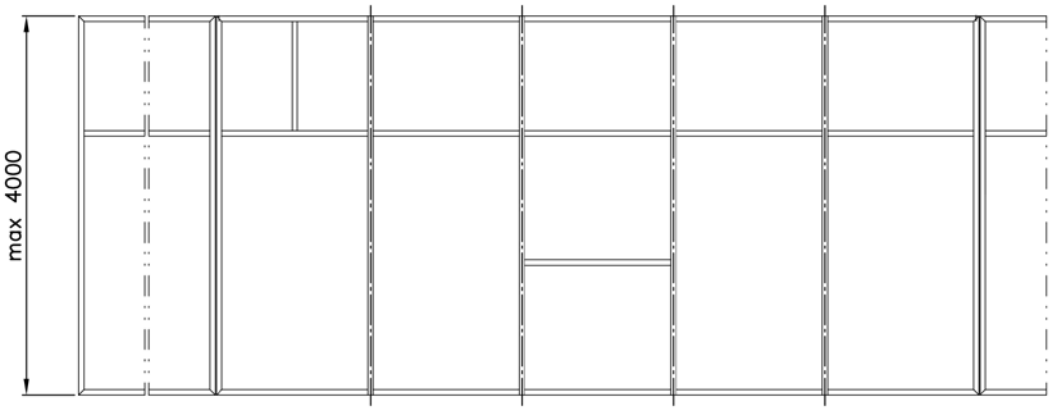
The MB-118 EI fire rated walls are used to make fire partitions with fire resistance class of EI 120. The system is classified as non-fire spreading (NRO). It's design & construction is such that, it provides a technical connection with the MB-78EI door, which means a number of common components (such 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 infills of a thickness 31-84 mm. This system can also be the basis for constructions in EI 30 or EI 60 classes, in which, due to high thermal or acoustic requirements, triple glazing units must be used.

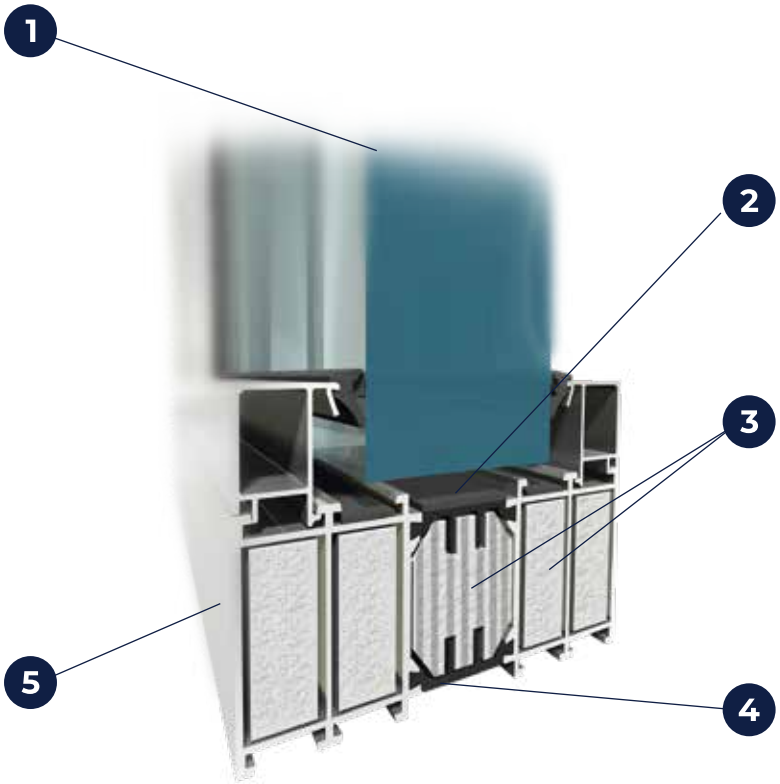
Thanks to its symmetrical composition, the structures that are made of it remain fire resistant in EI 120 class, both exposed to fire from the outside and the inside. An important feature affecting the functionality of these fire partitions is the possibility to install the MB-78EI doors.

EI 120

Max. dimensions of the walls



TECHNICAL SPECIFICATION		TECHNICAL PARAMETERS	
Depth of wall frame	118 mm	Fire resistance	class EI 120, EN 13501-2
Glazing range	54 mm		

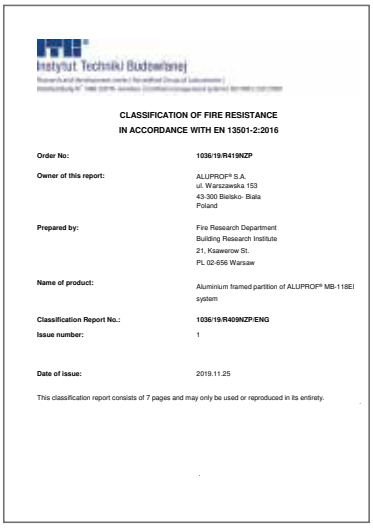


1 Single or double (sealed unit) fire resistant glasses, of a thickness to 84 mm.
2 Steel accessories and expanding tapes that protect the structure from high temperatures
3 GKF or CI type fire protection infills inside the profiles allowing to obtain EI120 class
4 Profiled thermal break that provides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

The MB-118EI system holds an ITB's Classification No. 1036/19/ and European Technical Assessment No ETA-20/0890

European Technical Assessment

ETA-20/0890 of 12/01/2021



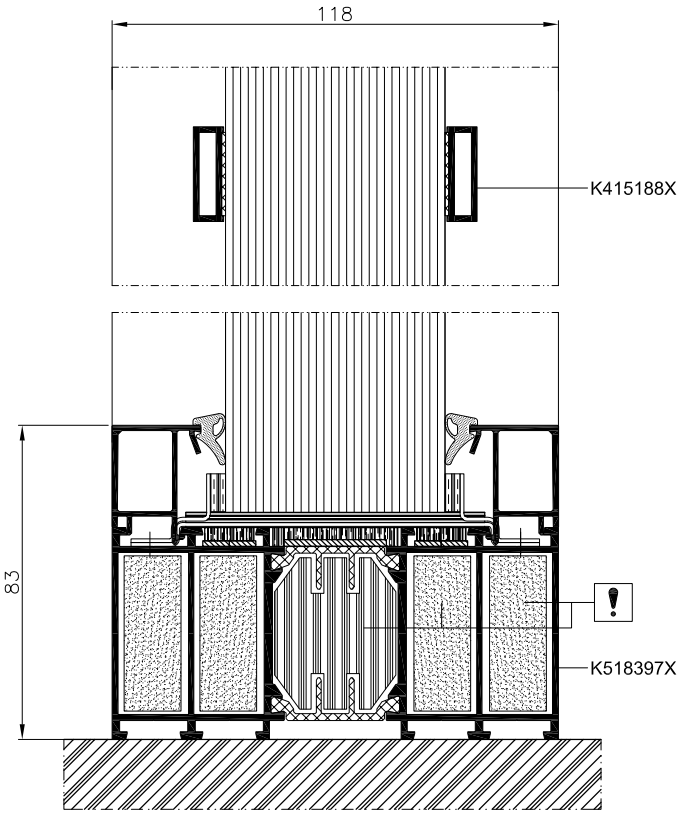
Instytut Techniki Budowlanej

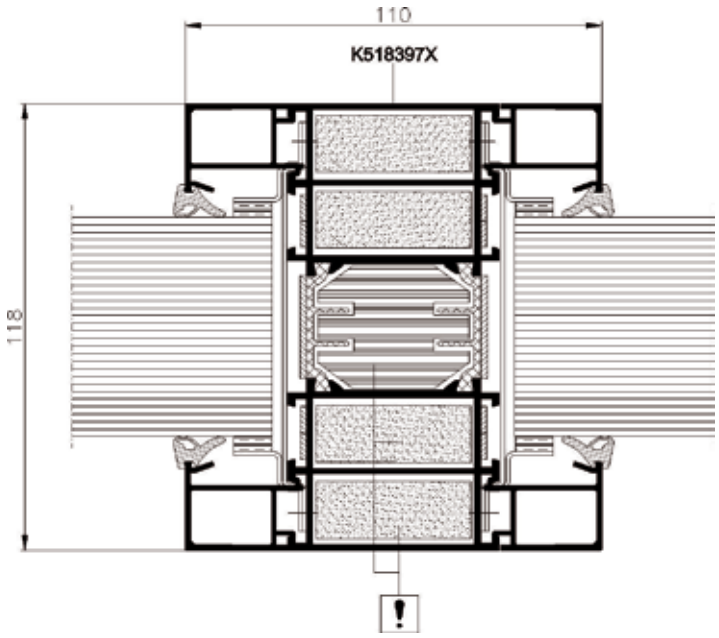
CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13501-2:2016

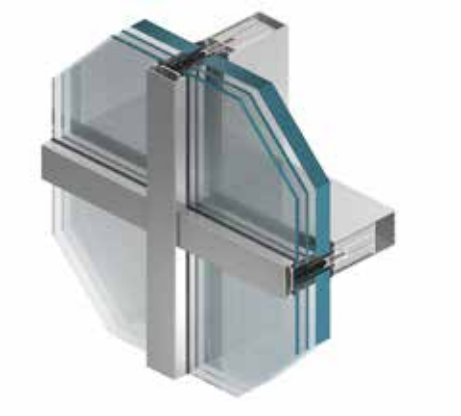
Order No:	1036/19/R419NZP
Owner of this report:	ALUPROF® S.A. ul. Warszawska 153 43-300 Bielsko- Biała Poland
Prepared by:	Fire Research Department Building Research Institute 21, Ksawerow St. PL 02-656 Warsaw
Name of product:	Aluminium framed partition of ALUPROF® MB-118EI system
Classification Report No.:	1036/19/R409NZP/ENG
Issue number:	1
Date of issue:	2019.11.25

This classification report consists of 7 pages and may only be used or reproduced in its entirety.

Fire rated partition wall - cross-section







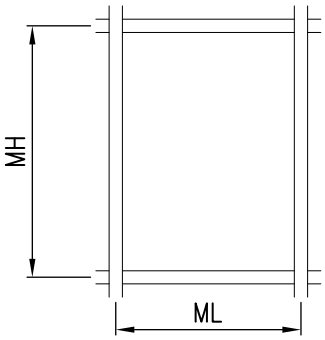
CURTAIN WALL FIRE RATED SYSTEM

MB-SR50N EI

The MB-SR50N EI curtain wall fire rated systems have been developed to provide a light-weight curtain & fire resistant wall, of classes EI30, EI60 classes according to EN 1364-3 and 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-SR50N façade system: mullions of a depth of between 85 and 225 mm and transoms of a depth of 65 and 189,5 mm. The MB-SR50N system allows for selecting mullion & transom profiles which provide a flush internal finish of the facade, creating a desirable, unified grid appearance. The design of the fire rated curtain wall system allows the use of angled connections to ± 7.5° per side, angled connections 90° or 135° (internal or external) 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.

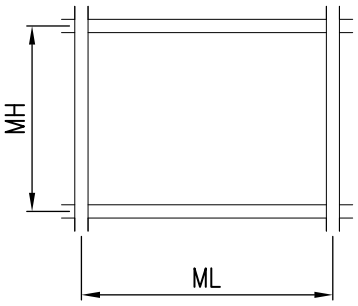
EI 30 **EI 60**

Max. dimensions of the panels in curtain walls



MHmax=3000 mm
MLmax=1500 mm

kg - 300 kg

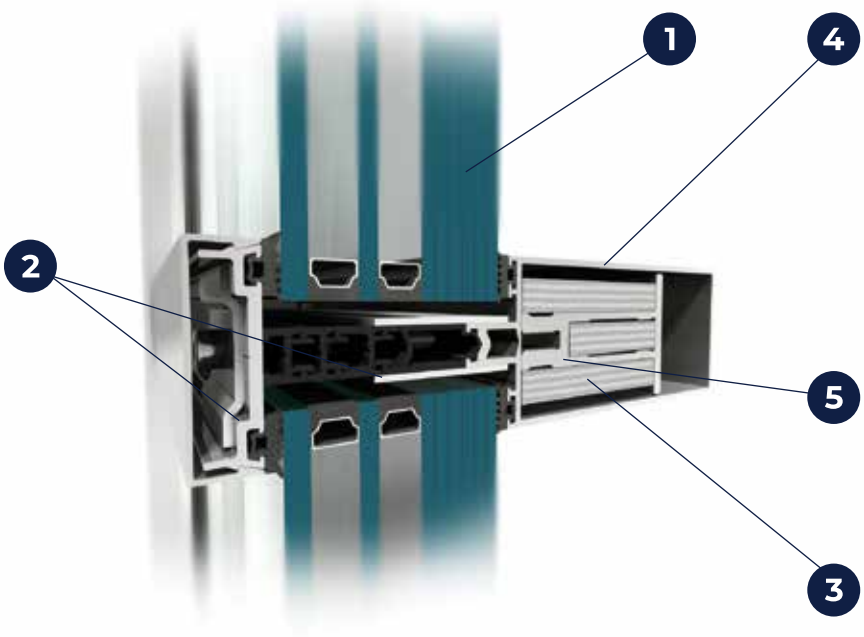


MHmax=1500 mm
MLmax=2400 mm

kg - 300 kg

kg - max. infill weight

TECHNICAL SPECIFICATION	MB-SR50N EI
Mullions depth	85 – 225 mm
Transoms depth	69,5 – 189,5 mm
Inertia mullions (coeff. range I_x)	83,80 – 1222,14 cm^4
Inertia transoms (coeff. range I_z)	48,07 – 591,55 cm^4
Width of profiles	50 mm
Glazing range	16 – 64 mm
TECHNICAL PARAMETERS	**MB-SR50N EI**
Air Permeability	class AE 1050, EN 12152
Watertightness	class RE 1200, EN 12154
Fire resistance	class EI 30, EI 60, EN 13501-2
Thermal insulation (coeff. U_f)	from 1,8 W/(m^2K)

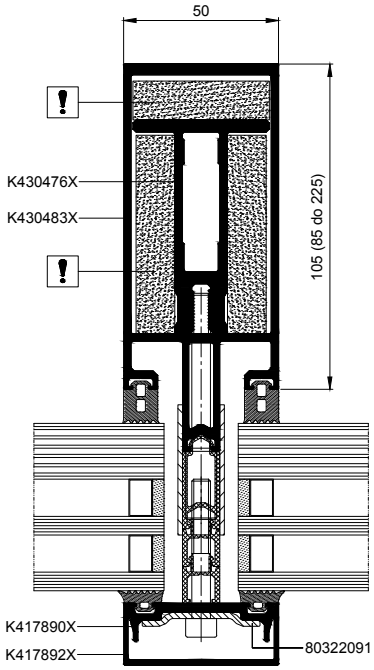


1 Single or double (sealed unit) fire resistant glasses, mechanical fix, glazed infill system, accommodating glass of a thickness up to 64 mm
2 Steel accessories, special bolts and expanding tapes that protect the structure from high temperatures
3 GKF or CI type fire protection inserted inside the profile, enabling performance classes of EI 30 – EI 60
4 Mullion and transom supporting structure gives the possibility to build vertical facades, inclined from the vertical position by an angle of ± 10° and glazed roofs
5 The inner core aluminium profile insert, provides the necessary integrity of the construction in the event of a fire

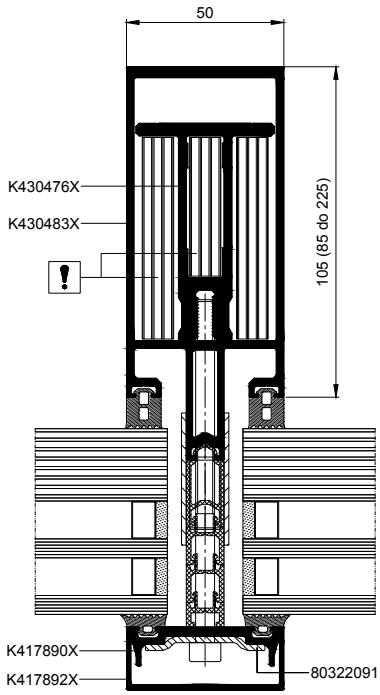
The view of the fire resistant façade does not differ from the basic system. In order to gain fire resistance, mullions and transoms are fitted with special fireproof inserts. These inserts consist of an aluminium profile serving as a reinforcement element, clad round with fire-proof board. The glazing 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 MB-SR50N EI system holds an ITB’s Classification No. 1036.12/16/R289NZP

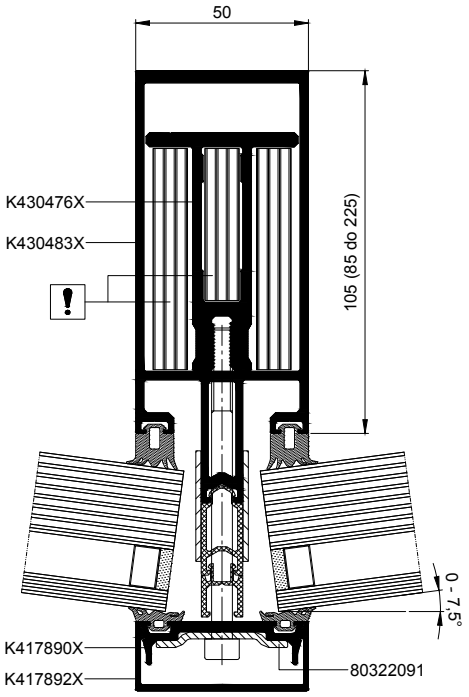
Mullion cross-section EI 30



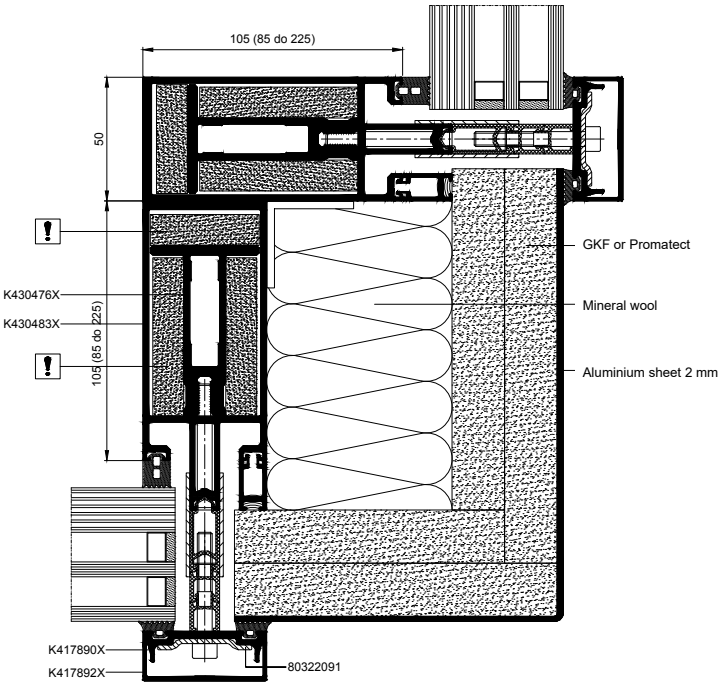
Mullion cross-section EI 60

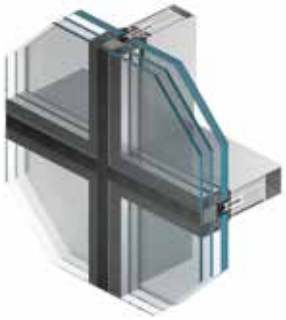


Mullion cross-section +7,5° EI 60



Mullion cross-section 90° EI 30





FAÇADE SYSTEM

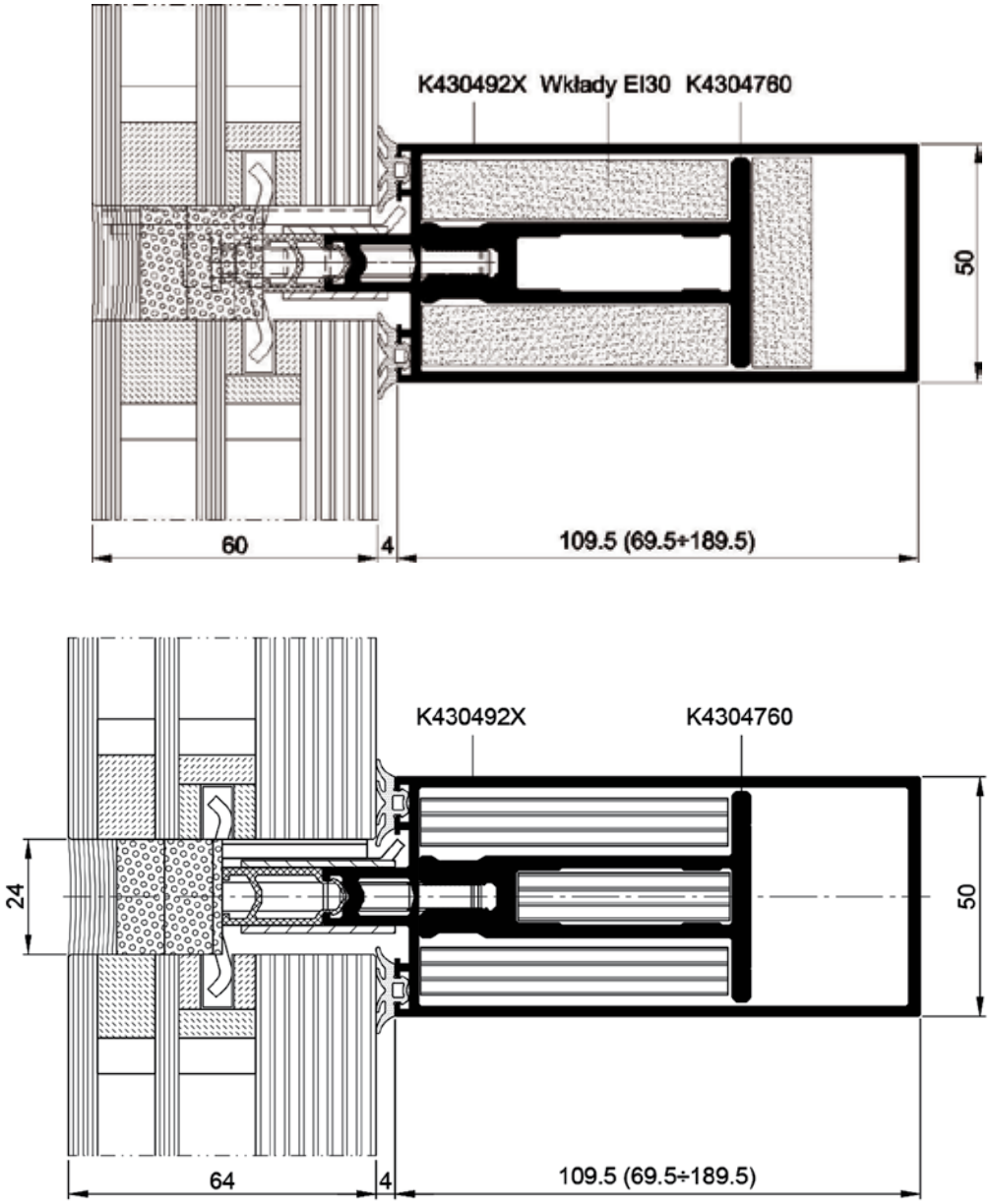
MB-SR50N EI EFEKT

MB-SR50N EI EFEKT system is designed for fabrication of fire-rated, EI30, EI60 infill curtai profiles, the mullion and transom support structure has a special core protected by fireretardant inserts. It may be inclined from the vertical by an angle of ± 10°.

EI 30 **EI 60**

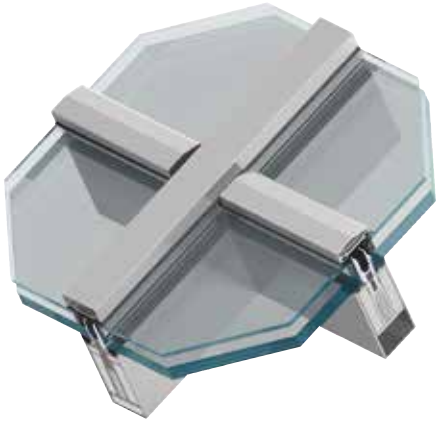
MB-SR50N EI EFEKT systems is covered by the ITB classification no 01036/15/R218NP

Transom EI30 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 I_x)	81,34 – 1222,14 cm⁴
Transom stiffness (coeff. range I_z)	49,54 – 629,54 cm⁴
Profiles width	50 mm
Glazing range	36 – 64 mm
TECHNICAL PARAMETERS	**MB-SR50N EI EFEKT**
Air permeability	class AE1200 Pa; EN 12153:2004
Water-tightness	class RE1200; EN 12155:2004
Wind resistance	2400 Pa / 3600 Pa; EN 12179:2004
Impact resistance	class I5/E5; EN 13049:2004, EN 14019:2006

FIRE RESISTANT GLAZED ROOFS



Based on the MB-SR50N EI façade systems, it is possible to perform roof glazing with fire resistance class RE20, RE30, RE45, REI20, REI30 according to EN 13501-2 + A1: 2010. “RE” means that the construction will maintain its structural capacity and integrity, and “REI” means that the construction will provide high temperature insulation.

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 32 to 64 mm. The maximum dimensions of the glass are 1250 × 3250 mm. 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 EI MB-SR50N vertical façades.

REI 20 **REI 30**

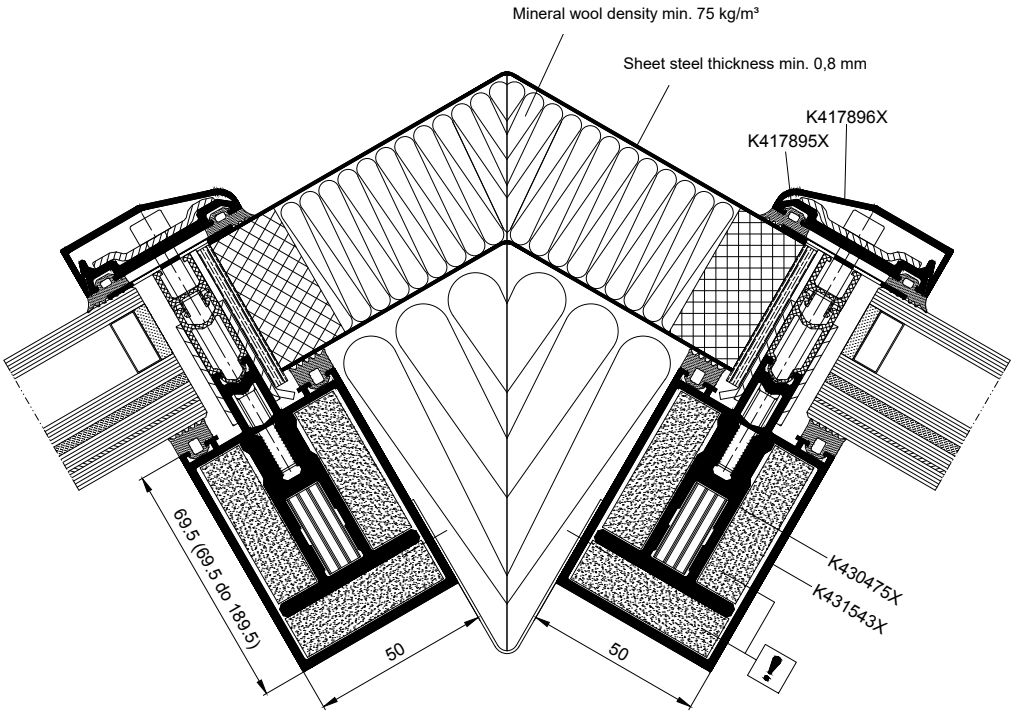
RE 20 **RE 30** **RE 45**

ITB
Instytut Techniki Budowlanej

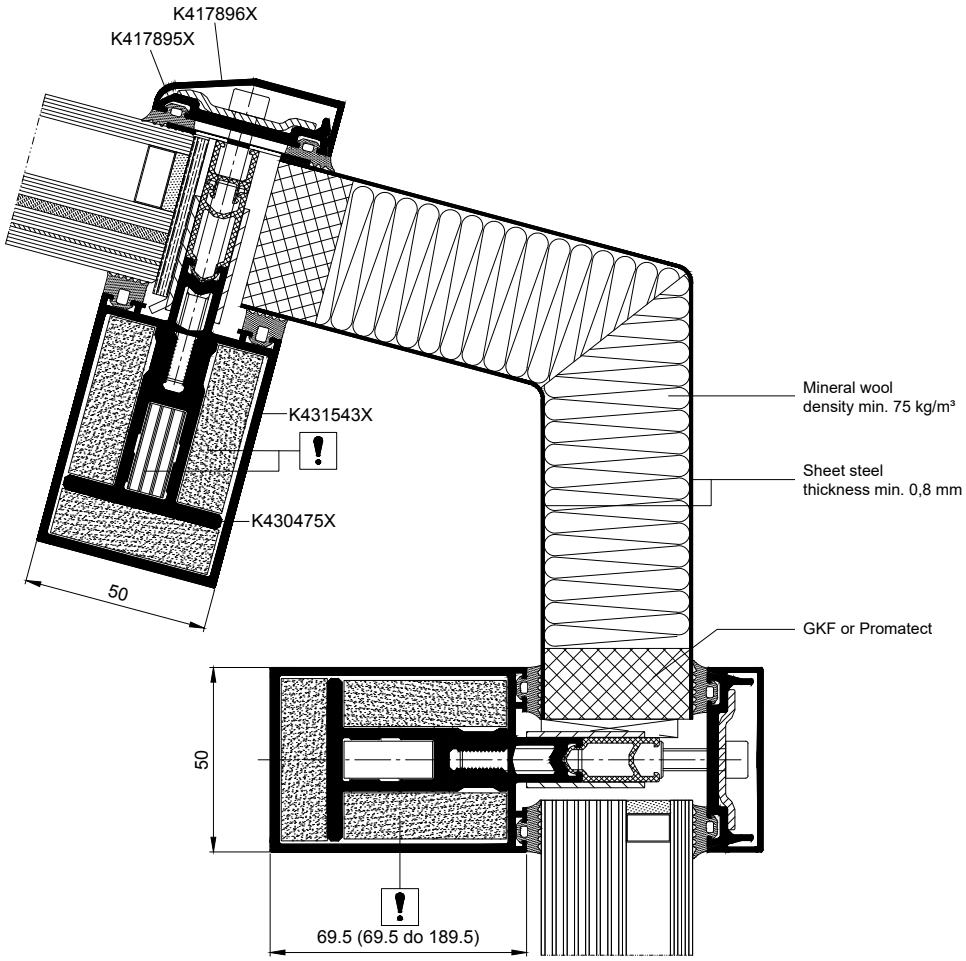
KLASYFIKACJA ITB
W ZAKRESIE ODPORNOŚCI OGNIOWEJ
nr 01036.2/18/R376NZP

The MB-SR50N EI fire roofs hold an ITB's Fire Classifications Nos. 01036-18-R376NZP & 01036.2-18-R376NZP

Cross section of the fire roof ridge



Cross section of the roof combined with a fire façade



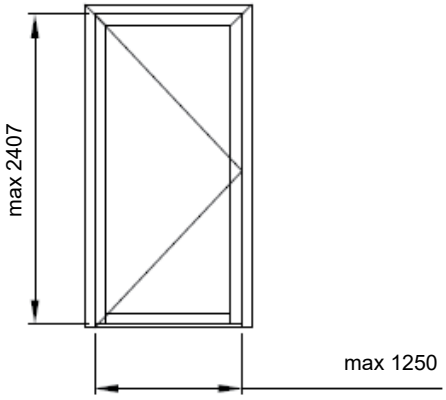
FIRE PARTITION WALLS AND DOOR

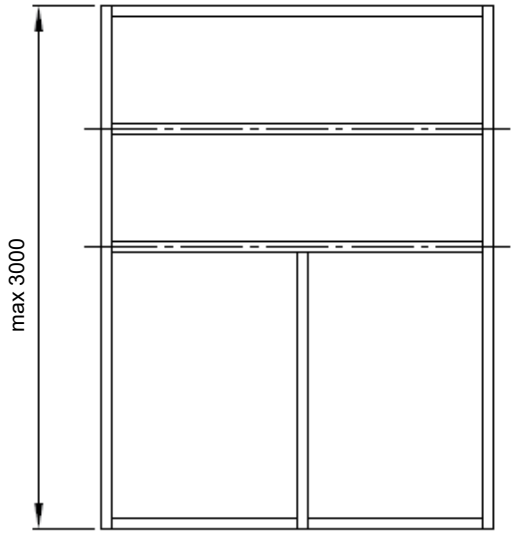
MB-45EW

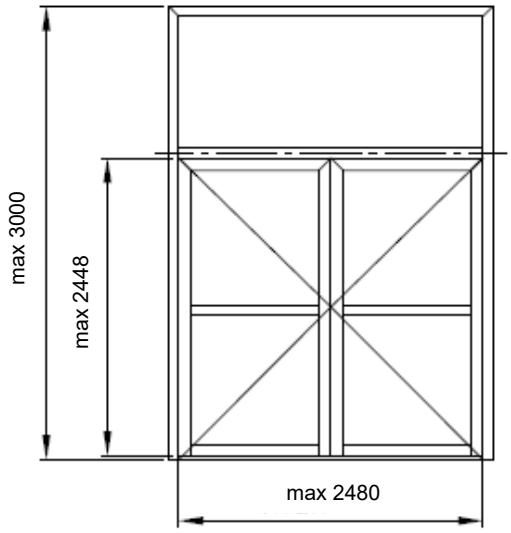
The MB-45EW system enables the fabrication of fire-rated single and double doors and fixed partition walls with doors. The constructions based on the MB-45EW system are classified fire-resistant EW30 to EN 13501-2+A1:2010. The construction is based on aluminium profiles of the "non-thermal" system MB-45 which has a structural depth of 45 mm. The fire resistance of the construction is ensured by materials inserted into the internal chambers of the profiles. The outer surfaces have strips that swell under the effect of temperature.
The system can use fire-resistant glazing EW 30 (thickness 11 mm – 15,5 mm). The infill is made using standard glazing beads, and the entire construction has steel accessories that protect the glass in case of fire. The MB-45EW system enables the fabrication of doors with maximum leaf size of up to 2.40 m high and 1.25 m wide. Structural capabilities and compatibility with other MB-series systems make this solution very attractive in this product category, while providing an excellent fire protection.

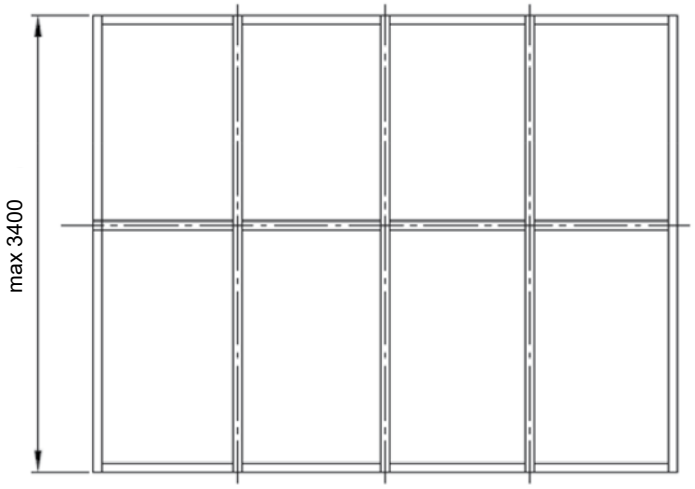
EI 30

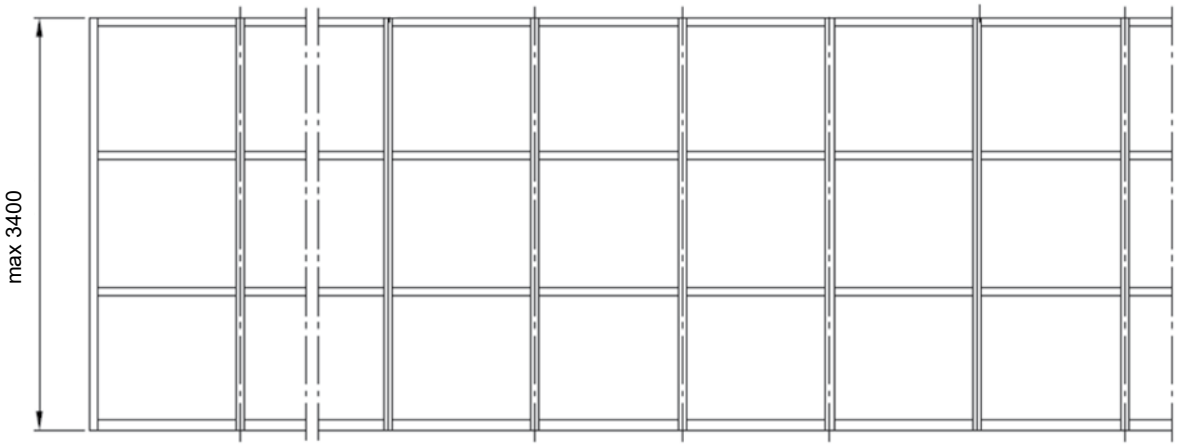
Maximum size of the construction



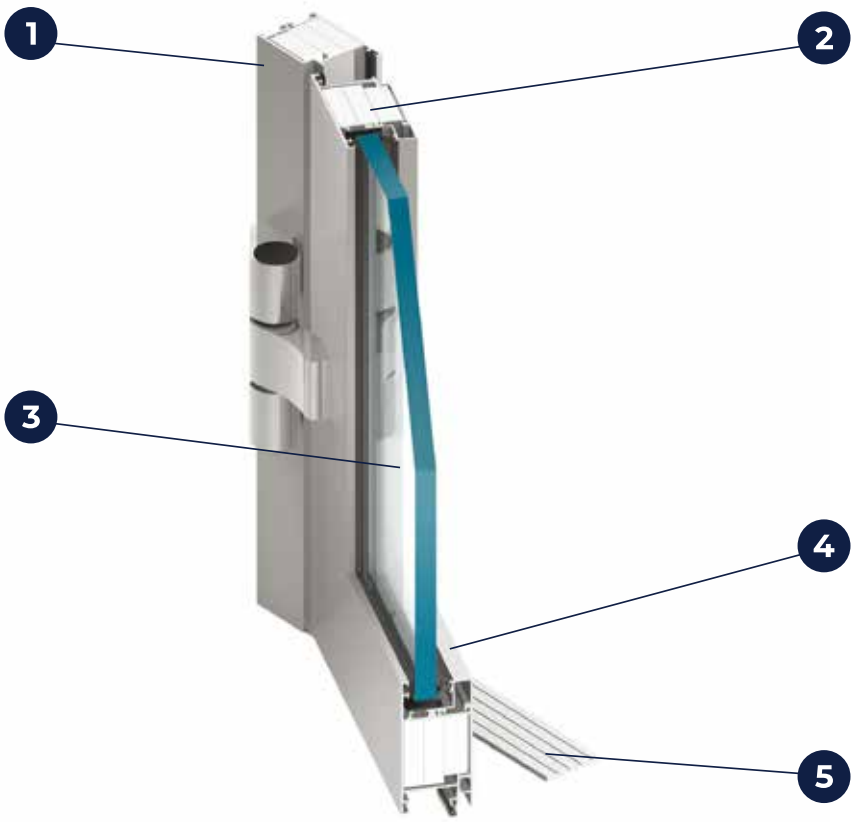








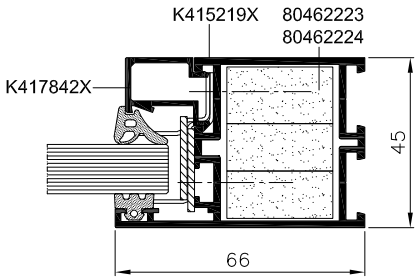
TECHNICAL PARAMETERS			
Frame depth (wall & door)	45 mm	Range of glazing	11 - 15,5 mm
Door leaf depth	45 mm	Maximum weight of the door leaf	120 kg



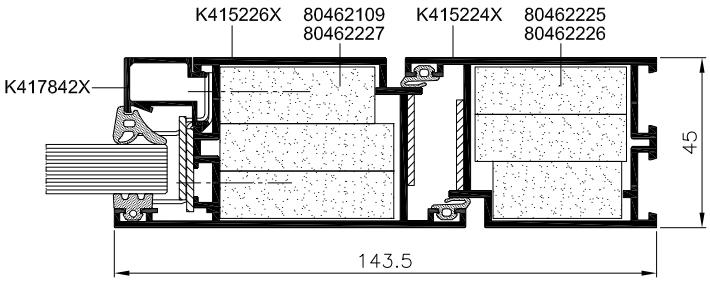
1 A solution based on MB-45 window & door profiles. Prefabrication made simple and fast with the use of elements that are common to both systems.
2 Special infills in the profiles and accessories for even better fire rating.
3 Possibility to use all standard types of fire resistant glass Pyroguard (EW30).
4 “From-the-inside” glazing – with glazing beads.
5 Low-level threshold solution

The door & partition wall system MB-45EW has documents issued by Efectis France: Classifications PV No EFR-17-003458 and EFR-17-003459.

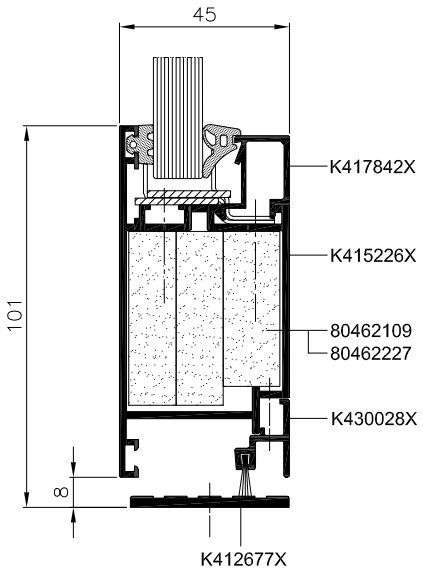
Fixed partition wall, section view



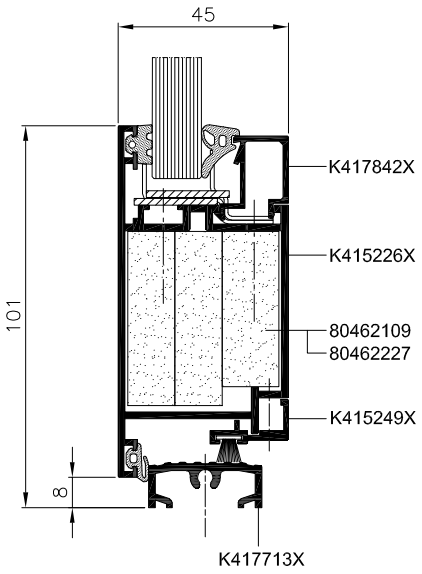
Door, section view



Door with low-level threshold, bottom view



Door with tubular threshold, bottom view



FIRE-RESISTANT GLASS

GLASSPROF EI

EI 30

EI 60

EI 90

GLASSPROF's EI-rated glass, which is manufactured by GLASSPROF sp. z o.o., a subsidiary of ALUPROF SA., is designed for use in building structures such as windows, doors, partitions, façades and similar. The company's product range includes not only EI30, EI60 and EI90 fire-rated glass, but also other types of glazing. The technology used at GLASSPROF enables us to produce insulating glass units featuring a range of glass functions, including fire resistance, thermal insulation, sun protection, sound reduction and security. Our EI glass is layered in structure, made with sheets of 5-mm-thick, clear, tempered glass to ensure user safety and reduce the risk of breakage during transport, installation and use. The panes are separated by a layer of special fire-resistant gel. The overall thickness of glass constructed in this way ranges from 15 mm for EI 30 glass to 35 mm for EI 90 glass.

The fire rating determines the quantity of tempered glass and layers of gel. The gel used in GLASSPROF panes is resistant to radiation. As a result, it crystallises in the event of fire, forming a layer that provides fire insulation and safety.

The fundamental advantages of GLASSPROF EI glazing are its high transparency, low weight and UV resistance.

Functions and aesthetics of GLASSPROF fire-resistant glass:

- The glass is neutral in colour, with a transparency level as high as 87%.
- The radiation resistance has been confirmed by independent testing (EN 12543-4). There is no need to use external laminated glass to protect the fire-rated glass in insulating units from UV radiation.
- It is classified as safety class 1B1, the highest as per the EN 12600 standard.
- The high level of sound insulation reduces noise by 93% and more.
- Lightweight, at 32.5 kg/m² for GLASSPROF's EI30 glass.
- Large-scale glazing is possible.
- GLASSPROF glasses are composed of tempered panes featuring automatically arrised edges.
- No aluminium tape is needed on the edges of the glass for moisture protection.
- Cutting-edge, fully automatic production technology is used for the glass.
- Our products are also available in the form double and triple glazing units featuring a range of glass functions.

Fire proof

Tempered glass

Lightweight

Reduces noise

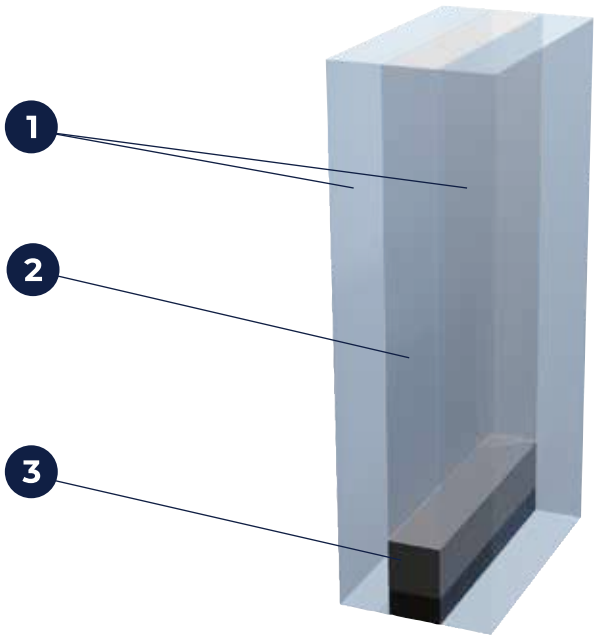
Impact resistant

Transmits light

Large dimensions

High temperature range

TECHNICAL DATA	GLASSPROF EI30	GLASSPROF EI60	GLASSPROF EI90
FIRE RESISTANCE (EN 13501-2)	EI 30	EI 60	EI 90
Thickness	15 mm	25 mm	35 mm
Composition	5 / 5 / 5	5 / 5 / 5 / 5 / 5	5 / 5 / 5 / 5 / 5 / 5 / 5
Weight	32,5 kg/m²	52,5 kg/m²	72,5 kg/m²
Temperature range for transport, storage and use	-10 / +45°C		
Visible light transmission Lt (EN 410)	87 %	84 %	82 %
Solar factor g (EN410)	74 %	69 %	66 %
U_g value (EN 673)	5.0 W/m²K	4.5 W/m²K	4.0 W/m²K
Sound reduction (R_w; C, CTR) (EN ISO 10140-2, EN 717-1)	39 (-1; -2) dB	43 (-2; -2) dB	45 (-2; -3) dB
Radiation resistance (EN 12543-4)	2000 h		
Humidity resistance (EN 12543-4)	2 weeks / 100% relative humidity		
Pendulum impact class (EN 12600)	1B1		
Hazardous substances	none		



1 Tempered glass
2 Layer of fire-resistant gel
3 Edge sealing


Certyfikat stałości właściwości użytkowych
2310-CPR-W2575
Szkło warstwowe i bezpieczne szkło warstwowe
GLASSPROF

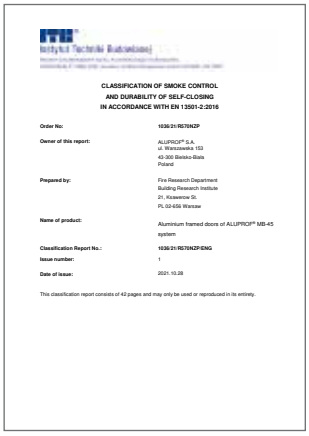

Certyfikat stałości właściwości użytkowych
2310-CPR-W3407
Izolacyjne szyby zespolone GLASSPROF
EN 1279-5:2018

GLASSPROF's EI glass has been awarded a Constancy of Performance certificate by the Certbud notified body.

SMOKE-PROOF DOORS

MB-45

MB-45 partition system is intended for producing smoke exhaust single- or doubleleaf doors with a class of S_a, and S_{200} according to the EN 13501-2:2016-07 standard. 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.



CLASSIFICATION OF SMOKE CONTROL
AND DURABILITY OF SELF-CLOSING
IN ACCORDANCE WITH EN 13501-2:2016

Order No: 1036/21/R570NZP

Owner of this report: ALUPROF® S.A.
ul. Warszawska 153
43-300 Bielsko-Biała
Poland

Prepared by: Fire Research Department
Building Research Institute
21, Ksawerów St.
PL 02-656 Warsaw

Name of product: Aluminium framed doors of ALUPROF® MB-45 system

Classification Report No.: 1036/21/R570NZP/ENG

Issue number: 1

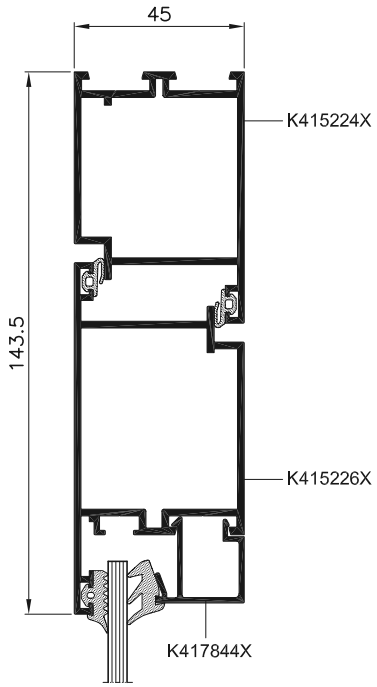
Date of issue: 2021.10.28

This classification report consists of 42 pages and may only be used or reproduced in its entirety.

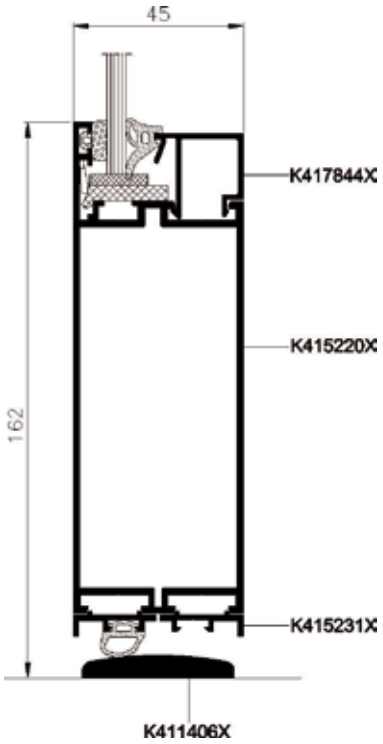
S_a **S_{200}**

The MB-45 smoke-proof doors hold an ITB's Classification No. 1036/21/R570NZ.

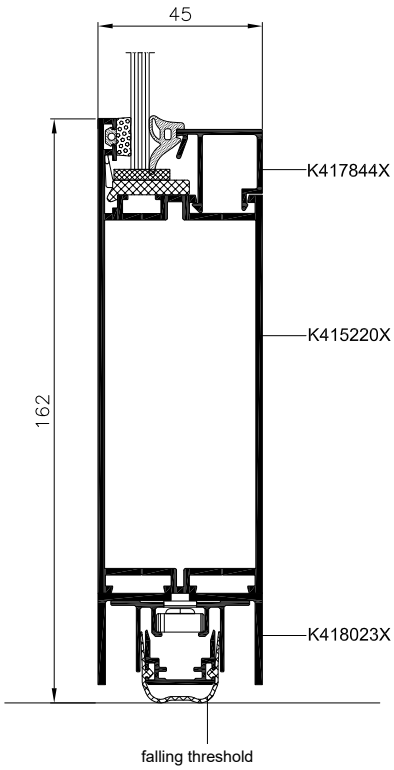
Door frame and door leaf – cross-section



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)
		Max. leaf door weight	120 kg

SMOKE EXHAUST WINDOWS

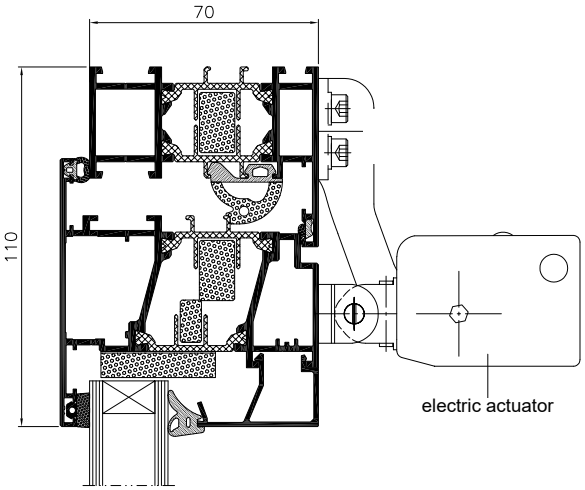
Smoke exhaust windows play a particular role in ensuring safety and comfort for the people staying in the building. When properly selected, they are the elements of gravity ventilation, and when necessary they can help to quickly get rid of smoke & toxic vapours which can be hazardous to health or worse.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

Maximum window size up to 4 m²

Cross-sections through the MB-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 m² / up to 3.3 m²
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

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









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