Fall Protection

EN360: 2002
VG 11.54 Revision 6
TP TC 019/2011

3M™ DBI-SALA®
Nano-Lok edge
SELF-RETRACTING DEVICE

INSTRUCTION MANUAL
5908390 Rev. B

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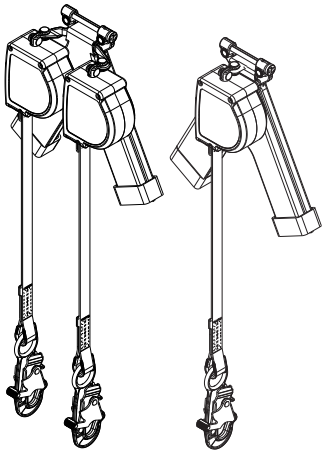
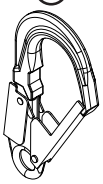
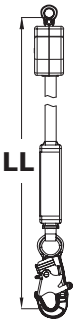
 **Nano-Lok Edge**			VG 11.54 Revision 6	①  2007153 ①	 LL
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3500267	1	A	√	√	2.4 m (8 ft)

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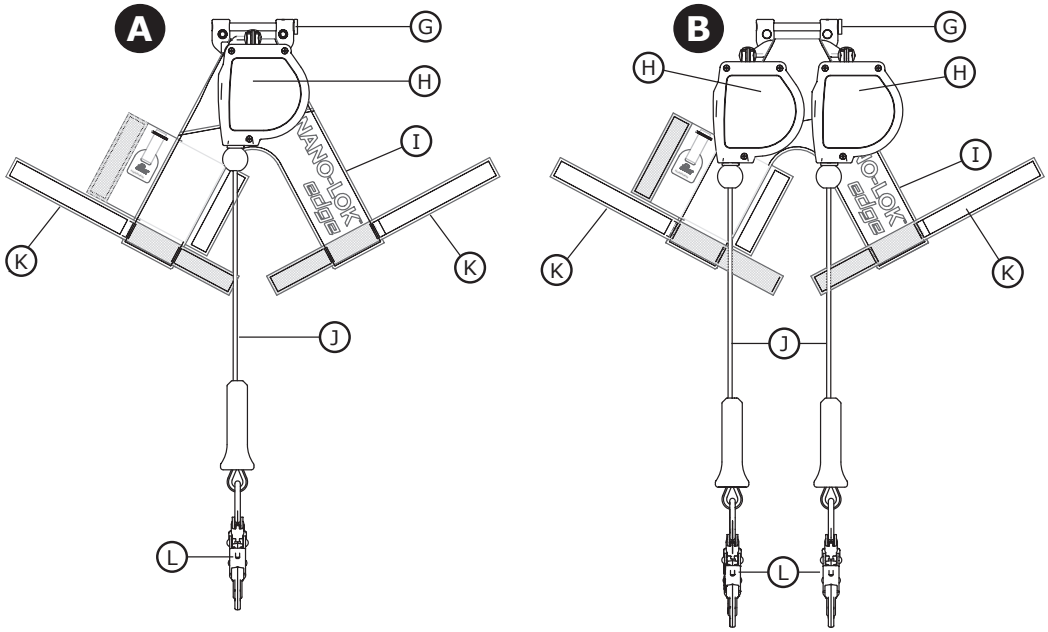
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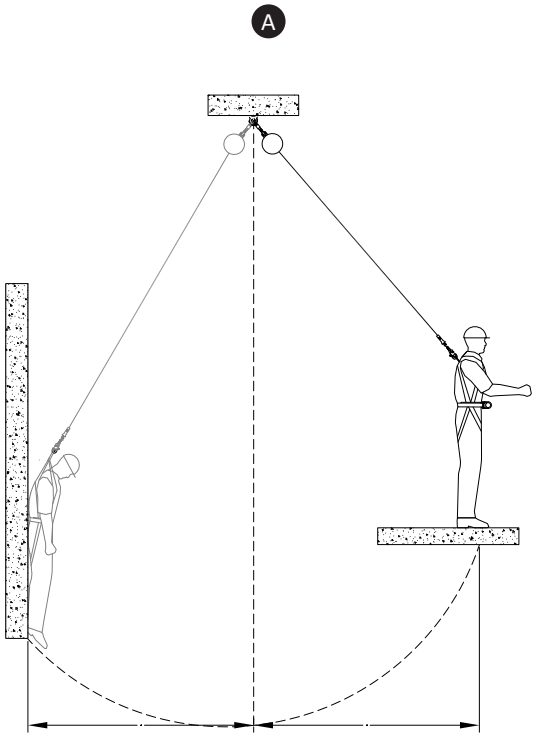
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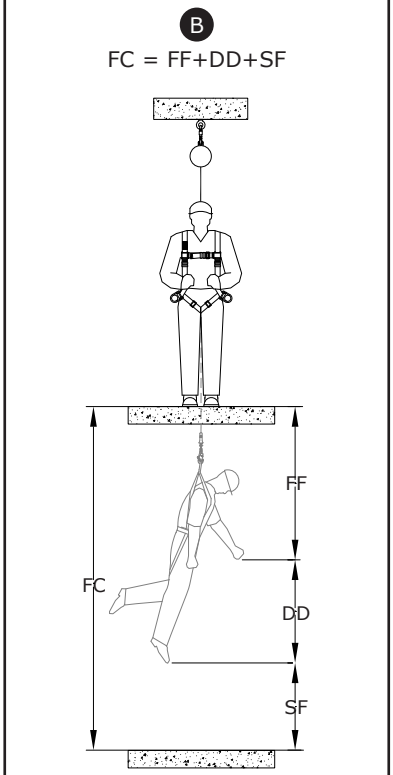
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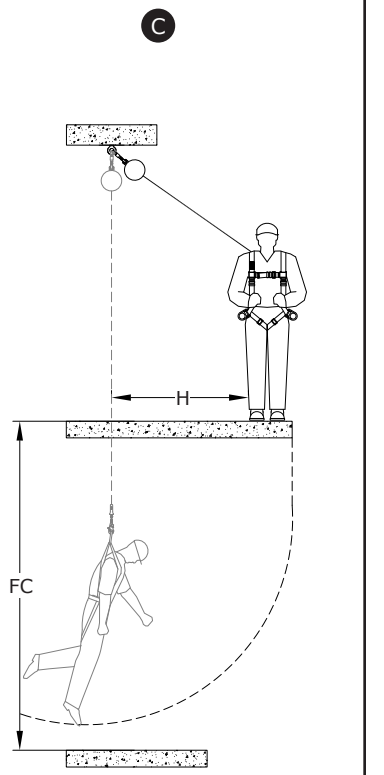
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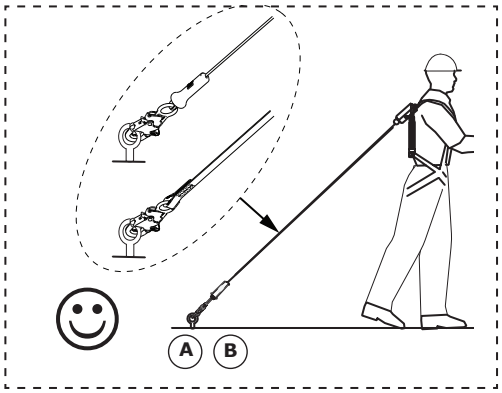
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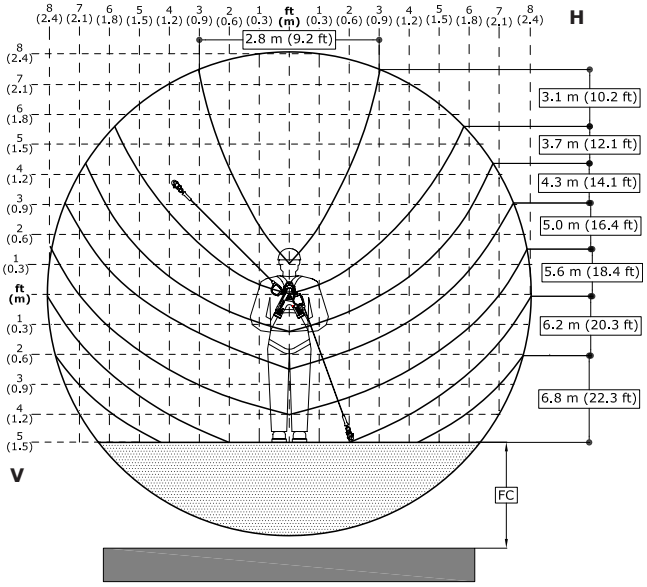
ft
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4.3 m (14.1 ft)
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5.6 m (18.4 ft)
6.2 m (20.3 ft)
6.8 m (22.3 ft)
FC

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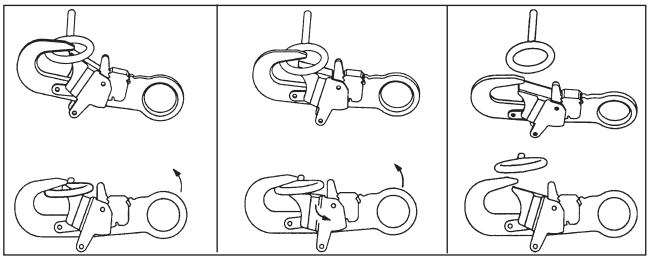
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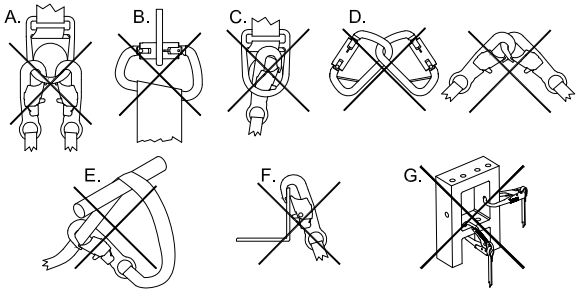
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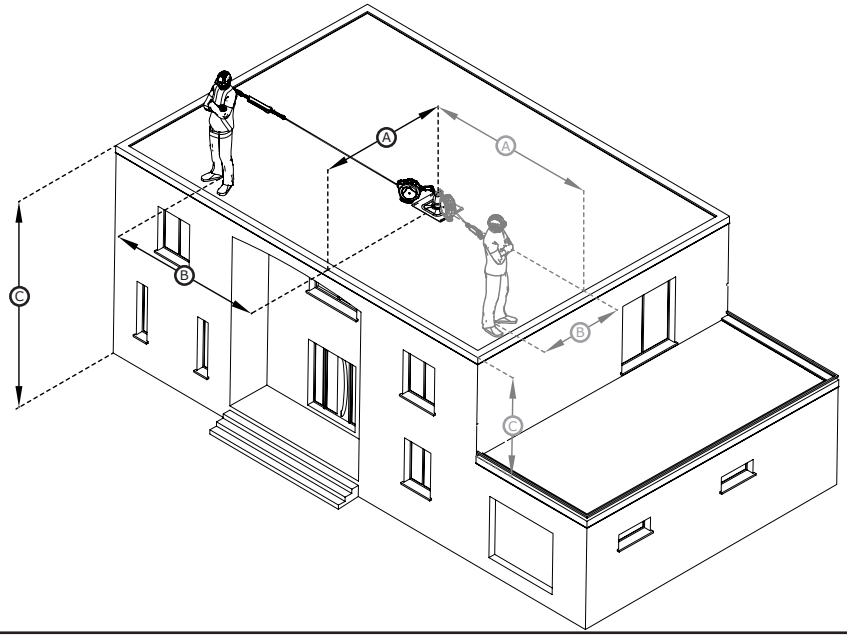

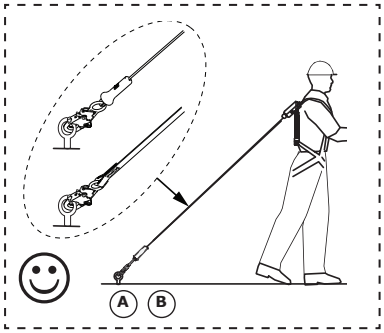

		B					
		0 ft (0.00m)	**1 ft (0.3m)**	**2 ft (0.6m)**	**3 ft (0.9m)**	**4 ft (1.2m)**	**5 ft (1.5m)**
A	**0 ft (0.0m)**	18.4 ft (5.6m)	18.7 ft (5.7m)	19.4 ft (5.9m)	20.0 ft (6.1m)	20.4 ft (6.2m)	22.0 ft (6.7m)
	1 ft (0.3m)	17.7 ft (5.4m)	18.4 ft (5.6m)	18.7 ft (5.7m)	19.4 ft (5.9m)	20.0 ft (6.1m)	20.7 ft (6.3m)
	2 ft (0.6m)	16.4 ft (5.0m)	16.7 ft (5.1m)	17.4 ft (5.3m)	17.7 ft (5.4m)	18.4 ft (5.6m)	19.4 ft (5.9m)
	3 ft (0.9m)	16.1 ft (4.9m)	16.4 ft (5.0m)	16.7 ft (5.1m)	17.4 ft (5.3m)	17.7 ft (5.4m)	18.0 ft (5.5m)
	4+ ft (1.2+m)	15.1 ft (4.6m)	15.4 ft (4.7m)	16.1 ft (4.9m)	16.4 ft (5.0m)	17.1 ft (5.2m)	17.4 ft (5.3m)
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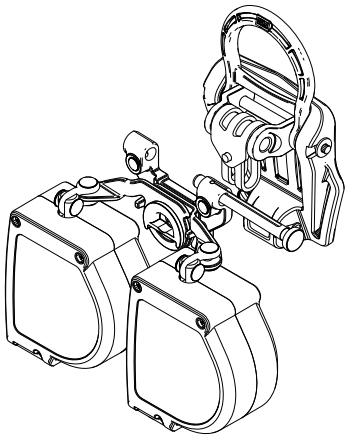

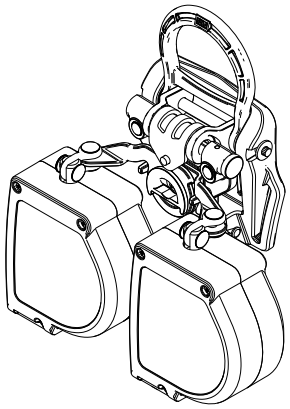

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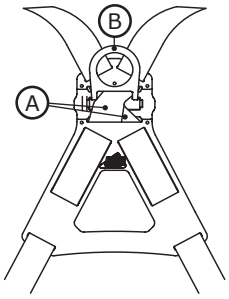

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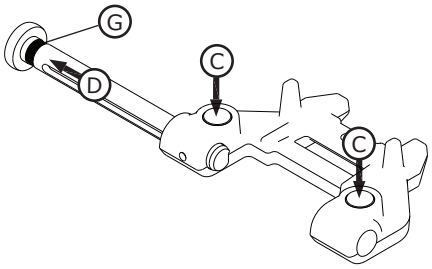

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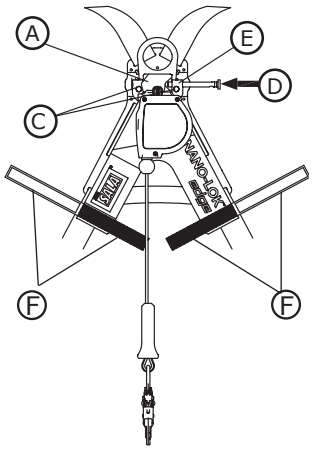

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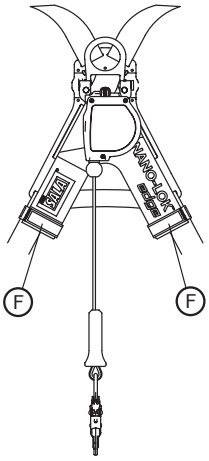

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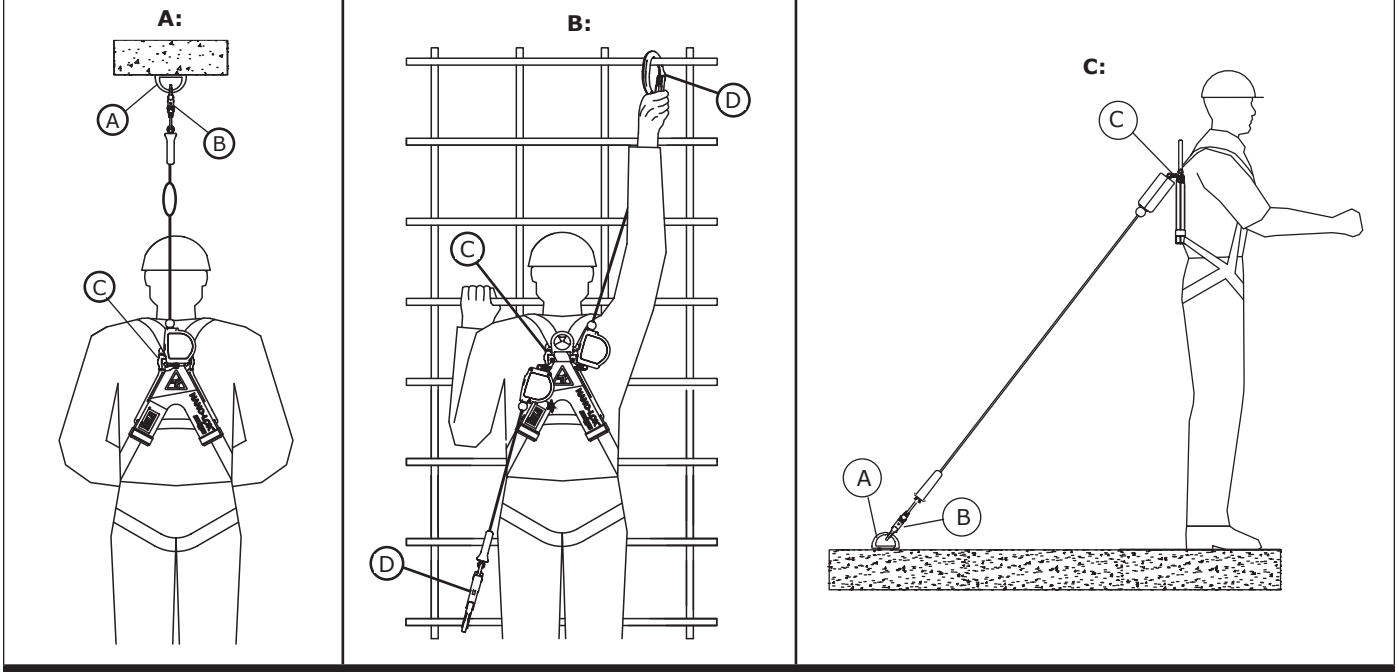

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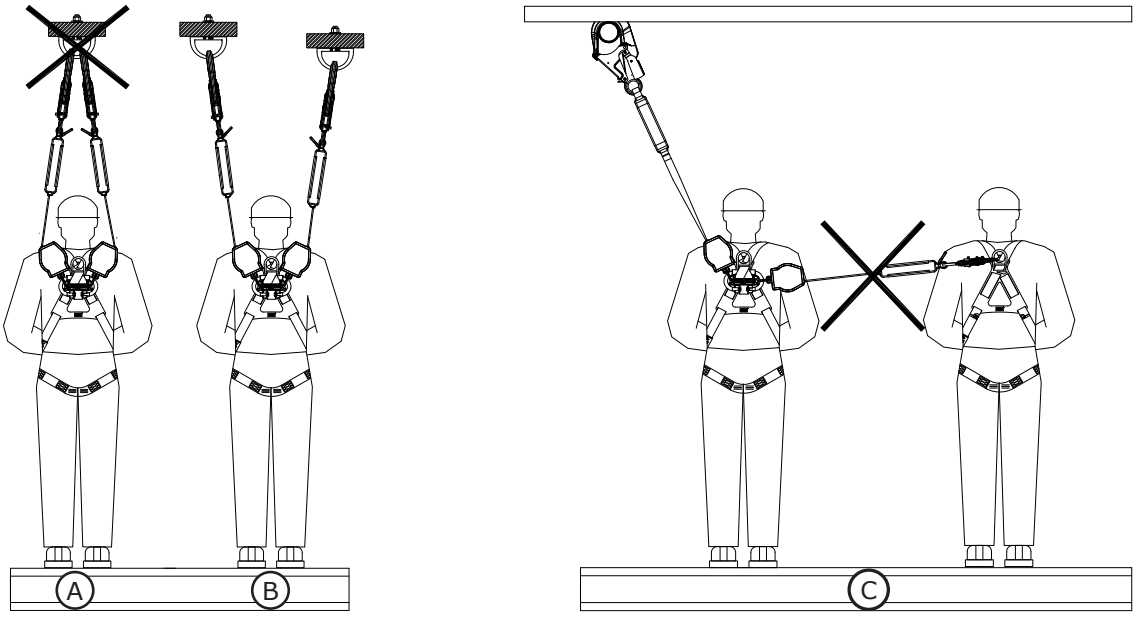

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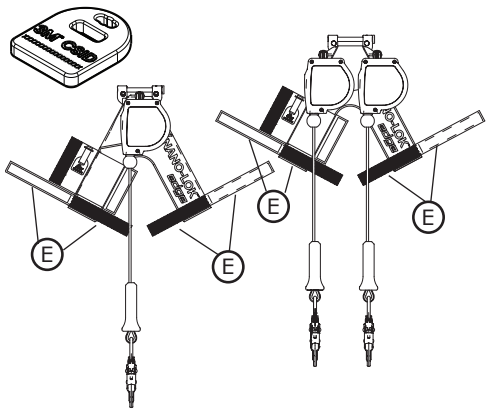	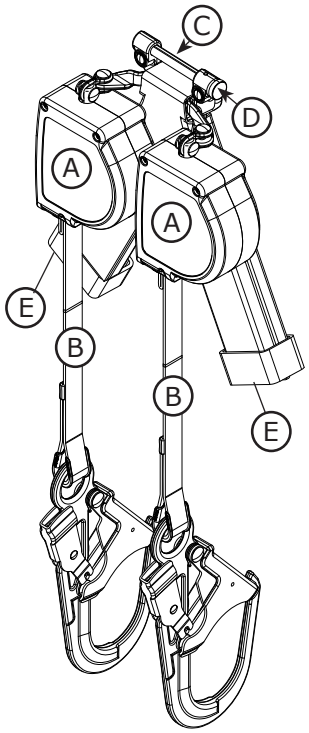	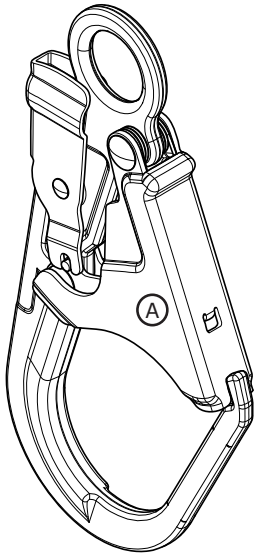

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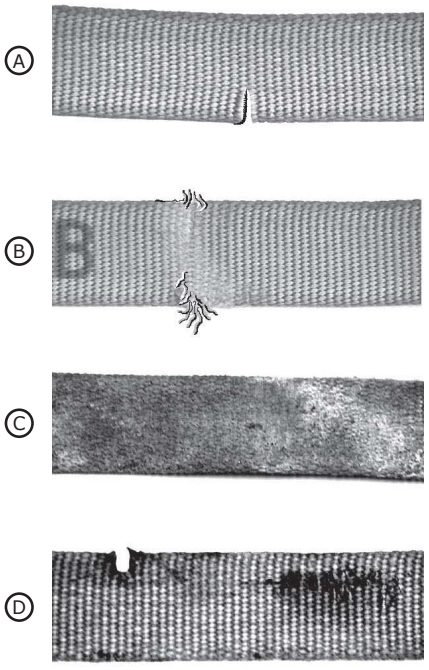	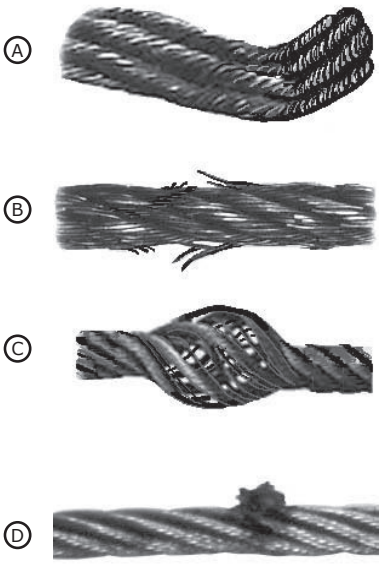	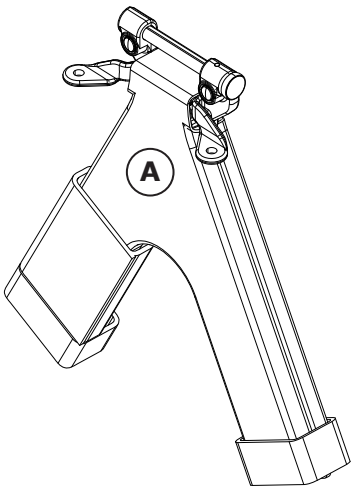

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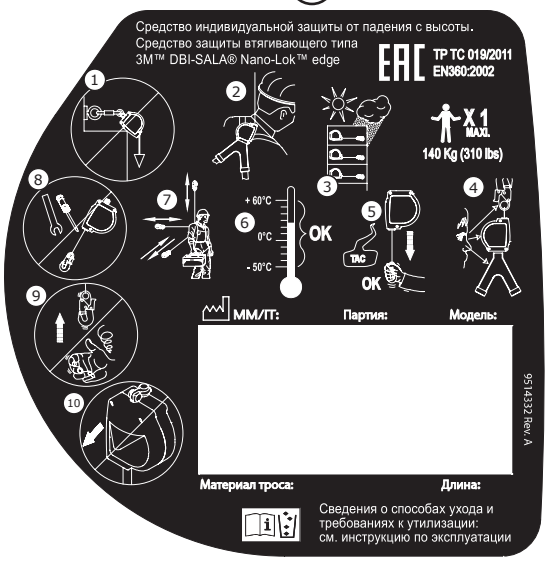

Средство индивидуальной защиты от падения с высоты.
Средство защиты втягивающего типа
3M™ DBI-SALA® Nano-Lok™ edge
TP TC 019/2011
EN360:2002
X 1 MAX.
140 Kg (310 lbs)
+ 60°C
0°C
- 50°C
OK
TAC
OK
ММ/ГГ:
Партия:
Модель:
95143332 Rev. A
Материал троса:
Длина:
Сведения о способах ухода и требованиях к утилизации: см. инструкцию по эксплуатации

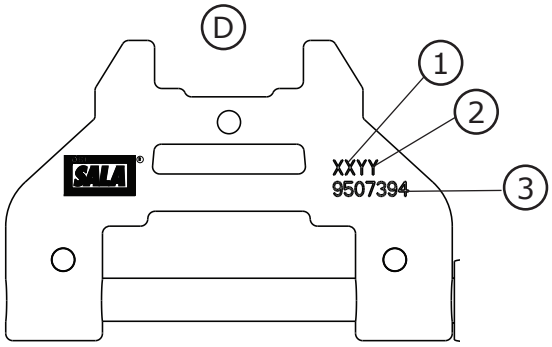
B


3M
DBI SALA
Nano-Lok™
edge

C


3M
DBI SALA
Nano-Lok™
edge

D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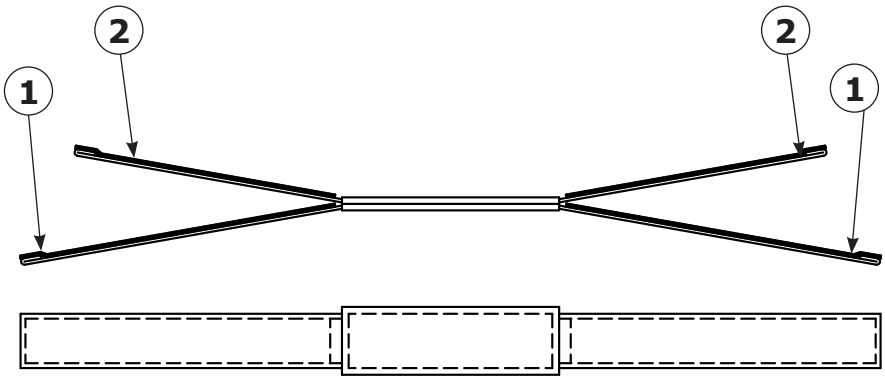
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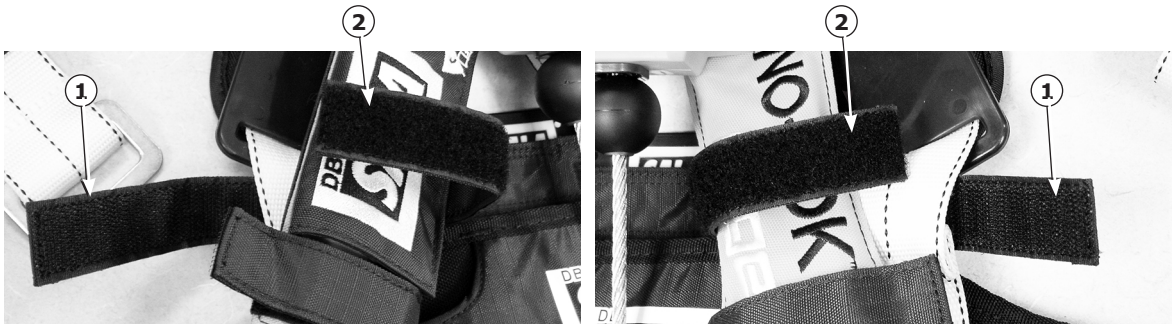

C

EN

SAFETY INFORMATION

Please read, understand, and follow all safety information contained in these instructions prior to the use of this Self-Retracting Device (SRD). FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

These instructions must be provided to the user of this equipment. Retain these instructions for future reference.

Intended Use:

This Self-Retracting Device is intended for use as part of a complete personal fall protection system.

Use in any other application including, but not limited to, material handling, recreational or sports related activities, or other activities not described in the User Instructions, is not approved by 3M and could result in serious injury or death.

This device is only to be used by trained users in workplace applications.

! WARNING

This Self-Retracting Device is part of a personal fall protection system. It is expected that all users be fully trained in the safe installation and operation of their personal fall protection system. **Misuse of this device could result in serious injury or death.** For proper selection, operation, installation, maintenance, and service, refer to these User Instructions including all manufacturer recommendations, see your supervisor, or contact 3M Technical Services.

- **To reduce the risks associated with working with an SRD which, if not avoided, could result in serious injury or death:**
  - Before each use, inspect the SRD and check for proper locking and retraction.
  - If inspection reveals an unsafe or defective condition, remove the device from service and repair or replace according to the User Instructions.
  - If the SRD has been subjected to fall arrest or impact force, immediately remove the SRD from service and label the device 'UNUSABLE'.
  - Ensure the lifeline is kept free from any and all obstructions including, but not limited to; entanglement with moving machinery or equipment (e.g., the top drive of oil rigs), other workers, yourself, surrounding objects, or impact from overhead objects that could fall onto the lifeline or the worker.
  - Never allow slack in the lifeline. Do not tie or knot the lifeline.
  - Attach the unused leg(s) of the Harness Mounted SRD to the parking attachment(s) of the harness if equipped.
  - Do not use in applications that have an obstructed fall path. Working on slowly shifting material, such as sand or grain, or within confined or cramped spaces, may not allow the worker to reach sufficient speed to cause the SRD to lock. A clear path is required to assure positive locking of the SRD.
  - Avoid sudden or quick movements during normal work operation. This may cause the device to lock up.
  - Ensure that fall protection systems/subsystems assembled from components made by different manufacturers are compatible and meet the requirements of applicable standards, including the ANSI Z359 or other applicable fall protection codes, standards, or requirements. Always consult a Competent and/or Qualified Person before using these systems.

- **To reduce the risks associated with working at height which, if not avoided, could result in serious injury or death:**
  - Ensure your health and physical condition allow you to safely withstand all of the forces associated with working at height. Consult with your doctor if you have any questions regarding your ability to use this equipment.
  - Never exceed allowable capacity of your fall protection equipment.
  - Never exceed maximum free fall distance of your fall protection equipment.
  - Do not use any fall protection equipment that fails pre-use or other scheduled inspections, or if you have concerns about the use or suitability of the equipment for your application. Contact 3M Technical Services with any questions.
  - Some subsystem and component combinations may interfere with the operation of this equipment. Only use compatible connections. Consult 3M prior to using this equipment in combination with components or subsystems other than those described in the User Instructions.
  - Use extra precautions when working around moving machinery (e.g. top drive of oil rigs) electrical hazards, extreme temperatures, chemical hazards, explosive or toxic gases, sharp edges, or below overhead materials that could fall onto you or your fall protection equipment.
  - Use Arc Flash or Hot Works devices when working in high heat environments.
  - Avoid surfaces and objects that can damage the user or equipment.
  - Ensure there is adequate fall clearance when working at height.
  - Never modify or alter your fall protection equipment. Only 3M or parties authorized in writing by 3M may make repairs to the equipment.
  - Prior to use of fall protection equipment, ensure a rescue plan is in place which allows for prompt rescue if a fall incident occurs.
  - If a fall incident occurs, immediately seek medical attention for the worker who has fallen.
  - Do not use a body belt for fall arrest applications. Use only a Full Body Harness.
  - Minimize swing falls by working as directly below the anchorage point as possible.
  - If training with this device, a secondary fall protection system must be utilized in a manner that does not expose the trainee to an unintended fall hazard.
  - Always wear appropriate personal protective equipment when installing, using, or inspecting the device/system.

☑ *Before using this equipment, record the product identification information from the ID label in the 'Inspection and Maintenance Log' at the back of this manual.*

☑ *Always ensure you are using the latest revision of your 3M instruction manual. Visit the 3M website or contact 3M Technical Services for updated manuals.*

☑ *If the product is resold outside of the original country of destination, the reseller should provide instructions for use, maintenance, periodic examination, and repair in the language of the country in which the product is to be used.*

DESCRIPTION:

Figure 2 identifies key components of the 3M™ DBI-SALA® Nano-Lok Edge Self-Retracting Devices (SRDs). Nano-Lok Edge SRDs are personal fall arrest devices including drum wound Lifelines (J) with an in-line Energy Absorber (I) that retracts into a Nylon Housing (H). A Harness Interface (G) allows attachment to a Full Body Harness and Hook and Loop Straps (K) stabilize the Energy Absorber to the Full Body Harness. Figure 1 identifies available Nano-Lok Edge models and their Connector (L) configurations. See Table 1 for Nano-Lok Edge SRD and Connector specifications.

Nano-Lok Edge cable lifeline SRDs in model groups A and B (See Figure 1) meet the Type B Edge test requirements for the VG 11.54 revision 6 Standard.

Type B Edge Definition: A steel edge made of a sharp-edged drawn square steel bar in accordance with EN 10278:1999-12 without radii (material C 45+C or E 335 GC (ST60) pursuant to EN 10025). Due to this test, the equipment may be used over similar edges, as can be found e.g. trapezoid sheet metal.

Table 1 – Specifications

Component Specifications:

SRL Housings	Nylon
Internal Components	Stainless Steel, Alloy Steel, Aluminum & Nylon
Lifeline	Cable Lifeline: 3/16" 7x19 Galv
Energy Absorber	Cover: Nylon, Web: Vectran/Polyester, Stitching: Polyester Thread
Harness Interface	Aluminum Frame, Stainless Steel Pin

Connector Specifications:

	Description	Model Number	Material	Gate Opening	Gate Strength	Tensile Strength
(1)	Rebar Hook	2007153	Aluminum	57 mm (2-1/4 in)	1 kN (225 lbs)	22.2 kN (5,000 lbs)

Performance Specifications:

Capacity Range	59 kg - 140 kg (130 lbs - 310 lbs)
Maximum Arresting Force	6 kN (1,350 lbs)
Average Arresting Force	4 kN (900 lbs)
Maximum Arresting Distance	2 m (6.6 ft)
Maximum Free Fall Distance Allowed	1.5 m (5 ft)
Minimum Fall Clearance	2.8 m (9.2 ft) when anchored overhead, 4.6 m (15.1 ft) when falling over an edge.
Temperature Range	- 50°C up to + 60°C
Minimum Edge Radius	0.0 mm for VG 11.54

1 Free Fall: *Correct application of the SRL, with the user working directly below the anchorage point and no lifeline slack, will eliminate Free Fall. Free Fall should be limited to 2 ft (0.6 m) where the user is not directly under the anchorage point or minimal slack exists in the lifeline.*

1.0 APPLICATIONS

1.1 PURPOSE: Self-Retracting Devices (SRDs) are designed to be a component in a personal fall arrest system (PFAS). Figure 1 illustrates SRDs covered by this instruction manual. They may be used in most situations where a combination of worker mobility and fall protection is required (i.e. inspection work, general construction, maintenance work, oil production, confined space work, etc.).

1.2 STANDARDS: Your SRD conforms to the national or regional standard(s) identified on the front cover of these instructions. Refer to the local, state, and federal (OSHA) requirements governing occupational safety for additional information regarding Personal Fall Protection.

1.3 TRAINING: This equipment is intended to be used by persons trained in its correct application and having qualification in accordance with requirements of local regulation. It is the responsibility of the user to assure they are familiar with these instructions and are trained in the correct care and use of this equipment. Users must also be aware of the operating characteristics, application limits, and the consequences of improper use.

1.4 LIMITATIONS: Always consider the following limitations when installing or using this equipment:

- **Capacity:** SRDs are for use by one person with a combined weight (clothing, tools, etc.) meeting the *Capacity Range* specified in Table 1. Make sure all of the components in your system are rated to a capacity appropriate to your application.
- **Anchorage:** Anchorage structure for the SRD must be capable of supporting loads at a maximum of 12 kN (2,697 lbs). Anchor devices must conform to EN795 or other applicable anchorage connector standards.
- **Locking Speed:** Situations which do not allow for an unobstructed fall path should be avoided. Working in confined or cramped spaces, or on a sloped surface, may not allow the body to reach sufficient speed to cause the SRD to lock if a fall occurs. Working on slowly shifting material, such as sand or grain,may not allow enough speed buildup to cause the SRD to lock. A clear path is required to assure positive locking of the SRD.
- **Free Fall:** When anchored overhead, SRDs will limit the free fall distance to 0.6 m (2 ft.)[1]. To avoid increased fall distances, anchor the SRD directly above the work level. Never attach the SRD to an anchor point that will create a free fall greater than 1.5 m (5 ft). Avoid working where your lifeline may cross or tangle with the lifeline of another worker. Avoid working were an object may fall and strike the lifeline; resulting in loss of balance or damage to the lifeline. Do not allow the lifeline to pass under arms or between legs. Never clamp, knot, or prevent the lifeline from retracting or being taut. Avoid slack line. **Do not lengthen SRDs by connecting a lanyard or similar component without consulting 3M.**
- **Swing Falls:** Swing Falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object in a swing fall may cause serious injury (see Figure 3A). Minimize swing falls by working as directly below the anchorage point as possible (Figure 3B). Working away from the anchorage point (Figure 3C) will increase the impact of a swing fall and increase the required Fall Clearance (FC).
- **Fall Clearance:** Figure 3B illustrates Fall Clearance Calculation. Fall Clearance (FC) is the sum of Free Fall (FF), Deceleration Distance (DD) and a Safety Factor (SF): FC = FF +DD + SF. D-Ring Slide and Harness Stretch are included in the Safety Factor. Fall Clearance values have been calculated and are charted in Figure 4. A Safety Factor of 1 m (3.28 ft) was used for all values in Figure 4.

  Figure 4 illustrates Fall Clearance (FC) based on the Horizontal (H) and Vertical (V) distance between the dorsal SRD connection and the anchorage point. Each horizontal grid line on the chart(s) represents vertical distance from the anchorage point. Each vertical grid line represents horizontal distance from the anchorage point. The Fall Clearance value (FC) is determined by the zone (parabolic lines) in which the Horizontal (H) and Vertical (V) grid lines intersect. The example in Figure 4 shows how to determine the required Fall Clearance value (FC) for the stated Vertical (V) and Horizontal (H) distances.

  ☑ ***Variable Anchor Points:*** *Fall Clearances in Figure 4 are based on a rigid, stationary anchor point. If anchoring to a Horizontal Lifeline (HLL) or anchor point that can move, slide, or deform during a fall, the Fall Clearance values from Figure 4 will not apply. Refer to the instructions for the HLL or anchor for additional details regarding required fall clearances, deflections, and/or deformation.*

  ☑ ***Kneeling or Crouching:*** *The Clearance Charts in Figure 4 assume the worker is in a standing position, with the SRD anchored above the dorsal D-ring. If the worker will be kneeling or crouching, an additional 0.9 m (3 ft) of Fall Clearance is required.*

  ☑ ***Never Anchor below the feet:*** *Never connect to an anchorage point below your feet.*
- **Hazards:** Use of this equipment in areas where surrounding hazards exist may require additional precautions to reduce the possibility of injury to the user or damage to the equipment. Hazards may include, but are not limited to: high heat, caustic chemicals, corrosive environments, high voltage power lines, explosive or toxic gases, moving machinery, or overhead materials that may fall and contact the user or fall arrest system. Avoid working where your lifeline may cross or tangle with that of another worker. Avoid working where an object may fall and strike the lifeline; resulting in loss of balance or damage to the lifeline. Do not allow the lifeline to pass under arms or between legs.
- **Sharp Edges:** Avoid working where the lifeline will be in contact with or abrade against unprotected sharp edges. Where contact with the lifeline is unavoidable, cover the edge with a protective material.

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1 ***Free Fall:*** *Correct application of the SRD, with the user working directly below the anchorage point and no lifeline slack, will eliminate Free Fall. See Figure 4 for acceptable anchorage locations.*

2.0 System Use

2.1 FALL PROTECTION AND RESCUE PLAN: The employer must have a Fall Protection and Rescue Plan. The plan should provide guidelines and requirements for an employer's managed fall protection program, including policies, duties and training; fall protection procedures; eliminating and controlling fall hazards; rescue procedures; incident investigations; and evaluating program effectiveness.

2.2 INSPECTION FREQUENCY: SRDs shall be inspected by the authorized person[1] or rescuer[2] before each use (See Table 3). Additionally, inspections shall be conducted by a competent person[3] other than the user. Extreme working conditions (harsh environment, prolonged use, etc.) may necessitate more frequent competent person inspections. The competent person shall use the *Inspection Schedule (Table 2)* to determine appropriate inspection intervals. Inspection procedures are described in the *Inspection & Maintenance Log (Table 3)*. Results of the Competent Person inspection should be recorded in the *Inspection and Maintenance Log* or recorded with the Radio Frequency Identification (RFID) system.

2.3 NORMAL OPERATIONS: Normal operation will allow the lifeline to extend and retract with no hesitation or slack as the worker moves at normal speeds. If a fall occurs, a speed sensing brake system will activate, stopping the fall and absorbing much of the energy created. Sudden or quick movements should be avoided during normal work operation, as this may cause the SRD to lock up. For falls which occur near the end of the lifeline travel, a reserve lifeline system or Energy Absorber has been incorporated to reduce the fall arrest forces.

2.4 BODY SUPPORT: A Full Body Harness must be used with the Self-Retracting Device. The harness connection point must be above the user's center of gravity. A body belt is not authorized for use with the Self-Retracting Device. If a fall occurs when using a body belt it may cause unintentional release or physical trauma from improper body support.

2.5 COMPATIBILITY OF COMPONENTS: Unless otherwise noted, 3M equipment is designed for use with 3M approved components and subsystems only. Substitutions or replacements made with non approved components or subsystems may jeopardize compatibility of equipment and may affect safety and reliability of the complete system.

2.6 COMPATIBILITY OF CONNECTORS: Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented. Contact 3M if you have any questions about compatibility. Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 22.2 kN (5,000 lbs). Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage (see Figure 5). Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required. If the connecting element to which a snap hook or carabiner attaches is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner (A). This force may cause the gate to open (B), allowing the snap hook or carabiner to disengage from the connecting point (C).

2.7 MAKING CONNECTIONS: Snap hooks and carabiners used with this equipment must be self-locking. Ensure all connections are compatible in size, shape, and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked. 3M connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 6 for examples of inappropriate connections.

Do not connect snap hooks and carabiners**:**

A. To a D-ring to which another connector is attached.

B. In a manner that would result in a load on the gate. Large throat snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates, unless the snap hook is equipped with a 16 kN (3,600 lb) gate.

C. In a false engagement, where size or shape of the mating connectors are not compatible and, without visual confirmation, the connectors seem fully engaged.

D. To each other.

E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).

F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.

G. In a manner that does not allow the connector to align properly while under load.

Table 2 – Inspection Schedule

Type of Use	Application Examples	Conditions of Use	Inspection Frequency Competent Person
Infrequent to Light	Rescue and Confined Space, Factory Maintenance	Good Storage Conditions, Indoor or Infrequent Outdoor Use, Room Temperature, Clean Environments	Annually
Moderate to Heavy	Transportation, Residential Construction, Utilities, Warehouse	Fair Storage Conditions, Indoor and Extended Outdoor Use, All Temperatures, Clean or Dusty Environments	Semi-Annually to Annually
Severe to Continuous	Commercial Construction, Oil and Gas, Mining	Harsh Storage Conditions, Prolonged or Continuous Outdoor Use, All Temperatures, Dirty Environment	Quarterly to Semi-Annually

1 ***Authorized Person:*** *A person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard.*
2 ***Rescuer:*** *Person or persons other than the rescue subject acting to perform an assisted rescue by operation of a rescue system.*
3 ***Competent Person:*** *An individual designated by the employer to be responsible for the immediate supervision, implementation, and monitoring of the employer's managed fall protection program who, through training and knowledge, is capable of identifying, evaluating, and addressing existing and potential fall hazards, and who has the employer's authority to take prompt corrective action with regard to such hazards.*

2.8 SELF-RETRACTING DEVICES WITH LEADING EDGE (SRD-LE): The SRDs covered by this instruction manual include Self-Retracting Devices with Leading Edge capabilities (SRD-LEs). See Figure 1 for specific SRD-LE models. SRD-LEs were tested for horizontal use and falls over a steel edge without burrs. SRD-LEs may be used in situations where a fall may occur over steel edges, such as found on steel shapes or metal sheeting.

Leading Edge Precautions: Observe the following precautions when using SRD-LEs:

- The allowable angle of redirection of the lifeline portion of the SRD-LE at the edge over which a fall might occur (measured between the two sides formed by the redirected lifeline) shall be at least 90 degrees (see Figure 7).
- The anchor point shall be situated at the same height as the edge at which a fall might occur or above the edge. Anchor points below the edge are dangerous because they cause the lifeline to redirect at an angle sharper than 90 degrees (see Figure 7).
- Consult Section 1 for limitations to the allowable work area relative to the anchorage point, including factors such as swing fall and abrasion on the line at the edge and the use of a single anchor point versus anchors that allow horizontal movement (e.g., Horizontal Lifeline or Horizontal Rail).
- SRD-LEs may be used with a Horizontal Lifeline or Horizontal Rail only as instructed in the product instructions for the Horizontal Lifeline or Horizontal Rail.
- Do not work on the far side of an opening opposite the SRD-LE anchorage point.
- In the event of a fall over the edge, special rescue measures may be required.
- When planning your Leading Edge application, be sure work area parameters are within the Minimum Setback Distance, Maximum Free Fall Distance, and Minimum Fall Clearance Required when Falling Over an Edge as indicated on the SRD-LE labeling.

Leading Edge Fall Clearance Calculation: The Minimum Fall Clearance Required when Falling Over an Edge can be calculated based on the Setback Distance and Distance Along the Edge of your Leading Edge application (see Figure 8). To calculate Fall Clearance from the table in Figure 8:

1. Select the value closest to your Setback Distance (A) in the left-side row headings.
2. Select the value closest to your working Distance Along the Edge (B) from the top column headings.
3. The Clearance Required when Falling Over an Edge (C) will be the value listed at the intersection of the row selected in Step 1 and the column selected in Step 2.
4. Repeat the previous steps for every edge over which the worker could potentially fall to determine safe placement of anchorage and allowable Work Radius.

3.0 Installation

3.1 **PLANNING:** Plan your fall protection system before starting your work. Account for all factors that may affect your safety before, during, and after a fall. Consider all requirements and limitations defined in Section 2.

3.2 **ANCHORAGE:** Figures 11 illustrates typical SRD anchorage connections. Select an anchorage location with minimal free fall and swing fall hazards (see Section 1). Select a rigid anchorage point capable of sustaining the static loads defined in Section 1. Where anchoring overhead is not feasible, Nano-Lok SRDs may be secured to an anchorage point below the level of the user's Dorsal D-Ring. For users up to 140 kg (310 lbs), the anchorage point must not be more than 1.5 m (5 ft) below the Dorsal D-Ring (below feet/sole).

3.3 **HARNESS MOUNTING:** Nano-Lok Edge SRDs include an interface for mounting on a Full Body Harness just below the Dorsal D-ring. The worker can then connect the lifeline end of the SRD to anchorage points located thoughout the work site. To mount the Nano-Lok Edge SRD on a Full Body Harness (see Figure 10):

☑ Some Full Body Harnesses are equipped with a Personal SRD Link (PSRD Link) that integrates the Dorsal D-Ring with attachment elements for Harness Mounted Self-Retracting Devices *(Figure 9).*

1. **Loosen the Harness Webbing:** Pull out on both Shoulder Straps (A) where they pass through the bottom of the Dorsal D-Ring (B) until there is sufficient space to slide the locking pin between the Shoulder Straps and Back Pad.
2. **Open the Harness Interface:** Push down on the Locking Buttons (C) simultaneously and slide the Locking Pin (D) out.
3. **Insert the Locking Pin Through the Shoulder Straps:** With the Locking Buttons (C) facing out and Locking Pin facing up, insert the Detent Pin (D) of the Harness Interface (E) behind both Shoulder Straps (A) and lock in place. Pull the shoulder Straps back through the Dorsal D-Ring and Back Pad to remove slack.
4. **Connect Hook and Loop Straps around the Shoulder Straps:** Open the hook and loop straps (F) located on the bottom of the Energy Absorber Pack. Wrap the hook and loop straps around the Shoulder Straps and secure.

☑ *The Red Band on the knob end of the Harness Interface Locking Pin will be exposed if the Harness Interface is unlocked. To avoid accidental release of the connection, always make sure the Harness Interface is locked before using the Harness and attached SRD. Failure to do so could result in injury or death.*

5. **Alternate Attachment Strap:** The Nano-Lok Edge SRD Attachment Strap (3100184), can be used as an alternative means of securing the bottom of the Nano-Lok Edge Pack when the harness geometry precludes the use of the integral hook and loop straps. (See figure 20) and refer to Placement Instructions below.

A. Placement Instructions: Figure 20A, shows the Nano-Lok Edge SRD Attachment Strap.

1. Note that the Nano-Lok Edge SRD Attachment Strap uses hook and loop closures: Hook ends (1), loop ends (2).
2. Position Attachment Strap hook ends (1) under the harness shoulder straps and loop ends (2) over energy absorber covers as shown (Figure 20B).
3. Wrap loop straps over energy absorber cover and harness shoulder straps. Secure snugly with hoop straps.

☑ *First time or infrequent users of Self-Retracting Devices (SRDs) should review the "Safety Information" at the beginning of this manual prior to use of the SRD.*

4.0 Use

4.1 **BEFORE EACH USE:** Before each use of this fall protection equipment carefully inspect it to assure it is in good working condition. Check for worn or damaged parts. Ensure all bolts are present and secure. Check that the lifeline is retracting properly by pulling out the line and allowing it to slowly retract. If there is any hesitation in retraction the unit should be removed from service and destroyed. Inspect the lifeline for cuts, frays, burns, crushing and corrosion. Check locking action by pulling sharply on the line. See the Inspection and Maintenance Log (Table 3) for inspection details. Do not use if inspection reveals an unsafe condition.

☑ *If the risk assessment carried out before the start of the work shows that the edge is very cutting and, or, free of burrs; relevant measures should be taken before the start of the work to prevent a drop over the edge, an edge protection should be mounted, or the manufacturer should be contacted.*

4.2 **AFTER A FALL:** Any equipment which has been subjected to the forces of arresting a fall or exhibits damage consistent with the effect of fall arrest forces as described in Table 3, must be removed from service immediately and destroyed.

4.3 **BODY SUPPORT:** A full body harness must be worn when using SRDs.

4.4 **MAKING CONNECTIONS:** Figure 11 illustrates harness and anchorage connections for SRD Fall Arrest Systems. When using a hook to make a connection, ensure roll-out cannot occur (see Figure 5). Do not use hooks or connectors that will not completely close over the attachment object. Do not use non-locking snap hooks. The anchorage must meet the anchorage strength requirements stated in Section 1. Follow the manufacturer's instructions supplied with each system component.

4.5 OPERATION: Prior to use, inspect the SRD as described in Section 2.2 and the schedule in Table 2. Figure 11 shows system connections for typical SRD applications. Connect the SRD on the back of a Full Body Harness per the instructions in Section 3. Connect the Hook (D) or Carabiner to a suitable anchorage. Ensure connections are compatible in size, shape, and strength. Ensure hooks are fully closed and locked. Once attached, the worker is free to move about within the recommended working area at normal speeds. If a fall occurs the SRD will lock and arrest the fall. Upon rescue, remove the SRD from use. When working with an SRD, always allow the lifeline to recoil back into the device under control.

4.6 TWIN SRD INTERFACE 100% TIE-OFF: When two SRDs are mounted side-by-side on the back of a Full Body Harness, the SRD Fall Arrest System can be used for continuous fall protection (100 % tie-off) while ascending, descending, or moving laterally (see Figure 11B). With the Lanyard Leg of one SRD attached to an anchorage point, the worker can move to a new location, attach the unused Lanyard Leg of the other SRD to another anchorage point, and then disconnect from the original anchorage point. The sequence is repeated until the worker reaches the desired location. Considerations for Twin SRD 100% tie-off applications include the following:

- Never connect both SRD Lanyards to the same anchorage point. (See Figure 12a)
- Connecting more than one connector into a single anchorage (ring or eye) can jeopardize compatibility of the connection due to interaction between connectors and is not recommended.
- Connect each SRD Lanyard to a separate anchorage point. (See Figure 12b)
- Each connection location must independently support 2,248 lbs (10 kN) or be an engineered system, as with a Horizontal Lifeline.
- Never connect more than one person at a time to the Twin SRD system. (See Figure 12c)
- Do not allow the Lanyards to become tangled or twisted together as this may prevent them from retracting.
- Do not allow any lanyard to pass under arms or between legs during use.

4.7 HORIZONTAL SYSTEMS: In applications where the SRD is used in conjunction with a horizontal system (i.e. Horizontal Lifeline, Horizontal I-Beams Trolley), the SRD and horizontal system components must be compatible. Horizontal systems must be designed and installed under the supervision of a qualified engineer. Consult the horizontal system equipment manufacturer's instructions for details.

5.0 Inspection

5.1 INSPECTION FREQUENCY: The Self-Retracting Device must be inspected at the intervals defined in Section 2. Inspection procedures are described in the *"Inspection & Maintenance Log" (Table 3)*.

☑ *Extreme working conditions (harsh environments, prolonged use, etc.) may require increasing the frequency of inspections (see Table 2).*

5.2 UNSAFE OR DEFECTIVE CONDITIONS: If inspection reveals an unsafe or defective condition, remove the SRD from service immediately and dispose (see Section 6).

☑ *After equipment has been removed from service, it may not be returned to service until a Competent Person confirms in writing it is acceptable to do so.*

5.3 PRODUCT LIFE: The functional life of 3M Self-Retracting Devices is determined by work conditions and maintenance. As long as the product passes inspection criteria, it may remain in service within maximum product life. The maximum product life of a SRD with cable lifelines is 10 years from the date of first use.

6.0 MAINTENANCE, SERVICE, AND STORAGE

6.1 **CLEANING:** Cleaning procedures for the SRD are as follows:

- Periodically clean the exterior of the SRD using water and a mild soap solution. Position the SRD so excess water can drain out. Clean labels as required.
- Clean the Lifeline with water and mild soap solution. Rinse and thoroughly air dry. Do not force dry with heat. The lifeline should be dry before allowing it to retract into the housing. An excessive buildup of dirt, paint, etc., may prevent the lifeline from fully retracting back into the housing causing a potential free fall hazard.

6.2 **SERVICE:** SRDs are not repairable. If the SRD has been subjected to fall force or inspection reveals an unsafe or defective condition, remove the SRD from service and discard (see *"Disposal"*).

6.3 **STORAGE/TRANSPORT:** Store and transport SRDs in a cool, dry, clean environment out of direct sunlight. Avoid areas where chemical vapors may exist. Thoroughly inspect the SRD after any period of extended storage. Storage is unlimited.

6.4 **DISPOSAL:** Dispose of the SRD if it has been subjected to fall arrest forces or inspection reveals an unsafe or defective condition. Before disposing of the SRD, cut the lifeline in half or otherwise disable the SRD to eliminate the possibility of inadvertent reuse. Dispose of in accordance with the requirements of the Federal Law of the Russian Federation "on production waste and consumption" or local legislation. Must not be disposed together with household garbage.

☑ *Remove all attached RFID Tags before disposing of this product. RFID Tags must be disposed of according to the restrictions specified in Section 7.*

7.0 RFID Tag

7.1 **LOCATION:** 3M product covered in these user instructions is equipped with a Radio Frequency Identification (RFID) Tag. RFID Tags may be used in coordination with an RFID Tag Scanner for recording product inspection results. See Figure 13 for where your RFID Tag is located.

7.2 **DISPOSAL:** Prior to disposing of this product, remove the RFID Tag and dispose/recycle in accordance with local regulations. For more information, please visit our website: *http://www.3M.com/FallProtection/RFID*

8.0 LABELS

Figure 19 illustrates labels on the Self-Retracting Devices and their locations. All labels must be present on the SRD. Labels must be replaced if they are not fully legible.

Ⓐ	
	Read instructions.
	Information about methods of maintenance and methods of recycling.
	Maximum user weight: 1 user, user weight (including clothing, tools, etc.) should not exceed 140 kg.
	Date of manufacture (indicated on the components of the product and / or on the packaging in the format MM / YY).
LOT	Batch/Lot number
REF	Model/Part number
	The packaging is not intended to come into contact with food.
	Possibility of utilization of the used packaging.
G	Galvanized Steel
SS	Stainless Steel
①	Do not place the SRD housing on an edge during use.
②	Correct way of connecting SRD to harness.
③	Store and transport SRDs in a cool, dry, clean environment out of direct sunlight.
④	Inspect the device before use.
⑤	Inspect locking of the SRD before use.
⑥	Temperature usage range.
⑦	May be connected to an anchorage point above, below, or level with the dorsal D-Ring (140 kg maximum).
⑧	Do not repair.
⑨	Always allow the lifeline to recoil back into the SRD housing under control.
⑩	Do not remove labels.

Ⓑ	Single Unit
Ⓒ	Twin Unit
Ⓓ	Harness Interface Stampings. XX=Year Manufactured (1), YY=Heat Lot/Batch Code (2), Supplier Part Number (3).

Table 3 – Inspection and Maintenance Log

Serial Number(s):	**Date Purchased:**
Model Number:	**Date of First Use:**

Inspection Date:	**Inspected By:**

Component:	**Inspection:** (See Section 2 for *Inspection Frequency*)	**Pass**	**Fail**
SRD (Figure 14)	Inspect for loose fasteners and bent or damaged parts.	☐	☐
	Inspect the Housing (A) for distortion, cracks, or other damage.	☐	☐
	Inspect the Harness Interface (C) for distortion, cracks, or other damage. The interface should pivot freely.	☐	☐
	The Web or Cable Lifeline (B) should pull out and retract fully without hesitation or creating a slack line condition.	☐	☐
	Ensure the SRD locks up when the Lifeline is jerked sharply. Lockup should be positive with no slipping.	☐	☐
	All labels must be present and fully legible (see Figure 19).	☐	☐
	Inspect the entire SRD for signs of corrosion.	☐	☐
	Inspect the Harness Locking Pin (D) to ensure it is securely closed and locked around the harness shoulder straps.	☐	☐
	Inspect the Hook and Loop Straps (E) for excessive wear.	☐	☐
End Connectors (Figure 15)	Table 2 identifies the End Connectors that should be included on your Nano-Lok SRD model. Inspect all Snap Hooks, Carabiners, Rebar Hooks, Interfaces, etc. for signs of damage, corrosion, and proper working condition. Where present: Gates (A) should open, close, lock, and unlock properly.	☐	☐
Web Lifelines (Figure 16)	Inspect Webbing and/or Rope Lifelines; material must be free of cuts (A), frays (B), or broken fibers. Check for tears, abrasions, heavy soiling (C), mold, burns (D), or discoloration. Inspect stitching; Check for pulled or cut stitches. Broken stitches may be an indication that the Energy Absorber has been impact loaded and must be removed from service.	☐	☐
Wire Rope Lifelines (Figure 17)	Inspect wire rope for cuts, kinks (A), broken wires (B), bird-caging (C), welding splatter, (D) corrosion, chemical contact areas, or severely abraded areas. Slide the cable bumper up and inspect ferrules for cracks or damage and inspect the wire rope for corrosion and broken wires. Replace the wire rope assembly if there are six or more randomly distributed broken wires in one lay, or three or more broken wires in one strand in one lay. A "lay" of wire rope is the length of wire rope it takes for a strand (the larger groups of wires) to complete one revolution or twist along the rope. Replace the wire rope assembly if there are any broken wires within 1 inch (25 mm) of the ferrules.	☐	☐
Energy Absorber (Figure 18)	Verify that the integral Energy Absorber has not been activated. An open cover or torn cover (A), webbing pulled out of the cover, torn or frayed webbing, ripped stitching, etc. are indicators of an activated Energy Absorber.	☐	☐

		Next Inspection Due:
Corrective Action/Maintenance:	Approved By:	
	Date:	
Corrective Action/Maintenance:	Approved By:	
	Date:	
Corrective Action/Maintenance:	Approved By:	
	Date:	
Corrective Action/Maintenance:	Approved By:	
	Date:	
Corrective Action/Maintenance:	Approved By:	
	Date:	
Corrective Action/Maintenance:	Approved By:	
	Date:	
Corrective Action/Maintenance:	Approved By:	
	Date:	

EAC	Personal protective equipment against falls from a height. 3M™ DBI-SALA® Nano-Lok™ edge Self Retracting Lifelines, models 3500266, 3500267 have been certified in accordance with requirements of Technical Regulation of Customs Union TP TC 019/2011 "Safety of personal protective equipment".

- Name and legal address of manufacturer: «3M Fall Protection», 3833 Sala Way, Red Wing, Minnesota 55066, USA («3M Фол Протекшен», 3833 Сала Уэй, Рэд Уинг, Миннесота 55066, Соединенные Штаты)
- Manufacturing country: USA (Соединенные Штаты)
- Country of origin: USA (Соединенные Штаты)
- Manufacturing date is indicated on the product

The manufacturer's authorized person on the territory of the EAEU:

АО «3М Россия»
108811, Россия, г. Москва, п. Московский,
Киевское ш., 22-й км, домовл. 6, стр. 1
Тел.: 8 800 250 84 74
Тел.: +7 (495) 784 7474 (многоканальный)
Факс: +7 (495) 784 7475
www.3MRussia.ru
3M.com/FallProtection

МЕЖДУНАРОДНЫЕ ГАРАНТИЙНЫЕ ОБЯЗАТЕЛЬСТВА НА ИЗДЕЛИЕ, ЧАСТИЧНОЕ ВОЗМЕЩЕНИЕ УЩЕРБА И ОГРАНИЧЕНИЕ ОТВЕТСТВЕННОСТИ

ГАРАНТИЯ: НАСТОЯЩАЯ ГАРАНТИЯ ЗАМЕНЯЕТ ВСЕ ДРУГИЕ ГАРАНТИИ, ЯВНЫЕ ИЛИ ПОДРАЗУМЕВАЕМЫЕ, ВКЛЮЧАЯ ГАРАНТИИ КОММЕРЧЕСКОГО УСПЕХА ИЛИ ПРИГОДНОСТИ ДЛЯ КАКОЙ-ЛИБО КОНКРЕТНОЙ ЦЕЛИ.

Если иное не предусмотрено местным законодательством, на системы для защиты от падения компании 3M распространяется гарантия на отсутствие заводских дефектов изготовления и материалов сроком на один год с момента установки или первого использования первоначальным владельцем.

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