




## FIRE-RESISTANT WINDOW CURTAIN

### Type: **MARC-Ok(st) EI60**


with a gravity drive type VIC (with a retraction spring mechanism)

 <b>ASSA ABLOY</b> Czołowo, ul. Leśna 57, 62-035 Kórnik phone +48 61 222 75 00 fax +48 61 222 75 01 email: biuro@malkowski.pl, www.malkowski.pl	<b>FIRE PROTECTION WINDOW CURTAIN</b> Type: <b>MARC–Ok(st) EI60</b>	Ref. no.: <b>ISOiK_Ok-4</b>
	<b>INSTRUCTIONS FOR USE, OPERATION AND MAINTENANCE</b>	Revision: <b>04 / 2024</b>

*THANK YOU FOR YOUR TRUST AND FOR PURCHASING THE PRODUCTS OF THE  
MAŁKOWSKI-MARTECH S.A.*

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## 1. INTRODUCTION

This instruction manual for the MARC-Ok(st) EI60 type fire window curtain (hereafter referred to as fire curtain / window curtain), is a document containing data and instructions for the owner (user) necessary to familiarise himself with its operation, use, operation and maintenance.

To ensure long-term, safe use of the curtain, the user and operating personnel shall fully understand and comply with this Manual.

The use of the curtain, including its operation, maintenance, servicing, periodic inspection, parts replacement, and repairs shall conform to this Manual.

Keep the Manual and other technical documentation appended to it safe and available to the operators and service technicians.

We reserve the right to continuous verification of the Manual contents and their adaptation to the state of the art. We hope the user understands that the Manual contents can be modified without prior notice. Some of the figures and narrative of this Manual may vary from the actual product, and if so, it is due to continuous improvement necessary due to changes in regulations of law and similar reasons; these variations do not affect the recommendations for use applicable to the product.

If this Manual is lost or damaged, contact our Customer Service and order the same version of the document.

### CAUTION!


**Failure in compliance with the recommendations and guidelines contained in this Manual will release the manufacturer from all liability and warranty obligations.**

**The servicing intended to be done by the service technicians and the user is specified further in this Manual. Only the manufacturer's authorized service may attempt assembly, installation, adjustment, parts replacement, repairs, and troubleshooting of this product.**

**This Manual applies to the standard accessories of the fire protection window curtain; the application of optional accessories, if any, is specified in the sales contract for the product.**

The fire protection curtain shall be used according to the engineering design developed for the intended installation location, and with consideration of the following:

- The prevailing construction and engineering standards and regulations, of which the particular ones apply:
  - a) Regulation of the European Parliament and of the Council (EU) No. 305/2011 of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC (OJ (OJ EU L88 of 04.04.2011, as amended);
  - b) Act of 16 April 2004 on construction products (Journal of Laws of 2020 item 215),
  - c) Building Law Act of 07 July 1994 (Journal of Laws of 2020 item 1333),
  - d) Act of 13 April 2016 on the conformity and market surveillance system (Journal of Laws of 2019 item 554),
  - e) Act of 24 August 1991 on fire protection (Journal of Laws of 2020 item 961, 1610),
  - f) Regulation of the Minister of Infrastructure and Construction of 17 November 2016 and concerning the practice of declaration of performance for and construction mark labelling of construction products (Journal of Laws of 2016 item 1966),
  - g) Regulation of the Minister of the Interior and Administration dated 7 June 2010 and concerning the fire protection of buildings, structures, and land (Journal of Laws of 2010 item 109, 719, as amended),
  - h) Regulation of the Minister of Infrastructure dated 12 April 2002 and concerning the technical requirements for buildings and locations thereof (Journal of Laws of 2019 item 1065),

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- i) EN 16034:2014-11 (Harmonised standard), Pedestrian doorsets, industrial, commercial, garage doors and openable windows – Product standard, performance characteristics – Fire resisting and/or smoke control characteristics;
- j) PN-EN 13501-2:2016-07, Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services;
- k) EN 13241+A2:2016-10 (Harmonised standard) Industrial, commercial, garage doors and gates – Product standard, performance characteristics,
- l) PN-EN 12635+A1:2010, Industrial, commercial and garage doors and gates – Installation and use,
- m) PN-EN 12424:2002 Industrial, commercial and garage doors and gates – Resistance to wind load – Classification;
- The Declaration of Performance;
- this Use, Operation and Maintenance Manual.

Pursuant to the EN standard (i) and the Regulation (f), the fire protection curtain is a construction product eligible for System 1 of Assessment and Verification of Constancy of Performance. Based on the Regulation (a), the manufacturer who markets a construction product is required to issue its Declaration of Performance (DoP) and apply a legible CE marking label to the curtain.

#### **CAUTION!**

**A copy of the Declaration of Performance and the Warranty Certificate are provided by the manufacturer to the user after the acceptance of the installation/assembly of the fire protection curtain, in accordance with the sales contract (and/or the quotation).**

**A copy of the Declaration of Performance and the Warranty Certificate for the fire protection curtain is an integral part of this Manual and shown as its Appendices, ref. Section 11 APPENDICES.**

**The CE marking of the fire protection curtain is placed on its nameplate, ref. Section 10 IDENTIFICATION. The valid list of authorized providers of product installation, service inspections, and maintenance (complete with assessment and certification of proper performance of these services) is available on the official website of the fire curtain manufacturer (www.malkowski.pl).**

## **2. APPLICATION SCOPE AND PREREQUISITES**

### **2.1 INTENDED USE**


The type MARC-Ok+ EI60 curtain is a vertical, moving fire partition intended as the closure of a passageway between fire partitioned zones inside industrial buildings, warehouse rooms, technical access floors in office buildings, hospitals, and other public buildings (constituting a fire barrier). It can also be used as a window fabric, mounted both externally and internally on window and door openings, designed to protect the interior of the aforementioned types of buildings.

The fire protection window curtain type MARC-Ok(st) in its basic version is manufactured with a declared use category C0 (number of cycles 1 - 499, according to EN 16034:2014-11) and a wind load resistance class 1 (according to PN-EN 12424:2002) or **2** in the case of a curtain installed on the outside of the building - provided that the manufacturer has been informed in writing of this intention of use.

On request, the MARC-Ok(st) EI60 window curtain can be manufactured with a declared use category of **1** (number of cycles 500 - 9,999) or **2** (10,000 - 49,999).

The Marc-OK drop door can also be used in freezers, this model requires a heating system, and the following conditions must be met:

- sufficient space above the door in accordance with the development conditions,
- the need for a guaranteed 230 V AC power supply,

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- declaration of the material of which the wall is made, if its parameters are not sufficient for the direct installation of the door we will provide an additional substructure,
- MARC-OK doors with freezer/refrigerator applications are not intended for everyday use, use category 0,
- in situations of acceptance or service work, trial fire tests, the door may remain in the closed position for no longer than 5 minutes, for which purpose an auto-return system will be used to meet this condition. The customer must provide an additional "technical alarm" signal, which causes the emergency closing of the door and automatically raise the door after a set time, e.g. 3 minutes. Parameters: potential-free signal, NO supervision, NC alarm with a duration of 10s, in other situations not resulting from a real fire, the user undertakes to raise the door within 5 minutes.

## 2.2 NON-INTENDED USE

Type MARC- Ok(St) EI60 fire protection curtain is not intended for the following applications:


- In Ex-zones (explosion hazard areas), unless qualified as intended for the application following suitable modifications by the manufacturer;
- In environmental conditions with presence of salinity, salts, acids, alkali, and/or other aggressive chemical (including cement and lime) which trigger corrosion (the maximum permitted relative humidity is 80% for this product);
- When exposed to strong electromagnetic fields (> 0.1 T);
- In areas with wind exposure with a force higher than the wind load resistance class stated on the nameplate and a copy of the Declaration of Performance.

### CAUTION!

**The wind load resistance in accordance with EN 12424:2002 applies to the curtain in the closed position. It can be dangerous to use the curtain in windy conditions.**

Never attempt to:

- have the window curtain assembled/installed by a contractor who has not been authorised by the product manufacturer;
- repair, troubleshoot, improve, alter, modify, or replace or retrofit components or parts outside of the specification limits shown in this Manual and/or without a prior written authorization from the curtain manufacturer (ref. the manufacturer's authorization matrix in Section 6 TECHNICAL SPECIFICATION),
- install any parts or components which are non-genuine or non-original or not specified and/or authorized by the curtain manufacturer;
- operate the curtain which is defective, out of order or partially or wholly incompatible with the specified properties or intended use (due to damage from fire, a building collapse, etc.);
- operate the curtain without the required operator's inspections and maintenance done as specified in this Manual (ref. Section 8 INSPECTION, MAINTENANCE, AND REPAIRS) or as specified in the custom provision of the sales contract concluded between the user and the manufacturer of the product;
- operate the curtain with mechanical damage or other defects caused by misuse, especially if it has been stopped in an emergency and the reason has not been cleared;
- operate the curtain if it or any of its components have been found to work abnormally and the relevant supervisor, maintenance team and the manufacturer's technical service have not been notified;
- operate the curtain with its nameplate defaced or removed;
- service or repair the curtain when its components are in motion;
- wash or clean the curtain with formulas that are corrosive and/or based on any acid or solvent, or pressure clean with any liquid (see Section 8.4 CLEANING AND LUBRICATION).

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Failure to comply with the foregoing restrictions will have the user lose all liabilities and warranty obligations of the manufacturer towards the former, including loss of the declared fire resistance and the DoP issued by the manufacturer.

#### CAUTION!

The manufacturer shall be released from their liability and warranty obligations in the following cases:

- if the product has been installed by a contractor not authorised by the manufacturer;
- for all natural, whether partial or complete, wear and tear resulting from the characteristics or intended use of the curtain (which includes exposure to fire);
- if the user or any third party alters, modifies, or replaces components or structural features of the curtain without coordination and prior written authorisation of the manufacturer;
- for misuse or failure in routine maintenance of the curtain or its components as required by this Manual;
- for failure in the periodic inspections required in this Manual or any binding, custom agreement with the manufacturer or its authorized technical service, if the failure has caused damage and other defects (including the defacement or removal of the nameplate).

In the foregoing circumstances the manufacturer does not warrant that the declared fire resistance of the curtain will be maintained any longer.

To ensure reliable operation and compliance with the warranty terms and conditions, please contact MAŁKOWSKI-MARTECH S.A. or its commercial partner for product training. The purpose of the training is to provide the necessary information about proper use and, among others, the requirements for operating personnel.

## 2.3 OHS RECOMMENDATIONS


The operation of the curtain requires compliance with the prevailing general occupational health and safety laws, including legal prerequisites of fire protection and timely inspections, servicing, maintenance, parts replacement, and repairs which are specified in the requirements. Do not operate the curtain if it has been stopped in an emergency until the root cause is cleared.

Follow the prevailing regulations of law for waste generation control and proper disposal during all work on the curtain. Special caution is required that during cleaning/washing, maintenance, replacement of parts or repairs of the fire protection curtain no harmful substances are released into the soil or sewers, like lubricants, solvent-borne cleaning agents, etc. These substances must be collected, contained and shipped in suitable containers and disposed of in accordance with legal regulations.

## 2.4 SERVICE PERSONNEL REQUIREMENTS

The servicing of the fire protection curtain requires no professional license. The curtain shall be operated and serviced by an operator (e.g. a maintenance technician) designated by the fire protection door user. The designated operator requires operating training from the fire protection curtain manufacturer's representative or the manufacturer's authorized installation contractor; once completed, the operating training must be certified as such in writing.

The user shall ensure that the operating personnel is and remains trained in occupational health and safety, including the possible risks of this product, the job safety instructions, this Manual, and all instructions attached to this document.

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### 3. PACKAGING, STORAGE, AND TRANSPORT

Depending on the sales contract/quotation provisions agreed to with the manufacturer, the fire curtain can be collected from the manufacturer's warehouse or shipped and delivered by the manufacturer to the installation side against a written proof of acceptance of the product quantity and quality on the Goods Issue Note.

The fire protection curtain is delivered in assemblies and components to be assembled and installed at the user's site. Each assembly and component is separately protected against mechanical damage for the duration of shipping as follows:

- the curtain sheet (wound on a winding shaft) is placed together with the shaft supports in a cassette and laid on a pallet on mineral wool or polystyrene spacers,
- guides and covers are placed on a pallet with mineral wool or polystyrene spacers;
- each aforementioned pallet (loading unit) is secured with foil and fastened with polyester tape through wooden securing beams,
- small accessory items, like fasteners, etc. are packed in a separate cardboard box;
- each delivery packaging is labelled with the packing list of the assemblies and components, showing the customer's purchase order, the assembly number, the fire protection curtain type, and the DoP reference number.

Transport, storage, and assembly/installation of the fire protection curtain are regulated as follows:

- the assemblies, components, and single parts of the fire protection curtain must be properly secured in transport (with lashing, straps, spacers, etc.);
- following the unloading from delivery and for the duration of storage, store all parts of the fire protection curtain in a sheltered room, away from sources of damage, dirt, and the elements (like snow and rain);
- do not step, walk, or drive over any assembly, component, or part of the fire protection curtain; do not place any loads, tools, or any chemicals on these items; do not lean on these items; do not attempt anything unspecified here which might contribute to damage and reduction of value/quality of the fire protection curtain items.

### 4. ASSEMBLY AND INSTALLATION

The assembly and installation of the MARC-Ok(st) type fire window curtain may only be carried out by trained employees of the manufacturer or installation teams/companies authorised by the manufacturer.

Fire protection curtain pre-installation/assembly procedure:


- Before attempting the work, inspect all delivery items for incorrect quantity and damage during transport or storage;
- verify conformity of the installation conditions against the purchase order / sales contract drawing.

Install the fire protection curtain in compliance with the INSTALLATION INSTRUCTIONS (ref. Section 11 APPENDICES), and follow with the installation work inspection and functional testing.

The acceptance of the installed fire door is to be done in witness of the buyer's authorized and the manufacturer's authorized representatives (it can be witnessed on behalf of the manufacturer, by the authorized installation contractor) who will certify the acceptance in the Periodic Inspection and Maintenance Log (appended to this Manual) or in a separate installation acceptance certificate.

#### CAUTION!

**For proper handling, lifting, and fastening of the fire protection curtain structure, ensure proper OHS conditions and the work equipment required for the tasks, like ladders of suitable height, fall arrest harnesses, lifelines and other gear, e.g. slings, lifting beams, a hoist, or a MEWP with a lift capacity and outreach sufficient for the weight and installation height of the product's structure. The contract**

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indicates who provides this equipment - including when performing any periodic inspections and maintenance.

The use of guide gaskets is not mandatory. They are not part of the fire protection system, but only have an aesthetic function (masking the inside of the guide rail in the open position).

The installation of gaskets in the door/curtain is not recommended in situations where:

- the door/curtain will be exposed to sub-zero temperatures,
- the door/curtain will be used more than ... cycles per day;

The use of gaskets under the conditions described may result in the outer layer of the shell wearing through, which in turn may result in a negative rating during service inspection.

## 5. DESCRIPTION OF OPERATION OF THE MARC-Ok(st) FIRE PROTECTION WINDOW CURTAIN

The basic function of the fire curtain is - in the event of a fire - to automatically start the unfolding of the curtain's sheet to the so-called technically closed position. Actuation is by means of a thermal fuse trigger. The thermal fusible link trigger is mounted between the shaft housing and the curtain shell. As a result of a fire, i.e. the temperature in the area of its installation rises to 68°C (94°C or 140°C, depending on the type of fuse used), it disengages and the curtain jacket unfolds and the opening closes. The curtain's expanding sheet causes the spring mounted inside its shaft to turn at the same time. The overloading spring slows down the downward movement of the sheet, thus preventing the mantle weight bar from violently hitting the sill / base of the installed curtain. By grasping the weight bar and lifting the curtain sheet upwards with a slow movement, the curtain is caused to wind back onto the shaft (thanks to the accumulated spring energy of the curtain, it winds easily onto the shaft without the need to apply much force).

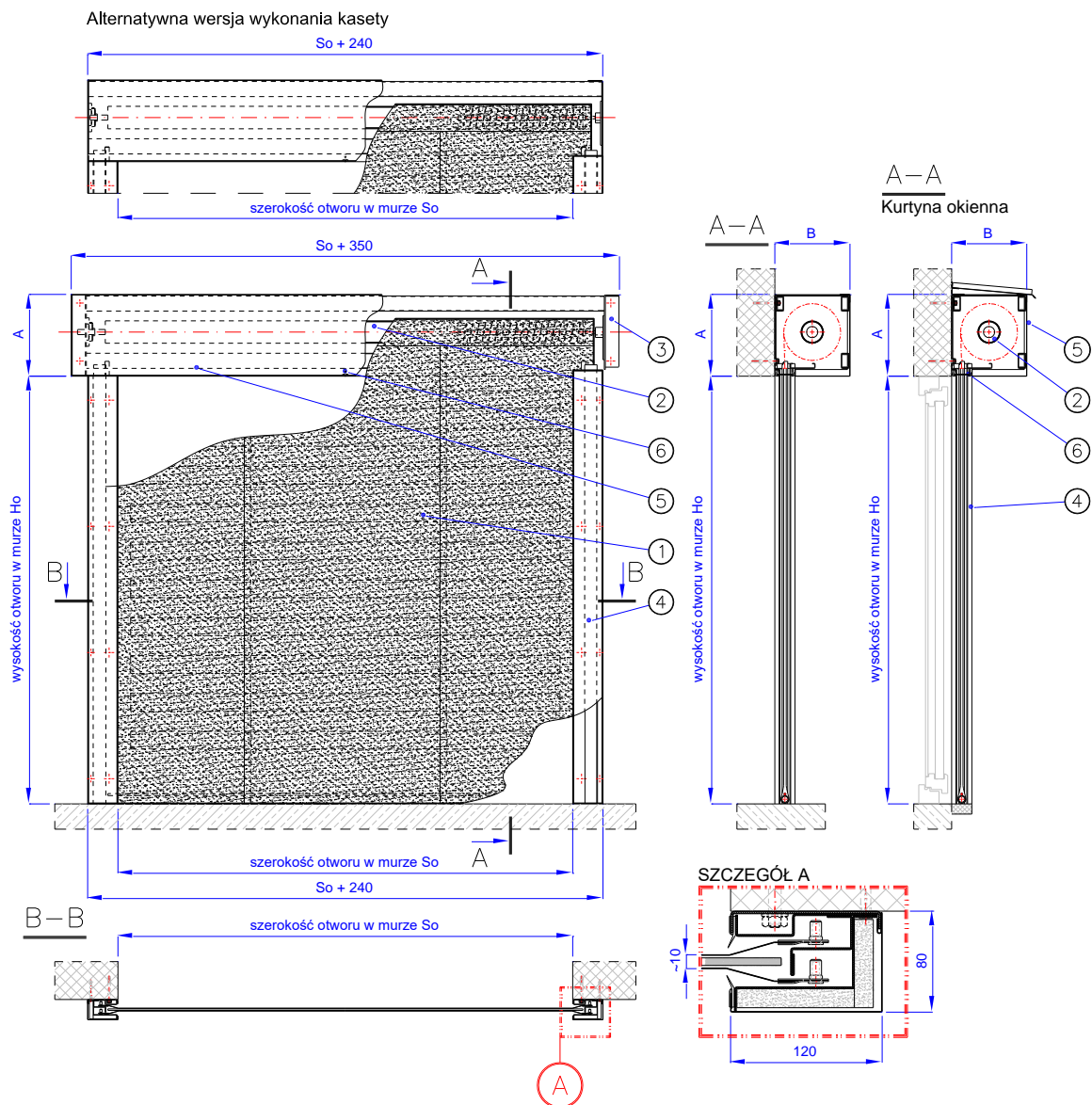


Fig. 1 - Thermal fusible link



## 6. TECHNICAL SPECIFICATIONS

Specification	Value	Notes
Fire resistance class	EI <sub>145</sub> , EI <sub>260</sub> , EW <sub>120</sub>	-
Closing speed	< 0.15 m/s	-
Operation (manual / powered)		operation exclusively by means of a thermal fuse switch disconnection and spring mechanism
Sheet colour	similar to RAL 7035	-
Colour of guide rail assembly fascia and shaft box	galvanized* RAL 7035, 9002, 9010	Any in the RAL palette on request



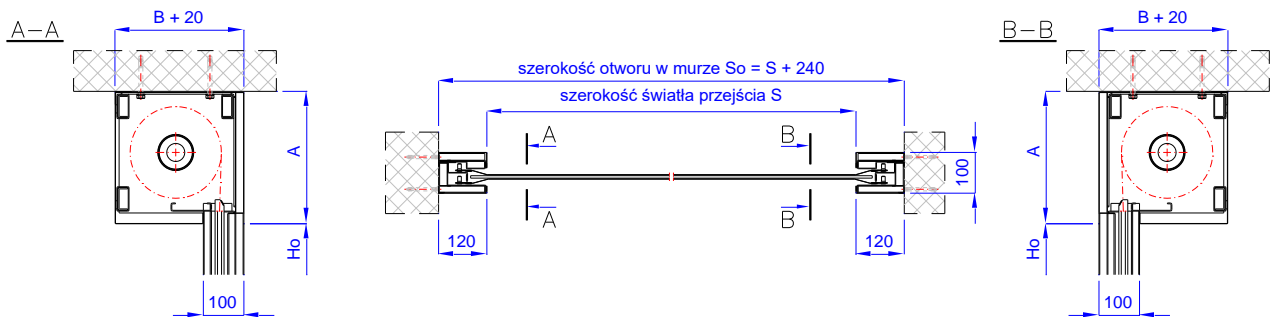
	Alternative box design
	width of opening in the wall $S_o$
	Window curtain
	height of opening in the wall $H_o$
	DETAIL A

**Fig. 2 - Fire-resistant window curtain type MARC-Ok(st) EI60**

1 - Curtain sheath, 2 - Winding shaft, 3 - Shaft support, 4 - Guide, 5 - Cover assembly, 6 - Thermal fusible link

**List of components for MARC-Ok(st) EI60 fire-resistant window curtains**

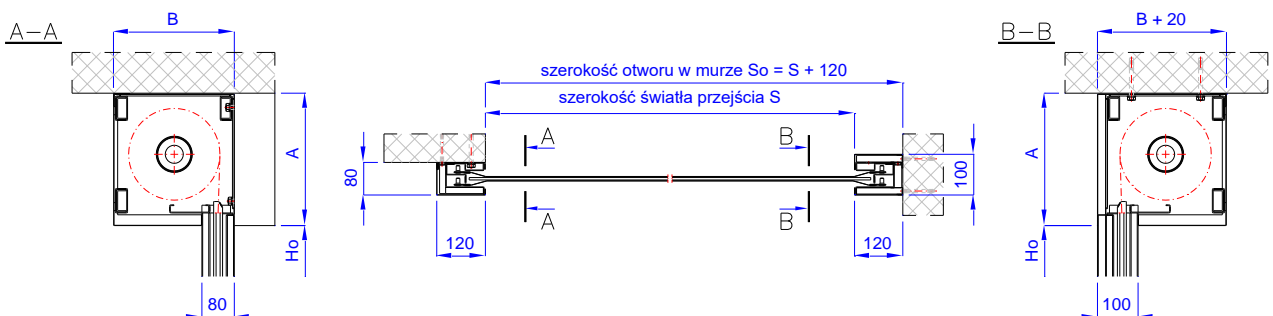
#	Designation	Quantity	Drawing no./ Part no. / Standard
1	Curtain sheet	1	6 - MARC-Ok(st)60-01.01.00
2	Winding shaft	1	7 - MARC-Ok(st)60-01.02.00
3	Shaft support	2	8 - MARC-Ok(st)60-01.03.00
4	Guide rail	2	9 - MARC-Ok(st)60-01.04.00
5	Cover assembly (shaft box)	1	10 - MARC-Ok(st)60-01.05.00
6	Thermal fusible link	1	Elsie, type A, B, C



	width of opening in the wall $S_o$
	width of clear passage size $S$

**Fig. 3 - Fire protection window curtain type MARC-Ok(st) EI60**


- corridor / recessed installation (between parallel walls)

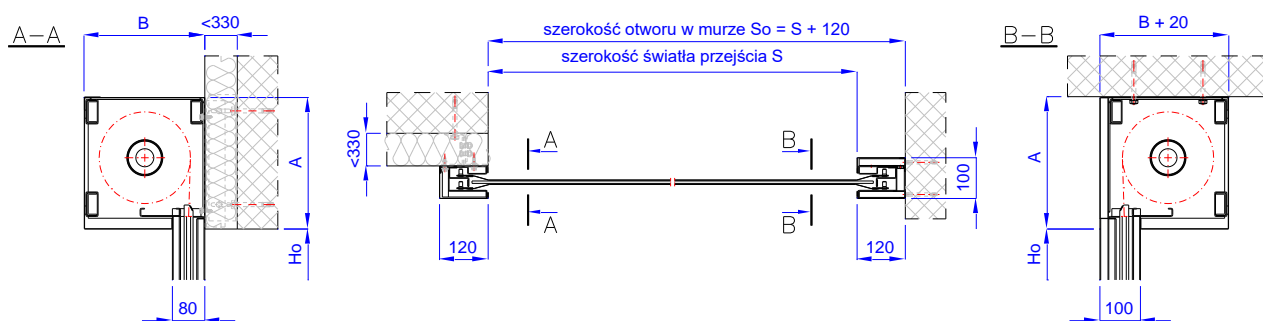


	width of opening in the wall $S_o$
	width of clear passage size $S$

**Fig. 4 - Fire protection window curtain type MARC-Ok(st) EI60**

- mixed buildings

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	width of opening in the wall $S_o$
	width of clear passage size $S$


**Fig. 5 - Fire protection window curtain type MARC-Ok(st) EI60**  
- mixed installation, on one side on spacers

### LIST OF ANCHORING ELEMENTS FOR SHAFT SUPPORTS

NOTE: 1. The standard set of fasteners supplied with the product includes the hardware for installation on concrete (C20/25) and reinforced concrete walls.

2. It is possible to use different fasteners provided if they are marketed with the CE marking or the Polish Construction Mark "B" and have the same or better strength and the same intended use.

#	Anchoring fasteners	Notes
<b>A. REGULAR AND PRE-STRESSED CONCRETE HOLLOW CORE SLAB CEILINGS</b>		
A.1	Hollow core slab anchor Fischer FHY; Hilti HKH	- the size and type are specified for the transmitted loads;
A.2	Sleeved anchor (driven) e.g. Fischer EA II; Hilti HKD	
<b>B. WALLS, FLOORS, AND BEAMS OF SOLID AND RF CONCRETE</b>		
B.1	Bolt anchor e.g. MKT BZ; Fischer FAZ II; Hilti HST3	- the size and anchoring depth are specified for the transmitted loads;
B.2	Sleeved anchor (driven) e.g. Fischer EA II; Hilti HKD	
B.3	Threaded anchor e.g. Fischer FBS II; Hilti HUS HR/CR	
B.4	Chemical anchoring with threaded bars e.g. MKT VM Multi-plus; Fischer FIS SB	- DIN 976 bar min. M8, min. class 8.8 (PN-EN ISO 898-1),
<b>C. MASONRY WALLS OF CELLULAR CONCRETE UNITS (e.g. Ytong, Solbet, or Termalica)</b>		
C.1	Threaded anchor e.g. Fischer FBS II; Hilti HUS HR/CR	- the size and anchoring depth are specified for the transmitted loads,
C.2	Fischer FPX M8-I / M10-I / M12-I anchor	
C.3	Chemical anchoring with threaded bars e.g. MKT VM Multi-plus; Fischer FIS V/FIS P	- DIN 976 bar min. M8, min. class 8.8 (PN-EN ISO 898-1),
C.4	Through-and-through fastening with threaded bars	- DIN 976 bar; the size is specified for the transmitted loads, class min. 8.8 to EN ISO 898-1, - PN-EN ISO 4032 nut, min. strength class 8, - PN-EN ISO 7093 wide washer 200 HV;

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**D. SOLID MASONRY WALLS (e.g. concrete units, sand lime blocks, solid bricks) OR HOLLOW MASONRY WALLS (e.g. slotted hollow bricks, round hollow core bricks, Porotherm)**

<b>D.1</b>	Chemical anchoring with threaded bars e.g. MKT VM Multi-plus; Fischer FIS V/FIS P	- DIN 976 bar min. M8, min. class 8.8 (PN-EN ISO 898-1),
<b>D.2</b>	Threaded anchor e.g. Fischer FBS II; Hilti HUS HR/CR	- the size and anchoring depth are specified for the transmitted loads;
<b>D.3</b>	Through-and-through fastening with threaded bars	- as in C.4 with replacement of the washers, - PN-EN ISO 4079 washer, 200 HV;

**E. FIRE-PROOFED STEEL STRUCTURES AND FIRE STUD WALLS <sup>1)</sup>**

<b>E.1</b>	Steel sheet screws e.g. Hilti S-MD; Stalco WS / FD / FM; Etanco GT	- Min. St 4.8 x 25 (DIN 7504); - the size is specified for the transferred loads,
<b>E.2</b>	Threaded fastening	- PN-EN ISO 4014 / 4017 bolt; the size is specified for the transferred loads; min. strength class 8.8 to EN ISO 898-1, - PN-EN ISO 4079 washer, 200 HV; - PN-EN ISO 4032 nut, min. strength class 8,

1) – The inner steel profiles must withstand the static and dynamic loads of the fire protection curtain installation and operation.

**LIST OF ANCHORING ELEMENTS FOR GUIDE ANCHORS <sup>2)</sup>**

**F. REINFORCED CONCRETE WALLS, MASONRY OF AERATED CONCRETE BLOCKS, SOLID AND HOLLOW MASONRY**

<b>F.1</b>	Steel wall plug (frame anchor)	- M8; M10; - Min. length 72 mm;
<b>F.2</b>	Plastic frame anchor plug, Hilti HRD-CR	- Size 8, 10 - Min. length 60 mm;

2) – All hardware listed in B, C, D, and E may also be used.

**6.1 CURTAIN SHEET**

The sheet is the main part of the window curtain. When closed (unwound), it forms a sealed, integral partition with the fire resistance rating of EI60. The curtain sheet consists of three layers, with two identical outer layers approximately 1.5 mm thick, type FM1D, and the core layer approximately 6 mm thick, type MH-6. The total curtain sheet thickness is approx. 10 mm.

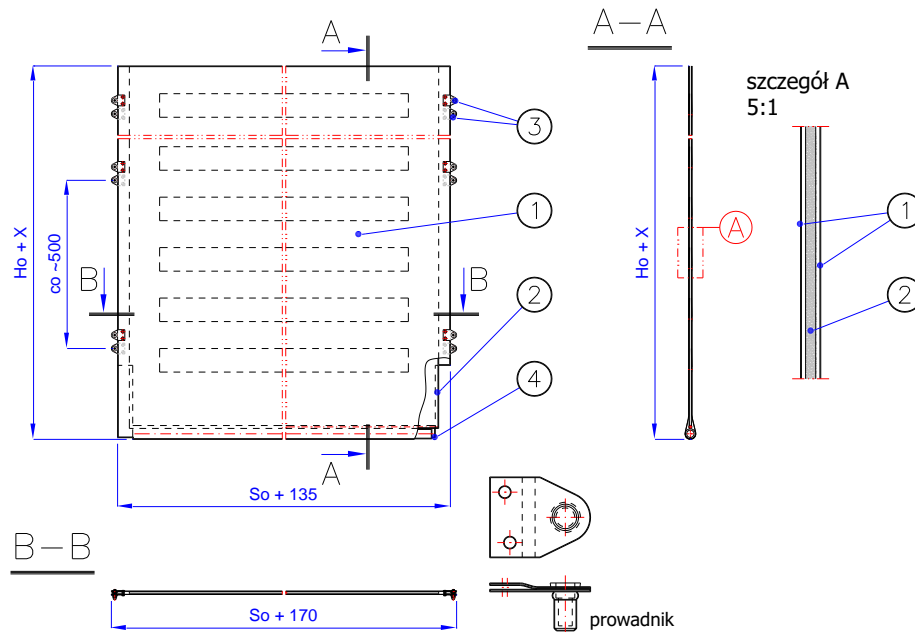
The upper edge of the sheet is fixed to the winding shaft with steel self-drilling screws. Inside the bonded materials of the curtain sheet and along the entire clear opening width, plus 35 mm from each side edge, is a counterweight unit made of a 30 mm dia. steel bar.

The vertical edges of the curtain sheet carry guideways made of M6 x 20 rivet nuts and mounting plates, which run inside of the guide rail profiles.

**Curtain sheet - parameters**

Specification	U.m.	Value	Notes
Width / height / thickness	mm	So <sup>1)</sup> + 135 / Ho <sup>2)</sup> + 525 / 10	-
Colour	-	grey, similar to RAL 7035	-
Quantity	pcs.	1	-
Total weight	kg / m <sup>2</sup>	6.5	-

1) – Door (construction partition) clear opening width; 2) – Door clear height



	detail A
	guideway
	every ~550

**Fig. 6 - MARC-Ok(st)60-01.01.00 [Curtain sheet].**

1 – Outer layer; 2 – Core layer; 3 – Guide; 4 – Counterweight bar

**Curtain sheet - list of components**

#	Designation	Qty.	Replacement / Repair			Notes
			U <sup>1)</sup>	A <sup>2)</sup>	P <sup>3)</sup>	
1	Outer layer	2	-	-	Yes	-
2	Core layer	1	-	-	Yes	-
3	Guide	2*	-	Yes	Yes	* - per side, every ~500 mm
4	Counterweight bar	1	-	Yes	Yes	-


1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

**CAUTION!** If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

**6.2 WINDING SHAFT**

The sheet is attached to the winding shaft. The shaft, rotating, causes the window curtain to close/open. It is made of steel tube with a section of 88.9 x 3.6.

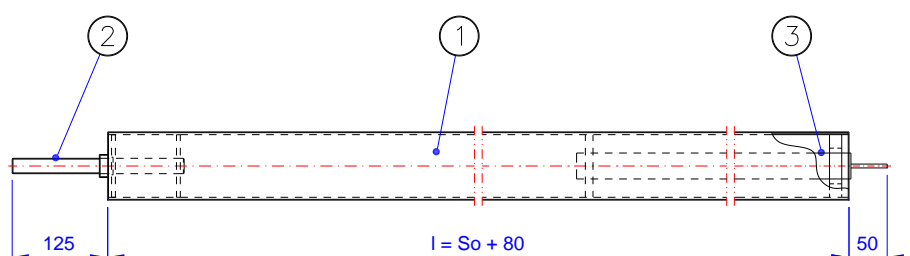
On one side, the shaft is terminated by a journal which allows the shaft to be seated in a UCF series self-aligning bearing bolted to the shaft support. On the opposite side, a spring mechanism is mounted inside the shaft. As the curtain unwinds (closes), the spring in the spring mechanism screws on, thus assisting the process of retraction of the sheet.

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### Winding shaft - parameters

Specification	U.m.	Value	Notes
Length (shaft tube)	mm	$S_o^{1)} + 80$	-
Diameter	mm	88.9	-
Quantity	pcs.	1	-
Total weight	kg/m	8.5	-

1) – Width of the door opening (opening in the building partition)



**Fig. 7 - MARC-Ok(st)60-01.02.00 [Winding shaft].**


1 - Shaft tube, 2 - Pivot, 3 - Spring mechanism

### Winding shaft: list of components

#	Designation	Qty.	Replacement / Repair			Notes
			U <sup>1)</sup>	A <sup>2)</sup>	P <sup>3)</sup>	
1	Shaft tube	1	-	Yes	Yes	-
2	Journal	1	-	-	Yes	-
3	Spring mechanism	1	-	Yes	Yes	-

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

**CAUTION!** If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

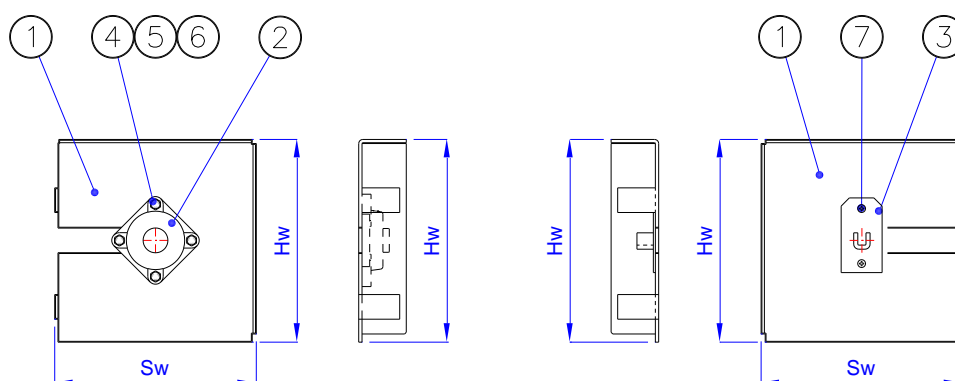
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### 6.3 SHAFT SUPPORT

Shaft supports are used to fix the winding shaft to the wall/ceiling of the building and as supports for mounting the cover assembly. The MARC-Ok(st) window curtain includes two shaft supports made from 4,0 mm thick galvanised steel sheet of , grade DX51D+Z275 to EN 10346:2015-09. A self-aligning bearing in a UCF-type cast iron housing is attached to the passive side support with washers and screws. A spring mechanism bracket is also attached to the bracket on the opposite side using screws and washers. The type of anchoring elements depends on the material / type of wall / ceiling. A summary of the anchoring elements is included in the table on page 10.

#### Shaft support specifications

Specification	U.m.	Value	Notes
Width / height	mm	250 x 250 - 300 x 300	depends on the curtain dimensions
Thickness	mm	58	-
Quantity	pcs.	2	-
Total weight	kg / pc.	2.30 – 3.15	depends on the support size




**Fig. 8 - MARC-Ok(st)60-01.03.00 [Shaft supports].**

1 - Bracket plate, 2 - Self-aligning bearing, 3 - Spring mechanism holder,  
4 - Bolt M10x30, 5 - Nut M10, 6 - Sprong washer 10.2, 7 - Bolt M5x10

#### Shaft support: list of components

#	Designation	Qty.	Replacement / Repair			Notes
			U <sup>1)</sup>	A <sup>2)</sup>	P <sup>3)</sup>	
1	Support plate	2	-	Yes	Yes	-
2	UCF self-aligning bearing	1	-	Yes	Yes	for passive side support
3	Spring mechanism handle	1	-	Yes	Yes	for active side support
4	M10 x 30 hex head bolt	4	Yes	Yes	Yes	PN-EN ISO 4017 / DIN 933, class 8.8

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5	M10 hex nut	4	Yes	Yes	Yes	PN-EN ISO 4032, class 8
6	10.2 spring washer	4	Yes	Yes	Yes	DIN 127
7	Pan head screw, M5 x 10	2	Yes	Yes	Yes	PN-EN ISO 2009, class 8.8

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

**CAUTION!** *If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.*

## 6.4 GUIDE RAIL

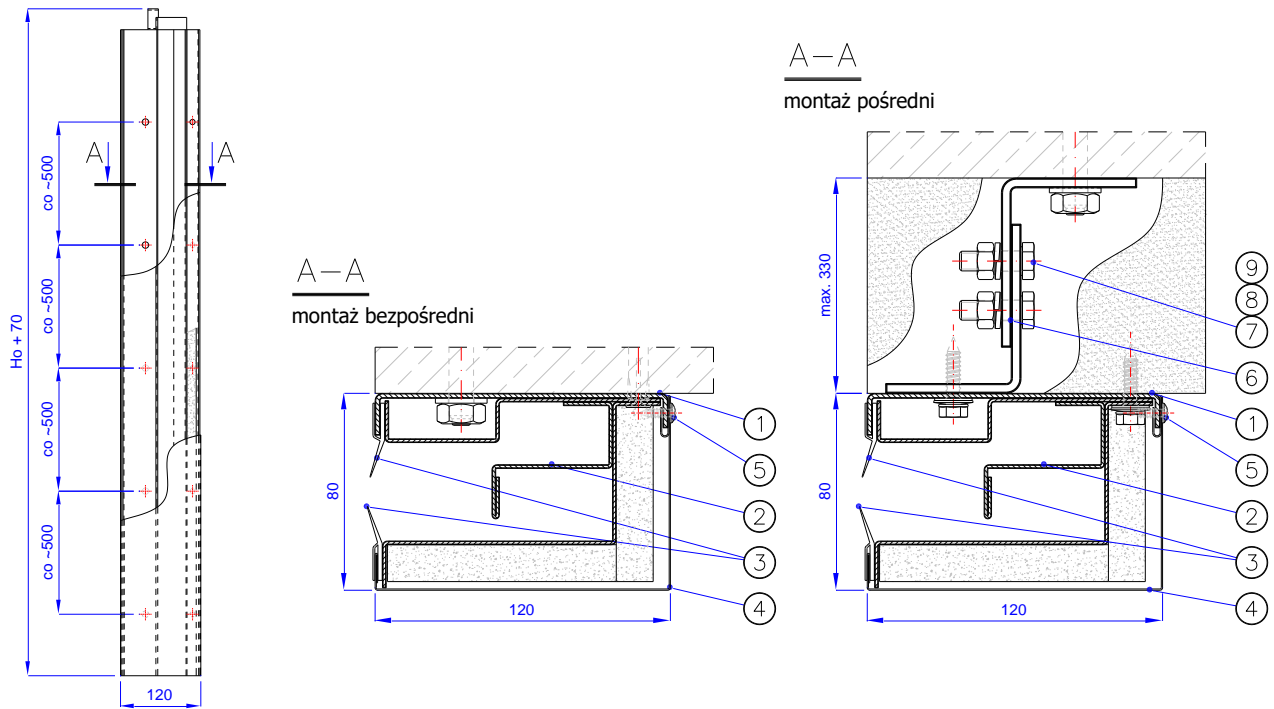
The guide rails (two pieces) guarantee the correct positioning of the window curtain in the opening. Their cross-sectional dimension is 80 x 120 mm. The wall-side and middle sections are made of a 1.5 and 2.0 mm thick galvanized steel sheet, grade DX51D+Z275 (PN-EN 10346:2015-09) protected with 10 and 20 mm thick fire protection panels. The guide rail fascia is made from 0.7 mm galvanized steel sheet. EPDM cover gaskets are fitted to the edges of the guide rail recess. The type of anchoring elements depends on the material / type of wall / ceiling. A summary of the anchoring elements is included in the table on page 10.

### Guide rail specifications

Specification	U.m.	Value	Notes
Length	mm	Ho <sup>1)</sup> + 70	-
Width / thickness	mm	120 x 80	-
Colour	-	galvanized* Any in the RAL palette on request	Standard colours: RAL 7035, 9010, 9002
Quantity	pcs.	2	-
Total weight	kg/m	11.15	-

1) – Door (partition) clear height





	every ~500
	direct installation
	intermediate installation

**Fig. 9 - MARC-Ok(st)60-01.04.00 [Guide rail]**


1 - Wall-side section, 2 - Middle section, 3 - Gasket, 4 - Grille, 5 - Self-drilling screw 4.2x19,  
6 - Spacer bracket, 7 - Bolt M10x30, 8 - Spring washer 10.2, 9 - Hexagon nut M10

**Guide rail: list of components**

#	Designation	Qty.	Replacement / Repair			Notes
			U <sup>1)</sup>	A <sup>2)</sup>	P <sup>3)</sup>	
1	Wall-side section	1	-	Yes	Yes	-
2	Middle section	1	-	Yes	Yes	-
3	Gasket	2	-	Yes	Yes	length equal to the length of the guide rail
4	Fascia	1	-	Yes	Yes	-
5	4.2 x 19 self-drilling screw	1*	-	Yes	Yes	* - every ~500 mm, DIN 7504 N
6	Spacer bracket	1*	-	Yes	Yes	* - every 1000 mm, only for indirect installation
7	M10 x 30 hex head bolt	2*	-	Yes	Yes	* - every 1000 mm, EN ISO 4017 / DIN 933, class 8.8
8	10.2 spring washer	2*	-	Yes	Yes	* - every 1000 mm; DIN 127
9	M10 hex nut	2*	-	Yes	Yes	* - every 1000 mm, EN ISO 4032, Class 8

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

**CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.**

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## 6.5 COVER ASSEMBLY

The cover assembly has an aesthetic and fire protection function, and also protects and shields the shaft together with the supports and sheet.

The cover set comprises a rear cover with sheet sliding profile, a front cover, a push bar and two side covers. All components are made of a 0.7- 1.0 mm thick galvanized steel sheet, grade DX51D+Z225 (PN-EN 10346:2015-09).

The underside of the front cover connects to a push strip, made of the same grade but 2.0 mm thick sheet metal.

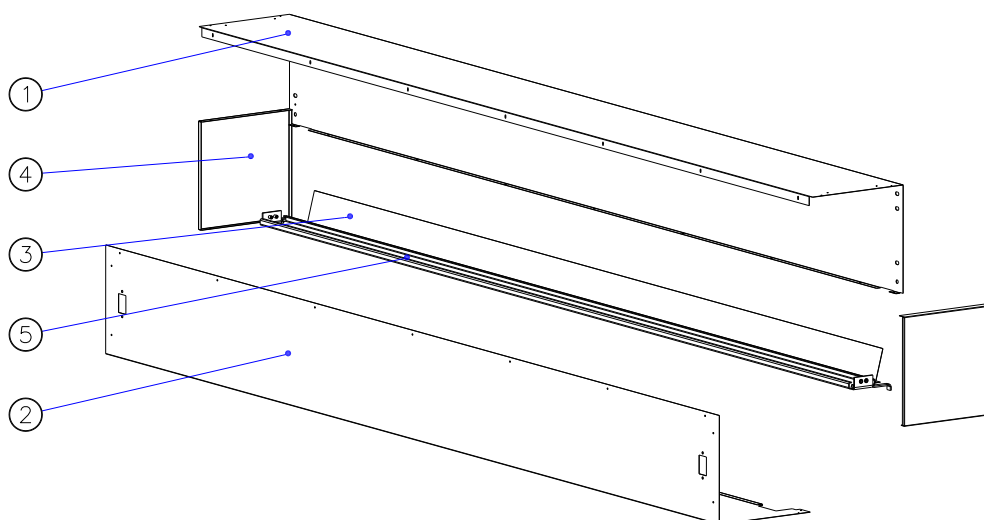
The individual components of the cover assembly are connected to each other and to the shaft supports using steel self-drilling screws or steel blind rivets.

In the case of an externally mounted curtain, an additional element is the drip cap, made of the same sheet metal as the other elements.

### Cover assembly specifications


Specification	U.m.	Value	Notes
Height / width	mm	250 x 250 - 300 x 300	Depending on the curtain size
Length	mm	So <sup>1)</sup> + 350 So <sup>1)</sup> + 240	depending on the version
Colour	-	galvanized* Any in the RAL palette on request	Standard colours: RAL 7035, 9010, 9002
Quantity	sets	1	-
Total weight	kg/m	13 - 16	Depending on the curtain size

1) – Width of the door opening (opening in the building partition)



**Fig. 10 – MARC–Ok(st)60-01.05.00 [Cover assembly]**

1 - Rear cover, 2 - Front cover, 3 - Sliding profile, 4 - Side cover, 5 - Push bar

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### Cover assembly: list of components

#	Designation	Qty.	Replacement / Repair			Notes
			U <sup>1)</sup>	A <sup>2)</sup>	P <sup>3)</sup>	
1	Rear cover	1	-	Yes	Yes	-
2	Front guard	1	-	Yes	Yes	-
3	Sliding profile	1	-	Yes	Yes	-
4	Side guard	2	-	Yes	Yes	-
5	Push bar	1	-	Yes	Yes	-

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

**CAUTION!** If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.


## 7. TROUBLESHOOTING

Every failure of the window curtain shall be reported to the manufacturer and rectified by authorized personnel strictly as instructed by the manufacturer (ref. Section 8 INSPECTION, MAINTENANCE, AND REPAIRS).

Fault type	Fault cause(s) / operating error	Remedy by operators
Curtain sheet does not unwind	Guide rails obstructed or damaged	Call the Technical Service to clear or replace the guide rails
	Structural component damage	Call the Technical Service to repair or replace the failed part(s)
	Mechanical failure of the thermal fuse release	
	Extended load profile from the curtain sheet	Insert load profile into the groove of the curtain sheet
Curtain sheet does not wind	Guide rails obstructed or damaged	Call the Technical Service to clear or replace the guide rails
	Defective spring in the spring mechanism	Call the Technical Service to repair or replace the failed part(s)
	Loose spring mechanism components	

## 8. INSPECTION, MAINTENANCE, AND REPAIRS

Due to the lack of a control system - see MSWiA Regulation of 7 June 2010. (g), inspections and maintenance are not legally required for the MARC-Ok(st) fire window curtain, however, we recommend that these are carried out whenever the user has doubts about its effective operation.

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## 8.1 REPLACEMENT PARTS

Order the replacement parts by specifying the production year of the window fire curtain, name, number and the quantity of parts.

ALL REPLACEMENT PARTS USED FOR INSPECTION, MAINTENANCE, REPAIRS, AND OVERHAULS SHALL BE GENUINE SPARE PARTS SPECIFIED BY THE MANUFACTURER IN THE LISTS OF COMPONENTS AND PARTS IN SECTION 6 TECHNICAL SPECIFICATIONS OF THIS MANUAL.

## 9. DISPOSAL


Dispose of the fire protection window curtain and all its worn out parts in compliance with applicable regulations.

When the fire protection window curtain or any of its parts reaches its end of life and requires dismantling and disposal:

- dismantle the components of the fire protection window curtain in the reverse order of installation and return the components for recycling,
- Hand over all plastic, rubber, and mineral wool parts for disposal.
- Cut and scrap the steel structure, metal sheets, profiles, bars and other hardware with all other steel parts (including anchors, plugs, and bolts).

### 9.1 CHEMICAL NOTICE

None of the fire protection window curtain components contains asbestos or coatings or elements which release any gases harmful to the ozone layer. The pigments and anti-corrosive treatment of the structure and components are free of cadmium, chromium and other air and soil aquifer layer pollutants.

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## 10. MARKING

Type MARC-Ok(st) fire protection window curtain is identified with the nameplate the specimen of which is shown below. The parameters of the delivered fire protection curtain are featured on the nameplate.




 <b>2434</b>
 <b>ASSA ABLOY</b> <b>MAŁKOWSKI-MARTECH S.A.</b> Czołowo ul. Leśna 57 62-035 Kórnik 20 <b>Declaration of Performance No.</b> ...../CPR/MARC–Ok/2020 - PL
<b>EN 16034:2014</b> <b>Fire-resistant window curtain</b> <b>MARC®-Ok EI60</b>  <b>Intended use:</b> Installation in fire partitions  <b>Fire resistance:</b> EI <sub>1</sub> 45, EI <sub>2</sub> 60, EW120  <b>Ability to release:</b> Released  <b>Self-closing rating:</b> C  <b>Ability to release durability:</b> Sustained release  <b>Self-closing durability related to degradation:</b> Use category: 1  <b>Self-closing durability related to weathering (corrosion)</b> Achieved  <b>EN 13241:2003+A2:2016</b> <b>Resistance to wind load:</b> Class ...
<b>Factory No.:..... / 20.....</b>


Fig. 11 – Example of a fire protection window curtain nameplate (in accordance with EN 16034:2014-11)

The nameplate is located at the factory on the lower shaft housing, on the right-hand side next to the guide rail.

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## 11. APPENDICES


- Warranty Certificate (SPECIMEN)
- Copy of the Declaration of Performance
- Available to the manufacturer-issued Installation Authorization Certificate holders:
  - Installation instructions for MARC-Ok(st) EI60 type fire protection window curtain;

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### PERIODIC INSPECTION AND MAINTENANCE LOG

Equipment type:	Serial number:	Year of production:
-----------------	----------------	---------------------

#	Completed servicing	Date & authorized stamp and signature	Notes
1			
2			
3			
4			
6			
7			
8			
9			
10			
11			
12			
13			
14			
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19			
20			

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## WARRANTY CERTIFICATE

Warranty issued to the Buyer / Warranty Rights Owner*:		Installation location*:		
Warranty period*:		Ref. Contract/P.O. No.*:		
#	Sold product	Additional description*:	Identification no.*:	Quantity (pcs)*:
1	Fire-resistant window curtain MARC–Ok(st) EI60	EI260		

### Article 1

#### Shipping; acceptance; pre-installation work

1. The quantity acceptance of the product is done prior to outbound shipping and at the site of MAŁKOWSKI-MARTECH S.A. (hereinafter referred to as the Guarantor). The signature of the Installer/Buyer on the Goods Issue Note provided with the sold product certifies that the product is complete and conforms with the specifications in the Goods Issue Note.
2. Before the product is assembled/installed, the Installer shall carefully verify that the product has not been damaged in transport, remains of full value, and conforms to the purchase order submitted by the Buyer. If the product is found not to be conformity with the purchase order and/or any defect is found in the product, do not proceed with the assembly and installation process; immediately notify the Guarantor.
3. If the product's defect(s) could have been reasonably found with due diligence prior to the assembly and installation process, all WARRANTY CLAIMS for the defect(s) submitted once the product is assembled and installed will be rejected without examination.

### § 2

#### General terms of warranty

1. The Warranty Rights Owner will retain its warranty rights provided that:
  - a) The sold product is assembled and installed by the Guarantor or a contractor who holds the Installation Authorization Certificate (issued by the Guarantor), and the assembly and installation process is certified with the relevant entry on the last page of this Warranty Certificate;
  - b) Periodic service inspections are ordered (pursuant to a separate service contract) for the product under this Warranty and to be performed by the Guarantor or the (manufacturer's) Service Authorization Certificate holder according to this schedule:
    - Every 6 months – when the product remains in its fully closed or open position without cyclic operation;
    - Every 3 months – when the product is operated in any way different than above and in compliance with the criteria established by the Guarantor in the service contract;
2. These warranty terms and conditions apply to the product sold by the Guarantor and purchased, assembled, and installed in the Republic of Poland.
3. The service inspections specified in Article 2(1) above are payable.
4. Within 14 days after each service inspection completed by the Service Authorization Certificate holder, the Warranty Rights Owner shall provide the copies of the service inspection certificates to the Guarantor:
  - a) by e-mail at [serwis@malkowski.pl](mailto:serwis@malkowski.pl), and
  - b) to the Guarantor's registered office address, or the warranty rights will be made void.
5. The warranty period begins on the date of certified post-assembly and installation acceptance of the product.
6. The rights granted under this Warranty do not include the right to claim damages for lost profits or compensation for any damage related to the failure of the product, except for the rights granted under this Warranty.




**§ 3****Procedure of warranty claim reporting and exercise of warranty rights**

1. The Warranty Rights Owner is required to report each defect discovered in the product, which shall be done in writing and in 14 days after the discovery.
2. Each warranty claim shall be submitted to the Guarantor in writing or be null and void.
3. The claim should include:
  - a) copy of the Warranty Card;
  - b) A detailed account of the discovered defects, its causes, and conditions in which they have emerged;
  - c) The product serial number;
  - d) Proof of completion of the periodic service inspections of the product as specified in § 2.4.
4. To ensure smooth warranty claim processing, it is recommended to attach photographic evidence of the defective product to facilitate examination.
5. The Warranty Rights Owner shall provide all conditions required for and facilitating repair of the claimed product (especially by permitting access to the product and removal from service of all equipment which can be hazardous to the personnel removing the claimed defects).
6. Failure to submit a warranty claim by the time specified in Article 3(1) will release the Guarantor from the obligation of processing the warranty claim.

**§ 4****Warranty rights**

1. In the event that the notification of a defect under the Guarantee of a claim is justified, the Guarantor shall - at his own discretion - either rectify the defects of the object of sale (make repairs) or replace the object of sale (or part thereof) with a new one.
2. The title of the replaced defective products will become property of the Guarantor.
3. If defects or failures are discovered during the warranty period and prevent use of the product, the Guarantor shall act as reasonably required to remove the defects or failures in 10 business days from the date of claim.
4. If defects or failures are discovered during the warranty period and DO NOT prevent use of the product, the Guarantor shall act as reasonably required to remove the defects or failures in 20 business days from the date of claim.
5. The time limits specified in Article 4(3) and Article 4(4) can be extended due to reasonably important causes, especially whenever:
  - a) the parts necessary for the execution of the warranty rights are not available on the market;
  - b) it is necessary to import some or all parts from abroad to process the warranty claim;
  - c) reasons beyond any control of the Guarantor arise, of which the Warranty Rights Holder will be advised.
6. Working days are understood as days from Monday to Friday, excluding holidays and public holidays.
7. If, in the performance of its obligations, the Guarantor supplies the Warranty Rights Holder with an item free of defects instead of a defective item, or has made significant repairs of an item on warranty, the warranty period for the item shall run again from the date of delivery of the item free of defects or the return of the repaired item to the Warranty Rights Holder.
8. The warranty for the replaced items shall start again from the date of delivery of the item free of defects or repaired, with respect to the replaced item.
9. The replacement of parts/items shall not result in extension of the warranty period for the whole product sold.
10. The Guarantor is entitled to charge the Warranty Rights Holder with the costs of an unreasonable warranty claim (which is unreasonable if the claimed defect does not exist or the claim features a request for remedying a defect not covered by this Warranty).
11. The costs referred to in Article 4(10) specifically include the costs of service travel to the product's site and the costs of removal of the defects, if any.
12. The costs of defect removal not covered by this Warranty will be evaluated according to the Guarantor's price list.

 <b>ASSA ABLOY</b> Czołowo, ul. Leśna 57, 62-035 Kórnik phone +48 61 222 75 00 fax +48 61 222 75 01 email: biuro@malkowski.pl, www.malkowski.pl	<b>FIRE PROTECTION WINDOW CURTAIN</b> Type: <b>MARC–Ok(st) EI60</b>	Ref. no.: <b>ISOiK_Ok-4</b>
	<b>INSTRUCTIONS FOR USE, OPERATION AND MAINTENANCE</b>	Revision: <b>04 / 2024</b>

**§ 5**

**Exclusions of rights under the Warranty**

The guarantee does not cover:

- 1.** any defects caused by anything not in the sold product;
- 2.** defects caused by any tampering with the sold product by the Warranty Rights Owner or a third party, especially alterations and modifications without prior written authorisation of the Guarantor; if the sold product is tampered with, the WARRANTY AND THE DECLARATION OF PERFORMANCE ARE VOID;
- 3.** defects caused by misuse / non-intended use of the product or failure in routine maintenance of the product, especially any use or maintenance in deviation from the manuals of the product to which this Warranty Certificate is attached;
- 4.** defects resulting from assembly or repairs performed by personnel not authorized by the Guarantor;
- 5.** the product installed on a site under this Warranty with failure to provide service inspections by the Guarantor or the Service Authorisation Certificate;
- 6.** parts of the product which are naturally worn, partially or completely, according to the properties or the intended use (these include running assembly parts, electrical batteries, etc.);
- 7.** mechanical damage of the product and the defects resulting from it;
- 8.** defects caused by defects of the structure in which the product has been installed;
- 9.** incorrect selection of the product to the conditions at the installation site;
- 10.** defective operation of the installed equipment which has not been provided by the Guarantor, and resulting in negative impact on the product. Should any of the foregoing occur, THE DECLARATION OF PERFORMANCE ISSUED FOR THE PRODUCT AND ITS WARRANTY CERTIFICATE ARE AUTOMATICALLY VOID AND NULL;
- 11.** defects resulting from the external factors, especially fire, extreme weather, and fortuitous event;
- 12.** damage caused by misuse of the product or its operation in deviation from the operating manuals, which also includes operation beyond the maximum performance limits;
- 13.** use of non-genuine spare parts, which are parts not original to the Guarantor;
- 14.** the product sold if this Warranty Certificate is redacted or defaced in any way;
- 15.** the product sold if its nameplate is removed, damaged, or modified;
- 16.** the product with its warranty seal is damaged or removed.

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Date and signature of the Guarantor’s Installation Authorisation Certificate Holder

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Authorization no. and date of issue