User Instructions

V-TEC® Personal Fall Limiter (PFL)

Fall Protection

Order No.: VTOHW01-95CN (GB)(EN), VTOHW01-95OL/02 (Online)(Online)
Print Spec.:10000005389 (EO)
CR: 800000064354

WARNING!

These instructions must be provided to users before use of the product and retained for ready reference by the user. Read this manual carefully before using or maintaining the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed, and persons who rely on this device could sustain serious injury or death.

The warranties made by MSA with respect to the product are voided if the product is not installed and used in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions.

Please read and observe the WARNINGS and CAUTIONS inside. For additional information relative to use or repair, call 1-800-MSA-2222 during regular working hours.

The Safety Company

MSA - The Safety Company
1000 Cranberry Woods Drive
Cranberry Township, PA 16066
USA
Phone: 1-800-MSA-2222
Fax: 1-800-967-0398

For your local MSA contacts, please go to our website www.MSAsafety.com

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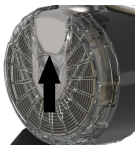
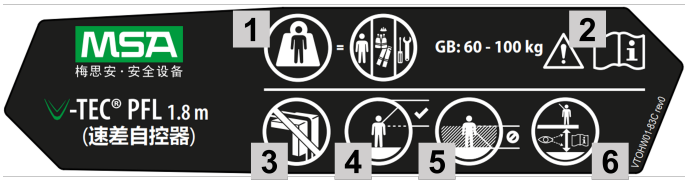
1 Labels and Icons

Non-Leading Edge Icon

Scannable RFID



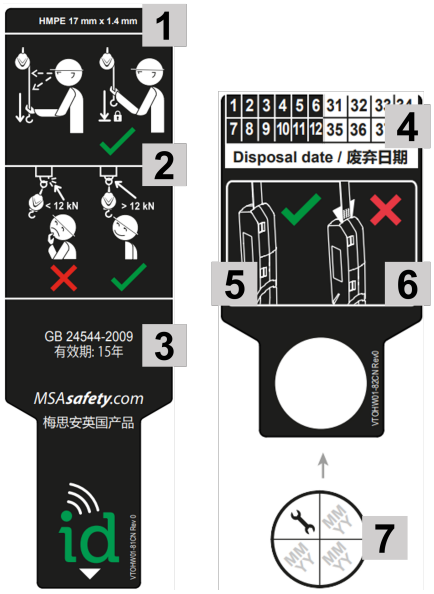
Serial Number, Part Number, Date of Manufacture



1	Capacity, including user, clothing, and tools.	4	Tie off above D-ring permitted.
2	**WARNING!** Read and understand instruction manual before use.	5	Tie off below D-ring NOT permitted.
3	Do NOT user over an edge.	6	Refer to instruction manual for fall clearance chart.[1]

1 - See Section 6 Fall Clearance Charts for details.

1.1 Product Details and Warnings



1	Lifeline construction	5	Load indicator **NOT** deployed
2	Product warning	6	Load indicator deployed, **DO NOT USE**
3	Standard	7	Date of next examination
4	Disposal date		

2 Safety Regulations

⚠ WARNING!

User Requirements

- Users of Personal Fall Limiters (PFLs) shall be medically fit and suitably trained.
- PFLs shall not be used by pregnant women, minors or those under the influence of alcohol or drugs.
- For single user only, within the weight range 130–220 lbs (60–100 kg) including user, clothing, and tools.

Anchor Requirements/Swing Fall/Fall Clearance

- The anchorage must be capable of supporting the required load. See Section 3 Product Specification for details on anchorage strength.
- Ensure that the available fall clearance is equal to or greater than the fall clearance shown in Section 6 Fall Clearance Charts.
- Remove any surface contamination such as, but not limited to, concrete, stucco, roofing material, etc. that could accelerate cutting or abrading of attached components.
- For use in accordance with acceptable locations as shown in Section 6 Fall Clearance Charts. The user shall consider any risks posed by swing falls.
- Swing falls can increase fall distance. For this overhead product, the user must work directly under the anchorage. Increasing the horizontal offset will increase the amount of swing fall. Always remove obstructions in or adjacent to the fall path. Keep work area free from debris, obstructions, trip hazards, spills, or other hazards which could impair the safe operation of the fall protection system. DO NOT use the device unless a qualified person has inspected the workplace and determined that swing fall hazards have been eliminated or exposures to them prevented.

Product Use

- PFLs are only to be used for their intended purpose and within their limitations. DO NOT intentionally misuse this product. DO NOT use fall protection equipment for purposes other than those for which it was designed. DO NOT use fall protection equipment for towing, hoisting, or material handling.
- PFLs shall not be altered or added to. No unauthorized repairs, modifications, alterations and/or additions are permitted.
- RESCUE AND EVACUATION: the user must have a rescue plan and the means at hand to implement it. The plan must take into account the equipment and specific training necessary to affect prompt rescue under all foreseeable conditions. It is recommended to provide means for user evacuation without assistance of others. This will usually reduce the time to get to a safe place and reduce or prevent the risk to rescuers.
- DO NOT rely on feel or sound to verify proper connector engagement. Ensure the connector is closed before use.
- Additional lanyard connectors shall not be added, as this would serve to lengthen the lifeline and increase free fall.
- Unsuitable for use on unstable surfaces, fine grain materials or particulate surfaces such as sand or coal, as insufficient speed may prevent lock-on in the event of a fall (possible engulfment hazard).
- DO NOT use for horizontal (leading edge) applications. If the PFL web risks coming into contact with an edge during use or a fall, a leading edge product must be used. Failure to follow this warning could result in the webbing breaking in the event of a fall.
- PFLs shall not come into contact with hot surfaces (such as hot pipes), become entangled with moving machinery, or come into contact with electrical hazards (such as high voltage power lines).
- PFLs shall be protected from fire, acids, caustic solutions, or temperatures outside the range -40°F to 130°F (-40°C to 54°C).
- DO NOT leave the PFL installed in environments which could cause damage or deterioration to the product. Refer to the care details in Section 8 Cleaning and Storage and inspection details in Section 7 Pre-Use Checks and Periodic Examinations.

- Instructions shall be retained and provided to all users of PFLs in the language of the destination country, even when resold.
- DO NOT exceed the maximum fall arrest forces as specified by governing standards or subsystem components.
- Dual-connections shall only be made for the purposes of 100% tie-off transitions, if a dual connection is made for any other purpose, anchorages of different elevations must be utilized.
- Use of combinations of components or subsystems, or both, may affect or interfere with the safe function of the components or subsystems.

Inspection/Removing Product From Service

- PFLs that have arrested a fall or are unable to pass an inspection shall be tagged “UNUSABLE” and disposed of in accordance with local regulations.
- Due to the nature of some fall arrest events, it is possible for the energy absorber to not deploy. In the event that a PFL is subjected to fall arrest forces and the energy absorber does not deploy, the PFL still must be removed from service and marked as “UNUSABLE” until it has been destroyed.
- If the load indicator is deployed, immediately remove the PFL from service and mark it as “UNUSABLE” until it has been destroyed.

Failure to follow these warnings can result in serious personal injury or death.

3 Product Specification

PFL Materials, Web

Component	Standard Material
Case	Polycarbonate
Drum	Stainless Steel / Nylon
Chassis, Pawl, Swivel Assembly, Main Spring	Stainless Steel
Lifeline	2/3" (17 mm) wide / 0.06" (1.4 mm) thick HMPE
Connectors	Steel OR Aluminum

PFL Materials, Cable

Component	Standard Material
Case	Polycarbonate
Drum	Aluminum / Nylon
Chassis, Pawl, Swivel Assembly, Main Spring	Stainless Steel
Lifeline	5mm DIA Galvanized Steel Cable
Connectors	Steel OR Aluminum

4 Harness Attachment

⚠ WARNING!

DO NOT rely on feel or sound to verify proper connector engagement. Ensure the connector is closed before use.

Failure to follow this warning can result in serious personal injury or death.

4.1 Attach V-TEC Single Leg PFL to Harness

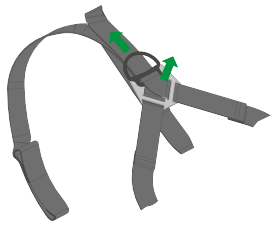
A V-TEC PFL may be connected to an approved full body harness by feeding the carabiner through the back D-ring of the harness. In these applications, the snaphook is connected to a suitable anchorage with the appropriate connecting

hardware.

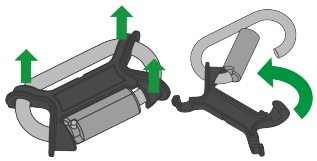
4.2 Attach V-TEC Twin Leg PFLs to Harness with V-TEC TwinLink Connector (Web PFLs Only)

A V-TEC TwinLink connector can be used to connect two V-TEC PFLs side-by-side on a full body harness just below the rear D-Ring or through the PFL tunnel. The V-TEC TwinLink connector shall only be used to connect a maximum of two V-TEC PFLs to the harness.*

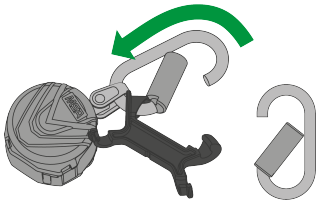
* The V-TEC TwinLink (minus the clip) may be used to attach directly to a full body harness D-ring.



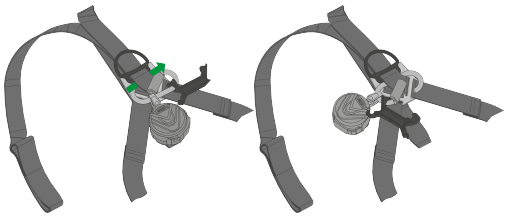
1. If harness has PFL tunnel—use PFL tunnel as connection point.



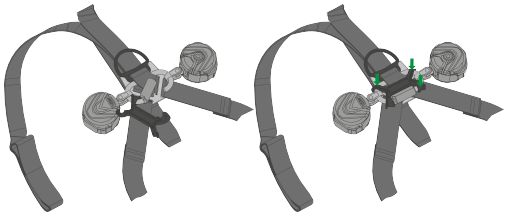
2. Unclip plastic divider on V-TEC TwinLink connector. Rotate, lift, and twist gate on carabiner. Push gate inward to open carabiner.



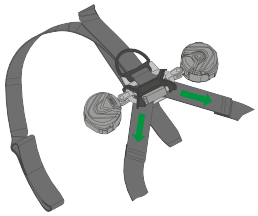
3. Feed carabiner through swivel eyelet on first V-TEC PFL.



4. Feed carabiner through PFL tunnel or behind both straps on harness.



5. Feed swivel eyelet of second V-TEC PFL onto carabiner and allow carabiner gate to snap shut. Rotate plastic divider and clip it into position to maintain separation of PFLs.



6. If harness has PFL tunnel—Installation complete.

   If harness does not have PFL tunnel—Pull harness straps back through dorsal pad to eliminate slack in webbing.

5 Installation and Use

5.1 Intended Use

PFLs are intended to be used as a connecting element between a full body harness and anchor point. See Section 3 Product Specification. A full body harness is the only acceptable body holding device to be used with a PFL. If supplied as part of a complete system, components shall not be substituted.

WARNING!

- PFLs are only to be used for their intended purpose and within their limitations. DO NOT intentionally misuse this product. DO NOT use fall protection equipment for purposes other than those for which it was designed. DO NOT use fall protection equipment for towing, hoisting, or material handling.
- PFLs shall not be altered or added to. No unauthorized repairs, modifications, alterations and/or additions are permitted.
- RESCUE AND EVACUATION: the user must have a rescue plan and the means at hand to implement it. The plan must take into account the equipment and specific training necessary to affect prompt rescue under all foreseeable conditions. It is recommended to provide means for user evacuation without assistance of others. This will usually reduce the time to get to a safe place and reduce or prevent the risk to rescuers.
- DO NOT rely on feel or sound to verify proper snaphook or carabiner engagement. Ensure that gate and keeper are closed before use.
- Additional lanyard connectors shall not be added, as this would serve to lengthen the lifeline and increase free fall.
- DO NOT use the PFL in leading edge applications.
- Unsuitable for use on unstable surfaces, fine grain materials or particulate surfaces such as sand or coal, as insufficient speed may prevent lock-on in the event of a fall (possible engulfment hazard).
- PFLs shall not come into contact with hot surfaces (such as hot pipes), become entangled with moving machinery, or come into contact with electrical hazards (such as high voltage power lines).
- PFLs shall be protected from fire, acids, caustic solutions, or temperatures outside the range -40°F to 130°F (-40°C to 54°C).

Failure to follow these warnings can result in serious personal injury or death.

5.2 General Installation and Use

Connectors: Ensure PFL connectors are compatible with the attachments to which they are connected (to prevent roll-out), and are fully closed and locked before use. See Section 3 Product Specification.

Anchors: Ensure the PFL is attached to a compatible anchor –flexible anchors, such as anchor lines, horizontal lifelines, rails, or cantilever structures can affect the ability of the V-TEC PFL to lock-on in the case of a fall. For further clarification on compatibility specifications, refer to the user instructions of the flexible anchor product. Should compatibility information not be included in the flexible anchor user instructions, contact the flexible anchor manufacturer for clarification.

Retraction: In use, the PFL lifelines will extract and retract without hesitation. Do not allow the lifeline to pass through legs or under arms, or wrap around structure. If the lifeline does not retract in use, fully extract the lifeline and slowly allow it to retract. If the lifeline continues to hesitate in retraction, contact MSA.

Twin Leg Connection: The PFL twin-leg configuration is intended to give users 100% tie-off when moving around the work site. One of the legs must be attached to an appropriate anchorage connector while the user moves to the new location. At the new location, attach the second leg to an appropriate anchorage connector before disconnecting the original leg. Repeat this process until the final destination has been reached. Do NOT work with both legs connected to an anchorage connector.

WARNING!

Dual-connections shall only be made for the purposes of 100% tie-off transitions, if a dual connection is made for any other purpose, anchorages of different elevations must be utilized.

Failure to follow this warning can result in serious personal injury or death.

Storage: When not in use, store with the lifeline fully retracted as prolonged periods of full extraction may weaken the retraction spring. Guide the lifeline back to the unit for full retraction. Do NOT release lifeline from a distance as it will retract at high speed, potentially damaging internal parts. The connector may also strike objects in its path, causing damage to those objects and to the connector. See Section 8 Cleaning and Storage for full cleaning and storage instructions.

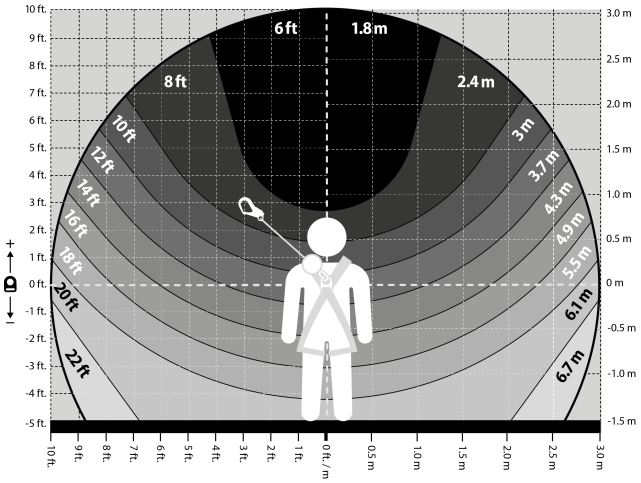
6 Fall Clearance Charts

6.1 V-TEC Fall Clearance Charts

1.8 m V-TEC PFL: 1.8 m / 6 ft Length

V-TEC Single PFL

V-TEC Twin PFL



Product: V-TEC PFL

Use: Non-leading edge applications

Capacity: ≤ 310 lbs (140 kg)

7 Pre-Use Checks and Periodic Examinations

The safety of the user relies upon the continued efficiency and durability of the equipment, therefore pre-use checks shall be completed before each use. See Table 1 Pre-Use Checks, for pre-use check information. Periodic examinations shall be completed by a person, other than the user, competent in the examination of PFLs, in accordance with the manufacturer's instructions. The interval will be dictated by the usage, local regulations, and environmental conditions, and will be at least annually (see Table 2 Periodic Examination Interval). A record shall be kept of the results of the examination.

Table 1 Pre-Use Checks

Pre-Use Checks	Method
Labels	Ensure labels are present and legible.
Examination Date	Ensure date of next examination has not elapsed. Ensure a periodic examination is not due as determined by a competent person. See Table 3, Periodic Examination Interval, and product's inspection grid.
General Condition and Lifeline (Web PFLs Only)	Examine for signs of excessive damage, wear, corrosion or contamination. Inspect the full length of lifeline and verify that it has no broken, frayed, cut, abraded, or missing threads. Verify there are no reductions in width or thickness of the lifeline. Verify there are no smooth, discolored, shiny, hardened, or glazed areas of the lifeline that indicate exposure to heat or chemicals.
General Condition and Lifeline (Cable PFLs Only)	Examine for signs of excessive damage, wear, corrosion or contamination. Inspect entire length of lifeline for kinks, bends, broken wires, bird caging, corrosion, damaged splices or damaged thimbles. Damage to the cable can significantly impact the performance. Verify there are no reductions in diameter of the lifeline.
Energy Absorber Housing	Ensure that the energy absorber is not protruding from the top, bottom, or sides of the housing. Check the housing connection points for signs of parting or cracking. Inspect for the ingress of harmful chemicals or materials.
Extraction and Retraction	Inspect lifeline extraction and retraction by pulling the full length of the line out and letting it retract back into the housing in a controlled manner. Maintain a light tension on the lifeline while it retracts. The line operation must be smooth and unhesitant.
Lock-on	Pull sharply on the lifeline – ensure device locks. Repeat three times.
Connectors	Check for correct operation of connector and connector gate.

Table 2 Periodic Examination Interval

Usage	Interval
Infrequent to light	Annually (12 months)
Moderate to heavy	Semi-annually to annually (6-12 months)
Severe to continuous	Quarterly to semi-annually (3-6 months)

Usage shall be determined by a competent person. A competent person is defined as a person, other than the user, competent in the examination of PPE in accordance with MSA instructions.

The V-TEC PFL is not repairable. Maximum product life: Continued use is dependent upon passing pre-use checks and periodic examinations. Service life may be reduced by frequency and conditions of use or local regulations.

⚠ WARNING!

- PFLs shall not be altered or added to. No unauthorized repairs, modifications, alterations and/or additions are permitted.
- PFLs that have arrested a fall or are unable to pass an inspection shall be tagged "UNUSABLE" and disposed of in accordance with local regulations.
- Due to the nature of some fall arrest events, it is possible for the load indicator to not deploy. In the event that a PFL is subjected to fall arrest forces and the energy absorber does not deploy, the PFL still must be removed from service and marked as "UNUSABLE" until it has been destroyed.
- If the energy absorber is deployed, immediately remove the PFL from service and mark it as "UNUSABLE" until it has been destroyed.

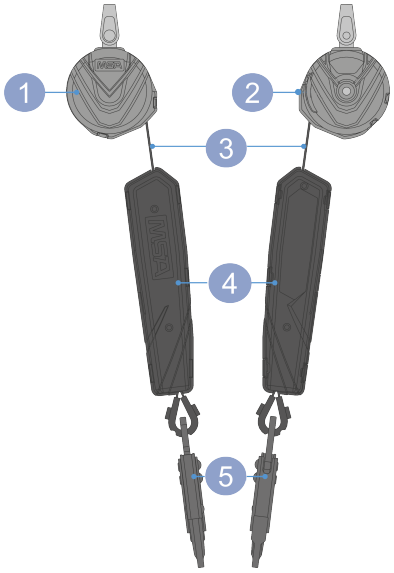
Failure to follow these warnings can result in serious personal injury or death.

Inspection Checklist

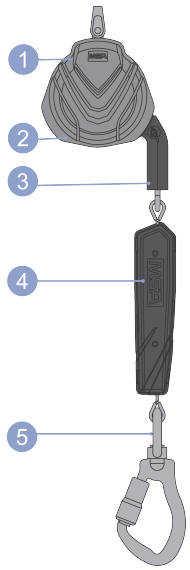
Model Number:		Serial Number:	
Date:		Inspector (Name / Signature):	
Date of Manufacture:		Date of Purchase:	
Date of First Use:		Date Due for Next Periodic Inspection:	

#	Description	Good—Safe for Use	Good—Safe for Use	Good—Safe for Use	Damaged, Worn, Altered, Missing—Remove from Service	Comments
1	Housing					
2	Labels					
3	Lifeline					
4	Energy absorber					
5	Connectors					
	Lock on (ensure device locks)					

V-TEC Web PFL



V-TEC Cable PFL



Hazards

Chemical hazards, heat and corrosion may damage the PFL. More frequent formal inspections are required in environments with chemical hazards, heat and corrosion. Use caution when working around moving machinery.

Chemical	Resistance			
	Nylon	Polyester	Stainless Steel (304)	Galvanized Steel
Strong acid (dilute)	Poor	Good	Fair	Poor
Strong acid (conc.)	Poor	Fair*	Poor	Poor
Weak acid (dilute)	Poor	Good	Good	Poor
Weak acid (conc.)	Poor	Good	Poor	Poor
Strong alkali (dilute)	Good	Poor	Good	Poor
Strong alkali (conc.)	Fair	Poor	Fair	Poor
Weak alkali (dilute)	Good	Fair	Good	Fair
Weak alkali (conc.)	Good	Poor	Fair	Poor
Alcohol	Good	Fair	Good	Good
Aldehyde	Good	Poor	Good	Good
Ether	Good	Poor	Good	Good
Halogenated Hydrocarbons	Good	Good	Good	Good
Phenols	Poor	Poor	Good	Good
Bleaching agents	Poor	Good	Fair	Poor
Ketones	Good	Poor	Good	Fair
Lubricating Oils & Greases	Good	Good	Good	Good
Soaps & Detergents	Good	Good	Good	Good
Seawater	Good	Good	Fair	Poor
Aromatic Solvents	Good	Poor	Good	Good

** Concentrated sulfuric acid attacks polyester.*

8 Cleaning and Storage

If required, the PFL exterior and lifelines may be cleaned using a damp cloth and warm water (max 40°C), and allowed to dry naturally before use. Excessive build-up of dirt, paint etc. can compromise both retraction and strength of the lifeline.

Store or transport the PFL in a cool, dry, clean environment, away from heat, steam, harmful fumes, corrosive agents, rodents, dust, oil, and direct sunlight. During transportation, the device shall be protected to prevent damage or contamination. Examine the PFL after long periods of storage prior to returning it to service.

Moving parts of snaphooks and carabiners may require periodic lubrication. Some mineral oils can have adverse effects on Polycarbonate, so it is recommended that silicon or PTFE-based lubricants are used, or care is taken to avoid contact between the lubricating oil and the PFL case.

Follow lubricant manufacturer’s instruction. Do not over-lubricate. Wipe excess with a clean, dry cloth.

9 Warranty

Express Warranty – MSA warrants that the product furnished is free from mechanical defects or faulty workmanship for a period of one (1) year from first use or eighteen (18) months from date of shipment, whichever occurs first, provided it is maintained and used in accordance with MSA's instructions and/or recommendations. Replacement parts and repairs are warranted for ninety (90) days from the date of repair of the product or sale of the replacement part, whichever occurs first. MSA shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own authorized service personnel or if the warranty claim results from misuse of the product. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the warranty concerning the goods sold under this contract. MSA makes no warranty concerning components or accessories not manufactured by MSA, but will pass on to the Purchaser all warranties of manufacturers of such components.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AND STRICTLY LIMITED TO THE TERMS HEREOF. MSA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Exclusive Remedy – It is expressly agreed that the Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of MSA, or for any other cause of action, shall be the repair and/or replacement, at MSA's option, of any equipment or parts thereof, that after examination by MSA are proven to be defective. Replacement equipment and/or parts will be provided at no cost to the Purchaser, F.O.B. Purchaser's named place of destination. Failure of MSA to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.

EXCLUSION OF CONSEQUENTIAL DAMAGES – PURCHASER SPECIFICALLY UNDERSTANDS AND AGREES THAT UNDER NO CIRCUMSTANCES WILL MSA BE LIABLE TO PURCHASER FOR ECONOMIC, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR LOSSES OF ANY KIND WHATSOEVER, INCLUDING BUT NOT LIMITED TO, LOSS OF ANTICIPATED PROFITS AND ANY OTHER LOSS CAUSED BY REASON OF THE NON-OPERATION OF THE GOODS. THIS EXCLUSION IS APPLICABLE TO CLAIMS FOR BREACH OF WARRANTY, TORTIOUS CONDUCT OR ANY OTHER CAUSE OF ACTION AGAINST MSA.

For additional information, please use your local contacts on our website www.MSAsafety.com.

用户说明

V-TEC® 迷你速差自控器 (PFL)

坠落保护

订单号：VTOHW01-95CN (GB)(EN), VTOHW01-95OL/02(在线)(在线)
印刷规格：10000005389 (EO)
CR：800000064354

⚠ 警告！

使用产品前须将本说明提供给用户，且应对其妥善保管，以方便用户随时参阅。使用或维护仪器前，请仔细阅读本手册。仅在按照制造商说明使用和维护时，设备才会按计划运行。否则其或将无法按设计运行，而依赖此装置确保安全的人员可能遭受重伤或死亡。

若未按照本手册的说明安装和使用产品，则 MSA 公司对该产品的质保承诺将失效。为保护您自身及您的员工，请按照说明操作。

请阅读并遵循手册中的“警告”和“注意”事项。如欲了解产品使用或修理的更多详细信息，请在工作日期间致电 1-800-MSA-2222。

The Safety Company

MSA - The Safety Company
1000 Cranberry Woods Drive
Cranberry Township, PA 16066
美国
电话：1-800-MSA-2222
传真：1-800-967-0398

更多您当地 MSA 公司的联系信息，请访问我们的网站 www.MSAsafety.com

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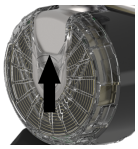
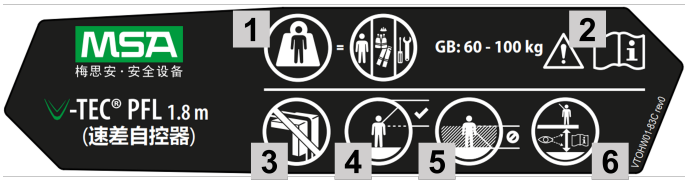
1 标签和图标

非边缘保护型指示图标

可扫描的 RFID 标签



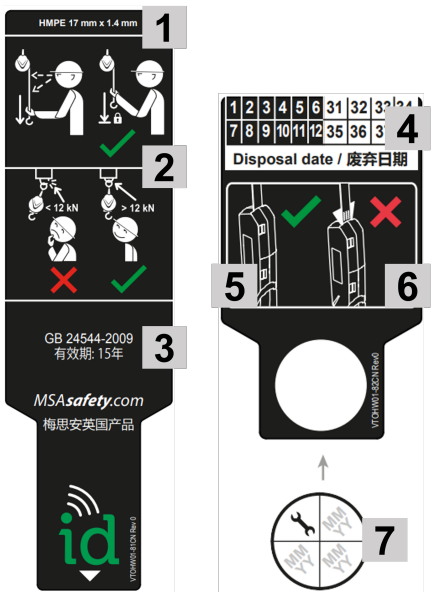
序列号、部件号和制造日期



1	载重，包括用户、服装和工具。	4	可在 D 形环上方安装跨接线。
2	**警告！** 请在使用前阅读并理解本说明手册。	5	禁止在 D 形环下方安装跨接线。
3	切勿在边缘处使用。	6	坠落间隙图表请参阅说明手册。[1]

1 - 如需了解详情，请参阅章节 6 坠落间距图表。

1.1 产品详情和警告



1	织带结构	5	**减**震装置完好。
2	产品警告	6	减震装置已受冲击并拉开，**请勿使用。**
3	标准	7	下次检查日期
4	处置日期		

2 安全法规

⚠ 警告!

用户要求

- 迷你速差自控器 (PFL) 的用户应身体健康并接受过适当培训。
- 孕妇、未成年人或受酒精或毒品影响的人不得使用 PFL。
- 仅限单个用户使用，包含用户、服装和工具的总载重范围为 130-220 lbs (60-100 kg)。

锚点要求/摆动坠落/坠落间距

- 锚点必须能够支撑所需负荷。请参阅章节 3 产品技术规格 了解关于锚点强度的详细信息。
- 确保可用坠落间距等于或大于章节 6 坠落间距图表 中所示的坠落间距。
- 清除可能加速附加组件割裂或磨损的所有表面污染(例如但不限于混凝土、灰泥和屋面材料等)。
- 根据章节 6 坠落间距图表 中所示的可接受位置规定使用该产品。用户应虑及摆动坠落造成的所有风险。
- 摆动坠落可令坠落间距增大。在使用该款高空产品时，用户必须直接在锚点下方作业。增加水平偏移量会加大摆动坠落的幅度。始终清除坠落路径当中或邻近的障碍物。保证工作区域中不存在可能影响坠落保护系统安全运行的碎屑、障碍物、绊倒危险、泄漏物或其他危险。除非合格人员已检查过工作场所，并确定已将摆动坠落危险排除或对其作出防范，否则请勿使用该设备。

产品用途

- PFL 仅在其限制范围之内用于预期用途。切勿故意误用本产品。切勿将坠落保护设备用于其设计用途以外的其他用途。切勿将坠落保护设备用于牵引、起重或搬运材料。
- 不得改装 PFL 或为其添加部件。不得对其进行未经授权的维修、修改、改装和/或为其添装部件。
- 救援和疏散：用户必须制定救援计划并准备好救援计划的实施工具。救援计划须配备并包含在所有可预见情况下迅速施以救援所需的设备及特殊培训。建议提供无其他人员协助的用户疏散方法。如此通常可减少到达安全场所的时间，并减少或防止施救方的风险。
- 请勿凭感觉或声音判断连接器的连接是否正确。在使用前确保连接器已闭合。
- 不得添加其他系索连接器，因为如此将延长织带并增加自由坠落风险。
- 不适用于不稳定的表面、细粒材料或微粒表面(例如沙子或煤炭)，因为速度不足或将令坠落过程中无法进行锁定(潜在坍陷危险)。
- 请勿用于水平(边缘保护型)应用。如果 PFL 织物在使用或坠落期间存在接触边缘的风险，则必须使用边缘保护类产品。未遵守上述警告或将导致在坠落过程中发生织带断裂的情况。
- PFL 不得接触灼热表面(如热管)、被卷入移动机械或接触具有电气危险性的部件(例如高压电源线)。
- 应避免 PFL 受到火源、酸性物质、腐蚀性溶液或从 -40°F 至 130°F(-40°C 至 54°C) 的外界温度的影响。
- 请勿在可能造成产品损坏或变质的环境中安装 PFL。请参阅章节 8 清洁和存储 中有关保养的详细信息和章节 7 使用前检查和定期检查 中的检查详细信息。
- 应保留采用目的国语言编写的说明书并将其提供给所有 PFL 用户，即便在转售时也是如此。
- 切勿超出管理标准或子系统组件指定的最大坠落制动力。
- 双重连接仅用于切换位置保持连接时。如果出于任何其他目的进行了双重连接，则必须使用不同高度的锚点。
- 使用组件或子系统的组合或将二者同时使用可能会影响或干扰组件或子系统的安全功能。

检查/停止使用产品

- 若 PFL 设备已经制止过坠落或者无法通过检查，应在其上加贴“UNUSABLE”(不可使用)标签并根据地方法规进行处置。
- 针对某些止坠事件，可依据其性质不安装吸能器。若 PFL 受到坠落制动力且未安装吸能器，则仍须停止使用 PFL 并在其上加贴“UNUSABLE”(不可使用)标签，直到其被销毁。
- 如果安装了负载指示器，请立即停止使用 PFL 并在其上加贴“UNUSABLE”(不可使用)标签，直到其被销毁。

未遵守上述警告可能导致严重的人身伤害甚至死亡后果。

3 产品技术规格

PFL 材料，织带

组件	标准材料
外壳	聚碳酸酯
轮毂	不锈钢/尼龙
底架、锁爪、旋转组件和主弹簧	不锈钢
织带	2/3" (17 mm) 宽/0.06" (1.4 mm) 厚的高模量聚乙烯 (HMPE)
连接器	钢制或铝制

PFL 材料、钢缆

组件	标准材料
外壳	聚碳酸酯
轮毂	铝/尼龙
底架、锁爪、旋转组件和主弹簧	不锈钢
织带	5 mm DIA 镀锌钢缆
连接器	钢制或铝制

4 安全带连接件

⚠ 警告！

请勿凭感觉或声音判断连接器的连接是否正确。在使用前确保连接器已闭合。

未遵守该警告可能导致严重的人身伤害甚至死亡后果。

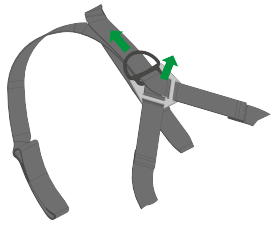
4.1 将 V-TEC 单腿 PFL 装到安全带上

通过将连接锁穿过安全带的背部 D 型环，可将 V-TEC PFL 连接至经认证的全身式安全带。在这些应用中，使用适当的连接件将挂钩连接至合适的锚点。

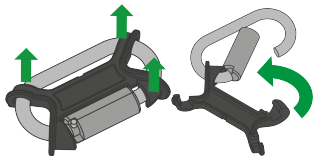
4.2 使用 V-TEC TwinLink 连接器将 V-TEC 双腿 PFL 连接至安全带(仅限 PFL 织物)

可使用 V-TEC TwinLink 连接器，在背部 D 型环正下方或通过 PFL 通道将两个 V-TEC PFL 并排连接至全身式安全带。V-TEC TwinLink 连接器仅可用于将至多两个 V-TEC PFL 连接至安全带。*

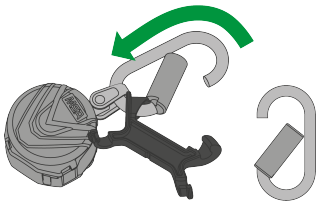
* 可使用 V-TEC TwinLink(去夹)直接连接至全身式安全带 D 形环。



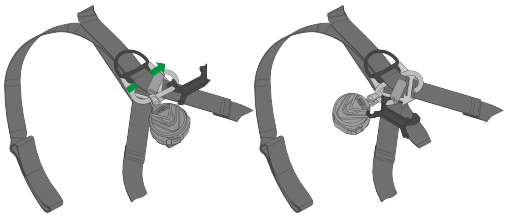
1. 如果安全带有 PFL 通道 - 请将 PFL 通道用作连接点。



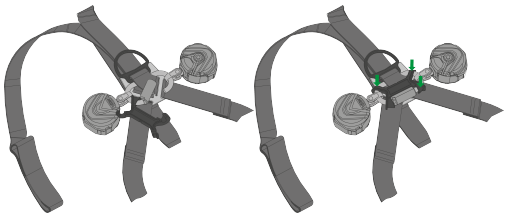
2. 松开 V-TEC TwinLink 连接器上的塑料隔板。旋转、提升并扭转连接锁的锁扣。向内推动锁扣，以打开连接锁。



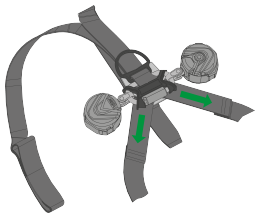
3. 将连接锁穿过首个 V-TEC PFL 上的旋转孔眼。



4. 将连接锁穿过 PFL 通道或安全带上两条肩带后部。



5. 将第二个 V-TEC PFL 的旋转孔眼穿到连接锁上，并将连接锁的锁扣闭合。旋转塑料隔板并将其夹到适当位置，使两 PFL 保持分离。



6. 如果安全带有 PFL 通道 - 安装完成。

   如果安全带无 PFL 通道 - 将安全带重新拉过背垫，以减少织带的松弛度。

5 安装和用途

5.1 预期用途

PFL 旨在用作全身式安全带与锚点之间的连接元件。请参阅章节 3 产品技术规格。全身式安全带是唯一一种可与 PFL 搭配使用的经认可的身体支撑装置。如果其作为完整系统的一部分提供，则不得替换其组件。

⚠ 警告！

- PFL 仅在其限制范围之内用于预期用途。切勿故意误用本产品。切勿将坠落保护设备用于其设计用途以外的其他用途。切勿将坠落保护设备用于牵引、起重或搬运材料。
- 不得改装 PFL 或为其添加部件。不得对其进行未经授权的维修、修改、改装和/或为其添装部件。
- 救援和疏散：用户必须制定救援计划并准备好救援计划的实施工具。救援计划须配备并包含在所有可预见情况下迅速施以救援所需的设备及特殊培训。建议提供无其他人员协助的用户疏散方法。如此通常可减少到达安全场所的时间，并减少或防止施救方的风险。

- 请勿凭感觉或声音验证安全钩或连接锁的连接是否正确。确保在使用前闭合锁扣。
- 不得添加其他系索连接器，因为如此将延长织带并增加自由坠落风险。
- 请勿将 PFL 用于边缘保护型应用。
- 不适用于不稳定的表面、细粒材料或微粒表面(例如沙子或煤炭)，因为速度不足或将令坠落过程中无法进行锁定(潜在坍陷危险)。
- PFL 不得接触灼热表面(如热管)、被卷入移动机械或接触具有电气危险性的部件(例如高压电源线)。
- 应避免 PFL 受到火源、酸性物质、腐蚀性溶液或从 -40°F 至 130°F(-40°C 至 54°C) 的外界温度的影响。

未遵守上述警告可能导致严重的人身伤害甚至死亡后果。

5.2 一般安装和用途

连接器：确保 PFL 连接器与其连接的附件相兼容(以防滑出)，且在使用之前为完全闭合锁定状态。请参阅章节 3 产品技术规格。

锚点：确保 PFL 连接至兼容的锚点 - 柔性锚点(例如锚索、水平生命线、轨道或悬臂结构)可在坠落时影响 V-TEC PFL 的锁定能力。如欲了解关于兼容性规范的详细说明，请参阅柔性锚点产品的用户说明。如果柔性锚点用户说明中未包括兼容性信息，请联系柔性锚点制造商获取详细说明。

回收：在使用期间，PFL 织带会发生迅速拉伸与回收。切勿令织带穿过腿间、臂下或是环绕某部位肢体。如果织带未在使用时回收，请完全拉出织带并令其缓慢收回。如果织带依旧回收缓慢，请联系 MSA。

双腿连接：PFL 双腿配置用于在用户围绕工作场所移动时为其提供 100% 的跨接线。在用户移动至新的位置时，必须将一腿连接至适当的锚点连接器。在新的位置，在断开先前一腿的连接前将第二条腿连接至适当的锚点连接器。重复该过程，直到到达最终目的地。切勿将双腿均连接至锚点连接器。

⚠ 警告！

双重连接仅用于切换位置保持连接时。如果出于任何其他目的进行了双重连接，则必须使用不同高度的锚点。

未遵守该警告可能导致严重的人身伤害甚至死亡后果。

存储：在未使用时，请在织带完全回收的状态下存储该装置，因为织带长时间完全拉伸可能会令回收弹簧的强度有所削弱。引导织带回到装置以进行完全回收。请勿从远处释放织带，因其可能发生高速回收，进而造成内部部件受损。连接器还可能撞击其路径上的物件，造成这些物件以及连接器损坏。有关完整的清洁和存储说明，请参阅章节 8 清洁和存储 。

6 坠落间距图表

6.1 V-TEC 坠落间隙图表

1.8 m V-TEC PFL: 1.8 m/6 ft 长

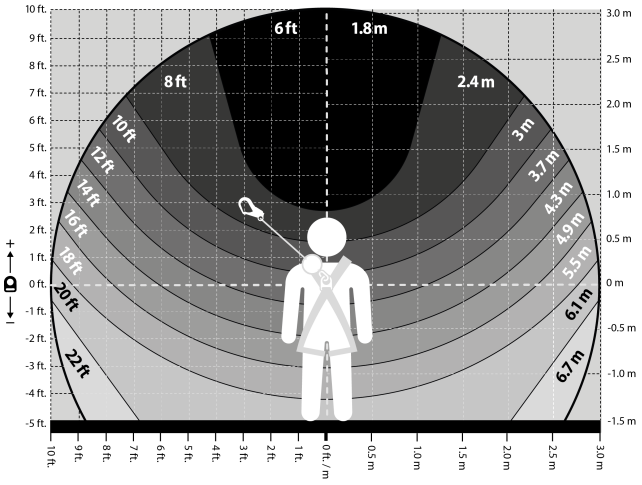
V-TEC 单腿 PFL

V-TEC 双腿 PFL

产品:V-TEC PFL

用途:非边缘保护型应用

载重: ≤ 310 lbs (140 kg)



7 使用前检查和定期检查

本产品的持续高效和耐用特性是用户安全的保障，因此，每次使用前均应进行使用前检查。有关使用前检查信息，请参见表 1“使用前检查”。应当由用户以外的某名有能力检查 PFL 的人员根据制造商的说明完成定期检查。定期检查时间间隔将视使用情况、当地法规及环境条件而定，每年至少应进行一次定期检查(参见表 2 定期检查时间间隔)。必须保留检查结果的记录。

表格 1使用前检查

使用前检查	方法
标签	确保标签清晰可辨。
检查日期	确保尚未超出下次检查日期。由合格人员确定定期检查未到期。请参阅表 3 定期检查时间间隔和产品检查表。
一般条件和织带(仅限 PFL 织带)	检查是否存在过度损坏、磨损、腐蚀或污染迹象。检查整根织带，确认不存在断开、剥落、割断、磨损或线头缺失的情况。确认织带的宽度或粗细未发生减少。确认织带上不存在因接触高温或化学品而呈现的光滑、褪色、发亮、变硬或釉质表面。
一般条件和织带(仅限 PFL 钢缆)	检查是否存在过度损坏、磨损、腐蚀或污染迹象。检查整条织带是否扭结、弯曲、断股、局部扭曲、腐蚀、接合处或套管是否破损。钢缆损坏可能会严重影响性能。确认织带的直径未发生减少。
吸能器外壳	确保吸能器未从外壳顶部、底部或侧面伸出。检查外壳连接点是否存在断裂或裂纹迹象。检查是否有有害化学品或材料进入外壳。
拉伸和回收	通过将绳索全部拉出并以受控方式让其回收到外壳中，检查织带的拉伸和回收情况。在织带回收时保证其承受轻微的张力。绳索操作必须平稳敏捷。
锁定	用力拉织带 - 确保设备可以锁定。重复三次。
连接器	检查是否正确操作了连接器和连接器锁扣。

表格 2定期检查时间间隔

使用情况	时间间隔
不常使用至少量使用	每年(12个月)
适度使用至大量使用	每半年至每年(6-12个月)
频繁使用至不间断使用	每季度至每半年(3-6个月)

使用情况应由合格人员确定。合格人员定义为除用户外能够根据 MSA 说明检查个人防护设备 (PPE) 的人员。

V-TEC PFL 不可维修。产品最大使用寿命:能否持续使用取决于是否经过了使用前检查和定期检查。使用寿命或根据使用频率、使用条件或地方法规差异而有所缩短。

⚠ 警告!

- 不得改装 PFL 或为其添加部件。不得对其进行未经授权的维修、修改、改装和/或为其添装部件。
- 若 PFL 设备已经制止过坠落或者无法通过检查,应在其上加贴“UNUSABLE”(不可使用)标签并根据地方法规进行处置。
- 由于某些止坠事件的性质,可不安装负载指示器。若 PFL 受到坠落制动力且未安装吸能器,则仍须停止使用 PFL 并在其上加贴“UNUSABLE”(不可使用)标签,直到其被销毁。
- 如果安装了吸能器,请立即停止使用 PFL 并在其上加贴“UNUSABLE”(不可使用)标签,直到其被销毁。

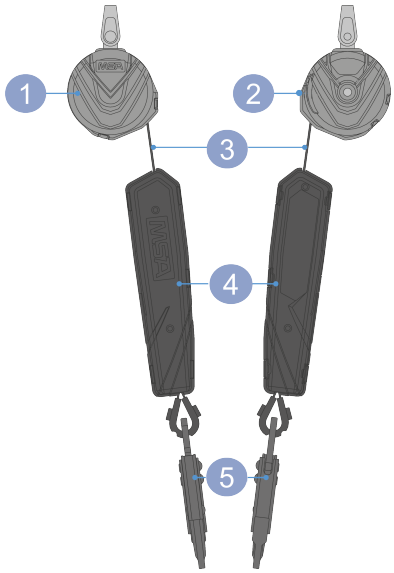
未遵守上述警告可能导致严重的人身伤害甚至死亡后果。

检查表

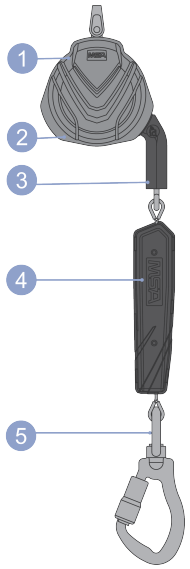
型号:		序列号:	
日期:		检查员(姓名/签名):	
制造日期:		购买日期:	
首次使用日期:		下次定期检查的预定日期:	

#	描述	良好 - 可安全使用	良好 - 可安全使用	良好 - 可安全使用	损坏、磨损、改动、缺失 - 停止使用	备注
1	外壳					
2	标签					
3	织带					
4	吸能器					
5	连接器					
	锁定(确保设备已锁定)					

V-TEC PFL 织带



V-TEC PFL 钢缆



危险

化学危险品、高温和腐蚀性物质可能会损坏 PFL。对于存在化学危险品、高温和腐蚀性物质的环境，应进行更加频繁的正规检查。在移动机械周围作业时，请放置警示牌。

化学	耐受性			
	尼龙	聚酯	不锈钢 (304)	镀锌钢
强酸(稀释)	差	良好	一般	差
强酸(高浓度)	差	一般*	差	差
弱酸(稀释)	差	良好	良好	差
弱酸(高浓度)	差	良好	差	差
强碱(稀释)	良好	差	良好	差
强碱(高浓度)	一般	差	一般	差
弱碱(稀释)	良好	一般	良好	一般
弱碱(高浓度)	良好	差	一般	差
酒精	良好	一般	良好	良好
醛	良好	差	良好	良好
乙醚	良好	差	良好	良好
卤代烃	良好	良好	良好	良好
酚类化合物	差	差	良好	良好
漂白剂	差	良好	一般	差
酮类	良好	差	良好	一般
润滑油和润滑脂	良好	良好	良好	良好
肥皂和洗涤剂	良好	良好	良好	良好
海水	良好	良好	一般	差
芳烃类溶剂	良好	差	良好	良好

**高浓度硫酸会腐蚀聚酯纤维。*

8 清洁和存储

可使用湿抹布和温水(最高 40°C)清洁 PFL 外表面及织带(如需要),静待其自然晾干后方可使用。织带上积尘过厚或附着油漆等物可能影响织带的收缩性能和强度。

在凉爽、干燥且洁净的环境中存储或运输 PFL,使其不受高温、蒸汽、有害烟气、腐蚀剂、动物啃噬、灰尘、油以及阳光直射的影响。运输过程中,应对本仪器加以保护,防止其损坏或遭受污染。若存放时间长,则先检查 PFL 产品,然后再投入使用。

安全钩和连接锁的移动零件或需定期润滑。某些矿物油可对聚碳酸酯造成不利影响,因此建议使用硅质或 PTFE 润滑剂,或小心避免润滑油与 PFL 外壳之间发生接触。

请务必遵照润滑剂制造商的说明使用。请勿过度润滑。用干净的干布擦除多余油脂。

9 质保

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