SLOVENSKI STANDARD
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Varnostne shranjevalne enote – Klasifikacija visoko varnostnih ključavnic po odpornosti proti nepooblaščenemu odpiranju

Secure storage units - Classification for high security locks according to their resistance to unauthorized opening

Wertbehältnisse - Klassifizierung von Hochsicherheitsschlössern nach ihrem Widerstandswert gegen unbefugtes Öffnen

Unités de stockage en lieux sur - Classification des serrures haute sécurité en fonction de leur résistance a l'effraction

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13.310	Varstvo pred kriminalom	Protection against crime
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Secure storage units - Classification for high security locks according to their resistance to unauthorized opening

Unités de stockage en lieux sûrs - Classification des serrures haute sécurité en fonction de leur résistance à l'éffraction

Wertbehältnisse - Klassifizierung von Hochsicherheitsschlössern nach ihrem Widerstandswert gegen unbefugtes Öffnen

This European Standard was approved by CEN on 24 March 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Contents

Page

Foreword

This document (EN 1300:2004) has been prepared by Technical Committee CEN/TC 263 “Secure storage of cash, valuables and data media”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

This document supersedes ENV 1300:1999.

This European Standard has been prepared by working group 3 of CEN/TC 263 as one of a series of standards for secure storage of cash valuables and data media. Other standards in the series have the following titles and further standards are in preparation:

EN 1047-1, *Secure storage units — Classification and methods of test for resistance to fire — Part 1: Data cabinets*

EN 1047-2, *Secure storage units — Classification and methods of test for resistance to fire — Part 2: Data rooms and data containers*

EN 1143-1, *Secure storage units - Requirements, classification and methods of test for resistance to burglary - Part 1: Safes, strongroom doors and strongrooms*

EN 1143-2, *Secure storage units — Requirements, classification and methods of test for resistance to burglary — Part 2: Deposit systems*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies requirements for high security locks (HSL) for reliability, resistance to burglary and unauthorized opening with methods of testing. It also provides a scheme for classifying HSL in accordance with their assessed resistance to burglary and unauthorised opening.

It applies to mechanical and electronic HSL. The following features may be included as optional subjects but they are not mandatory:

1) recognised code for preventing code altering and/or enabling/disabling parallel codes;

2) recognised code for disabling time set up;

3) integration of alarm components or functions;

4) remote control duties;

5) resistance to attacks with acids;

6) resistance to X-rays;

7) resistance to explosives;

8) time functions.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1143-1 *Secure storage units — Requirements, classification and methods of test for resistance to burglary — Part 1: Safes, strongroom doors and strongrooms*

EN 50130-4, *Alarm systems — Part 4: Electromagnetic compatibility — Product family standard. Immunity requirements for components of fire, intruder and social alarm systems*

EN 60068-2-1, *Environmental testing; part 2: tests; tests A: cold (IEC 60068-2-1:1990)*

EN 60068-2-2, *Basic environmental testing procedures; part 2: tests; tests B: dry heat (IEC 60068-2-2:1974 + IEC 60068-2-2A:1976)*

EN 60068-2-6, *Environmental testing — Part 2: Tests – Tests Fc: Vibration (sinusoidal) (IEC 60068-2-6:1995 + Corrigendum 1995)*

EN 61000-4-2, *Electromagnetic compatibility (EMC) — Part 4: Testing and measument techniques — Section 2: Electrostatic discharge immunity test - Basic EMC publication (IEC 61000-4-2:1995)*

EN 61000-4-4, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 4: Electrical fast transient / burst immunity test — Basic EMV publication (IEC 61000-4-4:1995)*

EN 61000-4-5, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques - Section 5: Surge immunity test (IEC 61000-4-5:1995)*

EN 61000-4-6, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 6: Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:1996)*

EN 61000-4-11, *Electromagnetic compatibility (EMC) — Part 4: Testing and measuement techniques — Section 11: Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11:1994)*

EN ISO 6988:, *Metallic and other non-organic coatings - Sulfur dioxide test with general condensation of moisture (ISO 6988:1985)*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
High Security Lock (HSL)
independent assembly normally fitted to doors of secure storage units, into which codes can be entered for comparison with memorized codes (processing unit) a correct match of an opening code allows movement of a blocking feature

3.2
code
identification information required which can be entered into a HSL and which, if correct, enables the security status of the HSL to be changed

3.2.1
opening code
identification information which allows the HSL to be opened

3.2.2
recognized code
identification information which allows access to the processing unit. It may also be an opening code

3.2.3
duress code
parallel code which initiates some additional function

3.2.4
parallel code
opening code which has identical function to that of an existing opening code but constructed of different figures

3.3
coding means
any method by which the code is held

3.3.1
material code
code defined by the physical features or other properties of a token

3.3.2
mnemonic code
remembered code consisting of numeric and/or alphabetic information

3.3.3
biometric code
code comprising human characteristics

3.4
input unit
part of an HSL which communicates codes to a processing unit

3.5
processing unit
part of an HSL which evaluates whether the input code is correct and enables or prevents movement of a locking device

3.6
locking device
bolt stump or bolt stumps which form part of an HSL which enables or prevents movement of a blocking feature

3.7
token
object whose physical form or properties defines a recognised code, e.g. a key

3.8
mechanical HSL
HSL which is secured by means of mechanical elements only

3.9
electronic HSL
HSL which is secured partly or fully by electrical or electronic elements

3.10
blocking feature
part of a HSL which, after inputting the correct opening code moves, or can be moved, to either secure a door or prevent movement of boltwork. The bolt of a mechanical lock is an example of a blocking feature

3.11
destructive burglary
attack which damages the HSL in such a manner that it is irreversible and cannot be hidden from the authorized user

3.12
reliability
ability to function and achieve the security requirements of this standard after a large number of duty cycles

3.13
manipulation
method of attack aimed at removing the blocking function without causing damage obvious to the user

> **NB**: A HSL may function after manipulation although its security could be permanently degraded.

3.14
spying
attack which involves attempted identification of the correct code without touching the HSL by hand, contacting it with a tool or using instruments

3.15
usable codes
codes or tokens permitted by the manufacturer and conforming to the requirements of this standard. For mechanical HSL the number of usable codes is much less than the total number of codes to which the HSL can be set

3.16
scrambled condition
coding elements are not in the configuration necessary for the HSL to be opened without entering the complete correct code or proper token

3.17
locking sequence
series of actions which start with an open door and are complete when the door is closed, bolted, locked and secure

3.18
open door
door is not in its frame

3.19
closed door
door is within its frame ready for throwing its bolt(s)

3.20
bolted door
bolts are thrown

3.21
locked door
boltwork cannot be withdrawn because of the HSL

3.22
secured door
door is closed, bolted and locked with an HSL in the secured HSL condition

3.23
secured HSL condition
blocking feature is thrown and can only be withdrawn after entering the opening code(s)

3.24
normal condition
after testing, the HSL specimen is in the secured HSL condition, and all design functions are operating

3.25
operating condition
after testing, the HSL specimen is in the secured HSL condition and can be unlocked with the opening code(s), but not all design functions are operable

3.26
fail secure
after testing, the HSL specimen is in the secured HSL condition, but not all design functions are operable therefore it cannot be unlocked with the opening code(s)

3.27
resistance unit
RU: Burglary resistance which results from one minute's use of a tool carrying the coefficient of 1 and the basic value: 0

3.28
penalty time
time delay because of time exceeding the limit of trials

4 Classification

HSL are classified to an HSL class (A, B, C or D) according to Tables 1, 2 and 3 by their security requirements. General requirements (see 5.1 and 5.2, 5.3) security and reliability requirements shall be met.

NOTE HSL class A has the lowest requirements and HSL class D has the highest requirements.

5 Requirements

5.1 General requirements

5.1.1 Requirements for all Classes

5.1.1.1 By evaluation according to 8.1.2, the opening code(s) shall be retained as the only valid opening code(s) until deliberately reset.

5.1.1.2 Where mnemonic codes are used with a HSL these must be able to be changed.

5.1.1.3 By evaluation according to 8.1.2, any supplementary device (e.g. micro switch) which is fitted by the HSL manufacturer shall not be capable of being used to obtain information about the code.

5.1.1.4 An input unit is a necessary part of a HSL although one input unit may operate more than one HSL (processing unit). Each HSL shall have a processing unit to accept the correct code from the input unit. Each HSL shall also incorporate a blocking feature or be capable of causing movement of a blocking feature. If this feature has to be activated before first use a note to this effect is to be included in the instructions for the use of the lock.

5.1.1.5 If the blocking feature is not moved manually there shall be a means of indicating whether the HSL has been secured, locked and scrambled.

5.1.1.6 By evaluation according to 8.1.2 an opening code shall not be capable of being altered or being changed other than by a recognised code.

5.1.2 Class D HSL

5.1.2.1 Means shall be provided by which the locking status, locked or unlocked, is made obvious.

5.1.2.2 By evaluation according to 8.1.2 a mechanical combination HSL shall be in a scrambled condition after locking.

5.1.2.3 A Class D HSL shall contain a device which indicates the scrambled condition.

5.1.3 Mechanical Key Operated HSL

5.1.3.1 By evaluation according to 8.1.2, for Class A HSL (see Clause 4), the same code shall not be repeated until at least 80% of the usable codes have been used.

5.1.3.2 By evaluation according to 8.1.2, codes (and sets of code tokens) shall be chosen at random.

5.1.3.3 By evaluation according to 8.1.2 there shall be no number or marking on either token or HSL which identifies the code.

5.1.3.4 It shall not be possible to remove the key from a HSL whilst that HSL is in the open position except for code changing. This requirement is applicable to all Classes. Note that it is acceptable for this feature to be activated immediately prior to the first use of the HSL.

5.1.3.5 In addition to the foregoing requirements the manufacturer is also to complete the Declaration set out in annex C.

5.1.4 Lift heights for mechanical key locks

5.1.4.1 Usable codes shall not have more than 40 % of the coding elements (levers) of the same lift height.

5.1.4.2 Usable codes shall not have more than two neighbouring elements, e.g., two levers next to each other, with the same lift height.

5.1.4.3 In usable codes the difference between the highest and lowest lift height shall be more than 60% of the maximum lift height difference of the HSL.

5.1.5 Electronic HSL

5.1.5.1 Electronic HSL with more than one parallel code shall retain the records of the opening events used according to Table 1 and shall have the means to retain the record for at least 1 year, even in the event of a power failure.

5.1.5.2 When the electronic HSL is secured further communication with the processing unit shall only be possible by inputting a recognised code and to display the lock status.

5.1.5.3 The input unit of Classes B, C and D of electronic HSL shall be fixed to the door to be secured or to the door frame of the secure storage unit and shall not be capable of being forcibly removed without causing permanent traces or damage or a signal obvious to the user. This shall be verified in accordance with 8.1.2.

5.1.5.4 Unauthorised attempts to gain access to the security relevant parts of the input unit of Classes B, C and D electronic HSL shall not be possible without causing permanent traces or damage or a signal obvious to the user. This shall be verified according to 8.1.2.

5.1.5.5 Class A electronic HSL input units can be separated from the HSL but they should remain permanently and visibly connected to the door or door frame of the secure storage unit with a shielded cable.

5.1.5.6 If the Penalty Time is active there shall be a clear indication, in all classes of HSL, to the user.

5.1.5.7 Low Battery Indication: battery powered locks shall be able to operate for at least 3000 complete lock openings. The battery capacity shall be monitored. In the case of a low battery/low batteries an audible or visual signal shall occur during or immediately after an opening process. After the first low battery signal at least ten (10) complete opening and locking processes shall still be possible. Where it is possible to connect power from the outside it will not be necessary to meet this requirement.

5.2 Security requirements

5.2.1 Usable codes

The minimum number of usable codes when tested in accordance with 8.2.1 for each class and type of HSL shall be as given in Table 1.

HSL with parallel codes: the minimum number of usable codes shall be multiplied by the number of possible parallel codes.

HSL with variable opening code lengths: the smallest number of used figures which the HSL is able to accept for opening code input shall be used for the calculation of usable codes.

It shall not be possible to open mechanical key operated HSL with additional keys when tested in accordance with 8.2.1.3.

5.2.2 HSL having over ride feature

HSL with an over ride feature (e.g. an electronic HSL having a mechanical override) shall be classified by the least secure system used.

5.2.3 Manipulation resistance

5.2.3.1 Limit of trials

The maximum number of trials per hour which can be made shall be as shown in Table 1.

NOTE Mechanical token HSL are not included in Table 1 because the time taken for changing tokens sufficiently limits the rate of trials.

5.2.3.2 Manipulation

The minimum resistance values, M, given in Table 1 shall be exceeded by at least two of the three test specimens in the tests for manipulation resistance made according to 8.2.2.

5.2.4 Destructive burglary resistance

The minimum resistance values given in Table 1 shall be exceeded in tests in which an external force is applied according to 8.2.3.

5.2.5 Spying resistance

5.2.5.1 Any information entered into an electronic HSL shall be unrecognisable 30 s after entry, even if only part of the opening code has been entered.

5.2.5.2 For HSL classes C and D the included angle over which code information can optically be observed shall be not more than 30° about the centre-line (i.e. 60° included angle) in the horizontal plane (see 8.2.4).

5.2.5.3 Direct code input via the keypad using the fixed position of figures is not permitted for Class D HSL.

5.2.6 Electrical and electromagnetic resistance

5.2.6.1 Mains powered electronic HSL shall remain in the normal condition during mains supply voltage variations, voltage dips and short interruptions; tested according to 8.2.5.5.

During any power loss when an electronic HSL is in its secured HSL condition it shall remain secured. (see 8.2.5.3).

Mains powered HSL shall be capable of being secured during a failure of mains supply lasting up to 12 h. (see 8.2.5.4).

5.2.6.2 After testing in accordance with 8.2.5.6 electronic HSL tested for electrostatic discharge resistance shall meet the requirements of Table 2. During this testing specimens shall not change from the secured HSL condition for longer than 5 ms.

5.2.6.3 During the testing of electronic HSL for resistance to radiated electromagnetic fields in accordance with 8.2.5.9, the requirements of Table 2 shall be met.

5.2.6.4 After testing of a mains powered electronic HSL (and any attached cable of more than 10m in length connected to external equipment) for resistance to fast transient bursts in according to 8.2.5.7 the requirements of Table 2 shall be met. During this testing specimens shall not change from the secured HSL condition for longer than 5 ms.

5.2.6.5 After testing electronic HSL for surge immunity according to 8.2.5.8 the requirements of Table 2 shall be met. During this testing specimens shall not change from the secured HSL condition for longer than 5 ms.

5.2.7 Physical environmental resistance

All HSLs shall be tested according to 8.2.6.1 and 8.2.6.2 for resistance to vibration and shock. The tester shall decide whether the test specimen design is such that it is necessary for the secure condition to be continuously monitored during this testing. Continuously monitored specimens shall not be insecure for more than 5 ms during this testing. Specimens not continuously monitored shall be in the secure condition after the vibration and shock exposure. All specimens shall be in an operating condition at the conclusion of these tests.

5.2.8 Temperature resistance

5.2.8.1 Cold

The electronic HSL shall be in its normal condition after the test in accordance with 8.2.7.1 for 16 h at –10 °C.

5.2.8.2 Heat

During testing in accordance with 8.2.7.2, for 16 h at +55 °C the electronic HSL shall be in its normal condition.