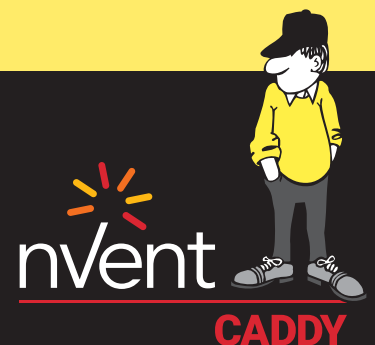




# TECHNICAL HANDBOOK

## nVent CADDY Speed Link Manual

Overview of Wire Rope Hanging



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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 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.

Speed Link has two available locking devices: the SLK and the SLS as well as several accessories for the support of numerous applications including lighting, basket tray, duct, and runs of conduit and piping.

## B. THE SPEED LINK MANUAL

In this document, you will find the different solutions Speed Link 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.

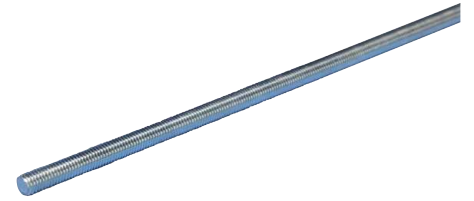
This document is one part of a series of Speed Link Manuals designed around specific products and applications. Although this document focuses specifically on an overview of wire rope support systems, several other resources are available under the "Documents" tab on a Speed Link product page on [nVent.com/CADDY](http://nVent.com/CADDY). 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 Speed Link Manual, visit [nVent.com/CADDY](http://nVent.com/CADDY).

## 2. Overview of Cable Hanging Solutions

### A. THE TRADITIONAL METHODS

When it comes to suspending static loads from ceilings, structures or substructures, the first choice for many decades has been steel threaded rod. The lack of definite load tests with third-party laboratory certification has been replaced simply with oversizing of the rod. Additional steel compensated for uncertainty, and that was acceptable when steel was relatively inexpensive. Handling, transporting, storing, cutting and de-burring of long rods adds cost, labor and inconvenience, as does any attachment using nuts and threaded beam clamps. The danger of injury by pre-mounted rods to installers of other services below ceilings should also be of concern.



In the HVAC and plumbing business, straps have been the support device of choice. The strap is incredibly simple but equally labor intensive. The self-drilling screws used to fasten it are slow to install, require power tools to drive and are often dropped. Compared to the loads being held and the capacity of the fastening screws, the strap is oversized. Adjustment requires removal of the screw and insertion of another in another location. Small adjustments cannot be made easily.



Another suspension component, often used as a safety back-up, is jack chain. A common application is as a replacement of the safety chain on lighting fixtures (luminaires). While many of the items mentioned above pertain to jack chain as well, one additional problem needs to be considered: Each link of a chain is a risk to the integrity of the support – 50 links are 50 potential trouble spots. Additionally, the price of installing jack chain must be considered. Installation requires cutting or untwisting a link for every length. Adjustment to a jack chain suspension can only be done by the length of a single link. Finer adjustment must be achieved by eyebolts or some other combination with a screw.





# 2. Overview of Cable Hanging Solutions

## B. INTRODUCTION

nVent CADDY engineers at nVent studied the traditional methods and set out to design a product that deals with the disadvantages of rod and chain. Here were some of the objectives:

- Create a system with a tested and guaranteed load rating
- Design a system that is lightweight and, easy to handle, transport, store and install
- Minimize vibration transmission and system wear-and-tear
- Offer installation options that are non-invasive to the building structure
- Minimize the need for installation tools
- Improve aesthetics of the environment through a sleek product design
- Provide an “installed cost” (material and labor) that is decisively below the traditional methods

The result was Speed Link, simply the most advanced wire rope support system on the market.

Contractors choose Speed Link system because it is designed to be safe, effective and easy to install. While traditional methods are designed for a specific application, Speed Link allows for more:

- **Adaptability:** Unlike other support systems, Speed Link can be easily adapted to work with a variety of applications. The system appears very basic, but can be easily modified to hang rectangular duct, spiral duct, piping, signage and almost any other application that hangs from the ceiling. When cable supports are used for multiple applications on a jobsite, it greatly reduces the number of different products that are needed, reduces waste, and simplifies purchasing.
- **Flexibility:** Speed Link cable is incredibly flexible and allows for assemblies to be supported from a variety of angles. Unlike other methods that can be rigid and demand precise measurement, wire rope gives installers more slack when installing.
- **Speed:** Traditional support methods can make installing large assemblies very difficult. However, Speed Link can be very quickly installed. Other methods for hanging mechanical applications, like metal strap and threaded rod, need to be measured, cut, and installed using several tools. Wire rope systems are much easier to adjust and eliminate many of the time consuming tasks required for other installation methods. The installer can go from lifting the load to having it supported in a shorter time.
- **Safety:** Thanks to its speed of installation and its tool-free locking device, Speed Link reduces the amount of time spent in the air on lifts and is designed to increase safety by enabling end-users to use the system even while wearing bulky protective gloves. It also limits the use of sharp tools and unsafe activities such as deburring threaded rod, and cutting jack chain.

## 2. Overview of Cable Hanging Solutions

### C. THE BASIC COMPONENTS

The Speed Link system is made up of three basic components:

#### I. WIRE ROPE

The wire rope is the means by which the load is attached to the structure.

Speed Link wire rope is constructed from seven strands of seven wires of steel aircraft wire. Because the cable is made up of several strands of steel wire, it has a very high strength to weight ratio. The wire rope in the standard product is galvanized steel.

The wire rope comes in 1.5mm, 2 mm and 3 mm diameters.

#### WORKING LOAD FOR STANDARD SPEED LINK PRODUCTS:

SPEED LINK Wire Diameter (mm)	Working Load* (lbs)	Working Load* (N)
1.5	44	195
2	100	440
3	200	890

\*The working load is the permissible load with a 5-to-1 safety factor applied. nVent requires a minimum safety factor of 5 on all Speed Link wire rope assemblies. Larger safety factors may be applied in special applications (e.g., when used in theaters/stage applications where a safety factor of 10 is required, the maximum working load is 22lbs [98 N] for 1.5 mm, 50 lbs [220 N] for 2 mm rope and 100 lbs [445 N] for 3 mm rope). See individual instruction sheet for all load ratings



#### WIRE ROPE WITHOUT LOCKING DEVICE:

Speed Link wire rope is also sold in spools with locking devices sold separately.

Part Number	Wire Rope Diameter	Length (ft)	Length (m)	Static Load (lbs.)	Static Load (N)
SLC15L50MSP	1.5	164	50	44	195
SLC15L1000SP	1.5	1000	300	44	195
SLC2L1000SP	2.0	1000	300	100	440
SLC3L1000SP	3.0	1000	300	200	890

## 2. Overview of Cable Hanging Solutions

### WIRE ROPE WITH LOCKING DEVICE:

Speed Link wire rope also comes in 6 different lengths (3.3, 6.6, 9.9, 16.4, 22.9, 32.8 ft. or 1, 2, 3, 5, 7 & 10 m), pre-mounted with an end fitting [see next paragraph] and a locking device to handle most applications. Additionally, Speed Link wire is sold in spool kits (with bulk wire rope and locking devices) for more versatility.

Several options are available for Speed Link Spool Kits. They differ based on wire rope length, wire rope diameter and locking device quantities.

### SPOOL KITS AVAILABLE IN NORTH AMERICA

Part Number	Wire Rope Diameter	Length (ft)	Number of Locking Devices
SLK15L50MPACK	1.5mm	164 ft	25
SLK15L500PACK	1.5mm	500 ft	100
SLK2L100PACK	2mm	328 ft	50

### SPOOL KITS AVAILABLE IN EUROPE

Part Number	Article Number	Wire Rope Diameter	Length (m)	Number of Locking Devices
SLK15L500PACK	196045	1.5mm	150 m	100
SLK15L50MPACK	196046	1.5mm	50 m	25
SLK2L100PACK	196047	2mm	100 m	50
SLK15PROMOPACK	196048	1.5mm	2x 50 m	2x 25

Note: SLK15PROMOPACK also includes a wire rope cutter (SLWC - 195853)

Check [nVent.com/CADDY](http://nVent.com/CADDY) for availability in your region.



# 2. Overview of Cable Hanging Solutions

## II. END FITTINGS

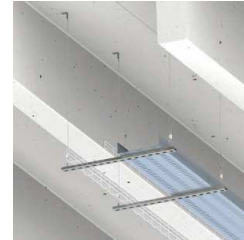
End fittings are the hardware secured at the end of the wire rope, specifically made for each application.

Speed Link offers ready-to-use solutions available in 6 different lengths: 3.3, 6.6, 9.9, 16.4, 22.9, 32.8 ft. [1, 2, 3, 5, 7 & 10m] in combination with 11 different end fittings to perfectly fit every application end users may have:

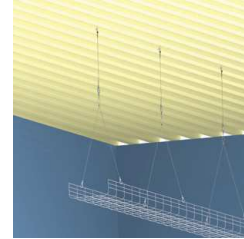
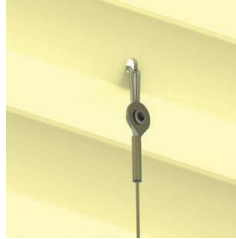
**Speed Link SLK with Angle Bracket**



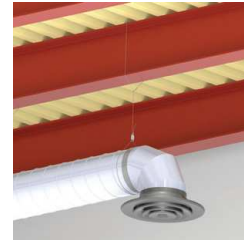
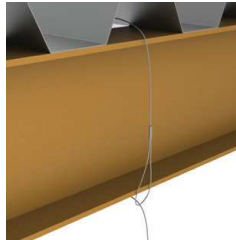
**Speed Link SLK with Shot-Fire Bracket**



**Speed Link SLK with Decking Hook**



**Speed Link SLK with Loop**



**Speed Link SLK with Threaded Stud End**





## 2. Overview of Cable Hanging Solutions

**Speed Link SLK with Y-Hook**



**Speed Link SLK with Hook**



**Speed Link SLK with Toggle**



**Speed Link SLK with Hammer-On Flange Clip**



**Speed Link SLK with Y-Toggle**



**Speed Link SLK with Wedge Anchor**



## 2. Overview of Cable Hanging Solutions

### III. LOCKING DEVICE

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.\*

The Speed Link product line has two main locking devices: the SLK and the SLS. The SLK is a double-barreled locking device that can loop wire around structure or load and the SLS is a single-barreled device that can be attached directly to C-channel, strut, or perforated basket tray.

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

Material: Steel; Polypropylene; Zinc Alloy

*\*For more information on the benefits of a double-jaw device, refer to page 14.*

*Other locking devices are also available for lightweight applications: Speed Link LD (stainless steel) and Speed Link SLDM (Europe only).*



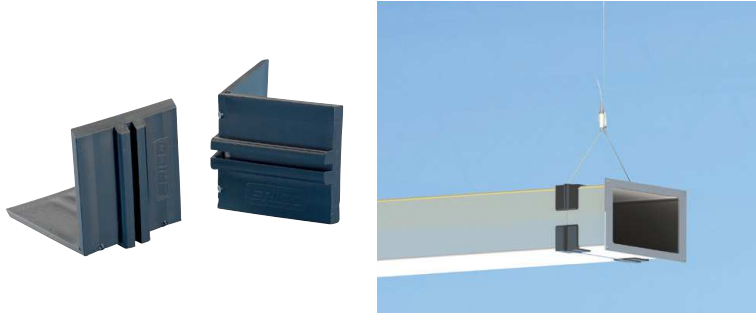
## 2. Overview of Cable Hanging Solutions

### D. ACCESSORIES

Several Speed Link accessories are available to provide for a large number of applications. For product information including part numbers, consult [nVent.com/CADDY](http://nVent.com/CADDY).

#### I. AIR DUCT CORNER PROTECTOR

The plastic Air Duct Corner Protectors are installed between Speed Link wire rope and the corners of square or rectangular sheet metal ducts. They prevent the wire rope from damaging the duct.



#### II. AIR DUCT SUPPORT ATTACHMENT

The metal Air Duct Support Attachments provide for two screws each to be attached to sheet metal air duct. The Speed Link wire rope or hook is then installed through the third, larger hole to suspend the air duct from the structure or substructure.



#### III. MC/AC CABLE CLIPS

The MC/AC Cable Clip is offered for Metal Clad/Armored Cable in the diameter ranges of 0.47"-0.56" [11.8-14.2 mm] and 0.50"-0.72" [12.7-18.2 mm]. It allows for the attachment of MC/AC cable to the Speed Link wire rope.



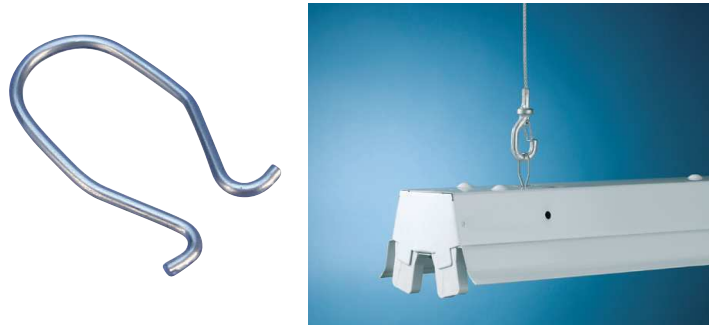
## 2. Overview of Cable Hanging Solutions

### IV. LIGHTING CLIP

The Lighting Clip is inserted in the openings of a light fixture (luminaire). The hook of the wire rope is inserted into the loop of the clip. The Lighting Clip comes in 2 version:

- Light duty version has a static load limit of 12 lbs [55 N]
- Medium duty version has an ultimate static load limit of 27 lbs [125 N]

The Lighting Clip is not to be used as a lifting device.



### V. EYEBOLT

Fully closed Eyebolts with wood thread or machine thread having an opening of at least 1/4" [6.35 mm] may be used to attach the Speed Link hook.



### VI. WIRE ROPE CUTTER

A Wire Cutter is available that provides for a non-fray cut of the wire rope.



## 2. Overview of Cable Hanging Solutions

- In most cases, when using Speed Link with load carrying accessories, the wire rope will be the weakest element, thus determining the load capacity. Therefore, please refer to the Working Load for Standard Speed Link Products table on page 6.
- See individual instruction sheet for specific load ratings when used with a locking device.



### 3. The nVent CADDY Speed Link Advantage

nVent, an ISO 9001:2000 compliant manufacturer, has developed an engineered system consisting of carefully designed and matched components that provide strong and safe support for a multitude of loads in static applications. With its light weight and small packaging, Speed Link is easy to store and transport. In conjunction with its ease and versatility of installation, the Speed Link advantage becomes obvious compared to conventional suspension methods.

- Reduces installation time and inventory compared to traditional methods (threaded rods, jack chain, metal strap, etc.)
- Cost effective alternative to threaded rod and associated hardware
- Works with a variety of nVent CADDY Fasteners or as stand-alone system typically without drilling into the building structure
- Reduces inventory, storage space and shipping costs with its small, lightweight design
- Increases installation versatility - easily hang objects at a variety of angles, even from sloped ceilings
- Minimizes vibration transmission and system wear and tear with strong, yet flexible wire rope
- Improves the aesthetics of your installations with its small, lightweight, sleek design
- Supports a wide range of applications
- Allows for easy adjustments of supported objects during and after installation with a locking device
- Features superior materials for all components including: wire rope (galvanized steel), locking device (zinc, MIM and plastic) and hook (dacromet coated, forged, alloy steel), providing superior performance

For the installer, however, the deciding factor is the installation time. Time savings of more than 70% compared to rod installations are common. Combined with the market relevant pricing, the savings in "installed cost" are substantial. Speed Link installs without drilling and allows objects to be hung at any angle – e.g., sloped ceilings. Extensive specialty hardware is required to achieve the same installation flexibility with threaded rod.

To summarize, Speed Link system is designed to be:

- Strong
- Safe
- Tool-free
- Rapidly installed
- Versatile
- Lightweight
- Reasonably priced

## 4. 2-Jaw Locking Device vs 1-Jaw Locking Device

The locking device is a very important component of the cable hanging solution as it holds the wire loop in place. Three main key features usually differentiate locking devices and help end-users make their choice:

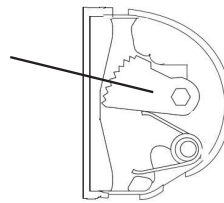
- Keyless design or not
- Design/look
- Single or double-jaw design

The last point, usually overlooked, is a very important one while choosing which cable hanging solution to use, as it relates to the way the wire rope is held in place in the locking device. The wire can be gripped with one or two spring loaded cams or jaws that hold the wire in place and this detail change the behavior and the performance of the cable hanging solution.

A single-cam device holds the wire by pressing it against the inside wall of the housing.

- Less expensive solution (only one cam needed)
- Uneven pressure on the wire
- Less grip

**This example image shows how the single-cam applies pressure on only one side of the wire. Single-cam devices are very common among competitors.**



A double-jaw device holds the wire rope by clamping it between two spring loaded jaws.

- Better engineered solution
- Even pressure on the wire
- Stronger grip



**The Speed Link SLK Locking Device (left) and Speed Link SLS Locking Device (right) both have two jaws that grip the wire on both sides**



Main differences:

- Double-jaw locking devices are less likely to allow the wire to slip
- Single-jaw locking devices will usually let the wire rope slip before the wire reaches its full static load
- Therefore double-jaw locking devices generally have a stronger grip on the wire than single-cam devices, making the wire rope the weakest component of the cable hanging solution. Double-jaw locking devices have been shown to outperform single-jaw designs.

# 5. Additional Warnings and Safety Instructions

When using Speed Link, the following must be observed:

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

Our powerful portfolio of brands:

**CADDY   ERICO   HOFFMAN   RAYCHEM   SCHROFF   TRACER**



[nVent.com/CADDY](https://www.nVent.com/CADDY)

**WARNING**

nVent products shall be installed and used only as indicated in nVent product instruction sheets and training materials. Instruction sheets are available at [nVent.com/CADDY](https://www.nVent.com/CADDY) and from your nVent customer service representative. Improper installation, misuse, misapplication or other failure to completely follow nVent instructions and warnings may cause product malfunction, property damage, serious bodily injury and/or death, and void your warranty.

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