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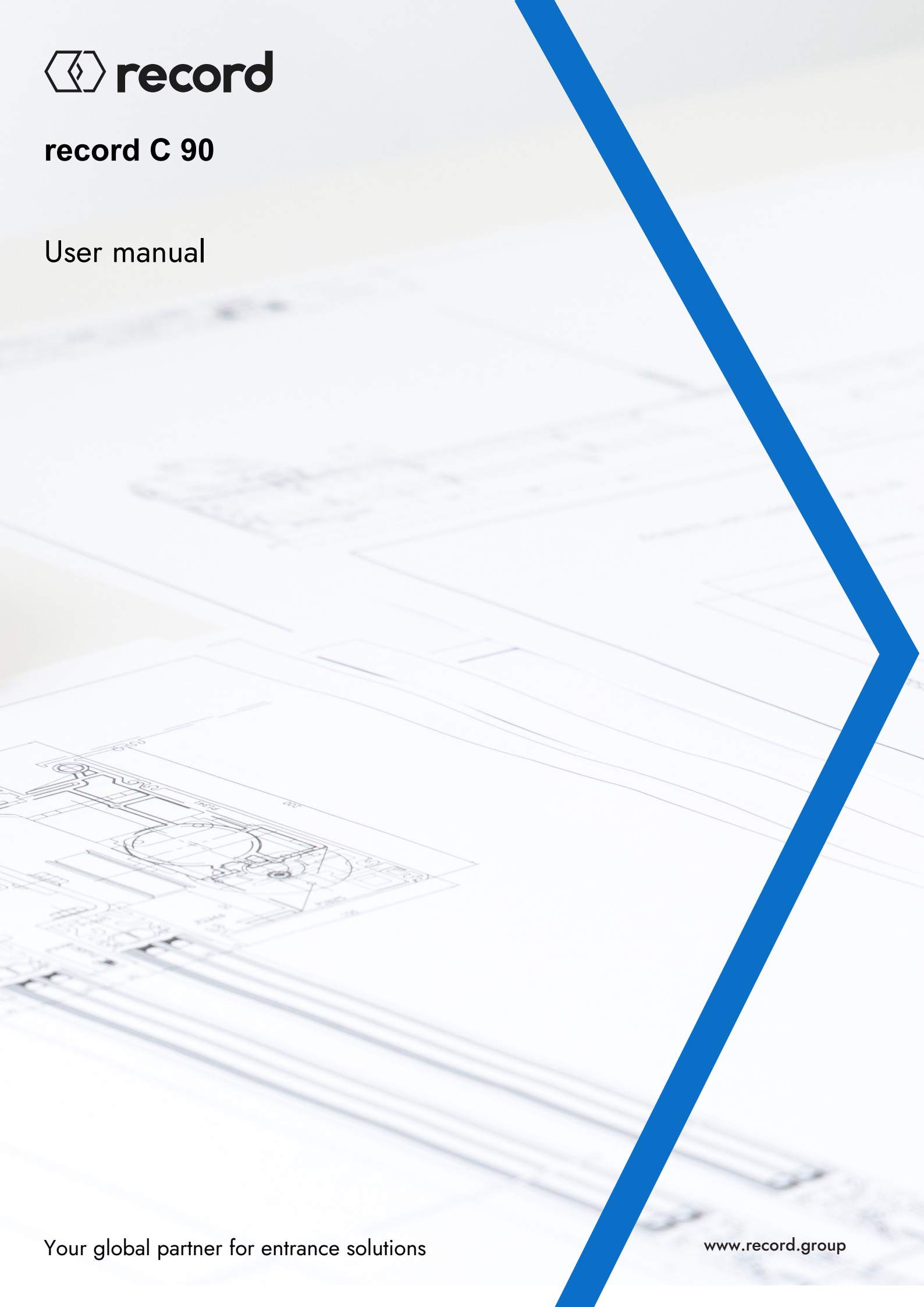
User manual



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List of changes

Change	Location
Complete revision of all Sections and content	Entire document
New Section structure	Entire document
Revision of all graphics	Entire document

1 Safety

1.1 Presentation of warning signs

Various symbols are used in this guide for easier understanding:

NOTICE

Useful advice and information to ensure correct and efficient workflow of the system.

IMPORTANT

Specific details which are essential for trouble-free operation of the system.

IMPORTANT

Important details which must be read for proper function of the system.

CAUTION

Against a potential hazardous situation that can lead to minor personal injury and property damage.

WARNING

Against a latent hazardous situation that can lead to severe injuries or death and cause substantial property damage.

DANGER

Against an imminent hazardous situation that can lead to severe injury or death.

DANGER

Against an imminent or latent hazardous situation that could lead to electric shock and cause serious injury or death.

1.2 Intended purpose of use

The system is designed exclusively for use as a pedestrian passage. The installation must only occur in dry areas. If there are deviations then proper waterproofing and water drains will be required on site.

Any other application or use beyond this purpose is not considered to be an intended purpose. The manufacturer bears no liability for any resulting damage; the operator alone shall bear the associated risk.

The intended purpose also includes observation of the operating conditions specified by the manufacturer, in addition to regular care, maintenance and repair.

Interventions in or alterations to the installation performed by non-authorized maintenance technicians exclude the manufacturer's liability for consequential damages.

NOTICE

The operation of an automatic door in combination with a wicket door may only take place if the latter is in a secured position.

1.3 General hazards

The following section lists hazards that can be caused by the system even when used as intended.

To reduce the risk of malfunction, damage to property or injury to persons and to avoid dangerous situations, the safety instructions listed here must be observed.

The specific safety instructions in the other sections of this manual must also be observed.

IMPORTANT

The country-specific regulations must be observed and complied with!

WARNING

Serious injuries and major property damage.

Incorrect mounting can lead to serious injuries and/or cause major damage to property.

a) Observe and comply with all important instructions regarding safe assembly.

IMPORTANT

To avoid malfunctions, moving objects such as flags or parts of plants must not be allowed to enter the detection range of the sensors.

NOTICE

The installation must be inspected during the function and safety check for imbalance and signs of wear or damage to cables, springs and fastening parts.
The equipment must NOT be used if repair or adjustment work needs to be carried out.

NOTICE

Checking, repairs, service, maintenance and cleaning may only be carried out when the system is at a standstill and switched off. Before work can be started, persons must be barred from the system and the danger area.

CAUTION

Risk of malfunctions, material damage or injury due to improper settings!

a) Improper settings can lead to malfunctions, material damage or personal injury.

⇨ Do not disconnect the system from the power supply overnight.

⇨ Settings should only be made by personnel qualified to do so.

⇨ Do not disassemble, put out of operation or manipulate safety devices.

⇨ Have faults rectified by specialist personnel or by personnel qualified to do so.

⇨ Have service and maintenance carried out according to locally applicable regulations or according to a maintenance contract.

CAUTION

Risk of malfunctions, material damage or injuries due to insufficient or missing cleaning or care!

a) Insufficient or inattentive cleaning or care of the system can lead to malfunctions, damage to property or injury to persons.

⇨ Check the sensors regularly for dirt and clean them if necessary.

⇨ Regularly remove dirt accumulations in the floor rail or under the floor mat.

⇨ Keep the system free from snow and ice.

⇨ Do not use aggressive or caustic cleaning agents.

⇨ Use road salt or loose chippings only conditionally.

⇨ Lay the floor mat without folds and flush with the floor.

⇨ Equipment required for cleaning purposes such as ladders or similar must not be leaned on or attached to the system.

CAUTION

Risk of material damage or injury due to unforeseen opening, closing or turning of the door!

a) The door can open, close or turn unexpectedly. This may result in damage to property or injury to persons.

⇨ No persons may be present in the opening area of the system.

⇨ Ensure that moving objects such as flags or parts of plants do not enter the detection range of the sensors.

⇨ Do not make any settings on the control unit when the system is in use.

⇨ Have faults rectified immediately by specialist or personnel qualified to do so.

⇨ Remove objects from the opening area.

⇨ Do not disassemble, put out of operation or manipulate safety devices.

⇨ Do not rush through a closing system.

CAUTION

Risk of bruising and severing of limbs!

a) If the system moves, careless behaviour can lead to serious injuries to limbs or severance of limbs.

⇨ Do not reach in when parts of the system are moving.

⇨ Keep a distance when parts of the system move.

⇨ Do not bump into or touch the system when it is moving.

⇨ Do not open or remove protective covers during operation.

⇨ Do not permanently remove covers from the system.

⇨ Only carry out inspection, service, maintenance and cleaning when the system is stationary and switched off.

CAUTION

Danger of material damage or injury due to non-functioning safety devices!

a) If safety devices are not functioning, manipulated or put out of operation, there is a risk of damage to property or injuries that can lead to death.

⇨ Never disable or manipulate safety devices.

⇨ Have inspection, service and maintenance of the safety devices carried out according to local regulations or according to a maintenance contract.

CAUTION

Danger of malfunctions, damage to property or risk of injury if used by unauthorised persons!

a) If unauthorised persons use the system, there is a risk of malfunction, damage to property or injury to persons.

⇨ Children under 8 years of age may only use the system under supervision.

⇨ Children must not play, clean or maintain the system.

⇨ Persons with limited physical, sensory or mental abilities as well as persons with insufficient knowledge or experience may only use the system under supervision or must have received and understood instructions to do so.

DANGER

Danger to life due to electric current!

a) In case of contact with live parts, there is an immediate danger to life due to electric shock. Damage to or removal of the insulation or individual components can be life-threatening.

⇨ Before starting work (cleaning, maintenance, replacement) on active parts of electrical systems and equipment, ensure that all poles are voltage free and that this is maintained for the duration of the work.

⇨ Keep moisture away from live parts. This can lead to a short circuit.

⇨ Never bridge fuses or put them out of operation.

⇨ Do not connect the power supply until all work has been completed.

⇨ Have work on the electrical system performed by qualified personnel only.

DANGER

Danger to life due to non-functioning safety devices of the fire protection system!

a) If safety devices of the fire protection system do not function properly, there is a risk of serious or fatal injuries.

⇨ Never disconnect the fire protection system from the power supply overnight.

⇨ Do not disassemble, put out of operation or manipulate safety devices.

⇨ Do not remove safety instructions on the system.

⇨ Never block, hold open or otherwise prevent fire doors from closing.

⇨ Have inspection, service and maintenance of the fire protection system carried out in accordance with locally applicable regulations or according to a maintenance contract.

⇨ Have the fire protection system checked and maintained according to the state of the art.

1.4 State of technology

This system was developed using state of the art technology and officially recognized technical safety regulations. The system, depending on its options and diameter, comply with the requirements of the Machine Guidelines 2006/42/EG as well as EN 16005 and DIN 18650 (D).

Nevertheless, danger may arise if not used as intended.

IMPORTANT

Installation, commissioning, inspection, maintenance and repair work may only be conducted by qualified, trained and authorized technicians.
After commissioning or repair work, fill in the check list and give it to the customer for safe keeping.
We recommend obtaining a service agreement.

1.5 Personal protective equipment

Personal protective equipment is used to protect persons from adverse effects on health. Personnel must wear personal protective equipment during the various work activities on and with the system.

Personal protective equipment is explained below:

Hearing protection is used to protect the hearing from noise. As a rule of thumb, hearing protection is compulsory from when normal conversation with other people is no longer possible.

The head protection serves to protect against falling and flying parts and materials. It also protects the head from bumping into hard objects.

Protective goggles protect the eyes from flying parts, dust, splinters or splashes.

Protective gloves are designed to protect hands from friction, abrasions, punctures or serious injury and from burning caused by contacting hot surfaces.

Safety shoes protect the feet from crushing, falling parts and slipping on surfaces. The puncture resistance of the shoes ensures, that pointy objects do not penetrate the foot.

The high-visibility vest is used to make the personnel stand out and therefore to be seen. With improved visibility and attention, the high-visibility vest protects personnel in busy work areas from collisions with vehicles.

Depending on the place of work and the working environment, the protective equipment varies and must be adapted accordingly. In addition to protective equipment for specific work, the work site may require other protective equipment (for example a harness).

In hygiene-protected areas, special or additional requirements of personal protective equipment may be required. These requirements must be considered when choosing personal protective equipment. If there is any uncertainty regarding the choice of personal protective equipment, the safety officer must be consulted at the place of work.

1.6 Spare parts and liability

Reliable and trouble free operation of the door is only guaranteed when using parts that were recommended by the manufacturer. The manufacturer declines any liability for damages resulting from unauthorized modifications to the door or the use of parts that are not permitted.

2 General information

2.1 Purpose and use of the instructions

These instructions are an integral part of the system and enable efficient and safe handling of the system. In order to ensure proper functioning, the instructions must be accessible at all times and kept in the immediate area of the system.

Although only the male form has been chosen for reasons of better legibility, the information refers to members of both sexes.

The operator must have read and understood the manual before starting any work. The basic requirement for safe working is to follow the safety instructions and the handling instructions. In addition, the local regulations and safety rules apply.

The manual can be handed over in extracts to instructed personnel who are familiar with the operation of the system.

The illustrations are for basic understanding and may differ from the actual presentation. Specific representations are contained in the drawings.

IMPORTANT

A replacement of the instructions is available from the supplier or on the website.

2.2 Copyright

The copyright of the instructions remain at:

BLASI GmbH

Carl-Benz-Str. 5-15

D – 77972 Mahlberg

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Violation of the here stated copyrights will be prosecuted and fined with compensation of damage.

Subject can change without prior notice.

Differences between product and manual are thereby possible.

2.3 Product identification

The nameplate located on the door provides accurate identification of the product.

2.4 Manufacturer BLASI GmbH

BLASI GmbH Automatic Door Systems

Carl-Benz-Str. 5-15

D-77972 Mahlberg

Germany

Telephone: +49 7822-893-0

Fax: +49 7822-893-119

2.5 Target groups

CAUTION

Risk of injury if personnel are insufficiently qualified!

If unqualified personnel work on the system or are in the danger zone of the system, dangers may arise which can cause serious injuries and considerable damage to property.

a) All work must be carried out by qualified personnel only.

b) Keep unqualified personnel away from danger areas.

This operating manual is intended for the target groups listed below:

– Operating entity of the system:
the person who is responsible for the technical maintenance of this system
– Operator of the system:
the person who operates the system every day and has been suitably instructed

2.6 Definition of terms

Term:	Explanation:
System	The term is also used in these instructions as a synonym for the product. Door operators, revolving doors, sliding doors, etc. are referred to as a system. If information in these instructions refers to a specific type, this is shown accordingly in the text.
User	Users are all persons who use the system.
System operator	The respective owner is referred to as the system operator, regardless of whether they operate the system as the owner or pass it on to third parties.
Authorized representative	The authorized representative takes over certain parts of the manufacturer's obligations with regard to fulfilling the requirements of the Machinery Directive. In particular, the authorized representative may also place the system on the market and/or sign EC declarations of incorporation.
Qualified personnel	Qualified personnel are authorized and appropriately trained to perform the following work: – Disassembly, Assembly, Commissioning, Operation, Audit, Maintenance, Troubleshooting, Decommissioning The qualified personnel have several years of professional experience in the technical field, e.g. as mechanics or machine fitters. The qualified personnel are aware of the residual risks arising from the installation site and, due to their professional training, knowledge and experience, are able to carry out the work assigned to them and to independently identify and avoid possible danger points.
Manufacturer	The manufacturer is whoever designs and/or builds machinery or incomplete machinery under the scope of the Machinery Directive.
Life phases	All phases of the system's condition and use are referred to as life phases. This applies from the time the system leaves the factory until it is disposed of.
Personnel	All persons who carry out activities on and with the system are referred to as personnel. Personnel can be, for example, the operator, the cleaning staff, or the security staff. The personnel meet the personnel qualifications required by the manufacturer.
Service technician	Experts and specialists or representative authorized by the manufacturer to perform commissioning, maintenance and servicing.

2.7 Abbreviations

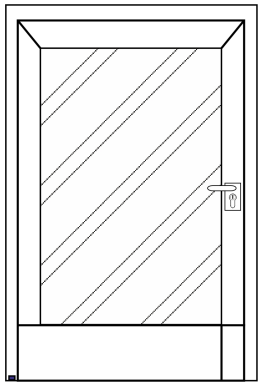
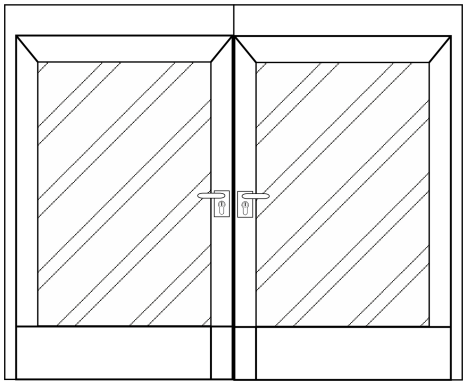
Abbreviation	Description
ABS	Absolute pulse generator
AKA	Actuating-contact „outside“
AKG	Actuating-contact „common“
AKI	Actuating-contact „inside“
ASK	Terminals inside header
ATE	Drive unit

Abbreviation	Description
BDE-D	Electronic control unit
BDI	Control unit (rocker switch)
BDI-M	Circuit board for mechanical control unit
BKL	Control unit LED
BODYG	Sensor „Bodyguard“
CAN-H	Serial data interface
CAN-L	Serial data interface
CPU	Central processing unit
DFA	Automatic swing door operator
EEPROM	Program memory
ES	Electrical circuit diagram
FV	Manufacturing regulation
GTR	Gearing
HS	Main switch 2-pole
IKG	Encoder
KA	Cable exit
LED	Light Emitting Diode
LD	Light Emitting Diode
LS	Cable plan
MF	Multifunctional switch
MOT	Motor
MP	Principal assembly diagram
NA	Emergency stop
NET	Power supply unit
NS	Main power switch
NSA	Mains failure
RAD	Radar, Motion sensor
RAILB	Light barrier „Railbeam“
SI	Fuse
SIO	Safety open
SIS	Safety close
SSK	Key operated contact
STG	Control unit
STP	Control pc board
SURV	Time switch „Locked“
TOE	Door locking
TOW	Door opening width
TOZ	Door open time delay
µP	Mikroprocessor
VAK	Locking contact
VL	Wiring list
VMA	Instructions for wiring and assembly
VRR	Locking

3 Description

3.1 Description of door types

This manual describes the following door types:

C90 single wing	C90 double wing
	

C90	Single wing door
C90	Double wing door
C90	Double wing door with closing sequence

3.2 Standard edition of the door

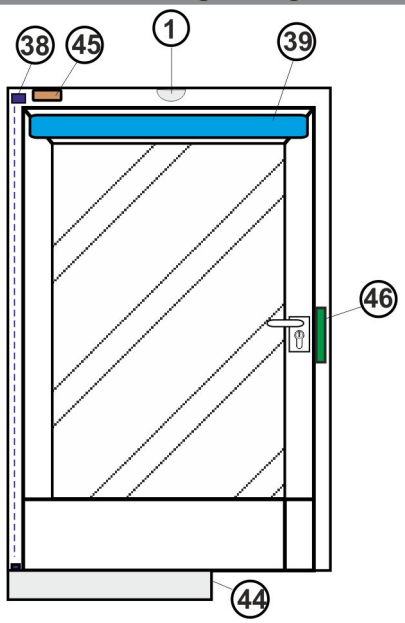
- The system consists of a single or double wing door.
- Electric drive system with silent high-performance gears.
- Special fully electronic controlled motor.
- Integrated microprocessor-controlled drive system.
- The drive force is automatically adjusted to the weight of each door.
- The hold-open time of the door, the opening and closing speed and the opening and closing pressure can be individually adjusted.
- Electronic controlled cushioning.
- The power connection must be supplied by the customer.
- Terminals for the sensors are pluggable.
- Door can be opened manually in all operating modes during a power failure.
  In the LOCKED mode, the door remains locked.
- Reversing safety control causes the door to open immediately, when there is a risk of being trapped in the doorway; as per the regulation of static residual force max. 150 N.
- Key-operated switch with the positions LOCKED – AUTOMATIC – ONEWAY – CONTINUOUS and an integrated reset button (R).
- An integrated error analyzer detects malfunctions.
- Water resistant stainless steel housing.

3.3 Double wing door system with closing sequence

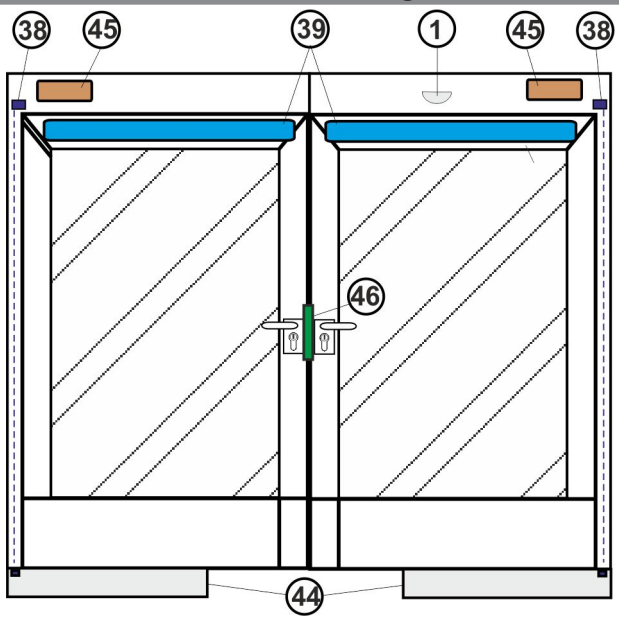
The system consists of a double wing door. Both doors cannot close simultaneously because of the closing sequence function. One door wing is programmed to close first. Once the first door is completely closed, then the second door wing will close.

3.4 Safety features and controls

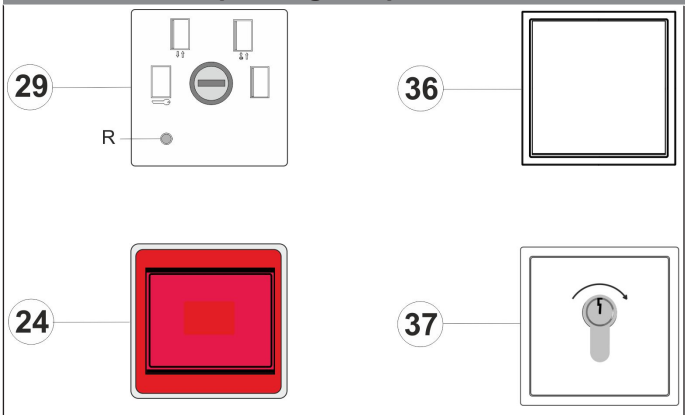
C90 single wing



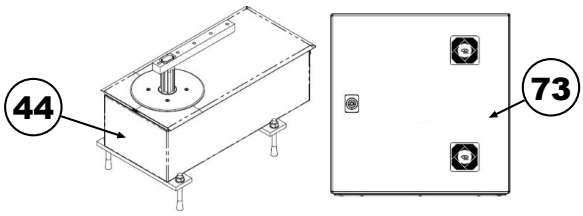
C90 double wing



Operating components



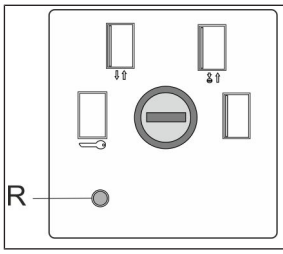
Drive gear box (subfloor)



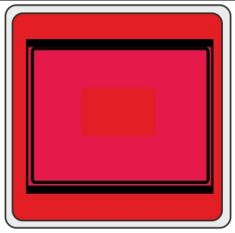
3.4.1 Safety features and control elements legend

Pos. No.	Components
1	Motion detector (canopy or floor installation)
24	Emergency stop switch
29	Key-operated switch
36	Contact mat exit direction
37	Contact mat entrance direction
38	On-site code card reader (1x interior and 1x exterior)
39	Horizontal sensor strip (opening and closing side)
44	Drive gear box (subfloor)
45	Safety sensors (shearing edge / crushing edge)
46	Electromagnetic lock with bolt contact
73	External control box

3.4.2 Key-operated switch

	The operating modes LOCKED – AUTOMATIC – ONEWAY – CONTINUOUS can be set with the key-operated switch. The reset button (R) is also integrated in the key-operated switch, after pressing it the door control will be reinitialized.

3.4.3 Emergency stop switch

	When the emergency stop switch is activated, the door stops immediately in its current position and can be manually opened or closed. If the door is locked, it can be opened by pressing the door handle. After resetting the emergency stop button, the preset operating mode will resume.

3.4.4 Motion detectors

NOTICE

Moving objects, i.e. loose poster or plants that move in the detection area can trigger an unintentional startup.

Motion detectors are installed on each access side of the system.
Once the detection area of a motion detector is entered, the door opens.

If the detection area of a motion detector is entered during the closing process, the door will opens/reverse.

NOTICE

In the LOCKED operating mode, the motion detectors and other pulse generators are disabled during the closing process. Only pressure control is enabled!

4 Options

4.1 Safeguarding (secondary closing edge) with sensors or safety strips

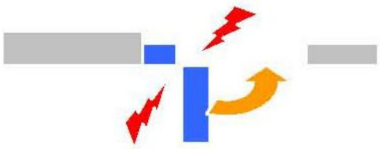
Pinching hazards may occur between the fixed parts (i.e. door frame) and the hinged side on doors that close and open.

This pinching point is monitored and secured by sensors (active infrared sensors or light barriers). The door will stop immediately if the detection range of a sensor is entered or if the light beam of a light barrier is interrupted. Once the detection area of the sensor is cleared and/or the light beam of the light barrier s no longer interrupted, the door will re-open at slow speed after 3 seconds.

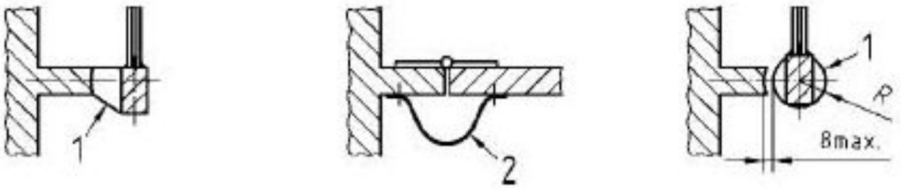
Electrical safety strips can also be installed to safeguard the pinching points. If a safety strip is pressed, the door stops immediately. When the safety strip is no longer pressed, the door re-opens at slow speed after three seconds.

NOTICE

Safeguarding pinching points with sensors is only permitted, if sufficient distance is ensured. As with the safety strips, sufficient deformation distance must be ensured. Safety distance: < 8 mm or < = 25 mm

	Safeguarding secondary closing edge (NSK)

Shearing points are normally safeguarded through other appropriate means such as inherent protection profiles or protective covers.



Example: 1 = rubber covering, 2 = rubber or textile covering

4.2 Safeguarding (main closing edge) with sensors or safety strips

Pinching hazards may occur between the fixed parts and the main closing edge on closing doors.

These pinching points are monitored and secured by sensors and safety strips. If the detection range of a sensor is entered or a safety strip is pressed while the door is closing, the door will stop and open / reverse. When the detection area of the sensor is cleared or the safety strip is no longer pressed, the door will continue to close again once the hold-open time has expired.

	Safeguarding main closing edge (HSK)
	Safeguarding main closing edge (HSK) on a double wing door

NOTICE

There is danger of damaging the safety strips through pointed or sharp objects as well as through aggressive cleaning agents, such as mineral oils or gasoline.
This could cause the system to breakdown or cause malfunctions.

4.3 Horizontal sensor strip on the swing wing “opening side”

The opening area of the door is safeguarded by a sensor strip installed on top of the door frame.

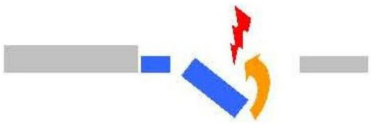
If the detection range is entered while the door is opening, it will stop immediately. Once there is no more detection, the door will continue to open after 3 seconds at slow speed.

	Safeguarding door (opening process)

4.4 Horizontal sensor strip on the swing wing “closing side”

The closing area of the door is safeguarded by a sensor strip installed on top of the door wing.

If the detection range is entered while the door is closing, it will stop immediately and re-open / reverse. Once there is no more detection, the door will close after the hold-open time has expired.

	Safeguarding door (closing process)

4.5 Fire alarm control

If the on-site fire alarm system is activated the door opens, regardless of the current operating mode.

Once the alarm has been deactivated on the fire alarm system, the door will continue to operate in the operating mode selected on the key-operated switch.

An on-site fire detection system must be installed by the customer.

IMPORTANT

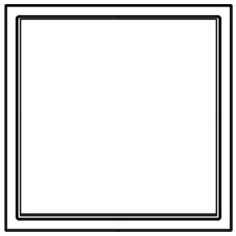
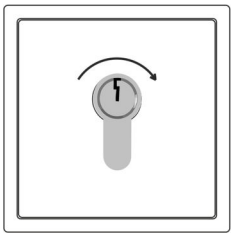
In case of fire load, the system leave(s) can be mechanically deformed to such an extent that they cannot be moved.
If the system is not part of a fire or smoke protection installation, it must not meet any fire protection specifications such as fire resistance or smoke control.
If it is part of a fire or smoke protection installation, all the necessary documents such as approvals and conformity declarations are enclosed.

4.6 Lock mechanism status indicator and door position indicator

There are signal contacts (potential-free NO contacts maximum contact load 24 volt AC/DC/0.3 amps) for indicating the locked state or position of the door.

In some countries (VdS) tested signal contacts (potential-free NO contacts, tested according to VdS class C, maximum contact load 24 volt AC/DC/0.3 amps) are required according to the German Property Insurers Association. These are then suitable for use in certified alarm systems.

4.7 Door open button / Key switch / Code card reader

Door open button	Key switch	Code card reader (on-site)
Interior and/or exterior 	Exterior 	Exterior 
In all operating modes, the door opens by pressing the door open button or turning the key switch. In the ONEWAY operating mode, the door opens by using the code card reader. In the operating modes AUTOMATIC or ONEWAY, the door will close again after the hold-open time has expired. If an impulse generator is interrupted during the closing process, the door will open / reverse. If the door were to hit an obstacle during the closing process, it would immediately open / reverse due to the integrated pressure control. In the LOCKED operating mode, the door closes again and locks itself after the hold-open time has expired. While the door is closing, the impulse generators and safety sensors are disabled. Pressure control is however still enabled.		

5 Specifications

5.1 Dimensions of the door

Drive gear box:	length 450 mm	width 200 mm	depth 140 mm
Passage width:	From 700 mm to 1500 mm		
Passage height:	From 2100 mm to 4000 mm		
Opening angle:	variable		
Total wing weight:	max. 600 kg		

5.2 Electrical specifications

Mains voltage:	220-240 V
Frequency:	50-60 Hz
Nominal power:	see system nameplate
Mains fuse:	16A circuit breaker with tripping characteristic C or K
Power consumption:	max. 200VA
Control voltage:	24 VDC (extra low voltage)
Motor voltage:	24 V
Max. torque:	approx. 120 Nm
Control current fuse:	10AT (5x20 mm)
Battery backup:	10AT (5x20 mm)
Safety class:	3
Degree of protection:	IP 54 (subfloor)

Subfloor systems must have an extra, customer supplied, external upstream RCD circuit breaker In = 30mA (FI circuit breaker) installed.

NOTICE

The power connection must be installed by a certified electrician.

5.3 Environmental conditions

Temperature range	From -15 to +50° C
Humidity range	Up to 85% rel. humidity, not condensing

6 Operation

6.1 Door operating modes

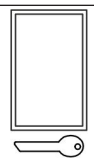
NOTICE

If the door hits an obstacle during the closing process, it will open / reverse immediately due to the integrated pressure control.
If the door hits an obstacle during the opening process, it will stop immediately. Once the obstacle is removed the opening process continues.

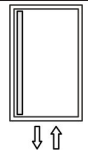
NOTICE

The door closes again when the hold-open time, adjustable from 0 to 10 seconds, has expired, as long a no one is within the detection range of the safety sensors.
On double wing doors with a closing sequence function, the wings do not close simultaneously. The hold-open times must be programmed at different intervals in order to avoid injuring individuals. One door wing is programmed to close first, once the hold-open time has expired. Only when the first door wing is completely closed, will the second door wing close.

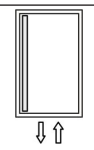
6.1.1 LOCKED operating mode

	The door drives are turned off and are locked electrically together with the electric door opener. If the operating mode is switched to LOCKED, while the door is closing, the rotational movement is maintained until the CLOSED position is reached.

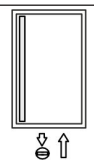
6.1.2 AUTOMATIC operating mode “Single wing door”

	The door is unlocked. The door opens via an opening signal (i.e. radar, door open button, etc.).

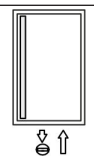
6.1.3 AUTOMATIC “Double wing door”

	The door is unlocked. Both door wings open simultaneously via an opening signal. The hold-open times must be programmed at different intervals in order to avoid injuring individuals.

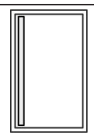
6.1.4 ONEWAY operating mode “Single wing door”

	The door is unlocked. The door opens via an opening signal from the inside. The outside impulse generators are disabled in this operating mode.

6.1.5 ONEWAY operating mode “Double wing door”

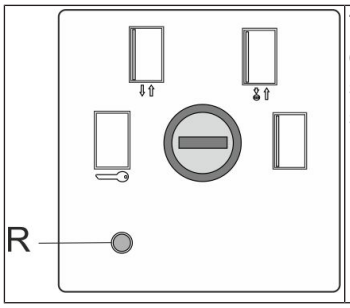
	The door is unlocked. Both door wings open simultaneously via an opening signal from the inside. The outside impulse generators are disabled in this operating mode. The hold-open times must be programmed at different intervals in order to avoid injuring individuals.

6.1.6 CONTINUOUS operating mode

	The door opens immediately and remains in this position until a different operating mode is selected.

6.2 Normalizing and calibrating with the key-operated switch

6.2.1 Initialization / Activation of the restart lock via reset button (R)



The initialization process starts automatically once power restored. For security reasons an electronic restart lock is activated. The initialization process can also be stared by pressing the reset button (R) (less than 2 seconds) on the key-operated switch.

6.2.2 Normalization via the key-operated switch

Before the door can start, the restart lock must be removed by normalizing. To do this, turn the key-operated switch from AUTOMATIC position to LOCKED and back again. Then the door will start at slow speed and “search” for the CLOSED position. The direction of rotation must not be stopped! After that the system is operational again.

6.2.3 Calibration via the reset button (R)

The open and closed position on a C90 swing door can be set via the limit switches. These are only used by initialization and calibration of the door. Once the respective controller has detected the position of the limit switch, it calculates all the positions with the integrated incremental encoder. Pressing the reset button (R) (for longer than 6 sec.) will normalize the respective control.

Calibration will start afterwards automatically. As with the initialization process, the entire processor will be reset. In addition, the ON and OFF position of the respective control will be redefined, by opening and closing the door at slow speed.

The friction values of the door are also measured. To measure the motor current properly, that is required to overcome the friction, it is measured during initialization oft he door, also in the CLOSED position.

Afterwards, acceleration, deceleration and maximum speeds are specifically optimized during the first 5 door openings.

NOTICE

The reset button (R) is supported in all operating modes!

NOTICE

The door must not be stopped during the initialization or calibration process to avoid measuring false parameters. This would prevent an optimal operating performance!

6.3 Adjustable functions and door parameters

NOTICE

The door parameters and special functions can only be set and adjusted by a service technician with a Service-IBS (intelligent operating switch).

Software versions	Standard: Standard with wind load brake: Standard with closing sequence:	Ta6sp_3.11e_c90_mp32_m16 Ta6sp_3.11e_c90_wind_mp32_m16 Ta6sp_3.11e_c90_mp32_m16 T_20492h
Door types	C90 / C90-SU	

MP	Designation	Default setting	Setting range	Description
09	Reduced opening width	80 %	10 … 100 [%]	Change
10	Hold-open time	2 sec.	0 … 10 sec.	Change
11	Hold-open time key switch	5 sec.	0 … 120 sec.	Change
12	OPENING speed	100 %	05 … 100 [%]	Change
13	CLOSING speed	30 %	05 … 100 [%]	Change
43	OEPNING slow speed	10%	05 … 20 [%]	Change
44	CLOSING slow speed	10 %	05 … 20 [%]	Change
45	OPENING speed	100 %	05 … 100 [%]	Change
46	CLOSING speed	30 %	05 … 100 [%]	Change
47	OPENING door power	150 N	10 … 150 N	Change
48	CLOSING door power	150 N	10 … 150 N	Change
49	CLOSING slow speed path	5 cm	0 … 50 cm	Change
50	Acceleration	80 %	10 … 100 [%]	Change
55	Deceleration ramp	120 %	50 … 250 [%]	Change
56	Fan voltage	0	0 … 1	Change
57	Three-phase	0	0 .. 150 $^{1}/_{10}$ A	Read
70	OPENING slow speed path	5 cm	0 … 50 cm	Change
73	Frequency radar	0	0 … 1	OFF / ON
74	Lock type	0	0 … 9	Change
77	Light barrier 1 [type]	0	0 … 5	Change
78	Light barrier 2 [type]	0	0 … 5	Change
81	Direction of motor rotation	0	0 … 1	Change
82	C90_Gear ratio	0	0 … 255	Change
83	C90_Open security sensor ON	0°	0 … 180°	Change
84	C90_Open security sensor OFF	90°	0 … 180°	Change
85	C90_Close security sensor ON	0°	0 … 180°	Change
86	C90_Close security sensor OFF	90°	0 … 180°	Change
87	C90_+/- 90° Swing door opening	0	0 … 1	OFF / ON
88	Contact pressure / adhesive force	50 N	0 … 50 N	Change
89	Press against door	1	0 … 1	OFF / ON
90	Starting angle	0	0 … 50 $^{1}/_{10}$°	Change
92	Control power supply TA6-SP	0	0 … 1	Change

NOTICE

Menu point 82 must be changed from the default setting "0" (zero) t to the appropriate gear ratio!

7 Inspection and maintenance

Regular inspection and maintenance of the system by trained and authorized personal from the manufacturer, is the best guarantee for long life and trouble-free secure operation.

These control and maintenance operations are required at regular intervals, following the manufacturer's instructions and the relevant legal requirements.

7.1 General remarks

DANGER

Danger to life due to electric current!

a) In case of contact with live parts, there is an immediate danger to life due to electric shock. Damage to or removal of the insulation or individual components can be life-threatening.

⇨ Before starting work (cleaning, maintenance, replacement) on active parts of electrical systems and equipment, ensure that all poles are voltage free and that this is maintained for the duration of the work.

⇨ Keep moisture away from live parts. This can lead to a short circuit.

⇨ Never bridge fuses or put them out of operation.

⇨ Do not connect the power supply until all work has been completed.

⇨ Have work on the electrical system performed by qualified personnel only.

IMPORTANT

Specific checks and maintenance may only be carried out by a specialist or a person trained for this purpose. The authorization of these persons is carried out exclusively by the manufacturer. The scope, result and time of the periodic inspections and maintenance must be recorded in an inspection book and a checklist. These documents must be kept by the operator.

According to current legislation, the operator of an automatic door system is responsible for its maintenance and safety.

With the care of the installation by the operator, accidents or defects can be avoided.

Testing

Type of test	Action
Visual inspection	Check door leaves, guides, bearings, limiting devices, sensors, and the securing of crushing and shearing points for damage.
Mechanical inspection	Check fastenings for tight fit.
Safety check (exit and escape routes)	Check sensors, safety devices, and monitoring devices for tight fit and damage.
Function testing	Check functioning of switches, operators, controllers, power or energy storage devices, and sensors. Also check the adjustment of the safety devices and the setting of all movement sequences including the end points.

Servicing

Type of servicing	Action
Adjustment and cleaning	Clean and adjust bearings, sliding points, and power transmission.

For documentation and information purposes, the testing and servicing work as well as the condition of the system are recorded in a test log book. The test log book must be kept for at least one year or until the next testing/servicing.

IMPORTANT

The testing and/or servicing interval according to the manufacturer's specification is at least 1 to 2 times a year.

IMPORTANT

The recommended and planned spare parts and wearing parts can be requested from your service centre.

7.2 Cleaning and care

DANGER

Warning: risk of fatal electric shock!

a) Risk of death by electrocution.

⇨ Do not touch the drive system while the main power is connected.

⇨ Do not spray water into the drive system.

IMPORTANT

Keep the system clean from dirt, leaves, snow and ice!

a) If heavily soiled, please contact a professional.

b) Do not use road salt or gravel in front of the entrance area or within the system.

c) We recommend that you impregnate the safety strips with water repellent care products.

IMPORTANT

Any other cleaning products, not mentioned here, should not be used!

What	Interval	Cleaning agent
General parts	Weekly	Damp cloth, neutral to low alkaline, wetting agent solution / vinegar diluted with water
Sensors / safety strips	Weekly	Plastic cleaner
Floor mats	Weekly	Vacuum cleaner / carpet cleaner
Display cases	Weekly	Commercial glass cleaner

7.3 Monthly inspection procedures

The monthly tests and inspections of the individual components that must be conducted by the operator take little time and in particular, prevent accidents caused by improper handling of the door system. We recommend that you conduct the following inspections dependent on the model of the door.

Pos.- Nr	Test / Inspection	Procedure	Expected results
1	Function test motion detector	– Select AUTOMATIC operating mode. – When the turnstile comes to a standstill, enter into the detection area of the motion detector. – Perform this test from the inside and the outside of the door.	– The door opens.

24	Function test emergency stop switch	– Select AUTOMATIC operating mode. – Step into the detection area of the motion detector, so that the door opens. – Press the emergency stop button. – Reset the emergency stop button.	– The door stops immediately. – After resetting the door continues in its preset mode.
29	Function test key-operated switch	Key-operated switch Turn to the following operating modes: – LOCKED – AUTOMATIC – ONEWAY – CONTINUOUS	– The door is closed and locked. – The door unlocks and opens. – The door can only be opened in one direction. – The door opens and stays open.
36 + 37	Function test door open button and key switch	– Use the door open button or key switch.	– In the LOCKED mode the door unlocks and opens. – In the operating modes AUTOMATIC and ONEWAY ONEWAY the door opens. After the hold-open time expires the door closes again.
38 + 41	Function test vertical light barriers, active infrared sensors or safety strips shearing edge / pinching edge	– Select AUTOMATIC or ONEWAY operating mode. – The door opens and closes again. – Step into the detection area of the of the light barrier or active infrared sensor during the opening or closing process . – Perform this test from the inside and outside of the door.	– The door stops immediately.
39	Function test horizontal sensor strip opening and closing side	– Get the door to open. Step into the detection area of each sensor strip.	– During the opening process, the respective door will stop and will only continue to open once the sensor is no longer enabled. – In the closing process, the respective door will stop and open / reverse. It will continue to close once the sensor strip is no longer enabled.
42	Function test electromagnetic lock with bolt contact	– Select the LOCKED operating mode.	– The door is locked with an electromagnetic lock.

Visual inspection of the instructions and labeling (buttons / switches)	– Verify that all labels are present and legible.	– All labels must be present, legible and firmly applied.
Visual inspection of the glass label	– Verify that the label is present.	– The glass label must be firmly attached at eye level.
Visual inspection of the floor covering	– Verify the floor covering for possible tripping hazards, unevenness, damages, and dirt accumulation.	– The floor covering must be free from tripping hazards, unevenness, damages and dirt accumulation.

7.4 Logbook

IMPORTANT

The following example of a test book serves only as a template.
According to local regulations such a logbook must be attached to the door installation and all interventions and recurrent controls must be recorded in it.

Date	Error description / status-no.	Troubleshooting / maintenance / recurrent controls	Defects corrected / Parts replaced	Service-technician signature

7.4.1 General information

Manufacturer – Information	
Name:	
Street:	
City:	
Telephone:	
Fax:	
E-Mail:	

Distributor – Information	
Name:	
Street:	
City:	
Telephone:	
Fax:	
E-Mail:	

Location of system installation (Project information)	
Name:	
Street:	
City:	
Telephone:	
Fax:	
E-Mail:	

System – Information	
Conf. serial – No.:	
System – Type:	
System – Installation date:	

7.4.2 Operator duties

Personal protection requires compliance with the standards and guidelines for publicly accessible facilities.

According to applicable standards and guidelines, automatic door systems must be tested and serviced by qualified persons.

The system operator is responsible for carrying out testing and servicing.

NOTICE

The installation must be inspected during the function and safety check for imbalance and signs of wear or damage to cables, springs and fastening parts.
The equipment must NOT be used if repair or adjustment work needs to be carried out.

System operator tasks

Task	Personnel	Time of implementation	Entered in test log book
Maintenance and cleaning of the sensors for safety and triggering	System operator	Weekly, or as required	No
Function and safety check	System operator	Monthly	No
Function test for fire doors	System operator	Monthly, or according to country-specific standards and guidelines	No

Tasks of qualified person

Task	Personnel	Time of implementation	Entered in test log book
Acceptance test	Qualified person	After assembly of the door system ready for operation	Yes
Servicing	Qualified person	1 x annually, or according to country-specific standards and guidelines	Yes
Test (inspection)	Qualified person	1 x annually, or according to country-specific standards and guidelines	Yes
Test (inspection) for door systems in escape routes	Qualified person	2 x annually, or according to country-specific standards and guidelines	Yes
Testing of fire doors	Qualified person	1 x annually, or according to country-specific standards and guidelines	Yes
Testing (inspection) for fire doors	Qualified person	1 x annually, or according to country-specific standards and guidelines	Yes
Servicing for fire doors	Qualified person	1 x annually, or according to country-specific standards and guidelines	Yes

7.4.3 Commissioned technician

Technicians are people:

- that on the basis of their technical training, knowledge, experience and work, perform their assigned test properly and identify and evaluate potential hazards.
- that have sufficient knowledge in the field of automatic door systems, relevant national safety regulations, accident prevention regulations, directives and generally recognized technical regulations, so they can judge the secure working condition of automatic door systems.
  These people include, for example, technicians from the manufacturing or supplying company, relevantly experienced, trained personnel authorized by the manufacturer or other persons with appropriate expertise.

Experts must submit their assessment objectively from the standpoint of personal and operational safety without being influenced by other requirements, such as i.e. economic circumstances.

7.4.4 Legal principle

NOTICE

According to EN 16005 / DIN 18650 / Machinery Directive, the system must be inspected by an expert before initial commissioning and then according to the manufacturer's instructions or at least once a year.

The special significance for personal protection requires compliance with these special regulations.

7.4.5 Extent of the inspection

The test is carried out according to the manufacturer's test instructions. The result of the test is recorded in a test protocol and recorded in the test logbook.

The inspection usually takes place at the same time as the maintenance of the system.

The inspection also checks whether no changes have been made to the system since the last inspection and whether it meets the current safety requirements.

7.4.6 Requirements for documentation

Extent, results and dates of the periodic inspections, must be documented and kept by the operator in an Inspection- and Maintenance log book.

The contractor / operator must be informed of the results in writing.

The contractor / operator requires the inspection report (check list) for proof that the periodic inspection was performed and/or as documentation for construction authorities or accident and liability insurances, etc.

8 Malfunctions

8.1 Notice power shutdown

NOTICE

A trouble free operating door is only guaranteed with a continuous supply of power. Therefore, never disconnect the power supply!

If the main power supply is disconnected, the door control will have to be normalized first after switching the power back on. To do so, turn the key-operated switch from AUTOMATIC to LOCKED and back again.

Now the door is operational again.

8.2 Conduct during malfunctions

IMPORTANT

If malfunctions that endanger the safety of individuals occur, the system must be turned off. It may not be turned back on until the problem has been resolved by a professional and the danger no long exists.

8.2.1 Possible troubleshooting

NOTICE

Some malfunctions can be rectified by the operator themselves (see troubleshooting tips). If the tips do not resolve the problem, please contact your local service centre.
Before calling, please note the information shown on the optional IBS system display. This information provides the technician with important information for troubleshooting.

8.2.2 Troubleshooting tips

To eliminate malfunctions, it is necessary to disable the electronic restart lock on the door control through normalization. For this, turn the key-operated switch from LOCKED to AUTOMATIC operating mode and back again. The turnstile will start at slow speed and “search” for the home position. Then the door is operational again.

Malfunctions and their causes, as well as possible solutions which can be performed by the operator, are listed below. If the solutions listed are not successful, the operator must disconnect the main power supply and call the service centre.

Malfunctions	Causes	Solutions
Door does not open	– LOCKED operating mode – Lock is jammed or hooked – Lock is defective – Guide rail skewed	– Select a different operating mode – Unlock manually (pull red pin) – Exchange lock – Realign / Replace guide rail
Door stays open	– Sensor optic is dirty (sensors / photocells)	– Clean all sensors / photocells with a dry dust cloth
Door will not lock	– Door in not quite in the locked position	– Push the door into the locked position
Door does not close	– Obstacle in the safety zone – Impulse generator defective – Sensors or photocell optic is dirty – Emergency stop button pressed	– Remove obstacle – Replace impulse generator – Clean with a dry dust cloth – Reset emergency stop button

No automatic function	– Has not been normalized (restart lock is enabled)	– Normalize the door or press the restart (R) button
After power failure	– Restart lock is enabled	– Normalize the door
Over current	– Frictional resistance too high – Object stuck under the door – Guide rail skewed	– Adjust the door – Remove object – Realign / Replace guide rail
No door functions	– Power failure – Power supply interrupted – Motor or control fuse defective	– Connect power supply (i.e. switch circuit breaker) – Check power supply, replace if necessary – Replace motor or control fuse

8.3 Function during power failure

LOCKED operating mode

The door remains closed and locked.

AUTOMATIC and ONEWAY operating modes

The door can be opened manually with the door handle.

The door opens automatically by means of an energy storing device and remains open.

CONTINUOUS operating mode

The door remains open.

NOTICE

An emergency operation is only possible for a certain bridge period with an external (on-site) or integrated UPS (Uninterruptible Power Supply).

8.4 Functional behaviour when power is restored

When power is restored, an electric restart process is activated. To access the AUTOMATIC or ONE-WAY operating mode, the door control needs to be normalized again.

To do this, the key-operated switch has to be turned from AUTOMATIC to LOCKED and back again. Then the door will start its program at crawl speed and “search” for the CLOSED position. Rotation must not be hindered! After that the door is operational again.

9 Taking out of service and disposal

9.1 Decommissioning

When shutting down or taking out of service, the system is disconnected from the mains supply and any existing battery is unplugged.

NOTICE

After each temporary shutdown a new commissioning must be carried out.

9.2 Dismantling and disposal

IMPORTANT

All machine parts must be sorted by type of material and disposed according to local regulations and guidelines.

NOTICE

The door systems can be completely disassembled in reverse order.

The installation mainly consists of the following materials:

Aluminum:

- Linking profiles
- Gearbox, Drive panel
- Door wing profiles and side profiles
- Various profiles and small parts

Steel / iron parts:

- Stainless steel casing, Floor panel, Box recess for floor installation
- Optional spacer or reinforcement profiles
- Gear components, springs
- Various small parts like fittings, covers, linking parts, etc.

Glass:

- Door wings and side panels

Various electronic and electromechanical components:

- Sensors, control and operator components
- Batteries and rechargeable batteries

Various plastics:

- Rollers
- Cable clips, coupling and linking parts
- Sealing profiles
- Casing of electromechanical components and sensors

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