SLOVENSKI STANDARD
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Varnostne shranjevalne enote - Zahteve, klasifikacija in metode preskušanja protivlomne odpornosti - 1. del: Blagajne, bankomatne blagajne, vrata trezorskih prostorov in trezorski prostori

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

Wertbehältnisse - Anforderungen, Klassifizierung und Methoden zur Prüfung des Widerstandes gegen Einbruchdiebstahl - Teil 1: Wertschutzschränke, Wertschutzschränke für Geldautomaten, Wertschutzraumtüren und Wertschutzräume

Unités de stockage en lieux sûrs - Prescriptions, classification et méthodes d'essai pour la résistance à l'effraction - Partie 1 : Coffres forts, distributeurs automatiques de billets (DAB), portes fortes et chambres fortes

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13.310	Varstvo pred kriminalom	Protection against crime
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EUROPEAN STANDARD

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Contents

Page

European foreword

This document (EN 1143-1:2019) 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of an identical text or by endorsement, at the latest by October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1143-1:2012.

Compared with EN 1143-1:2012, the following changes were made:

a) requirements for the conduct of the additional T2 test have been added (4.1, 4.6, 12, 13.4, 14 c), Table 1, Table 2 and Table 3). Products tested with these new tools which are listed in Annex B have a 'T2' designation behind the resistance grade.

b) In Annex A, a power supply, a plug and a cable connector have been added.

c) The construction requirements for ATM safes of the resistance grade I have been deleted (7.5.5 has been deleted, changes in Table 2 and 7.5.4 have been made).

d) For clarification 4.2.2 has been updated and an informative Annex C and text in the introduction has been added for different types of ATM systems.

e) Updates have been integrated for the optional solid explosive test, above all: The explosive mass for the EX-option in 9.4 was changed to “active explosive mass”, a definition for active explosive charge mass has been added (3.24), instead of specific energy the explosive heat of the PETN is defined (9.3); the detonation velocity of the PETN was raised from (7 000 ± 500) m/s to (7 500 ± 500) m/s (9.3); the tolerance of the active explosive charge mass has been changed from ± 1 g to ± 2 %, the requirement that test specimens shall have a certain internal capacity has been deleted from 9.2, the shape of the explosive charge shall now be spherical for ATM safes and safes (see 9.5.1), the clause for not permitting the entry of explosives through the cable-entry openings has been deleted (4.3). In addition, a note has been added in Table 4.

f) Updates have been made in the optional gas explosive test: the background for using the amount of gas for resistance grade II, III and IV has been explained in greater detail (5.8 f), 10.4) and for resistance grade V, VI, VII and VIII a new formula has been integrated.

g) An additional test condition for cutting steel sheets has been added (Clause 2 and 7.6.7);

h) Editorial and minor changes have been integrated in the Clauses 3.10, 3.16, 3.17, 4.2.1, 6.1, 7.1, 7.3.1, 7.5.4.1, 7.5.4.2, 7.6.5, 7.6.6, 7.8, 9.5.2, 9.6, 10.4, 10.6, 11.3.1 and 11.3.2 as well as Figure 2.

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

Introduction

Tests are made, the results of which are used to classify the resistance to burglary. The resistance classification can also be used for designing security systems with the provision that, depending on the criminal, the conditions at the place of the crime and the availability of tools, considerably longer times are likely to occur in real burglary attacks than in a test.

Manual tests are included, whose results and repeatability are dependent on the skill of the testing team. Machine-related tests are under development and may be included when this European Standard is revised.

For ATM systems the tests and requirements in this European standard are based on the following assumptions (conditions) of use:

— **ATM system**: assembly of sub-units which provides an ATM function and affords security to cash and/or valuables (e.g. checks) stored within the ATM safe.

— For using of an ATM safe the ATM manufacturer is responsible for the secure storage of the cash and/or valuables (e.g. checks).

Examples of different designs of ATM systems are given in Annex C.

1 Scope

This document establishes the basis for testing and classifying free-standing safes, built-in safes (floor and wall), ATM safes and ATM bases, strongroom doors and strongrooms (with or without a door) according to their burglary resistance.

This document does not cover testing and classifying Deposit Systems and ATM systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1300, *Secure storage units - Classification for high security locks according to their resistance to unauthorized opening*

EN 10051, *Continuously hot-rolled strip and plate/sheet cut from wide strip of non-alloy and alloy steels - Tolerances on dimensions and shape*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
safe
storage unit which protects its contents against burglary and when closed has at least one internal side ≤ 1 m length

3.2
free-standing safe
safe whose protection against burglary depends only upon the materials and construction of its primary manufacture and not upon materials added or attached during installation

3.3
built-in safe
safe whose protection against burglary is partly dependent upon materials incorporated into it, or attached to it, during installation

Note 1 to entry: Under floor safes and wall safes are special types of built-in safes.

3.4
strongroom
storage unit which protects against burglary and when closed has internal side lengths in all directions > 1 m

Note 1 to entry: Strongrooms may be cast *in situ*, constructed from pre-fabricated elements or a combination of both.

3.5
strongroom door
door with lock(s), boltwork and frame intended for giving access to a strongroom

3.6
ATM safe
safe forming part of an ATM system

3.7
ATM base
integral part of an ATM system located between the ATM safe and the surface to which the safe is to be anchored

3.8
internal space
part of the interior of an ATM safe which is bounded by the inside surfaces of the ATM safe and the boltwork cover plate(s) of the door of the ATM safe body

3.9
ATM
automatic teller machine
means for holding and processing cash and/or valuables

Note 1 to entry: For the purpose of this standard, automated teller machines, currency exchange machines, currency recycling machines and machines such as teller assist machines are all considered types of ATM.

3.10
ATM-System
assembly of sub-units which provides an ATM function and affords security to cash and/or valuables stored within the ATM safe

Note 1 to entry: An example of an ATM system is shown in Annex C.

Note 2 to entry: Of the sub-units shown in Annex C, the ATM mechanism and the ATM control unit are not tested according to this European Standard.

3.11
accessories
installations/devices which are part of the structure or which pass through the structure of the strongroom or strongroom door(s) for ventilation or for deposit of cash and valuables

Note 1 to entry: Accessories may be always open, usually open (but can be closed in case of emergency), or closed (but can be opened if necessary).

3.12
operating time
time during which a tool is used attempting to create a change in the test specimen

Note 1 to entry: In the context of this standard, there are also operating times considered during which no visible modifications/changes are caused to the test specimen.

3.13
resistance unit
RU
burglary resistance which results from one minute's use of a tool carrying the coefficient 1 and the basic value 0

3.14
resistance grade
classification designation for burglary resistance

3.15
resistance value
numerical value in resistance units calculated for each test

3.16
basic value
BV
number in resistance units allocated to a particular tool

Note 1 to entry: The basic value represents problems in obtaining, transporting, conditions (e.g. water cooling and power availability) and using the relevant tool at the site in question, and the necessary knowledge and experience for its efficient use.

3.17
tool coefficient
number in resistance units per minute allocated to a group of tools

Note 1 to entry: For Annex A: The tool coefficient represents factors such as noise, smoke, fumes and other effects, which increase the likelihood of a burglary attack being detected.

Note 2 to entry: For Annex B: The tool coefficient represents tool efficiency and factors such as noise, smoke, fumes and other effects, which increase the likelihood of a burglary attack being detected.

3.18
boltwork
mechanism by which a closed door is held such that, until it is in the withdrawn position, the door cannot be opened

3.19
lock
device able to recognize a coded input and which performs a blocking function on the boltwork or the door

3.20
relocking device
system comprising blocking and detecting elements which will prevent the boltwork from being withdrawn if a burglary attack is detected

Note 1 to entry: A relocking device can be part of the locking mechanism (e.g. active or live relocker) or an independent unit (e.g. passive relocker).

3.21
to close
to move the door so it becomes possible to bolt it

3.22
to bolt
to throw the boltwork or the bolt of the lock (if there is no boltwork) to a position where it fixes the door in closed position

3.23
to lock
to block a thrown boltwork by action of a lock

3.24
active explosive charge mass
part of the solid explosive mass, which is pure PETN without any additives

4 Classification and requirements

4.1 Classification

Safes are classified to a resistance grade according to Table 1.

ATM safes are classified to a resistance grade according to Table 2.

Strongroom doors and strongrooms (with or without a door) are classified to a resistance grade according to Table 3.

All products shall meet general requirements (4.2), products with EX, GAS, CD and T2 designation shall meet additional requirements (4.3, 4.4, 4.5 and 4.6).

4.2 General requirements

4.2.1 Safes, strongroom doors and strongrooms

There shall be no holes through the protection material other than those necessary for locks, cables, anchoring or for the fitting of accessories to strongroom doors and strongrooms.

Cable openings in safes, strongroom doors and strongrooms (with or without a door) shall not exceed 100 mm^2. Unused cable entry openings shall be obstructed or plugged by the manufacturer by a means of which cannot be removed from the outside without leaving visible traces.

Free-standing safes with a mass of less than 1 000 kg shall have at least one hole by which they can be anchored according to the installation instruction. The anchoring assembly for each anchoring hole shall sustain the force given in Table 1.

4.2.2 ATM safes

ATM safes shall have means for plugging unused openings. These means shall be impossible to remove from the outside without leaving visible traces.

NOTE 1 Openings through the protection material for ATM functioning are permitted in ATM safes.

NOTE 2 Cable entry openings in ATM safes may be larger than 100 mm^2.

ATM safes, including optional ATM bases, shall have a fixing system by which they can be anchored. When tested in accordance with Clause 7 and 8, the fixing system shall achieve the criteria in Table 2.

4.2.3 Boltwork cover plate

Safes, ATM safes and strongroom doors shall have an internal boltwork cover plate that prevents unauthorized viewing of the locks and boltwork and access to them, when the door is open. Boltwork cover plates shall be secured so that they cannot be opened or removed by an unauthorized person without leaving visible traces.

4.2.4 Cable hole

Safes, strongroom doors and strongrooms of grade III and higher shall either have a hole for a cable or a preparation enabling a connection to be made to an alarm system after the secure storage unit has been installed.

4.2.5 User instructions

Safes, strongrooms and ATM safes shall be provided with operating and maintenance instructions, including instructions regarding the locks. Free-standing safes and ATM safes shall have instructions for anchoring. For built-in safes, strongroom doors and strongrooms, installation instructions shall be provided.

4.3 Additional requirements for EX designation

When tested in accordance with Clause 9, safes of resistance grades II to X designated 'EX' shall achieve the minimum post-detonation resistance values given in Table 1. EX designation is not applicable to safes of resistance grade 0 and I.

When tested in accordance with Clause 9, ATM safes of resistance grades II to VIII designated 'EX' shall achieve the minimum post-detonation resistance values given in Table 2. EX designation is not applicable to ATM safes of resistance grades L and I.

When tested in accordance with Clause 9, strongroom doors and strongrooms (with or without doors) of resistance grades II to XIII designated 'EX' shall achieve the minimum post-detonation resistance values given in Table 3. EX designation is not applicable to strongroom doors and strongrooms of resistance grades 0 and I.

4.4 Additional requirements for GAS designation

When tested in accordance with Clause 10, ATM safes of resistance grades II to VIII designated 'GAS' shall achieve the minimum post-detonation resistance values given in Table 2. 'GAS' designation is not applicable to ATM safes of resistance grades L and I.

4.5 Additional requirements for CD designation

When tested in accordance with Clause 11, safes of resistance grades IV to X designated ‘CD’ shall achieve the minimum resistance values given in Table 1. 'CD' designation is not applicable to safes of resistance grades 0 to III and ATM safes.

When tested in accordance with Clause 11, strongroom doors and strongrooms (with or without a door) of resistance grades VIII to XIII designated 'CD' shall achieve the minimum resistance values given in Table 3. 'CD' designation is not applicable to strongroom doors and strongrooms of resistance grades 0 to VII.

4.6 Additional requirements for T2 designation

When tested in accordance with Clause 12, safes of resistance grades 0 to X (including EX and CD designation, if applicable) designated 'T2' shall achieve the minimum resistance values and requirements given in Table 1.

When tested in accordance with Clause 12, ATM safes of resistance grades L to VIII (including EX and GAS designation, if applicable) designated 'T2' shall achieve the minimum resistance values and requirements given in Table 2.

When tested in accordance with Clause 12, strongroom doors and strongrooms (with or without doors) of resistance grades 0 to XIII (including EX and CD designation, if applicable) designated 'T2' shall achieve the minimum resistance values and requirements given in Table 3.

Table 1 — Minimum requirements for classification of safes (excluding ATM safes) into resistance grades

Resistance grade	Tool attack test (Clause 7) Tool attack test T2 (Clause 12)		Anchoring strength[a] (Clause 8)	Locks		Additional requirements for EX designation (optional) (Clause 9)	Additional requirements for CD designation (optional) (Clause 11)
	Resistance value for		Required force	Quantity	Class according to EN 1300	Post-detonation resistance value[d e]	Resistance value[d e]
	Partial access	Complete access					
	RU	RU	kN			RU	RU
0	**30**	**30**	**50**	**1**	**A**	**b**	**c**
I	**30**	**50**	**50**	**1**	**A**	**b**	**c**
II	**50**	**80**	**50**	**1**	**A**	**4**	**c**
III	**80**	**120**	**50**	**1**	**B**	**6**	**c**
IV	**120**	**180**	**100**	**2**	**B**	**9**	**1 000**
V	**180**	**270**	**100**	**2**	**B**	**14**	**1 000**
VI	**270**	**400**	**100**	**2**	**C**	**20**	**1 000**
VII	**400**	**600**	**100**	**2**	**C**	**30**	**1 000**
VIII	**550**	**825**	**100**	**2**	**C**	**41**	**1 000**
IX	**700**	**1 050**	**100**	**2**	**C**	**53**	**1 000**
X	**900**	**1 350**	**100**	**2**	**C**	**68**	**1 000**

a Applicable only to free-standing safes with a mass less than 1 000 kg.

b EX designation is not permitted for resistance grades 0 and I.

c CD designation is not permitted for resistance grades 0 to III.

d Resistance value for partial access.

e If the tool test is performed according clause 12 (T2), the resistance value shall be achieved according clause 12 (T2).

Table 2 — Minimum requirements for classification of ATM safes into resistance grades

Resistance grade		Tool attack test (Clause 7) Tool attack test T2 (Clause 12)			Anchoring strength (8.2)	Tool attack test on fixing attachment (Clause 7)	Additional requirements for post-anchoring forcing test (Clause 8)	Locks		Additional requirements for EX and GAS designation (optional) (Clauses 9 and 10)
		Resistance value for								
		Partial access		Complete access	Required force	Resistance value [d]	Post-anchoring resistance value [d]	**Quantity**	**Class according to EN 1300**	Post-detonation resistance value [c] [d]
		general	**used apertures [a]**							
		RU	**RU**	**RU**	**kN**	**RU**	**RU**			**RU**
L	**body**	**20**	**20**	**30**	**50**	**30**	**18**	**1**	**A**	[b]
	door	**30**	**30**	**50**						
I		**30**	**30**	**50**	**50**	**30**	**18**	**1**	**A**	[b]
II		**50**	**35**	**80**	**50**	**50**	**22**	**1**	**A**	**4**
III		**80**	**65**	**120**	**50**	**50**	**22**	**1**	**B**	**6**
IV		**120**	**100**	**180**	**100**	**50**	**22**	**2**	**B**	**9**
V		**180**	**145**	**270**	**100**	**50**	**22**	**2**	**B**	**14**
VI		**270**	**220**	**400**	**100**	**70**	**22**	**2**	**C**	**20**
VII		**400**	**350**	**600**	**100**	**120**	**22**	**2**	**C**	**30**
VIII		**550**	**500**	**825**	**100**	**160**	**22**	**2**	**C**	**41**

a Applies only to apertures actually used; plugged and unused apertures shall satisfy the general values.

b EX and GAS designation are not permitted for resistance grades L and I.

c Resistance value for partial access.

d If the tool test is performed according clause 12 (T2), the resistance value shall be achieved according clause 12 (T2).