



## Frequently Asked Questions

**Q1: What is a temporary horizontal lifeline system?**

A1: A temporary horizontal lifeline (HLL) system is a fall protection anchorage system designed to attach to a suitable anchor. The stanchions of the system are commonly attached to a steel beam or concrete beam/girder. Stanchion-style systems include upright posts, or stanchions, that support a horizontal line. A worker, wearing a full-body harness and using a connecting device such as a shock-absorbing lanyard or self-retracting lifeline (SRL), connects to the lifeline of the system. The worker can then safely move horizontally.

**Q2: What is the new Miller SkyGrip Horizontal Lifeline System?**

A2: The new Miller SkyGrip Horizontal Lifeline System is an innovative, modular fall protection anchorage system designed for both steel I-beam and concrete applications. Available in single and multi-span configurations, the SkyGrip HLL provides workers with continuous fall protection and maximum horizontal mobility. The system is an economical solution for companies that work on projects with both steel applications as well as concrete applications. The system can easily be converted for either application by changing the bases of the stanchion posts.

**Q3: Why is it important to purchase a system from Miller vs. fabricating a system on-site?**

A3: The Miller SkyGrip Horizontal Lifeline System maximizes worker safety. The system has been engineered by experts in the industry, who understand amplification of fall arrest forces in horizontal lifeline systems and their effects on the system. The system has been tested in the most advanced horizontal lifeline testing facility in the world. Systems fabricated on-site do not go through the same design process, rigorous testing or quality control standards.

**Q4: What advantages does the Miller SkyGrip HLL System have over competitive systems in the market?**

A4: The new Miller SkyGrip HLL System offers many features not commonly available with other systems on the market. Several patent pending features are unique to the SkyGrip HLL System.

**Advantages of the SkyGrip HLL System for both steel and concrete applications include:**

- **Compact, stainless steel Miller SkyGrip Energy Absorber is engineered to keep system forces consistent during a fall** – minimizes fall clearance and maintains low system forces
- **Tension indicator** – proper tensioning of system ensures accurate fall clearance requirements
- **Interchangeable bases between steel and concrete applications** – modular design maximizes investment and increases versatility
- **Compact & lightweight** – provides for easier handling, installation and storage
- **Continuous pass-through design** – 100% tie-off connection with multi-span systems

- **Stanchions also serve as single-point anchorages** – provides an additional application to use the product in the field
- **Single-span systems** (no intermediate stanchions) up to 60 ft. (18.3m); **multiple-span systems** up to 300 ft. (91.4m)
- **Durable zinc-plated steel construction** – corrosion resistant for increased durability and longer service life

**Advantages of the SkyGrip HLL System specific to steel applications include:**

- **Quick-grip above-the-beam adjustment** – patent-pending design allows for easy one-person installation and dismantling, increasing safety and productivity
- **Low profile, all-steel construction beam extension bar** – reduces trip hazards while adding durability
- **Stanchions offset from the beam** – allow workers to move freely without having obstructions in their horizontal path
- **Two base/crossbar adjustment system** – accommodates wide range of steel beam sizes
- Systems accommodate up to six workers per system (2 workers per span) for steel applications

**Advantages of the SkyGrip HLL System specific to concrete applications include:**

- **Three methods of attachment include:** V-Grip rebar attachments, expansion anchor bolts and precast inserts
- **Flexible base attachment positioning** - bases can be positioned parallel or perpendicular to the beam
- **Patent pending Slider Bracket tensions tie-back chain** – assists with quick installation and minimizes fall clearance
- **Uniquely designed for angled adjustment** – swings out of the way when placing deck-pans between beams (common in bridge construction)
- Systems accommodate up to five workers per system (2 workers per span) for concrete applications

**Q5: How are the forces on the SkyGrip HLL reduced?**

A5: The SkyGrip System includes a compact stainless steel energy absorber engineered to keep system line forces consistently under 2,500 lbs. Consistent forces minimize fall clearance requirements and prevent application of excessive forces on system components. The SkyGrip energy absorber is especially designed to deliver consistent forces because two channels are machined into the inside of the stainless steel strap prior to coiling. If someone falls into the system, the energy absorber tears through the channel paying-out a couple of inches. This same action is repeated if multiple workers fall, always keeping the forces on the system consistently within engineered specifications.

**Q6: Why is the tension indicator such an important part of the SkyGrip System?**

A6: SkyGrip Systems are equipped with a tension indicator so you know when the system has been properly tensioned. Proper tensioning is important to safety since it affects fall clearance requirements. A system that is installed so that there is not enough tension in the line will increase fall clearance requirements. A system over-tensioned can exert excessive forces onto the stanchions.

**Q7: Why is the modular design of the SkyGrip System important?**

A7: The SkyGrip System offers an innovative modular design for maximum versatility. The stanchion posts can be easily interchanged between bases designed for steel applications and bases designed for concrete applications. This reduces cost as application needs change from job to job. A system designed for steel applications can easily be converted to concrete applications by changing the bases of the stanchions and adding a tie-back kit. Conversely, a system for concrete can easily be adapted to be used in a steel application by changing the stanchion bases.

**Q8: What steel beam sizes can be accommodated with the SkyGrip System?**

A8: The quick-grip base is available in two sizes that accommodate a wide range of beams. The *standard* size base accommodates beam flange widths from 4 inches to 18 inches and thicknesses up to 2-1/4 inches. The *large* size base accommodates beam flange widths from 12 inches to 36 inches and thicknesses from 2-1/4 up to 3-3/8 inches. The stanchion post can be used in either beam base. Larger bases can be requested through a special request.

**Q9: What methods of attachment are acceptable for concrete applications?**

A9: SkyGrip Systems for concrete applications offer three (3) methods of attachment: rebar, expansion anchor bolts and precast inserts. The innovative V-Grip rebar attachment mechanism provides a secure attachment to rebar which is superior to competitive systems. The SkyGrip System can be used with rebar size 4 (1/2 inch diameter) to size 11 (1-1/8 inch diameter). V-Grip attachment mechanisms are included with SkyGrip systems and bases for concrete applications. Alternative methods for attachment using the same base include expansion anchor bolts and precast inserts. The base of each stanchion and tie-back bracket includes two holes to accommodate these alternative attachment methods. Expansion anchor bolts and precast inserts are purchased separately.

**Q10: What requirements do concrete inserts and expansion anchor bolts need to meet for proper installation?**

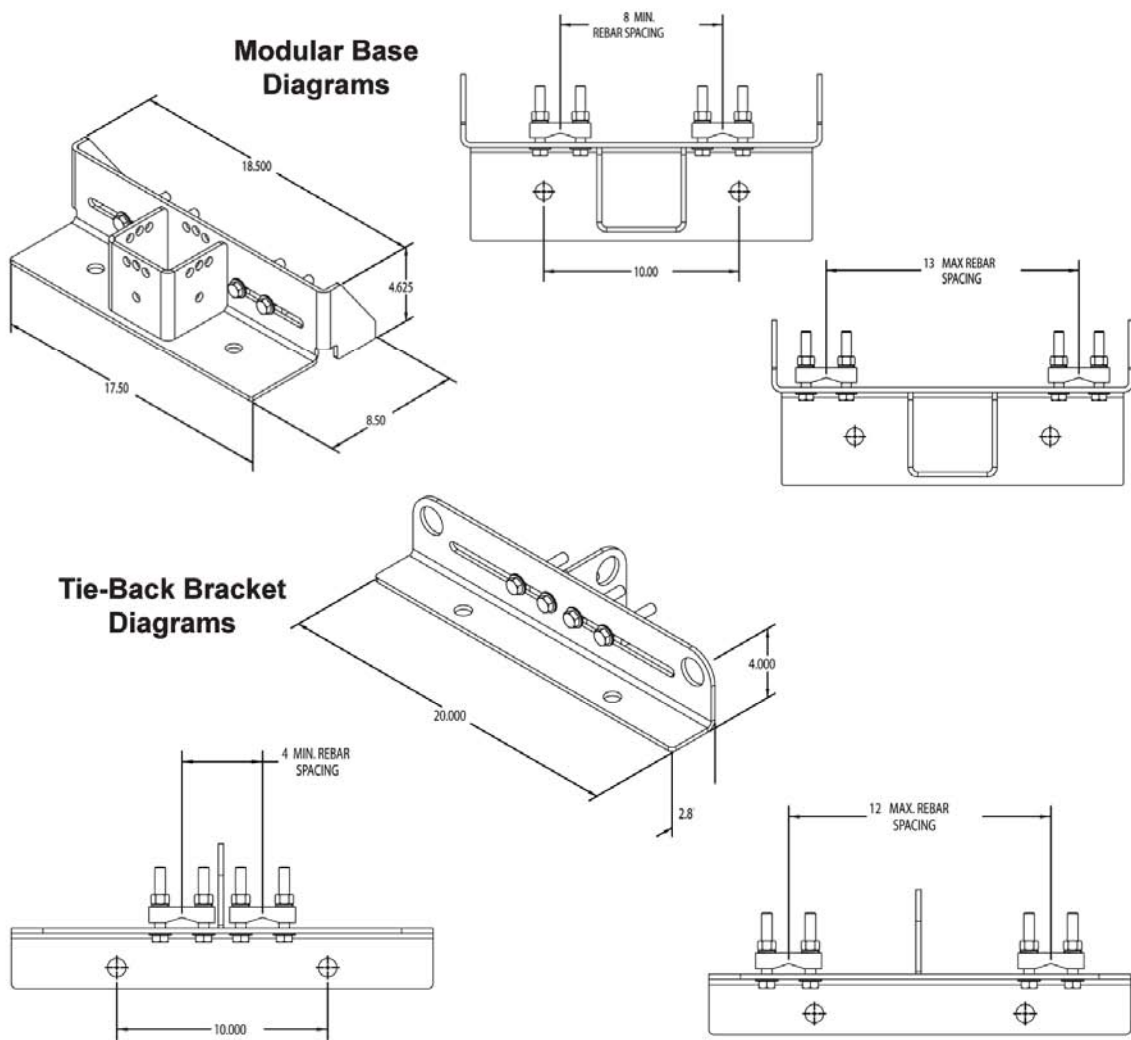
A10: Concrete mounting bases and tie-back brackets may also be installed using inserts such as the Dayton/Richmond (Dayton/Superior) B-18 Single-Flared Coil inserts. Specifications for these are 3/4" x 9" coil inserts. Manufacturer's instructions, installation procedures, and required specifications for coil inserts must be followed.

Another option for installing concrete mounting bases and tie-back brackets may also be installed using concrete expansion anchor bolts, such as the Hilti Kwik Bolt 3 Expansion Anchor, 3/4" x 4-3/4" length (Item No. 282517). This is a plated, carbon-steel 3/4-10 UNC bolt with 1-1/2" thread length. Manufacturer's instructions, installation procedures, and required specifications for expansion anchor bolts must be followed.

**Q11: What are the spacing requirements for rebar, expansion anchor bolts and concrete inserts?**

A11: Rebar spacing requirements are as follows:  
Minimum 8" rebar spacing; maximum 13" rebar spacing for modular stanchion base  
Minimum 4" rebar spacing; maximum 12" rebar spacing for tie-back bracket

Concrete expansion bolts and inserts should be set 10 inches apart, center-to-center.



**Q12: How does the slider bracket for concrete applications help with installation and fall clearance?**

A12: Systems for concrete applications include patent-pending, slider brackets for end stanchion heads. These brackets assist with quick installation. This innovative bracket design tensions the chain tie-back assembly connection automatically as the line is tensioned. This installation procedure keeps the tie-back taut which minimizes fall clearance requirements.

**Q13: What is the material construction of the SkyGrip HLL System?**

A13: The SkyGrip System has several components manufactured with different materials. The stanchions are constructed of high-strength, zinc-plated steel. The system includes a 3/8" galvanized wire rope lifeline and a 5/8" galvanized steel jaw & jaw turnbuckle. The Miller SkyGrip Energy Absorber is constructed of corrosion-resistant stainless steel.

**Q14: How many workers does the SkyGrip System accommodate?**

A14: The SkyGrip System can accommodate a maximum of six (6) workers when used in a steel application and a maximum of five (5) workers when used in a concrete application. A maximum of two (2) workers may be attached to a span (between two stanchions). For example:

- A 60-ft. system with two end stanchions is considered to be a single-span system and can accommodate two (2) workers.
- A 120-ft. system with one intermediate stanchion between two end stanchions has two spans and accommodates up to four (4) workers.
- A 180-ft. system has two intermediate stanchions, two end stanchions and four spans. A system for steel applications can accommodate up to six (6) workers. The same system configuration for concrete accommodates up to the maximum of five (5) workers per system.
- Both 240-ft. & 300-ft. systems accommodate up to six (6) workers for steel applications and five (5) workers for concrete applications [two (2) workers per span].

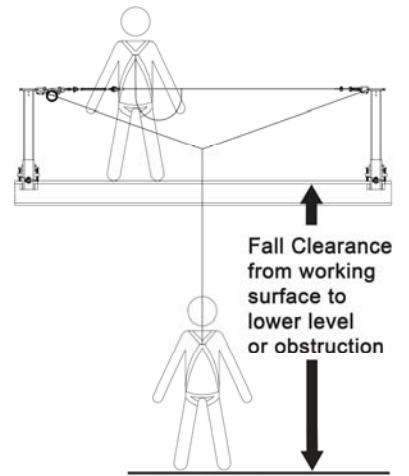
**Q15: What if additional workers are needed on shorter systems?**

A15: If additional workers need to be accommodated on a shorter system, stanchions can be purchased separately and added to the system, making certain that not more than six (6) workers per steel application or five (5) workers per concrete applications are on a system.

**Q16: What if additional workers are needed on longer systems?**

A16: Another option for accommodating additional workers to a specific horizontal working area is to add systems. For example:

- A 240-ft. long area and eight (8) workers: Rather than installing one 240-ft system which will accommodate up to six (6) workers for a steel application and five (5) workers for a concrete application, two 120-ft. systems can be installed that will accommodate a total of (8) workers.



**Q17: What is the fall clearance required, below the work surface, to ensure that a fallen worker does not make contact with a lower level?**

A17: Fall clearance calculations are based on the application of the system (steel or concrete mounted), length of span between stanchions, connecting device being used and the number of workers connected to the system within a span. Calculations are made from the working surface of the horizontal lifeline system. Sperian Fall Protection recommends that a 3ft (0.9m) safety factor is added to all fall clearance calculations.

<b>Total Fall Clearance Required* [ft.-in. (m)] for One or Two Workers Connected to Steel Mounted SkyGrip System (within a span)</b>										
Span Length [ft (m)]	Length of Lanyard								SRL/Fall Limiter**	
	3ft (.9m)		4ft (1.2m)		5ft (1.5m)		6ft (1.8m)			
	One Worker	Two Workers	One Worker	Two Workers	One Worker	Two Workers	One Worker	Two Workers	One Worker	Two Workers
0-10 (0-3m)	9'-8" (3m)	10'-8" (3.3m)	10'-8" (3.3m)	11'-8" (3.6m)	11'-8" (3.6m)	12'-8" (3.9m)	12'-8" (3.9m)	13'-8" (4.2m)	9'-8" (3m)	10'-8" (3.3m)
10-20 (3-6.1m)	10'-9" (3.3m)	11'-11" (3.6m)	11'-9" (3.6m)	12'-11" (3.9m)	12'-9" (3.9m)	13'-11" (4.2m)	13'-9" (4.2m)	14'-11" (4.6m)	10'-9" (3.3m)	11'-11" (3.6m)
20-30 (6.1-9.1m)	11'-8" (3.6m)	13'-2" (4m)	12'-8" (3.9m)	14'-2" (4.3m)	13'-8" (4.2m)	15'-2" (4.6m)	14'-8" (4.5m)	16'-2" (4.9m)	11'-8" (3.6m)	13'-2" (4m)
30-40 (9.1-12.2m)	12'-9" (3.9m)	14'-5" (4.4m)	13'-9" (4.2m)	15'-5" (4.7m)	14'-9" (4.5m)	16'-5" (5m)	15'-9" (4.8m)	17'-5" (5.3m)	12'-9" (3.9m)	14'-5" (4.4m)
40-50 (12.2-15.2m)	13'-8" (4.2m)	15'-8" (4.8m)	14'-8" (4.5m)	16'-8" (5.1m)	15'-8" (4.8m)	17'-8" (5.4m)	16'-8" (5.1m)	18'-8" (5.7m)	13'-8" (4.2m)	15'-8" (4.8m)
50-60 (15.2-18.3m)	14'-9" (4.5m)	17'-1" (5.2m)	15'-9" (4.8m)	18'-1" (5.5m)	16'-9" (5.1m)	19'-1" (5.8m)	17'-9" (5.4m)	20'-1" (6.1m)	14'-9" (4.5m)	17'-1" (5.2m)

**Total Fall Clearance Required\* [ft.-in. (m)] for One or Two Workers  
Connected to Concrete Mounted SkyGrip System (within a span)**

Span Length [ft (m)]	Length of Lanyard								SRL/Fall Limiter**	
	3ft (.9m)		4ft (1.2m)		5ft (1.5m)		6ft (1.8m)			
	One Worker	Two Workers	One Worker	Two Workers	One Worker	Two Workers	One Worker	Two Workers	One Worker	Two Workers
<b>0-10</b> (0-3m)	9'-8" (3m)	11' 4" (3.5m)	10'-8" (3.3m)	12' 4" (3.8m)	11'-8" (3.6m)	13' 4" (4m)	12'-8" (3.9m)	14' 4" (4.4m)	9'-8" (3m)	11' 4" (3.5m)
<b>10-20</b> (3-6.1m)	10'-9" (3.3m)	12' 5" (3.8m)	11'-9" (3.6m)	13' 5" (4.1m)	12'-9" (3.9m)	14' 5" (4.4m)	13'-9" (4.2m)	15' 5" (4.7m)	10'-9" (3.3m)	12' 5" (3.8m)
<b>20-30</b> (6.1-9.1m)	11'-8" (3.6m)	13' 5" (4.1m)	12'-8" (3.9m)	14' 5" (4.4m)	13'-8" (4.2m)	15' 5" (4.7m)	14'-8" (4.5m)	16' 5" (5m)	11'-8" (3.6m)	13' 5" (4.1m)
<b>30-40</b> (9.1-12.2m)	12'-9" (3.9m)	14' 5" (4.4m)	13'-9" (4.2m)	15' 5" (4.7m)	14'-9" (4.5m)	16' 5" (5m)	15'-9" (4.8m)	17' 5" (5.2m)	12'-9" (3.9m)	14' 5" (4.4m)
<b>40-50</b> (12.2-15.2m)	13'-8" (4.2m)	15' 5" (4.7m)	14'-8" (4.5m)	16' 5" (5m)	15'-8" (4.8m)	17' 5" (5.2m)	16'-8" (5.1m)	18' 5" (5.6m)	13'-8" (4.2m)	15' 5" (4.7m)
<b>50-60</b> (15.2-18.3m)	14'-9" (4.5m)	16' 6" (5m)	15'-9" (4.8m)	17' 6" (5.3m)	16'-9" (5.1m)	18' 6" (5.6m)	17'-9" (5.4m)	19' 6" (5.9m)	14'-9" (4.5m)	16' 6" (5m)

\*Sperian Fall Protection recommends that a 3ft (.9m) safety factor is added to the above fall clearance calculations.

\*\*The SRL/Fall Limiter clearance calculations assume the worker is located directly adjacent to the lifeline where the SRL/Fall Limiter is connected. Working away from the point of attachment increases fall clearance.

**Q18: Can a SkyGrip HLL System be used with Miller® anchorage connectors?**

A18: In addition to systems with stanchions, Miller offers a variety of 60-ft., single-span kit configurations. These kits include the SkyGrip horizontal lifeline with energy absorber, tension indicator, turnbuckle, combo-clamp-&-thimble, carabiners and Miller anchorage connectors. Kit selections include Miller D-bolt anchorage connectors, Miller Grip™ anchorage connectors, cross-arm anchorage straps or fixed beam anchors.

**Q19: For Additional questions/information, who should I contact?**

A19: For additional information, please contact Miller Technical Service at 800/873-5242.

