



CEN/TC 33/WG 7
Burglary resistance

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Draft for FprEN 1627 2020-07-03

Document type: Other draft

Date of document: 2020-07-15

Expected action: INFO

Background: Draft for Formal Vote that will be delivered to the TC Secretary.
The next step will be a ballot for Launching of the Formal Vote.

The editorial group have had several meetings and checked and finalized the updates from the handling of the Enquiry comments.

Committee URL: <https://cen.iso.org/livelink/livelink/open/centc33wg7>

CEN/TC 33

FprEN 1627:2020

2020-07-03

CEN/TC 33

Secretariat: AFNOR

**Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar
resistance — Requirements and classification**

***Türen, Fenster, Vorhangfassaden, Gitterelemente und Abschlüsse —
Einbruchhemmung — Anforderungen und Klassifizierung***

***Blocs-portes pour piétons, fenêtres, façades rideaux, grilles et fermetures — Résistance
à l'effraction — Prescriptions et classification***

ICS:

Descriptors:

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European foreword

This document (FprEN 1627:2020) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This document is currently submitted to the Formal Vote.

This document will supersede EN 1627:2011.

Significant changes in this revision are:

- a) Normative references updated;
- b) Scope includes electromechanical building hardware products;
- c) Clarification of the number of resistance classes (RC 1 / RC 1N);
- d) Clause 6 - Building hardware re-written;
- e) New subClause 8.2 – Non key operated unlockable hardware;
- f) Annex B deleted;
- g) Annex C rewritten and updated
- h) New informative Annex E - Marking added;

This document is one of a series of standards for burglar resistant pedestrian doorsets, windows, curtain walling, grilles and shutters. The other standards in the series are:

- EN 1628:—¹, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Test method for the determination of resistance under static loading*;
- EN 1629:—², *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Test method for the determination of resistance under dynamic loading*;
- EN 1630:—³, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Test method for the determination of resistance to manual burglary attempts*.

¹ To be published.

² To be published.

³ To be published.

1 Scope

This document specifies requirements and classification systems for burglar resistant characteristics of pedestrian doorsets, windows, curtain walling, grilles and shutters. It is applicable to the following modes of opening: Turning, tilting, folding, turn-tilting, top or bottom hung, sliding (horizontally and vertically), pivoted (horizontally and vertically), projecting and rolling as well as non-openable constructions. It also covers products that include items such as letter plates or ventilation grilles. It specifies requirements for the burglar resistance of a construction product (as defined in 3.1 of this standard).

NOTE 1 The elements of curtain walling will be assigned to group 1 to 4 product depending on their design.

This document does not directly cover the resistance of locks and cylinders to attack with picking tools. Building hardware are components of the above mentioned products and cannot be classified as such according to this standard.

This document does not apply to walls and roofs, as well as for doors, gates and barriers, intended for installation in areas in the reach of persons, and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial or residential premises, as covered by EN 13241+A2:2016.

NOTE 2 It is important that construction products that can be reached or driven through by vehicles are protected by appropriate measures such as barriers, extensible ramps, etc.

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 356:1999, *Glass in building — Security glazing — Testing and classification of resistance against manual attack*

EN 1303:2015, *Building hardware — Cylinders for locks — Requirements and test methods*

EN 1628:—⁴, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Test method for the determination of resistance under static loading*

EN 1629:—⁵, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Test method for the determination of resistance under dynamic loading*

EN 1630:—⁶, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Test method for the determination of resistance to manual burglary attempts*

EN 1906:2012, *Building hardware — Lever handles and knob furniture — Requirements and test methods*

EN 12209:2016, *Building hardware — Mechanically operated locks and locking plates — Requirements and test methods*

⁴ To be published.

⁵ To be published.

⁶ To be published.

EN 12216:2018, *Shutters, external blinds, internal blinds – Terminology, glossary and definitions*

EN 12519:2018, *Windows and pedestrian doors — Terminology*

EN 13126-3:2011, *Building hardware — Hardware for windows and door-height windows - Requirements and test methods — Part 3: Handles, primarily for Tilt&Turn, Tilt-First and Turn-Only hardware*

EN 13241+A2:2016, *Industrial, commercial, garage doors and gates — Product standard, performance characteristics*

EN 14846:2008, *Building hardware — Locks and latches — Electromechanically operated locks and striking plates - Requirements and test methods*

prEN 15684:2020¹⁾, *Building hardware - Mechatronic cylinders — Requirements and test methods*

prEN 15685:2020⁷⁾, *Building hardware — Multipoint locks, latches and locking plates— Characteristics and test methods*

EN 16867: 2020, *Building hardware — Mechatronic door furniture — Requirements and test methods*

EN ISO 6508-1: 2016, *Metallic materials – Rockwell hardness test – Part 1: Test method (ISO 6508:2016)*

EN ISO 80000-1:2013, *Quantities and units — Part 1: General (ISO 80000-1:2009+Cor 1:2011)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in , EN 12519:2018, EN 12216: 2018, EN 13119:2016, EN ISO 80000-1:2013 and the following apply.

3.1

burglar resistance

property of pedestrian doorsets, windows, curtain walling, grilles and shutters to resist attempts of forced entry using physical force and with the aid of predefined tools into the protected room or area

3.2

burglar resistant product

complete, functioning element that, when built in and fastened or fastened and secured, has the function of resisting forced entry through the application of physical force assisted by predefined tools

3.3

Group 1 product

product that has a solid and rigid leaf and/or opening element

Note 1 to entry: If the product incorporates an opening element, the principal movement to open is turning of the element.

Note 2 to entry: Examples of Group 1 products are hinged or pivoted windows and doorsets or fixed windows. Non-openable are also defined as a Group 1 product.

7) Under preparation.

3.4

Group 2 product

product that has a solid and rigid leaf or opening element and the principal movement to open is sliding

Note 1 to entry: Non-openable parts of these products are subject to the same tests as the Group 1 products.

Note 2 to entry: Examples of Group 2 products are sliding doorsets and sliding windows.

3.5

Group 3 product

product that has a leaf or opening element constructed from a number of rigid elements joined together such that the elements may move relative to each other

Note 1 to entry: An example of a Group 3 product is a roller shutter.

3.6

Group 4 product

product with one or more openings (excluding letter plates) through which gap gauge B (25 mm) can pass

Note 1 to entry: An example of a Group 4 product is a grille or a roller grille.

3.7

resistance class RC

level of resistance that the product provides against burglary attempts

3.8

attack side

side of the test specimen defined by the applicant as the side exposed to attack

3.9

non-attack side

side of the test specimen defined by the applicant as the side not exposed to attack

3.10

roller shutter

shutter where the curtain is retracted by rolling and consists of interconnected horizontal laths, that can be tilted or not, which run in side channels

[SOURCE: EN 12216:2018, 3.5.2.]

3.11

roller grille

component that can be moved vertically or horizontally in front of the opening to be secured and that can also be removed

Note 1 to entry: The individual grille bars are movably interconnected with each other. The grille curtain travels over a roller in order to open.

3.12

resistance time

working time of the test person carrying out the manual burglary test

Note 1 to entry: The resistance time includes times of less than 5 s each for tool changes, e.g. exchanging a screwdriver for a crowbar.

3.13

infilling

glazing or panel of any material or combination of materials which are used to fill an aperture in a window or doorset that can be replaced, and which are typically retained by glazing beads

4 Resistance classification

Each construction product conforming to this standard shall be classified according to one of eight resistance classes, depending on the level of burglar resistance offered by the product.

NOTE The resistance classes correspond to known methods of attack currently used by burglars as described in Annex B, Table B.1.

A system or family of products shall be classified using the approach described in Annex C.

The test specimen shall be in the secured condition defined by the manufacturer.

A product offering burglar resistance at more than one secured condition can be tested, assessed and classified at each condition.

In the documentation accompanying the product, the resistance class shall be given as per the following examples (see Annex E):

- Burglar resistant window EN 1627 RC 1 N
- Burglar resistant window EN 1627 RC 3
- Burglar resistant door EN 1627 RC 2

The procedure for testing and classification shall be carried out as described in Annex D.

For the purpose of historic data, products covered by the scope of this standard and classified under EN 1627: 2011 or ENV 1627:1999, meet the same classes of this standard.

5 Glazing

The glazing shall meet the minimum requirements in Table 1. When several panes of glass are used in a product, e.g. insulating glass units, then at least one pane shall meet the resistance class as shown in Table 1. On a product classified to this document the pane used in the test can be replaced with a glazing with the same or higher resistance class if the retention system remains identical to that tested. For RC1/RC 1N and RC 2N the pane used in the test can also be replaced with another glazing, if the retention system remains identical.

Table 1 — Minimum requirements for glazing

Resistance class for product	Resistance class of pane according to EN 356:1999
RC 1	P2A
RC 1 N	No requirements ^a
RC 2 N	No requirements ^a
RC 2	P4 A
RC 3	P5 A
RC 4	P6 B

RC 5	P7 B
RC 6	P8 B
^a National provision may be followed.	

On elements equipped with emergency exit devices or panic exit devices, the glazing or the infilling shall prohibit operating the device to gain an accessible opening by penetrating the infilling with the relevant tools. This vulnerability shall be examined according to EN 1630:—⁸, 6.3.1.

6 Building hardware

6.1 General

The requirements for building hardware fitted on pedestrian doorsets, windows, curtain walling, grilles and shutters subject to this standard are detailed in Clauses 6.2 to 6.5.

6.2 Key related security

6.2.1 Requirements

For all resistance classes, building hardware components lockable with a key shall fulfil key related security requirements according to Table 2.

Table 2 — Key related security

Building hardware standard	Requirement	RC 1 / RC 1 N	RC 2 / RC 2N	RC 3	RC 4	RC 5	RC 6
EN 1303:2015 cylinder for lock	Digit 7	4	4	4	6	6	6
prEN 15684:2020 Mechatronic cylinder	Digit 5 ^a or Digit 6 ^a	E	E	E ^b	F	F	F
		A	B	B	C	D	D
EN 12209:2016 Mechanical lockcase	Digit 8 key identification (lever lock)	B	B	B	D	E	E
prEN 15685 Multipoint locks (under process)	Digit 8 Mechanical keys	B	B	B	D	E	E
EN 13126-3:2011 Key operated lockable window handle	Digit 7 – 2 nd part of digit 7 extension for locking mechanism	2 ^c /2	2 ^c /2	2/2	2/3	2/3	2/3

⁸ To be published.

EN 16867: 2020 Mechatronic door furniture	Digit 7	A	B	B	D	D	D
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^a The specified grades may alternatively be achieved by the mechanical (digit 5) or electronic (digit 6) key related security. Mechatronic cylinders do not need to have a mechanical lockwork (prEN 15684:2020, digit 5, Grade A). In this case, grade A in digit 6 of prEN 15684:2020 fulfils the requirement.

^b Mechatronic cylinder with mechanical codes shall have a minimum number of 6 movable retainers (digit 7 level 5 of EN 1303:2015).

^c Grade 1 (2nd part of digit 7) only if two or more handles are used on a single sash.

6.2.2 Application to windows

6.2.2.1 General

For handles on windows it may be possible to actuate the handle indirectly from the attack side by a displacement of the transmission rod of the building hardware, e.g. by initiating a movement on one of the locking cams. Therefore, either lockable window handles in accordance with the requirements of Table 2 or alternatively other building hardware components to provide protection against this kind of attack shall be used.

6.2.2.2 Lockable window handles

In general, the lock case area on the gear of the window hardware in which the lockable window handle engages shall be protected against drilling. When using lockable window handles with a (square) spindle or geared lockable window handles with a connector or fork as connecting element, it shall be prevented that the connecting element is drilled out so that the connecting rod of the hardware is no longer secured against displacement by the handle.

This shall be realized by using a drill protected lock case or a drill protected layer or the overlapping by drill protected furniture on the attack side. The minimum surface hardness for the drill protected lock case or a drill protected layer shall be 60 HRC (EN ISO 6508-1) with a hardness depth of 0,3 to 0,5 mm as a rule. The verification can also be carried out by a hand-held drilling test with drilling tools from tool set A.3 according to EN 1630:—⁹ with a resistance time of at least 3 minutes.

- Key operated lockable window handles: In the case of using window handles with a key operated locking mechanism the requirements of Table 2 are applicable to the window handle opposite to the attack side (digit 7: 2/2 or 2/3 in accordance with EN 13126-3:2011).
- Non-key operated lockable window handles: In the case of using window handles with a non-key operated locking mechanism (for example PTO 'push to open'), the requirements in accordance with EN 13126-3:2011, digit 7: 2/1 shall be met.

For non-key operated lockable window handles a test of the window handle shall be carried out in accordance with Clause 8 of this standard.

⁹ To be published.

6.2.2.3 Non-lockable window handles

In the case of using window handles without any locking mechanism, other components with an appropriate locking function should be used. In this case generally a test in accordance with Clause 8 of this standard shall be carried out.

For RC 1 / RC 1 N additionally a test in accordance with Annex C of EN 1628:—¹⁰ shall be carried out if applicable.

6.3 Attack related security

Building hardware fitted on pedestrian doorsets, windows, curtain walling, grilles and shutters subject to this standard shall either:

- meet the requirements in Table 3 (see under 6.4) or
- be tested in accordance with 6.5

Either of the above options may be requested by of the applicant.

In the case of testing in accordance with Clause 6.5 the retention of the hardware shall be tested according to EN 1630:—¹¹ for RC 2/ RC 2N up to RC 6.

6.4 Building hardware assessment according to their appropriate standard

Building hardware shall fulfil the requirements of Table 3, according to their appropriate specific standard.

The requirements of Table 3 are valid for those parts of the building hardware that are on the attack side of the pedestrian doorsets, windows, curtain walling, grilles and shutters defined by the applicant.

During the manual burglary test according to EN 1630:—¹², resistance classes RC5 and RC6, the building hardware according to Table 3 must be included as attack areas.

Table 3 — Attack related security

Building hardware standard	Requirement	RC 1 / RC 1 N	RC 2 N	RC 2	RC 3	RC 4	RC 5	RC 6
EN 1303:2015 cylinder for lock	Digit 8	A	C	C	C	D	test according to EN 1630:— ¹³	
EN 1303:2015 cylinder for locks in combination with EN 1906:2012 lever handle with cylinder and plug pulling protection	Digit 8 of EN 1303:2015	A	A	A	A	B	test according to EN 1630:—	
	Digit 7 of EN 1906:2012	1	2	2	3	4	test according to EN 1630:—	

¹⁰ To be published.

¹¹ To be published.

¹² To be published.

¹³ To be published.

Building hardware standard	Requirement	RC 1 / RC 1 N	RC 2 N	RC 2	RC 3	RC 4	RC 5	RC 6
EN 1303:2015 cylinder for locks in combination with EN 16867: 2020 lever handle with cylinder and plug pulling protection	Digit 8 of EN 1303:2015	A	A	A	A	B	test according to EN 1630:—	
	Digit 8 of EN 16867:2020	0	1	1	2	3	test according to EN 1630:—	
	Digit 9 of EN 16867:2020	1	2	2	3	4	test according to EN 1630:—	
PREN 15684:2020, Mechatronic cylinders	Digit 8	1	1	1	1	2	2 and test according to EN 1630:—	
prEN 15684: 2020 mechatronic cylinder in combination with EN 1906:2012 lever handle with cylinder and plug pulling protection	Digit 8 of prEN 15684:2020	A	A	A	A	B	2 and test according to EN 1630:—	
	Digit 7 of EN 1906:2012	1	2	2	3	4	test according to EN 1630:—	
EN 1906:2012 Lever handles and knob furniture	Digit 7 Security	1	1	2	3	4	test according to EN 1630:—	
EN 12209:2016 Mechanically operated locks and locking plates prEN 15685 Multipoint locks, latches and locking plates: Classification based on one point	Digit 7	3	3	3	4	7 ^a	test according to EN 1630:—	
prEN 15685 Multipoint locks, latches and locking plates: Classification based on more than one points	Digit 7	2	3	3	3	5	test according to EN 1630:—	
	Digit 9 Security for anti-separation point	2	3	3	3	5	test according to EN 1630:—	
EN 14846:2008, Electromechanically operated locks and striking plate	Digit 7 Security	3	3	3	4	7 ^b	test according to EN 1630:—	
	Digit 9	2	2	2	2	3	3	

Building hardware standard	Requirement	RC 1 / RC 1 N	RC 2 N	RC 2	RC 3	RC 4	RC 5	RC 6
EN13126-3:2011 window handle (lockable)	Digit 7 1st part of digit 7: grade for resistance against twisting-off and forcing-off"	2 ^c /2 2 ^c /1	2 ^c /2 2 ^c /1	2 ^c /2 2 ^c /1	2/2 2/1	2/3 2/1	2/3 2/1	
EN 16867:2020 Mechatronic door furniture (According to N0276)	Digit 8	0	1	1	2	3	test according to EN 1630:—	
	Digit 9 Security related to EN 1906:2012	1	2	2	3	4	test according to EN 1630:—	
<p>^a A lock with security class 6 (digit 7) may be used if the drill resistance required in class 7 is provided by the door construction.</p> <p>^b A lock with security class 4 (digit 7) may be used if the drill resistance required in class 7 is provided by the door construction.</p> <p>^c Grade 1 (1st part of digit 7) only if two or more handles are used on a single sash.</p>								

6.5 Assessment of building hardware not complying with Table 3 requirements

6.5.1 General

When building hardware does not comply with the requirements of Table 3, an assessment of the building hardware shall be made on the complete test specimen for RC 2/RC 2 N up to RC 4.

- The objective of the tests will be to assess the performance of the building hardware only for the characteristics as required in Table 3;
- Test of the building hardware itself will be carried out with that component fitted on the complete building element;
- The failure requirement will be "accessible opening" of the building element according to EN 1630:—¹⁴, Clause 6.7;
- Tests will be done according to EN 1630:—¹⁵;
- Tests to be carried out and the tool set to be used for each component are defined in Clause 6.5.2;
- The resistance time shall be in accordance with Table 14 for the claimed RC;

¹⁴ To be published.

¹⁵ To be published.

NOTE Each specific test can be performed on a new sample.

- Building hardware interchangeability rules (Annex C) do not apply for hardware tested according to 6.5.

6.5.2 Additional test and tool set for building hardware not complying with Table 3

6.5.2.1 General

This paragraph describes for each hardware the test to be carried out and the tool set to be used for hardware not complying with Table 3.

The Tables 4, 5, 6 7, 8 and 9 state:

- The list of tests to be done according to 6.5.1;
- Tools to be used for each test. Tools are identified by their number according to EN 1630:—¹⁶;
- Tool set A.1 can be used for all tests carried out according to 6.5.

6.5.2.2 Cylinder for lock

Table 4 — Cylinder for lock

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Cylinder for locks	Resistance to attack by drilling	Tool set A1 + drilling machine 4.7 + drill bit 4.7.1		
	Resistance to attack by chisel	Tool set A1 + hammer 4.1+ chisel 4.2 and 4.3		
	Resistance to attack by twisting	Tool set A1+ wrench 2.2+ tube 2.8		
	Resistance to attack by plug/cylinder extraction	Tool set A1+ EN 1630:— ¹⁷ , Annex E ^a		Tool set A1+ EN 1630:—, Annex E ^b
	Torque resistance of plug/cylinder	Tool set A1+hammer 4.1		

¹⁶ To be published.

¹⁷ To be published.

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Cylinder for locks in combination with lever handle with plug protection	Table 3 requirements shall be fulfilled			
^a EN 1303:2015 attack resistance grade C.				
^b EN 1303:2015 attack resistance grade D.				

6.5.2.3 Mechatronic cylinder

Table 5 — Mechatronic cylinder

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Mechatronic cylinder	Resistance to attack by drilling	Tool set A1 + drilling machine 4.7 + drill bit 4.7.1		
	Resistance to attack by chisel	Tool set A1 + hammer 4.1+ chisel 4.2 and 4.3		
	Resistance to attack by twisting	Tool set A1 + wrench 2.2+ tube 2.8		
	Resistance to attack by plug/cylinder extraction	Tool set A1+ EN 1630:— ¹⁸ , Annex E ^a		Tool set A1+ EN 1630:—, Annex E ^b
	Torque resistance of plug/cylinder	Tool set A1+hammer 4.1		
	Attacks by hits	prEN 15684:2020 use of grade 1 tools		prEN 15684:2020 use of grade 2 tools
	Attacks by vibrations	prEN 15684:2020 use of grade 1 tools		prEN 15684:2020 use of grade 2 tools
	Increase voltage attacks	prEN 15684:2020 use of grade 1 tools		prEN 15684:2020 use of grade 2 tools
	Electrostatic discharge attack	prEN 15684:2020 use of grade 1 tools		prEN 15684:2020 use of grade 2 tools
	Magnetic field attack	prEN 15684:2020 use of grade 1 tools		prEN 15684:2020 use of grade 2 tools
Mechatronic cylinder in combination with lever handle with plug protection	Table 3 requirements shall be fulfilled			
^a EN 1303:2015 attack resistance grade C.				
^b EN 1303:2015 attack resistance grade D.				

¹⁸ To be published.

NOTE prEN 15684:2020 use of grade 1 tool: tests according to prEN 15684:2020 are manual tests, so for mechatronic cylinder that do not fulfill requirements of Table 3, test according to 6.5 will be carried out with grade 1 tool of prEN 15684:2020.

6.5.2.4 Lever handle and knob furniture / security furniture

Table 6 — Lever handle and knob furniture / security furniture

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Lever handles and knob furniture / security furniture	Plate strength	tool set A2 + hammer 4.1 chisel 4.2 and 4.3	chisel 4.2 and 4.3 + hammer 4.1 + tool set A3	tool set A4
	Strength of fastening element	tool set A2 + hammer 4.1 chisel 4.2 and 4.3	chisel 4.2 and 4.3 + hammer 4.1 + tool set A3	tool set A4
	Resistance to attack by drilling	drilling machine 4.7 + drill bits 4.7.1 + tool set A2	Drilling machine 4.7 + drill bits 4.7.1 + tool set A3	tool set A4
	Resistance to attack by chisel	tool set A2 + hammer 4.1 + chisel 4.2 and 4.3	chisel 4.2 and 4.3 + hammer 4.1 + tool set A3	tool set A4
	Additional requirement for the strength of plug protection plate (if fitted)	Tool set A1+ EN 1630:— ¹⁹ , Annex E ^a		Tool set A1+ EN 1630:—, Annex E ^b
^a EN 1303:2015 attack resistance grade C.				
^b EN 1303:2015 attack resistance grade D.				

¹⁹ To be published.

6.5.2.5 Single point lock

Table 7 — Single point lock

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Mechanically operated single point locks and locking plates	Torque resistance of lockable follower	Test of lock to complete access of the building element with the given grade tool set		
	Side load on dead bolt/ drilling of dead bolt	Covered by EN 1630:— ²⁰ test		
	Dead bolt projection	Covered by EN 1630:— test		
	End load on dead bolt	Covered by EN 1630:— test		
	Resistance to pulling on hook bolt	Covered by EN 1630:— test		
	Resistance to disengaging on hook bolt	Covered by EN 1630:— test		
	Resistance to forcing locating devices on sliding products	Covered by EN 1630:— test		
	Resistance to end load on box protected locking plates	Covered by EN 1630:— test		
	Resistance to side load on locking plates	Covered by EN 1630:— test		
	Resistance to pulling on locking plates	Covered by EN 1630:— test		
	Resistance to lifting forces on locking plates	Covered by EN 1630:— test		

6.5.2.6 Multipoint lock

Table 8 — Multipoint lock

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Multipoint locks, latches and locking plates:	Torque resistance of lockable follower	Test of lock to complete access of the building element with the given grade tool set		
	Side load of locking point/ drilling of locking point	Covered by EN 1630:— ²¹ test		

²⁰ To be published.²¹ To be published.

Building hardware	Test	RC 2 N /RC 2	RC 3	RC 4
<i>Classified based on one point.</i>	Locking point bolt projection	Covered by EN 1630:— test		
	Disengaging force without box protected locking plate	Covered by EN 1630:— test		
	Disengaging force with box protected locking plate	Covered by EN 1630:— test		
	Strong key attack on lever locks	Covered by EN 1630:— test		
	Resistance to force on box protected locking plates	Covered by EN 1630:— test		
	Resistance to side load on locking plate	Covered by EN 1630:— test		
	Anti-separation point bolt projection	Covered by EN 1630:— test		
	Resistance to disengaging force of the anti-separation point	Covered by EN 1630:— test		
	Resistance to pulling of anti-separation point	Covered by EN 1630:— test		
	Resistance to forcing of anti-lifting device for sliding products	Covered by EN 1630:— test		
	Resistance to pulling on locking plate for the anti-separation point	Covered by EN 1630:— test		
	Resistance to lifting force on locking plate	Covered by EN 1630:— test		

6.5.2.7 Electromechanically operated lock and striking plate

Table 9 — Electromechanically operated lock and striking plate

Building hardware	Test	RC 2 N / RC 2	RC 3	RC 4
Electro-mechanically operated locks and striking plates	Side load on dead bolt/drilling of dead bolt	Covered by EN 1630:— ²² test		
	Dead bolt projection	Covered by EN 1630:— test		
	End load on dead bolt	Covered by EN 1630:— test		
	Resistance to pulling on hook/claw bolt	Covered by EN 1630:— test		
	Resistance to disengaging on hook/claw bolt	Covered by EN 1630:— test		
	Resistance to forcing locating devices on sliding products	Covered by EN 1630:— test		
	Resistance to pulling off of knob on bore locks	Covered by EN 1630:— test		
	Resistance to side load on locking plates	Covered by EN 1630:— test		
	Resistance to pulling on locking plates	Covered by EN 1630:— test		
	Resistance to lifting forces on locking plates	Covered by EN 1630:— test		
	Voltage drop requirements	Table 3 requirements shall be fulfilled.		
	Protection against the effect of cutting cable	Table 3 requirements shall be fulfilled.		
	Protection against the effect of wire manipulation	Table 3 requirements shall be fulfilled.		
	Resistance to electromagnetic manipulation	Table 3 requirements shall be fulfilled.		
	Resistance to electrostatic discharge	Table 3 requirements shall be fulfilled.		
	Resistance to electrostatic manipulation	Table 3 requirements shall be fulfilled.		

²² To be published.

6.5.2.8 Lockable window handle

For lockable window handles not complying with the requirements Table 3, a manipulation test of the window handle shall be carried out in accordance with Clause 8.

The aim of the test is to explore if the handle can be operated indirectly from the attack side by either actuating the transmission rods or by penetrating the element to operate the handle and to achieve an accessible opening.

7 Mechanical strength

7.1 Static loading

When tested in accordance with EN 1628:—²³ using the loads detailed in Tables 10, 11 and 12 as appropriate, the test specimen shall not exhibit failure at the resistance class claimed.

The loading tests shall be conducted in the sequence detailed in the relevant test method.

Table 10 — Static loading of Group 1 and Group 2 products

	Gap gauge ^c	Pressure pad	Resistance class (RC)			
			1/1N, 2/2N	3	4	5, 6
			Test Load	Test Load	Test Load	Test Load
Loading points	Type	Type	kN	kN	kN	kN
F1 Corner of infilling	B	1	3	6	10	15
F2 Leaf and casement corners	B	1 or 2	1,5	3	6	10
F3 Locking Points	A	1 or 2	3	6	10	15
F3.a Group 1^a and 2^b products Locking Points (additional loadings)	A	-	1,5	-	-	-
^a Group 1 products only in resistance class 1. ^b Group 2 products only in resistance classes 1 and 2. ^c Gap gauges, see EN 1628:— ²⁴ , Figure A.13						

²³ To be published.

²⁴ To be published.

Table 11 — Static loading of Group 3 products

	Resistance class (RC)											
	1/1N, 2/2N			3			4			5, 6		
	Test load	Limiting value	Pressure pad	Test load	Limiting value	Pressure pad	Test load	Limiting value	Pressure pad	Test load	Limiting value	Pressure pad
Loading points	kN	mm	Type	kN	mm	Type	kN	mm	Type	kN	mm	Type
F1.1 Guide rail deflection test	3	30° ^a	4	6	30° ^a	4	10	30° ^a	4	15	30° ^a	4
F3 Curtain lift test	3	C ^c	1 or 2	6	C ^c	1 or 2	10	C ^c	1 or 2	15	C ^c	1 or 2
F2 Lath engagement test	1,5	10	1 or 2	3	10	1 or 2	6	10	1 or 2	10	10	1 or 2
F1 Static test on guide rail and curtain	3	10 ^b	3	6	10 ^b	3	10	10 ^b	3	15	10 ^b	3
^a Maximum allowable deflection of the loaded leg of the guide rail is 30°. The determination of the angle is described in EN 1628:— ²⁵ . ^b Minimum depth of penetration under static load. ^c Checked by means of gap gauge type C, EN 1628:— ²⁶ , Figure A.14.												

²⁵ To be published.²⁶ To be published.

Table 12 — Static loading of Group 4 products

	Resistance class (RC)											
	1/1N, 2/2N			3			4			5, 6		
	Test Load	Gap gauge ^b	Pressure pad	Test Load	Gap gauge ^b	Pressure pad	Test Load	Gap gauge ^b	Pressure pad	Test Load	Gap gauge ^b	Pressure pad
Loading points	kN	mm	Type	kN	mm	Type	kN	mm	Type	kN	mm	Type
F2.1 Between two fixing points	1,5	C	5	3	C	5	6	C	5	10	C	5
F2.2 Loading between two junction points	1,5	C	5	3	C	5	6	C	5	10	C	5
F2.4 Loading on free end	1,5	C	5	3	C	5	6	C	5	10	C	5
F3 Locking points	3	C	1 or 2	6	C	1 or 2	10	C	1 or 2	15	C	1 or 2
F3.1 Fixing point between grille and masonry	3	C	5	6	C	5	10	C	5	15	C	5
F1 Static test on guide rail and curtain or two adjacent grille bars at a junction point	3	C	5	6	C	5	10	C	5	15	C	5
F1.1 Guide rail deflection test load	3	30° ^a	4	6	30° ^a	4	10	30° ^a	4	15	30° ^a	4
F3.2 Curtain lift test	3	C	1 or 2	6	C	1 or 2	10	C	1 or 2	15	C	1 or 2
F2.3 Disengaging the grille curtain out of the guide rail	1,5	C	1 or 2	3	C	1 or 2	6	C	1 or 2	10	C	1 or 2
^a Maximum allowable deflection of the loaded leg of the guide rail is 30°. The determination of the angle is described in prEN 1628:— ²⁷ . ^b Gap gauge type C can be found in prEN 1628:— ²⁸ , Figure A.14.												

²⁷ To be published.²⁸ To be published.

7.2 Dynamic loading in resistance classes 1, 2 and 3

When tested in accordance with EN 1629:—²⁹ using the mass and drop height given in Table 13, the test specimen shall not fail at the resistance class claimed. The centre of the test specimen and infillings shall be subjected to three impacts and all other impact points shall be subjected to one impact as detailed in EN 1629:—³⁰, Figures A.21 to A.29.

Table 13 — Drop height for dynamic test

Resistance class (RC)	Mass of the impactor kg	Drop height mm
1/1N	50	450
2/2N	50	450
3	50	750
4 - 6	no dynamic test is required	

8 Manual burglary attempts

8.1 General

When tested in accordance with EN 1630:—³¹ using the tool sets and times specified in Table 14, the test specimen shall not fail at the resistance class claimed. For construction products of RC 1 / RC 1N no manual test will be carried out, with the exception of the preparation of the test sample and the manipulation tests of non-key operated unlockable hardware, non-key operated lockable window handles and lockable window handle not complying with the requirements according Table 3.

Table 14 — Tool sets and resistance time

Resistance class (RC)	Tool set (see EN 1630:—³², Clause 7)	Resistance time min	Maximum total test time min
1/1N	A1	—	—
2/2N	A2	3	15
3	A3	5	20
4	A4	10	30
5	A5	15	40
6	A6	20	50
For RC 1/ RC 1N products: A1 toolset is only intended for the preparation of the test sample, unless testing according to Clause 8.2 is required.			

²⁹ To be published.

³⁰ To be published.

³¹ To be published.

³² To be published.

NOTE The maximum total test time is the sum of resistance time, rest time, tool change time and observation time (see definitions in EN 1630:—³³).

8.2 Non-key operated unlockable hardware

For construction products with non-key operated unlockable hardware (e.g. panic exit device, knob cylinder, non-key operated lockable window handle, non-lockable window handle, switches, push-buttons) on the non-attack side, entry might be gained by penetrating the product (including glazing) and operating the hardware. This vulnerability shall be explored and tested in all resistance classes.

A test in accordance with 6.3.1 of EN 1630:—³⁴ shall be carried out.

9 Classification report

A classification report shall be provided and shall contain the following, minimum information:

- a) classification report reference (number and date);
- b) details of the applicant;
- c) product description;
- d) product name;
- e) dimensions;
- f) details of the attack side;
- g) declared secured condition(s)
- h) glazing details (thickness) and classification;
- i) details of the hardware, including unique component reference(s);
- j) reference to installation instructions;
- k) the resistance class for each declared closing condition according to this standard;
- l) reference to this standard and its date;
- m) field of application where required, see Annex C.

The classification report shall also contain either:

³³ To be published.

³⁴ To be published.

- Where it is applicable all the information required by the test reports in EN 1628:—³⁵, EN 1629:—³⁶ and EN 1630:—³⁷;
or
- reference to the relevant test reports.

10 Installation

Annex A gives recommendations for the contents of the manufacturer's installation instructions.

³⁵ To be published.

³⁶ To be published.

³⁷ To be published.

11 Test specimens

For RC 1/RC 1 N products one test specimen is required. All tests shall be conducted on this specimen.

For RC 2/RC 2 N to RC 6 products a minimum of two test specimens are recommended. In such case the static load test according to EN 1628:—³⁸, the dynamic load test according to EN 1629:—³⁹ and the pre-test according to EN 1630:—⁴⁰ may be conducted on the first specimen. The main manual test may be carried out on the second specimen. At the discretion of the manufacturer all tests may be carried out on a single specimen.

More specimens may be required, if a range of products (e.g. opening direction, sizes, hardware, infills, etc.) is to be tested.

³⁸ To be published.

³⁹ To be published.

⁴⁰ To be published.

Annex A
(informative)

Recommendations for the contents of the manufacturer's installation instructions

The manufacturer's installation instructions should contain the following information:

- a) Details regarding fixing points as well as a precise description of the fixing components;
- b) Details of points requiring particularly rigid fixing e.g. in the vicinity of locks and hinges;
- c) Details of the gaps to be maintained between moving and fixed parts;
- e) Details, where appropriate, regarding the maximum permissible projection of the lock cylinder outside the external lock shield plate;
- f) Other relevant details directly linked to the product that influence its burglar resistance;
- g) Details of the secured condition and/or conditions that meet the requirements for the resistance class claimed.

Additional information regarding roller shutters and roller grilles:

- h) Fixing type and maximum distance between fixings in the guide rail;
- i) Minimum penetration depth of the shutter curtain into the guide rail;
- j) Type and fixings of anti-lift device, if necessary;
- k) Information about protection to the roller shutter box.

Annex B (informative)

Resistance classes – Classification according to EN 1627

B.1 General

During discussions regarding the method of classifying burglar resistant construction products according to this standard, the attack methods employed by the burglar (modus operandi) and crime statistics from National sources have been taken into consideration. Also a series of development tests has been carried out and commonly available tools have been grouped into kits for use in the various classes detailed in this standard.

The issue of reproducibility and repeatability of the manual attack test has been raised by a number of the member states. To address these issues the overall assessment has been enhanced by the further development of the static load test, and the manual attack, now excluded from class 1. The combination of the three test methods, static loading, dynamic loading and manual attack has given rise to an assessment procedure that is more robust and covers the relevant elements relative to each of the classes and therefore the anticipate burglar.

Observations in a number of the member states have concluded that the move from the more traditional lever lock towards cylinder-operated locks resulted in an increase in the number of burglaries employing drill attacks on cylinders. This, in turn, gave rise to a significant increase in the use of drill resistant cylinders with a consequence that the occurrences of drill-based attacks have all but disappeared. It is this experience that has led to the requirement for drill resistance cylinders according to EN 1303:2015 and has allowed the creation of tool kits in the lower classes that do not include drills.

The various classes detailed in this standard are intended to cover the opportunist or casual burglar as well as the more experience and professional.

Whilst this standard includes a number of classes the difference between each consecutive class varies. The most significant step is that between resistance classes 3 and 4. This reflects the two distinct groups of burglars recognised in this standard and is discussed in the following paragraphs.

A web-based guidance for helping to ensure a more uniform test procedure between test laboratories is under development, including the method to use the tools in EN1630:—⁴¹.

B.2 Resistance classes 1 to 3

Resistance classes 1, 2 and 3 are intended to address the levels of attack normal associated with the casual or opportunist burglar. It is believed that these attacks are the result of an opportunity presenting itself with no particular regard to the likely reward that success may bring. The level of force used is not excessive and the tools used are more likely to be common hand tools and levers.

Burglaries covered by these classes are likely to avoid noise and unnecessary risk. As risk is associated with time, the period spent attempting to gain entry is limited and varies with the classes. Likewise, the level of resistance encountered during the attack is a factor. High levels of resistance often resulting in aborted attack.

⁴¹ To be published.

B.3 Resistance classes 4 to 6

Resistance classes 4, 5 and 6 are associated with the more experienced and professional type burglar with a more focused aim and knowledge of the likely reward that success may bring. These attacks are general planned with knowledge of the construction products to be defeated. Noise is not an issue and time is less of a concern. The tools used often include powerful, single operator power tools with a high likelihood that targeted, organized offenders is involved.

Table B.1 — Anticipated method and attempts to gaining entry

Resist. class	Anticipated method and attempts to gaining entry
1	The casual burglar attempts to gain entry using small simple tools and physical violence, e.g. kicking, shoulder charging, lifting up, tearing out. The burglar typically attempts to take advantage of opportunities, has no specific information on the level of resistance offered by the construction product and is concerned with both time and noise. No specific knowledge of the likely rewards is anticipated and the level of risk the burglar is willing to take is low.
2	The casual burglar additionally attempts to gain entry using simple tools, e.g. screwdriver, pliers, wedge and in the case of grilles and exposed hinges the use of small handsaws. Mechanical drilling tools are not associated with this level of burglar as a result of the use of drill resistant cylinders. The burglar typically attempts to take advantage of opportunities, has little knowledge of the likely level of resistance and is concerned with both time and noise. No specific knowledge of the likely rewards is anticipated and the level of risk the burglar is willing to take is low.
3	The burglar attempts to gain entry using a crowbar, an additional screwdriver and hand tools such as a small hammer, pin punches and a mechanical drilling tool. With the use of the crowbar the burglar has the opportunity to apply increased forces. With the drilling tool the burglar is able to attack vulnerable locking devices. The burglar typically attempts to take advantage of opportunities, has some knowledge of the likely level of resistance and is concerned with both time and noise. No specific knowledge of the likely rewards is anticipated and level of risk the burglar is willing to take is medium.
4	The practised burglar uses in addition, a heavy hammer, axe, chisels and a portable battery powered drill. The heavy hammer, axe and drill give the burglar an increased number of attack methods. The burglar anticipates a reasonable reward and is likely to be resolute in his efforts to gain entry. He is also less concerned with the level of noise he produces and is prepared to take a greater risk.
5	The experienced burglar uses in addition electric tools e.g. drills, jig- and sabre saw, and an angle grinder with a disc of max. 125 mm diameter. The use of the angle grinder further expands the range of attack methods likely to be successful. The burglar anticipates a reasonable reward, is resolute in his efforts to gain entry and is well organised. He also has little concern for the level of noise he generates and is prepared to take a high level of risk.
6	The experienced burglar uses in addition spalling hammer, powerful electric tools, e.g. drills, jig- and sabre saw, and an angle grinder with a disc of max. 230 mm diameter. The tools are capable of being operated by a single person, have a high level of performance and are potentially very effective. The burglar anticipates a good level of reward, is resolute in his efforts to gain entry and is very well organised. He also has no concern for the level of noise he generates and is prepared to take a high level of risk.

Annex C (normative)

Field of application

C.1 General

In principle, the results of a test report and therefore the corresponding classification are only valid for the product (or range of products) described in the test report by its specifications and parts list.

However, the classification shall can be extended to products (or range of products) which differs to the tested one if rules defined in C.2, C.3 or C.4 are followed.

C.2 Dimensions

The classification of a product is valid only for sizes determined in accordance with this annex.

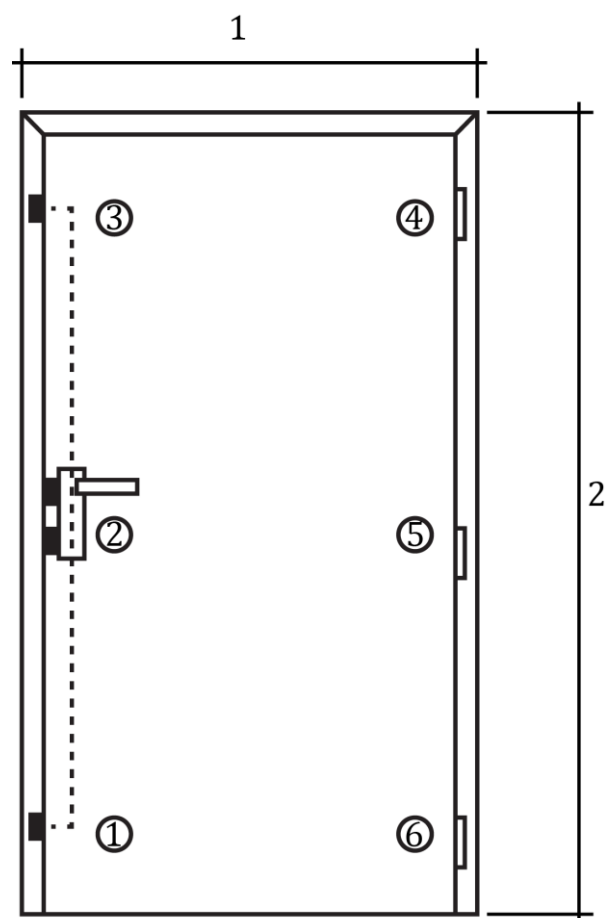
If a system or family of products are to be assessed then a range of test specimens shall be required. The number of test specimens shall depend upon the size of the system of family to be covered. For sample sizes outside the extrapolation rules detailed below, a full technical justification shall be provided.

The extrapolations in Figure C.1 and C.2 for sizes of doors and windows, other than those tested, shall be permissible without a statement provided that no written limitation is made in the test report.

Extrapolations other than those specified in Figure C.1 and C.2 are permissible with a laboratory or expert statement.

Additionally for doorsets: The dimension of the door may be reduced only if the distances between the locking points are not greater than on the tested specimen. The amount of locking points shall be equal.

Additionally, for windows: The number of locking points may be reduced only if the distances between the locking points are not greater than on the tested size.



Key

- 1 width +20%, -50%
- 2 height +20%, -50%
- ① to ⑥ locking points

Figure C.1 — Extrapolation rules for doorsets

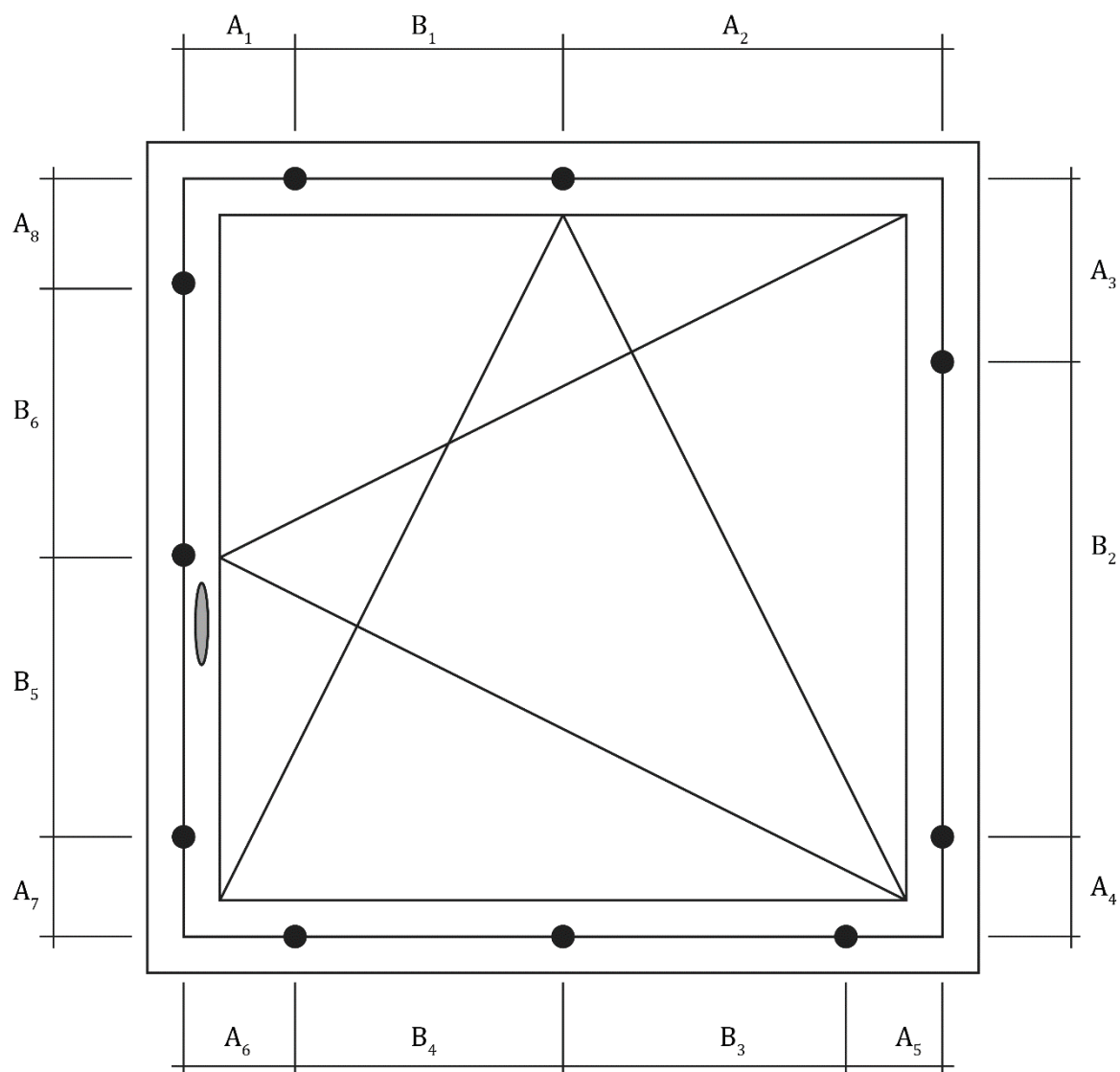
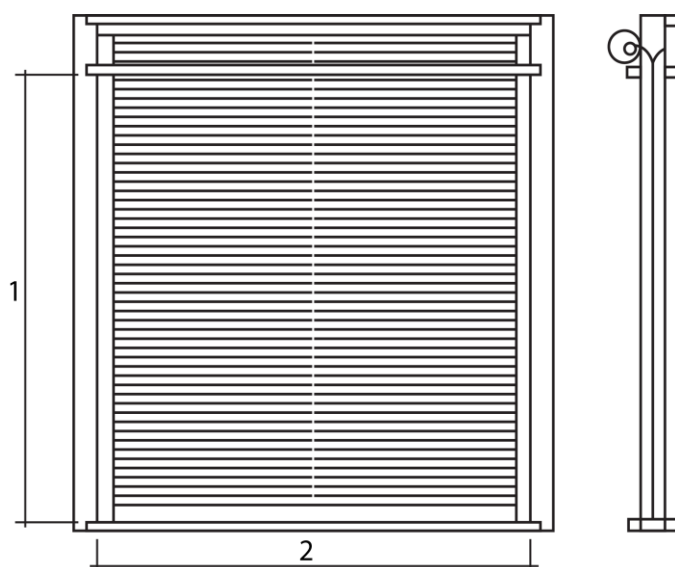


Figure C.2 — Extrapolation rules for windows



Key

- 1 height +20%, -50%
- 2 width +20%, -50%

Figure C.3 — Extrapolation rules for shutters and grilles

The extrapolations in Figure C.3 for sizes of shutters and grilles, other than those tested, shall be permissible without a statement provided that no written limitation is made in the test report.

Extrapolations other than those specified in Figure C.3 are permissible with a laboratory or expert statement.

Permissible extrapolations for all other products falling under this standard without an expert statement: An increase in width and/or height of up to 20 % is allowed. A reduction in height of up to 50 % is allowed. Extrapolations other than those specified are permissible with a laboratory or expert statement.

C.3 Exchange of hardware elements

C.3.1 Hardware listed in Table 2 and 3.

This Clause concerns hardware elements listed in Table 2 and 3.

The rules for exchanging building hardware are defined in Table C.1

Table C.1 - Exchange of hardware

Standard	RC 1/RC 1N	RC 2/RC 2N	RC 3	RC 4	RC 5	RC 6
EN 1303:2015 cylinder for locks	Possible exchange without expert statement if evidence exists of conformity with requirements of Table 2 and 3				No exchange without expert statement	
EN 1303:2015 cylinder for locks in combination with EN 1906:2012 lever handle with plug protection	Possible exchange without expert statement if the means of installation and the length of fixing lugs of the protective hardware remains unchanged and if evidence exists of conformity with requirements of Table 2 and 3				No exchange without expert statement	

Standard	RC 1/RC 1N	RC 2/RC 2N	RC 3	RC 4	RC 5	RC 6
prEN 15684:2020, Mechatronic cylinders	Possible exchange without expert statement if evidence exists of conformity with requirements of Table 2 and 3				No exchange without expert statement	
prEN 15684:2020 mechatronic cylinder in combination with EN 1906:2012 lever handle with plug protection	Possible exchange without expert statement if the means of installation and the length of fixing lugs of the protective hardware remains unchanged and if evidence exists of conformity with requirements of Table 2 and 3				No exchange without expert statement	
EN 1906:2012, Lever handles and knob furniture	Possible exchange without expert statement if the means of installation and the length of fixing lugs of the protective hardware remains unchanged and if evidence exists of conformity with requirements of Table 2 and 3				No exchange without expert statement	
EN 12209:2016 Mechanically operated locks and locking plates	No exchange without expert statement					
prEN 15685:2020 Multipoint locks, latches and locking plates: CLASSIFIED BASED ON ONE POINT	No exchange without expert statement					
EN 14846:2008, Electromechanically operated locks and striking plates	No exchange without expert statement					
EN13126-3:2011 window handle (lockable)	Possible exchange without expert statement if evidence exists of conformity with requirements of Table 2 and 3				No exchange without expert statement	

C.3.2 Other building hardware

Building hardware not listed in Table 3 has to be assessed during the test of the complete test specimen, and cannot be exchanged without further testing or expert statement, unless otherwise specified in Clause C.4.

C.4 Other modifications

a) Product modifications requiring an expert statement written by the testing laboratory:

- change of infilling components, excluding infillings of glazing when requirements in Clause 5 are fulfilled;
- change of infilling geometry, including glazing (especially for change of the infilling area and changes of the fixing elements, e.g. thicker infillings);
- change of the mode of opening provided that the security related hardware components (e.g. locks, hinges, hinge bolts, electric door opener, etc.) are retained;

- insertion of cable leads for electronic security devices and access controls;
- change of seals around infillings;
- change in thickness of leaf;
- changes of profile design and profile cross section of framed constructions;
- changes to shutter profiles and guide rails;
- changes of structure and reduction of thickness of flat constructions;
- insertion of openings such as the slot for a letter box or ventilation openings;
- changes to shutter operating devices

b) Product modifications not requiring an expert statement written by the testing laboratory

- exchange of floor and rebate seals
- installation of lippings and decorative elements;
- door closer

Annex D (normative)

Procedure for testing and classification

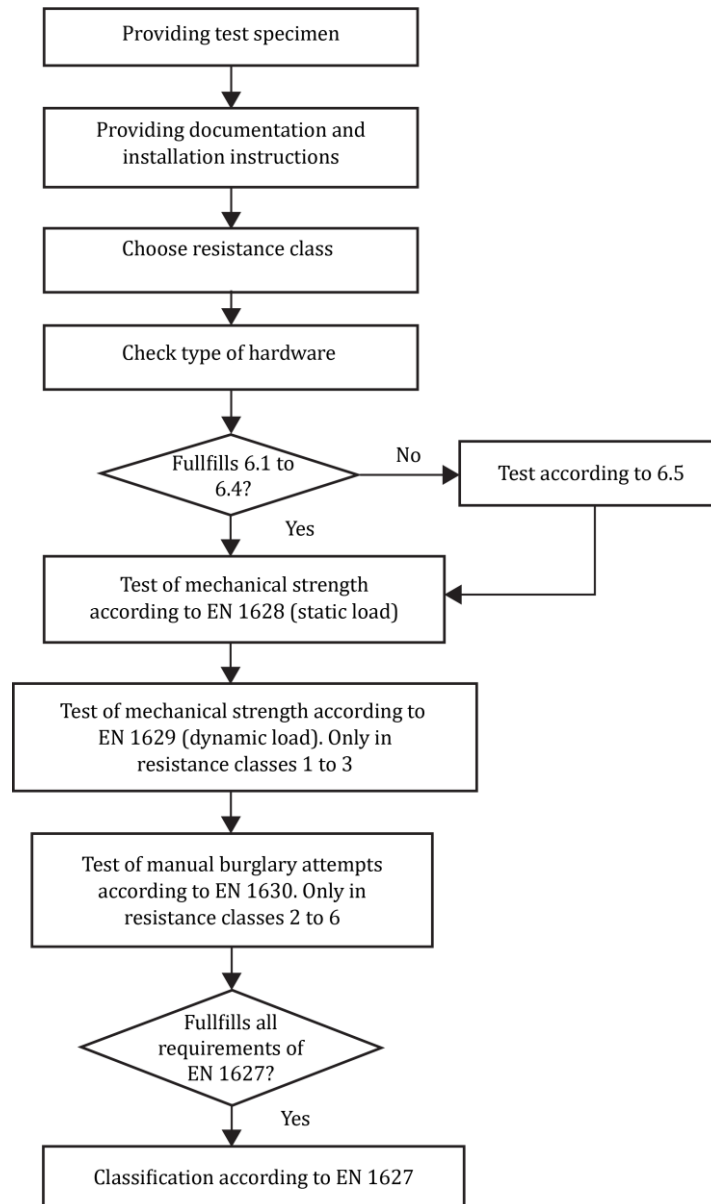


Figure D.1 — Testing and classification for burglar resisting elements

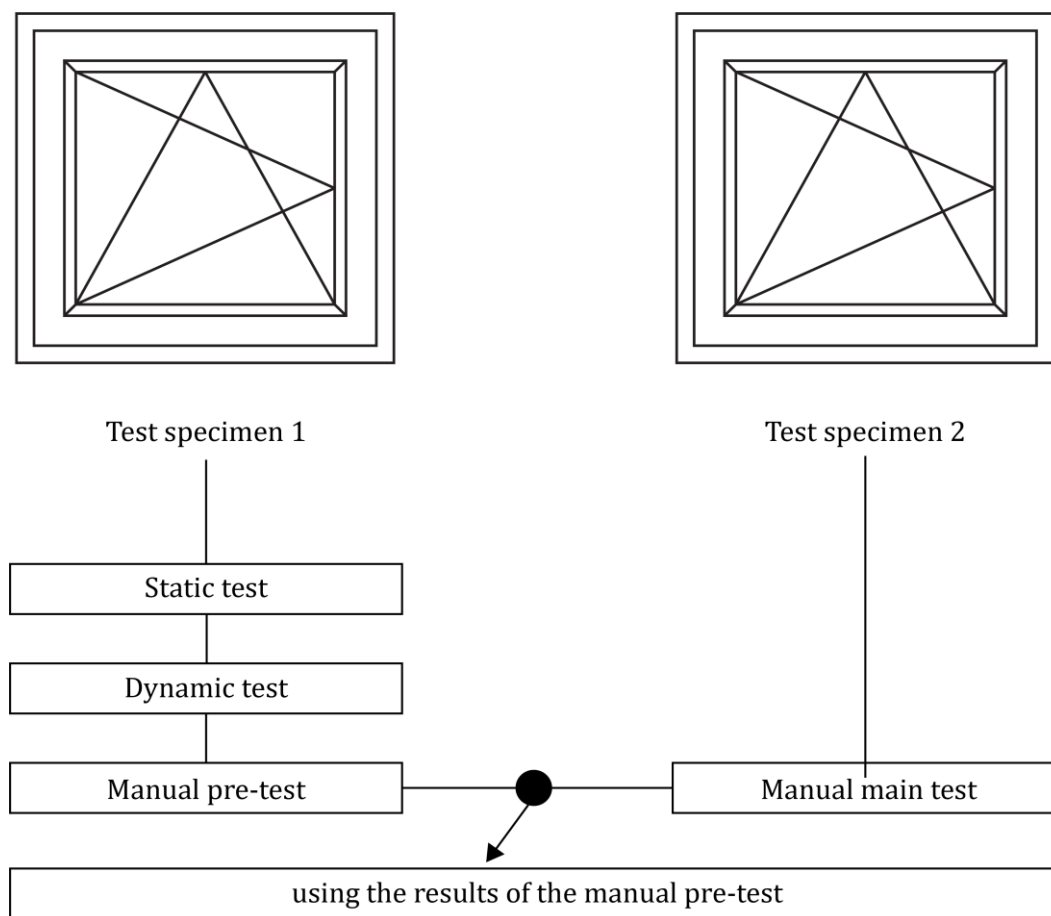


Figure D.2 — Example of typical test procedure according to EN 1627

Annex E **(informative)**

Marking

Products classified according to this standard should as a minimum be marked with:

- resistance class according to EN 1627 (including edition);
- type designation or similar;
- name of the manufacturer or similar.

The marking should be supplied with the product:

- on any suitable part of the product itself, providing the visibility is ensured when the leaves, casements or sashes are opened; and/or
- on an attached label; and/or
- on its packaging; and/or
- on the accompanying commercial document(s) (e.g. a delivery note) or the manufacturers published technical specification(s).

If any of the information above is included in other markings it is not necessary to repeat it.

Bibliography

- [1] EN ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (ISO 6508-1)*