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1. Wire Rope Support Overview

A. Using Wire Rope

Wire rope support systems are beneficial because they are flexible, adaptable, and lightweight. The CADDY SPEED LINK Universal Support System offers an extensive line of products designed to be the most effective wire rope support solution on the market. However, in order to reap the unique benefits of the system, it is important to select the correct locking device and end fitting for any project.

CADDY SPEED LINK has two main tool-free locking devices: the SLK and the SLS. The SLS locking device is best suited for use in trapeze applications with strut, C-channel, signage, and HVAC units. The SLK is a double-barreled locking device that holds the wire in each direction. It can be wrapped around structures or loads (or both at the same time) or arranged in a splice or infinite loop. Consult erico.pentair.com for more information on each locking device.

B. The CADDY SPEED LINK Manual

In this document, you will find a detailed description of the CADDY SPEED LINK SLK locking device has to offer and the best method for installation for each type of cable management system as well as a detailed breakdown of unique benefits associated with each method, images, diagrams and a basic step-by-step installation process.

This document is one part of a series of CADDY SPEED LINK Manuals designed around specific products and applications. Although this document focuses specifically on different cable pathway applications, several other resources are available under the “Documents” tab on a CADDY SPEED LINK product page on erico.pentair.com. The documents are always being updated, and new sections are continuously being released.

For more information on specific products or view the other sections of the CADDY SPEED LINK Manual, visit erico.pentair.com.
1. Wire Rope Support Overview

C. SLK Features
The locking device is the piece of hardware that holds the wire loop in place. The CADDY SPEED LINK SLK locking device is designed to be the safest, most aesthetical, and easiest locking device on the market. The guide below shows several of the product's innovative features and the overall goal of each one.

SAFETY FEATURES
Keyless release tubes are designed to allow safe and easy adjustment, even while wearing bulky gloves.

AESTHETICAL FEATURES
Low-profile locking device provides a positive aesthetic to a finished project.

EASE OF USE FEATURES
Arrows on the device clearly demonstrate the correct direction to push the wire.

SAFETY FEATURES
Keyless release tubes are designed to allow safe and easy adjustment, even while wearing bulky gloves.

AESTHETICAL FEATURES
Low-profile locking device provides a positive aesthetic to a finished project.

EASE OF USE FEATURES
Arrows on the device clearly demonstrate the correct direction to push the wire.

CADDY SPEED LINK is lighter, faster to install, easier to transport and generates less waste than alternative hanging methods.

Available in pre-cut lengths with 11 end-fittings or in bulk with spools of wire to adapt to the end-users' needs and applications.

Two tool-free locking devices are available for three wire sizes:
- SLK2 compatible with 1.5mm and 2mm wire
- SLK3 compatible with 3mm wire

The locking device can accommodate wire rope at up to 90 degrees, allowing it to be positioned closer to the load than other locking devices on the market, hiding it from view and creating a much more aesthetically pleasing installation.

The color of the line corresponds to the larger goal of each feature:
1. Wire Rope Support Overview

D. SLK Mechanism

The locking device is the piece of hardware that holds the wire loop in place. Locking devices may look or install differently based on the manufacturer. For example, some locking devices are sold with small tools called “keys” that unlock or free the cable. Other locking devices may be keyless and simply require a manual manipulation to move the cable through it. Much like the cable, locking devices have their own static load rating. The load rating can be different than that of the cable or end fitting, and installers should default on the lowest in the load path.

Inside the locking device, the wire is typically gripped with one or two spring loaded cams or jaws that hold the wire in place. A single-cam device holds the wire by pressing it into the inside wall of the housing. A double-jaw device holds the wire by clamping it between two spring loaded jaws. Double-jaw devices are designed to have a stronger grip on the wire than single-cam devices.

CADDY SPEED LINK locking device combines all the best options:
- Double-jaw design for better performance
- Push/pull keyless release allows easy adjustments
- Keyless release tubes are easy to operate while wearing bulky protective gloves
- Release tubes cannot be disengaged by mistake as opposed to other release mechanisms
- Low-profile locking device minimizes visual impact
- Cable spread of 90 degrees allows positioning the device closer to the load*
- Double-sided locking mechanism enables simple height adjustment

Material: Steel; Polypropylene; Zinc Alloy

<table>
<thead>
<tr>
<th>Wire Rope Diameter (mm)</th>
<th>Static Load</th>
<th>Locking Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>44 lbs.</td>
<td>195 N</td>
</tr>
<tr>
<td>2</td>
<td>160 lbs.</td>
<td>440 N</td>
</tr>
<tr>
<td>3</td>
<td>350 lbs.</td>
<td>880 N</td>
</tr>
</tbody>
</table>

* For more information on cable spread, refer to page 16.
2. Typical CADDY SPEED LINK SLK Installation

A. Installation
Installation of CADDY SPEED LINK is quick and easy.

STEP 1: Clip CADDY SPEED LINK hook into hole of CADDY Fastener or wrap around a beam, strut, etc.

STEP 2: Insert wire rope into locking device.

STEP 3: Attach wire rope to load.

STEP 4: Insert wire rope back into locking device.

STEP 5: (If necessary) Adjust by pulling on the plastic release tubes.
2. Typical CADDY SPEED LINK SLK Installation

The process illustrated above shows proper installation when wrapping CADDY SPEED LINK with a Hook End-Fitting around a beam. Installing CADDY SPEED LINK this way will allow the installer to have the height adjustability at the load (easier than having it at the structure).

B. Adjustment

Adjustment up can be made by:
1) pulling the free end of the cable up through the locking device
2) raising the locking device on the loaded wire.

Adjustment down is made by supporting the load, gripping the device, releasing the loaded cable side release tube, and lowering the device.
2. Typical CADDY SPEED LINK SLK Installation

C. Examples

i. Beam Clamp
A variety of CADDY Beam Clamps may be used to attach the CADDY SPEED LINK system.

![Beam Clamp Image]

ii. “C” and “Z” Purlin Clips
CADDY Purlin Clips can be easily installed with the CADDY VAFT tool from the ground.

![“C” and “Z” Purlin Clips Image]

iii. Eyebolts
Wood screw and machine-thread eyebolts will serve as an anchor for CADDY SPEED LINK.

![Eyebolts Image]

iv. HangerMate®
The HangerMate anchors may be used to attach the CADDY SPEED LINK system.

![HangerMate® Image]

v. Easy Strut Clip (ESC)
The CADDY Easy Strut Clip provides a “portable hole” along strut runs for attachment of the CADDY SPEED LINK hook.

![Easy Strut Clip Image]

vi. Without Fasteners
The CADDY SPEED LINK wire rope can be looped around any structure/substructure using the loop or hook end-fittings or using the CADDY SPEED LINK locking device.

![Without Fasteners Image]
2. Typical CADDY SPEED LINK SLK Installation

vii. Cable Tray
CADDY SPEED LINK can be attached to cable tray (solid and ventilated tray, ladder tray, center rail tray and wire basket).

ix. Plumbing
CADDY SPEED LINK speeds up the installation of compressed air piping, water and gas pipes.

xi. Signage
Riggers have just discovered the ideal system to suspend signage: CADDY SPEED LINK.

viii. Lighting and Luminaires
Lighting fixtures (luminaires) are ideal applications for CADDY SPEED LINK.

x. HVAC
CADDY SPEED LINK puts an end to time-consuming strap hanging of duct.
2. Typical CADDY SPEED LINK SLK Installation

CADDY SPEED LINK attaches to structure differently depending on the end type. For fittings that attach at the load, the wire is looped around the structure and fed through the locking device. When end fittings attach at the structure, like the loop or toggle end fitting, the locking device is on the load side of the wire.
2. Typical CADDY SPEED LINK SLK Installation

D. Installation Tips

i. Adjustment for Concealment

For a locking device installed above a load in the standard choker-style arrangement, the device can be easily adjusted down close to the load without changing the elevation of the suspended load.

**STEP 1:** Pinch the free end of the cable against the loaded cable above the locking device. This will provide a temporary support for the load and hold the position of the cable. Meanwhile, grip the locking device firmly and push down on the release tube on the loaded side of the cable.

**STEP 2:** Slide the locking device down the cable to a position closer to the load.

**STEP 3:** Let go of the release tube to allow the locking device to secure to the cable.
ii. Increasing Safety Factor

To determine the system working load: The max working load is determined by the component with the lowest allowable working load.

To determine the system working load with a single safety factor: In some cases, the hanging system will be made up of components with a variety of safety factors, working loads, and/or ultimate loads. It may be convenient to convert the working loads of all components to a safety factor of 5. This allows the minimum working load with safety factor 5 to be determined.

For components with safety factor other than 5: multiply the working load by the given safety factor. Divide the result by 5. This gives the working load at safety factor 5. For components with ultimate load only: divide the ultimate load by 5. It is recommended to round down to find the working load at safety factor 5. Once the working load at safety factor 5 is found for each component, those loads can be compared to the CADDY SPEED LINK working loads to determine the limiting component for the system working load at safety factor 5.

Increase the safety factor by reducing the working load. For some applications (e.g., theater stages), a larger safety factor may be required. The formula is:

**Reduced Working Load = Maximum Working Load \times \frac{5}{\text{Required Safety Factor}}**

The Required Safety Factor must be ≥ 5

Example: If the Required Safety Factor is 10, then the Reduced Working Load for a 2 mm wire rope is 50 lbs. \([222 \text{ N}]\) instead of the Maximum Working Load of 100 lbs. \([444 \text{ N}]\)
3. Special Applications

A. Splicing

i. Introduction to Splicing

Extend the available cable lengths, or create a cable assembly with integral attachments at both ends, by joining two CADDY SPEED LINK wire ropes with a locking device.

By inserting two cables into the locking device, as shown below, they can be joined to create new combinations of lengths and end fittings.

An example of a splicing application is combining a cable with a Y-hook end and a cable with a toggle end. The Y-hook can be connected to two sides of a light or cable tray. The toggle can be inserted into a hole on a metal deck ceiling. The locking device, placed in the middle, splices the two cables together and provides height adjustment.

Splicing differs from normal cable hanging in that there is only one grip on each cable as opposed to the normal two grips. Because of this difference, the load rating is reduced, but maintains a safety factor of 5. See the table below for reduced working loads.
3. Special Applications

ii. Splicing Application Load Rating

<table>
<thead>
<tr>
<th>Device</th>
<th>Wire Rope Diameter (mm)</th>
<th>Working Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLK2</td>
<td>1.5</td>
<td>35 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>155 N</td>
</tr>
<tr>
<td>SLK2</td>
<td>2</td>
<td>65 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>290 N</td>
</tr>
<tr>
<td>SLK3</td>
<td>3</td>
<td>150 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>670 N</td>
</tr>
</tbody>
</table>

Splicing Test Results Compared to Competitor

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Cable size (mm)</th>
<th>Specified Load (lbs)</th>
<th>Ave. Load (lbs)</th>
<th>Min. Load (lbs)</th>
<th>Max Load (lbs)</th>
<th>Count</th>
<th>Ave. % of Specified Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLK2</td>
<td>2</td>
<td>500</td>
<td>414.9</td>
<td>398.5</td>
<td>437</td>
<td>5</td>
<td>83%</td>
</tr>
<tr>
<td>Competitor &quot;G&quot; 2</td>
<td>2</td>
<td>500</td>
<td>299</td>
<td>276</td>
<td>327</td>
<td>5</td>
<td>45%*</td>
</tr>
</tbody>
</table>

Based on private testing while using the product for the splicing application.

*45% is based on manufacturer recommendation for installation.

iii. Infinite Loop Application

An infinite loop is a cable application where the cable is looped around the structure and the load; each end of the cable is inserted into the locking device. The result is a continuous loop of cable secured and adjusted by the locking device.

<table>
<thead>
<tr>
<th>Device</th>
<th>Wire Rope Diameter (mm)</th>
<th>Working Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLK2</td>
<td>1.5</td>
<td>90 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400 N</td>
</tr>
<tr>
<td>SLK2</td>
<td>2</td>
<td>160 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>700 N</td>
</tr>
<tr>
<td>SLK3</td>
<td>3</td>
<td>350 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1550 N</td>
</tr>
</tbody>
</table>

The infinite loop is a convenient means to hang in conditions where there is low overhead working space between the load and the ceiling.

The infinite loop is the strongest configuration of CADDY SPEED LINK. Because the cable is doubly supporting the load, the working loads are substantially higher than the standard installation method, yet still maintaining a safety factor of 5. See the table above for allowable working loads.
3. Special Applications

B. Minimum Bending Radius

i. 122 Application

By attaching to structure with another CADDY product, the height adjustment of the system is moved on the end of the rope that is closer to the load. This makes it much easier to make fine height adjustments because installers do not have to estimate the amount of rope that needs to be added or removed at the structure. It is also much easier for the installer to lift the application at the load and adjust the wire.

See calculations in the table below as an example, considering a structural attachment with a safety factor of 3:1.

<table>
<thead>
<tr>
<th>Device</th>
<th>Wire Diameter (mm)</th>
<th>Maximum Ultimate Load</th>
<th>Load when Safety Factor = 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLK2</td>
<td>1.5</td>
<td>220 lbs</td>
<td>44 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>978 N</td>
<td>195 N</td>
</tr>
<tr>
<td>SLK2</td>
<td>2</td>
<td>500 lbs</td>
<td>100 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2224 N</td>
<td>440 N</td>
</tr>
<tr>
<td>SLK3</td>
<td>3</td>
<td>600 lbs</td>
<td>120 lbs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3600 N</td>
<td>720 N</td>
</tr>
</tbody>
</table>
4. Visibility / Angle Schematic

A. Visibility

How close a locking device can be placed to a load can be expressed in several different ways. One method is to measure the angle between the legs of cable wrapping around the load. The greater the angle, the closer the locking device is to the load. The closer the device is to the load, the less visible it is when viewed from the floor. This may be of concern in installations trying to achieve an architectural aesthetic.

What limits how great the angle between the cables under a locking device can be is the ability of the device to grip cables with additional side loads imparted from the angles. Some devices slip or break. Others release the load. CADDY SPEED LINK has the greatest allowable angle on the market; 90°. The patented flexible release tubes conform to the bend in the cable without unlocking the gripping jaws.

Safety: CADDY SPEED LINK allows a 90° spread between the cables under the locking device. This angle has been found to be a practical limit on installation for preserving working space for adjustment. It would be difficult for the installer to surpass 90° on the installation of CADDY SPEED LINK. Competitive devices have maximum allowable angles of 60° or even 39°. The installer could easily create a non-conforming installation and potential safety hazard if angle or distance measurements are not done carefully.
CADDY SPEED LINK can provide angled support, even from sloped and vaulted ceilings. The maximum angle is 60° from the vertical axis. The working load has to be reduced depending on the angle according to the following table:

In an Angled Sling-Type Installation application the working load is valid for each wire rope.
4. Visibility / Angle Schematic

![Diagram showing visibility angles]

<table>
<thead>
<tr>
<th>Angle</th>
<th>0</th>
<th>15</th>
<th>30</th>
<th>45</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>1</td>
<td>0.97</td>
<td>0.87</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td>1.5 mm</td>
<td>44</td>
<td>43</td>
<td>38</td>
<td>31</td>
<td>22</td>
</tr>
<tr>
<td>2.0 mm</td>
<td>100</td>
<td>97</td>
<td>87</td>
<td>71</td>
<td>50</td>
</tr>
<tr>
<td>3.0 mm</td>
<td>200</td>
<td>193</td>
<td>173</td>
<td>141</td>
<td>100</td>
</tr>
<tr>
<td>Reduced by</td>
<td>None</td>
<td>3%</td>
<td>13%</td>
<td>29%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle</th>
<th>0</th>
<th>15</th>
<th>30</th>
<th>45</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>1</td>
<td>0.97</td>
<td>0.87</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td>1.5 mm</td>
<td>195</td>
<td>188</td>
<td>169</td>
<td>138</td>
<td>98</td>
</tr>
<tr>
<td>2.0 mm</td>
<td>440</td>
<td>425</td>
<td>381</td>
<td>311</td>
<td>220</td>
</tr>
<tr>
<td>3.0 mm</td>
<td>890</td>
<td>860</td>
<td>771</td>
<td>629</td>
<td>445</td>
</tr>
<tr>
<td>Reduced by</td>
<td>None</td>
<td>3%</td>
<td>13%</td>
<td>29%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Working Load per Device For Angled Installations (lbs)

Working Load per Device For Angled Installations (N)
5. CADDY SPEED LINK Certificates & Listings

CADDY SPEED LINK is listed with UL for Cable and Conduit Supports and for Luminaires.

CADDY SPEED LINK has verification by SMACNA for alternatives to duct hangers.

Multiple independent tests of CADDY SPEED LINK locking devices and accessories have been conducted by Intertek. Test reports are available upon request.
6. Additional Warnings and Safety Instructions

When using CADDY SPEED LINK, the following must be observed:

• Load ratings must be followed
• Load must be static and stable
• All the CADDY SPEED LINK components must be free of oil or any other sort of grease and lubricants
• All the CADDY SPEED LINK components must be free of any paint, varnish or any other coating
• Product should be installed in an indoor, non-corrosive environment