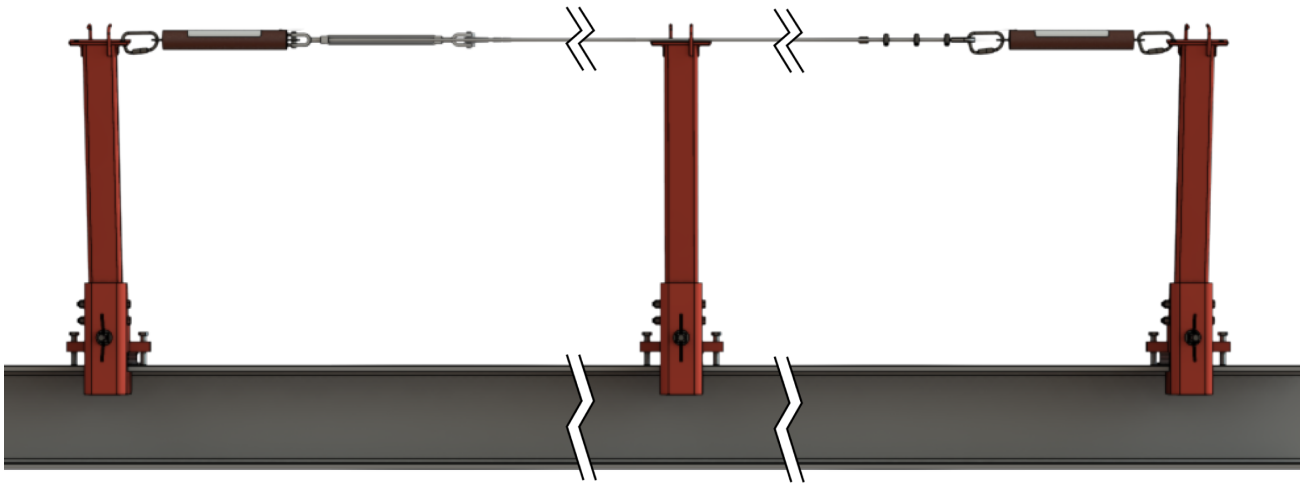


# SpiderLine™

TEMPORARY HORIZONTAL LIFELINE



MANUFACTURED BY:



A Division of SafeWorks, LLC  
365 UPLAND DRIVE, SEATTLE, WA 98188  
1-877-774-3370

# **SpiderLine™ THLL Manual**

Thank you for your purchase of SpiderLine Fall Protection equipment.

The owner of this fall protection equipment must read and understand these instructions. It is the employer's responsibility to ensure that all users are trained in the proper use, inspection, and maintenance of fall protection equipment.

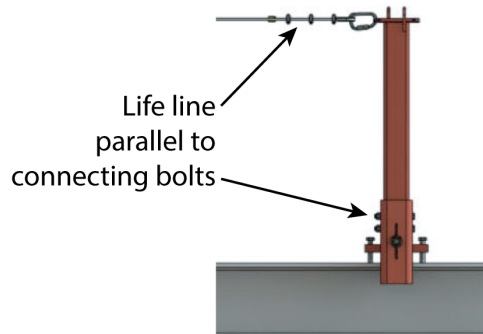
## ***Purpose***

The SpiderLine Temporary Horizontal Lifeline (THLL) System is a non-penetrating anchorage system designed for steel I-beam applications. Available in single-span and multiple-span systems, the system provides workers with continuous fall protection and maximum horizontal mobility.

## **General Requirements**

### ***General Warnings***

- Warnings and instructions shall be provided to authorized persons/users.
- All authorized persons/users must reference the regulations governing occupational safety.
- Proper precautions should always be taken to remove any obstructions, debris, material, or other hazards from the work area that could cause injuries or interfere with the operation of the system.
- Equipment must be inspected before each use according to the manufacturer's instructions.
- All equipment must be installed under the direction of a qualified person and should be inspected by a competent person on a regular basis.
- To minimize the potential for accidental disengagement, a competent person must ensure system compatibility.
- Equipment must not be altered in any way, use as shown.
- Any product exhibiting deformities, unusual wear, or deterioration must be immediately removed from service.
- Any equipment subject to a fall must be removed from service.
- The user shall have a fall protection/rescue plan when using this equipment.
- Never use fall protection equipment for purposes other than those for which it was designed. Fall protection equipment should never be used for towing or hoisting.
- Never remove product labels, which include important warnings and information for the authorized person/user.
- Never substitute or replace with non-approved components.
- Lifeline assemblies installed parallel to bolts connecting stanchion tube to mounting base. Do not install lifelines perpendicular to connecting bolts.
- Proper installation loading of carabineer(s) is along tensional back (area opposite of the gate) not through the gate.



## ***Limitations***

### **Maximum Lifeline Span**

The maximum lifeline span between stanchions or anchors is 60ft (18.3m). The system length may be extended up to 300ft (91.5m) by using multiple spans. Lifeline pass through restraints are designed into each stanchion and can be used as intermediate stanchions in multi span applications.

### **Capacity**

Maximum capacity is two workers [310lbs (140.6kg) each] per span with a maximum of six workers per multiple-span system.

### **System Forces**

The THLL SpiderLine System is equipped with an inline energy absorber. In the event of a fall, the cylinder energy absorber design will expand to limit system forces to below 3600 lbf. (16 kN) 6 person rated systems and systems between 121ft and 300ft require an energy absorber at both ends of the lifeline. A multi-span 40 ft system (two 20 ft spans) being used by 4 people (2 per span) can use one lifeline energy absorber. A multi-span 60 ft system (three 20 ft spans) being used by 6 people (2 per span) requires using two lifeline energy absorbers, one at each end of the lifeline.

Note: The SpiderLine THLL must be used with SpiderLine stanchions and anchorages that provide a minimum tensile strength of 7,200lbf (32 kN).

### **Fall Arrest Forces**

In conjunction with the SpiderLine System, workers must use a self-retracting lifeline/fall limiter or a max length 6ft shock absorbing lanyard, which limits maximum fall arrest force imposed by the worker to 900lbf (4kN).

### **Free Fall**

Personal fall arrest systems must be rigged to limit a free fall to the shortest possible distance.

### **Fall Clearance**

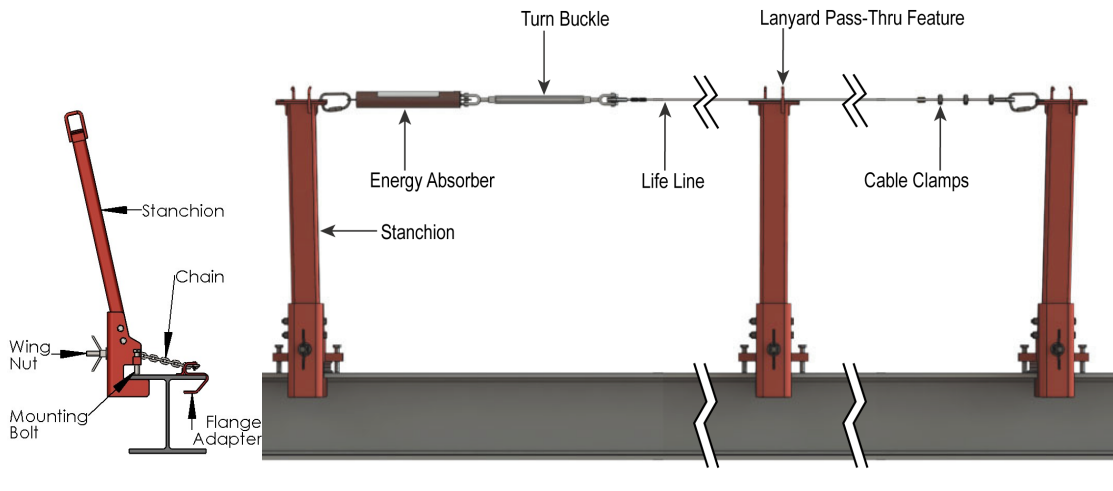
Ensure that adequate clearance exists in the fall path to avoid striking a lower level or other object.

## **System Compatibility**

SpiderLine Systems are designed for use with SpiderLine approved components. Substitution or replacement with non-approved component combinations, sub-systems, or both, may affect or interfere with the safe function of the system. This incompatibility may affect the reliability and safety of the total system.

SpiderLine Fall Protection requires the use of a full-body harness and shock-absorbing lanyard or self-retracting lifeline/fall limiter with this system. All instructions and warnings provided with the harness and connecting device must be read and understood before using the equipment.

# System Diagram and Description of Components for Steel Beam Applications



**THLL Life Line Assembly:**

Available with 60ft, 120ft, 180ft, 240ft, and 300ft wire rope lengths.

Part # 708783-XXX (XXX denotes length in feet)

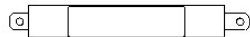
For lengths longer than 120ft, the assembly uses two Energy Absorbers and three Carabiners.



**THLL Cable Assembly:**

Available in 60ft, 120ft, 180ft, 240ft, and 300ft lengths.

Part # 708784-XXX (XXX denotes length in feet)



**Energy Absorber:**

Part # 709026-2



**Turnbuckle:**

Part # 709164-1



**Thimble:**

Part # A-00672-5



**Carabiner:**

Part # P-00228



**Fist Grip:**

Part # 233740

**Post:**

Part # 708780-1

**Stanchion Assembly for beam thicknesses 2 1/4" to 3 3/8":**  
Part # 708870-1  
(Includes post and deep bracket assembly)

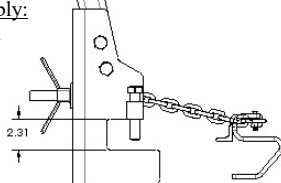
**Post:**

Part # 708780-1

**Deep Bracket Assembly:**  
Part # 709166-1

**Bracket Assembly:**

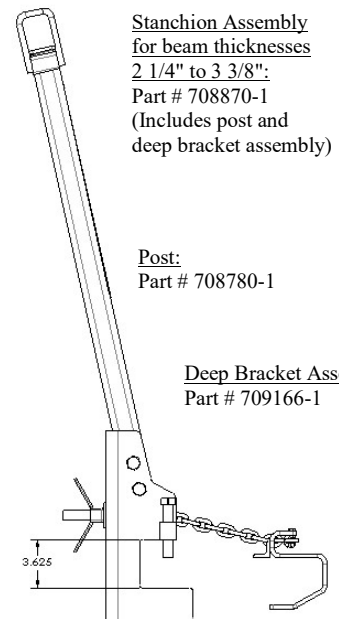
Part # 709165-1



**Stanchion Assembly for beam thicknesses up to 2 1/4":**

Part # 708781-1

(Includes post and bracket assembly)



## System Requirements for Steel Applications

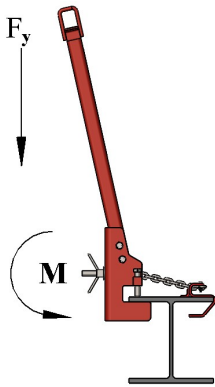
### ***Beam Size Requirements***

The Temporary Horizontal Lifeline System is designed to be installed on a wide range of steel beams. The unique modular base accommodates beam flange thicknesses up to 2-1/4" (57mm) and widths from 10" (254mm) to 36" (914mm) [Optional large base accommodates flange thicknesses from 2-1/4" (57mm) up to 3-3/8" (86mm)].

### ***Beam Load Requirements***

The steel beam(s) to which the THLL System is installed must be able to support the potential loads that may be applied in the event of a fall arrest. Stanchion posts may incur horizontal and vertical forces as well as torsion loads. Refer to beam load requirements below. Cumulative loading must be evaluated when more than one system is installed on a beam.

### ***End Stanchions***

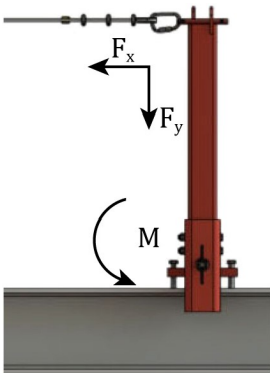


$F_y = 1,800$  lbs  
(One worker, 2x safety factor)

$F_y = 3,600$  lbs  
(Two workers, 2x safety factor)

MOMENT = 1840 ft-lbs  
(One worker, 2x safety factor)

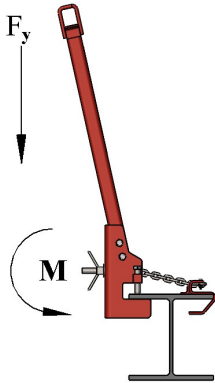
MOMENT = 3680 ft-lbs  
(Two workers, 2x safety factor)



MOMENT = 22,330 ft-lbs

$F_x = 7,000$  lbs  
(Includes 2x safety factor)

### ***Intermediate Stanchions***



MOMENT = 1840 ft-lbs  
(One worker, 2x safety factor)

MOMENT = 3680 ft-lbs  
(Two workers, 2x safety factor)

$F_y$  = 1,800 lbs  
(One worker, 2x safety factor)

$F_y$  = 3,600 lbs  
(Two workers, 2x safety factor)

### **Installation for Steel Applications**

- Before installation, carefully inspect all components of the system according to the manufacturer's instructions.
- Ensure that there is sufficient fall clearance below the work surface to avoid hitting a lower level or obstruction.
- If installing the system off-the-ground, a personal fall arrest system including an anchorage connector must be used.

## Installation of THLL Assemblies

### A. Stanchion Assembly to Beam

1. Thread mounting bolts (3/4") on base to fit beam thickness. Set Stanchion Assembly on beam fully engage throat on Stanchion Assembly base and hand tighten (2) 3/4" mounting bolts to hold stanchion in place.
2. With wing nut at end of chain tensioner assembly (tack weld at end of coil rod to keep wing nut in place) place chain in slot of S shaped hook seating chain in slot, place lower portion of S hook over beam flange opposite side of Stanchion Assembly. Take up all slack of chain tensioner assembly with wing nut ensuring tight fit tap wing nut (with hammer) clockwise to secure.
3. Tighten the Stanchion Assembly mounting bolts (3/4") to 100 ft-lbs, 1 1/8" socket will be required
4. Repeat for other stanchions being installed in system.

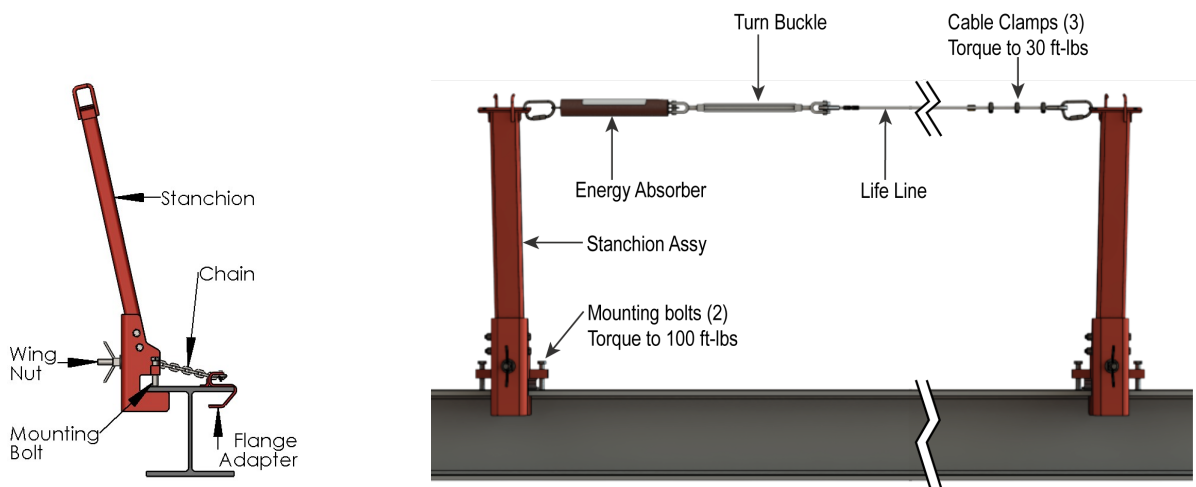


Figure 1

### B. Installation of Horizontal Lifeline Assembly

**WARNING:** Always wear gloves when inspecting or installing a cable lifeline

1. Extend turnbuckle to its maximum length.
2. Install Energy Absorber to end Stanchion Assembly with carabineer, welded tab end of energy absorber toward stanchion, attach turnbuckle to energy absorber, and wire rope assembly with thimble installed to turnbuckle as shown in fig 1.
3. At opposite end stanchion install carabineer and thimble to stanchion, thread bitter end of wire rope through thimble, hand tension wire rope and install fist grip at base of thimble.
4. Install two additional fist grips approximately 4in (10cm) apart. Torque fist grips to 30 ft-lbs, 11/16" socket will be required.

5. Tension lifeline using turnbuckle until tension indicator hole in energy absorber plunger is entirely visible in figure 2.

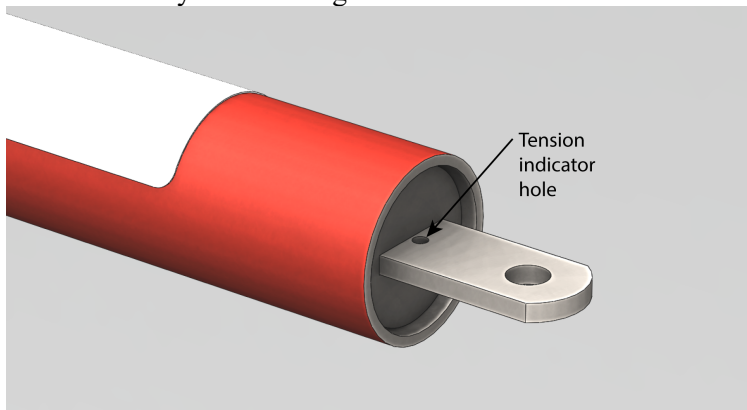


Figure 2

709026-2 Energy Absorbers are manufactured with the internal spring pre tensioned and an internal shear pin is installed in the external plunger. Additional turning of the turnbuckle will not take up any additional slack in the lifeline system, once the tension indicator hole is visible stop turning the turnbuckle. The 709026-2 Energy Absorbers have chamfered corners on the fixed end attachment bracket verse the rounded end for easy identification.

Before using the system, double-check all fasteners to ensure that they are installed correctly and to required specifications. Ensure that all connectors within the system are seated properly, closed and locked.

When system is set up for 6 people or for multi spans over 120 ft two energy absorbers are installed, one at each end stanchion as shown fig 3.

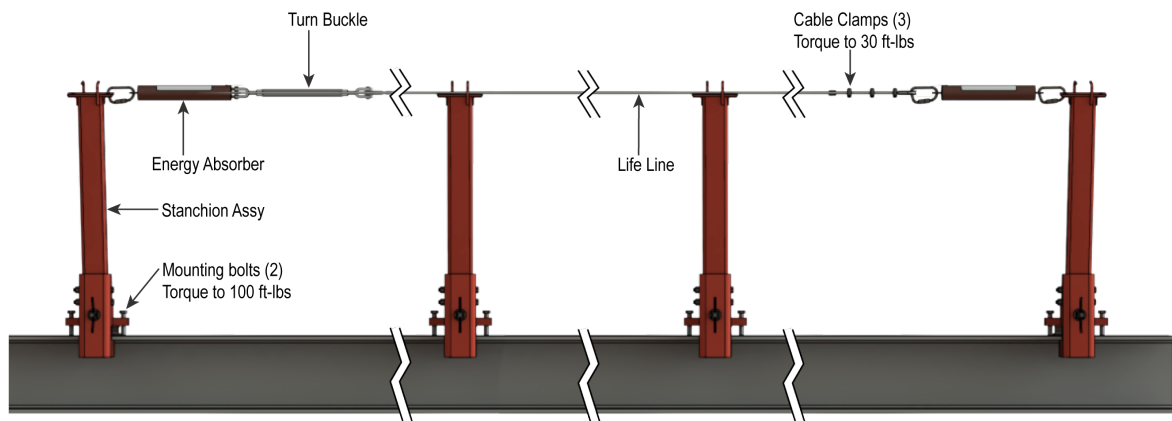


Figure 3

## **Operation/Use of Horizontal Lifeline**

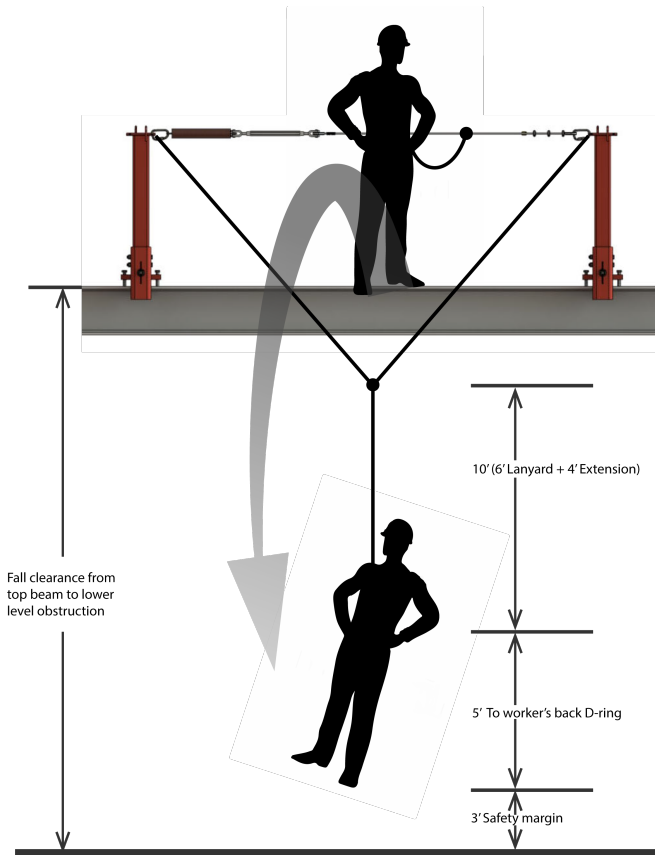
1. Inspect all equipment before use according to the manufacturer's instructions.
2. Properly fit the full-body harness. Connect the shock-absorbing lanyard or self-retracting lifeline/fall limiter to the back D-ring of the harness.
3. Ensure that the structure being worked on is properly supported before connecting to the horizontal lifeline. Use necessary fall protection equipment while approaching the horizontal lifeline.
4. Connect the lanyard double lock snap hook onto the cable lifeline. The snap hook must be connected to the lifeline at all times. Connect/disconnect from system in designated safe areas only or per site plan.



5. Never allow more than two workers to be connected between stanchions or anchors at one time, and never allow more than six workers per system.
6. Install and use in orientation as shown only.

## **Fall Clearance**

Always know your fall clearance before proceeding with the use of a horizontal lifeline system. Fall clearance calculations are based on the length of span between stanchions, connecting device being used, and number of workers connected to the system within a span. Calculations are made from the working surface of the horizontal lifeline system. Spider includes a 3ft (.9m) safety clearance in distances shown.



Fall Clearance required for One or Two Workers 20 to 60 ft span		
Span Length Ft (m)	Length of Shock Absorbing Lanyard	
	3ft (.9m) One or Two Workers	6ft (1.8m) One or Two Workers
20 ft (6.1m)	16ft 11 inches (5.2m)	19ft 11 inches (6.1m)
20 - 40 ft (6.1 - 12.2m)	18ft 1 inches (5.5m)	21ft 1 inches (6.4m)
40 - 60 ft (12.2 - 18.3m)	19ft (5.8m)	22ft (6.7m)

Typical Self Retracting Lanyard Fall Clearance  
Requirements similar to 3 ft lanyard

## **Training**

The user and the purchaser of this equipment are responsible for familiarity with these instructions and training in the proper use, installation, and operation. Training should be conducted periodically and without exposing the trainee to a fall hazard.

## Inspection and Maintenance

### *Inspection*

Before each use, visually inspect for the following:

- Inspect for physical damages, wear and corrosion.
- Inspect for crimped fittings, cracks or any signs of loading.
- Inspect the cable lifeline for cuts, frays, kinks, broken strands or other signs of unusual wearing patterns.
- Inspect for malfunctioning or missing components.
- Check that the mounting bolts and fist grips are tight and properly torqued each shift
- If the Energy Absorber when not in use, the plunger can be extended 5/8” or more past tension indicating hole (reference page 8) replace.

### *Servicing*

Servicing must only be carried out by a competent person trained in the inspection and replacement of the system. A record log of all servicing and inspection dates for this system should be maintained by the company safety officer. ***This system and all components must be withdrawn from service if subjected to fall arresting forces.*** Only original SpiderLine Fall Protection replacement parts are approved for use in this device.

- If equipment is moved at the job site, it must be moved under the direction of a qualified person.

### *Inspection and Maintenance Log*

	Date	Initials
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

# SpiderLine™

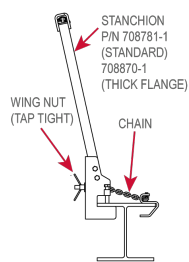
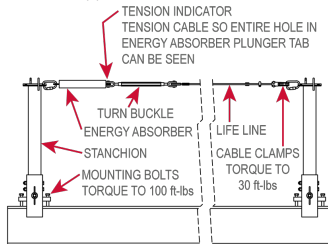
TEMPORARY HORIZONTAL LIFELINE

## ⚠ WARNING

### READ & UNDERSTAND INSTRUCTION MANUAL BEFORE USE

- Manufacturer's instructions supplied with this product must be followed for proper use, maintenance, cleaning, storage, and inspection.
- Each shift, check torque of all bolts and clamps. Verify entire tension indicator hole in plunger tab is visible. Inspect all other components for wear and damage. If equipment is subjected to fall arrest forces, or if inspection reveals unsafe conditions, take those components out of service.
- Alteration or misuse of this product, or failure to follow instructions may result in serious injury or death. Make only compatible connections. Do not mix SpiderLine™ components with parts from other systems.
- This equipment must be installed and used under the supervision of a qualified person.
- Exercise caution using this equipment near hazardous thermal, electrical, or chemical sources. Do not use if mounting surface is unstable, or has fine grain material or particulate on it.

MINIMUM SPAN = 20 FT  
 MAXIMUM SPAN = 60 FT  
 MAX SYSTEM LENGTH = 300 FT  
 2 PERSONS PER SPAN MAX  
 6 PERSONS MAX PER SYSTEM  
 FOR 6 PERSON USAGE OR SYSTEM LENGTHS OVER 120 FT: USE (2) HLL ENERGY ABSORBERS



MINIMUM BEAM WIDTH IS 10 INCHES

MINIMUM ALLOWABLE CLEARANCE BENEATH MOUNTING POINT WITH 6' SHOCK ABSORBING LANYARD

Date of Manufacture:

STANCHION SPAN (FT)	0-20	19'-11"
	20-40	21'-1"
	40-60	22'-0"

MANUFACTURED BY:



A Division of SafeWorks, LLC  
 365 UPLAND DRIVE, SEATTLE, WA 98188  
 1-877-774-3370

P/N 709018-1/B

# SpiderLine™

TEMPORARY HORIZONTAL LIFELINE  
 ENERGY ABSORBER

## ⚠ WARNING

### ONLY TRAINED PERSONNEL ARE PERMITTED TO USE THIS SYSTEM.

Inspect before each use per manufacturer's instructions. Before use, verify entire tension indicator hole in plunger tab is visible. If the energy absorber is subjected to fall arrest forces or if inspection reveals an unsafe condition, the energy absorber must be taken out of service. A rescue plan, and the means to implement it, must be in place when using this equipment. For use as an energy absorber for Spider approved horizontal lifeline systems only. Maximum system forces: 5,000 lbf horizontal, 3600 lbf vertical.

### HLL System Requirements:

- 1 energy absorber per single span system, 2 energy absorbers for systems over 120 ft or rated for 6 people.
- System must not be altered in any way.
- Use caution when working in or near hazardous environments. Equipment must not be exposed to chemical, electrical, or thermal sources which may affect the integrity of the system.
- Personal fall protection- a full body harness and shock absorbing lanyard or self rescuing lifeline which limits maximum fall arrest forces to 900 lbs must be used with this system.
- Make only compatible connections.
- Do not use as a personal fall arrest system.

**WARNING:** Manufacturer's instructions shipped with this product must be followed. Failure to do so may result in serious injury or death. Contact Spider if additional instruction manuals are needed.

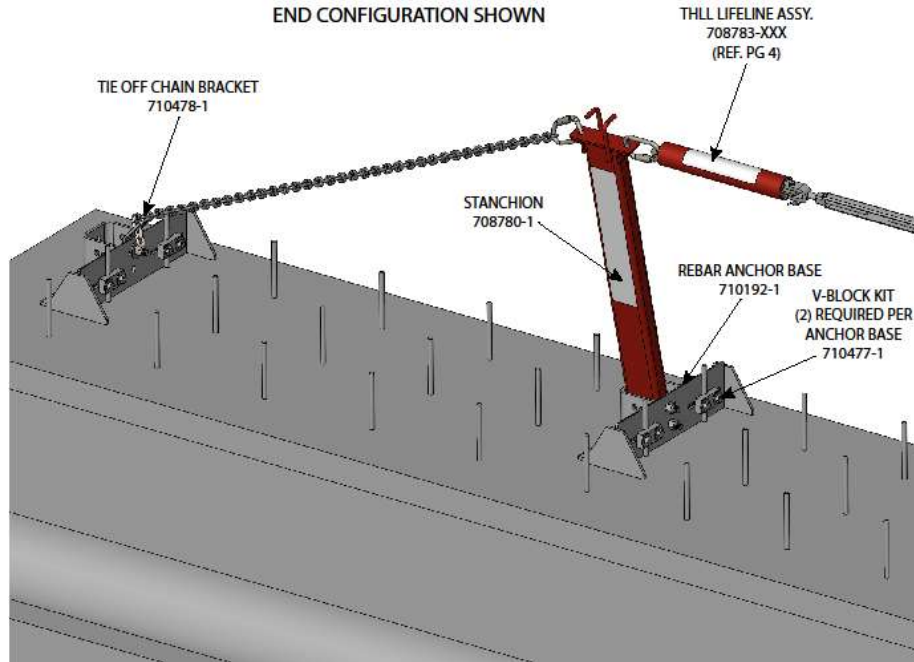


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 1-877-774-3370

P/N 709019-1/B

# System Diagram and Description of Components for Special Applications

## Concrete rebar applications



### Picture, Description, Part numbers

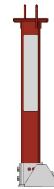


#### End Pre-cast Beam Anchor Assembly - 710475-1

- \* (2) Pre-cast Beam Anchor Base – 710192-1
- \* (1) Stanchion Tube Assy – 708780-1
- \* (1) Tie Off Chain Bracket kit – 710478-1
- \* (4) V-Block kit – 710477-1
- \* (2) Bolts – 901747
- \* (2) Locknuts – 952119

#### Pre-cast Beam Anchor & Stanchion Tube Assy - 710476-1 (Intermediate Assemblies for multi-span applications)

- \* (1) Pre-cast Beam Anchor Base
- \* (1) Stanchion Tube Assy
- \* (2) V-Block kit
- \* Attaching hardware, Tube to Base

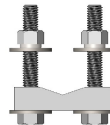


#### Tie-off Chain Bracket Kit - 710478-1

- \* (1) Tie-off Chain Bracket - 710197-1
- \* (1) 5 ft gr 80 chain – 157018
- \* (1) carabineer (45kn) – P-00228
- \* Attaching hardware: Bolt, (2) flatwashers, locknut

#### V-Block Kit - 710477-1

- \* (1) V-Block
- \* (2) Gr 8 Bolts
- \* (4) Flatwashers
- \* (2) Lockwashers
- \* (2) Full Hex Nuts



## ***Limitations***

### Maximum Lifeline Span

The maximum lifeline span between stanchions or anchors is 60ft (18.3m). The system length may be extended up to 300ft (91.5m) by using multiple spans.

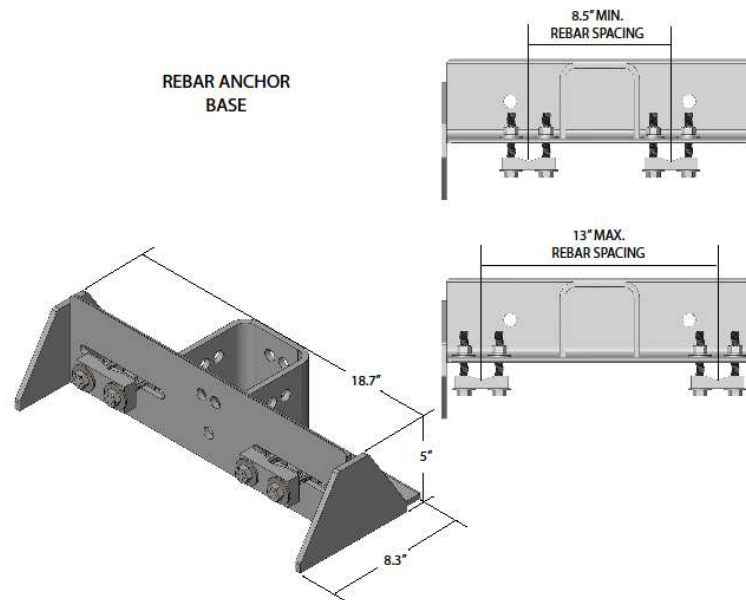
### Capacity

Maximum capacity is two workers [310lbs (140.6kg) each] per span with a maximum of five workers per multiple-span system.

### Rebar spacing and Size Requirements

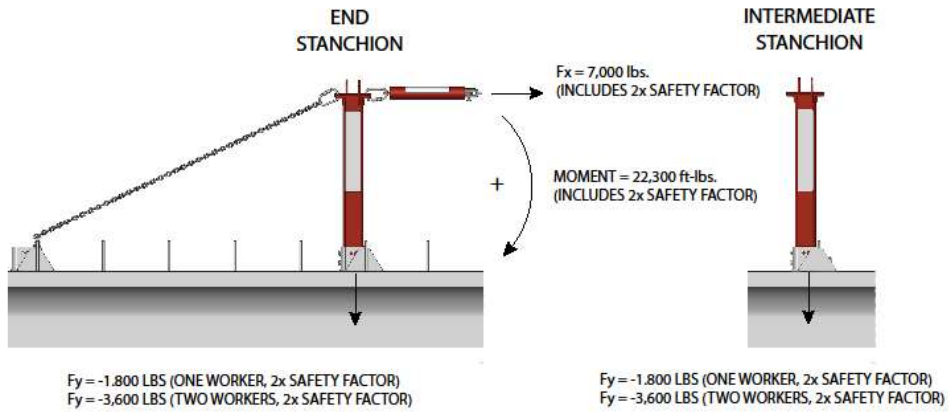
The Spiderline Temporary Horizontal lifeline system (THLL) is designed to be installed on precast concrete beams by securing to rebar sizes 4 (1/2"Ø) to size 10 (1 1/4" Ø).

Rebar spacing; 8 1/2" minimum to 13" maximum.



### Beam Load Requirements

The Pre-cast concrete beams to which the THLL System is installed must be able to support the potential loads that may be applied in the event of a fall arrest. Stanchion posts and anchor brackets may incur horizontal and vertical forces as well as torsion loads. Refer to beam load requirements below. Cumulative loading must be evaluated when more than one system is installed on a beam.

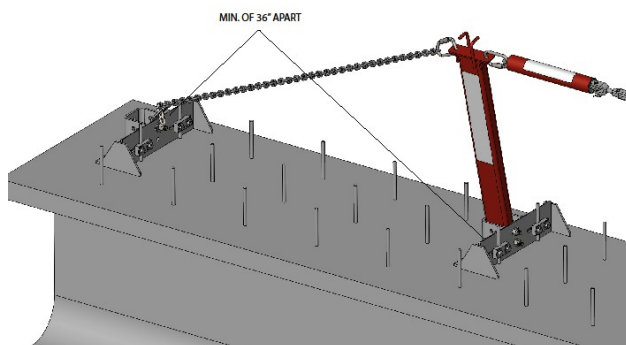


## Warnings

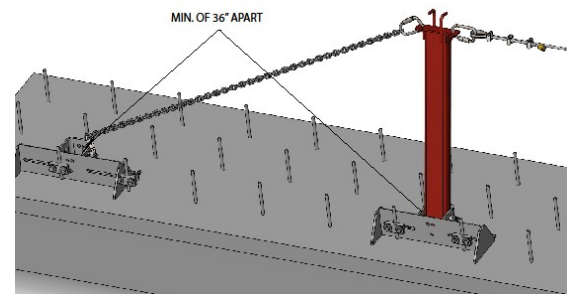
- Before Installation, carefully inspect all components of the system
- Ensure that there is sufficient fall clearance below the work surface to avoid hitting a lower level or obstruction (ref. page 9)
- Some system components may be pre assembled. Installation instructions must be followed, bolts tightened, torqued as called out to ensure all components are properly assembled. All fasteners, components and connections must be checked for correct alignment, installation and tightened to required specifications.

## Installation of End Pre-cast Beam Anchor Assembly

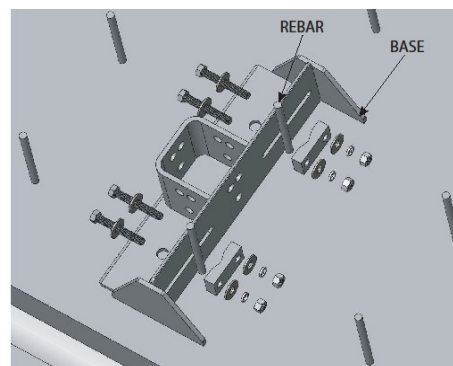
- Select one of the Installation configurations shown (perpendicular or parallel).  
When setting the Pre-cast Beam Anchor bases using the perpendicular configuration, the orientation of the components must be as shown (End Anchors rebar inboard). For the parallel configuration the anchor base may be oriented in either direction.
- For installation to rebar, place the Anchor bases on the concrete a minimum of 36" apart from mounting rebar to mounting rebar in the configuration chosen. Both Anchor bases must be flush against two sections of rebar, aligning the rebar within the slotted openings. Secure each of the four V-block clamps to the Anchor bases using the Grade 8 bolts, flatwashers, lockwashers and nuts provided. Torque the bolts to 60 - 80 ft-lbs, depending on rebar size (60 ft-lbs for ½" rebar to 80 ft-lbs for 1 ¼" rebar).



Perpendicular Configuration

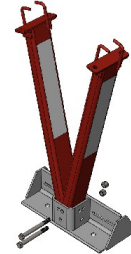


Parallel Configuration



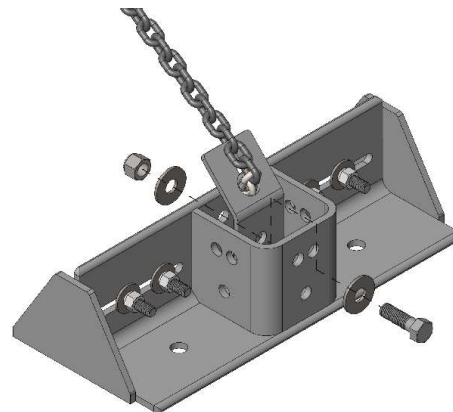
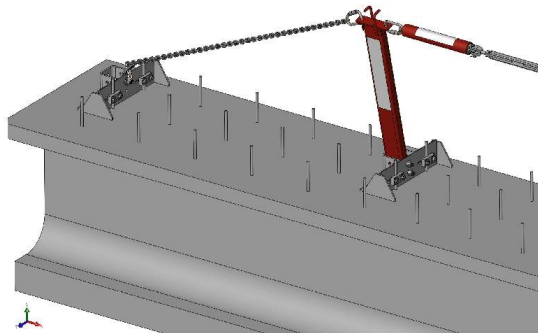
### Stanchion Tube Assy to Pre-cast Beam Anchor

Stanchion Tubes are installed in Pre-cast Beam Anchor bases relative to configuration chosen. Stanchion Tube is placed inside weldment, choose angle for tube set up, align holes and bolt in place (2). Tighten 5/8 bolts securely using a 15/16 socket and wrench. Horizontal lifeline assembly installed in line with width of Stanchion Tube (parallel to connecting bolts, ref page 2), see label on top of Stanchion Tube.



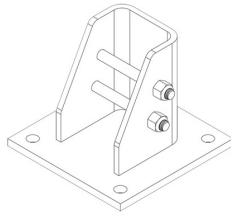
### Tie-Off Chain Bracket

- Secure Tie-off Chain Bracket to outboard mounted Pre-cast Beam Anchor base
- Bracket installed using 5/8 bolt provided, (2) fender washers and locknut. Torque to 100 ft-lbs.
- End of chain is attached to carabineer that is attached to the top plate of Stanchion Tube. Carabineer is placed so that the gate is facing upward, corners of carabineer opposite of gate transfer load from chain to Stanchion Tube.
- Run chain through opening in Tie-off Chain Bracket, removing all slack and secure in slot.
- Repeat procedure at opposite end.
- When horizontal lifeline is installed and tensioned as previously described reference pages 7 & 8, remaining slack is removed from chains. Check that slack in chain is removed; readjust chain in slot if necessary.





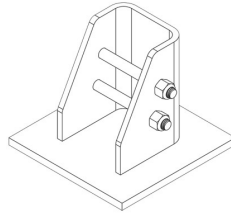
## Fixed Anchor Applications



**Bolt Down Configuration**  
709465-1



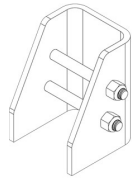
Stanchion Assy w/ bolt-down base plate  
710480-1



**Weld Down Configuration**  
709465-2



Stanchion Assy w/ weld-down base plate  
710481-1



**Weld Down Configuration  
No Plate**  
709465-3



Stanchion Assy w/ weldable Anchor base  
710482-1

**Note:**

For 709465 configurations, refer to drawing 709465 for installation instructions.

## Special Applications

For special mounting applications see your Local Spider representative for available options.

### ***Steel Beams***

- Bolt down or anchor brackets welded in field available
- All field welds to be made by welders certified to AWS standards and in compliance with latest revision to AWS structural welding code D1.1. Recommended all-around fillet weld size is 1/4" to be verified by site structural engineer.
- Cold galvanize spray (or equivalent) welded area at base of anchor after welding, descaling.
- Weld, bolt anchors in-line, system not designed for corners.
- Capacities and distance spacing between stanchions same as for standard system, 60 ft max spacing between stanchions.

### ***Concrete Mounting Base***

- Recommend using (4) Hilti HSL-3-M12/25 Heavy Duty expansion anchors for installing each base, to be verified by site structural engineer. Follow manufacturers' installation instructions.
- Bolt anchors in-line, system not designed for corners.
- Capacities and distance spacing between stanchions same as for standard system, 60 ft max spacing between stanchions.

**Note: Mounting Bolts for fixed anchor applications, provided by others. Structural integrity responsibility of user, verified by site structural engineer.**