

TECHNICAL MANUAL

SGS GGS

FOR FIRE RESISTANT SHUTTERS SOMATI (Description, usage and maintenance)

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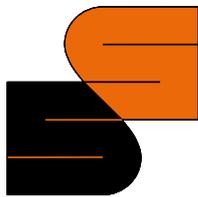
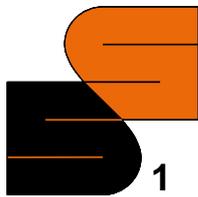


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1 INTRODUCTION TO FIRE RESISTANT DOORS PRODUCED BY COMPANY SOMATI

The fire resistant door is the partitioning structure preventing from the spread of fire outside the fire compartments able to resist the effects of fire for a specified period of time. Fire resistance is the period of time for which the door is able to resist the effects of fire without damages to its function specified by the limit states of fire resistance. With respect to their functions, ČSN EN 1634-1 73 0852 covers the doors of type EI or EW for which the following limit states are applied: E – compactness, I – insulation, W – radiation.

Fire resistant sliding doors produced by SOMATI may be supplied in the following design and are produced custom-made according to the dimensional requirements of clients.

Design		
fire resistance	silicate D2 (option with metal top layer)	steel D1
	EW, EI 30 D2 EW, EI 60 D2 EW, EI 90 D2	EI 30-120 DP1-C3 EW 30-180 DP1-C3
type of doors	<ul style="list-style-type: none"> - single-wing horizontal sliding - double-wing horizontal sliding - single-wing vertical sliding - sliding multi-component compartment 	<ul style="list-style-type: none"> - single-wing horizontal sliding - double-wing horizontal sliding - single-wing and double-wing horizontal sliding with through hole - single-wing vertical sliding
control of doors	<ul style="list-style-type: none"> - system of melting bullet with the counter weight in case of fire (manual opening and closing) - electromagnetic armature system (manual opening, closing by signal EPS or by means of button) - electromagnetic brake system (manual opening, closing by signal EPS or by means of button, possibility of regulation of speed of closing and the catch of the wing in any position) - electromotive drive 	

The manual provides with the description of the fire resistant doors, their operating and maintenance. The manual includes the following:

- technical specification
- principles of maintenance and repairs
- schematic drawings
- list of structural components

All the instructions given in the manual apply only to the fire resistant doors SOMATI. Before the commencement of any maintenance or repair, read the technical manual carefully.

Switch off the main supply line of electrical energy before any work being performed on the supplied equipment and check that no person may switch on the main supply line without letting you know.





In order to ensure the correct function of the fire resistant door it is necessary to provide for **the area free from any obstructions and for cleanness under the door wing** along whole length of door so that its mechanical blocking is prevented.

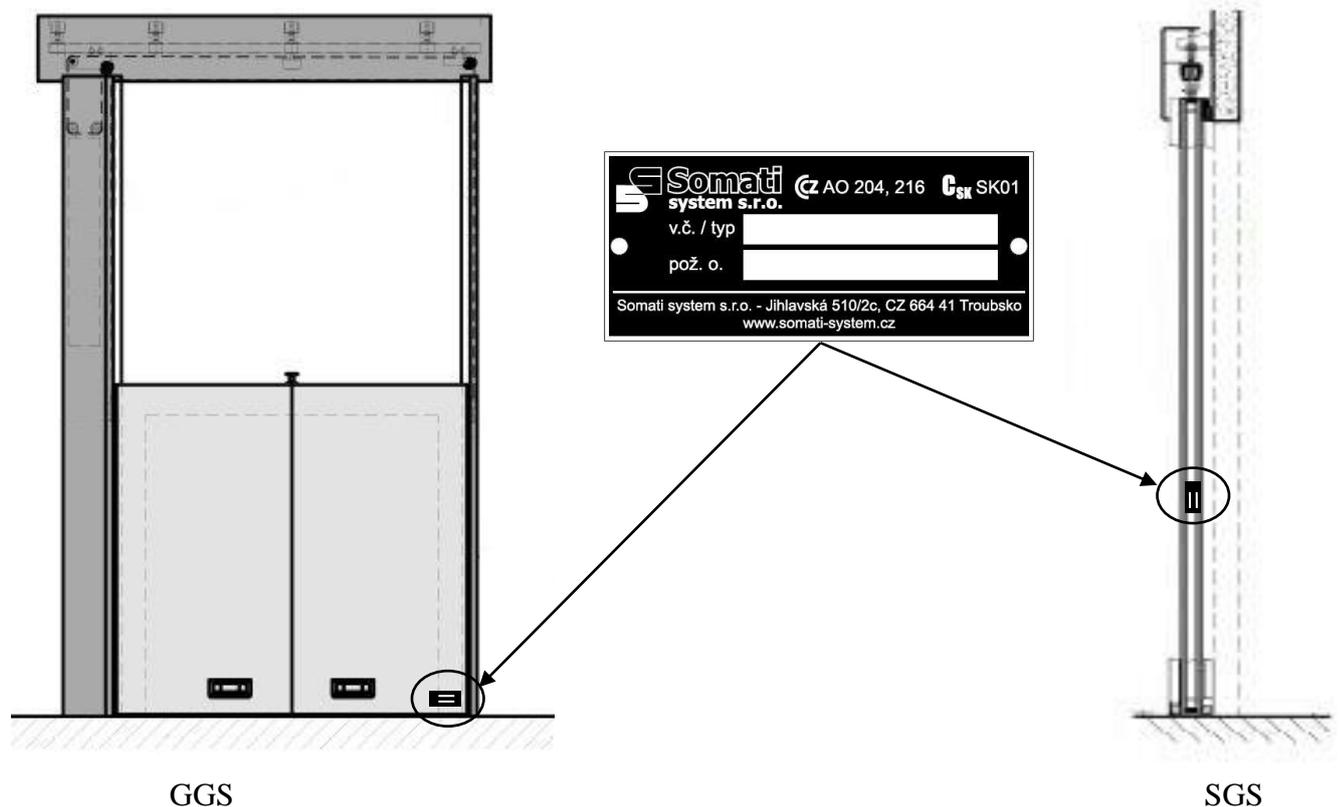
1.1 Technical Manual

The manual has been completed in the program Microsoft Word version 97.
Drawings and schemes have been made in the program AUTOCAD version 2000.

1.2 Identification Plates

Each wing of the fire resistant door is marked by metal plate containing the information on producer, fire resistance and serial number of the fire resistant door. Always present the above-mentioned basic data when communicating with the producer.

The identification plate is riveted on sliding doors SGS on the rear labyrinth of the wing at the height 1 400 mm from the floor (for two wings – on the both wing, the same telescopic doors) and gilotine door GGS from the upper side to the lower right corner of the door leaf.





1.3 Information on Wastes

List of used components and materials and their classification.

Fire resistant plates PROMATECT H	Building waste
Mineral felt liner ROCKWOOL	Building waste
Steel light-gauge section	Recyclable metal material
Whole timber	Organic waste
Steel sheet and steel sheet section	Recyclable metal material
In tumescent material PALUSOL	Building waste
Sliding mechanism and its parts	Recyclable metal material
Steel rope	Recyclable metal material
Electromagnetic armature	Recyclable metal material
Electromagnetic brake	Recyclable metal material
Control panel	Electronic waste
Detectors (optical-smoke)	Electronic waste
Ionisation fire detector	Content of radioactive materials. Ask your safety engineer for instructions
Detectors caps	Electronic waste





2 FUNCTION OF FIRE RESISTANT DOOR

The fire resistant sliding door is designed for the partitioning of manufacturing, storage and other halls and premises of buildings into the separate fire compartments. The wing is run by means of the bearing travels in the rail – steel C-section and in the bottom part by means of the bearing travels anchored in the floor on both sides of the construction hole. The rubber stops are installed in the end-of-travel positions both in the rail and on the floor.

2.1 Brief description of Product

Design					
Leaf	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 50%; text-align: center;">silicate D2 (option with metal top layer)</th> <th style="width: 50%; text-align: center;">steel D1</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <p>It is formed by the segments made from the wood massive frame covered with the silicate fire resistant lining PROMAT. In case of steel design D2, the wing is jacketed in addition by zinc-coated steel sheet with thickness of 1mm. All the edges are protected by the steel sections. The individual segments of wing are interconnected by the attachment bolts or steel hinges.</p> </td> <td style="vertical-align: top;"> <p>It is formed by the segments made from the steel light-gauge sections with the interrupted thermal bridge covered with the steel sheet with thickness of 1mm. The edges are stripped with the steel sheet sections. The individual segments are interconnected by Allen head screws.</p> </td> </tr> </tbody> </table>	silicate D2 (option with metal top layer)	steel D1	<p>It is formed by the segments made from the wood massive frame covered with the silicate fire resistant lining PROMAT. In case of steel design D2, the wing is jacketed in addition by zinc-coated steel sheet with thickness of 1mm. All the edges are protected by the steel sections. The individual segments of wing are interconnected by the attachment bolts or steel hinges.</p>	<p>It is formed by the segments made from the steel light-gauge sections with the interrupted thermal bridge covered with the steel sheet with thickness of 1mm. The edges are stripped with the steel sheet sections. The individual segments are interconnected by Allen head screws.</p>
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Rail system	<p>It is formed by the steel hollow C-section that is anchored by means of the suspension brackets in the pitch of ca 600mm into the over-threshold. The method of anchoring is specified by the type of over-threshold. The rail is adjustable in all the directions. The quality coupled bearing cars provide for easy and maintenance-free service of the fire-resistant door.</p>				
Fittings	<p>The flush-mounted grab handle on the side of door jamb and massive pipe grab handle on the reverse side for easy handling.</p>				
Insulation lining	<table border="1" style="width: 100%;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <p>It strips the construction hole and consists of the steel sheet section and in tumescent material. In order to eliminate unevenness on the construction hole, the glass fibre felt is put under.</p> </td> <td style="width: 50%; vertical-align: top;"> <p>It strips the construction hole and consists of special steel labyrinth section with in tumescent material.</p> </td> </tr> </tbody> </table>	<p>It strips the construction hole and consists of the steel sheet section and in tumescent material. In order to eliminate unevenness on the construction hole, the glass fibre felt is put under.</p>	<p>It strips the construction hole and consists of special steel labyrinth section with in tumescent material.</p>		
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Surface finish	<p>It is performed in the required type and colour shade after the installation of door. For smaller dimensions (up to 3000x3000 mm) it is possible to perform the surface finish by powder baked-on coating according to the pattern chart RAL.</p>				
Control of doors	<ul style="list-style-type: none"> - system of melting bullet with the counter weight for the event of fire (manual opening and closing) - electromagnetic armature system (manual opening, closing by means of signal EPS or by means of button) - electromagnetic brake system (manual opening, closing by signal EPS or by means of button, possibility of regulation of speed of closing and the catch of the wing in any position) - electromotive drive 				





2.2 Fire Resistant Door Control

2.2.1 System of melting bullet.

In case of fire, the melting bullet installed on the loop of counter weight is over-melted and closed the wing of the fire resistant door. At normal operation, the wing is opened manually and closed by means of the flush-mounted grab handles.

2.2.2 Electromagnetic armature system.

In case of fire, the central detection panel of electric fire-alarm device or the local fire detectors will send out the signal into the control panel which will release the electromagnetic armature which holds the wing of the fire resistant door which is closed by means of the counter weight. At the reactivation of system, it is necessary to RESET the control panel (figure 1) by means of the button. If the standby power unit is not installed, the closing is performed also in case of power failure. At normal operation, the wing is opened manually by means of flush-mounted grab handles and closes by pressing the built-in button (figure 1) on the control panel. Closing the door and its anchoring to the electromagnetic armature should be done with care in order to prevent from mechanical damages to magnet and its anchoring – at reaching the end-of-travel position (max. opening) it is necessary to reduce the speed of travel (minimisation of impact on the electromagnetic armature).

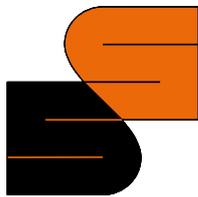
2.2.3 Electromagnetic brake system.

In case of fire, the central detection panel of electric fire-alarm device or the local fire detectors will send out the signal into the control panel which will release the electromagnetic brake which holds the wing of the fire resistant door which is closed by means of the counter weight. At the revitalising of system, it is necessary to RESET the control panel (figure 2) by switching off and on the change-over switch (switch over the position „doors are still“ into „doors are closing“ and back). If the standby power unit is not installed, the closing is performed also in case of power failure. At normal operation, the wing is opened manually by means of flush-mounted grab handles and closes by switch over the built-in change-over switch into the position „doors are closing“ (figure 2) on the control panel. For the position open and closing of door the change-over switch must be in the position „doors are still“. The advantage of the system is that it allows for the catch of wing in any position as well as the control of speed of closing (see point 4.2.2).

2.2.4 Electromotive drive.

The automatic closing is performed by means of the signal EPS or by the local fire detector. In case of power failure, the control is supplied by secondary power supply UPS. The double-end button controllers (figure 3), including the optical bar, signal light and sound alarm.





2.3 List of Structural Components

Pos. No.	Description	Identification
01	Rail	Mention 9030, Mention 9040, Mention 9050, Mention 9060
02	Rails hangers	Support 9031L, Support 9041L, Support 9051L, Support 9061L
03	Rail coupling	Man chon 9031M, Man chon 9041M, Man chon 9051 M, Man chon 9061 M
04	Anchoring bracket	Support 9046, Support 9056
05	Metal floor line	ROB 149.220
06	Nylon floor line	3395/03
06	End-of-travel rail stoppers	9139, 9149, 9159, 9169
07	End floor stoppers	
08	Cable pulley	006210
09	Pipe metal grab handle	005080
10	Flush-mounted grab handle	008420
11	Carrier with spring tensioned	
12	Melting bullet	
13	Electromagnetic armature	ART1360
14	Electromagnetic brake	LINNIG 3.3.1
14	Control panel	EP 141
15	Electromotive drive	

3 REMOVAL OF ROUTINE FAULTS

This chapter describes the possible faults and their removal. The most frequent causes of the spontaneous closing or false alarm are the following:

- real fire alarm
- closing due to smoke occurrence (due to smoking, exhaust fumes, etc.)
- closing due to damage to the electromagnetic armature or electromagnetic brake
- power failure
- closing due to defective fire detection system (e.g. defective fire detector)
- mechanical blocking of wing, foreign matter on floor, settling of structure or other obstructions bring forth non-closing, i.e. the failure of the primary function of door

Reactivation of the system after false alarm.

- incoming alarm signal is deactivated
- RESET of the control panel by means of the button (for the electromagnetic armature system) or by switching over and switching on the change-over switch (for the electromagnetic brake system)
- removal of all obstructions
- opening of wing





In case of detection of fault not described hereinbefore contact us on the address:

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4 MAINTENANCE INSTRUCTIONS

The fire resistant door is the equipment the correct function of which is the basic condition for the separation of the fire compartments in case of fire. Regular inspection and maintenance of the equipment is therefore the integral part of the fire prevention and it is performed by the producer pursuant to the concluded service contract or other duly authorised and trained person.

4.1 General Recommendations

Maintenance includes especially:

- checking of correct function of opening and closing of the fire resistant door
- free area and cleanness in the along the whole length of doors so that the mechanical blocking of door is prevented
- maintenance of opening devices and travels (**Important: DO NOT LUBRICATE !!! with lubricant grease**)
- check and adjustment of distance space
- detection of the extent of damage to the door wings and replacement of defective parts

4.2 Specification of Equipment

4.2.1 Electromagnetic armature system:

Inspection of anchoring of the electromagnet, its fastening if required; notify the operating personnel of the necessity to be careful at the anchoring of the wing to the magnet. Possible increase in temperature of electromagnet is not harmful.

4.2.2 Electromagnetic brake system:

Supplied regulator of speed (electromagnetic brake, see figure 7a,b) allows for the continuous control of speed and in addition it maintains the constant speed of closing. Another advantage of the electromagnetic brake system is also the possibility of the catch of the wing in any position.

Speed of closing is set up as standard by the assembly workers of the company SOMATI. It may however be adjusted according to the request of user by turning the cover of the electromagnet. It is necessary to unlock lightly the spring release so that it is not damaged, afterwards, it is possible to rotate the cover to both sides. By loosening the cover the speed of doors closing is increased, by tightening it the speed is decreased. The speed must be selected so that the doors are not damaged and health of persons is not endangered.





4.2.3 Electromotive drive master:

Electric control panel (400x500x200mm) is backed up by the system of APC BACK UPS 500MI. Programmable control system PLC Direct 205 provides all the necessary functions. The end-of-travel positions of the fire resistant door are indicated by the sensors and the area of the travel of the fire resistant door is secured by the photoelectric sensor.

Supply cable: CYKY 3C x 1,5
Distribution system: 1-NPE-50Hz-230V (TN-C-S)
Operating voltage: 3x230V/10-50Hz
Control voltage: 12-24V/DC
Protection: IP 54
Environment: according to ČSN 33 2000-3-normal
Safeguarding: behind the supply terminal, LSN 10C/1
Total capacity: ca 200W

Basic set up of the connector EPS is the circuit-opening non-potential contact or by disconnecting voltage (12 to 24V/DC). On request, it is possible to install the closing contact non-potential contact or the voltage supply. At connecting more than one door to one contact it is necessary to maintain the polarity of clamps. After raising the alarm the doors will start closing within ca 4 seconds.

Control method:

- by the control buttons installed as standard
- by the signal EPS (permanent circuit-opening or disconnecting of voltage)
- by the local fire detectors (smoke detectors, temperature detectors, etc.)
- the additional control equipment (traction switch, radar, remote control) will close the door within the set up time

The multifunction buttons supplied as standard are mounted on both side of the fire resistant door. On the side of the door, the box is equipped with the button with lock by which the control may be switched off. The switched-on state is indicated on the box by the alight of the green control lamp. After pressing the button, the door will slide in the selected direction. By pressing the red button, the fire resistant door may be stopped any time. Using the direction buttons, the fire resistant door in the stopped position may be opened or closed. Provided the door is in the closed position, it is possible to use the function „PERSON PASSING-THROUGH“ which is activated by the direction button "close". The door will partially open and after ca 10s it will close automatically.

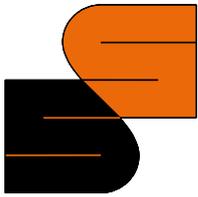
Any switching impulse will activate the safety signal devices – the alarm light with the buzzer which are active for the whole period of the travel of door.

At the activation by the signal Epsom the fire resistant door will close and do not respond to the impulses of the photoelectric sensor and control elements. Provided the door is manually opened in the period of signal EPS duration, it will close automatically after ca 5 seconds.

Protection against crushing obstruction:

- due to the photoelectric sensor the door will stop and move back. By pressing the direction button, the door will move in the desired direction. **THIS FUNCTION MAY BE USED ONLY AT CLOSING!**
- setting up the signal of the level of overload; by increasing the resistance of movement of the wing also the motor loading is increased and on exceeding the set up level the door will stop and move back. **THIS FUNCTION IS FOR BOTH DIRECTIONS!**





Provided the fire resistant door closes by the signal EPS (or by the fire detector), the function of the photoelectric sensors is unblocked and the function of the signal of overload is repeating.

Power failure is acoustically signalled each 5 seconds. In case of power failure, the capacity of the standby power unit will provide power for ca 30 min.

Instruction for maintenance personnel:

The standby power unit has the service life of ca 4 years at the standard operation. After this time, it is necessary to replace the batteries – lead-calcium type with valve control.





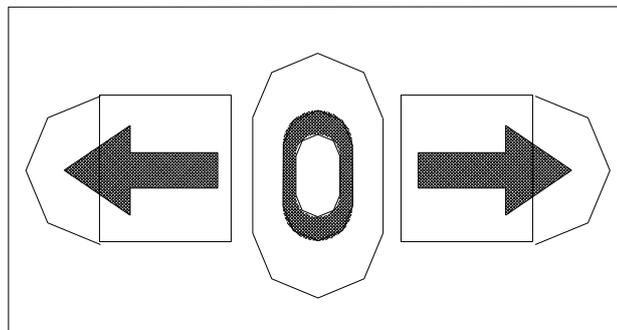
6 DRAWINGS

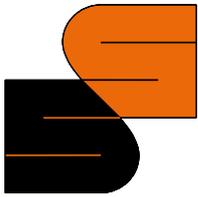
6.1 Control panel

Figure 1



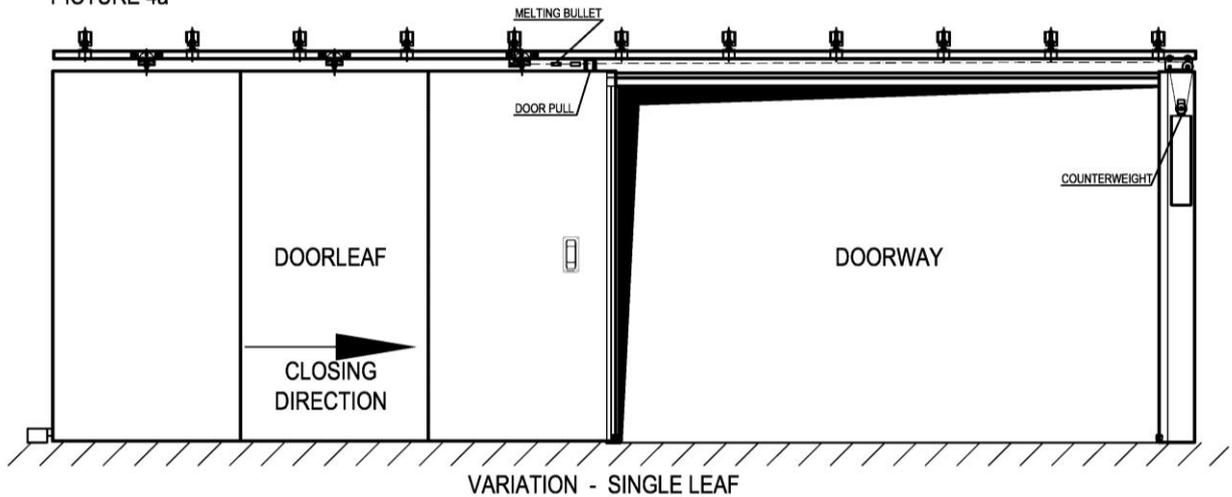
Figure 2



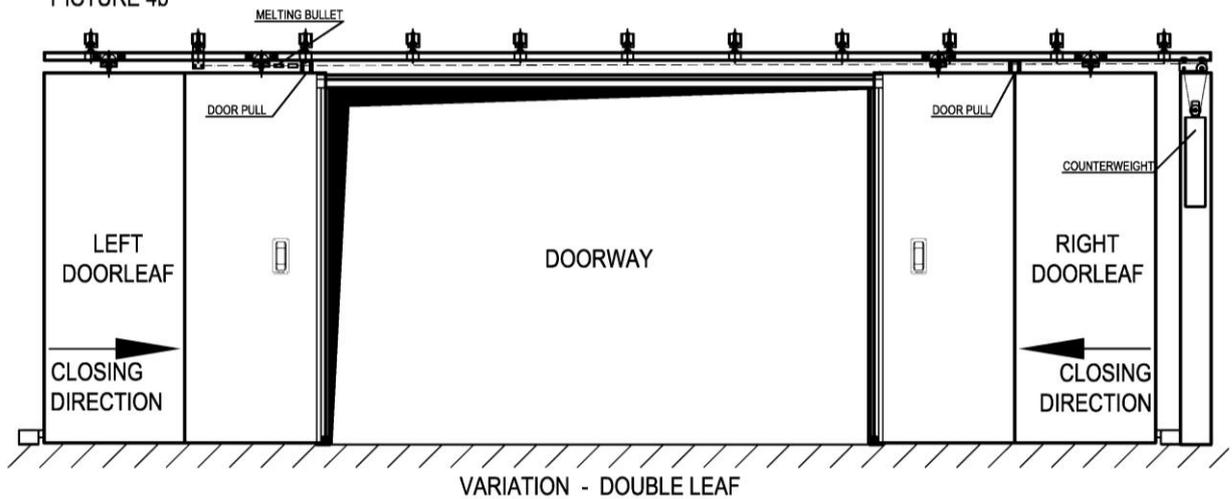


6.3 Scheme of fire resistant door SOMATI system of melting bullet

PICTURE 4a



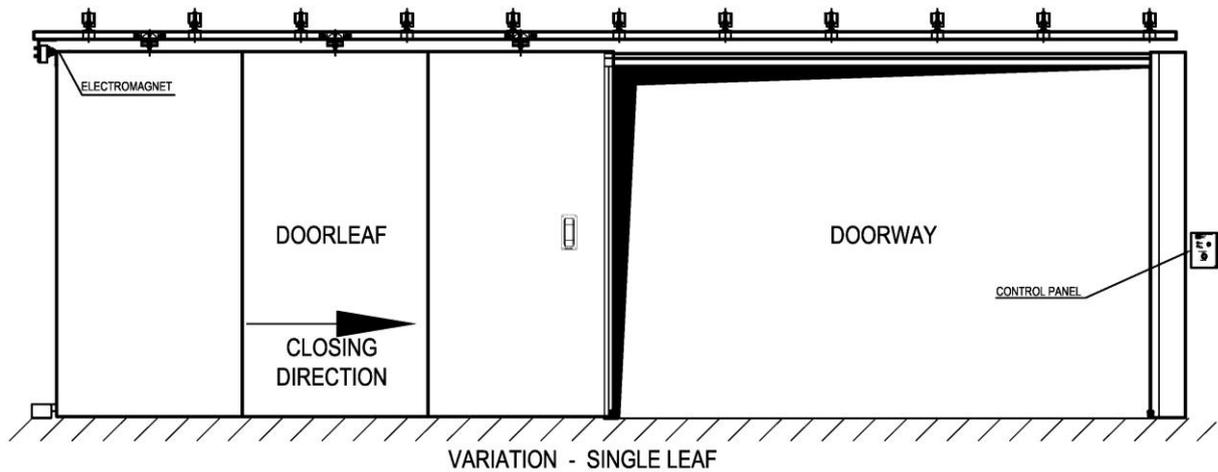
PICTURE 4b



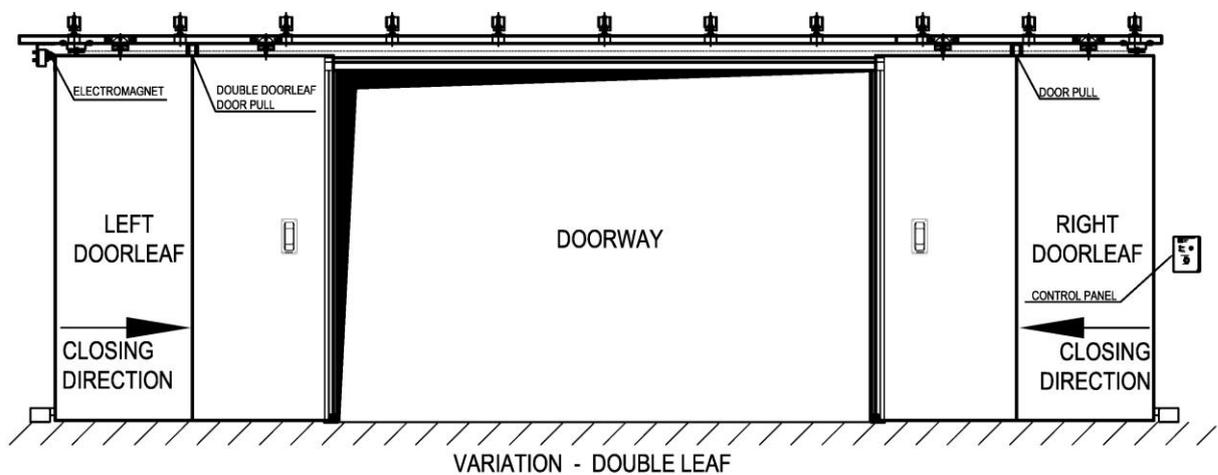


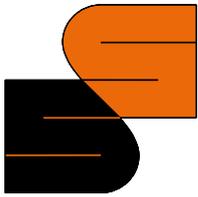
6.4 Scheme of fire resistant door SOMATI – electromagnetic armature

PICTURE 3a



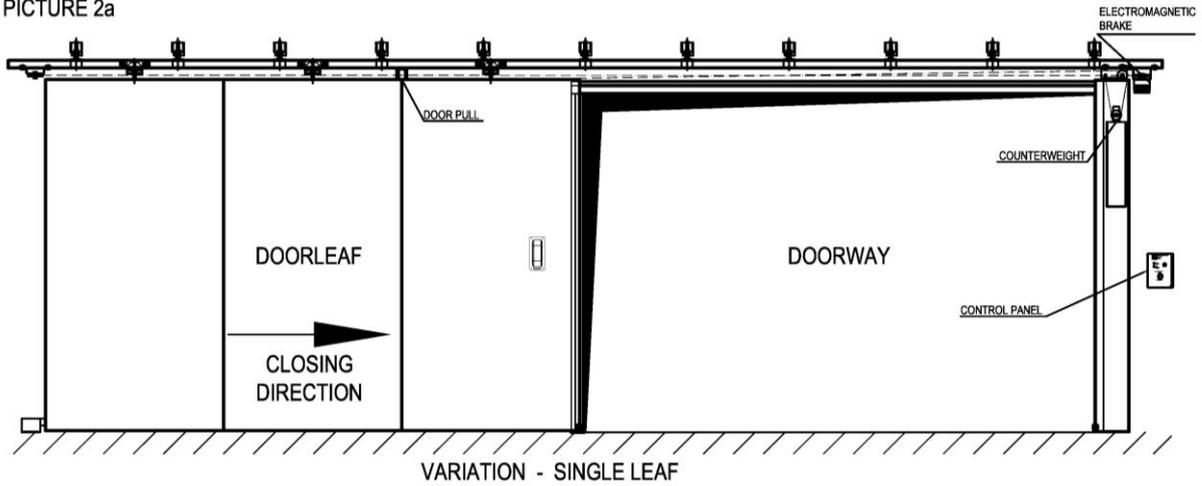
PICTURE 3b



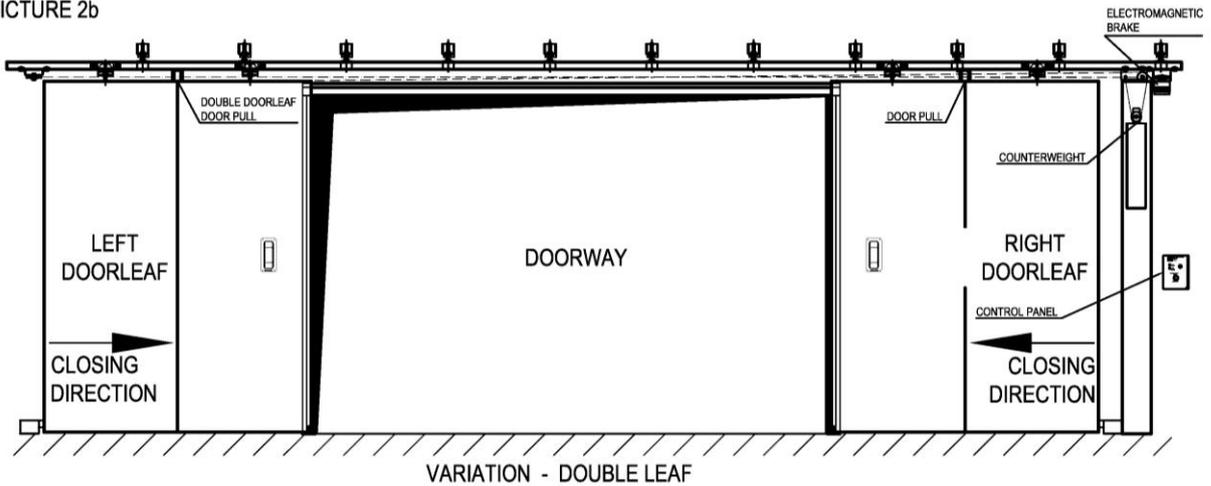


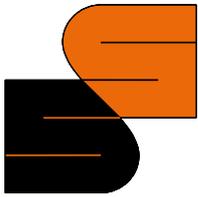
6.5 Scheme of fire resistant door SOMATI – electromagnetic brake system

PICTURE 2a

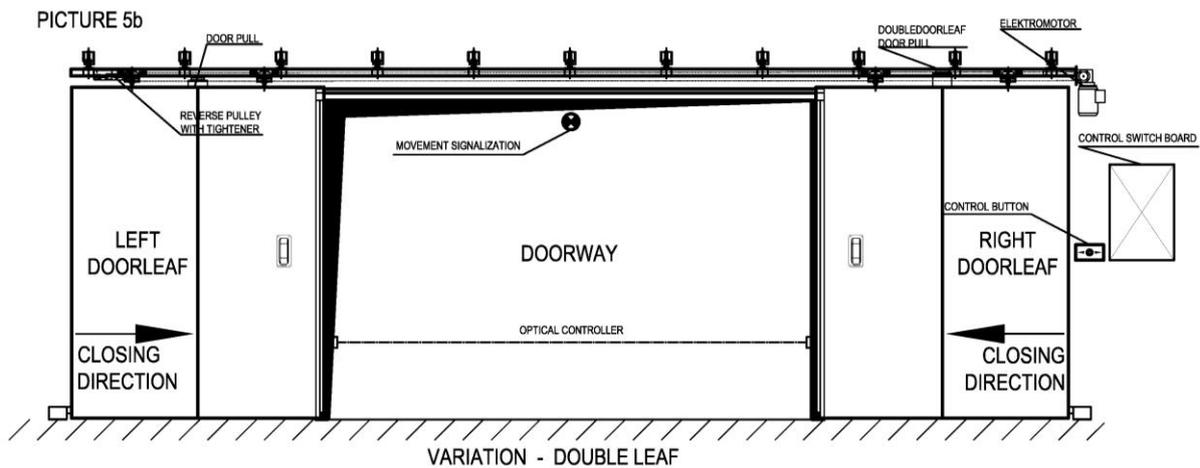
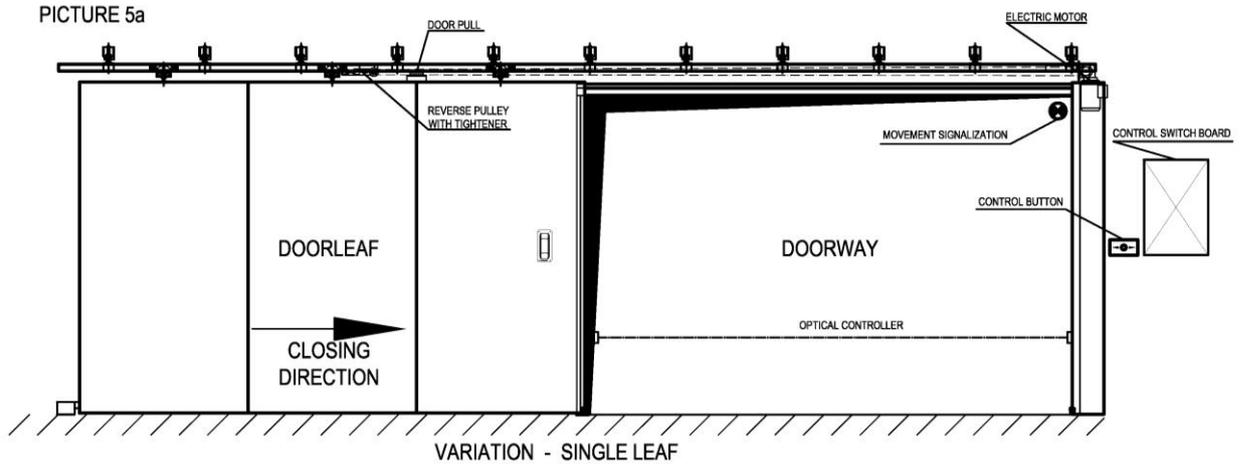


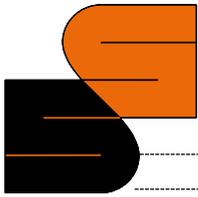
PICTURE 2b





6.6 Scheme of fire resistant door SOMATI – electromotive drive





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