

EN 14637 - European Standard for Hold-Open Systems



Due to their great importance for fire protection, hold-open systems are regulated at European level by EN 14637: Locks and building hardware - Electrically controlled hold-open systems for fire/smoke doors - Requirements, test methods, applications and maintenance.

EN 14637 has not yet been harmonized and may therefore not be applied as a product standard for the marketing of hold-open systems (observe national regulations!!). However, in Europe it is generally regarded as a set of rules for the installation, commissioning, testing and maintenance of hold-open systems. Thus, in many countries, the standard is given legal character - unless national regulations replace, supplement or partially repeal it.

EN 14637 contains large parts of the German regulations. In general, it determines how a hold-open system is constructed, where fire detectors and other components of the hold-open system are to be installed and what must be observed during the installation, commissioning and maintenance of a hold-open system.

We have summarised the most important requirements for you on the following pages.

Most of the regulations relate to the fire detectors. It also regulates where and how the hold-open device is to be fastened, how it is to be designed and how it is to be triggered manually.

Another important point is the regulations on acceptance testing, periodic inspections and maintenance as well as information on the marking of the hold-open systems.



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Regulations for Fire Detectors

What are Fire Detectors?

Fire detectors can be smoke or heat detectors. But:

Smoke detectors should be used as far as possible.

Heat detectors should be used if smoke or dust occur during normal working or manufacturing processes, so that there is a danger that smoke detectors trigger false alarms.

Heat detectors should not be used on smoke protection closures, as smoke is not detected by a heat detector and therefore the smoke protection function is not given.

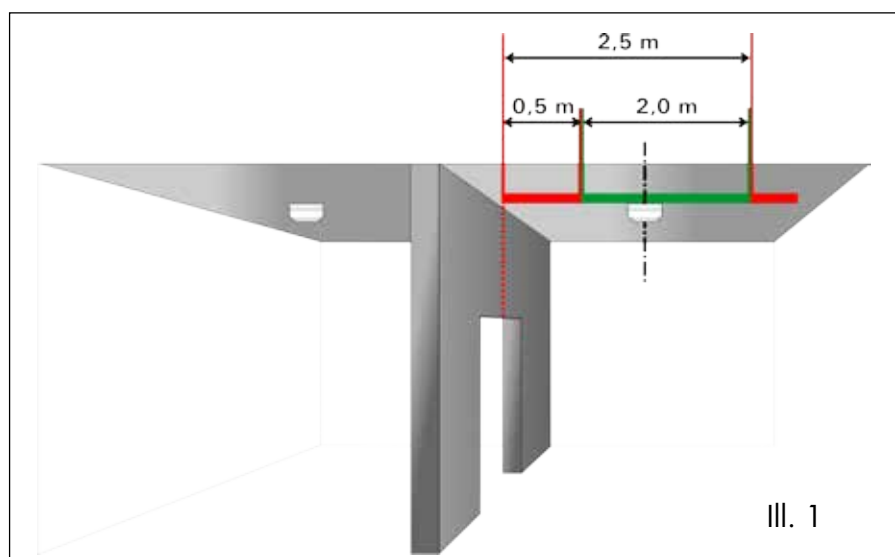
Definition of Ceiling/ Lintel Detector

The distinction between ceiling detectors and lintel detectors mentioned in the following is only due to their installation position. They are not different detectors.

The position in which the detectors are installed (on the ceiling or directly on the lintel) depends, among other aspects, on the distance between the top edge of the door and the ceiling, as well as the type of fire protection closure.

Ceiling Detectors

1. Ceiling detectors should be installed directly below the ceiling under-surface above the clear door opening – at least one on each side.
2. The horizontal distance of the detectors from the wall should be, at least, 0.5 m and 2.5 m at most (ill. 1).

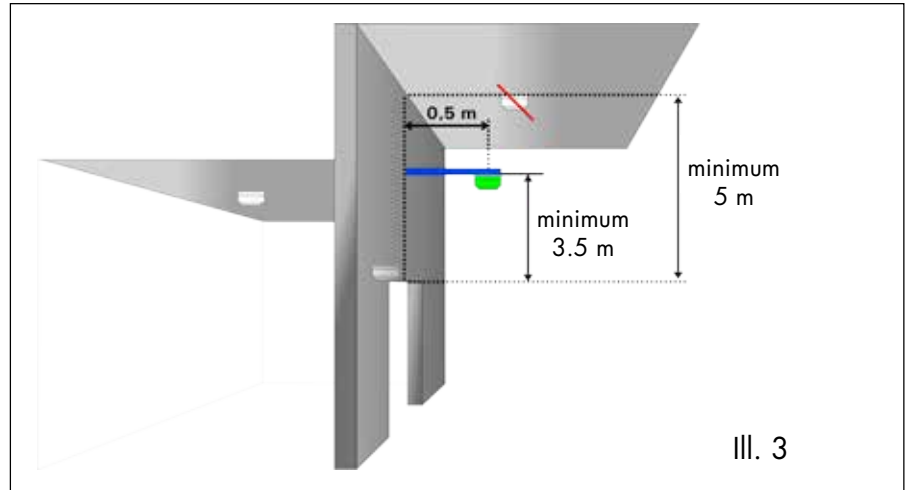


Regulations for Fire Detectors: Ceiling Detectors - cont.

3. If the distance between the ceiling and the clear opening is more than 5 m, detectors shall be installed on cantilever arms with a length of 0.5 m (*DICTATOR cantilever, part no. 040575, ill. 2*), and at least 3.5 m above the opening (*ill. 3*).



DICTATOR cantilever, part no. 040575 ill. 2

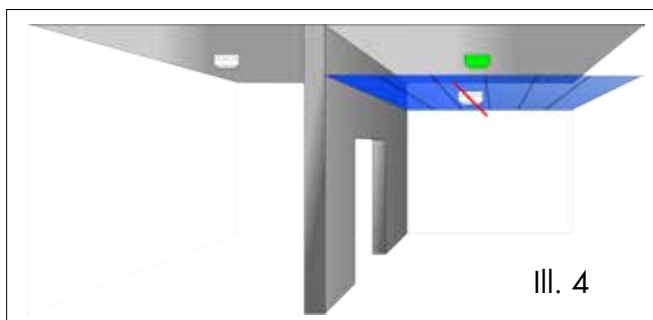


ill. 3

Special Regulations for Ceiling Detectors on Suspended Ceilings

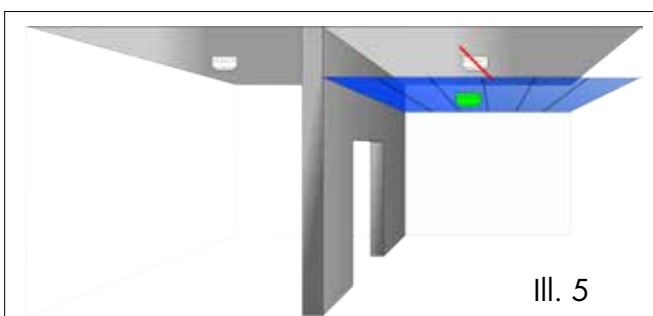
If suspended ceilings or false ceilings are installed, the following points must be clarified:

- Is the suspended ceiling permeable to smoke (ill. 4)?
- Is the suspended ceiling impermeable to smoke (ill. 5)?
- Where does the highest smoke concentration arise first?



ill. 4

The suspended ceiling is smoke-permeable
=> Ceiling detector is installed on the bare ceiling



ill. 5

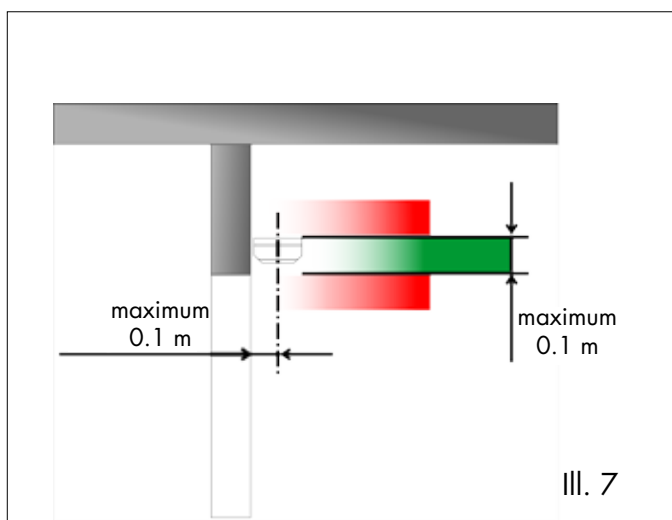
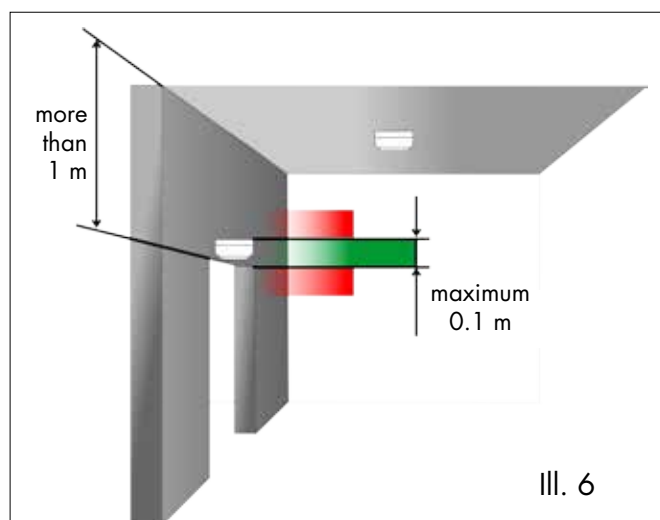
The suspended ceiling is smoke-impermeable or classified in terms of fire protection
=> Ceiling detector is installed on the suspended ceiling

Regulations for Fire Detectors: Lintel Detectors

Lintel Detectors

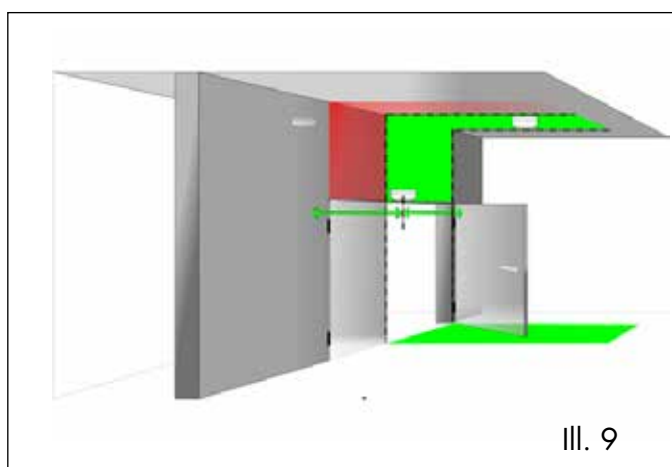
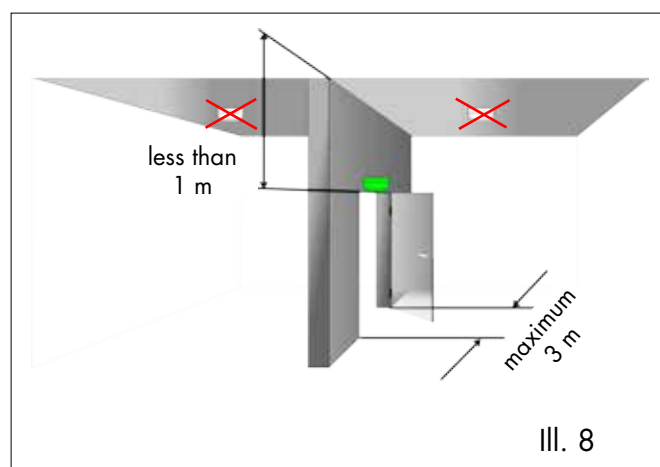
If the lower surface of the ceiling on one or both sides of the opening is more than 1.0 m above the top edge of the clear opening, at least one additional lintel detector must be fitted.

It is fitted directly to the wall above the clear door opening and max. 0.1 m above the bottom edge of the lintel (ill. 6 and 7). For an easy installation, DICTATOR supplies a mounting bracket (part no. 040570).



Special regulation for hinged doors

If the clear opening is not wider than 3.0 m and is closed by a hinged door, it is enough to install only one lintel detector instead of two ceiling detectors if on both sides the bottom part of the ceiling is no more than 1.0 m above the upper edge of the opening to be protected (ill. 8).



Here it can be chosen between 1 lintel detector (or 2 ceiling detectors).

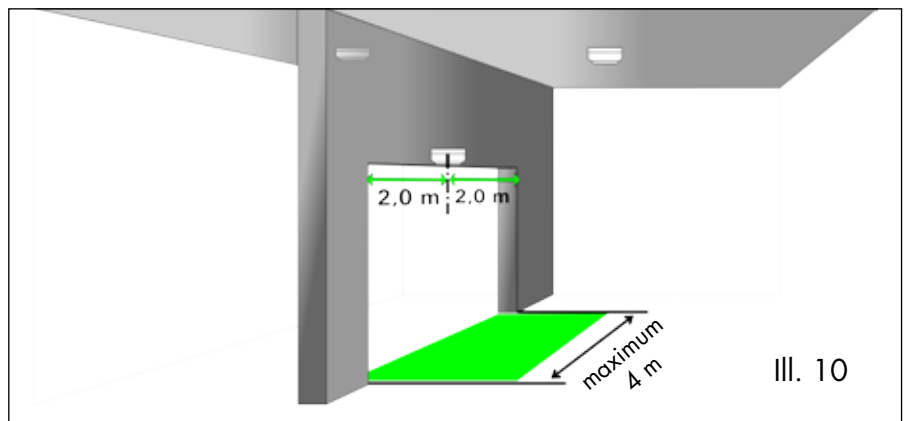
If a lintel detector is required for a **double-leaf** rebated **hinged door**, it should be fitted above the active leaf (with a flush centre joint, one lintel detector above each door leaf).

Regulations for Fire Detectors: Detection Range

Detection Range/ Coverage Radius of Fire Detectors

Maximum detection range per detector

To determine the required number of detectors, it is assumed that one detector covers an area of 16 m² (i.e. 2 metres in each direction). For opening widths over 4.0 m, additional detectors or detector pairs may therefore be required to cover the entire opening width.

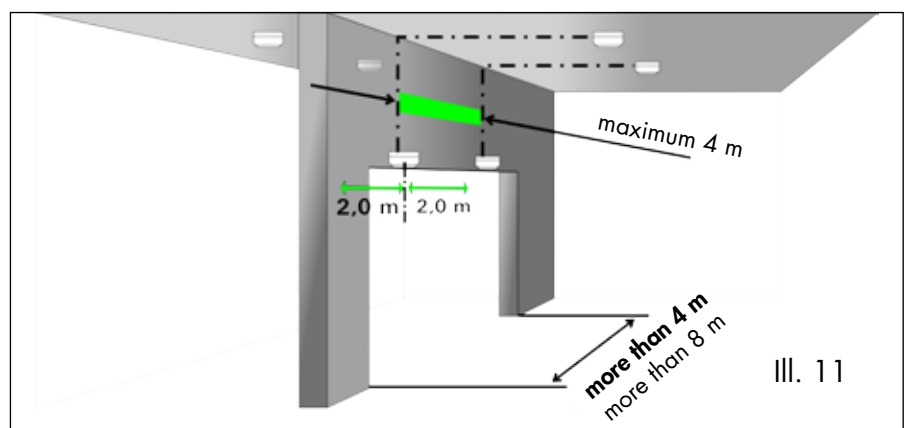


If the width of the door opening is greater than 4 m, additional detectors or detector pairs are required:

- Opening width > 4 metres: double number of detectors
- Opening width > 8 metres: triple number of detectors
- Opening width > 12 metres: four times the number of detectors etc.

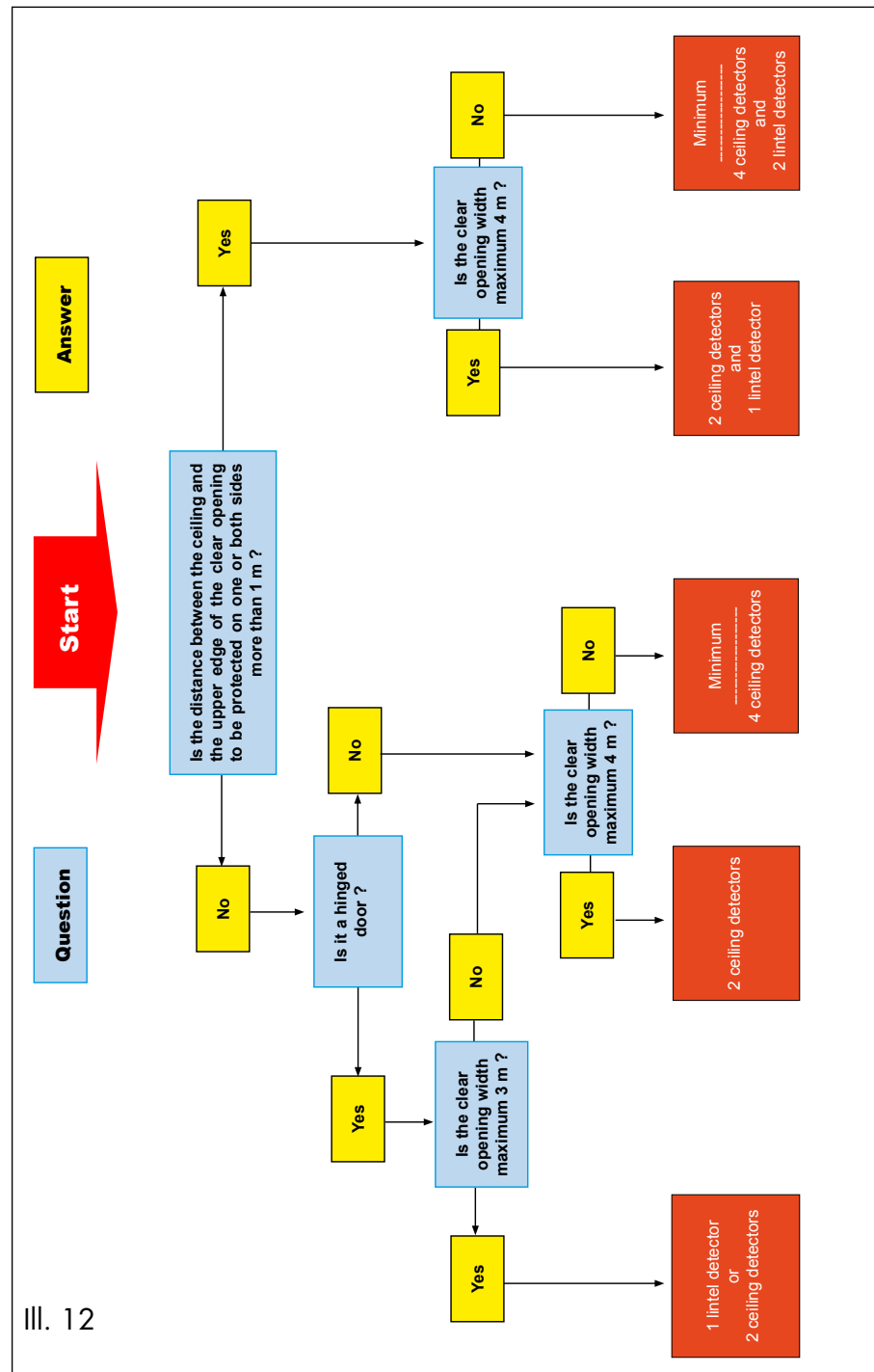
Maximum distance between two detectors

If, for example, the opening width is greater than 4 metres but less than 8 metres, double number of lintel and ceiling detectors must be installed. The distance between individual detectors must not exceed 4 metres.



Regulations for Fire Detectors: Decision Diagram

With the help of the decision diagram below, it can be easily determined how many fire detectors are needed and whether they should be lintel or ceiling detector or both!



Additional detectors are required according to EN 14637 for opening widths greater than 4.0 metres - see previous page.

Regulations for Fixing the Hold-Open Device

What is the Hold-Open-Device?

Normally, the DICTATOR hold-open device is an electromagnet and the corresponding counter plate. Alternatively, the hold-open device can also be part of a DICTATOR door operator or speed regulator for sliding doors.

Another hold-open device is the hold-open integrated in an overhead door closer.

In the following, however, only the electromagnet and the anchor plate are discussed.

Fixing on the Door

Normally, the counter plate is installed on the door itself. The corresponding electromagnet is installed in the matching position on the wall, ceiling or floor – if necessary with an appropriate bracket (see also our information about the DICTATOR electromagnets).

It must always be ensured that the protection function of the door is not impaired when fixing the counter plate. Under no circumstances can it be drilled through.

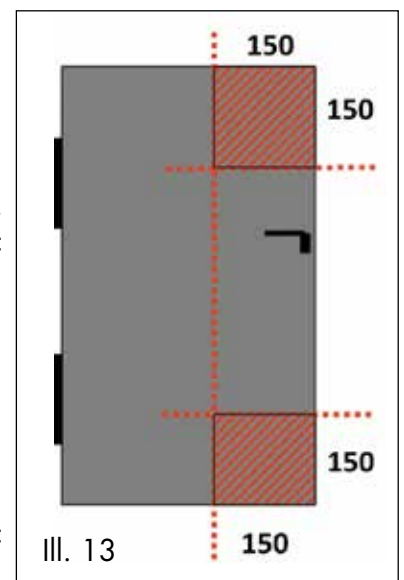
Furthermore, the manufacturer's specifications in the respective proofs of usability or product specifications or the installation instruction for the door must always be observed with regard to the fastening options.

Installation position

When installing the counter plate on hinged doors, it is recommended that the counter plate fixing screws are not more than 150 mm from the closing edge and from the top or bottom edge of the door leaf (ill. 13). However, the approval of the door manufacturer must always be observed in this respect.

Fixing

On steel doors without reinforcements (e.g. internal stiffening components), blind rivet nuts should be used, as otherwise a permanent attachment of the counter plate cannot be guaranteed.



IMPORTANT!!!

Please, always observe the approval of the door manufacturer!

Regulations for Manual Release Switches

Why Manual Release Switches?

Each locking device (e.g. the electromagnet) on a fire closure or smoke closure must also be able to be released with the aid of a manual release button without impairing the operational readiness of the tripping device (fire detector).

This means that it must be possible to close the door with the aid of a push-button (ill. 14 and 15) even without an alarm from a fire detector.

Exception: For hinged doors which are kept open by electromagnets, the pushbutton is only required when more than 120 Nm are needed for closing.

Demands

- The field of operation must be at least 16 cm² in size and coloured red.
- It must bear the inscription "Close door" or similar.
- It must be clearly visible and easy to use.
- It must be in the immediate vicinity of the closure.
- It cannot not be concealed by the held-open closure (the open door).



Special regulations:

- Push-button with fragile glass pane according to EN 54-11
EN 14637 allows such a button for manual release to prevent misuse.
- Pushbutton on holding magnets (ill. 16)
According to EN 14637, a release button in the magnet is sufficient if the holding magnets used are additionally provided with a label with the inscription "Close door".



Installation Position

- The manual release button should be installed at a height of 1.4 m +/- 0.2 m above the floor.
- The manual release button must not be concealed by the door leaf when the door is open, not even partially.



Regulations for Acceptance, Function Tests, Maintenance

Installation/Acceptance Test

Each hold-open system should only be installed by suitably trained persons.

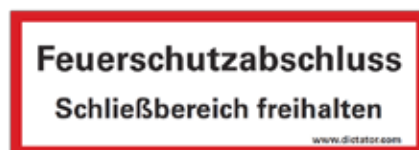
After ready-to-use installation, its perfect function and correct installation should be checked and confirmed by an acceptance test. This acceptance test is normally commissioned by the operator. A certificate shall be issued to the building manager (operator) regarding the acceptance test.

Performance of the acceptance test: by specialists authorised by DICTATOR (e.g. by passing a training course for hold-open systems) or by a testing laboratory accredited in the respective country.

Minimum scope of the acceptance test (acc. to Annex C of EN 14637):

1. The installed components of the hold-open system should correspond to the list of approved components.
2. The information accompanying the installed components should correspond to the description of the hold-open system contained in the product information supplied with the product.
3. The interaction of all devices should be checked against the requirements of EN 14637, with the tripping tested both by simulating the fire characteristic of the detectors (smoke/temperature) and by manual operation.
4. A test should be carried out to ensure that the self-closing door is triggered when the hold-open system becomes inoperative (e.g. by removal of a detector, interruption of power supply or similar operation).
5. The installation of the hold-open system should comply with the installation instructions.

In addition, it must generally be ensured that the closing area of the door is kept free at all times. To ensure this, the area should be clearly marked with lettering, floor markings or the like (e.g. ill. 18, 19 and ill. 20 on the next page).



Ill. 18



Ill. 19

Regulations for Acceptance, Function Tests, Maintenance

After successful acceptance test:

1. A sign (min. 30 x 40 mm) should be permanently affixed to the wall in the immediate vicinity of the door - with the following inscription

DICTATOR
Feststellanlage

Nummer der Zulassung / Bauartgenehmigung

Abnahme durch

Monat/Jahr

Feuerschutzabschluss
Schließbereich freihalten

www.dictator.com

Ill. 20: DICTATOR acceptance plate, size 52 x 105 mm

<p>Hold-open system</p> <p>Acceptance test by:</p> <p>.....</p> <p>(Name of company)</p> <p>.....</p> <p>(Month and year of the acceptance test)</p>

2. Issue a certificate to the building manager (operator) detailing the results of the acceptance test. This should be kept by the building manager.

According to EN 14637, it must contain at least the following points:

Name of the hold-open system or the tripping device of the system	
Manufacturer and part number of each component of the hold-open system	
Details about the door (manufacturer, type, size, fire classification, location)	
Closing device (manufacturer, type, size)	
Details about the door sequence selector (manufacturer, type, size)	
Date of installation of the hold-open system and name of the responsible company	

...as well as the individual checked points of the hold-open system and their results, e.g. smooth running of the door, self-closing from any position, checking of the components, correct installation, checking of the voltage at the hold-open devices, functional tests, correct handling of formalities, e.g. affixing of the acceptance plate, handing over of documents, etc.

Periodic Controls

1. Routine check of correct function every 3 months
2. At least once a year an inspection and maintenance should be carried out by trained personnel according to the manufacturer's recommendation.

The inspections and maintenance must also be documented in detail and can only be carried out by appropriately trained personnel.