MB-118EI

OPIS TECHNICZNY
TECHNICAL DESCRIPTION
ТЕХНИЧЕСКОЕ ОПИСАНИЕ
TECHNISCHE BESCHREIBUNG

Technical Description

1. DESCRIPTION OF THE STRUCTURE

The system of fireproof walls MB-118 EI is intended for execution of internal or external fireproof partitions of the fire resistance class EI120. The system has been classified as non-fire propagating.
It is based on the system of fireproof partitions with the door MB-78EI, which provides most components, e.g. glazing beads, cooling inserts, expanding tapes, gaskets and most accessories.

Features of the MB-118 EI system:
- Structural depth of profiles equals 118 mm.
- The system is based on five-chamber aluminium profiles with a thermal break o the width 34 mm.
- Elements of fire insulation are placed in internal chambers of profiles and in insulating space between profiles. Additionally, expanding tapes are fitted on the external surfaces.
- Fire resistance of the class EI120 both in the case of fire exposure from the outside and inside
- Connection of fixed wall profiles is executed vthrough “L” type corner connections or “T” type crosswise connections.
- Possibility of application of muntin bars directly to the surface of a glass pane
- The technology of structure performance is analogous to the MB-78 EI system.
- The tooling used for workings comes from the MB-78 EI system.

Maximum dimensions of the partitions are shown in the section Structural Analysis.

Each structure made from elements of the MB-118 EI system must have authorization for use in accordance with regulations applicable in the country in which it is mounted. A reference document used by the manufacturer to declare conformity at the stage of marketing a fire protection product strictly defines the range of structures authorized for use in a particular country, including detailed solutions. Only solutions presented herein may be applied in the production of the product.

Solutions presented in this catalogue are subject to additional restrictions resulting from approvals for use applicable in the country where they are used. The said restrictions are specified in supplements, which form an integral part of this catalogue.

2. TECHNICAL DESCRIPTION OF RAW MATERIALS AND MATERIALS

2.1. ALUMINIUM PROFILES
Aluminium profiles (frames, leaves, crosspieces, mullions strips and other) are made in the process of mechanical working of the aluminium alloy EN AW-6060 or EN AW-6063 as per PN-EN 573-3, version T66 or T6 as per PN-EN 515 or from the alloy AlMgSi0,5 F22 as per DIN 1725 T.1. The profiles are conformant with the provisions contained in the standard PN-EN 755-1.
Mechanical properties of profiles are compliant with PN-EN 755-2.
Dimensional deviations of profiles conform to PN-EN 12020-2.

The surface of profiles should be finished with anodic oxide coating or polyester powder coating, applied as the protection against corrosion.
Anodic oxide coating should be compliant with the following standards:

- thickness of the layer as per PN-EN ISO 2360 or PN-EN ISO 2808 - 20-30 μm,
- external appearance compliant with PN-EN 12373-1
- degree of tightness of coating as per PN-EN 12373-1, the admittance value lower than 20 μS
- coating resistance to corrosion as per PN-76/H-04606/03.

Polyester powder coating:

- thickness of coating as per PN-EN ISO 2360 or PN-EN ISO 2808 - 75±15μm,
- relative hardness of the coating as per PN-EN ISO 1522 – min. 0.7,
- resistance of paint coatings to separation from substrates PN-EN ISO 2409 – level 0,
- resistance to salt spray (fog) as per PN-EN ISO 9227,
- resistance to liquids as per PN-EN ISO 2812.

There are over 180 colours to choose from the RAL standard.

2.2. THERMAL SPACERS
Thermal spacers are made of polyamide strips strengthened with fibreglass PA 6.6 GF25 as per DIN 16941 T.2 (manufacturer's certificate).
Thermal spacers feature very high resistance and their thermal expansion is similar to aluminium, which fact excludes the risk of joint deformation and prevents tearing of joints on the polyamide / aluminium border when the face of buildings is exposed to significant changes in temperature during the normal use.
Properly crimped thermal spacers ensure such resistance of compound profile as provided under the relevant standard.

2.3. ELEMENTS OF FIRE INSULATION
Infills are made of GKF plasterboards, cooling inserts CI and silicate-cement panels manufactured by PROMATECT-H. Fireproof expanding tapes are cut off from boards or are supplied in rolls.
These elements are performed in accordance with the applicable standards and relevant technical approvals.

2.4. GASKETS
Glazing and brush gaskets are made of synthetic rubber EPDM as per DIN7863 and working standard DIN7715 E2 or ISO3302-1. The gaskets are joined in the process of gluing. Ceramic gaskets are fitted between the glass pane and steel handles.

2.5. GLASS PANES
Transparent fields are glazed with special-ourpose panes, selected to meet the requirements provided for the fire resistance class EI120, the thermal standard and the standard related to sound protection of rooms.
Glass panel must be authorized for use in the MB-118 EI system, in accordance with regulations applicable in a particular country.

2.6. INFILLS OF NON-TRANSPARENT FIELDS
Infills of non-transparent sections are built as sandwiched elements selected to meet the requirements provided for the fire-proof safety. All the infills fitted in the MB-118EI system must be certified as admitted for use in relevant fireproof constructions, according to regulations applicable in a particular country.

2.7. FIXATION ELEMENTS
Joining elements (self-tapping screws, screws, rivets, nuts, washers) used to make connections are made of stainless or zinc-coated steel according to the standards referred to in the system documentation.

3. SUPPLEMENTARY INFORMATION

3.1. PROFILE CONSTRUCTION

The profiles applied in the MB-118EI system have five-chamber construction, the core of which is an insulating chamber placed between thermal spacers 34 mm wide. The system of connections by means of a thermal spacer allows dual-colour profiles to be applied – different on the inside and different on the external part of the façade of the building. The shape of thermal spacers guarantees good thermal insulation performance and proper drainage of the internal chambers of profiles.

3.2. STRENGTH CALCULATIONS

Proper selection of optimal profiles of structures should be made on the basis of guidelines contained in the section “Structural Analysis”. This section also contains information on the maximum allowable dimensions of walls, leaves of doors and technical windows.

3.3. EXTERNAL DEVELOPMENT

External structures must be equipped with drainage and ventilation holes and the gap under the pane must be sealed with fire-proof silicone 14614967 (see section “Working”).

3.4. WORKING

Decorative surfaces of profiles should be covered with a protective foil in order to protect them against any damage during working.
Linear and angular dimensional tolerance, disregarding individual designation of tolerance, as per PN-EN 22768-1, Class of tolerance – m (medium accuracy level).
Any splinters which occur in the process of working should be deburred.
Places of cuts, drilling and defects of cooling inserts CI should be protected with min. double layer of polyurethane varnish.

3.5. STORAGE AND TRANSPORTATION

- Storage
  Aluminium profiles, details, filling elements, glass panes, windows and doors should be stored in dry rooms in order to protect elements against mechanical damage and damage to anodised or painted coatings.
  Elements of fire insulation GKF and CI should be stored in original packaging in a vertical position. Where re-packing is required, the following principles should be followed:
  - the inserts must lie in a horizontal position on a firm and flat surface (e.g. on a chipboard),
  - subsequent layers should be interleaved with PE foil (e.g. thin drop sheet),
  - maximum number of layers - 25 in one packaging, but the stack must not be higher than 600 mm.

  Products should be stored in warehouses in normal weather conditions, i.e. in the temperature between 5° and 25°C and humidity ranging between 50 and 80%.
  After opening the package and taking the required number of inserts, the package should be covered with protective foil. It should be protected against dampness and excessive drying up. The inserts should be carefully carried to avoid any possible damage – breakage.
  The principles of storage and application of an expanding tape 120656 are contained in the section “Working”.
- Transportation
  Aluminium profiles, details, filling elements, glass panes, windows and doors may be transported by any means of transport provided they are protected against soiling, dust, weather conditions and exposure to any damage during transportation.

3.6. ASSEMBLY GUIDELINES AT THE BUILDING SITE

Walls in the MB-118EI system may be fitted in:

- walls built of solid, perforated or chequer brick of thickness at least 240 mm and density of at least 650 kg/m^3,
- concrete and reinforced concrete walls of thickness at least 240 mm and density of at least 650 kg/m^3,
- walls made of hollow, checker bricks or aerated concrete units of thickness not lessthan 240 mm and density of at least 650 kg/m^3,

The MB-118 EI walls may be erected in a vertical position or at the angle ±10° out of plumb.

The installation of walls, technical windows and doors on a building site should be conducted in the temperature not lower than 5° C. During its installation, the structure should be protected against exposure to weather conditions, such as water, snow and any type of mortar and dust.
The walls and frames of technical windows and doors must be fitted with steel expansion bolts min. Ø10 mm, steel system anchors, bolts or screws min. Ø5 mm (M5), spaced up to 600 mm but their distance from the corners must not exceed 250 mm and 200 mm from the wall mullions.
The gaps formed between the wall, technical window or door and masonry should be filled with non-flammable mineral wool of min. density 70 kg/m^3 or with any other fire-proof filling, admitted for use in fire-proof structures and then closed with non-flammable material (e.g. plasterboard, concrete-lime plaster, fire-proof caulk, aluminium profile, steel profile or metalworking).

Detailed information regarding the assembly of products is contained in the section “Examples of Development”.

WARNING:
Lime, cement, alkaline and cleaning substances (e.g. bleaches, abrasive pastes) have particularly harmful effect on aluminium profiles, especially on decorative protective surfaces. Thus any “wet” works must be limited to the minimum. Should mortar be brought into contact with the surface of aluminium, it must be immediately washed off (its hardening must not be allowed). Failure to wash off the mortar will result in permanent discolouring and will damage the surface.
In places of contact between aluminium and other metals or their alloys, electrochemical oxidation of aluminium occurs. The process of this kind of corrosion is particularly quick when there is a lot of moisture in the surrounding atmosphere. Therefore aluminium should be separated from other metals with an insulating layer.

3.7. MAINTENANCE Anodised or coated aluminium profiles should be washed with a soft cloth and mild cleaning agents (pH between 5 and 8). No alkaline-based liquids or acids are allowable as they may damage the oxide coating. Abrasive materials, cloths with metal fibres, etc. are not allowed, either. The surface subjected to washing should thoroughly rinsed with clean water. Regular washing prevents forming stubborn dirt. The frequency of cleaning depends on the location of the building and aggressiveness of the environment.

3.8. CATALOGUE UPDATES
The catalogue should be updated by downloading PDF files at https://aluprof.com in the authorized section “Catalogues”.

3.9. AVAILABILITY OF CATALOGUE PRODUCTS
The principles and availability dates of elements shown in the catalogue are specified in Aluprof SA’s pricelists to be found in the authorized section of the website https://aluprof.com, in the section “Pricelists”

4. INFORMATION ON THE SUSTAINABILITY OF ALUPROF SA PRODUCTS

Aluprof, as a leading manufacturer of aluminum systems, places the utmost importance on to sustainable development, minimizing the impact of their activities on the environment.
Since 2014, the Company has been a member of the UN Global Compact, committing to comply with international principles regarding human rights, labour standards and environmental protection.
Aluprof has in place an Environmental Management System in accordance with the PN-EN ISO 14001:2015 standard, which confirms the Company's commitment to environmental protection and concern for the natural environment. Aluprof's systems comply with standards and are developed in accordance with the requirements of legislation and other environmental obligations, and the continuous improvement of the environmental management system significantly improves the awareness and environmental performances of the Company.
In 2022, Kęty Group, of which Aluprof is a part, received a new Environmental Product Declaration (EPD) for their aluminium profiles, based on EN 15804 and verified in accordance with ISO 14025 by an external auditor.
Aluprof systems can be fully recycled and the materials obtained in this process can be reused without loss of quality. This action contributes significantly to extending the product life cycle, which in practice means reducing waste to a minimum. If a customer has a used product, he or she can easily return it to the collection centre, from where the material for the manufacture of new Aluprof products is obtained. However, in the case of aluminum products delivered directly to the Company, they are carefully sorted and coatings removed. The material is then scrapped, providing the Company with raw material that will be reused for new products. Both aluminum from the collection points and the Company goes to the Kęty Group's stamping plant, where new products are made from it. Thanks to this, Aluprof not only cares about the environment, but also ensures the high quality of their products by recycling and reusing materials.

As an active member of the World Green Building Council and DGNB (*Deutsche Gesellschaft für Nachhaltiges Bauen*), Aluprof supports global and local initiatives promoting low-emission construction and the development of sustainable cities. The carbon footprint of the production of Aluprof profiles is only 3.3 kg CO2e/kg, compared to the average of 9.0 kg CO2e/kg of the European Aluminum Association.
Aluprof creates a sustainable supply chain and encourages their suppliers to pursue a responsible environmental policy. The Company supports the development of green building and promotes technologies that reduce energy consumption in buildings, cooperating with the Polish Green Building Council (PLGBC) and acting as an Ambassador for Passive Building.Thanks to these activities, Aluprof sets high standards in the construction industry, striving to create a greener and more sustainable future.

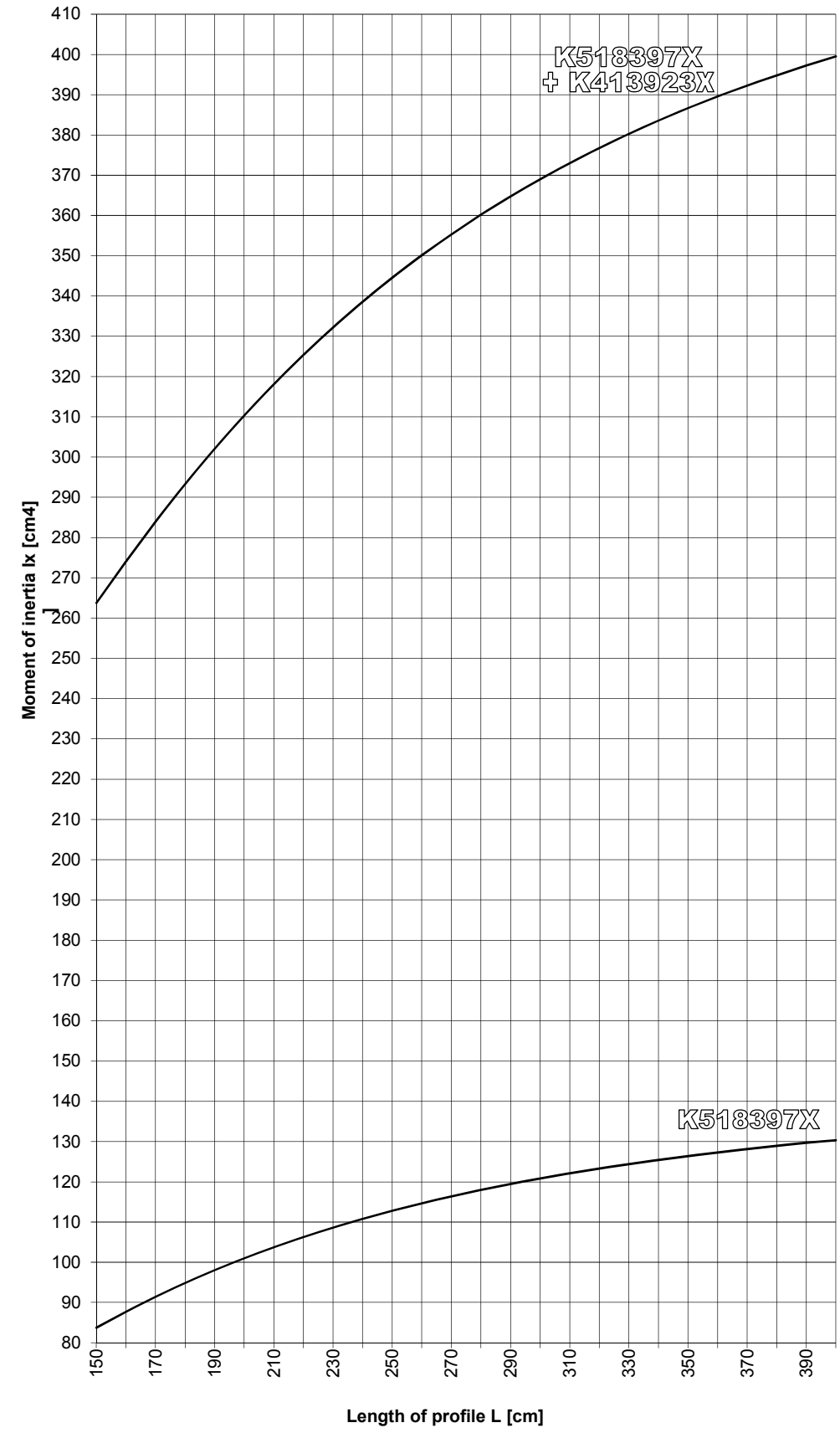
5. GRAPHIC SYMBOLS USED IN THE CATALOGUE

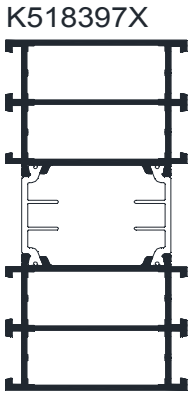
Nº	Number		Working
!	Notes		Compatible elements
	Total area [dm^2/m]		Cut
	Decorative area [dm^2/m]	G	Glue with two-component glue
	Angle of cut [º]	MS	Glue and seal
	Dimensions [mm]	S	Seal with silicone
1..	Number of items	G	Glue
	Material	_ _ _ _ _	Perform with the use of: _ _ _ _ _ _
N	Standard		Page

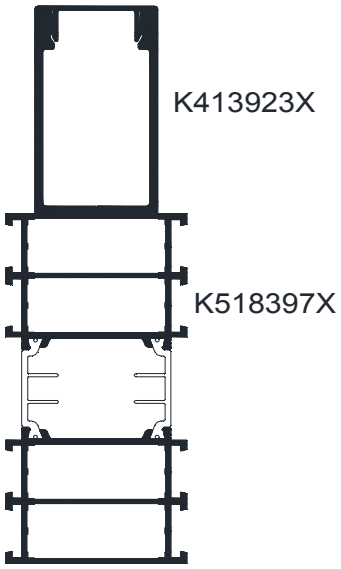
STATYKA
STRUCTURAL ANALYSIS
СТАТИКА
STATIK

Pozostałe informacje zostały przedstawione w katalogu produkcyjnym MB-78 EI.
Other informations have been shown in production catalogue MB-78 EI.
Другие информация указаны в производственных каталоге MB-78 EI.
Sonstiges Informationen wurde im Fertigungskatalog MB-78 EI dargestellt.

Diagrams of moments of inertia Ix of profles







The method of additional strengthening of aluminium profiles with steel profiles has been described in the section Structural Analysis of the MB-78EI Catalogue

MB-118EI

Maksymalne wymiary ścianek
Maximum dimensions of wall segments
Максимальные размеры стеновых панелей
Maximale Abmessungen von Wand