



FIRE PROTECTION CURTAIN DOOR

Type: MARC® - Ok EI90
INTERNAL MOTOR (TUBULAR)



USE, OPERATION AND MAINTENANCE MANUAL

Serial number:
Type:
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TABLE OF CONTENTS

Chapter/sub-chapter	page
1 INTRODUCTION	3
2 APPLICATION SCOPE AND PREREQUISITES	4
2.1 INTENDED USE.....	4
2.2 NON-INTENDED USE.....	4
2.3 OHS RECOMMENDATIONS.....	5
2.4 SERVICE PERSONNEL REQUIREMENTS.....	5
3 PACKAGING, STORAGE, AND TRANSPORT	6
4 ASSEMBLY AND INSTALLATION	6
4.1 MECHANICAL INSTALLATION.....	6
4.2 ELECTRICAL INSTALLATION.....	7
5 OPERATING PRINCIPLE OF THE ELECTRICAL ACCESSORIES KIT	7
6 TECHNICAL SPECIFICATIONS	8
6.1 CURTAIN SHEET MARC-Ok.90-01.01.00.....	11
6.2 WINDING SHAFT MARC-Ok-01.02.00.....	12
6.3 Shaft support A MARC-Ok-01.03.00 and Shaft support B MARC-Ok-01.04.00.....	13
6.4 GUIDE MARC-Ok-01.05.00.....	14
6.5 COVER ASSEMBLY MARC-Ok-01.06.00.....	16
6.6 MARC-Vic-01.00 ELECTRICAL ACCESSORIES KIT 01.00.....	17
7 TROUBLESHOOTING	18
8 INSPECTION, MAINTENANCE, AND REPAIRS	18
8.1 INSPECTION & MAINTENANCE SCHEDULE.....	18
8.2 OPERATOR'S INSPECTIONS.....	20
8.3 SERVICE INSPECTIONS & MAINTENANCE.....	20
8.4 CLEANING.....	20
8.5 REPLACEMENT PARTS.....	20
9 DISPOSAL	21
9.1 CHEMICAL NOTICE.....	21
10 MARKING	21
11 APPENDICES	22

INDEX OF FIGURES

Drawing number and name	page
Drawing 1. Fire protection curtain gate key switch.....	7
Drawing 2. Fire protection curtain gate MARC® - Ok EI90.....	9
Drawing 3. Fire protection curtain gate - built into parallel walls (corridor).....	9
Drawing 4. Fire protection curtain gate - "mixed" structure.....	10
Drawing 5. Curtain sheet MARC-Ok-01.01.00.....	11
Drawing 6. Winding shaft MARC-Ok-01.02.00.....	12
Drawing 7. Shaft support A MARC-Ok-01.03.00.....	13
Drawing 8. Shaft support B MARC-Ok-01.04.00.....	14
Drawing 9. Vertical guide rail MARC-Ok-01.05.00.....	15
Drawing 10. Cover assembly MARC-Ok-01.06.00.....	16
Drawing 11. Example view of MARC-Vic-01.00 electrical equipment set (prepared for shipping).....	17
Drawing 12. Specimen of the nameplate of the fire protection curtain gate (ref. PN-EN 16034:2014 11).....	21

1 INTRODUCTION

These instructions for the fire curtain door type: The MARC®-Ok EI90 (hereafter referred to as the appliance / fire curtain gate), with an electric internal drive for the curtain sheet unwinding/winding, is a document containing the data and instructions for the owner (user) necessary to familiarise themselves with its operation, use, operation and maintenance.

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

The use of the fire curtain gate, including its operation, maintenance, upkeep and periodic inspections and repairs should be carried out in accordance with this manual.

Keep the present 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 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 use of the product.

If the manual is lost or damaged, please contact our sales department to obtain a manual of the same version.

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 installation, adjustment, repairs, and troubleshooting of this product.

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

The fire protection curtain gate 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:
 - 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 (so called CPR),
 - Act of 16 April 2004 on construction products (Journal of Laws 2015.1165; Journal of Laws 2016.542; Journal of Laws 2016.1570),
 - Act of 07 July 1994 Construction Law (Journal of Laws 2016.290; Journal of Laws 2016.961; Journal of Laws 2016.1165; Journal of Laws 2016.1250; Journal of Laws 2016.2255),
 - Act of 30 August 2002 on the conformity system (Journal of Laws 2017.1226),
 - Regulation of the Minister of the Interior and Administration dated 7 June 2010 concerning the fire protection of buildings, structures, and land (Journal of Laws 2010.109.719),
 - PN-EN 16034:2014-11 (Standard), Pedestrian doorsets, industrial, commercial, garage doors and openable windows – Product standard, performance characteristics – Fire resisting and/or smoke control characteristics;
 - 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;
 - PN-EN 13241+A2:2016-10 (Standard) Industrial, commercial, garage doors and gates – Product standard, performance characteristics,
 - PN-EN 12635+A1:2010, Industrial, commercial and garage doors and gates – Installation and use,
- The Declaration of Performance;
- this Use, Operation and Maintenance Manual.

In accordance with EN 16034:2014-11, as well as Journal of Laws 2016.1966, appendix 1, item 2, the fire protection curtain gate belongs to the group of construction products subject to **system 1** *of assessment and verification of constancy of performance*. In accordance with the above, and the fact that the product standard PN-EN 16034:2014-11 is a harmonised standard, prior to marketing and making a construction product available on the market, the manufacturer is obliged to mark the fire protection curtain gate with the CE marking and to draw up and issue a Declaration of Performance.

CAUTION!

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

The Declaration of Performance and the Warranty Document for the fire protection curtain gate is an integral part of this Manual and shown as its Appendices, ref. Section 11 APPENDICES.

The CE marking of the fire curtain door is shown on the rating label of the delivered fire protection curtain gate, ref. Section 10 MARKINGS.

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 protection curtain gate manufacturer (www.malkowski.pl).

2 APPLICATION SCOPE AND PREREQUISITES

2.1 INTENDED USE

The fire protection curtain gate 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).

The basic version of fire protection curtain gate is intended for holding the curtain shell permanently fully closed (winded) or permanently fully open (unwind).

MARC-Ok EI90 fire protection curtain gate is manufactured in durability classes **C0** (0-499), **C1** (500-9999), **C2** (10000 – 49999) - the values in brackets indicate the number of opening/closing cycles.

The declaration of performance delivered with the gate contains the declared durability class for the gate.

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,
- 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

The fire protection curtain gate is not suitable for the application:

- in explosive atmospheres, in EX zones;
- 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);
- in the area of lightning, strong magnetic fields (above 0.1T);
- in areas subject to strong wind action above 60 km/h, occurring when the door is closed, etc;
- in areas where it may be exposed in its unwind form to rainfall.

COMMENTS, WARNINGS, RISKS

Daily use, i.e. closing (unwinding), opening (winding) the passage between the above-mentioned zones in the facilities is only permitted under the conditions specified in a separate manufacturer's declaration. This does not apply to periodic use (test alarms, fire emergencies, etc.).

Never attempt to:

- have the fire protection 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 fire protection curtain gate 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 fire protection curtain gate manufacturer;
- operate the fire protection curtain gate 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 fire protection curtain gate without the required operator's inspections, periodic service inspections, and/or maintenance done as specified in this Manual (ref. Section 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 fire protection curtain gate 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 fire protection curtain gate 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 fire protection curtain gate with its nameplate defaced or removed;
- service or repair the fire protection curtain gate when its components are in motion;
- passing / running through a closed fire protection curtain gate or while its components are in motion;
- transport (lifting/lowering) of materials and/or persons through the fire protection curtain gate;
- wash or clean the fire protection curtain gate with formulas that are corrosive and/or based on any acid or solvent, or pressure clean with any liquid (see Subsection CLEANING AND LUBRICATION).

Failure to comply with the above will result in the user forfeiting the obligations and guarantee for the fire protection curtain gate and will invalidate the CE marking on the gate together with the performance characteristics associated with this marking (see section MARKINGS, fig.12). This means that the curtain gate does not have a declared fire resistance and other features guaranteeing its safe use/application.

2.3 OHS RECOMMENDATIONS

When using the fire protection curtain gate, the generally applicable health and safety regulations, including those relating to fire requirements, must be observed and its required periodic inspections/maintenance, repairs must be carried out on time and it must not be used when it is shut down in an emergency without repairing the damage.

Follow the prevailing regulations of law for waste generation control and proper disposal during all work on the fire protection curtain gate. Special caution is required that during cleaning/washing, maintenance or repairs of the fire protection curtain gate 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.

2.4 SERVICE PERSONNEL REQUIREMENTS

The servicing of the fire protection curtain gate requires no professional license. The fire protection curtain gate should be operated by a person/operator (e.g. a maintenance person from the maintenance department) designated to do so by the user and trained by the fire protection curtain gate manufacturer's representative or his authorised team/installation company in its operation.

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.

3 PACKAGING, STORAGE, AND TRANSPORT

Depending on the sales contract/quotation provisions agreed to with the manufacturer, the fire protection curtain gate 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 gate 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 sheath is wound onto the winding shaft and placed on a pallet with mineral wool or polystyrene spacers;
- guides, covers, etc. 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,
- fire protection curtain gate 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 gate type, and the DoP reference number.

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

- the assemblies, components, and single parts of the fire protection curtain gate 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 gate 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 gate; 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 gate items.

4 ASSEMBLY AND INSTALLATION

The electrical and mechanical installation and assembly of the fire protection curtain gate shall only be done by trained personnel of the manufacturer or its authorized installation contractors.

The basic assembly/installation of the fire protection curtain gate procedure:

- 1) before attempting any work, inspect all delivery items for possible incorrect quantity and damage during transport or storage;
- 2) All connections and joints must be carefully made and assembled and re-checked for proper tightening and fit.

After the fire protection curtain gate has been assembled / installed, a check is made on the correctness of the work and operation.

The aforementioned evaluation is carried out, in the presence of a competent representative of the Purchaser, by a representative of the manufacturer (or, on behalf of the manufacturer, by a person of his authorised team/installation company), who confirms this activity by recording it in the Inspection Card (appended hereto) or in a separate protocol.

4.1 MECHANICAL INSTALLATION

The assembly/installation of the mechanical part of the fire protection curtain gate must be carried out in accordance with the assembly instructions included in the appendices to this document (see chapter "APPENDICES"), which are specialised technical documents available only to fitters with the appropriate assembly certificates issued by the curtain gate manufacturer.

CAUTION!

For proper handling, lifting, and fastening of the fire protection curtain gate 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 sales contract specifies the party required to secure the above equipment and periodic inspections/maintenance processes.

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.

4.2 ELECTRICAL INSTALLATION

The configuration of the drive and of the electrical accessories for the fire protection curtain gate depends on the purchase order specifications and their installation/assembly must conform to the engineering documentation (for the installation contractor) appended to this Manual.

The electrical installation of a fire protection curtain gate should be assembled, checked or, in the event of a fault, repaired by an electrician with the appropriate qualifications and authorisations.

The electrical wiring diagram is shown in the electrical accessories installation manual appended to this Manual (ref. Section APPENDICES).

CAUTION!

The fire protection curtain gate user shall prepare the electrical power connection at the fire protection door installation site for this product. The electrical power connection shall have compatible electrical and protection ratings to permit wiring to the fire protection curtain gate, its functional testing, and normal operation. The electrical system, supplying the fire protection curtain gate, should be equipped with a separate circuit, with a circuit breaker cutting off the power circuit protected by a padlock.

5 OPERATING PRINCIPLE OF THE ELECTRICAL ACCESSORIES KIT

The primary function of the electrical accessories (ref. Subsection ELECTRICAL ACCESSORIES KIT) is the automatic activation of the curtain sheath deployment to the floor surface level, to the so-called technically closed position as soon as a fire hazard is detected. A detailed description of the structure, installation and operation of the fire alarm and detection accessories delivered with the fire protection curtain gate is included in the electrical accessories installation manual appended to this Manual.

The above mentioned fire protection curtain gate electrical accessories kits are also equipped with rechargeable batteries, which enable the curtain sheet to be unfolded (closed) in the event of a power failure, including a minimum of one roll-up (e.g. after a false fire alarm). Carrying out service inspection or maintenance requires mains electricity.

Manual control of the curtain sheet unwinding / winding is carried out using the key switch shown below.



Drawing 1. Fire protection curtain gate key switch.

Basic signals:



-Power -> mains supply operation



-Battery -> battery operation if lit, battery damage if flashing



-Alarm -> control panel alarming state



-Failure -> failure status if lit, testing status if flashing



- Authorization (Key switch) -> Only in repeater, buttons are off until key switching

Note: *The buttons on the panel only work when the authorization key is turned.*

CAUTION!

It is possible to equip the fire protection curtain gate with a fire activation system other than those specified above (according to individual agreement specified in the contract):

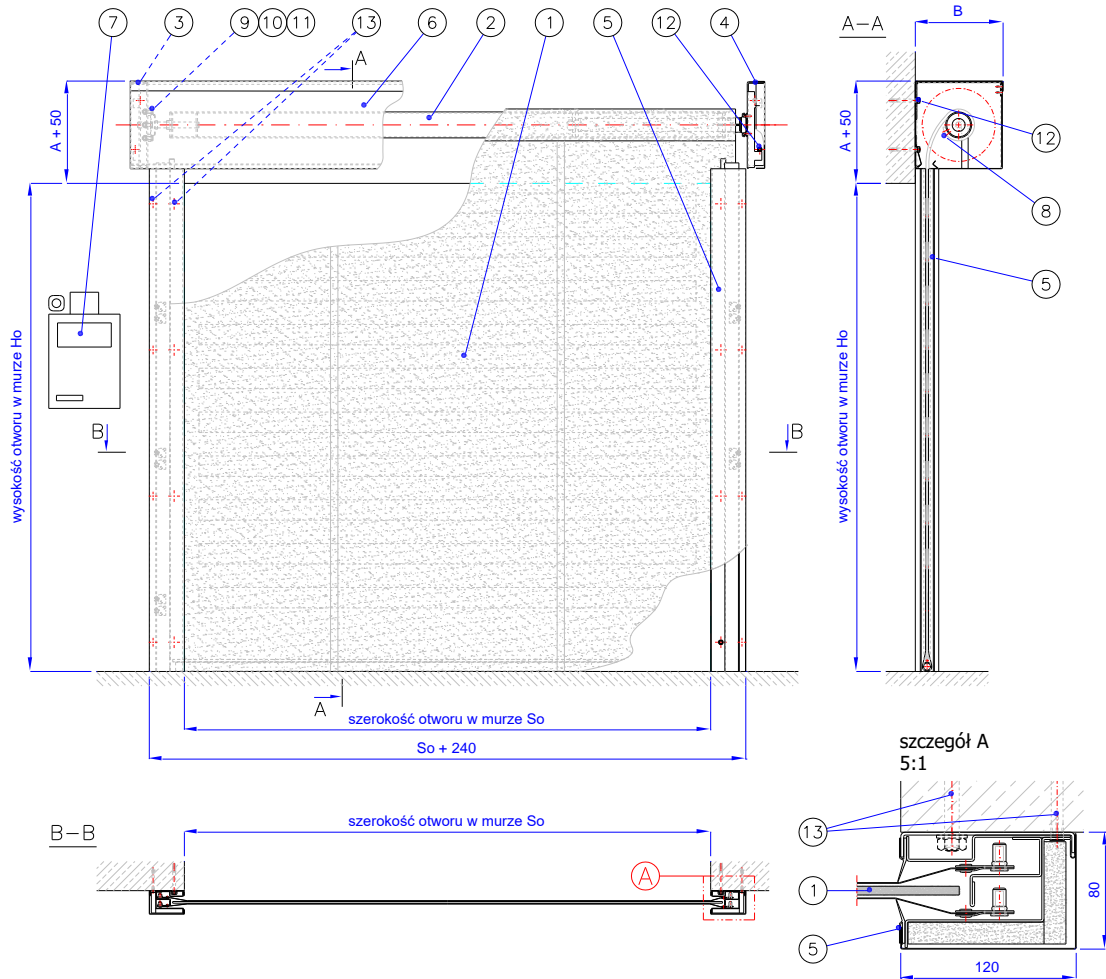
- electromagnet(s),
- fuse;

In that case, the above-mentioned method of release or lifting does not apply.

6 TECHNICAL SPECIFICATIONS

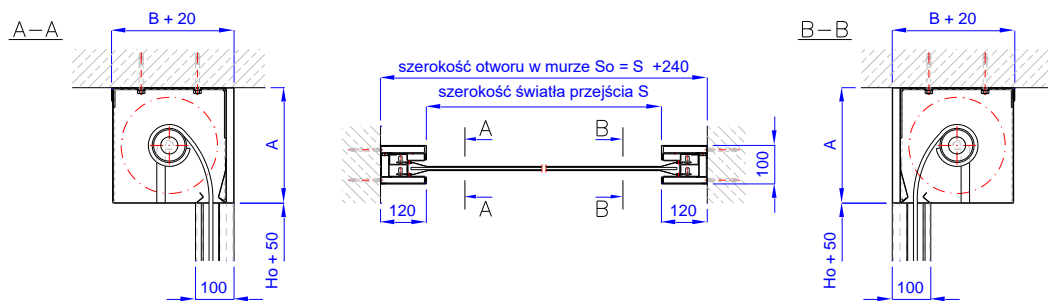
Performance table for curtain gate MARC® - Ok EI90

Description	Symbol and unit of measure	Value	Notes
Fire resistance class	-	EI160, EI290, EW120	-
Lowering/lifting speed	m / s	< 0.15	-
Operation (manual / powered)	-	-	operation exclusively by means of an electric drive (emergency manual opening possible in the case of the use of drives equipped with the system)
Electric drive	-	Yes	internal (tubular)
Power supply [voltage / current].			
- Tubular drive VIC-0403	V / A	24 DC / 2.6	depends on the curtain dimensions
- Tubular drive VIC-0423		1x230 AC / 1.05	
- Tubular drive VIC-0426		1x230 AC / 1.25	
- Tubular drive VIC-0428		1x230 AC / 3.2	
- Tubular drive VIC-0429		1x230 AC / 3.9	
- Tubular drive VIC-0430		1x230 AC / 4.4	
- Tubular drive VIC-0431		1x230 AC / 5.3	
- Tubular drive VIC-0101		24 DC / 6.3	
- Tubular drive VIC-0102		24 DC / 5.0	
- Tubular drive VIC-0103		24 DC / 6.8	
Sheet colour		-	
Colour of outer guide components, housings	-	any RAL	standard colours 9002, 7035



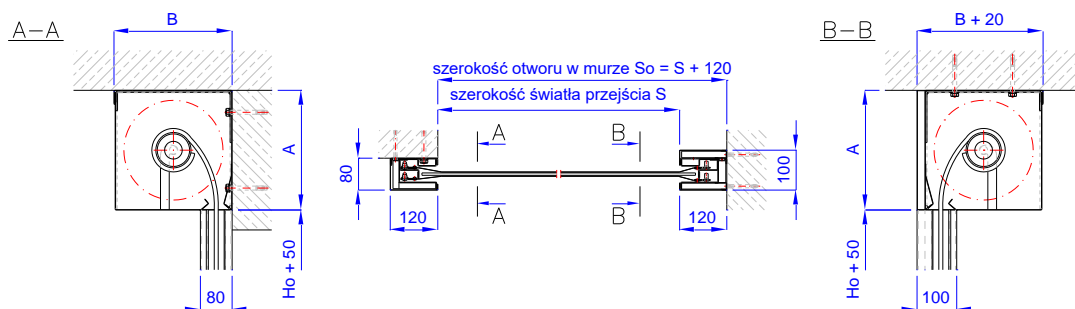
	height of opening in the wall H_o
	width of opening in the wall S_o
	detail A

Drawing 2. Fire protection curtain gate MARC® - Ok EI90



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

Drawing 3. Fire protection curtain gate - built into parallel walls (corridor)



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

**Drawing 4. Fire protection curtain gate - "mixed" structure
Assembly list, parts of MARC® - Ok EI90 fire protection curtain gate**

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Curtain sheet	1	-	-	x	-
2	Winding shaft	1	-	-	x	-
3	Shaft support A	1	-	-	x	-
4	Shaft support B	1	-	-	x	-
5	Guide rail	2	-	-	x	-
6	Cover assembly	1	-	x	x	-
7	Set of electrical accessories	1*	-	x	x	* – Depends on the PO specifications.
8	Self-drilling cylinder head screw 4.2x25	1*	-	x	x	* - DIN 7504N - every ~500mm; for attaching the sheet to the winding shaft
9	Screw M10x30 with hexagon head	4	-	x	x	PN 82105, class 8.8; for attaching shaft bracket B to electric drive flange
10	M10 washer with hexagon head	4	-	x	x	PN 82144; - for fixing the shaft bracket B to the flange of the electric drive
11	10.2 spring washer	4	-	x	x	PN 82008; - for fixing the shaft bracket B to the flange of the electric drive
12	List of elements anchoring the shaft supports to the ceiling/wall of the facility:					
	- Fischer pin anchor FAZ II 10/100 (or equivalent)	4	-	x	x	when mounted on reinforced concrete walls
	- Chemical anchor (threaded rod) with Fischer FIS VS injection mortar (or equivalent)	4	-	x	x	when mounted on solid masonry walls (concrete blocks, silicate blocks, solid bricks) and hollow masonry walls (mesh, porotherm, U and Max bricks)
	- Fischer anchor FPX-I (or equivalent)	4	-	x	x	when mounted on aerated concrete walls (ytong, solbet, siporex, suporex)
	- Hilti SM-D screws (or equivalent)	4	-	x	x	when mounted on steel structures
13	List of elements anchoring the guides to the facility wall:					
	- Fischer pin anchor FAZ II 10/100 (or equivalent)	*	-	x	x	when mounted on reinforced concrete walls, * - quantity dependent on height - every 500mm,
	- frame anchor M10x72 Koelner (or equivalent)	*	-	x	x	
	- Chemical anchor (threaded rod) with Fischer FIS VS injection mortar (or equivalent)	*	-	x	x	when mounted on solid masonry walls (concrete blocks, silicate blocks, solid bricks) and hollow masonry walls (mesh, porotherm, U and Max bricks), * - see above
	- Fischer anchor FPX-I (or equivalent)	*	-	x	x	* - when mounted on aerated concrete walls (ytong, solbet, siporex, suporex), * - see above
	- Hilti SM-D screws (or equivalent)	*	-	x	x	when mounted on steel structures, * - see above.

* - U - User, A - Authorised service provider, P - Manufacturer

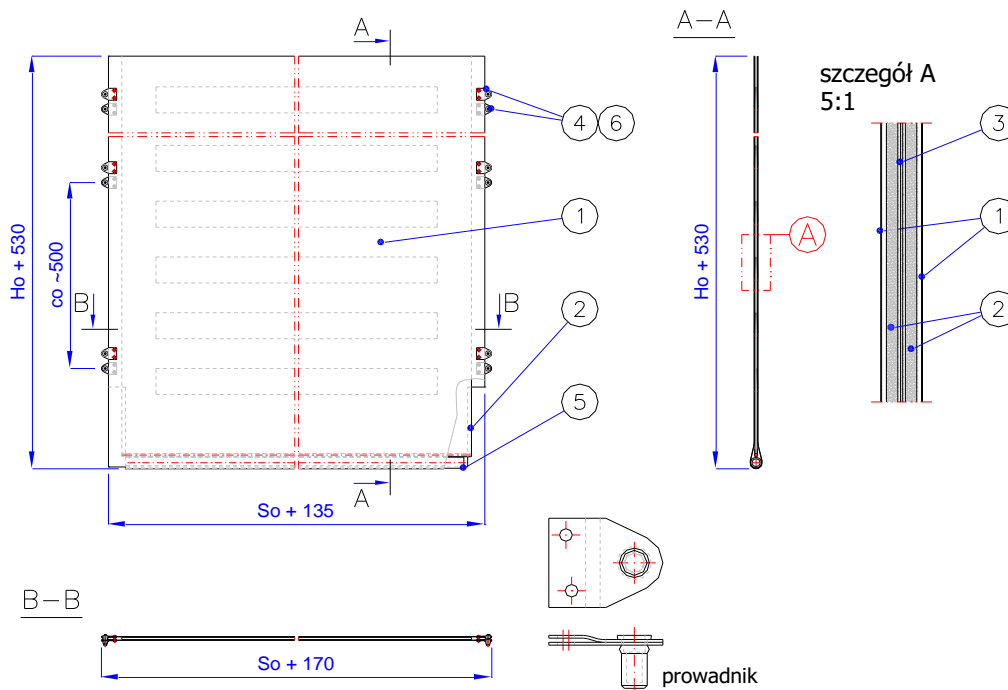
CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

6.1 CURTAIN SHEET MARC-Ok.90-01.01.00

The sheet is the main part of the fire protection curtain. When closed (unwound), it forms a sealed, integral partition with the fire resistance rating of EI₁60, EI₂90, EW120. The curtain sheet consists of five layers, two outer identical layers of approx. 1.5mm thickness type FM1D, two middle side layers of approx. 6mm thickness type MH-6 and one inner middle layer type FM2D. The total curtain sheet thickness is approx. 18 mm. The internal side layers are made on a ceramic wool base, clad on both sides with reinforced aluminium foil. The inner middle layer has horizontal stripes of the same material sewn on both sides. The upper edge of the jacket is attached to the winding shaft via a flat bar. At the other, lower edge, the outer layers are connected to each other and additionally loaded with a steel profile. Guides are attached to the side edges of the outer layers, spaced at approximately 500mm apart.

Curtain sheet parameters table MARC-Ok-01.01.00

Description	Symbol and unit of measure	Value	Notes
Total [height / width / thickness]	mm	Ho+525 / So+135 / 10	Ho / So - height / width of wall opening
Colour	-	similar to RAL 7035	-
Quantity	pcs.	1	-
Total weight	kg / m ²	8.5	-



	detail A
	guideway
	every ~550

Drawing 5. Curtain sheet MARC-Ok-01.01.00

Assembly list, curtain jacket parts MARC-Ok.90-01.01.00

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Outer sheet layer	2	-	-	x	-
2	Inner sheet side layer	2	-	-	x	-

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
3	Inner sheet layer	1	-	-	x	-
4	Guide	2*	-	x	x	* - per side approx. 500mm along the length of the sheet
5	Load profile	1	-	x	x	steel rod/pipe Ø 30mm depending on the size of the curtain
6	Steel blind rivet, 4 x 6	4*	-	x	x	PN 82105, class 8.8; DIN 7337

* - U - User, A - Authorised service provider, P - Producer

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.

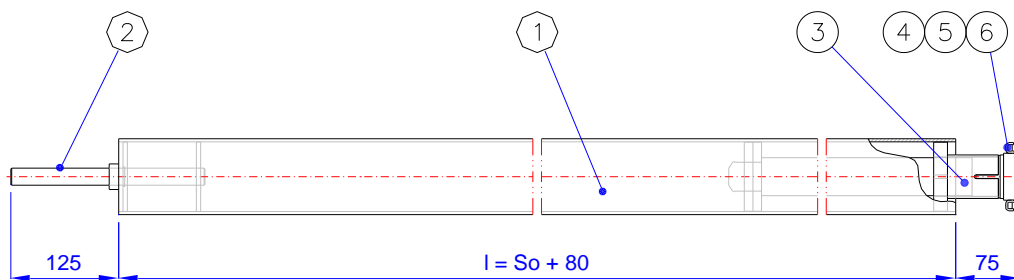
6.2 WINDING SHAFT MARC-Ok-01.02.00

The sheet is attached to the winding shaft. The shaft, rotating, causes the curtain to close/open. The shaft is made of a steel tube with a cross-section of 88.9x3.6; 127.0x4.5; 159.0x4.5; 244.5x7.1; 323.9x8.8 (depending on the dimensions of the entire curtain gate).

On one side, the shaft is terminated by a journal which allows the shaft to be seated in a UCF series self-aligning bearing. On the opposite side, depending on the drive used, the shaft has a tubular drive incorporated or is terminated by another pivot.

Winding Shaft Parameter Table MARC-Ok-01.02.00

Description	Symbol and unit of measure	Value	Notes
Shaft tube length	mm	So + 80	So - width of opening in the wall
Diameter	mm	88.9 x 3.6; 127.0 x 4.5; 159.0 x 4.5; 244.5 x 7.1 - 323.9 x 8.8	the pipe cross-section depends on the dimensions of the entire curtain
Quantity	pcs.	1	-
Total weight	kg/m	8.5 / 70	weight depends on the pipe cross-section



Drawing 6. Winding shaft MARC-Ok-01.02.00

Compilation of assemblies, parts of the winding shaft MARC-Ok-01.02.00

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Shaft tube	1	-	-	x	-
2	Pivot - passive side	1	-	-	x	-
3	Tubular electric drive	1	-	x	x	* - type depending on dimensions
4	Screw M6x16 with hexagon head	4	-	x	x	PN 82105, class 8.8
5	Washer M6 with hexagon head	4	-	x	x	PN 82144

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
6	Spring washer, 6.1	4	-	x	x	PN 82008

* - U - User, A - Authorised service provider, P - Producer

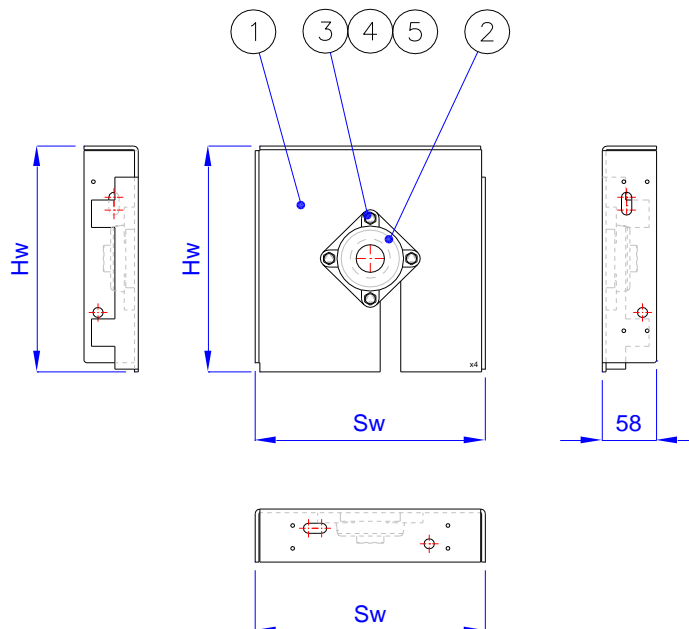
CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

6.3 Shaft support A MARC-Ok-01.03.00 and Shaft support B MARC-Ok-01.04.00

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 fire protection curtain gate consists of two shaft supports A and B (A- passive side; B- drive side) made of 4mm thick galvanised steel sheet (according to DX51D+Z225, EN 10346:2015-09). A self-aligning bearing in a UCF-type cast iron housing is attached to the A support (active side) by means of washers and screws and seated on the shaft pin of the winding shaft. Support B is fixed with washers and screws to the electric drive flange of the winding shaft. Each support is fixed at two points with anchors to the wall/ceiling of the facility. The type of anchoring elements depends on the material / type of wall / ceiling and are listed in the main table of the entire fire protection curtain gate.

Table of parameters for shaft support A MARC-Ok-01.03.00 and shaft support B MARC-Ok-01.04.00

Description	Symbol and unit of measure	Value	Notes
Height / width	Hw / Sw, mm	350 / 350 – 700 / 700	dimensions depending on the height of the curtain
Thickness	mm	58	-
Quantity	pcs.	1	-
Total weight	kg	8.6 – 16.5	depending on the support size



Drawing 7. Shaft support A MARC-Ok-01.03.00

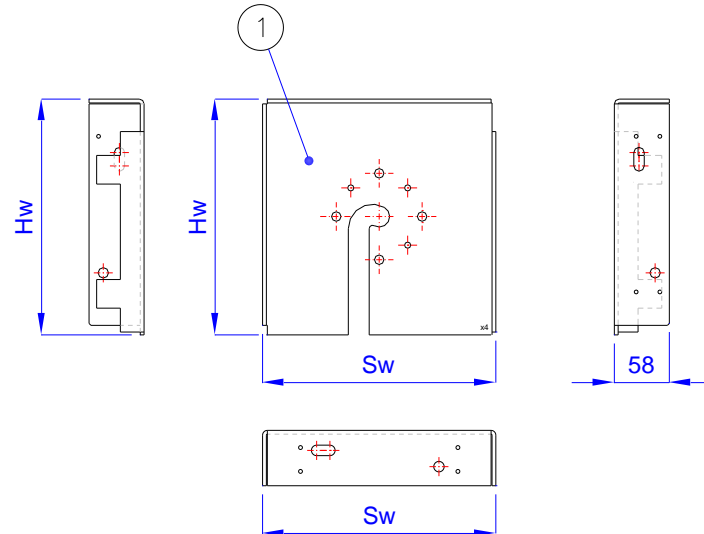
Overview of assemblies, parts of shaft support A MARC-Ok-01.03.00

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Support plate A	1	-	-	x	-
2	Self-aligning bearing in UCF series housing	1	-	x	x	-
3	Screw M10x30 with hexagon head	4	-	x	x	PN 82105, class 8.8

4	M10 washer with hexagon head	4	-	x	x	PN 82144
5	10.2 spring washer	4	-	x	x	PN 82008

* - U - User, A - Authorised service provider, P - Producer

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.



Drawing 8. Shaft support B MARC-Ok-01.04.00

Overview of assemblies, parts of shaft support B MARC-Ok-01.04.00

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Support plate B	1	-	x	x	-

* - U - User, A - Authorised service provider, P - Producer

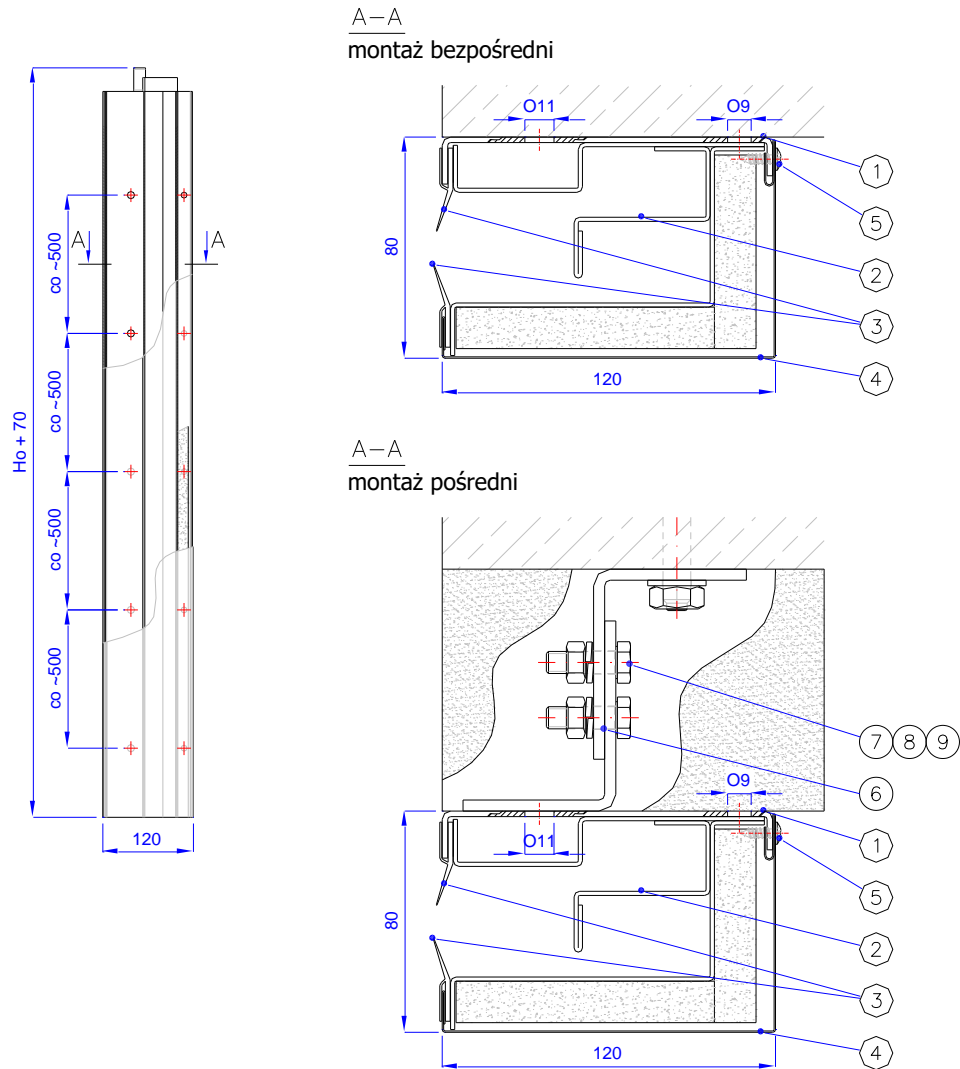
CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

6.4 GUIDE MARC-Ok-01.05.00

The guide rails guarantee the correct positioning of the curtain sheet in the opening. The fire protection curtain gate includes two guide rails. The guide rails in cross-section measure 80x120mm. The wall and centre sections are made of 1.5 and 2 mm thick galvanised steel sheet (according to DX51D+Z225, EN 10346:2015-09). The central section additionally protected with 10 and 20mm Promatect panels. The guide grille is made of 0.7 mm thick galvanised steel sheet, painted on the outside in the RAL colour of your choice. EPDM gaskets are fitted to the edges of the guide recess in which the sheet slides. The guides are fixed to the wall at 500mm intervals. The type of anchoring element depends on the type of wall.

Guide parameter table MARC-Ok-01.05.00

Description	Symbol and unit of measure	Value	Notes
Length	mm	Ho + 70	Ho - height of opening in the wall
Width / thickness	mm	120 x 80	-
Colour	-	galvanised / RAL	guide interior / grille
Quantity	pcs.	2	-
Total weight	kg/m	11.15	-



	every ~500
	direct installation
	intermediate installation

Drawing 9. Vertical guide rail MARC-Ok-01.05.00

Overview of assemblies, guide rail parts MARC-Ok-01.05.00

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Wall-side section	1	-	-	x	-
2	Middle section	1	-	-	x	-
3	Gasket	2	x	x	x	-
4	Fascia	1	x	x	x	-
5	Self-drilling cylinder head screw 4.2 x 19	1*	x	x	x	DIN 7504N, * - quantity dependent on bar length, in ~500mm increments
6	Spacer bracket	*	-	x	x	every ~500mm
7	M10x30 hexagon head screw	*	-	x	x	PN 82105
8	10.2 spring washer	*	-	x	x	PN 82008
9	M10 hex nut	*	-	x	x	PN 82144

* - U - User, A - Authorised service provider, P - Producer

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.

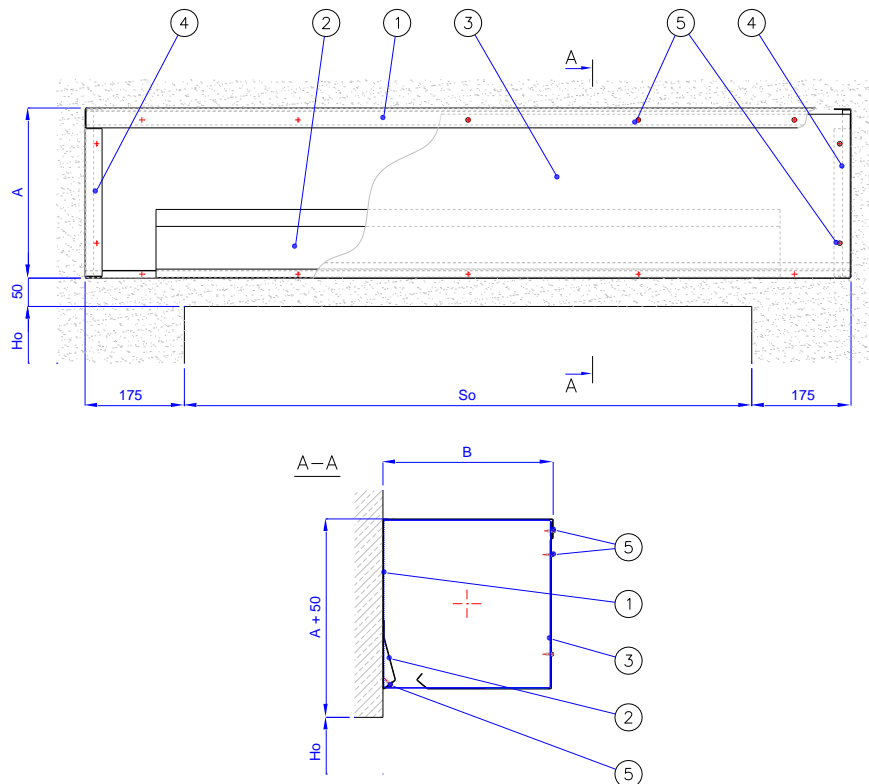
6.5 COVER ASSEMBLY MARC-Ok-01.06.00

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

The guard set includes a rear guard with a sheet slide, a front guard and two side guards. All components are made from 1.0mm thick galvanised steel sheet (according to DX51D+Z225, EN 10346:2015-09). On the outside, the covers can be painted in any RAL colour. 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.

Parameter table for guards assembly MARC-Ok-01.06.00

Description	Symbol and unit of measure	Value	Notes
Height / width	A / B, mm	325 / 350 – 675 / 700	dimensions depending on the height of the curtain
Length	mm	So + 370	So - width of opening in the wall
Colour	-	any RAL	9002 and 7035 standard
Quantity	sets	1	-
Total weight	kg/m	12.5 – 35.0	weight depending on the size of the covers set



Drawing 10. Cover assembly MARC-Ok-01.06.00

MARC-Ok-01.06.00 Assembly list, cover assembly parts

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Rear cover	1	-	x	-	-
2	Sheet slide	1	-	x	-	-
3	Front guard	1	x	x	-	-
4	Side guard	2	x	x	-	-

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
5	List of fasteners:					
	- cylinder head self-drilling screw 4.2 x 19	15*	x	x	-	DIN 7504N, * - quantity depending on sheet length, every ~500mm
	- break rivet	15*	x	x	-	Ø4x6mm, * - quantity depends on the length of the cover, in 500mm steps

* - U - User, A - Authorised service provider, P - Producer

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.

6.6 MARC-Vic-01.00 ELECTRICAL ACCESSORIES KIT 01.00

The fire detectors are part of the electrical accessory kit for monitoring the occurrence of a fire and are positioned in the building close to the installed fire protection curtain gate in accordance with the guidelines in the installation instructions for the electrical accessory kit (see section ANNEXES).

The signalling and warning element for the occurrence of a fire and/or the activation of curtain unwinding (i.e. curtain closing) is an optical/acoustic alarm. Its location is also specified in the aforementioned kit assembly instructions.

Parameter table for electrical equipment set MARC-Vic-01.00

Description	Symbol and unit of measure	Value	Notes
Drive supply voltage	V	230 VAC	-
Drive current consumption	A	1.05 – 5.30	depends on the drive type
Drive power consumption	W	240 – 1200*	depends on the drive type
Degree of protection for the drive	IP	44	-
Operation	-	automatic	automatic and manual
Noise from the optical/acoustic signalling device	dB	>100 dB (from a distance of 1m)	as specified by the signalling device manufacturer
Battery pack	V / Ah	24 / 7.0	-



Drawing 11. Example view of MARC-Vic-01.00 electrical equipment set (prepared for shipping)

Overview of assemblies, parts View of electrical equipment set MARC-Vic-01.00

Item	Designation	Qty.	Replacement / Repair			Notes
			U*	A*	P*	
1	Alarm sounder & beacon	1	-	x	-	SA type
2	Key switch	1	-	x	-	PKL type
3	Local control system (control panel)	1	-	x	-	Type CSP M-M+SN
4	Junction box	1	-	x	-	PP type
5	Fire detector, thermal	2	-	x	-	Type Cz
6	Manual call point	1	-	x	-	ROP type

* - U - User, A - Authorised service provider, P - Producer

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 fire protection gate curtain shall be reported to the manufacturer and rectified by authorized personnel strictly as instructed by the manufacturer (ref. Section INSPECTION, MAINTENANCE, AND REPAIRS).

Fault type	Causes of fault / operating error	Method of rectifying the fault by the operator
Curtain sheet does not unwind, drive motor is running	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 drive damage	
	Extended load profile from the curtain sheet	Insert load profile into the groove of the curtain sheet
Drive motor does not start	No power, power off	Check key switch positions, turn to "I" ON position
	Battery discharged	Charge the battery
	Electricity supply fuse blown	Replace the fuse
Fire detector inoperative / fails to trigger the control system	Dirty or damaged	Call the Technical Service to clean, readjust, or replace the part(s)
Fire alarm sounder/beacon fails to come on		
Local control system (control panel) indicates an error		System component failure
Manual call point does not work / has failed	MCP glass broken	Call the Technical Service to replace the part(s)

8 INSPECTION, MAINTENANCE, AND REPAIRS

8.1 INSPECTION & MAINTENANCE SCHEDULE

The fire protection curtain gate shall be inspected, maintained and repaired by personnel with sufficient qualifications and professional experience for these tasks.

The fire protection curtain gate manufacturer or its authorized installation contractors (ref. the guidelines in Section INTRODUCTION and Subsection SERVICE PERSONNEL REQUIREMENTS in this Manual) provide paid service inspections, maintenance, repairs, and troubleshooting according to the specific sales contract. This personnel have the required technical resources, spare parts, and qualifications.

Send your written service requests for these tasks to the MAŁKOWSKI-MARTECH S.A. Technical Service

(serwis@malkowski.pl or fax: + 48 61 22 27 501). The Technical Service contact details are also on the manufacturer's official website and in the Warranty Certificate.

The inspections and maintenance must be done in compliance with this Manual (ref. the guidelines in the schedule tables below) to ensure correct and safe operation; they are prerequisite to maintain the declared performance of the overhead fire door and during the warranty period, otherwise the warranty rights and liability will be made void.

Inspection type	Frequency*	Ownership
Pre-operation inspection	Before each use (does not apply to fire situations)	Operator
Monthly inspection	Every 1 month	
Service inspection and maintenance	Every 6 months	Authorized technical service

S – Check, inspect, clean; X – Adjust and lubricate

INSPECTION & MAINTENANCE SCHEDULE

Assembly / component	Tasks required	Before each use*	Every 1 month*	Every 6 months*
Whole product				
Product structure	Check the painted surfaces (for dirt, etc.) and clean as required.		S	S
	Check that no part is missing and there is no evidence of damage of failure from operation.	S	S	S
	Check the product's identification markings (the nameplate must be present and legible).		S	S
Curtain sheet	Check for dirt, damage, etc.; clean as required.	S	S	S
	Check the position and attachment of the load profile		S	S
Brackets, guards, fascias	Check the fasteners and their condition			S
Curtain winding up / winding down system				
Guide rails	Check the fasteners and their condition; look for obstructions			S
Intumescent seals	Check the fasteners and their condition, lubricate as needed ¹			S
	Check for damage, cracks		S	S
Electrical system / controls				
All electrical accessories	Trigger the sensors/detectors to test for proper operation of the accessories kit; readjust as required.			SX
Fire detector	Check the condition and clean the component; readjust as required.			SX
Manual call point	Check the condition and test the operation.			S
Switchboard	Test the operation of all control panel components.			S
	Check for error displays.	S	S	S
Key switch	Check the condition and test the operation.		S	S
Electric drive motor	Check the condition and test the operation (the component must room smoothly and without stuttering, audible noise, and evident vibration).		S	S
Battery pack	Inspect the terminals and wiring; clean and lubricate as required ²		S	SX
	Check the battery acid level and state of charge; refill with battery acid and recharge as required.		S	S
Electrical wiring system ³	Inspect the fastening and condition of fittings and cable trays.		S	S
	Check condition of fuses in terms of connection, burns, etc., replace if necessary			SX

Worn parts of the fire protection curtain gate and damaged parts must be replaced with new parts. Maintain and repair with genuine components and parts which are approved by the fire protection door manufacturer.

Each inspection, maintenance, and repair shall be completed and certified by the authorized personnel according to the scheduled scope in the Periodic Inspection and Maintenance Log (appended to this Manual in section – APPENDICES) or in a separate certificate.

¹ Technical petroleum jelly is recommended.

² Technical petroleum jelly is recommended.

³ Power wiring insulation resistance tests and wiring continuity tests are to be done at least every 5 years.

The fire protection curtain gate user shall retain all records of inspections, maintenance, repairs, and overhauls.

8.2 OPERATOR'S INSPECTIONS

The operator's inspections shall be done by the operator assigned by the product's user and trained by the fire protection curtain gate manufacturer or its authorized installation contractor (ref. also the guidelines in Section 2.4 SERVICE PERSONNEL REQUIREMENTS and Section 8.1 INSPECTION & MAINTENANCE SCHEDULE).

Wear basic PPE (personal protection equipment) e.g. rubber gloves etc. during each inspection service.

If the fire protection curtain gate fails, is damaged, or found to operate incorrectly, notify the site supervisors and the manufacturer or its authorized installation contractor.

8.3 SERVICE INSPECTIONS & MAINTENANCE

The technical services of the manufacturer are provided by qualified and professionally experienced service technicians of the MALKOWSKI - MARTECH S.A. company or its contractors who are authorized for servicing the fire protection door.

To verify for the buyer that the service is provided by a fully professional/authorized contractor or technician, the latter should hold and present their **Installation Authorization Certificate**, while the service technicians should hold and present their **Site Authorized Service Certificate** issued by the fire protection door manufacturer, i.e. MALKOWSKI - MARTECH S.A.

In the Lists of Components and Parts (ref. Section TECHNICAL SPECIFICATIONS of this Manual), the fire protection curtain gate manufacturer specifies the ownership and right of repair/replacement of components, assemblies, and parts; failure in compliance to these specifications will void the product warranty and declaration of performance.

CAUTION!

In accordance with the Regulation (Dz.U. of 2010, No. 109, item 719, as amended) Article 3(2), "Fire protection equipment (...) shall be technically inspected and maintained in compliance with the procedures and methods established in the Polish Standards [PN] concerning fire protection equipment and fire extinguishers, the equipment's operating and maintenance manuals, and the user manuals issued by the respective equipment manufacturers." and Article 3(3) "Technical inspections and maintenance activities should be carried out at intervals determined by the manufacturer, but not less frequently than once a year."

The service inspections, maintenance, repairs, and overhaul of the fire protection door shall only be done by trained personnel of the manufacturer or its authorized service contractor.

The fire protection door user or the personnel or contractor it has authorized is liable for collection and retention of documented proof that the service inspections and maintenance are carried out at least every six months, unless specified otherwise in the sale contract (or special requirements/site conditions of the user require other frequency of the service inspections and maintenance).

8.4 CLEANING

The operating personnel is required to keep the work place and the fire protection curtain gate clean. Clean with commercially available household cleaning products, e.g. dishwashing liquids.

Do not use any aggressive cleaners or organic solvents, or pressure washing methods (with water or other liquids). If the curtain fire gate is contaminated with insoluble substances, remove them mechanically without damage to the paint coat or scratching the product's surfaces.

8.5 REPLACEMENT PARTS

Order the replacement parts by specifying the production year of the fire door, 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 TECHNICAL SPECIFICATIONS OF THIS MANUAL.

9 DISPOSAL

Dispose of the fire protection door and all its worn out parts in compliance with applicable regulations. When the fire protection door or any of its parts reaches its end of life and requires dismantling and disposal:

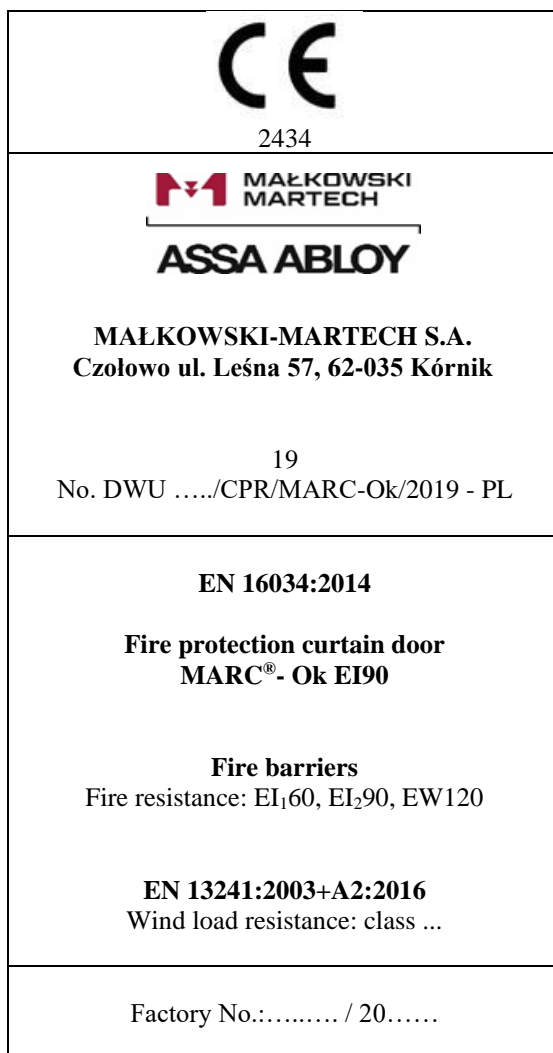
- Remove the door components and electrical system by performing the assembly and installation in the reverse order, and follow by handing over the parts (like the electric motor) for waste recovery.
- Hand over all plastic, rubber, and mineral wool parts for disposal.
- Cut and scrap the steel structure, 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 door 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.

10 MARKING

Fire protection curtain gate is identified with the nameplate the specimen of which is shown below. The parameters of the delivered fire protection curtain gate are featured on the nameplate.



**Drawing 12. Specimen of the nameplate of the fire protection curtain gate
(ref. PN-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.

11 APPENDICES

- Periodic Inspection and Maintenance Log
- Warranty certificate,
- Copy of the Declaration of Performance
- Available to the manufacturer-issued Installation Authorization Certificate holders:
 - Assembly instructions for the MARC-Vic-01.00 electrical accessory kit,
 - Installation instructions for the fire protection curtain gate MARC[®] - Ok EI90;

Instructions for use, operation and maintenance
Curtain gate MARC®- Ok EI90

PERIODIC INSPECTION AND MAINTENANCE LOG

Equipment type:		Serial number:		Year of production:	
#	Completed servicing	Date & authorized stamp and signature	Notes		

Instructions for use, operation and maintenance
Curtain gate MARC®- Ok EI90

WARRANTY CERTIFICATE

Warranty issued to the Buyer / Warranty Rights Owner*:		Installation location*:			
Warranty period*:		Ref. Contract/P.O. No.*:			
Item	Sold product	Additional description*:		Identification no.*:	Quantity (pcs)*:
1	Fire protection curtain door MARC®- Ok EI90	EI90			
2	Local control system (control panel)	CSP M-M+SN			
3	Fire detector, thermal	Cz			
4	Manual call point	ROP			
5	Alarm sounder & beacon	SA			

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, 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;

* fill in the boxes indicated

WARRANTY CERTIFICATE

- 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.

§ 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.);

WARRANTY CERTIFICATE

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.

.....
Date and signature of the Guarantor's Installation Authorisation Certificate Holder

.....
Authorization no. and date of issue