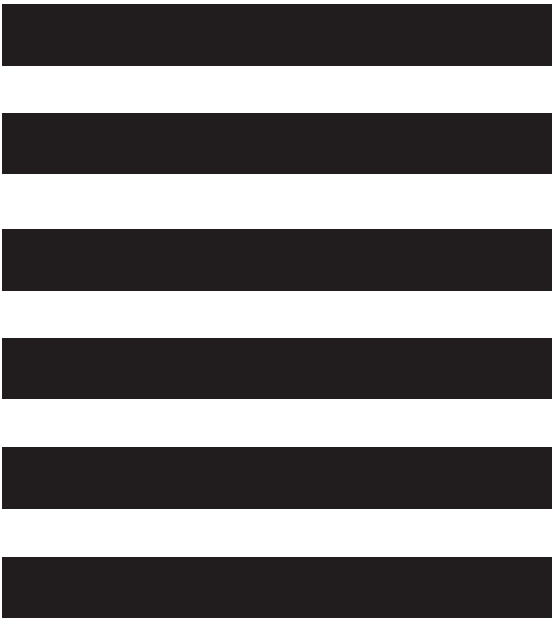


ANSI/WCMA A100.1-2022
Revision of ANSI/WCMA A100.1-2018



Standard for Safety of Window Covering Products

Sponsor



Window Covering Manufacturers Association, Inc.



American National Standards Institute
Approved December 13, 2022



STANDARD
FOR SAFETY OF
WINDOW COVERING PRODUCTS

SPONSOR



WINDOW COVERING MANUFACTURERS ASSOCIATION, INC.

AMERICAN NATIONAL STANDARDS INSTITUTE
Approved December 13, 2022

AMERICAN NATIONAL STANDARD

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FOREWORD

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1 SCOPE

1.1 **Background:** The members of the Window Covering Manufacturers Association, Inc. (WCMA), recognizing that unfortunate accidents, including strangulation, have occurred among young children using certain products made or imported by members of the industry, have prepared this Standard in cooperation with the U.S. Consumer Product Safety Commission (CPSC).

This Standard is not intended to inhibit, but rather to encourage, the development of devices and methods that shall further improve the safety of products manufactured by industry members. Manufacturers and other users of this Standard are requested to submit suggestions for improvements to WCMA.

Members of WCMA, in recognition of continuing improvements to be made, shall sponsor appropriate revisions to this Standard on a regular basis.

1.2 This Standard applies to all interior window covering products. The items covered include the products listed in 1.3.

1.3 Types of window covering products documented in this standard include, but are not limited to, cellular shades, horizontal blinds, pleated shades, roll up style shades, roller shades, sheer shades, Roman style shades, traverse rods (including products that are used with traverse rods), panel tracks, and vertical blinds. These products can be manufactured and distributed as either stock or custom products. (See Section 3 for definitions of these terms.)

2 GENERAL

2.1 **Objective:** The objective of this Standard is to provide requirements for products documented in this standard in 1.2 and 1.3 that reduce the possibility of injury, including strangulation, to young children from the bead chain, cord, or any type of flexible Loop.

2.2 **Values:** Required values given in this Standard are given in U.S. units. The SI (metric) equivalents are approximate.

2.3 **Tolerances:** Where only plus or minus values are given, they are permitted to be exceeded or reduced as appropriate at the option of the manufacturers. Linear dimensions expressed without specific tolerances or not marked maximum or minimum shall be plus or minus 1/32 in (1 mm).

2.4 **Reference Documents:** All documents referenced are included in Appendix A: Reference Documents.

2.5 **Products:** Product types are described and / or illustrated in Appendix H: Product Illustrations.

3 DEFINITIONS

Genus	ID	Term	Definition
1. Window Covering products	1.01	Cellular Shades	Multiple layers of material formed into tubes or cells, whose operation consists of raising and lowering.
	1.02	Horizontal Blinds	Rigid horizontal slats, suspended from a headrail by Ladders, and whose operation may include tilting, raising and lowering.
	1.03	Pleated Shades	Single or multiple layers of material with permanent pleats in a horizontal orientation, whose operation consists of raising and lowering.
	1.04	Roll Up Style Shade	A flexible sheet with no cords, whose operation consists of rolling up the sheet from the bottom or top, as the case may be. This would be secured by clips or other fastening means
	1.05	Roller Shade	Flexible sheets of material attached to a roller and a means of supporting the roller, whose operation consists of furling or unfurling the material from the roller.
	1.06	Roman Style Shades	Flexible fabric with rings, clips, or attachment devices, aligned in columns and spaced, through which cords or Wide Bands run from the headrail to the lowest ring or bottom rail, so that the fabric folds or gathers during operation as the cord or Wide Band is pulled towards the headrail.
	1.07	Traverse Rod	A rod or track upon which drapes or panels are attached that slide open and closed
	1.08	Vertical Blinds	Rigid or flexible sheet vertical slats suspended from a headrail, and whose operation may include traversing and rotating.
2. Cord-related components	2.01	Accessible Cords	Cord that can be contacted by the test probe following the test procedures in Appendix C: Test Procedure for Accessible Cords.
	2.02	Band	A thin strip of material which is wider than it is thick and is utilized in the function or operation of a window covering product. If a band is not classified as a Wide Band, then for testing purposes, the band is considered equivalent to a cord.
	2.03	Bead Chain	A cord with series of small spheres made of plastic or metal
	2.04	Cord	A long slender flexible material.
	2.05	Cord Retraction Device	A passive device which winds and gathers cords when tension is no longer applied by the user.
	2.06	Cord Shroud	A device or material added to limit the accessibility of a cord or formation of a Hazardous Loop.

	2.07	Guide Cord	A fixed or static Cord intended to restrict and/or guide window covering product components.
	2.08	Hazardous Loop	A Loop that allows the head probe to pass through it when tested per Appendix D: Hazardous Loop Test Procedure.
	2.09	Inaccessible Operating Cord	Operating Cords that are inaccessible as determined per the test requirements in Appendix C: Test Procedure for Accessible Cords.
	2.10	Inner Cord	The portion of a Cord which transfers force from the user interface to components during operation.
	2.11	Ladder	A system that is typically constructed of Cord but can also be made of fabric with decorative facings that are used in horizontal blinds that support and determine spacing between slats.
	2.12	Loop	A bounded opening formed by any configuration of Cords and/or window covering material.
	2.13	Loop Cord and Bead Chain Restraining Device	A device that prevents the creation of a Hazardous Loop from an Accessible Continuous Operating Cord.
	2.14	Operating Cord	The portion of a Cord which the user manipulates directly during operation. Operation includes, but is not limited to, lifting, lowering, tilting, rotating, and traversing.
	2.15	Operating Interface	The part of a blind or shade that the user physically grasps or touches with their hand or tool to operate the product, for example a wand or bottom rail.
	2.16	Short Static or Access Cord	An Operating Cord or Band that is fixed in length in any state (free or under tension), to be a length equal to or less than 8 inches, typically attached to a bottom rail to enable access to operate the shade.
	2.17	Retractable Cord	A Cord that extends when pulled by a user through an Operating Interface, and fully retracts when Tension is no longer applied by the user, rendering the cord not accessible as defined in Appendix C.
	2.18	Rigid Cord Shroud	A Cord Shroud that is constructed of inflexible material and does not have an Accessible Cord as defined in Appendix C, including Appendix C3.1.
	2.19	Tension	The applicable, consistently applied force required to eliminate or prohibit the creation of a Hazardous Loop in any operating position
	2.20	Cord(s) Under Tension	An Inner or Operating cord to which Tension is applied during all conditions of operation.
	2.21	Tension Device	A device that is used to maintain Tension on the Cord or Bead Chain Loop.
	2.22	Wide Band	A Band that meets the specifications outlined in 6.6.
3. Non-Cord	3.01	Active Device	A device that is activated and operated by the direct interaction of the user.

product component			
	3.02	Bottom Rail	Component at the bottom of a window covering that acts as an attachment point for the ends of Inner Cords or provides weight to insure proper operation.
	3.03	Headrail	Component at the top of a window covering that supports the product while mounted and allows Operating and Inner Cords to be routed through it.
	3.04	Permanent Assembly Method	Any assembly method that cannot be disassembled without breaking a component, including without limitations one way snap features, sonic welding, crush pins or other compliant method.
	3.05	Wand	A rigid or semi-rigid material that cannot be folded upon itself, used for manual operation.
4. Method of operating a window covering product	4.01	Cycle	A single complete instance of operation, which may include raise, lower, traverse, and rotate.
	4.02	Operating Systems, Continuous Loop	A single Cord or Bead Chain formed in a continuous Loop to perform operation.
	4.03	Operating Systems, Cordless	An operating system that does not require an Operating Cord, or whose Operating Cord is inaccessible, as defined in 2.13. A cordless product may still have Accessible Inner Cords.
	4.04	Operating Systems, Motorized	A Cordless Operating system that includes a motor and control system.
	4.05	Operating Systems, Single cord	A single Operating Cord to perform operation.
	4.06	Permanent (marking)	A marking or label that cannot be removed, or which tears, or that damages the surface to which it is attached during an attempt to manually remove it without the aid of tools or solvents.
	4.07	Sequential Process	An operation that requires two or more independent steps to be performed in a specific order.
5. Method of distributing window covering product	5.01	Custom Blinds, Shades, and Shadings	Any window covering that is not classified as a stock window covering.
	5.02	Stock Blinds, Shades, and Shadings:	A specific stock keeping unit or SKU, which is completely or substantially fabricated (as defined below) in advance of being distributed in commerce (as that term is defined in 15 U.S.C. Sect. 2052(a)(7) and in advance of any specific consumer request for that product. The SKU can either be sold “as is” or modified

			<p>or adjusted by the seller, manufacturer, or distributor before or after being distributed in commerce and it would still be considered a Stock Blind, Shade and Shading.</p> <p>“Substantially fabricated” would include products pre-assembled in advance of a consumer order or purchase. Pre-assembled products that are modified or adjusted by the seller, manufacturer or distributor before or after being distributed in commerce will still be considered as “substantially fabricated” if they require, but is not limited to, any of the following: adjustments to size, attachment of the top rail and/or bottom rail, and/or tying of Cords to secure the Bottom Rail to finish the assembly of the product.</p> <p>Stock Blinds, Shades, and Shadings shall not be considered Custom Blinds, Shades, and Shadings solely because of the method of distribution (e.g., Internet sales) or the size of the purchasing order (e.g., for multi-family housing developments).</p>
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4 PRODUCT REQUIREMENTS

4.1 Allowable Lead Content: Exterior components of the window covering which are 12 in (31 cm) or more below the bottom of the headrail shall be produced with no more than 0.01% lead by weight (100 ppm) and follow the methodology and exemptions described in the Consumer Product Safety Improvement Act of 2008, Public Law 110-314, 122 Stat. 3016, and regulations promulgated thereunder.

4.2 Small Parts: Any safety component or device that is intended to separate from the product shall meet the requirements of Federal Standard: 16 CFR Part 1501 (see Appendix A: Reference Documents).

4.3 Remote Control Battery Accessibility: Applicable battery powered remote control devices shall meet the requirements of 15 USC 2056e and any subsequent standard developed by the CPSC to ensure that the button cell or coin battery compartments are secured in a manner that would eliminate or adequately reduce the risk of injury from button or coin cell battery ingestion by children that are 6 years of age or younger during reasonably foreseeable use or misuse and the warning label requirements in 15 USC 2056e.

4.4 Operating Systems

4.4.1 Stock Blinds, Shades, and Shadings: Where more than one method is utilized, at least one shall meet the applicable requirement in Section 6.

4.4.1.1 Cordless Operating System: (includes Motorized Operating Systems)

4.4.1.1.1 The product shall have no Operating Cords.

4.4.1.2 Short Static or Access Cords

4.4.1.2.1 The product shall have a Short Static or Access Cord.

4.4.1.3 **Inaccessible Operating Cords**

4.4.1.3.1 The Operating Cords shall be inaccessible as determined per the test requirements in Appendix C: Test Procedure for Accessible Cords.

4.4.2 **Custom Blinds, Shades, and Shadings:** Where more than one method is utilized, at least one shall meet the applicable requirement in Section 6.

4.4.2.1 **Cordless Operating System:** (includes Motorized Operating Systems)

4.4.2.1.1 The product shall have no Operating Cords.

4.4.2.2 **Short Static or Access Cords**

4.4.2.2.1 The product shall have a Short Static or Access Cord.

4.4.2.3 **Inaccessible Operating Cords**

4.4.2.3.1 The Operating Cords shall be inaccessible as determined per the test requirements in Appendix C: Test Procedure for Accessible Cords.

4.4.2.4 **Single Retractable Cord Lift System**

4.4.2.4.1 The product shall contain a permanently attached Cord Retraction Device that meets the requirements in 6.1. All window covering products with a Retractable Cord require warning labels and warning tags as described in 5.1 and 5.2.

4.4.2.5 **Continuous Loop Operating System:** Where more than one method is utilized, at least one shall meet the applicable requirement in 6.

4.4.2.5.1 The product shall contain a Tension Device for Cord or Bead Chain Loops that meets the requirements in 6.3 and shall exclude use on Horizontal Blinds. All window covering products with a Tension Device for Cord or Bead Chain Loops require warning labels and warning tags as described in 5.1 and 5.2.

4.4.2.5.2 The product shall contain a Loop Cord and Bead Chain Restraining Device that meets the requirements of 6.4

4.4.2.5.3 The product shall contain a Rigid Cord Shroud that meets the requirements of 6.2

4.5 **Inner Cords:** All products with Inner Cords must meet the requirements in Appendix C and Appendix D

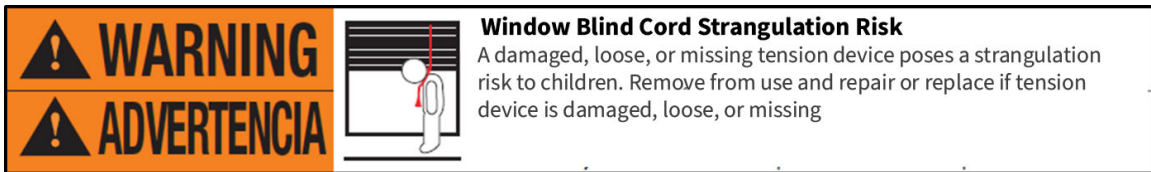
4.5.1 If the product has Shrouded Inner Cords they must meet requirements in section 6.2.

5 LABELING AND OPERATIONAL TAG REQUIREMENTS

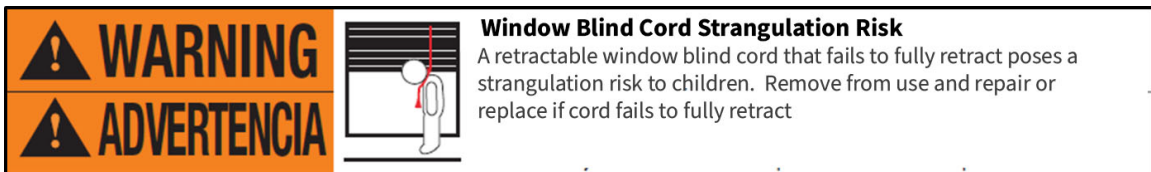
5.1 **Labeling:** Manufacturers shall provide warning labels on all window coverings described in 4.4.2.4, 4.4.2.5.1. All warning labels and warning tags shall comply with the requirements below and shall adhere to ANSI Z535 standards (see Appendix A: Reference Documents), and shall be provided in both English and Spanish. If a single long label containing both languages is used instead of two separate labels, only one set of pictograms is required.

5.1.1 Custom Continuous Loop Operating System with Tension Device & Single Retractable Cord Lift System Warning Bottom Rail Label(s): The signal word (“Warning” in English and “Advertencia” in Spanish) shall be in all uppercase letters measuring not less than 5/16 in (8 mm) in height and preceded by an ANSI safety alert symbol (an equilateral triangle surrounding an exclamation point) of at least the same size. The rest of the warning message text shall be in both uppercase and lowercase letters (sentence capitalization), with capital letters measuring not less than 1/8 in (3 mm) (English) or 3/32 in (2 mm) (Spanish). The warning label shall include a pictogram that represents the hazard of a Cord wrapping around a young child’s neck as depicted in the example below. The label shall be a permanent marking affixed to all products with Continuous Loop Operating Systems or Single Retractable Cord Lift Systems. The label shall be placed on the bottom rail of the window covering, and printed in a color that contrasts the bottom rail color. For products without bottom rails, the label shall be placed in an alternative location on the product, to be determined by the manufacturer or importer, that is visible to the user. The generic warning label(s) shall read as follows:

Warning Label for Continuous Loop Operating System with Tension Device



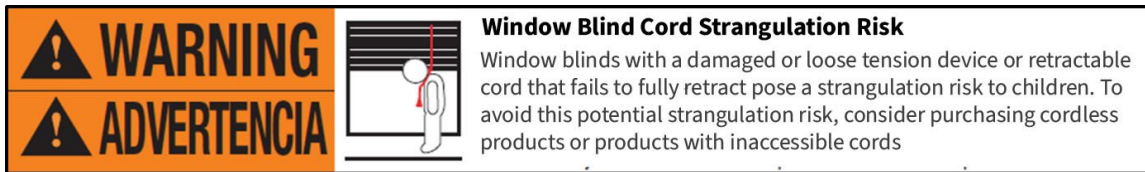
Warning Label for Single Retractable Cord Lift System



5.1.2 Custom Continuous Loop Operating System with Tension Device & Single Retractable Cord Lift System Warning Bottom Rail Label for Narrow Product: A warning label of reduced size may be used only on product less than 18 in (457 mm) wide or where space limitations prevent the use of label(s) described in 5.1.1 The signal word (“Warning” in English and “Advertencia” in Spanish) shall be in all uppercase letters measuring not less than 5/32 in (4 mm) and preceded by an ANSI safety alert symbol (an equilateral triangle surrounding an exclamation point) of at least the same size. The rest of the warning message text shall be in both uppercase and lowercase letters (sentence capitalization), with capital letters measuring not less than 1/16 in (2 mm). The warning label shall include a pictogram that represents the hazard of a Cord wrapping around a young child’s neck as depicted in the example above. The label shall be a permanent marking affixed to all products with Continuous Loop Operating Systems or Single Retractable Cord Lift Systems. The label shall be placed on the bottom rail of the window covering, and printed in a color that contrasts the bottom rail

color. For products without bottom rails, the label shall be placed in an alternative location on the product, to be determined by the manufacturer or importer, that is visible to the user. The generic warning label(s) shall read as shown in 5.1.1.


5.1.3 Labels for Merchandising for Continuous Loop Operating System with Tension Device & Single Retractable Cord Lift System Products: A warning label is to be placed on product merchandising materials which includes, but is not limited to, the sample book and the website (if the website is relied upon for promoting, merchandising, or selling on-line). The warning label shall include pictograms that represent the hazard of a Cord wrapping around a young child’s neck as depicted in the example below. The warning label shall be placed conspicuously on the merchandising materials. For the United States, the languages shall be English and Spanish.

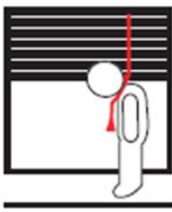


5.1.3.1 The signal word (“Warning” in English, and “Advertencia” in Spanish) shall be in all uppercase letters measuring not less than 5/16 in (8 mm) and preceded by an ANSI safety alert symbol (an equilateral triangle surrounding an exclamation point) of at least the same size. The rest of the warning message text shall be in both uppercase and lowercase letters (sentence capitalization), with capital letters measuring not less than 1/8 in (3 mm). The generic warning label(s) shall read as shown in 5.1.3.

5.2 Operational Warning Tags: The manufacturer shall provide an operational warning tag on the product. This tag shall include, at a minimum, all information presented in the following operational warning tags based on the characteristics of the product or the safety devices included on the product. The “Warning” word shall be typeset no less than 5/16 in (8 mm) in capital letters and preceded by the ANSI safety alert symbol (an equilateral triangle surrounding an exclamation point). The rest of the message is in upper and lower case with the capital letters not less than 1/8 in (3 mm). The warning tag shall include a pictogram that represents the hazard of a Cord wrapping around a young child’s neck as depicted in the example below. The warning tag(s) shall be used on all window covering products that have a Continuous Loop Operating System or Single Retractable Cord Lift System.

5.2.1 Tension Device Warning Tag (attach to Cord or Tension Device)

WARNING





Products with a Damaged, Loose, or Missing, Tension Device Pose a Strangulation Risk to Children

This Window Blind is equipped with a Tension Device

- Remove from use and repair or replace if tension device is damaged, loose, or missing
- Tension device must be securely attached to wall or floor
- Children can climb on furniture to reach cords
 - o Fasteners provided with tension device may not be appropriate for all mounting surfaces
 - o Use appropriate anchors for mounting surface conditions
- Tag to be removed only by end-user

5.2.2 Single Retractable Cord Lift System Warning Tag (attach to Cord or Wand)

WARNING



Malfunctioning Retractable Cord Poses a Strangulation Risk to Children

This Window Blind is equipped with a retractable cord

- Remove from use and repair or replace if cord fails to fully retract.
- Children can climb on furniture to reach cords
- Move crib and furniture away
- Tag to be removed only by end-user

5.3 Manufacturer Label: There shall be a permanent label(s) or marking on all finished window covering products identifying:

5.3.1 The readily distinguishable name, city, and state of the manufacturer or importer of record or fabricator

5.3.2 The month and year of manufacture.

5.3.3 The designation of the window coverings as “Custom” or “Stock”, per the definitions in 3, using a “C” or the word “Custom” or an “S” or the word “Stock”, respectively.

5.3.4 Custom products must also include customer order information (e.g., customer name or customer order number) to match the product with a specific order.

5.3.5 This label is to be located within or on the headrail or on the roller tube so it can be easily referenced by the user or inspecting agency.

6 TESTS AND PARAMETERS

6.1 Cord Retraction Devices: Permanent or internally design Cord Retraction Devices shall adhere to the following:

6.1.1 When a 30 grams mass is applied to the Operating Interface, the Cord Retraction Device shall maintain full retraction of the Retractable Cord such that the Retractable Cord is not accessible per Appendix C.

6.1.2 The maximum stroke length for a Cord Retraction Device is 36 inches.

6.1.3 The Operating Interface for Cord Retraction Devices may not be a Cord of any length including a Short Static or Access Cord. It may be a ring and pole, a wand or any other design that cannot bend on itself, eliminating the potential of creating a hazardous loop.

6.1.4 The Cord Retraction Device shall have a service life of 5,000 cycles after exposed portions or components have been subjected to 500 hours of UV exposure per AATCC Test Method 16-2004, Option 3.

6.2 Cord Shroud: Cord Shrouds are designed to limit accessibility of Inner Cords or Operating Cords and shall adhere to the following:

6.2.1 Evaluated as an assembly or individual cords as determined by Appendix C: Test Procedure for Accessible Cords and tested in accordance with Appendix D: Hazardous Loop Test Procedure.

6.2.2 The components of the Cord Shroud assembly shall be exposed to 500 hours of UV per AATCC Test Method 16-2004, Option 3 and then tested for durability.

6.2.2.1 Rigid Design- Evaluate for durability, impact, and operation per 6.5.

6.2.2.2 Non-Rigid Design – for Inner Cords only- evaluate all connection points which must not separate and expose Inner Cords at less than 5 lbs pull force.

6.3 Tension Devices: Tension Devices for Cord or Bead Chain Loops shall adhere to the following:

6.3.1 The Tension Device shall be attached to the Cord or Bead Chain Loop by the manufacturer. It shall be designed, placed and shipped such that, unless properly installed or altered from the shipped condition with Sequential Process or tools, it prevents the window covering from operating.

6.3.2 The manufacturer shall attach the Tension Device to the Cord or Bead Chain Loop by means of a Permanent Assembly Method. This Cord or Bead Chain Loop and Tension Device assembly must meet the durability requirements in section 6.3.5.

6.3.3 The Tension Device in conjunction with the product shall maintain Tension on the operating cords when properly installed. If the Tension Device is installed in a location that does not maintain Tension on the operating cords, the Tension Device will prevent the window covering from operating as designed for full operation of the product. The window covering may not operate independently of the Cord or Bead Chain Loop.

6.3.4 The Tension Device shall be supplied with fasteners and instructions to attach to wood substrates. The Tension Device shall also be supplied with information about attaching to drywall and metal substrates. The fasteners shall have a minimum fastener manufacturer-rated or tested release force of 20 lb (89 N).

6.3.5 The Tension Device, in conjunction with the product, shall be designed for durability to meet the following test requirements:

6.3.5.1 Operational Cycle Test: Cycle test Tension Device in conjunction with the product as supplied by the manufacturer and mounted with the supplied anchors/fasteners to an appropriate vertical or horizontal surface as recommended by the manufacturer for 3,000 cycles with a delay interval of a standard 2 min. between each cycle. Standard speed of 1.0 - 1.5 ft/sec (31- 46 cm/sec), unless otherwise specified by the manufacturer.

6.3.5.2 UV Stability: Subject five separate Tension Devices (assemblies) and five separate sets of mounting components to 500 hours UV per AATCC Test Method 16-2004, Option 3 and the table below:

Sample Number	Testing Required
1	6.3.5.2; 6.3.5.3
2	6.3.5.2; 6.3.5.4
3	6.3.5.2; 6.3.5.4 (substrate 1)
4	6.3.5.2; 6.3.5.4. (substrate 2)
5	6.3.5.2; 6.3.5.4. (substrate 3)

6.3.5.3 Impact Test: Impact test according to ASTM D5420, with Gardner tester IG-1120 using striker # IG-1243 using 15 in-lb (1.7 joule) on the Tension Device and separately on attachment components (if any). A drawing should be provided with the part(s) indicating the location and direction for impact but at a minimum of horizontal and perpendicular to the mounting surface.

6.3.5.3.1 Place one of the UV-exposed Tension Device (assemblies) into test fixture and provide impact as stated above, both parallel and perpendicular to the mounting direction. Deformation of the parts is acceptable, but any cracking or dislodged parts are considered a failure.

6.3.5.3.2 Place one of the UV-exposed mounting components into test fixture and provide impact as stated above on the portion of the product that mounts to the wall (or other mounting surface). Deformation of the parts is acceptable, but any cracking or dislodged parts are considered a failure.

6.3.5.4 Loop Cord and Bead Chain Durability Testing: The Cord or Bead Chain Loop and tension device shall be tested to ensure proper functionality is maintained on the assembly.

According to the manufacturer's provided instructions and hardware, mount one each of the UV-exposed Tension Devices & mounting components / Loop assemblies to the following vertical surfaces: drywall, wood, and metal.

6.3.5.4.1 Subject the Cord or Bead Chain Loop to a force of 5 lb (22.2 N) for 5 seconds both parallel and perpendicular to the mounting surface by pulling on the Loop Cord.

6.3.5.4.2 Repeat the testing within 6.3.5.4.1 for a total of ten tests in each direction (parallel and perpendicular), for each sample & substrate material

(drywall, wood, and metal). Each tension device & mounting hardware shall maintain integrity without cracking or breaking.

6.4 Loop Cord and Bead Chain Restraining Device: Loop Cord and Bead Chain Restraining Devices shall adhere to the following:

6.4.1 The Loop Cord and Bead Chain Restraining Device shall be designed and installed on the window covering product by the manufacturer to prevent the operating Cord Loop length from creating a Hazardous Loop

6.4.2 The components of the Loop Cord and Bead Chain Restraining Device shall be tested for durability and safety using the following:

6.4.2.1 **Operational Cycle Test:** Test the Loop Cord and Bead Chain Restraining Device in conjunction with the product as supplied by the manufacturer and mounted as recommended by the manufacturer to an appropriate surface for 3,000 cycles with a delay interval of a standard 2 min. between each cycle. Standard speed of 1.0 - 1.5 ft/sec (31- 46 cm/sec), unless otherwise specified by the manufacturer.

6.4.2.2 **UV Stability:** Subject three of the Loop Cord and Bead Chain Restraining Devices (and mounting components (if any) to 500 hours UV per AATCC Test Method 16-2004, Option 3 and the table below:

Sample Number	Testing Required
1	6.4.2.2; 6.4.2.3; 6.4.2.4
2	6.4.2.2; 6.4.2.4
3	6.4.2.2; 6.4.2.5

6.4.2.3 **Impact Test:** Impact test according to ASTM D5420, with Gardner tester IG-1120 using striker # IG-1243 using 15 in-lb (1.7 joule) on the Loop Cord and Bead Chain Restraining Device and attachment components (if any). A drawing should be provided with the part(s) indicating the location for impact but at a minimum of horizontal and perpendicular to the window covering product.

6.4.2.3.1 Place another of the UV-exposed Loop Cord and Bead Chain Restraining Device (assemblies) into test fixture and provide impact as stated above on the portion of the product which contains the Loop Cord or Bead Chain. Deformation of the parts is acceptable, but any cracking or dislodged parts are considered a failure.

6.4.2.3.2 Place mounting parts (if any) into test fixture and provide impact as stated in 6.6.2.4 on the portion of the device that mounts to the body of the window covering product or to the wall (or other mounting surface). Deformation of the parts is acceptable, but any cracking or dislodged parts are considered a failure.

6.4.2.4 **Loop Cord and Bead Chain Restraining Device Durability Testing:** The Cord or Bead Chain Loop shall be tested to ensure proper functionality is maintained on the Loop Cord or Bead Chain assembly.

6.4.2.4.1 Mount the window covering with the attached UV-exposed Loop Cord and Bead Chain Restraining Device to a rigid surface according to manufacturer's testing instructions.

6.4.2.4.2 Locate the approximate midpoint of the accessible combined Loop. Using the test fixture as shown in Appendix D: Hazardous Loop Test Procedure, subject the Cord or Bead Chain Loop to a force of 5 lb (22.2 N) for 5 seconds both parallel and perpendicular to the window covering.

6.4.2.4.3 Determine if the Loop Cord and Bead Chain Restraining Device assembly can maintain integrity of the assembly according to design intent.

6.4.2.5 Hazardous Loop Testing Procedure for Loop Cord and Bead Chain Restraining Devices

6.4.2.5.1 Place the Hazardous Loop Test Stand Assembly (Figure D2) at the location of the Cord or Bead Chain restraining device and Operating Cord of the window covering and adjust the vertical height so that the Restraining Arm Assembly (Figure D2 #17,15,16) aligns with the approximate midpoint of the accessible combined Loop to be tested. Place the Restraining Arm (Figure D2 Item #16) against the Cord or Bead Chain restraining device.

6.4.2.5.2 Ensure the scale measuring distance traveled on the Force Gauge Arm Subassembly is set to zero (Figure D2 Item 1). Zero the Force Gauge and then loop the Accessible Cord or Bead Chain onto both hooks of the Force Gauge Arm Subassembly (Figure D5 Item #1.1).

6.4.2.5.3 Set the Force Gauge to “Continuous Readout” and over a time period of 5 seconds +/- 1 second, gently pull the Horizontal Arm (Figure D5 Item #1.8) of the Force Gauge Arm Subassembly away from the window covering to create an open Loop until the Force Gauge indicates a tension force of 5 lb (+/- 0.25 lb) (22.2 N +/- 1.1 N) or the Scale (Figure D5 Item #1.4) indicates a pulled distance of 25 in (+/- 0.25 in) (63.5 cm +/- 0.6 cm), whichever comes first. Lock the Horizontal Arm in place using the Brake Assembly (Figure D-5 Item #1.10).

6.4.2.5.4 Using the head probe in Figure D1 determine whether the head probe can pass through the opening created between the Hooks and the Restraining Arm with an insertion force of 10lb (44.5 N) or less, perpendicular to the plane of the opening.

6.4.2.5.4.1 If the head probe cannot pass through the Loop under the conditions above, the opening is not a Hazardous Loop.

6.4.2.5.4.2 If the head probe can pass through the Loop under the conditions above, the Loop is considered a Hazardous Loop.

6.5 Rigid Cord Shroud: A Rigid Cord Shroud device shall adhere to the following:

6.5.1 The Rigid Cord Shroud Device shall be designed and installed on the window covering product by the manufacturer to limit Operating Cord accessibility

6.5.2 The components of the Rigid Cord Shroud Device shall be tested for durability and safety using the following:

6.5.2.1 **UV Stability:** Subject three of the Rigid Cord Shroud Devices (and mounting components, if any) to 500 hours UV per AATCC Test Method 16-2004, Option 3 and the table below:

Sample Number	Testing Required
---------------	------------------

1	6.6.2.1; 6.6.2.2
2	6.6.2.1; 6.6.2.3

6.5.2.2 Operational Cycle Test: Test the Rigid Cord Shroud Device in conjunction with the product as supplied by the manufacturer and mounted as recommended by the manufacturer to an appropriate surface for 3,000 cycles with a delay interval of a standard 2 min. between each cycle. Standard speed of 1.0 - 1.5 ft/sec (31- 46 cm/sec), unless otherwise specified by the manufacturer.

6.5.2.3 Impact Test: Impact test according to ASTM D5420, with Gardner tester IG-1120 using striker # IG-1243 using 15 in-lb (1.7 joule) on the Rigid Cord Shroud device and attachment components (if any). A drawing should be provided with the part(s) indicating the location for impact but at a minimum one horizontal and one perpendicular to the window covering product.

6.5.2.3.1 Place the UV-exposed Rigid Cord Shroud Device (assemblies) into test fixture and provide impact as stated above on the portion of the product which contains the Operating Cord at a point that provides or translates function of the Operating Cord. Deformation of the parts is acceptable, but any cracking or dislodged parts are considered a failure.

6.5.2.3.2 Place mounting parts (if any) into test fixture and provide impact as stated in 6.5.2.3 on the portion of the device that mounts to the body of the window covering product. Deformation of the parts is acceptable, but any cracking or dislodged parts are considered a failure.

6.5.2.4 Deflection and Deformation Test Procedure: Test for deflection and deformation in accordance with the procedures set forth in Appendix G.

6.6 Wide Lift Bands: Wide Lift Bands shall be treated as Cords unless they meet the requirements for a Wide Lift Band, and when used, shall adhere to the following requirements:

6.6.1 Bands shall be a minimum width of 3.5 in.

6.6.2 Bands should be constructed of a material that has a wide lift band safety factor of 16.0 (in-kg) or greater

6.6.2.1 Wide Lift Band safety factor shall be calculated by the following parameters.

6.6.2.1.1 Width (inches) of material measured when flat (measured in inches).

6.6.2.1.2 Stiffness of band tested in accordance with ASTM D4032, with pneumatic actuator, digital gage with 25 kgf capacity (measured in kg).

6.6.2.1.3 Wide Lift Band safety factor is the simple product of the numerical values achieved in 6.6.2.1.1 and 6.6.2.1.2.

APPENDIX A: REFERENCE DOCUMENTS

Reference Documents

American Association of Textile Chemists and Colorists (AATCC)

AATCC TEST Method 16-2004 Option 3- Colorfastness to Light

Available from American Association of Textile Chemists and Colorists, AATCC, P. O. Box 12215, One Davis Drive, Research Triangle Park, North Carolina, 27709-2215, fax +1 919 549 8933, www.aatcc.org

American National Standards Institute (ANSI)

ANSI Z535.1-2006 (r2011) - Safety Color Code

ANSI Z535.2-2006 (r2011) - Environmental and Facility Safety Signs

ANSI Z535.3-2006 (r2011) - Criteria for Safety Symbols

ANSI Z535.4-2006 (r2011) - Product Safety Signs and Labels

ANSI Z535.5-2006 (r2011) - Accident Prevention Tags (for temporary hazards)

ANSI/UL 4200A (2020) - Products Incorporating Button or Coin Cell Batteries of Lithium Technologies

Available from American National Standards Institute, 25 West 43rd Street 4th Floor, New York, NY 10036, +1 212 642 4900, www.ansi.org

ASTM International

ASTM D4032-08 Standard Test Method for Stiffness of Fabric by the Circular Bend Procedure

ASTM D5420-10 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)

ASTM F963-17 - Standard Consumer Safety Specification for Toy Safety

Available from ASTM International, 100 Barr Harbor Drive, PO Box c700, West Conshohocken, PA 19428-2959, +1 610 832 9500, www.astm.org

Code of Federal Regulations (CFR)

16 CFR Part 1501 - Method for Identifying Toys and Other Articles Intended for Use by Children Under 3 Years which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts

Available from U.S. Consumer Product Safety Commission, Washington, DC 20207, +1 800 638 2772, www.cpsc.gov

European Standards

EN 71-3:1994/ A1:2000/AC:2002 of the European Committee for Standardization entitled Safety of Toys – Part 3

APPENDIX B: RATIONALE AND BACKGROUND INFORMATION

Appendix B describes the rationale and / or background information for select provisions of the standard.

B1 Wand Tilt and Cord Tilt

B1.1 Wand Tilt- Wands require fine hand manipulations to operate (twisting motion).

B1.2 Cord Tilt on Custom Blinds would be an acceptable option if the cords remain Inaccessible during all phases of operation as defined in Appendix C: Test Procedure for Accessible Cords.

B2 The 36 inch maximum stroke length for Cord Retraction Devices is based on a combination of anthropometric data of the useable arm pull and the actual systems in market currently.

B3 Section 6.6 Wide Lift Bands

B3.1 The WCMA engaged an independent laboratory to verify that “wide” lift bands reduce risk of strangulation when used in place of an Inner Cord. Test results showed a relationship between width and stiffness of the material and influence on pressures to occlude an airway during simulation. Based on data and discussion of the testing, a safety factor of 16.0 was determined to be acceptable. The wide lift band safety factor (in-kg) is calculated by multiplying the width of the wide lift band (measured in inches) by the stiffness of the wide lift band (measured in kgf). Stiffness values of the wide lift band were measured using test method ASTM 4032-2008, pneumatic actuator, digital gage with a 25kgf (115 N) capacity.

B4 Figure C1, Cord Accessibility Probe

B4.1 The 6 in (152 mm) end depth is based on anthropometric data and historical information.

B4.2 The 5/8 in (16 mm) diameter is based on a child inserting his/her index finger into the opening and curl his/her finger to grasp the Cord. The distance from the tip of index finger to the middle joint is approximately same as the inside grip diameter (5th percentile 2.5-3.5 year olds¹), which is added to the index finger diameter (5th percentile 2-3.5 year olds²).

B4.3 The 1 in (25 mm) depth is the rounded number for the tip of index finger to the middle joint explained above.

B4.4 The 1 13/16 in (46 mm) diameter is based on the opening needed to grasp the Cord if a child inserts his/her hand in a straight position up to the thumb crotch. Hand circumference at the palm (mean 2-2.5 year old child³) is added to the opening needed to grasp the Cord with index finger (inside grip diameter of a 5th percentile 2.5-3.5 year old).

B4.5 The 2.5 in (64 mm) depth is the thumb crotch – middle finger length for 5th percentile 2-3.5 year old².

B4.5.1 ¹ Owings, C.L., Norcutt, R.H., Snyder, R.G., Golomb, D.H. & Lloyd, K.Y. (1977). Gripping Strength Measurements of Children for Product Safety Design. Prepared for the U.S. Consumer Product Safety Commission, Washington, D.C.

B4.5.2 ²Snyder, R.G., Schneider, L.W., Owings, C.L., Reynolds, H.M., Golomb, D.H., & Schork, M.A. (1977). *Anthropometry of Infants, Children and Youths to Age 18 for Product Safety Design* (Report No. UM-HSRI-77-17). Prepared for the U.S. Consumer Product Safety Commission, Washington, D.C.

B4.5.3 ³BSI (1990) as cited in Norris, B., & Wilson, J. R. (1995). *CHILDATA: The handbook of child measurements and capabilities –Data for design safety*. London: Department of Trade and Industry.

B5 Figure C2, Cord Shroud Accessibility Probe

B5.1 The ¼ in (6 mm) diameter is based on: 0.33 in (8 mm) is the 5th percentile 2-year-old's index finger diameter in Snyder's study².

B6 Section D2.4, Head Probe

B6.1 Tension force of 5 lb (22.2 N) is based on Section 4.14.1 Cords, Straps, and Elastics in ASTM F963.

B6.2 Insertion force of 10 lb (44.5) is based on Section 8.22 Test for Loops and Cords in ASTM F963.

B6.3 16.6 in (42.2 cm) is representative of the 5th percentile 7-9 month old, measurements provided by <http://ovrt.nist.gov/projects/anthrokids> and shape provided by Intertek CT scan images

APPENDIX C: TEST PROCEDURE FOR ACCESSIBLE CORDS

Appendix C describes test requirements for determining the accessibility of Cords on the front, rear, bottom, or sides of properly installed window covering product.

The Inner Cords on a window covering product that are within 12 in (31 cm) of the bottom of the headrail are considered not accessible.

The tilt Cords on a Custom window covering product that are within 12 in (31 cm) of the bottom of the headrail are considered not accessible.

Test method is determined by the window covering construction type as described in C2.1

C1 Shade Mounting and Preparation

C1.1 Hang the window covering on a mounting rail using brackets according to manufacturer's installation instructions. The shade is to be tested in the fully lowered position

C1.1.1 Allow enough room around the mounted window covering to perform the Accessible Cord test.

C2 Inner Cord Test with Cord Accessibility Probe

C2.1 Determine if the window covering is to be tested to the "Open" or "Closed" construction test procedure.

Open Construction window covering products have one of the following:

- Inner Cords that are exposed from the front, rear, bottom or sides of the window covering which are typical of Roman, horizontal, and pleated window coverings.
- Cords that are enclosed between layers of the window covering without segmented sections allowing access to any portion of the interior from any opening.

Closed Construction has Inner Cords that are enclosed within segmented layers of the product which is typical of Cellular Shade. Access is limited to only that section of the Cord in an individual segment.

C2.1.1 "Open" construction: Determine if any opening in the window covering, more than 12 in (31 cm) below the bottom of the headrail, allows touching of the Inner Cords with the Inner Cord accessibility probe (Figure C1).

C2.1.1.1 If the Inner Cord accessibility probe can touch any Cords before reaching the 2 in (51 mm) diameter section the Cords are considered accessible and must be tested to Appendix D: Hazardous Loop Test Procedure.

C2.1.1.2 If the 2 in (51 mm) diameter section of the Inner Cord accessibility probe can be inserted into any opening then the Cords are considered accessible and must be tested to Appendix D: Hazardous Loop Test Procedure.

C2.1.2 "Closed" construction: Determine if any opening in the window covering, more than 12 in (31 cm) below the bottom of the headrail, allows touching of the Inner Cords with the Inner Cord accessibility probe (Figure C1).

C2.1.2.1 If the Inner Cord accessibility probe can touch any Cords before reaching the 4 in (102 mm) diameter section the Cords are considered accessible and must be tested to the Appendix D: Hazardous Loop Test Procedure.

C2.1.2.2 If the 4 in (102 mm) diameter section of the Inner Cord accessibility probe can be inserted into any opening then the Cords are considered accessible and must be tested to Appendix D: Hazardous Loop Test Procedure.

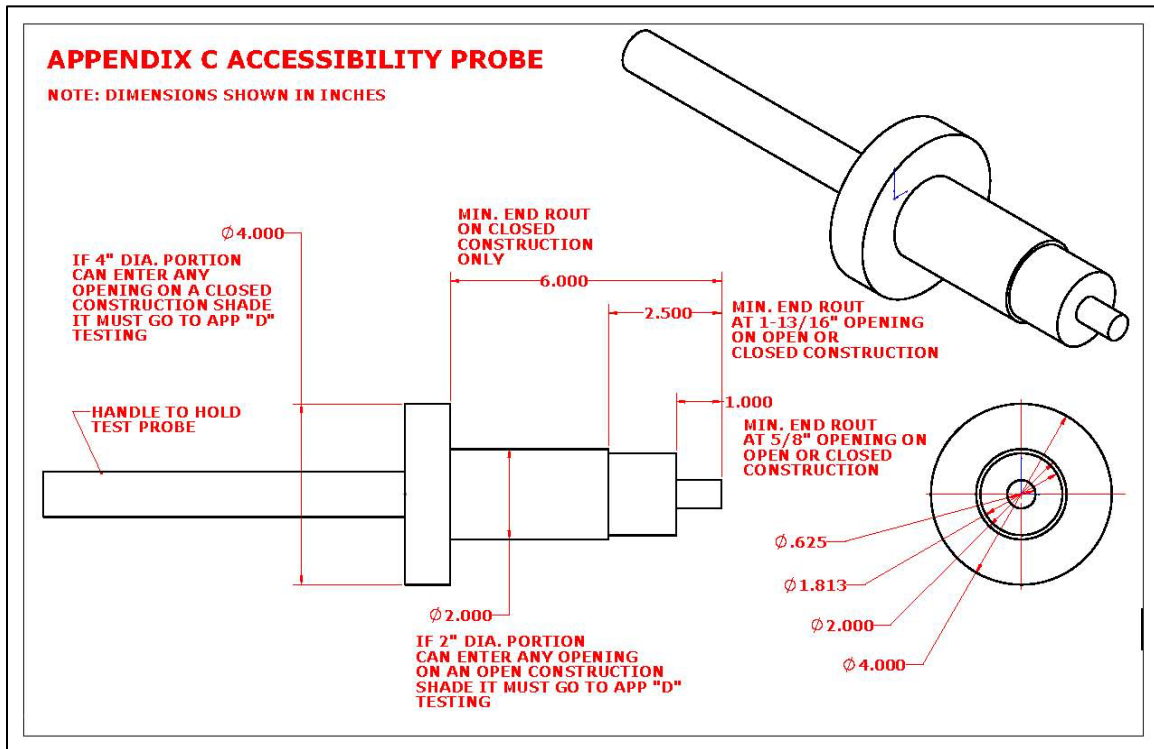


Figure C1 – CORD ACCESSIBILITY PROBE

Note: See Appendix G: Rationale and Background Information,

C3 Operating Cords

C3.1 Any Operating Cord or Retractable Cord, when it is in the static position, which can be contacted by the Cord accessibility probe (Figure C1) is considered an Accessible Cord.

C4 Cord Shroud Accessibility Test with Cord Shroud Accessibility Probe

C4.1 Cord Shrouds with openings smaller than 1/4" diameter, are to be tested with the Cord, per Appendix D. Cord Shrouds with openings larger than 1/4" diameter, are to be tested independently of the Cord, per Appendix D.

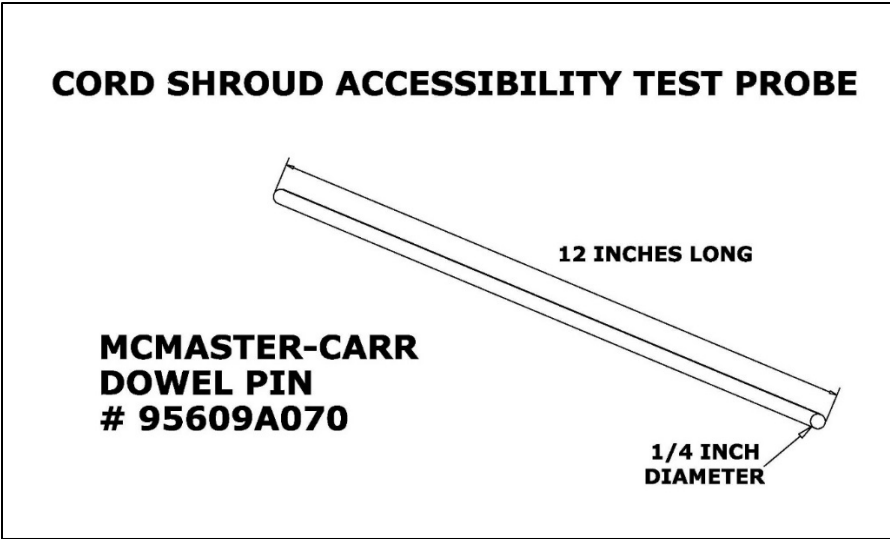


Figure C2 – CORD SHROUD ACCESSIBILITY PROBE

Note: See Appendix G: Rationale and Background Information,

APPENDIX D: HAZARDOUS LOOP TEST PROCEDURE

Appendix D describes test requirements for the Accessible Inner Cords of all window covering types and the potentially Hazardous Loop or opening that may be created between an Inner Cord and the window covering material by manipulation of the Inner Cord and / or window covering material. If a Hazardous Loop is formed following the Appendix D: Hazardous Loop Test Procedure, the product is non-compliant.

D1 Window Covering Mounting and Preparation

D1.1 Hang the window covering on a mounting rail using brackets according to manufacturer's installation instructions.

D1.1.1 It is recommended that enough room is allowed all around the mounted window covering for the test fixture and Cord-pull allowance.

D1.1.2 It is recommended that allowances are made for various heights of either window covering or test fixture and tests at multiple vertical positions on the window covering, either by raising or lowering the entire window covering, or by adjusting the level of the test fixture.

D1.1.3 All Inner Cords which are accessible from the front, sides, bottom, or rear of the window covering and are 12 in (31 cm) or more below the bottom of the headrail, are subject to these tests.

D1.1.3.1 If the openings between the Accessible Inner Cord and the window covering material are similar in design, the tests shall be conducted on a minimum of one Inner Cord near the side edge of the window covering and one Inner Cord towards the horizontal center of the window covering for each configuration tested.

D1.1.3.2 If the openings between the Accessible Inner Cord and the window covering material are similar in design, the tests shall be conducted on a minimum of the bottom most row of openings and the middle row of openings.

D1.1.4 At each position on the window covering product where Cords are tested, all combinations of Cords and combined Loops shall be tested separately.

D1.1.5 Test procedure D2 shall be performed with the window covering in the fully lowered position.

D1.1.5.1 If the sample contains a top-down, bottom-up operation feature, Procedure D2 shall be performed with the bottom rail fully lowered and the middle rail up against the headrail (window covering fully covering the window).

D1.1.6 Loops that are formed by excessive or intricate manipulations, including damaging the product or using tools, of the Accessible Cord shall be exempt from testing.

D2 Creation of a Hazardous Loop

D2.1 Orient the Hazardous Loop test stand assembly, shown in Figure D2 through Figure D6, such that the hooks (Figure D5 Item #9.5) on the force gauge arm subassembly (Figure D5) will be able to pull the Accessible Inner Cord to form or

enlarge a Loop (see Figure D7). The direction of pull will be perpendicular to surface of the window covering product, and away from the surface.

D2.1.1 If the Inner Cord is only accessible from the side of the window covering, then the fixture shall be oriented such that it will apply the pull force perpendicular to that side surface of the window covering (or parallel to the front of the window covering). If the Inner Cord is accessible from the back or front of the window covering, then the fixture shall be oriented such that the pull force is applied perpendicular to that surface of the window covering. Likewise, if the Inner Cord is only accessible from the bottom of the window covering, the pull force should be applied in a vertical direction, perpendicular to the bottom surface. The restraining arm (Figure D2 Item #16) shall be placed against the window covering.

D2.1.2 If the same Inner Cord section is accessible from two or more directions, testing shall be conducted by pulling the Inner Cord in the direction that would result in the largest Loop opening. It may be necessary to conduct the evaluation more than once to determine the direction that would result in the largest Loop opening on certain window covering designs.

D2.2 Place the Hazardous Loop test stand assembly at the surface of the window covering and adjust the vertical height so that the restraining arm aligns with the opening to be tested.

D2.2.1 If testing a Roman Style Blind, the restraining arm shall be placed in between the Inner Cord and the window covering material at the opening to be tested.

D2.2.2 When testing all other styles of window coverings, the restraining arm shall be placed against both the window covering material and the Inner Cord, just slightly above the opening to be tested.

D2.3 Ensure the scale measuring distance traveled on the force gauge arm subassembly is set to zero (Figure D2 Item 1). Zero the force gauge and place the force gauge in continuous read-out mode. Loop the Accessible Cord onto both hooks of the force gauge arm subassembly (Figure D5 Item #1.1).

D2.3.1 While looping the Cord onto both hooks, the force exerted on the Cord or the force registered on the force gauge may exceed 5 lb (22.2 N) to obtain the required set-up configuration.

D2.3.2 The coating on the hooks (Figure D5 Item #1.6) is Tygon tubing with a durometer 69A that is intended to simulate human skin. In the event that the tubing becomes worn or damaged, replace it with new tubing.

D2.4 Over a time period of 5 seconds +/- 1 second, gently pull the horizontal arm (Figure D5 Item #1.8) of the force gauge arm subassembly away from the window covering to create an open Loop until the force gauge indicates a tension force of 5 lb +/- 0.25 lb (22.2 N +/- 1.1 N) or the scale (Figure D5 Item #1.4) indicates a pulled distance of 25 in +/- 0.25 in (63.5 cm +/- 0.6 cm), whichever comes first. Lock the horizontal arm in place using the brake assembly (Figure D-5 Item #1.10).

D2.5 Using the head probe (Figure D1) determine whether the head probe can pass through the opening created between the hooks and the restraining arm with an insertion force of 10 lb (44.5 N) or less, perpendicular to the plane of the opening

D2.5.1 If the head probe cannot pass through the Loop under the conditions above, the opening is not a Hazardous Loop.

D2.5.2 If the head probe can pass through the Loop under the conditions above, the Loop is considered a Hazardous Loop.

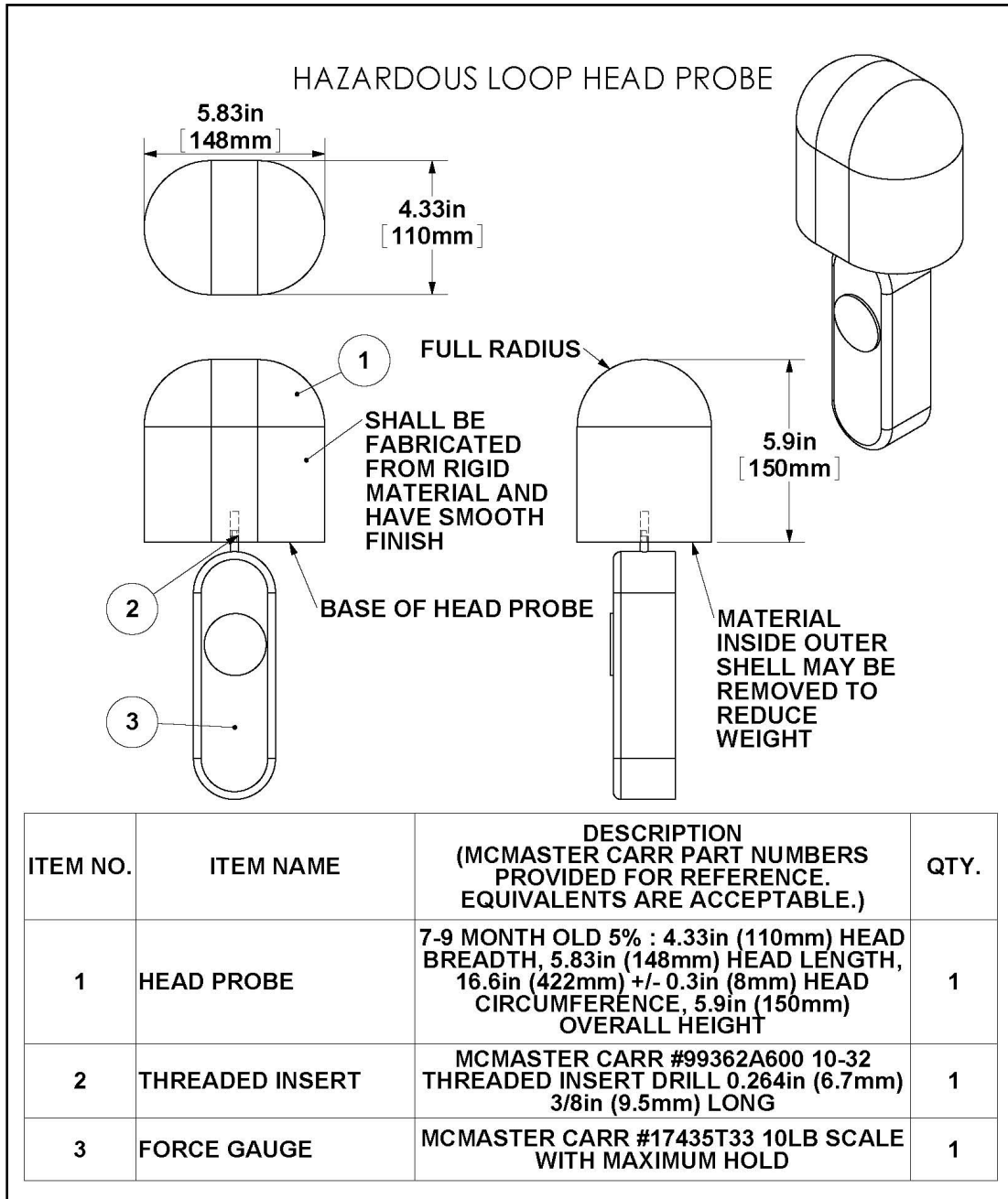


Figure D1 – HAZARDOUS LOOP HEAD PROBE

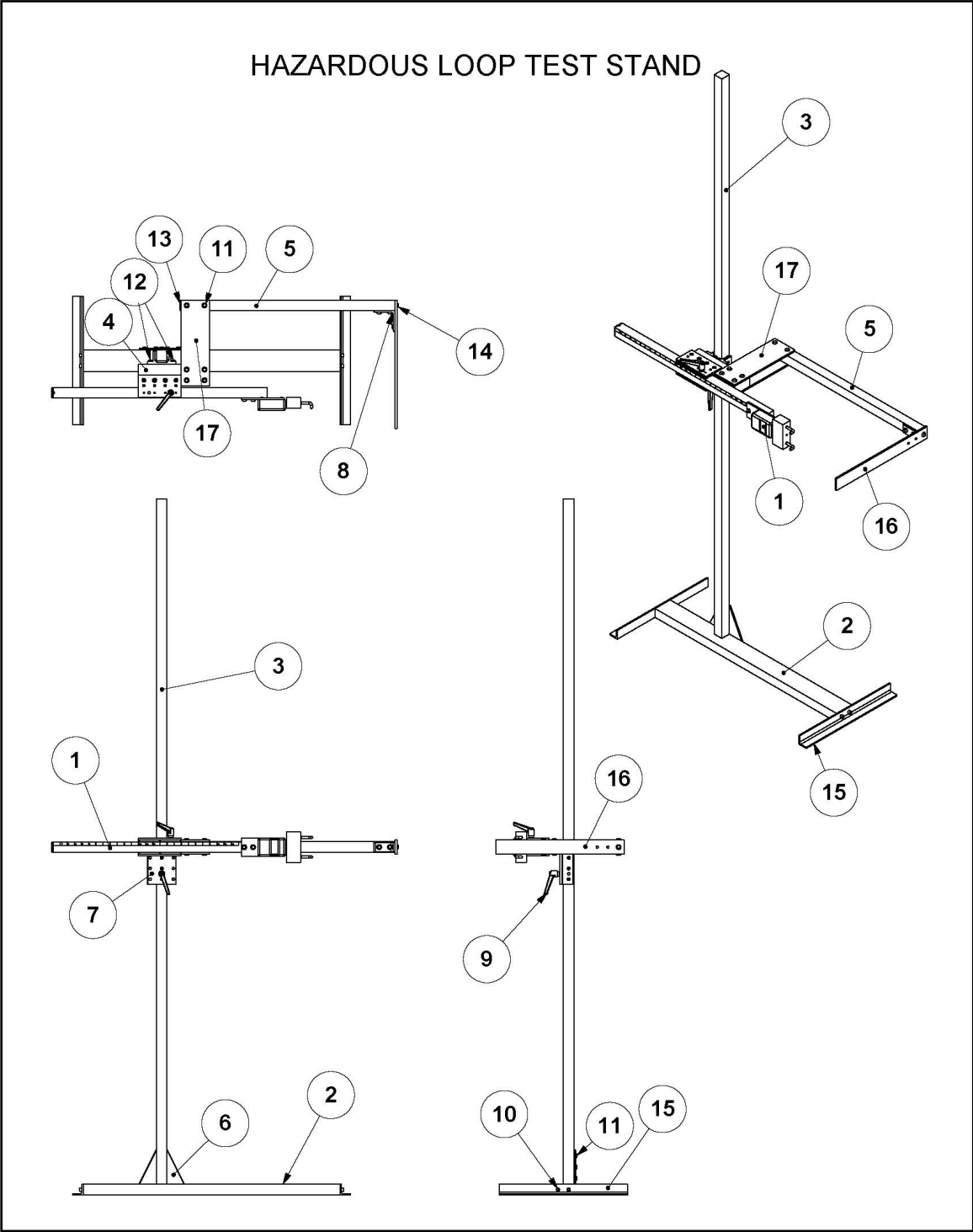
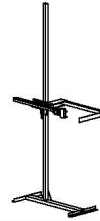


Figure D2 – HAZARDOUS LOOP TEST STAND ASSEMBLY

HAZARDOUS LOOP TEST STAND ASSEMBLY BILL OF MATERIALS

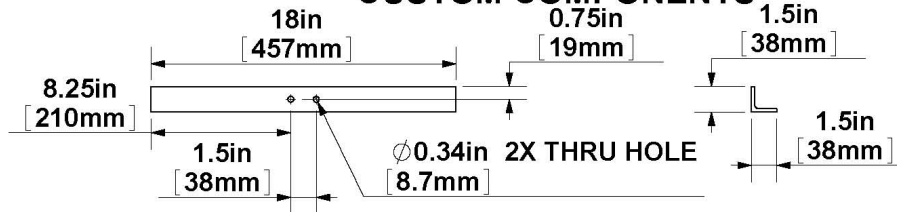
80/20 COMPONENTS CAN BE ORDERED AS KIT# WCMA060410
 BERTELKAMP AUTOMATION, INC
 6321 BAUM DRIVE
 KNOXVILLE TN 37919
 800-251-9134
 INFO@BERTELKAMP.COM



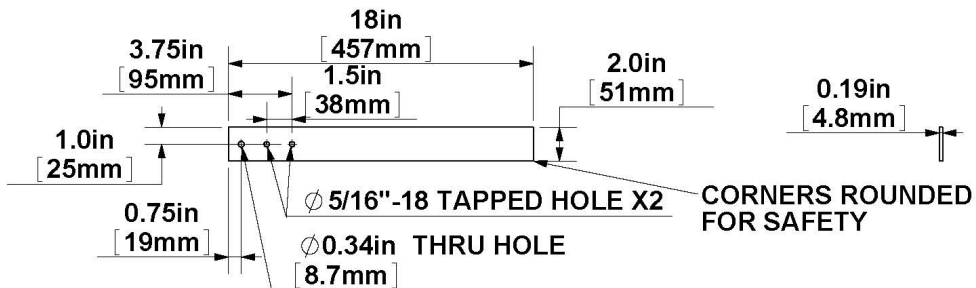
ITEM NO.	ITEM NAME	DESCRIPTION (MCMASTER CARR, 80/20 PART NUMBERS PROVIDED FOR REFERENCE. EQUIVALENTS ARE ACCEPTABLE.)	QTY.
1	FORCE GAUGE ARM SUBASSEMBLY	80/20, MCMASTER CARR, MARK-10 COMPONENTS - SEE SEPARATE ASSEMBLY DRAWING FOR COMPONENTS	1
2	STAND BASE	80/20 1530 36in (914mm) LONG - TAP BOTH ENDS 5/16in-18	1
3	UPRIGHT	80/20 1515 96in (2438mm) LONG	1
4	SLIDE MOUNT	80/20 1530 10in (254mm) LONG	1
5	HORIZONTAL ARM	80/20 1515 30in (762mm) LONG - TAP ONE END 5/16in-18	1
6	JOINING PLATE 4312	80/20 4312 7 HOLE JOINING PLATE	1
7	VERTICAL ADJUSTMENT SLIDE	80/20 6526 LINEAR SLIDE WITH BRAKE	1
8	CORNER BRACE	80/20 4301 4 HOLE CORNER BRACE	1
9	BRAKE ASSEMBLY	80/20 6800 LINEAR SLIDE BRAKE ASSEMBLY	1
10	MACHINE SCREW	80/20 3122 SOCKET HEAD CAP SCREW 5/16in-18 1in LONG	4
11	3320 T NUT ASSEMBLY	80/20 3320 TNUT ASSEMBLY 5/16in-18 X 11/16in FLANGED BUTTON HEAD WITH 3/16in HEX DRIVER AND ECONOMY T NUT	21
12	3439 T NUT ASSEMBLY	80/20 3439 TNUT ASSEMBLY 5/16in-18 X 3/4in BUTTON HEAD WITH 3/16in HEX DRIVER AND ECONOMY T NUT	2
13	1515 ENDCAP	80/20 2030YEL 1515 YELLOW ENDCAP WITH CENTER PUSHIN	1
14	3340 BUTTON HEAD SCREW	80/20 3340 5/16in-18 X 1/2in FLANGED BUTTON HEAD WITH 3/16in HEX DRIVER	3
15	STAND BASE LEGS	80/20 # CM04-042910 OR MCMASTER CARR # 8982K174 1-1/2in (38mm) X 1-1/2in (38mm) X 3/16in (4.8mm) X CUT TO 18in (457mm) LONG 6061 ALUMINUM WITH 11/32in (8.7mm) DIA HOLES	2
16	FABRIC SUPPORT ARM	80/20 # CM45-060410 OR MCMASTER-CARR #8975K533 ALUMINUM 6061 3/16in (4.8mm) X 2in (51mm) CUT TO 18in (457mm) LONG WITH 1 HOLE 11/32in (8.7mm) DIA, 2 HOLES TAPPED 5/16in-18	1
17	CUSTOM EXTENSION PLATE	80/20 # CM03-042910 OR MCMASTER CARR #8975K425 4in (102mm) X 1/4in (6mm) X 12in (305mm) LONG ALUMINUM 6061 PLATE WITH 6 X 11/32in (8.7mm) DIA HOLES	2

Figure D3 – HAZARDOUS LOOP TEST STAND BILL OF MATERIALS

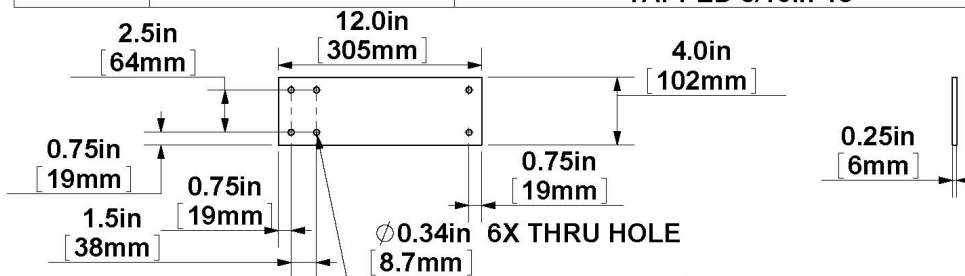
HAZARDOUS LOOP TEST STAND CUSTOM COMPONENTS



ITEM NO.	ITEM NAME	DESCRIPTION (MCMaster-CARR PART NUMBERS PROVIDED FOR REFERENCE. EQUIVALENTS ARE ACCEPTABLE.)	QTY.
15	STAND BASE LEGS	80/20 # CM04-042910 OR MCMaster CARR # 8982K174 1-1/2in (38mm) X 1-1/2in (38mm) X 3/16in (4.8mm) X CUT TO 18in (457mm) LONG 6061 ALUMINUM WITH 11/32in (8.7mm) DIA HOLES	2



ITEM NO.	ITEM NAME	DESCRIPTION	QTY.
16	FABRIC SUPPORT ARM	80/20 # CM45-060410 OR MCMaster-CARR #8975K533 ALUMINUM 6061 3/16in (4.8mm) X 2in (51mm) CUT TO 18in (457mm) LONG WITH 1 HOLE 11/32in (8.7mm) DIA, 2 HOLES TAPPED 5/16in-18	1



ITEM NO.	ITEM NAME	DESCRIPTION	QTY.
17	CUSTOM EXTENSION PLATE	80/20 # CM03-042910 OR MCMaster CARR #8975K425 4in (102mm) X 1/4in (6mm) X 12in (305mm) LONG ALUMINUM 6061 PLATE WITH 6 X 11/32in (8.7mm) DIA HOLES	2

Figure D4 - HAZARDOUS LOOP TEST STAND CUSTOM COMPONENTS

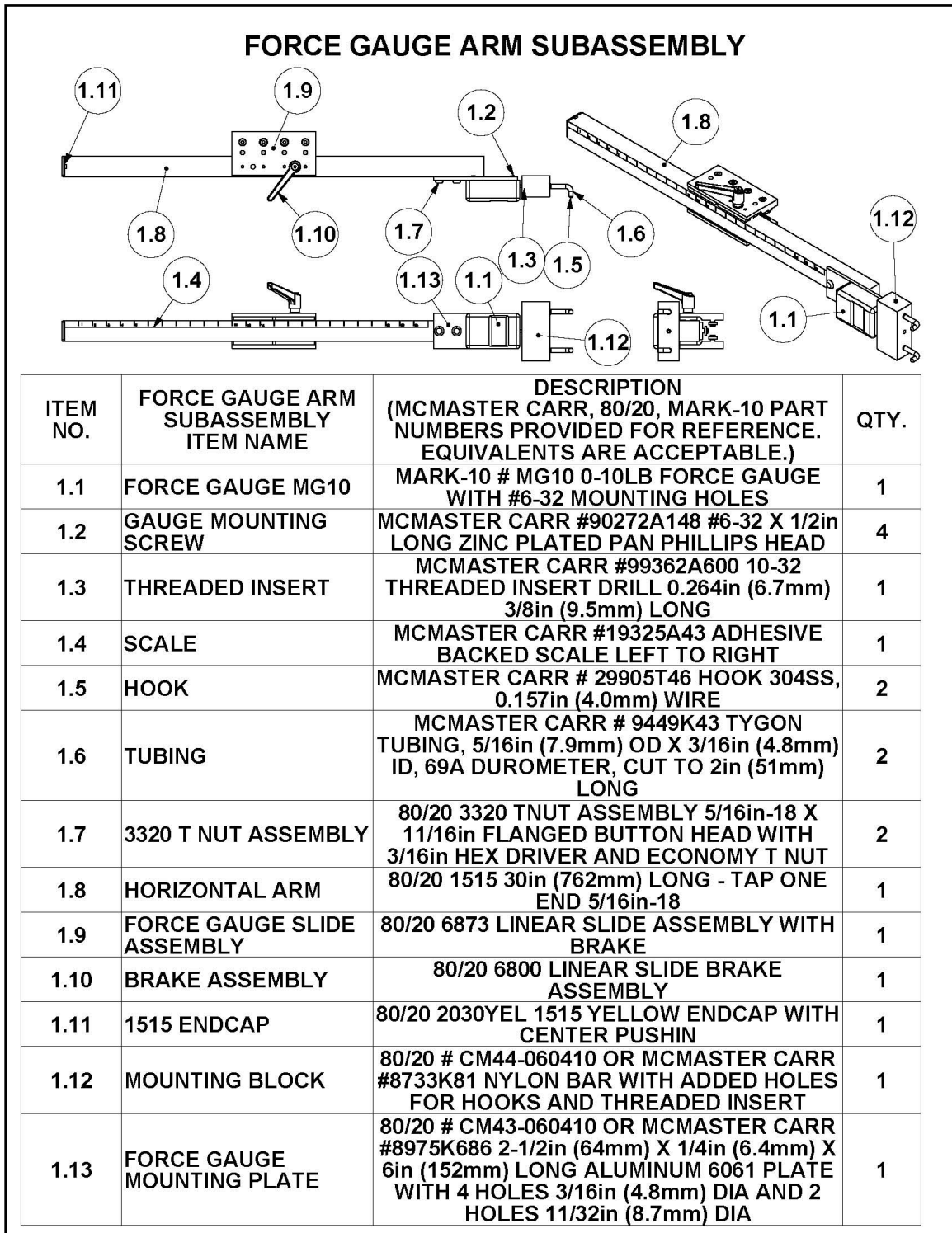
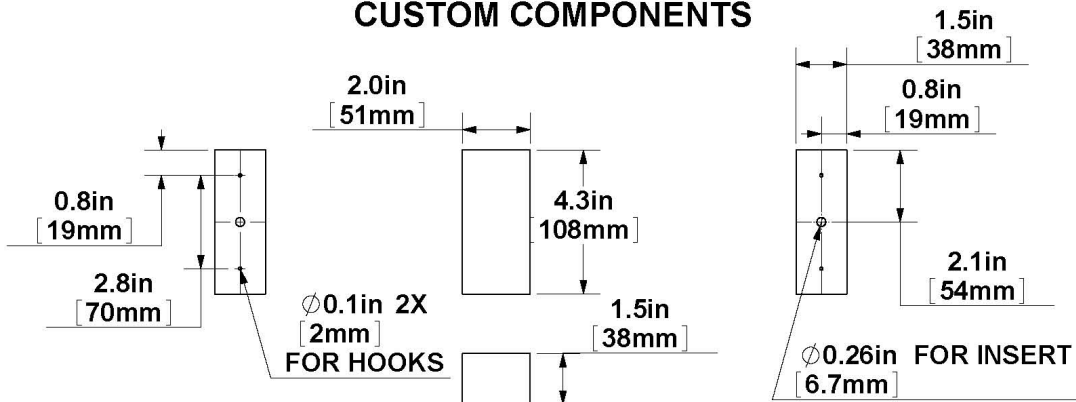
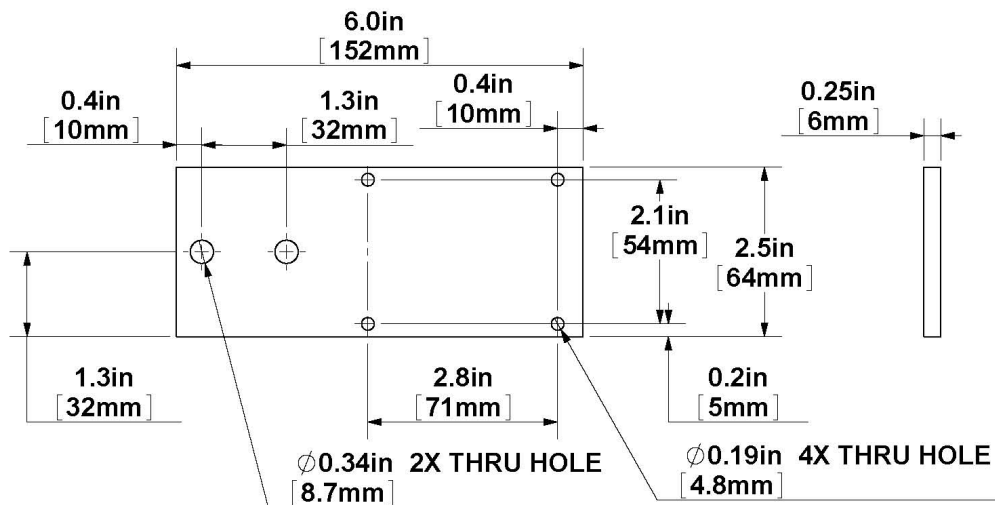


Figure D5 – HAZARDOUS LOOP TEST STAND FORCE GAUGE ARM SUBASSEMBLY BILL OF MATERIALS

FORCE GAUGE ARM SUBASSEMBLY CUSTOM COMPONENTS



ITEM NO.	ITEM NAME	DESCRIPTION (MCMaster CARR NUMBERS ARE PROVIDED FOR REFERENCE. EQUIVALENTS ARE ACCEPTABLE.)	QTY.
1.12	MOUNTING BLOCK	80/20 # CM44-060410 OR MCMaster CARR #8733K81 NYLON BAR WITH ADDED HOLES FOR HOOKS AND THREADED INSERT	1



ITEM NO.	ITEM NAME	DESCRIPTION	QTY.
1.13	FORCE GAUGE MOUNTING PLATE	80/20 # CM43-060410 OR MCMaster CARR #8975K686 2-1/2in (64mm) X 1/4in (6.4mm) X 6in (152mm) LONG ALUMINUM 6061 PLATE WITH 4 HOLES 3/16in (4.8mm) DIA AND 2 HOLES 11/32in (8.7mm) DIA	1

Figure D6 – HAZARDOUS LOOP TEST STAND FORCE GAUGE ARM SUBASSEMBLY CUSTOM COMPONENTS

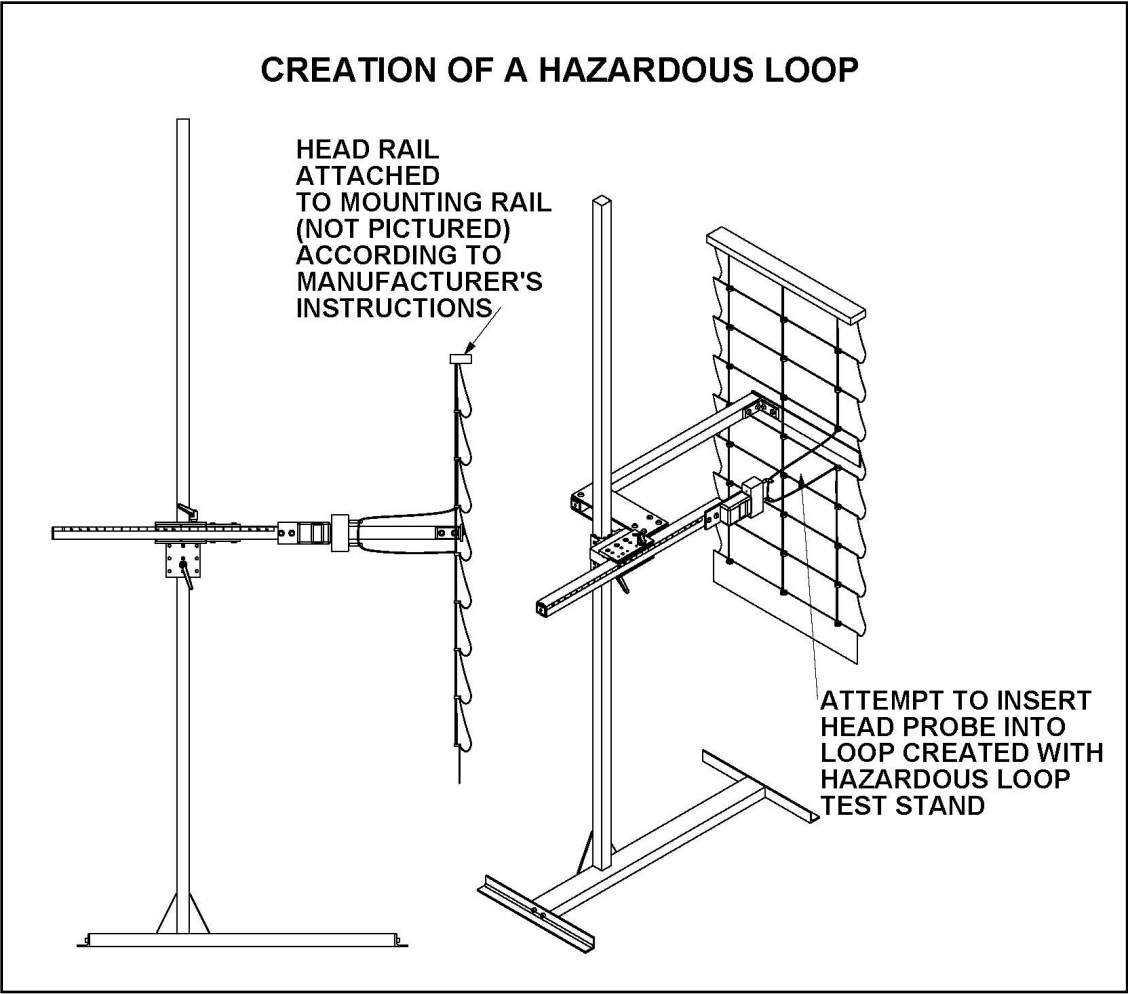


Figure D7 – HAZARDOUS LOOP TEST STAND AND A ROMAN STYLE SHADE

APPENDIX E: TESTING SUMMARY, PRODUCT ILLUSTRATIONS

Not Part of ANSI/WCMA A100.1

Component Testing and Window Covering Product Testing Summary

Section	Component Testing	Window Covering Product Testing
4.1	Lead testing <ul style="list-style-type: none"> • Components such as finish on bottom rail, textiles, louvers, slats 	
4.2	Small component testing for choking hazard <ul style="list-style-type: none"> • Safety component or device that is intended to separate 	
4.3	Remote Control Battery Accessibility <ul style="list-style-type: none"> • ANSI/UL 4200A 	
5		All window covering products Appropriate warning labels, tags, and instructions
6.1		Any fully assembled window covering products that rely on cord Retraction Devices <ul style="list-style-type: none"> • Retraction test, 6.1.1 • Cycle test, 6.1.4
6.2		Any fully assembled window covering products that rely on Cord Shroud devices <ul style="list-style-type: none"> • Accessibility test- Appendix C • Creation of Hazardous Loop- Appendix D, if required Non-rigid Cord Shroud <ul style="list-style-type: none"> • Force for attachment points, 6.2.2.2
6.3	Cord Tensioner <ul style="list-style-type: none"> • UV stability test, 6.3.5.2 • Impact test, 6.3.5.3 • Durability, 6.3.5.4 	Any fully assembled window covering products that rely on Tension Devices <ul style="list-style-type: none"> • Evaluate for shipped condition, 6.3.1 • Test for partial inoperability, 6.3.3 • Operational test, 6.3.5.1

6.4	Looped Cord and Bead Chain Restraining Device <ul style="list-style-type: none"> • UV Stability, 6.4.2.3 • Impact, 6.4.2.4 • Durability, 6.4.2.2 	Any fully assembled window covering products that rely on Loop Cord or Bead Chain restraining devices <ul style="list-style-type: none"> • Operational test, 6.4.1 • Hazardous Loop testing, 6.4.2
6.5	Rigid Cord Shroud Device <ul style="list-style-type: none"> • UV Stability, 6.5.2.2 • Impact, 6.5.2.3 	Any fully assembled window covering products that rely on Rigid Cord Shroud devices <ul style="list-style-type: none"> • Operational test, 6.5.2.1
6.6	Wide lift band materials <ul style="list-style-type: none"> • Band width, 6.6.1 • Materials stiffness, 6.6.2 	
Appendix C		Test Procedure for Accessible Cords <ul style="list-style-type: none"> • Operating Cords • Inner Cords
Appendix D		Hazardous Loop Test Procedure Inner cord test D3

APPENDIX F: ILLUSTRATIONS OF COMMON WINDOW COVERINGS, OPERATING SYSTEMS, AND OPTIONS (Images may not represent all styles of window coverings and these are for illustration purposes only).

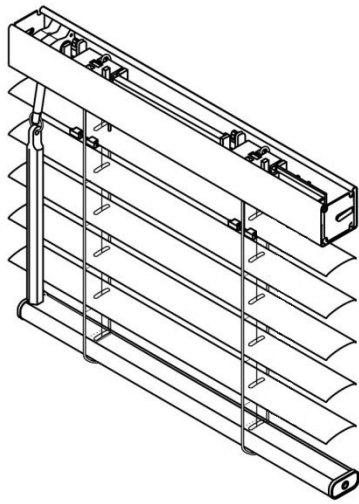


FIGURE F1 Horizontal Blinds

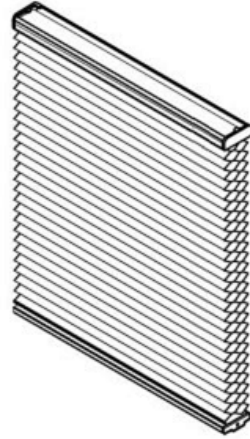


FIGURE F2 Cellular Shade

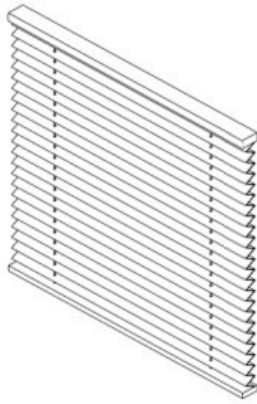


FIGURE F3 Pleated Shade

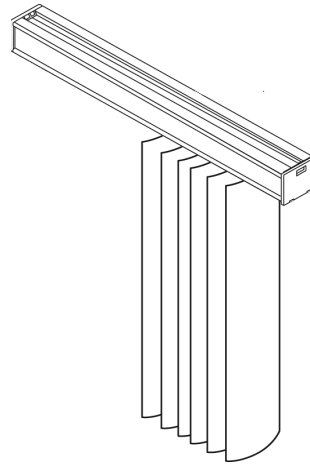


Figure F4 Vertical Blind

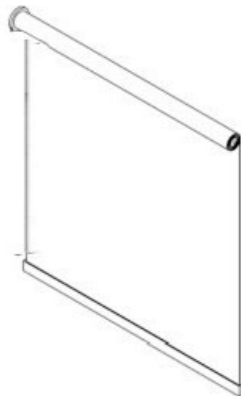


FIGURE F5 Roller Shade

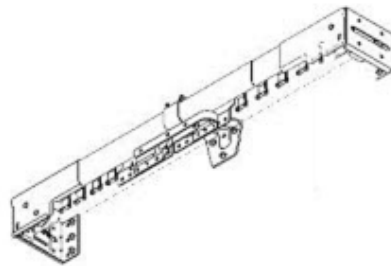


FIGURE F6 Traverse Rod

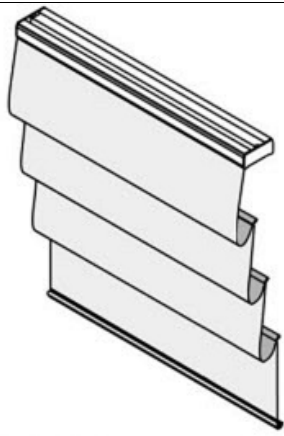


FIGURE F7 Roman Style Shade

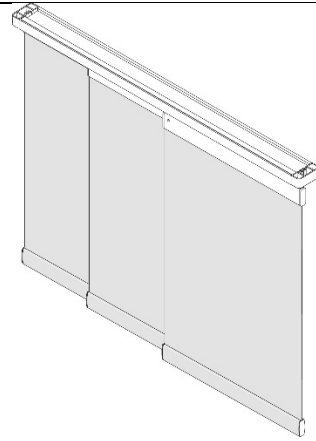


FIGURE F8 Panel Track

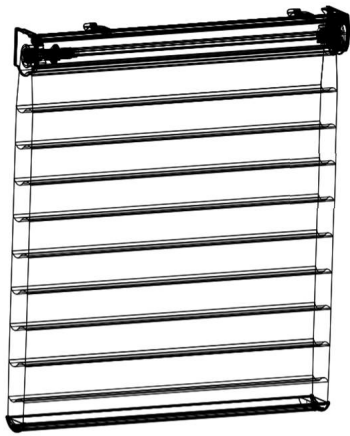


Figure F9 Sheer Shade

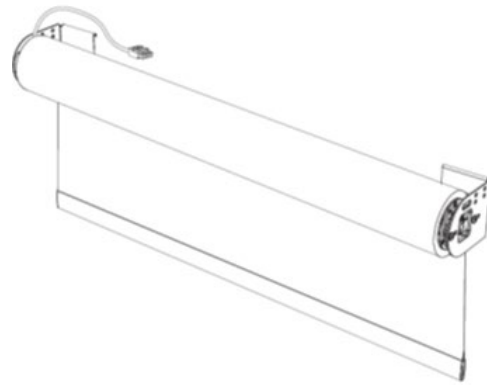


Figure F10 Motorized Roller Shade

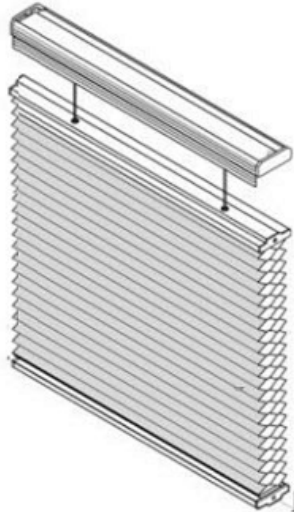


Figure F11- BUTD Shade



Figure F12 Bead Chain Restraining Device

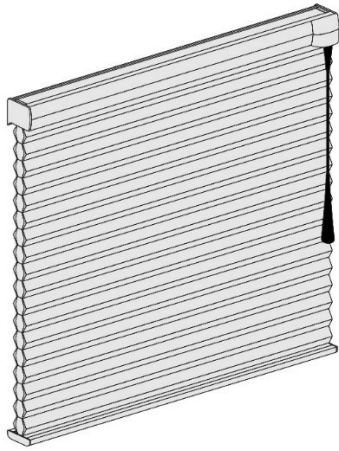


Figure F13- Single Retractable Cord Lift System



Figure F14- Rigid Shroud

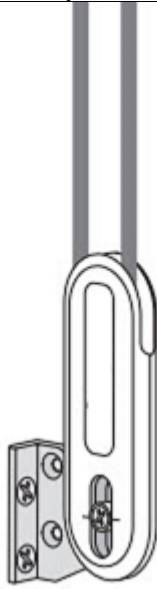


Figure F15- Loop Cord and Bead Chain Tension Device

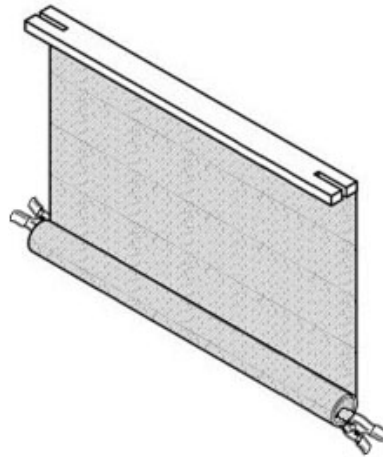
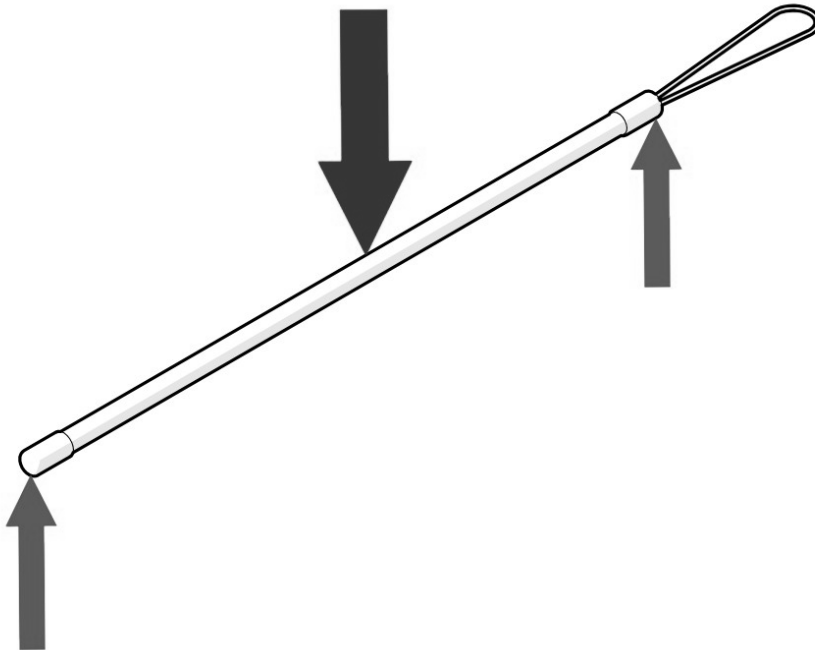


Figure F16 – Cordless Roll Up Shade

APPENDIX G: DEFLECTION

1. Center Load Test:

The Rigid Cord Shroud is supported at both ends (pin support, does not restrict rotation or movement in axial direction). A force of 5 lbs is applied at the mid-point of the device for 5 seconds. Measure the deflection at the end of the testing period, while maintaining the force on the device. If the deflection exceeds (a) 1 inch for a device 19 inches or shorter, or (a) an additional inch for every 19 inch length thereafter, then the device is not a Rigid Cord Shroud. By way of example, the deflection cannot exceed 2 inches for a device longer than 19 inches and up to 38 inches, or 3 inches for a device longer than 38 inches but shorter than 57 inches. In addition, while maintaining the force on the device, using the accessibility probe pursuant to the procedures in Appendix C, determine if the Cord is accessible. If it is accessible, then the device is not a Rigid Cord Shroud and is considered a Cord and Bead Chain Restraining Device.



2. Axial Torque Test


- (a) Support the Rigid Cord Shroud fixedly at one end (rigid support, restricts rotation, no movement in axial direction). Apply a torque of 4.4 in-lb (0.5 Nm) at the opposite end of the device for 5 seconds. Test for an Accessible Cord both during and after application of the torque. If there is an Accessible Cord anywhere on the device, either during or after the deformation stage of the testing, then the device is not a Rigid Cord Shroud, and is considered a Cord and Bead Chain Restraining Device.

APPENDIX H: SPANISH WARNING LABELS • Not Part of ANSI/WCMA A100.1




5.1.1 Warning Label for Continuous Loop Operating System with Tension Device

 WARNING		Riesgo de Estrangulamiento en Cuerdas de Persianas Un dispositivo tensor dañado, suelto o ausente representa un riesgo de estrangulamiento para los niños. Retire del uso y arregle o reemplace si el dispositivo tensor está dañado, suelto o ausente
 ADVERTENCIA		

5.1.2 Warning Label for Single Retractable Cord Lift System

 WARNING		Riesgo de Estrangulamiento en Cuerdas de Persianas Una cuerda de persiana retráctable que no se ajusta completamente presenta un riesgo de estrangulación para los niños. Retire del uso y arregle o reemplace si la cuerda no se ajusta por completo
 ADVERTENCIA		

5.1.3 Labels for Merchandising for Continuous Loop Operating System with Tension Device & Single Retractable Cord Lift System Products


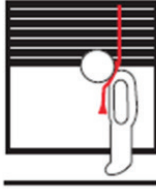
 WARNING		Riesgo de Estrangulamiento en Cuerdas de Persianas Las persianas con un dispositivo tensor suelto o dañado o con una cuerda retráctable que no se ajusta completamente representan un riesgo de estrangulación para los niños. Para evitar un posible riesgo de estrangulamiento, considere comprar productos inalámbricos o productos con cuerdas inaccesibles
 ADVERTENCIA		

5.2.1 Tension Device Warning Tag (attach to Cord or Tension Device)

 ADVERTENCIA

Productos con un Dispositivo Tensor Dañado, Suelto o Ausente Presentan un Riesgo de Estrangulamiento Para los Niños Esta Persiana está equipada con un Dispositivo Tensor <ul style="list-style-type: none">• Retire del uso y arregle o reemplace si el dispositivo tensor está dañado, suelto o ausente• El dispositivo tensor debe estar firmemente sujeto a la pared o al piso• Los niños pueden subirse a los muebles para alcanzar las cuerdas<ul style="list-style-type: none">▪ Los taquetes proporcionados con el dispositivo tensor pueden ser inapropiados para todas las superficies de montaje▪ Utilice anclas apropiadas para los diferentes tipos de las superficie del montaje• La etiqueta puede ser quitada solo por el ultimo que la obtiene

5.2.2 Single Retractable Cord Lift System Warning Tag (attach to Cord or Wand)

 ADVERTENCIA

Una Cuerda Retractable Defectuosa Presenta un Riesgo de Estrangulación Para los Niños Esta Persiana está equipada con una cuerda retráctable <ul style="list-style-type: none">• Retire del uso y arregle o reemplace si la cuerda no se ajusta completamente• Los niños pueden subirse a los muebles para alcanzar las cuerdas• Retire las cunas y otros muebles lejos de las cuerdas• La etiqueta puede ser quitada solo por el ultimo que la obtiene