

ISBN 978-0-626-21319-0

SANS 953-1:2008

Edition 1.1

Any reference to SABS 953-1 is deemed
to be a reference to this standard
(Government Notice No. 1373 of 8 November 2002)

SOUTH AFRICAN NATIONAL STANDARD

Storage of firearms and ammunition

Part 1: Safes

Published by Standards South Africa
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standards
South Africa
(a division of SABS)

SANS 953-1:2008

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Table of changes

Change No.	Date	Scope
Amdt 1	2008	Amended to change the designation of SABS standards to SANS standards and to update the definition of "acceptable", to update the referenced standards, and to modify the requirements for combination and electronic locks.

Foreword

This South African standard was approved by National Committee StanSA TC 5120.14A, *Security – Safes and strongroom doors*, in accordance with procedures of Standards South Africa, in compliance with annex 3 of the WTO/TBT agreement.

This document was published in July 2008. This document supersedes SABS 953-1:2000 (edition 1).

A vertical line in the margin shows where the text has been technically modified by amendment No. 1.

Annex A forms an integral part of this document. Annex B is for information only.

SANS 953 forms part of a set of two standards on the safe storage of firearms and ammunition, viz.

SANS 953-1, *Storage of firearms and ammunition – Safes*.

SANS 953-2, *Storage of firearms and ammunition – Strongrooms*.

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Storage of firearms and ammunition

Part 1: Safes

1 Scope

This standard specifies the requirements for five types of safe intended for the storage of a limited number of firearms and their ammunition.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of SANS 953. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this part of SANS 953 are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from Standards South Africa.

EN 1300, *Secure storage units – Classification for high security locks according to their resistance to unauthorized opening.* Amdt 1

SANS 751, *Burglar-resistant safes.*

3 Definitions

For the purposes of this part of SANS 953, the following definitions shall apply.

3.1

acceptable

acceptable to the authority administering this standard, or to the parties concluding the purchase contract, as relevant Amdt 1

3.2

agreed upon

as agreed upon between the manufacturer and the purchaser

3.3

firearm

a handgun, rifle or shotgun

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3.4

net working time

the period during which an attack (during a test) is actually in progress on a firearms safe or on a component of a firearms safe

NOTE The time required to prepare for the test and to take safety precautions is not included in the net working time.

3.5

relocking device

a device that is fitted to a safe to secure the boltwork should the locking mechanism be compromised

3.6

safe

a strong, burglar-resisting repository or receptacle for storing firearms and ammunition

3.7

successful entry

successful entry is achieved by

- a) the opening of a door, or
- b) the making of a four-sided handhole, in any part of the safe (including the door), of size at least 100 mm × 100 mm, and which allows access to the interior of the safe

3.8

type A1 firearms safe

a safe intended for use by collectors and private individuals for the storage of up to 20 firearms and their ammunition

3.9

type A2 firearms safe

a safe intended for use by collectors and dealers for the storage of firearms and their ammunition

3.10

type B1 handgun safe

a safe intended for the storage of up to 4 handguns and their ammunition

3.11

type B2 firearms safe

a safe intended for the storage of up to 10 firearms and their ammunition

3.12

type B3 firearms safe

a lighter safe intended for the temporary storage of firearms and ammunition in motor vehicles and caravans

4 General requirements

4.1 Types of safe

For the purposes of this standard, firearms safes are divided into five types, as follows (see annex A.1):

- a) type A1 firearms safe;
- b) type A2 firearms safe;

- c) type B1 handgun safe;
- d) type B2 firearms safe; and
- e) type B3 firearms safe.

4.2 Materials

4.2.1 Steels

A commercial (or higher) quality mild steel shall be used for the construction of the body and door of safes.

4.2.2 Material for door handles

A door handle shall be made of

- a) a corrosion-resistant material,
- b) a metal that has been electroplated, or
- c) a metal that has been painted with a paint finish.

4.3 Design and construction

4.3.1 Welds

Welds shall be fusion welds that are free from cracks, porosity, cavities and trapped slag, and penetration shall be to the specifications of the type of welding used (e.g. STICK, MIG, TIG). Welds shall merge smoothly into the adjacent surfaces, without pronounced humps or craters, and the parent metal adjacent to the welds shall be free from cracks. Where exposed on the outside of a safe, welds shall be ground flush with the parent metal, to give a smooth finish.

4.3.2 Dimensions

The dimensions of a safe shall be as agreed upon (see annex A.2).

4.3.3 Internal fittings

Internal fittings shall be as agreed upon.

4.3.4 Ease of operation

Locks, hinges and boltwork shall be so constructed and installed that they operate easily and efficiently.

4.3.5 Ease of maintenance

The components of the boltwork and of the relocking device (if fitted, see 3.5) shall be so constructed and assembled that any component can be repaired or replaced without undue difficulty. The lock shall not be welded onto the door.

4.3.6 Durability

The moving parts of locks, boltwork, hinges, etc. shall be so designed and constructed that they will still operate acceptably after having been subjected to the durability tests given in 8.4, 8.5 and 8.6.

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4.3.7 Strength and rigidity

The body, door, door frame, hinges and similar components shall be strong enough, and the assembly rigid enough, to ensure proper alignment of doors and door frames.

4.4 Doors

4.4.1 General

A door shall be so mounted that it opens and closes easily. When the door is closed, no gap between the door and door frame shall exceed 3 mm.

The keyhole shall be neatly finished.

4.4.2 Locking bolts

When the door is closed and locked, there shall be no movement of the door in excess of 2 mm when force is applied manually to the handle.

4.4.3 Locks

4.4.3.1 General

Each firearms safe shall be fitted with at least one lever lock or at least one combination lock or at least one electronic lock, as required, that complies with the applicable requirements given in 4.4.3.2 to 4.4.3.4.

4.4.3.2 Lever locks

A lever lock shall have at least six levers, of which at least three shall have false notching. The design of the lock shall be such as to allow at least 5 000 different settings. Each lock shall be provided with two keys. When a lever lock is tested in accordance with 8.4, it shall be possible, at the end of the test, to operate the lock by means of the key.

4.4.3.3 Combination locks

A combination lock shall be of at least the three-wheel type. The design of the lock shall be such as to allow at least 1 000 000 different combinations. All combination locks shall require the use of a key for changing the combination and shall comply with the requirements of EN 1300 class B.

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4.4.3.4 Electronic locks

When electronic locks are used on their own or in tandem with existing locks, they shall comply with the requirements of EN 1300 class B. Electronic locks shall be of the stand-alone type and shall not interfere with the existing locks.

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4.4.3.5 Lock case cover

The door of a firearms safe shall be fitted on the inside with a sheet steel lock case and boltwork cover that is removable or so hinged as to afford access to the lock and boltwork.

4.5 Finish

4.5.1 Machined parts

All machined parts shall be finished smooth and free from ragged edges and tool marks.

4.5.2 Protection against corrosion

When not made of corrosion-resistant materials, the safe and the lock and boltwork shall be so protected as to resist the corrosive influences to which they may be subjected in normal service. The type of corrosion protection shall be as agreed upon (see annex A.2).

4.6 Means of securing a safe

4.6.1 General

A safe of net mass 300 kg or less containing any firearm(s) shall always be permanently fixed either inside a structure (see 4.6.2) or in a vehicle (see 4.6.3). Safes shall never be left standing loose.

4.6.2 Inside structures

A safe shall be affixed flush to the floor or wall (or preferably both) or other immovable structure or part thereof of a house, flat, residence or other dwelling place.

Where the floor is not suitable for fixing with M10 × 80 mm long (penetration length) anchor bolts, the safe shall be fixed to a concrete base of strength 15 MPa of dimensions 300 mm deep × 450 mm × 450 mm or the dimensions of the safe, whichever dimensions are the greater.

Where the wall is constructed of hollow core brick, the holes shall be filled with a non-shrink grout or epoxy/sand mixture of 10 MPa strength for the fixing of the M10 × 80 mm long (penetration length) anchor bolts.

4.6.3 In vehicles

When a safe is installed in a vehicle it shall be affixed non-conspicuously to the floor or body of the vehicle, and the owner of the firearm shall obtain a certificate issued by the installer wherein the following particulars are specified:

- a) date of installation;
- b) name and address of installer;
- c) registration number, engine and chassis number and make of vehicle; and
- d) that the vehicle is equipped with an immobilizer.

5 Particular requirements for type A safes

5.1 Type A1 safes

5.1.1 Means of securing a type A1 safe

A type A1 safe shall be provided with holes of diameter suitable to receive an M10 bolt.

There shall be at least three holes in the back wall or in the side walls (or in both) and one hole in the floor plate.

5.1.2 Doors

5.1.2.1 Locking bolts

Locking bolts shall be of diameter at least 25 mm for a type A1 safe.

5.1.2.2 Hinges

5.1.2.2.1 The doors of a type A1 safe shall have a top and a bottom hinge so fitted that the door can be swung open to at least 120°.

5.1.2.2.2 The hinges and boltwork of a type A1 safe shall be so designed and constructed that they will still operate acceptably after they have been subjected to the durability tests given in 8.5 and 8.6 respectively.

5.1.3 Resistance to attack by hand tools

When tested in accordance with 8.3, a type A1 firearms safe shall be capable of resisting successful entry for a net working time of 30 min. Relocking devices are not a prerequisite.

5.2 Type A2 safes

Type A2 firearms safes shall comply with the requirements for a category 2 safe of SANS 751.

6 Particular requirements for type B safes

6.1 Wall thickness

The wall thickness of a type B safe shall be as follows:

- a) the wall thickness of the floor, roof and sides shall be at least 2,8 mm, but may be thicker; and
- b) the wall thickness of the door shall be at least 5,75 mm, but may be thicker.

6.2 Means of securing a type B safe

6.2.1 General

A type B safe shall be provided with holes of diameter suitable to accommodate a bolt of diameter at least 10 mm.

6.2.2 Type B1 safes

Type B1 safes shall have at least two holes in the back wall or in the side walls (or in both).

6.2.3 Type B2 safes

Type B2 safes shall have at least two holes in the back wall or in the side walls (or in both), and two holes in the floor plate.

6.2.4 Type B3 safes

In the case of a type B3 safe, there shall be an arrangement for bolting the safe to the body or to the floor of a vehicle.

6.3 Door frame

6.3.1 Type B1 safe

In the case of a type B1 safe:

- a) When the hinge is concealed, the door frame shall be of bent and welded construction with a rebate of at least 10 mm on three sides of the frame.
- b) When the hinge is of normal construction, the door frame shall be of bent and welded construction with a rebate of at least 10 mm on all four sides of the frame.

6.3.2 Type B2 safe

In the case of a type B2 safe, the door frame shall be of bent and welded construction with a rebate of at least 10 mm on all four sides of the frame.

6.3.3 Type B3 safe

In the case of a type B3 safe, the door frame shall be identical with that of a type B1 safe, except that type B3 safes of height less than 100 mm need only have a rebate on the lock-bolt side.

6.4 Doors

6.4.1 Locking bolts

6.4.1.1 A type B2 safe shall have at least three moving bolts on the front edge of the door; on the hinge side of the door, it shall have

- a) at least three fixed or moving locking bolts, or
- b) a steel angle-section of thickness at least 5 mm along at least 90 % of the hinge side, welded to the door, and fitted with gussets to prevent binding.

The distance between locking bolts shall not exceed 500 mm.

6.4.1.2 Bolts shall be of diameter at least 20 mm for a type B2 safe.

6.4.2 Hinges

6.4.2.1 The doors of a type B2 safe shall have a top and a bottom hinge so fitted that the door can be swung open to at least 120°.

6.4.2.2 The door of a type B1 and type B3 safe shall have a top and a bottom hinge so fitted that the door can be swung open to at least 90°.

7 Packing and marking

7.1 Packing

Each safe shall be supplied with anchor bolts of size M10 and with a penetration depth of 80 mm and washers 30 mm in diameter and of thickness at least 3 mm.

7.2 Marking

Each safe shall bear the following information on legible and indelible marking plates permanently fixed to the door:

- a) On the outside
 - 1) the manufacturer's name, trade name or trade mark;
 - 2) the manufacturer's serial number; and
 - 3) any other marking required by the purchaser (see annex A.1).
- b) On the inside
 - 1) the words "Firearms SAFE"; and
 - 2) the type of safe.

8 Inspection and methods of test

8.1 Inspection

Visually examine and measure each firearms safe in the sample for compliance with all the relevant requirements of the standard for which tests for compliance are not given in 8.3 to 8.6 (inclusive).

8.2 Sampling

The manufacturer shall supply one safe for testing.

8.3 Test for resistance to attack by hand tools

8.3.1 Tools

The tools to be used for attacking the safes are: chisels, hand hammers, pliers, screwdrivers, wrenches, crowbars and ripping tools (of length not exceeding 1,5 m); lock-picking and manipulating devices, a hand-held portable electric drilling machine with a maximum rated capacity of 500 W using high-speed carbon steel drill bits of size not exceeding 13 mm; and a sledgehammer of mass not exceeding 1,8 kg.

8.3.2 Test personnel

Two persons who are experienced in the use of the tools shall perform the test.

8.3.3 Procedure

8.3.3.1 Ensure that the safe is in the normal vertical position and that the hand tools specified in 8.3.1 are used for the appropriate net working time given in 5.1.3.

8.3.3.2 Allow the test personnel to attack the safe and attempt to make a successful entry by a single method chosen by them after examination of the safe. To prove the resistance of the safe under test, the test personnel may make further attacks using the same or other methods of attack, each for the appropriate net working time.

NOTE No attack is to be directed against any part of the safe using the same method as used on an adjacent face.

8.3.3.3 Check for compliance with the requirements of 5.1.3.

8.4 Test for durability of lever locks

Remove the lock from the safe, secure the lock rigidly, insert the key, and use a suitable actuating mechanism to turn the key to operate the lock for a total of 30 000 opening-and-closing cycles at a rate of 56 to 65 cycles per minute. Check for compliance with the relevant requirements of 4.3.6 and 4.4.3.2.

8.5 Test for durability of hinges

With the safe in the normal vertical position, and with the bolts withdrawn to the open position, use an actuating mechanism (attached to the door) to subject the door, at a rate of 5 to 10 cycles per minute, to 30 000 opening-and-closing cycles during each of which the door is opened through 90° and closed completely. Ensure that approximately the same shock force is applied to the door frame during closing as is applied in normal operation. At the end of the test, examine the hinges for compliance with the relevant requirement of 4.3.6.

8.6 Test for durability of boltwork

With the safe upright and in the open position, use an actuating mechanism (attached to the boltwork spindle) to operate the bolts from the fully closed to the fully open and back to the fully closed position 30 000 times, at a rate of 15 to 20 opening-and-closing cycles per minute. Ensure that approximately the same shock force is applied to the bolts as is applied in normal operation. At the end of the test, examine the boltwork for compliance with the relevant requirement of 4.3.6.

Annex A
(normative)

Notes to purchasers

A.1 The following requirements shall be specified in tender invitations and in each order or contract:

- a) the type of safe (see 4.1);
- b) any additional markings (see 7.2).

A.2 The following requirements shall be agreed upon between the supplier and the purchaser:

- a) the dimensions of the safe (see 4.3.2); and
- b) corrosion resistance requirements (see 4.5.2).

Annex B
(informative)

**Quality verification of safes for the storage
of firearms and ammunition**

When a purchaser requires ongoing verification of the quality of safes for the storage of firearms and ammunition, it is suggested that, instead of concentrating solely on evaluation of the final product, attention is also directed to the manufacturer's quality system. In this connection it should be noted that SANS 9001 covers the provision of an integrated quality system. **Amdt 1**

Bibliography

SANS 9001/ISO 9001, *Quality management systems – Requirements*.