UL 1034

STANDARD FOR SAFETY

Burglary-Resistant Electric Locking Mechanisms

UL Standard for Safety for Burglary-Resistant Electric Locking Mechanisms, UL 1034

Sixth Edition, Dated May 18, 2011

Summary of Topics

This revision of ANSI/UL 1034 dated June 23, 2020 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated February 7, 2020.

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Standard for Burglary-Resistant Electric Locking Mechanisms

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This ANSI/UL Standard for Safety consists of the Sixth Edition including revisions through June 23, 2020.

The most recent designation of ANSI/UL 1034 as a Reaffirmed American National Standard (ANS) occurred on June 3, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 1034 on July 1, 1992. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 These requirements apply to the construction, performance, and operation of burglary-resistant electric locking mechanisms and their related devices, such as control units, control switches, and power supplies, and the like used to secure and release doors.

1.2 A burglary-resistant electric locking mechanism shall be rated according to the three elements used to determine its maximum effectiveness:

a) Static strength rating of 500 pounds-force (2224 N), 1000 pounds-force (4448 N), or 1500 pounds-force (6673 N). See 55.2.1.

b) Dynamic strength rating of 33 foot-pounds-force (45 J), 50 foot-pounds-force (68 J), or 70 foot-pounds-force (95 J). See 55.3.1.

c) Endurance rating of 100,000 or 250,000 cycles. See 38.2.1.

A burglary-resistant electric locking mechanism shall be rated with its maximum static strength, dynamic strength, and endurance.

1.3 A burglary-resistant electric locking mechanism is intended to be used in conjunction with an access control system or a manual-release mechanism. A burglary-resistant electric locking mechanism shall be constructed so that it either does not interfere with egress through the door or other opening cover that it is used to control, or its locking action shall be capable of being released as required by the authority having jurisdiction if an emergency egress is required.

1.4 These requirements do not pertain to the fire-retardant classification of a door and releasing-device assembly.

1.5 The term "product" as used in this standard refers to all types of burglary-resistant electric locking mechanisms.

1.6 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire or of electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

2.2 A component is not required to comply with a specific requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or

b) Is superseded by a requirement in this standard.

2.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3.2 Unless otherwise indicated, all voltage and current values mentioned in this standard are root-mean-square (rms).

4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

5 Glossary

5.1 For the purpose of this standard the following definitions apply.

5.2 CIRCUITS, ELECTRICAL –

a) High-Voltage (Class 1) – A circuit involving a potential of not more than 600 volts and having circuit characteristics in excess of those of a low-voltage, power-limited circuit.

b) Low-Voltage – A circuit involving a potential of not more than 30 volts AC rms, 42.4 volts DC or AC peak.

c) Power-Limited – A circuit whose output is limited as specified in Power-Limited Circuits, Section 30.

d) Class 2 – A circuit in which the voltage and power limitations are in accordance with the requirements of Table 30.1 for AC circuits and Table 30.2 for DC circuits.

e) Class 3 – A circuit in which the voltage and power limitations are in accordance with the requirements of Table 30.1 for AC circuits and Table 30.2 for DC circuits.

5.3 CORD-CONNECTED PRODUCT – A product intended for connection to the power source by means of a supply cord. By the nature of its design, such a product is intended to be moved for interchange or realignment of the component of a system.

5.4 ELECTRIC LOCKING MECHANISM – An electrically-operated door strike, dead-bolt, or the like.

5.5 ELECTROMAGNETIC LOCK – An electrically-powered lock using an electromagnet magnetically coupled to an armature to provide locking power.

5.6 LINE-VOLTAGE – The voltage at any field connected source of supply, nominally 50-60 hertz (Hz); 115, 208, or 230 volts.

5.7 PRIMARY BATTERY – Any battery which, by construction, is not intended to be recharged.

5.8 SECONDARY BATTERY – Any battery which, by construction, is intended to be recharged.

5.9 STANDBY CONDITION – The ready-to-operate condition which exists prior to being operated to unlock.

CONSTRUCTION

ASSEMBLY

6 General

6.1 Product assembly

6.1.1 The product shall be factory-built as a complete assembly and shall include all the essential components necessary for its intended function when installed (used) as intended. The product may be shipped from the factory as two or more major subassemblies. See the subassembly requirement in 6.1.2.

6.1.2 If the product is not assembled by the manufacturer as a complete unit, it shall be arranged in major subassemblies. Each subassembly shall be capable of being incorporated into a final assembly without requiring alteration, cutting, drilling, threading, welding, or similar tasks by the installer. Two or more subassemblies, which must bear a definite relationship to each other for the correct installation or operation of the product, shall be arranged and constructed to permit them to be incorporated into the complete assembly only in the intended relationship with each other without need for alteration or alignment, or such subassemblies shall be assembled, tested, and shipped from the factory as one element. However, this requirement does not apply to the alteration, cutting, drilling, threading, welding, or similar tasks by the installer on the door, door jamb, or the like to install and mount the product to perform its intended function.

6.2 Electrical protection

6.2.1 Louvers and other openings in an enclosure shall be constructed and located to reduce the risk of unintentional contact with uninsulated high-voltage live parts. In determining compliance with this requirement, parts such as covers, panels, and grilles used as part of the enclosure are to be removed unless tools are required for their removal or an interlock is provided.

6.2.2 Uninsulated high-voltage live parts shall be located, covered, or enclosed as indicated in 6.2.3 – 6.2.5.

6.2.3 Openings directly over uninsulated high-voltage live parts shall not exceed 0.187 inch (4.75 mm) in any dimension unless the configuration prevents direct entry to uninsulated high-voltage live parts and complies with the requirements of 6.2.4 or 6.2.5. See Figure 8.2 for examples of top cover constructions that may be considered to prevent direct entry.

6.2.4 An opening in an electrical enclosure that does not permit entrance of a 1-inch (25.4-mm) diameter rod shall be sized and arranged so that a probe, as illustrated in Figure 6.1, cannot be made to contact any uninsulated live electrical part (other than low-voltage) when inserted through the opening in a straight or articulated position.

6.2.5 An opening that permits entrance of a 1-inch (25.4-mm) diameter rod may be used under the condition described in Figure 6.2.

Figure 6.1

Probe

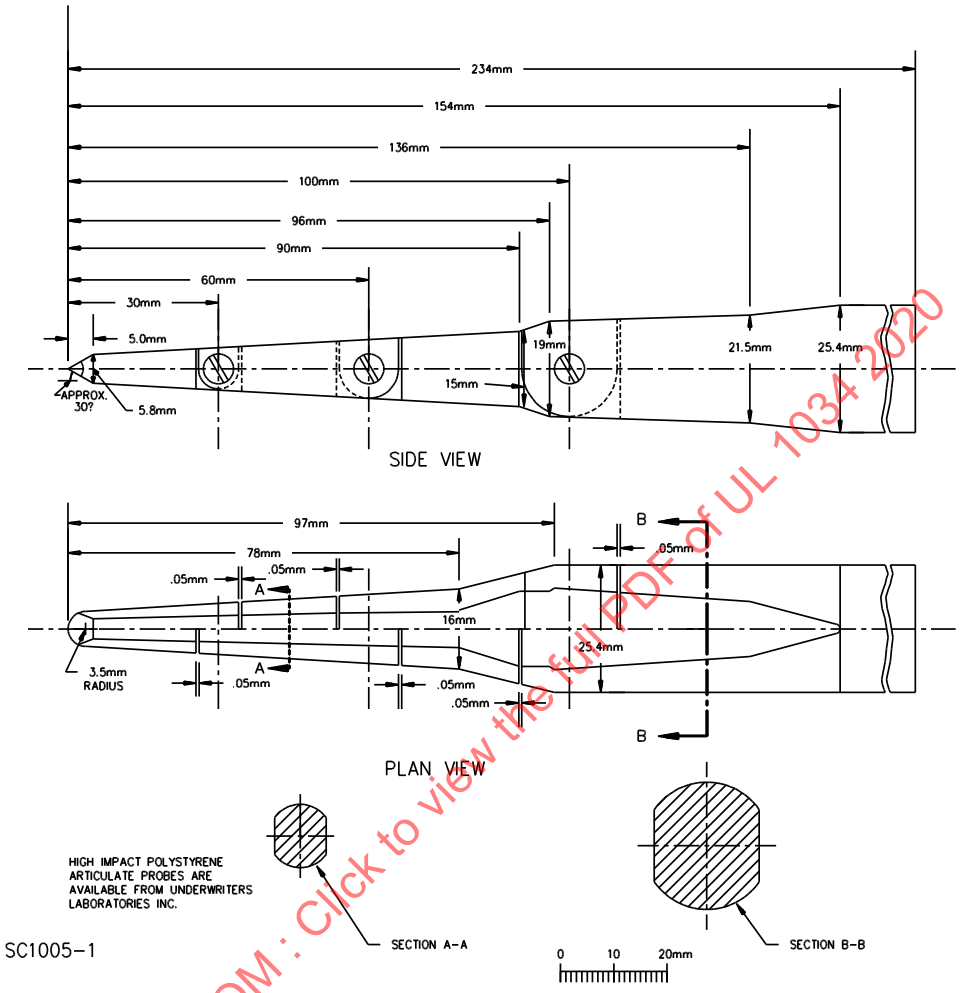
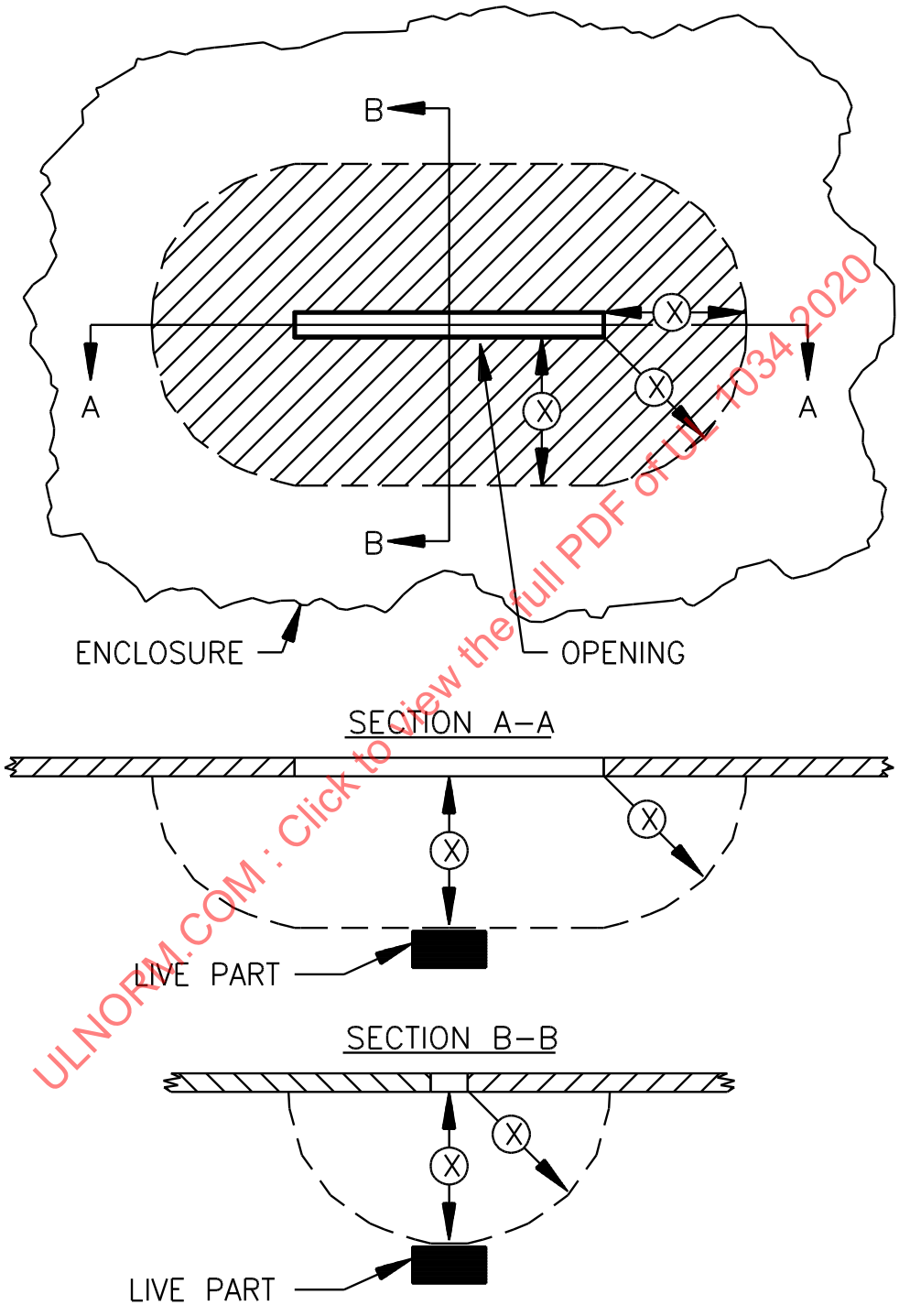


Figure 6.2

Openings in enclosure



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The opening is not prohibited from being used when, within the enclosure, there is no uninsulated live metal part or film-coated wire less then X inches (mm) from the perimeter of the opening, as well as within the volume generated by projecting the perimeter X inches normal to its plane. X equals five times the diameter of the largest diameter rod that is capable of being inserted through the opening, and not less than 6-1/16 inches (154 mm).

7 Protection of Service Personnel

7.1 An uninsulated live part of a high-voltage circuit within an enclosure shall be located, covered, or enclosed so as to reduce the risk of unintentional contact by persons performing service functions which may be performed while the equipment is energized.

7.2 During the examination of a product in connection with the requirements specified in 7.1, a part of the outer enclosure which may be removed without the use of tools, or part of the outer enclosure which may be removed by the user to allow access for making intended operating adjustments, is to be disregarded; that is, it will not be assumed that the part in question reduces the risk of electric shock.

7.3 An electrical component which may require examination, replacement, adjustment, servicing, or maintenance with the product energized shall be located and mounted with regard to other components and to grounded metal so that it is accessible for such service without subjecting the serviceman to the risk of electric shock from adjacent uninsulated high-voltage live parts.

7.4 The following are not considered to be uninsulated live parts:

a) Coils of relays and solenoids, and transformer windings, if the coils and windings are provided with insulating overwraps rated for the potentials encountered;

b) Terminals and splices with insulation rated for the potential encountered; and

c) Insulated wire.

8 Enclosures

8.1 General

8.1.1 The frame and enclosure of a product shall have the strength and rigidity to resist total or partial collapse and the attendant reduction of spacings, loosening or displacement of parts, or other defects. See Mechanical Strength Tests for Enclosures, Section 49.

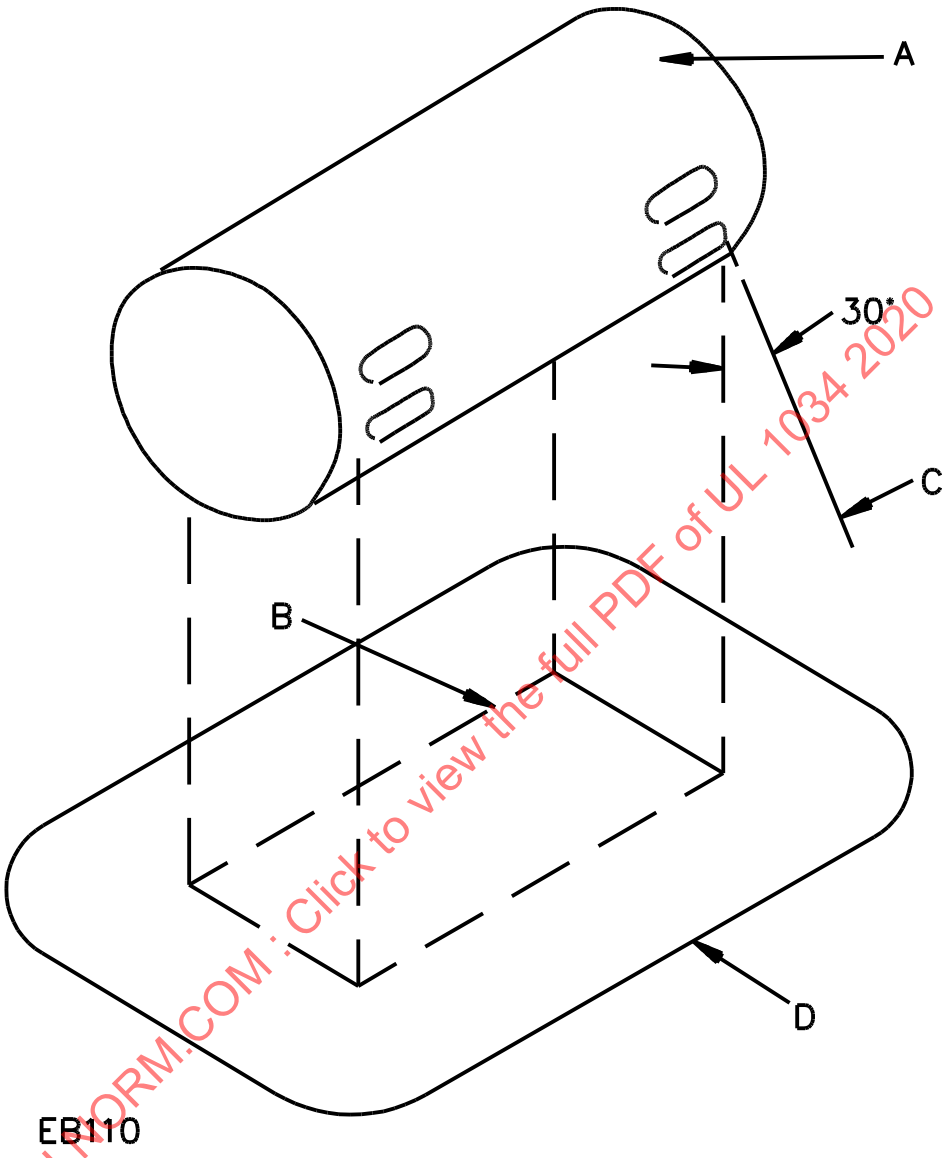
8.1.2 Operating parts, such as gear mechanisms, light-duty relays, and similar devices, shall be enclosed to protect against malfunction from dust or from other material which may impair their intended operation.

8.1.3 An enclosure containing other than power limited circuits shall be constructed to reduce the risk of emission of flame, molten metal, flaming or glowing particles, or flaming drops. See Ignition Through Bottom-Panel Openings, Section 48.

8.1.4 The requirement specified in 8.1.3 necessitates either a nonflammable bottom as specified in 8.4.2, or a barrier as described in Figure 8.1 under all areas containing combustible materials. However, see 8.4.3 for further specifications.

Figure 8.1

Barrier outline



a) The entire component under which a barrier (flat or dish with or without a lip or other raised edge) of noncombustible material is to be provided. The sketch above is of a metal enclosed component with ventilating openings to show that the barrier is required only for those openings from which flaming parts might come. If the component or assembly does not have its own noncombustible enclosure, the area to be protected would be the entire area occupied by the component or assembly.

b) Projection of the outline of the area of (A) which needs a bottom barrier vertically downward onto the horizontal plane of the lowest point on the outer edge (D) of the barrier.

c) Inclined line that traces out an area (D) on the horizontal plane of the barrier. Moving around the perimeter of the area (B) which needs a bottom barrier, this line projects at a 30-degree angle from the line extending vertically at every point around the perimeter of (A) and oriented to trace out the largest area, except that the angle may be less than 30 degrees if the barrier or portion of the bottom cover contacts a vertical barrier or side panel of noncombustible material, or if the horizontal extension of the barrier (B) to (D) would exceed 6 inches (152 mm).

d) Minimum outline of the barrier, except that the extension (B) – (D) need not exceed 6 inches (flat or dished with or without lip or other raised edge). The bottom of the barrier may be flat or formed in any manner if every point of area (D) is at or below the lowest point on the outer edge of the barrier.