Protecting lives and property

ASSA ABLOY

Escape door locks – practical guidance and legal provisions

The global leader in door opening solutions

Contents

Preface

The ASSA ABLOY Group is the leading manufacturer and supplier of locks and related products worldwide. All of these products focus on one goal: to meet end-user's needs for security, safety and convenience. The Group is active in the development, production and marketing of mechanical and electromechanical locks, motorised and hotel locks, locking cylinders, fittings and other accessories. Escape door locks form an important element in this broad product mix.

European edition
The contents of this document relate to the latest European regulations. However, this handbook may be used outside Europe providing it is noted that all references relate to Europe and that local regulations must be complied with.
Not to be used in the US.

Fire, smoke and panic

Assess the problem
Security and safety are among Man's main concerns in life. Security was probably one of the earliest consideration for mankind. Ancient cave dwellers used heavy stones to protect their homes from intruders or wild animals. While this may have been effective against intruders – it was anything other than safe if fire broke out. Escaping from a life-threatening situation is not easy with a heavy stone to shift!

Statistics
When fires break out in buildings, it's often not the fire itself that ends up claiming human lives, but the smoke and panic which the fire causes. Smoke control is important, but it's even more important to have a sufficient number of exit doors which open outward and which can easily be opened without prior knowledge of how they work.

Recent fire-related disasters in Europe
Despite the constant advancements in technology, fire disasters with fatalities still happen. Even over the last decade, fires have caused thousands of deaths and many more severe injuries in Europe alone. With appropriate escape door locks, some of these lives could have been saved.

80,000

An estimated 80,000 people are injured in fires every year in the European Union; 4,000 of these cases are fatal.

The optimal solution
Safety and security need not be mutually exclusive. There is no need to sacrifice security (resistance to forced entry) to ensure that people can escape safely from an emergency or life-threatening situation. New solutions using mechanical or electromechanical escape door locks can guarantee easy escape from a secure building at any time.

An initial summary
A building lost by fire can always be replaced. Human lives lost to fires cannot. Choosing a suitable system can significantly improve safety.

How to use this handbook

New standards
A number of European standards for building hardware have already been published, others are due to appear shortly. Some of them, the so-called Harmonised Standards, have been mandated by the European Commission to meet the key requirements of the Construction Products Directive. Products complying with these standards are entitled to carry the CE marking. These new regulations are new to most of us and may seem difficult to understand. Demands for information and clarification are growing.

European and national standards
These harmonised European standards have already been or will be implemented in all member countries of the European Union. This means they are published as national standards. All existing national standards that conflict with the European standards will have to be withdrawn after a transitional period (co-existence phase). The standards serve as proof for use in building products.

Guidance, not a rulebook
This handbook gives guidance. Within the ASSA ABLOY Group, we have a vast amount of expertise in the area of escape door locks and their application in many countries throughout the world. With this document, our aim is to share this expertise with you and to help you to find your way through the complex standards and regulations surrounding this critically important subject. This handbook is not intended as a rulebook, rather as a practical aid to help you make the right decision. Choosing the suitable escape door lock ultimately remains the responsibility of the decision-maker, however.

Tool for planning and tenders

This handbook is designed as a tool for planning buildings and creating tenders. It will give some practical guidance, as well as information on standards and legal regulations. This document has been produced in particular for the following groups of people or institutions:

- *Architects, planners and bidders*
- *Safety officers*
- *Fire protection officers*
- *Building authorities*
- *Fire service*
- *Experts*
- *Safety advisers*
- *Operators*

This brochure will be an invaluable source of information for anyone involved in the selection of fittings for doors in escape routes.

Practical guidance
What is safety?

Life before property
Both the means of escape in case of danger (safety) and resistance to unauthorised use of doors (e.g. break-ins or theft) must be taken into account when designing a new building.

However, the new European standards focus primarily on requirements for safety. These requirements are mandatory and must be complied with. In this document, we focus on the issue of safety, but take security and protection from unauthorised use into consideration too.

Practical guidance
What is safety?

Safety

Safety
Protection from danger
Ability to escape or to help others to escape from dangerous or life-threatening situations, i.e. save lives.

- *Ensure that suitable means of escape are available at all times in case of emergency!*

Security

Security
Securing against misuse
Ability to prevent unauthorised entry to and exit from the building, i.e. protect people and property.

- *Secure doors reliably against unauthorised use!*

Practical guidance
Panic or emergency?

When selecting escape door locks, you should always ask the question: is there any chance that a panic situation may arise in this building?

Building regulations, fire safety requirements, etc. will often give appropriate guidance or may even require the use of special fittings. However, the designer should take all possible measures to reduce the potential risks that may occur over the entire lifespan of a building.

Technical solutions for dealing with panic situations or emergencies are different. It is therefore important to define what type of situation is likely to arise.

Practical guidance
Panic or emergency?

Panic situations

Panic situations

The reactions of a large number of people are always difficult to predict, especially in the event of a fire in a cinema, concert halls etc. The chances are that many of them will behave irrationally. The individuals exposed to such a panic situation must be able to find the escape door locks without previous knowledge of the premises and must be able to operate them without any special tools or keys. Panic door locks must be designed to perform correctly in even the most extreme situations, in order to allow panicking people to exit the building safely. Automatic unlocking of electrically controlled escape door systems when a dangerous situation is detected, e.g. by a fire alarm system, is essential to ensure that people can escape quickly.

Emergencies

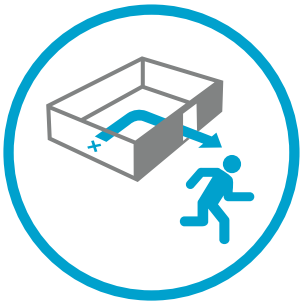
Emergencies

Typically, panic will not arise in hazardous situations involving a smaller number of people. Especially not if these people are familiar with the premises, emergency exits and with how the escape door locks function. This is usually the case in offices or other work environments. Information, training, etc. will allow people to act rationally and to overcome their fears when exposed to threatening situations. A clear understanding of the means of escape enables reasonable reactions, thus making clear choices possible:

- *Where to go*
- *What door to use*
- *How to operate the door*

Here too, it goes without saying that it must be possible to open the emergency exit without using any special tool or key, since they may not be available when an emergency arises.

Practical guidance
Panic or emergency?



Escape door locks

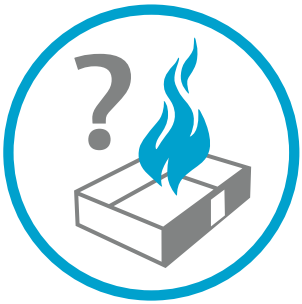
Escape door locks

In buildings, escape routes are largely defined by specifications from special construction or meeting place regulations. Escape routes include corridors, staircases and all other routes leading to a safe area outside the building. Escape doors located on escape routes and other doors leading outside should normally always open in the direction of escape. There may be exceptions, due to the likelihood of special weather conditions (heaps of snow outside, for example) or because of the type of use of the building (e.g. hospital or hotel rooms along narrow corridors). Escape door locks refers to all equipment in a building that is designed for opening escape doors. Ease of escape (safety) is always the first priority, but resistance to unauthorised entry (security) should not be compromised, not least because it could have a negative effect on safety.

Protecting lives with escape door locks

History shows that, after every disaster, the public authorities respond with new legislation and regulations. In most countries where major disasters have occurred, better solutions are now required by law. But why wait for the next disaster before we act? The traditional approach often fails to recommend the most suitable solutions for a panic situation. New solutions that take account of the latest technical developments and experience drawn from real disasters around the world are now readily available.

Practical guidance
Panic or emergency?



The general conditions
As a bidder or decision maker, you should always consider the most suitable and effective solutions in the interests of saving lives.

What happens when a fire starts?
The usual sequence of events when a fire breaks out is:

- *Fire and smoke detected*
- *Fire alarm sounds*
- *The building is compartmentalized with fire doors that close automatically*
- *Everyone is evacuated from the building*
- *Smoke is extracted by an SHEVS*
- *Fire fighting from inside (sprinklers, fire extinguishers, water walls, etc.) and from the outside (fire service).*

When designing a building, it is necessary to mark the escape routes and the locations of the doors along these routes. A check must also be carried out to identify any other requirements for these doors, e.g. whether they are fire protection barriers.

Practical guidance
Panic or emergency?

When does panic strike?
Fire is not the only possible cause of panic in a building. Terrorist attacks, shooting sprees, bomb threats or even technical faults can escalate quickly from an orderly evacuation into a panic situation.

The first questions to answer are:
- *Type and use of the building*
- *Type and use of individual rooms*
- *Size of each room*
- *Number of people allowed in the individual rooms*
- *Location of escape routes*
- *Likely knowledge of the people using the building relating to the premises and the fittings used*
- *Need to control exit or entry*
- *Are the doors fire protection and smoke control barriers?*

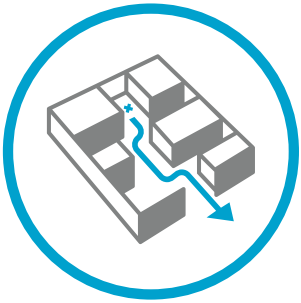
Consider the regulations
After answering these questions, always consider the regulations. Existing building codes and regulations from national and fire authorities must be taken into account. However, the new European Standards for panic and emergency exit locks should always be given priority when fitting doors.

Further advice
On the following pages, you will find a schematic representation of the relationships between escape routes and escape doors and the building and room use. There is also a table ranking the risk of panic in different types of building. Please note that these representations are examples only and are far from exhaustive.

Practical guidance
Panic or emergency?

Escape routes and escape doors
From a safety perspective, all doors along escape routes should be viewed as escape doors. They must therefore be identified as such and properly equipped with escape door locks in accordance with the new European standards.

Panic situation



Emergency situation

Practical guidance
Important considerations

Doors
The number of escape doors and the location and width of each door are all important considerations. The choice depends on the size of the area in which people will gather and the maximum number of people that might gather in that area at one time.

Escape door locks
Panic door locks should usually be used where large numbers of people will occupy a room. For rooms where small numbers of people usually gather, emergency exit locks are sufficient. Regardless of the type of escape door lock used, cost should not be the only criterion when making the selection.

Public buildings
Safeguarding human life is a responsibility shared by architects, bidders, public authorities and others involved in making decisions regarding the equipment used in a building.
In schools, theatres and other public buildings, it is necessary to make provisions for panic arising in case of fire or other emergencies. This requires outwards-opening escape doors, fitted with suitable escape door locks.
These are locks **that enable the doors to be opened AT ANY TIME from the INSIDE by ANYBODY.**
Some local regulations and special building regulations permit exceptions outside of working hours, as long as it can be guaranteed that there is nobody in the building. For security purposes, even escape doors may be locked at these times, providing the lock can not be activated during hours of occupancy.

Practical guidance
Important considerations

Specifically for this situation, electrically controlled escape door systems enable a mode for blocking the release on the door to be activated from a central escape route control. This ensures that no door is forgotten and that all doors remain blocked during business hours.

Doors with fire and smoke control requirements
Smoke and fire protection doors integrated in smoke and fire protection zones help to prevent fire or smoke from spreading from one fire protection zone to another. These doors should be fitted with locks that keep the door closed for fire protection purposes, even when it is not under power. Escape door locks or escape door systems suitable for use on fire doors and smoke protection doors should be used for this purpose. The equipment used on the doors must be chosen in accordance with the manufacturer's instructions.

Practical guidance
Types of escape door lock

Escape door locks are the different types of fittings for use on doors located on escape routes.

Panic door locks or **emergency exit locks** are selected based on the risk of a panic situation arising.

A **mechanically operated escape door lock** is a mechanically operated and locking fitting with a panic or emergency exit function: a **(mechanically operated) panic door lock** or **emergency exit lock.** This also includes motor-driven or handle-controlled locks that are operated purely mechanically in the direction of escape.

Escape door system is the common term for an electrically controlled system with panic exit function or emergency exit function: here too, we differentiate between **panic exit and emergency exit** with respect to the requirements.

Panic and emergency exit locks

Standard	*Emergency exit*	*Panic*
EN 179	*X*	–
EN 1125	*(X)*	*X*
EN 13637	*X*	*X*
· techn. independent	*EN 179 lock*	*EN 1125 lock**
· techn. dependent	*EN 179 actuation*	*EN 1125 actuation [2]*
· electric only	*emergency switch and/or EN 179 operating element*	*emergency switch* and/or EN 1125 operating element [3]*

** illuminated emergency switch and/or fire alarm system triggering*
[2] single actuation or illuminated emergency switch and/or fire alarm system triggering
[3] single actuation

Practical guidance
Mechanically actuated panic door locks

A panic door lock as per EN 1125 is designed to enable a safe and effective escape through a door with minimal effort requiring no prior knowledge of how to actuate the panic door lock, even if the door is under pressure, for instance if people push against it in the direction of escape.

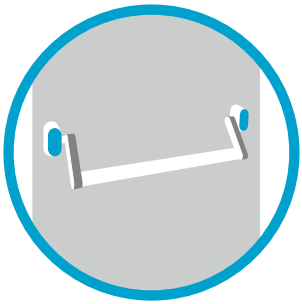
Panic door locks are intended for use where panic situations may arise. In panic situations, the behaviour of an individual person is different from the behaviour of a group of people.

If two or more people rush towards an escape door, probably in the dark and/or surrounded by smoke, the first person to reach the door may not necessarily actuate the panic door lock, but may push against the surface of the door (door under pressure), while other people may be trying to actuate the horizontal bar with their hands or by applying pressure with their body.

Note:

If a door opens in the direction of escape, a panic door lock can replace an emergency exit lock, if permitted by the applicable local regulations.

Practical guidance
Mechanically actuated panic door locks

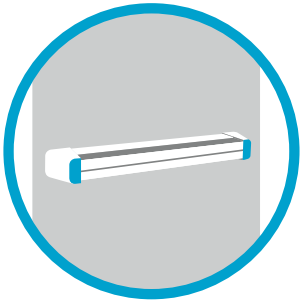


Type A

The standard differentiates between three types of panic door lock.

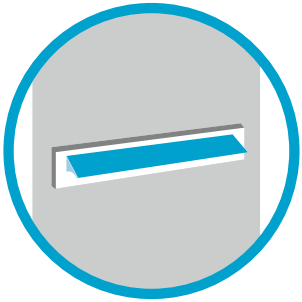
- *Type A: Panic door lock with handle bar*
- *Type B: Panic door lock with push bar*
- *Type C: Panic door lock with rotating push bar*

The **handle bar** is the horizontal actuating bar of a panic door lock (type A). It is designed to be fixed between two swivel arms or pivoted support brackets and operates in the direction of escape and/or in a downwards arc.



Type B

The **push bar** is the horizontal actuating bar of a panic door lock (type B). It is designed to be part of a frame or chassis or other mounting assembly and operates in the direction of escape.

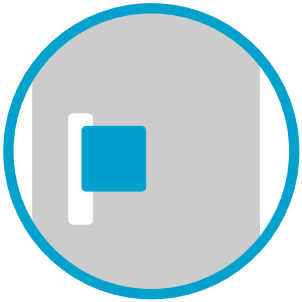


Type C

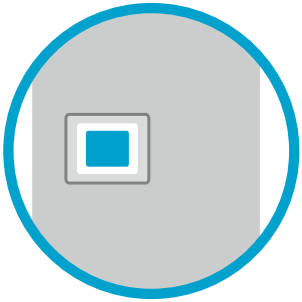
The **rotating push bar** is the horizontal actuating bar of a panic door lock (type C). It is designed to be part of a frame or other mounting assembly and includes a rotating movement operating in the direction of the exit.

Practical guidance
Mechanically actuated emergency exit locks

Type A



Type B



Type C

An emergency exit lock in accordance with EN 179 is designed for emergencies where panic situations are not likely to arise. It is designed to enable safe and effective escape through a doorway with one single operation to release the emergency exit lock, although this may require prior knowledge of its operation.

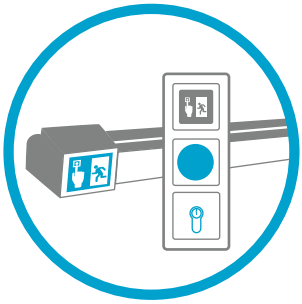
Escape door locks in accordance with EN 179 are designed for emergencies where panic situations are not likely to arise. If it is foreseeable that people may push against the door leaf in panic situations, a panic door lock in accordance with EN 1125 should be used.

Emergency exit locks are also suitable for inwards opening single-leaf escape doors, providing this is permitted in the local building regulations.

Note:

Emergency exit locks are not suitable as panic door locks!

Practical guidance
Electrically controlled escape door systems



Electrically controlled escape door systems as per EN 13637 are increasingly becoming part of the security system in a building and include the use of electric locking systems and electric control units.

These electrically controlled escape door systems also offer improved protection from misuse, enabling escape doors to be monitored and controlled in the direction of escape. Depending on the design, they are suitable for escape doors with panic and emergency exit requirements.

Electrically controlled escape door systems enable safe and effective escape through a door with a maximum of two operations for release, even if knowledge of the number of actuations (e.g. emergency button and/or operating element) and the features of the door is required (e.g. inwards opening).

One new addition is the definition of requirements for a time-delayed exit and the mode for blocking the release as a means of increasing protection from unauthorised exit in the building, as well as the central escape route control unit. It is the responsibility of the supervisory authorities in the relevant member states to decide whether these monitoring measures are permitted and, if so, to what extent they are permitted within the limits specified in the standard.

The requirements apply regardless of whether people are inside the building or not. For safety reasons, it is necessary to ensure that all additional functions of the system, such as access control, maintain the principle of failsafe release at all times.

Practical guidance
Electrically controlled escape door systems

These electrically controlled escape door systems consist of at least the following elements, either individually or in combination:

- ***Triggering element:*** *for releasing the electric locking system for the exit*
- ***Electric locking system:*** *for securing an escape door*
- ***Electric control:*** *for supplying, connecting and controlling electrical locking systems and emergency buttons*
- *These electrically controlled escape door systems can also include* ***time delay and/or a mode for blocking the release.***

Technical design:

Technically independent components

- *An electrically controlled escape door system may be combined with "**technically independent components**" – mechanical escape door locks in accordance with EN 179 or EN 1125.*
- *"Technically independent components" refer to escape door locks with no electrical and/or mechanical interactions with the safety functions of the escape door system.*

Technically dependent components

- *According to EN 13637, escape door systems may contain "technically dependent components" of an escape door lock in accordance with EN 1125 or EN 179 with electrical and/or mechanical interaction with the safety functions of the escape door system, e.g. a triggering element installed in the operating element.*
- *In this case, the escape door lock is part of the overall system and is covered by EN 13637. A full list of all possible components must be included in the manufacturer instructions.*

Practical guidance
Electrically controlled escape door systems

Electric locking system without escape door lock

- *In addition to combinations with escape door locks, EN 13637 also specifies that the door may be locked with electric locking elements alone, i.e. without an escape door lock. A traditional emergency switch may be used as a triggering element, or a dummy push bar/handle in accordance with EN 1125 or EN 179.*

Panic/emergency exit:
The fundamental decision regarding suitability is made based on the operating elements. Escape door locks in accordance with EN 1125 for panic requirements and EN 179 for emergency exit requirements. The maximum number of permitted actuations is two. For panic requirements, an illuminated emergency button and/or triggering by a fire alarm/fire alarm system is also required with two actuations.

What additional benefits are offered by electrically controlled escape door systems?
The escape door lock can be made more intelligent by adding one or more of the following functions:

- *Delayed release*
- *Status display (open, closed, locked)*
- *Door open monitoring*
- *Connection of a video monitoring system*
- *Connection to an access control system*
- *Time control (locking over night)*
- *Remote control (central locking, intercom system etc.)*

This achieves a high level of security.

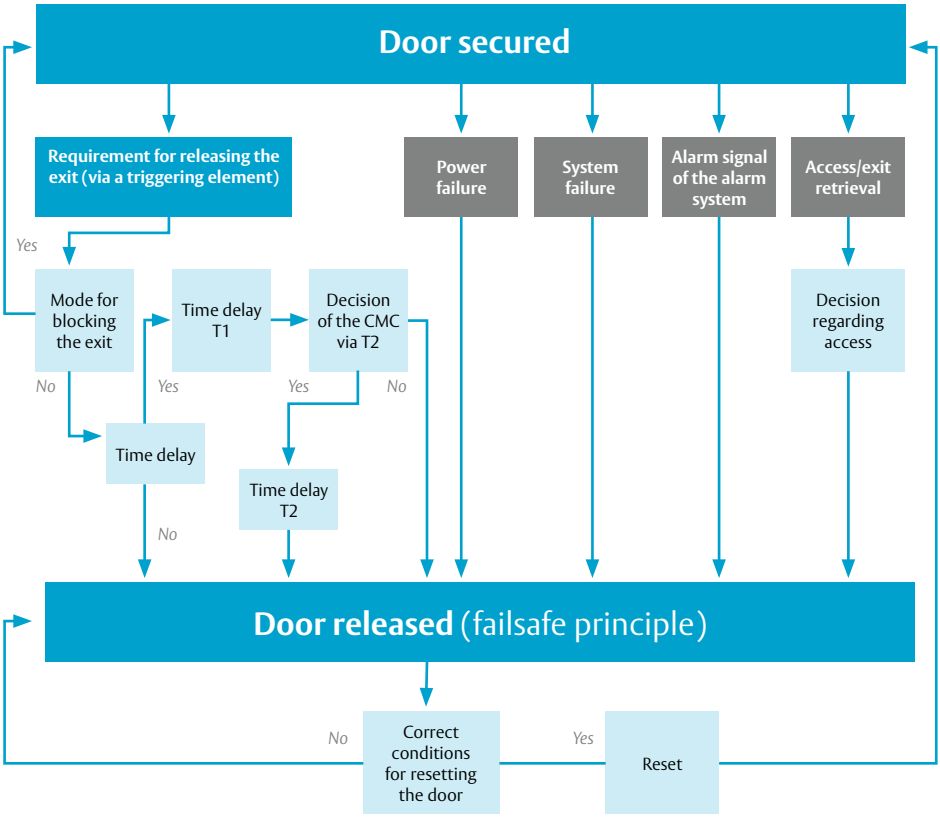
- *Increased locking force of the door*
- *Option for connecting a burglar alarm system*
- *Blocked release when there is nobody in the building*
- *Wait time when leaving the building as the required reaction time for the security staff*

Practical guidance
Electrically controlled escape door systems

Safety is not compromised.

- *Connection to a fire alarm system, resulting in automatic release of the electrically controlled locking system*
- *Fail-unlocked principle (de-energised open)*
- *Single fault safe electrical function of the release*

How electrically controlled escape door systems work



Practical guidance
EN standards performance classes

#	EN 179	EN 1125	EN 13637
	Building hardware – Emergency exit devices operated by a lever handle or push pad, for use on escape routes – Requirements and test methods	Building hardware – Panic exit devices operated by a horizontal bar, for use on escape routes – Requirements and test methods	Building hardware – Electrically controlled exit systems for use on escape routes – Requirements and test methods
1	**Usage** Class 3: High usage frequency in situations when there is little incentive to be careful, i.e. where there is the possibility of accidents or misuse.	dto EN 179	dto EN 179
2	**Permanent function – test cycles** Class 6: 100,000 Class 7: 200,000	dto EN 179	**Permanent function – test cycles** Class 6: 100,000 Class 7: 200,000 Class 8: 500,000 Class 9: 1,000,000
3	**Mass of the door** Class 5: up to 100 kg Class 6: up to 200 kg Class 7: over 200 kg	dto EN 179	**Mass of the door** Class 1: up to 100 kg; max. closing force 50N Class 2: up to 200 kg; max. closing force 50N Class 3: over 200 kg; max. closing force 50N Class 4: up to 100 kg; max. closing force 25N Class 5: up to 200 kg; max. closing force 25N Class 6: over 200 kg; max. closing force 15N Class 9: over 200 kg; max. closing force 15N
4	**Fire protection/smoke protection** Class 0: not approved Class A: Smoke protection Class B: Fire and smoke protection	dto EN 179	dto EN 179
5	**Safety – personal safety** Class 1: highest class!	dto EN 179	dto EN 179
6	**Corrosion resistance** Class 3: 96 h Class 4: 240 h	dto EN 179	**Corrosion resistance, humidity and IP protection** Class 0: Indoor areas Class 1: Indoor areas where condensation may occur; Class 2: Outside areas
7	**Security – burglary protection** Class 2: 1,000 N Class 3: 2,000 N Class 4: 3,000 N Class 5: 5,000 N	**Security – burglary protection** Class 2: No requirement	**Security/holding force – from the outside** Class 2: 1,000 N Class 3: 2,000 N Class 4: 3,000 N Class 5: 5,000 N Class 6: > 5,000 N

Practical guidance
EN standards performance classes

#	EN 179	EN 1125	EN 13637
8	**Projection of the operating element** Class 1: up to 150 mm Class 2: up to 100 mm	dto EN 179	**Security/holding force – from the inside** Class 1: 500 N Class 2: 1,000 N Class 3: 2,000 N Class 4: 3,000 N Class 5: 5,000 N Class 6: > 5,000 N
9	**Actuation type** Type A: Handle actuation Type B: Push pad	**Actuation type** Type A: Handle bar Type B: Push bar	**Time delay** Class 0: No time delay Class 1: Single time delay t1 = max. 15 s Class 2: Double time delay t1 = max. 15 s t2 = max. 180 s
10	**Application area of the door** Class A: outwards opening single-leaf escape door, double-leaf escape door: active or inactive leaf; Class B: only outwards opening single-leaf escape door; Class C: outwards opening double-leaf escape door: inactive leaf only; Class D: only inwards opening single-leaf escape door	**Application area of the door** Class A: single-leaf door, double-leaf door: active or inactive leaf; Class B: only single-leaf door; Class C: double-leaf door: inactive leaf only.	**Mode for blocking the release** Class 0: No blocking of the release (always safe) Class 1: Blocking of the release available (safely within a defined time span)
11			**Configuration** Category A: Triggering element, in accordance with EN 1125, installed in and operated by a horizontal bar. Category B: Triggering element installed outside the door leaf as part of the escape door system and not connected functionally with an escape door system. Category C: Triggering element installed in the dummy of an actuating bar or a handle, which is not an operating element, and activated by it. Category D: Other escape door systems that do not correspond to the categories listed above.

Practical guidance
Planning

There are escape door locks and electrically controlled escape door systems for a wide range of applications and doors. The following points must be taken into account when making the selection:

Design of the door
- *Single-leaf door*
- *Double-leaf door*
- *Active leaf*
- *Inactive leaf*

Construction of the door
- *Solid or frame door*
- *Material*
- *Weight*
- *Width and height of the door leaf*
- *Thickness of the door leaf*

Desired mounting of the lock
- *Concealed installation: the lock/locking system is installed in the door leaf*
- *Screw-on or surface mounting: the lock is mounted completely on the surface of the door leaf*

Function of the door
- *A door located on an escape route (escape door)*
- *Escape door in a fire protection barrier/smoke protection barrier*
- *High-security door*

Accessories required
- *Electric strikes*
- *Door coordinator*
- *Driver*
- *Espagnolette*

The approval for the escape door lock must cover all key data listed above. The escape door locks may only be installed by qualified personnel!

Practical guidance
Planning

Additional selection criteria
The most frequently used versions are:

- *Door knob or fixed knob; opening with a key (transmission function)*
- *Handle or thumbturn*
- *Handle or thumbturn; can be activated via a key*
- *Electrically controlled outer fitting*
- *No option for opening from the outside (exit only)*

Of course, it must not be possible to deactivate the escape door function via the outer fitting. This makes it important to make sure that the outer fitting has been checked together with the selected escape door lock.

Additional selection criteria
- *European standards only describe the minimum requirements for the function. The relevant requirement can be selected according to the possible classes*
- *The quality of the products*
- *The quality of the installation technology*
- *The functional reliability of the products over many years (despite intensive use or stress caused by adverse environmental conditions)*
- *The level of the overall solution, including additional products such as door closer equipment, strips, door drives, door coordinators etc.*

Practical guidance
Requirements profiles

Which product is suitable for which requirement profile?

Panic and emergency exit locks

Requirement	***Mech. lock***			***EN 13637***			
	EN 179	***EN 1125***		***EN 179***	***EN 1125***		***Electric***
	installed	*mounted*	*installed*	*installed*	*mounted*	*installed*	
Panic situation	*No*	•••••	•••••	*No*	••••	••••	••••
Emergency situation	••••	•••••	•••••	••••	••••	••••	••••
Securing against misuse	•	•	•	•••••	•••••	•••••	•••••
User-friendly	••••	•••••	•••••	•••	••••	••••	••••
Burglary protection	••••	••	•••	•••••	•••	•••••	•

••••• *very well suited*
•••• *well suited*
••• *less suited*
•• *not suited*
NO *not permitted!*

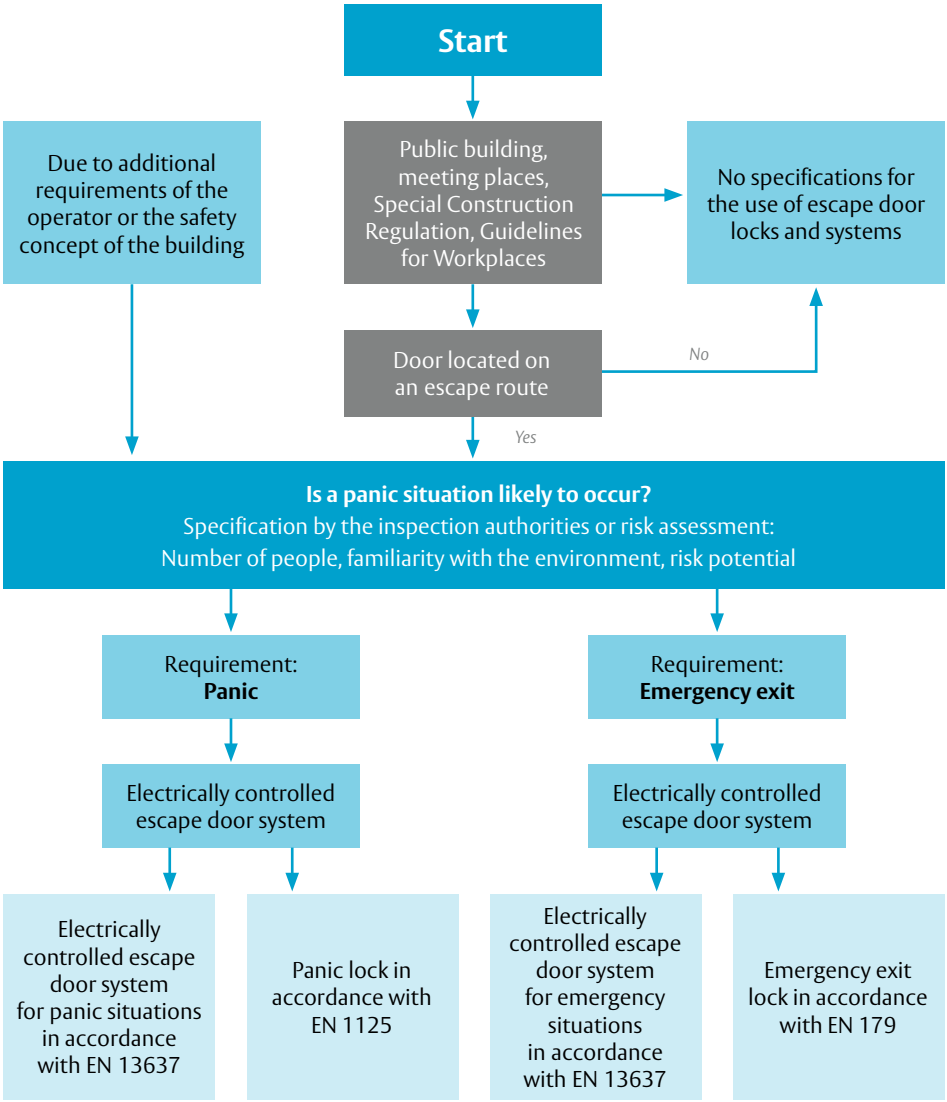
Practical guidance
The risk of panic

In general, the risk of panic in different rooms can be assessed as follows. However, this basic categorisation is not a substitute for carrying out a thorough and individual assessment of the risk factors.

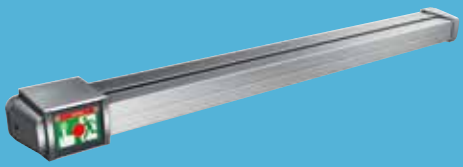
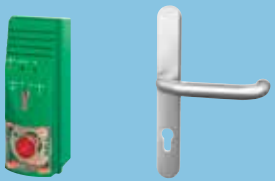
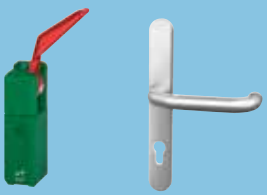
Risk of panic

Airports	3	*Power plants*	2
Nightclubs	4	*Shopping centres*	3
Cinemas	5	*Student halls of residence*	1
Department stores	3	*Restaurants*	2
Discos	5	*Theatres*	6
Factories	1	*Universities*	3
Senior citizens' homes	1	*Schools*	3
Hospitals	1	Nursery schools	3
Hotels (public areas)	2	Event venues	6
Office buildings	1		

Practical guidance
Making a decision

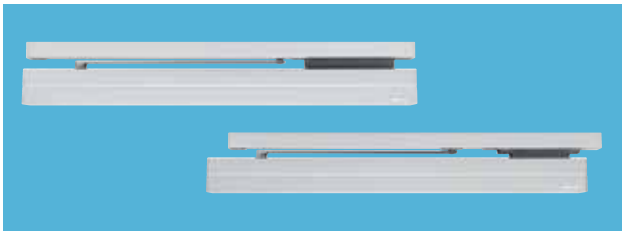


Practical guidance
Products

	Panic	Emergency exit
Integration in the safety concept		
FTA push bar		
FTA Basic Plus		
FTA Basic		
Alarm notification		

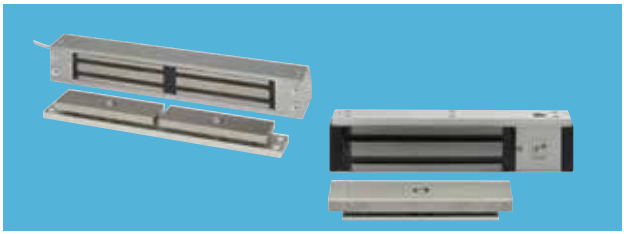
Practical guidance
Products
Locking elements and accessories

Security door closers for both hinge and non-hinge sides

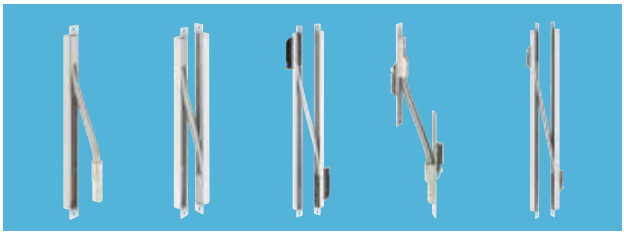


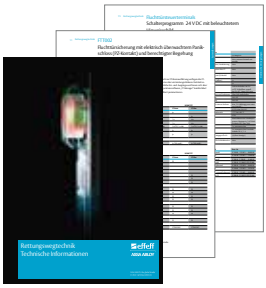
Electric escape door strikes

Flat holding magnets



Cable transitions





Extensive information on solutions and products is available in the escape route technology catalogue and online at:
www.assaabloy.de

Practical guidance
Installation

The installation and assembly instructions from the manufacturer are important when using escape door locks and/or an electrically controlled escape door system. The instructions contain descriptions of the device configuration, performance characteristics, specifications and exclusions for use. A check must be carried out to verify that the components correspond to the approved device combination. The installation and assembly instructions describe the relevant conditions when using an electrically controlled escape door system in a technically independent combination with existing escape door locks. The suitability must be checked based on the intended use, the execution planning and confirmation from the responsible building authorities.
A system approval with the door must be in place for a possible combination with smoke and fire protection barriers.

The general classification for the suitability of the escape door lock or the escape door system for fire or smoke protection doors only describes the successful completion of a fire test, i.e. the minimum requirements and not the explicit suitability for a specific door.

Compliance test/maintenance

Regular maintenance and inspection of technical systems not only helps to preserve the value of a system, but also ensures that the technical working environment continues working correctly. Maintenance thus makes an active contribution to saving lives. It is therefore extremely important that maintenance work is carried out with the appropriate care.
To this end, ASSA ABLOY Sicherheitstechnik has compiled an inspection and maintenance log to ensure that maintenance work is carried out to the long-established standard for effeff products. Because electrically controlled escape door systems are CE-certified products, we place great importance on the correct execution and logging of the initial acceptances and maintenance work.

Practical guidance
Compliance test/maintenance

According to the specifications of EN 13637 and the maintenance regulations for the products, inspections must be carried out by an expert at the following stages:

- *before the first commissioning and after any major changes*
- *recurring inspection at an inspection interval of no more than 1 year*

Attending seminars on inspecting electrically controlled escape door systems will give you the necessary knowledge. After completing a test, you will receive a seminar certificate verifying your suitability.

The compliance test
The electrically controlled escape door system must be checked and officially approved once the installation is complete and before commissioning. EN 13637 specifies that the acceptance may only be carried out by a specialist. The setup of the system and the test must be documented. Two sections are provided in this test log book for this purpose.
Another compliance test must be carried out following significant modifications!

The annual inspection
The annual inspection is based on the EN 13637 specifications and the maintenance instructions for the products. The same requirements as for the compliance test apply here.

Note
Test protocols should only be issued if no defects or only minor defects were identified. Minor defects must be recorded in the protocol, however. If safety-relevant defects are identified, the system must be taken out of commission.

Legal provisions

Legal provisions
Only up-to-date knowledge is valuable

Note:

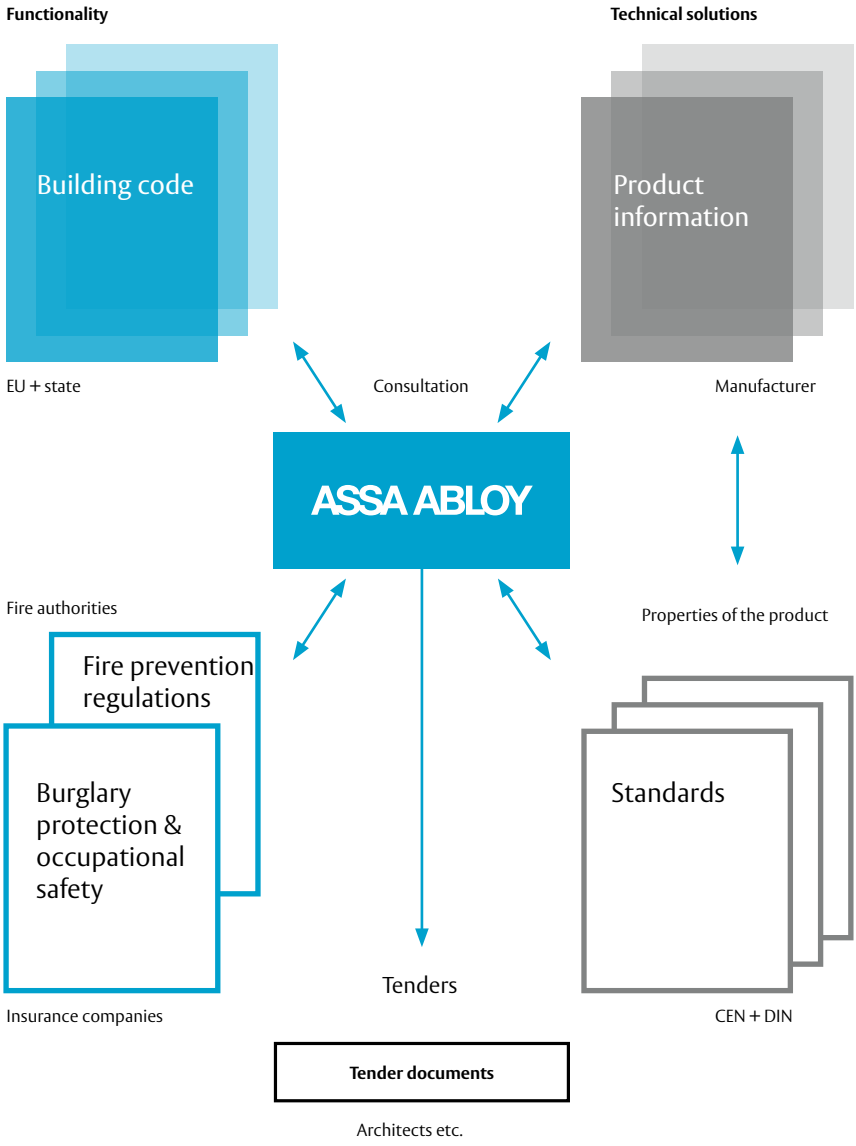
Please always ensure that you are familiar with the latest editions of the European standards and national regulations!

Why?
Society is changing constantly. National regulations are also updated continuously to adapt to these new situations.
In future, these updates will be governed by the European standards, with the goal of harmonising the various national regulations and standards on subjects of major importance.

Topics such as protecting lives, environmental protection, safety in use, etc. are now regulated more stringently.
European regulations usually give general guidelines on what to do in which situations. They define the objectives that have to be met. Standards and technical specifications then define the requirements products have to meet and the way testing and assessment of conformity is performed.

European regulations and standards will gradually replace existing national regulations and standards. This will lead to harmonised regulations and standards in all EU member countries on those important subjects. This transition process takes time. It is therefore important that you keep up-to-date on the latest developments.

Legal provisions
All information sources at a glance



Legal provisions
The European Construction Products Directive

The EU Construction Products Regulation 89/106/EC has been replaced by the EU Construction Products Regulation No. 305/2011. The new regulation has been binding since 1 July 2013.

As a European regulation, the CPR applies immediately in all member states. It is not necessary to implement the regulation in national law.

According to the regulations of the member states, buildings must be designed and built so that they do not endanger the safety of people, pets or property or damage the environment.

The Construction Products Regulation continues the intention of the previous CPR, although the content has been simplified, clarified and updated. Primary objectives include the distribution of construction products, free movement of goods and the removal of technical trade barriers within the EU market. Harmonised technical specifications are designed to create standardised EU-wide product and testing standards, providing harmonised performance specifications for construction products.
The Construction Products Regulation defines the conditions for distributing and supplying harmonised construction products on the market, along with the requirements for the declaration of performance and the CE marking.

Changes in the Construction Products Regulation
Construction products distributed on the market after 1 July 2013 must comply with the Construction Products Regulation. "Distribution" refers to the first time a construction product is made available on the European market by the manufacturer, his representative or the importer. This is different from the term "supply", which refers to passing on a construction product launched on the market through the supply chain, e.g. specialist building materials supplier to the end customer.

Legal provisions

The European Construction Products Directive

The Construction Products Regulation differs from the previous CPR in particular with regard to the declaration of performance, the CE marking and the assessment and inspection of the constancy of performance.

The CE marking must be applied based on a declaration of performance, where the performances of the construction product are specified for its key characteristics. The key characteristics of a construction product are outlined in the harmonised technical specifications, based on the legal requirements defined by the member states in relation to fulfilling the basic requirements for buildings. Suitability for fire protection and/or smoke control barriers and for doors in escape routes are therefore key characteristics for fulfilling the basic requirement "fire protection" and, consequently, for protecting a building and, most importantly, the health and safety of its users, over the entire lifecycle of the buildings.

Characteristics of a construction product which are not based on a legal requirement (e.g. the colour design) are not covered by the declaration of performance and the CE marking.

The key characteristics of a construction product are defined in the appendix of a harmonised standard or a European assessment document.

CE	ASSA ABLOY Sicherheitstechnik GmbH Bildstockstraße 20 72458 Albstadt DEUTSCHLAND									
0432-CPR-00007-15	2015									
DIN EN 1125:2008	3	7	7	B	1	3	2	2	A B	A B
–										

Legal provisions
National building laws

When a harmonised European standard (hES) is published, all EU member states must withdraw their relevant national building regulations and standards by the end of the coexistence phase at the latest.

State building regulations
European standards define the minimum requirements for the safety of the products. The regulations for the use, restrictions and maintenance are created by the national inspection authorities (state building regulations).

Fire protection and occupational safety
Always check your local fire protection and occupational safety code!
Each country has its own fire protection and occupational safety requirements. Although fire authorities have a similar approach in all European countries and many national laws basically include the same requirements, they often differ in the detail.

Insurance requirements
Insurance companies
Insurance companies and their associations define their own safety and security requirements, which usually go above and beyond the general requirements. Always check your particular insurance requirements during the planning phase to ensure that any claims are processed smoothly.

Frequently asked questions

What is the difference between panic door and emergency exit locks and where do I use them?
Panic door locks according to EN 1125 are intended for use on escape doors where a panic situation may arise. They enable safe and effective escape through a doorway with minimal effort and without prior knowledge of the lock.

Emergency exit locks according to EN 179 are intended for use where people are familiar with the building and no panic situations are expected. They enable safe and effective escape through a doorway with a single operation, although this may require prior knowledge of how to operate the lock.

Can I use an emergency exit lock on a panic door?
No! Panic door locks may be used on emergency exits, but emergency exit locks do not have the security level of panic locks, so they may never be used on panic doors. If in doubt, always specify panic door locks.

Is it possible to offer an electrically controlled solution?
Yes. Electrically controlled escape door systems (in accordance with EN 13637) allow you to control the escape door, including in the direction of escape, and to link it to fire alarm systems, access control systems etc. without jeopardising the safety characteristics.

Can I use escape door locks on fire doors?
Yes. But you should verify that the lock is suitable for use on fire doors. A test must also have been carried out on the entire door system or retrofit mounting of all components must be permitted. This must be clarified with the door manufacturer.

Frequently asked questions

Can an escape door be integrated in an access control system?
Yes. When connected accordingly, access control systems do not conflict with the escape door function on an electrically controlled panic door or emergency exit lock.

Can I use electric strikes or electric locks?
Electric strike or electric lock functions may be used as long as they do not affect release in the direction of escape. The locks or the lock/electric strike combination must be approved as an escape door lock.

What does "fail-locked" and "fail-unlocked" mean?
Fail-unlocked function (de-energised open) means that the door can be opened manually in de-energised state. If a system works according to the fail-locked principle, the door is locked in deenergised state.

Is it possible to return through the escape door and why?
Under certain conditions, it may be necessary to enable people to return through the escape door during an evacuation, e.g. if the escape route leads through a stairwell with a confusing design or through other rooms. In this case, an escape door lock designed specifically for this purpose must be used.

Is it possible to connect an escape door lock to a burglar alarm system?
Yes. When connected accordingly, burglar alarm systems do not conflict with the escape door function on an electrically controlled escape door system. It is advisable to have the installation carried out by a qualified specialist company.

Technical terms and definitions

Note:

A number of the following definitions are excerpts taken from the standards EN 1125, EN 179 and EN 13637.

Terms	Description
Application area of the door	Door configurations which panic door locks are designed and equipped for by the manufacturer.
Failure	A single failure that can result in a hazardous situation caused by a component, a programme or external influences etc.
Triggering element	Manually actuated element for releasing the electric locking system for the exit.
Exterior	The side of the door opposite to the side where the bar for actuating the escape door lock is mounted.
External access device	Optional part of a panic door lock for opening the lock from the outside.
Authorisation	Depending on the actuation, function and maintenance situation, the escape door system has the necessary precautions to prevent unsafe situations in accordance with the skills and responsibly of the personnel.
Component group	Pre-assembled set of components forming part of the panic door lock, e.g. Pullman locks, actuation casing and lock case.

Technical terms and definitions

Control element	Manually actuated element of an escape door system or escape door lock that releases the door mechanically.
Actuation (to release the door)	Movement in one direction to release the door (not to open the door).
Actuating bar	Horizontally mounted part of a panic door lock that actuates the mechanism when pressed.
Rotating push bar	Horizontal actuating bar of a panic door lock (type C), designed to be part of a frame or other mounting assembly; includes a rotating movement operating in the direction of the exit.
Handle	Swivelling operating element as part of an emergency exit lock, with a swivel axis vertical to the door leaf surface and which is operated with the emergency exit mechanism to release the blocking element(s).
Push bar	Horizontal actuating bar of a panic door lock (type B) designed as part of the frame or another mounting assembly, which is moved in the direction of escape.
Single time delay (t1)	Defined time delay between the actuation of the triggering element and the release of the electric locking system.
Failsafe principle	Ability of an escape door system to carry out a release during a power failure, failure in an electrical component, or interruption in the connection between the control, locking system and the triggering elements of the system.
Electrically lockable operating element	Operating element that prevents the release of the door in energised state.
Electric locking system	Electrically actuated element of an escape door system, which maintains the secure state of the door, e.g. an electromagnet, an electric strike, an electrically locking operating element.

Technical terms and definitions

Latch

Spring-loaded, moving part of a lock that normally actuates a component mounted on a frame and retracts into a lock case, which automatically actuates a locking plate to keep the door leaf in the closed position.

Arrestor

Part of a panic door lock that locks the blocking elements in the retracted position until they are reset manually.

Escape door

Door in an escape route, fitted with an escape door lock in accordance with EN 179 and/or EN 1125.

Escape door system

Electrically controlled escape door system in accordance with EN 13637, which enables escape doors to be controlled electrically with electric locking systems, a triggering element and electric controls. These individual components can be connected with each other or combined in different assemblies that provide the required system functions.

Escape door lock

Mechanically actuated lock, designed for a door with panic door function (panic door lock EN 1125) or emergency exit function (emergency exit lock EN 179) for use in escape routes.

Release force

The force required on the actuation element to retract the blocking element(s) from the locking counterpart(s) or to release them so that the door can be opened.

Releases

Deactivating the electric locking system by disconnecting the power supply (failsafe principle) to release the electric locking system.

Technical terms and definitions

Active leaf (1st door leaf)

The first leaf to open and the last leaf to close in a double-leaf rebated door (normally rebated) opening in one direction.

Handle bar

Horizontal actuating bar of a panic door lock (type A) mounted between swivel arms, that operates in the direction of escape and/or in a downwards arc.

Interior

Side of the door on which the bar for actuating an escape door lock is mounted to enable escape.

Mode for blocking the release

Manually activated operating mode that blocks the release if the triggering element is actuated, i.e. during the defined period when the public is forbidden from being in a building or area.

Emergency exit lock

Escape door lock in accordance with EN 179 for emergencies where panic situations are not likely to arise. It is designed to enable safe and effective escape through a doorway with one single operation to release the emergency exit lock, although this may require prior knowledge of its operation (see EN 179).

Emergency exit lock for double-leaf doors

An emergency exit lock for use on leafs on double-leaf doors. It is designed so that the actuation of each operating element releases at least the door leaf it is mounted on.

Panic door lock

An escape door lock in accordance with EN 1125, designed to enable a safe and effective escape through a door with only minor effort, with no prior knowledge of how to actuate the panic door lock required, even if the door is under pressure, for instance when people push against it in the direction of escape. A panic door lock contains one or multiple blocking element(s) for securing the closed door, which engage(s) in one or more locking counterpart(s) mounted in the surrounding door frame and/or in the floor. The blocking elements can be released with the actuating bar mounted horizontally on the inside of the door by moving the bar at any point over its effective length in the direction of movement and/or in a downwards arc.

Technical terms and definitions

Panic door lock for double-leaf doors	A panic door lock for use on leafs on double-leaf doors. It is designed so that the actuation of each actuating bar releases at least the door leaf it is mounted on.
Dead bolt	Part of an escape door lock that is pre-locked manually with the key or that engages automatically and is released as soon as the escape door lock is actuated.
Immediate release	Release within one second or less.
Blocking element	Part of an escape door lock that engages in the locking counterpart in closed position to secure the door.
Lock counterpart	Part of an escape door system, like a striking plate, a floor strike plate or another accessory that the blocking elements engage in.
Inactive leaf (2nd door leaf)	The last leaf to open and the first leaf to close in a double-leaf rebated door (normally rebated) opening in one direction, including an emergency or panic function.
Inactive leaf (occasional leaf)	Lockable door leaf with a locking device (e.g. shaft bolt, flush bolt, etc.), that is only opened when needed, without emergency or panic function.
Control	Element of an escape door system for monitoring, supplying, connecting and controlling an electric locking system and triggering element.
Push pad	Operating element of an emergency exit lock that actuates the emergency exit lock mechanism in an arc in the direction of the exit to release the blocking element(s).

Technical terms and definitions

Touch pad

Operating element of an emergency exit lock with linear operation in the direction of the exit.

Shoot bolt rod

Vertically mounted extension of the blocking element on a panic door lock that connects it with the horizontal actuating bar via the actuation mechanism.

Door

Assembly consisting of a single-leaf escape door that can be swivelled vertically in a frame.

Re-entry function

Optional function that enables a person to re-enter a room from the outside without a key for safety reasons as soon as the inner operating element is actuated. When the lock is released from the inside, every handle (or any other tool) for actuating the escape door lock from the outside remains unlocked until a manual reset is carried out with a key.

Central escape route control CMC

Central operator panel operated by authorised personnel for monitoring and actuating the electrically controlled escape door system, including the double time delay and/or blocking the release.

Reset

Manual or automatic reset of the escape door system to its original state.

Double time delay (t1 + t2)

Time delay (t1) with the option of triggering an additional time delay (t2) manually via a central escape route control.

Double-leaf door

An assembly consisting of two hinged or pivoted leafs within a single frame.

Technical terms and definitions

Main term	Description
EU	European Union
CEN	European Standard Organisation (Comité Européen de Normalisation)
EN	European standard
prEN	Provisional European standard (not yet published)
Standard	A non-mandatory technical specification approved by a recognised standard organisation.
Regulation	A mandatory requirement issued by European or National authorities.
Escape route	A protected route such as a corridor or staircase leading to a designated safe area, normally outside the building.
Escape door	A door located on an escape route.
Access	Opportunity to gain entry to a building or area within a building.
Exit	Opportunity to exit from a building or area within a building.

About ASSA ABLOY

ASSA ABLOY

The ASSA ABLOY Group is the leading manufacturer and supplier of locks and related products worldwide. All of these products are focussed on one goal: to meet end-user's needs for security, safety and convenience.
The Group is active in the development, production and marketing of mechanical and electromechanical locks, motorised and hotel locks, locking cylinders, fittings and other accessories. Escape door locks form an important element in this broad product mix.

The Group originated in the Nordic countries and holds market-leading positions there. The Group also has strong positions in other European markets, North America, Australia and South East Asia. Within the electromechanical area, ASSA ABLOY holds a world-leading position in the field of hotel security.

ASSA ABLOY has recognised that close proximity to customers in the individual countries, experience with national standards and regulations, long-standing business relationships and well-established distribution channels are the prerequisites for success.

About this brochure

We have used information from many sources, including established national and international regulations, the new European standards and our own practical experience in many countries where the use of panic door and emergency exit locks is well established. Our knowledge has been gained over many years of overseeing tenders for a wide range of critical applications. ASSA ABLOY will accept no liability of any kind regarding the use of this handbook.

European edition
The contents of this document relate to the latest European regulations. However, this handbook may be used outside Europe providing it is noted that all references relate to Europe and that local regulations must be complied with. Not to be used in the US.

References
DIN EN 1125: Building hardware – Panic exit devices operated by a horizontal bar – Requirements and test methods (November 1997)
DIN EN 179: Building hardware – Emergency exit devices operated by a lever handle or push pad – Requirements and test methods (November 1997)
DIN EN 13637: Building hardware – Electrically controlled exit systems for use on escape routes – Requirements and test methods (December 2015)

Contact person

ASSA ABLOY Group
If you would like more information or product documentation or if you require practical support, your ASSA ABLOY partner will be happy to help!

ASSA ABLOY is the global leader in door opening solutions, dedicated to satisfying end-user needs for security, safety and convenience

ASSA ABLOY

Subject to technical changes.
2.1901-220 0G0 00 3.0_09/16

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