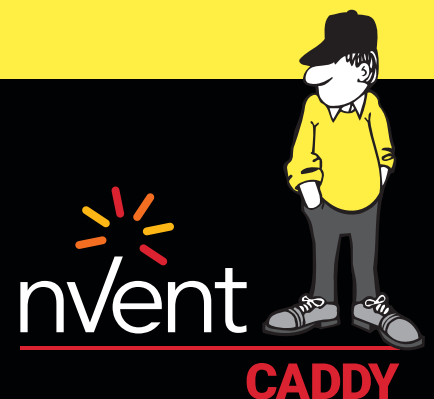




**CONNECT AND PROTECT**

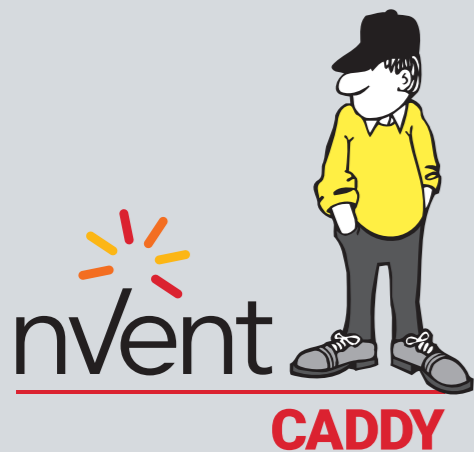
# nVent CADDY Datacom Solutions



# THE NVENT CADDY GUIDE TO DATACOM SOLUTIONS

Project engineers and contractors responsible for datacom system installations have simple priorities: get the job done right, safely, and quickly. Now you can depend on nVent CADDY for innovative products to help you meet these goals. These solutions for datacom applications help to lower overall installation cost with cable runways that complement or replace labor-intensive methods such as cable tray or strut trapeze. nVent CADDY's innovative fixing, fastening and support products provide the perfect solution for thousands of datacom applications. The result: Contractors can focus more on meeting project deadlines and less on procuring the right components.

nVent CADDY offers a complete system to allow contractors to shop for all datacom fastening needs in one stop - from mounting enclosures, hanging cable trays, supporting branch lines, all the way to supporting cables on a rooftop.



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# Introduction



## POWER OVER ETHERNET (POE)

Since its inception in the early 2000s, Power over Ethernet (PoE) has become a rapidly emerging trend in transmitting power and data over the same cable. PoE allows for a single cable to provide both power and data to a variety of devices such as wireless access points, IP cameras, VoIP phones, building automation, security and LED lighting.

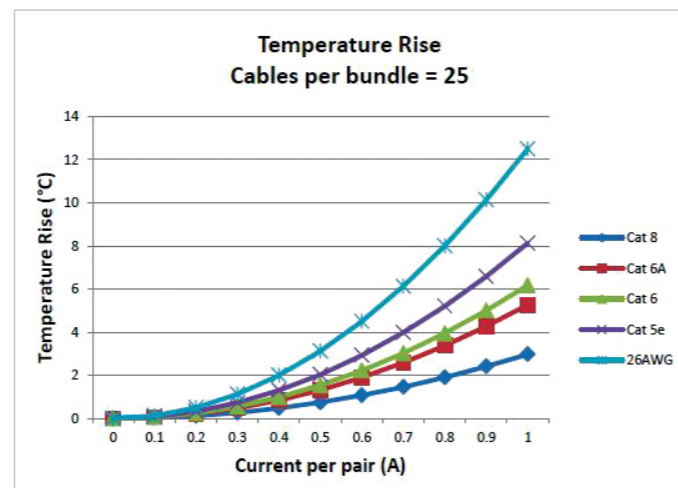
Implementing the use of PoE applications in a facility simplifies installation and potentially lowers costs as dedicated AC power cable does not need to be run to the devices. With PoE, the need for extra wiring is gone, simplifying the installation process and reducing time and cost. It also adds flexibility as the devices can be installed in any location without being in close proximity to an existing power outlet. PoE continues to grow and is now in great demand as its capabilities continue to expand along with rapidly evolving technology.

However, as attractive as PoE is for its ease of use and reduced cost, its higher temperature and heat generated by running power through the same cables presents potential issues. The higher temperature can impair transmission due to cable structure compromise, long-term cable degradation and added heat to the surrounding environment, which increases cooling costs, especially if installation does not follow TIA standards and BICSI best practices.

Installers of structured cables can take several actions to mitigate the excessive heat generated by PoE:



1. Use higher category cables, which can greatly diminish the impact on temperature. Generally speaking, the temperature rise from category 6A is almost 50 percent less than category 5e. The chart below shows the relationship between temperature rise and current carried by structured cables with bundle size of 25 and exposed cables (rather than those contained in conduit)



# Introduction



2. Use cables with bigger copper conductors and shielded cables instead of unshielded options.
3. Use metal cable supports – as metal is better and faster than plastic for dissipating heat.



nVent CADDY Cat HP J-Hook supports and contains cables without the need for bundling, and they help maintain cable quantity and quality of cable separation. In addition, Cat HP is metal, which helps heat to dissipate into air faster than other materials, and it has the most compliant bend radius required by European Norm EN 50174\* in the market—ideal for higher category cables with thicker insulation and larger diameters. For PoE applications, Cat HP is the ideal cable support solution.

\*EN 50174-2 for cabling installation planning and practices inside buildings requires a minimum bend radius of eight times the cable diameter for four-pair balanced cables during and after installation.

### Tips:

Avoid running cables in conduits or cable supports that are enclosed. Also lower the fill rate in cable trays to encourage better air flow.

For greatest heat dissipation, lay cables loosely in trays rather than bundle them together.



Part Number	Article Number	Diameter (mm)	Area (mm <sup>2</sup> )	Cable Capacity			Static Load (N)
				Cat 5e	Cat 6	Cat 6A	
CAT16HPBA	181255	25	690	20	15	10	270
CAT21HPBA	181185	33	1174	50	40	25	270
CAT32HPBA	181115	50	2561	90	60	35	270
CAT48HPBA	181125	75	5974	200	150	80	270
CAT64HPBA	181135	100	9987	330	220	140	270

To learn more about how Cat HP J-Hooks can minimize the risk of heat and support cables in PoE applications, visit [nVent.com/CADDY](http://nVent.com/CADDY)

# Introduction



## WHAT IS BEND RADIUS? WHY IS IT IMPORTANT?

During installation, cables are bent or flexed around obstacles elevation or directional changes. Minimum bend radius refers to the smallest radius the cable is to be bent without degrading performance. The minimum cable bend radius varies per cable types and industry standards. However, it can typically be calculated by: (minimum bend radius = cable outer diameter x cable multiplier)

EN 50174-2 for cabling installation planning and practices inside buildings requires a minimum bend radius of eight times the cable diameter for four-pair balanced cables during and after installation. For a typical CAT 6A cable (about 6.9 mm diameter), bend radius for appropriate cable supports such as a J-Hook need to be at least 54.9 mm. This helps ensure quality performance quality performance and connectivity, support technological innovation, and provide superior, globally accepted products.

## WHAT HAPPENS WITHOUT PROPER BEND RADIUS?

Not complying with standards comes with various implications. Cable manufacturers generally require a proper bend radius and do not recommend cables be supported by non-continuous supports that cause indents and creases in the cable jacket. Such indents or creases may affect cable performance and, in worse situations, cables may be damaged while being pulled during installation, especially a directional change of the cable bundle is required.

## WHAT ARE MANUFACTURERS SAYING?

According to the LEVITON Cat 6A Reference Guide\*, "To maintain Cat 6A performance, minimum bend radius should exceed 4x OD for UTP and shielded cable.."

Another manufacturer, Superior Essex, notes in its Technical Guideline\*, "when planning the route, be sure to: avoid any other possible hazards such as pinch points, sharp angles, heat sources, etc. (all cables). The minimum cable bend radius must be maintained throughout the cable route."

## WHAT IS THE BEST SOLUTION?

Not all non-continuous cable supports provide the proper bend radius, so be sure your data infrastructure includes supports that have the proper bend radius. To determine which non-continuous cable supports offer the proper bend radius, multiple tests have been conducted on various manufacturer's products. Please refer to the chart on the next page for reference.

\* Superior Essex. (2014). Technical Guideline: TG02 Rev.10. SuperiorEssex.com.

\* Leviton. (2010). CAT6A Reference Guide. Leviton.com/networksolutions

# Introduction

Brand	Test 1 Results	Comply with EN 50174-2
nVent CADDY		<b>YES</b> 72 mm
A		<b>NO</b> (1 mm)
B		<b>NO</b> (4 mm)
S		<b>NO</b> (5 mm)

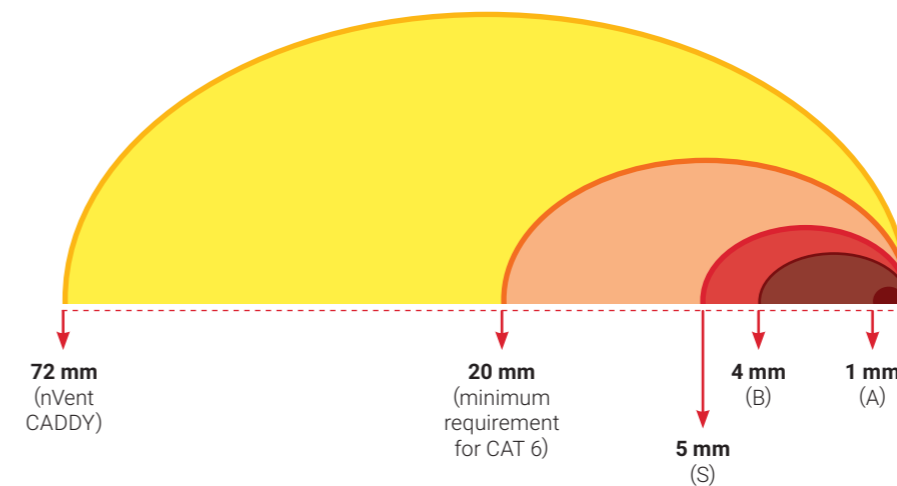
- ← Indicate Pinch Point
- 21.3 mm Radius (minimum requirement for CAT 6)
- Competitor J-Hook Trace Line
- nVent CADDY Cat HP J-Hook Trace Line

## Test 1

To determine how manufacturers measured up in bend radius, an installation test was conducted with 60 CAT 6 cables in horizontal-to-vertical configuration. The cables were supported by J-Hooks in 1.5 m spacing and 0.3 m sag, left in position for 24 hours. The cables were then offset from the J-Hook to examine the cable jackets for deformation. The results are shown, left.

## TEST 2

To calculate an actual bend radius reading, a Mitutoyo Contracer C-3000 machine was utilized in order to obtain a cross-section profile from different manufacturers' supports. The equipment also provides bend radius readings once trace lines are available. Cat HP J-Hook System is the only J-Hook that provides proper bend radius (greater than 8x cable diameter per EN 50174-2).



Cable	Diameter	Required Bend Radius*
CAT 5e	5.1 mm	40.6 mm
CAT 6	5.3 mm	42.7 mm
CAT 6A	6.9 mm	54.9 mm

\*Required bend radius per EN 50174-2 (minimum requirement for CAT 6)

# Data Source (equipment, enclosures, panels, servers, data center)



For a data source where most cables originate such as enclosures, electric panels, or servers, nVent CADDY offers various mounting methods on walls or floors utilizing strut channels. These strut nuts showcase nVent CADDY's innovation, providing contractors with varying ease to create mounting points on strut profiles.

## HOW CAN CONTRACTORS EXPERIENCE AN EASIER INSTALLATION THAT REQUIRES FEWER TOOLS?

Contractors can install many of our products without extra tools. We offer many "tool-free" solutions to help make installation quick and easy. Also, adjustments can be made with ease. Too often, having or finding the right tools for the job isn't easy. Minimizing the number of tools on a job site is another way nVent CADDY strives to help our customers get the job done as efficiently as possible.

	Rod Lock Strut Nut	Quick Strut Nut	Spring Nut
Ease of install	●	◐	◑
Tools required	◐	◑	◒
Install time	◑	◒	●
Load rating	◐	◑	◒

## NVENT CADDY ROD LOCK STRUT NUT

- Provides fast universal attachment of threaded rod and hardware to standard strut profile
- Can be used to prefabricate assemblies, which can be quickly pushed onto previously installed threaded rods
- Works with slightly damaged threads and minor burrs on the threaded rod



## QUICK STRUT NUT

- Provides fast universal attachment of threaded rod and hardware to standard strut profiles



## SPRING NUT

- Used to create metal frames with nVent CADDY Eristrut channels
- Spring allows for easy installation



# Large Cable Bundle

nVent CADDY has introduced innovative options for supporting cable trays that dramatically reduce installation time for contractors. Some of these replace strut channels while others replace the need for threaded rod in a trapeze for supporting cable trays.

## CONTINUOUS CABLE SUPPORTS, LARGE BUNDLE

Product	Strut Channel	Universal Tray Supports	Rod Lock Strut	Rod Lock Telescoping Strut Replacement	Wire Basket Supports	nVent CADDY Speed Link
Part number (example)	A25H2000PG	UTS300	CRLP1M10L750	TSR3050M10RL	WBSM8, WBSM10	SLK2YH500L3
Article number (example)	385505	182033	390036	390106	182016	196650
Picture						
Supporting length	2000mm	323mm	750mm	318 - 508mm	Various	Various
Plus	Most familiar method	Single rod, supports two trays, fast	Familiar profile, fast	Accommodates various lengths, fast	Cost effective, fast	Replaces rod, easy to adjust, fast
Minus	Requires cutting, most hardware	Won't support super heavy duty	Need to order exact length	Only telescopes to 508mm	No bottom support	Not a rigid support
Number of hardware (connecting to rod)	8	4	0	0	0	0
Time-saving ranking	4	3	2	2	2	1

## NON-CONTINUOUS CABLE SUPPORTS, LARGE BUNDLE

Product	J-hook Trees	U-hook	Adjustable Cable Supports
Part number (example)	CAT32HPDCM2	CAT200CM	CAT300CM
Article number (example)	181049	181982	181984
Cable Capacity	70 to 2000+	200 to 400	300 to 700
Picture			
Plus	Pre-assembled	Ideal for retrofit projects	Ideal for retrofit projects
Minus	-	Limited applications	Limited applications
Wall	x		
Ceiling	x		
Beam	x		
Purlin			
Rod		x	x
Pedestal			x
Strut		x	x

LARGE CABLE BUNDLE

# Large Cable Bundle – Continuous

# Large Cable Bundle – Non-Continuous

LARGE CABLE BUNDLE

	Universal Tray Support	Wire Basket Support Clip	Rod Lock Strut	Rod Lock Telescoping Strut Replacement	Strut Channel	Speed Link SLK with Y-Hook	Speed Link SLS
Tray Capacity	⦿	⦿	⦿	⦿	⦿	⦿	⦿
Load rating	⦿	⦿	⦿	⦿	⦿	⦿	⦿
Ease of install	⦿	⦿	⦿	⦿	⦿	⦿	⦿
Adaptability	⦿	⦿	⦿	⦿	⦿	⦿	⦿

## ACCESSORY

### WIRE BASKET TRAY CLIP

An easy-to-install time-saving solution for securely attaching wire basket tray to strut. Simply position the KBT clip over the tray at the desired position, squeeze the KBT and slide it in place to finish the connection - that simple! No tools or additional hardware required.



### UNIVERSAL TRAY SUPPORT

The perfect solution for supporting cable trays while maintaining accessibility to cables after the installation is completed. Universal Tray Supports can be attached to ceiling, wall, threaded rod, or cable hanging systems to support all possible project requirements and additional cable capacity.



### ROD LOCK TELESCOPING STRUT REPLACEMENT

An innovative alternative to using traditional strut channels for trapeze or other support structures that accommodates standard strut fittings. This telescoping solution eliminates the need to handle and cut long lengths of strut to size. The bracket telescopes to the desired length and is locked in place by snapping closed a spring retainer clip.



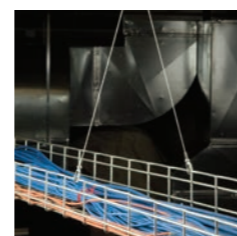
### WIRE BASKET SUPPORT CLIPS

Wire Basket Supports clip to the sides of standard wire basket tray, eliminating the need for strut channels when supporting wire baskets with threaded rod. Multiple variations are available to suit most installations, and enable quick installation and adjustment of multi-level trapeze assemblies.



### SPEED LINK SLK WITH Y-HOOK

A complete system that includes wire, locking device and two preassembled hook end-fittings. It fastens to the building structure and hooks to tray. Allows one hook to be temporarily detached for maintenance or to add cables to the tray. The single drop with double hook provides increased stability to the system.



### ROD LOCK STRUT

Prefabricated sections of strut with Rod Lock technology designed to replace traditional strut in a wide variety of applications, such as cable tray, duct, and conduit/pipe trapeze.



### SPEED LINK SLS SYSTEM

An innovative cable solution for supporting metal framing channels. The engineered elongated retaining nut reduces unwanted sway of the trapeze during installation and provides higher stability. The system allows for quick and easy prefabrication of complex assemblies at ground level that can be easily lifted and held in place by wire rope.



LARGE CABLE BUNDLE

	Cat HP J-Hook	Cat HP J-Hook Trees	Cat 100CM	Cat 200CM	Cat 300CM	Cat 425
Bend Radius	⦿	⦿	⦿	⦿	⦿	⦿
Cable Capacity (CAT 6)	⦿	⦿	⦿	⦿	⦿	⦿
Load rating	⦿	⦿	⦿	⦿	⦿	⦿
Adaptability	⦿	⦿	⦿	⦿	⦿	⦿

## ACCESSORY

### nVENT CADDY MILLE-TIE

- Suitable for heavy-duty applications
- Cushions vibration
- No sharp edges
- One size fits all
- Reusable
- Maintains cable properties and conductor configuration
- Protects cable from crimping with "Intelligent Grip Technology"



### CAT HP J-HOOK

Cat HP J-Hooks have a wide base design and smooth beveled edges to provide a large bending radius for current and future high-performance data cables and fiber optics. The J-Hooks are designed to provide a strong and stable pathway support installation.



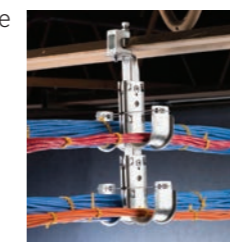
### CAT200CM/CAT300CM

Integrated quick-attach T-nut allows U-Hooks to be quickly mounted to strut. Specially designed U-Hooks have large-diameter, rounded support surfaces. Rounded edges help prevent over-bending and kinking of cables. Ideal for retrofit applications where cable runs need to be routed around existing building infrastructure.



### CAT HP J-HOOK TREES

The ideal solution for segregating multiple runs of cable following the same path. They are ready to use right out of the box with a broad range of sizes and attachment methods. Cat HP J-Hook Trees provide superior fill capacity and load rating over most other non-continuous cable support alternatives.



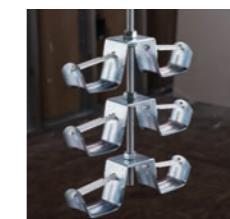
### CAT 425

Provide an ideal solution for retrofit applications in existing facilities where space is limited and cable tray would be very difficult to install. The system supports a large quantity of cable, and can be mounted to overhead building structure or wallmounted for low-profile installations. The fabric is strong yet flexible, and is suitable for pulling cable. Multiple sizes and designs available to attach to a variety of structures.



### CAT100CM





This solution can be mounted vertically along the same drop rod to create a tree configuration. It allows addition of cables even when fixed flush to overhead decking and the rounded edges help prevent over-bending and kinking of cables.



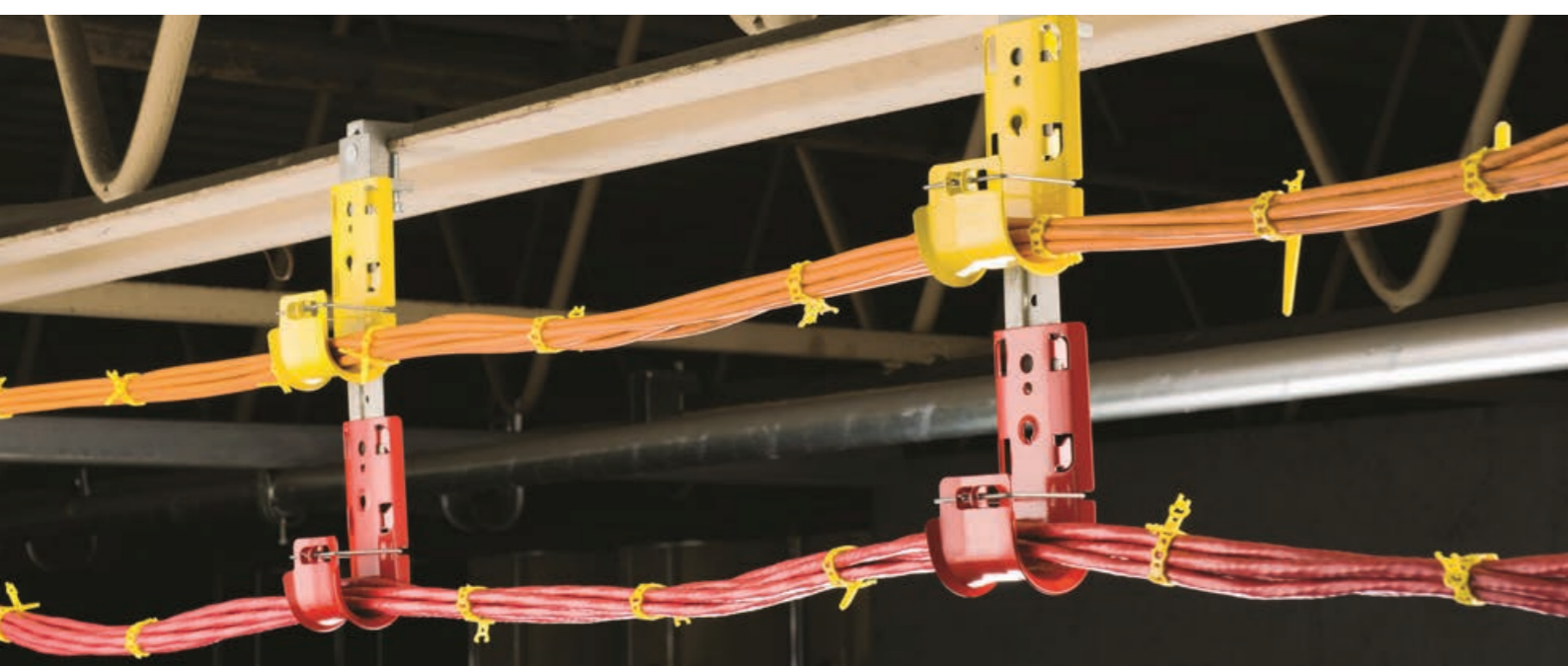
# Medium Bundle

For medium cable quantities branching out from cable trays, nVent CADDY provides advanced, non-continuous supports for cable pathway for high-performance cabling systems. Highly engineered features help ensure a stable and secured installation that complies with industry codes and standards.

## NON-CONTINUOUS CABLE SUPPORTS, MEDIUM

Product	CAT HP J-Hook	Plenum Cable Retainer	Double Hook	Vertical Cable Supports
Part number (example)	CAT32HP	CATCR50	CAT100CM	CAT600
Article number (example)	181062	182335	181976	181930
Cable Capacity	25 to 200+	30 to 50	30 to 70	40 to 75
Picture				
Plus	Most versatile; best bend radius	Ideal for residential projects	Allows two runs of cables	Designed specifically for vertical cable runs
Minus	-	Only for surfaces that allow screws or nails	Limited applications	Limited applications
Wall	x	x		x
Ceiling	x	x	x	
Beam	x	x		
Purlin	x	x		
Rod	x		x	
Pedestal	x			
Strut	x			x
T-grid	x			

MEDIUM BUNDLE

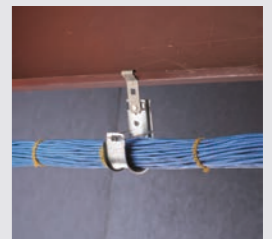


# Medium Bundle

	J-Hook (Cat HP)	CATCR50	CAT100CM	CAT600R	Cable Tray with Flange Clip
Bend radius				N/A	N/A
Capacity					
Load rating				N/A	N/A
Ease of install					
Versatility					

## CAT HP ASSEMBLIES

Cat HP assemblies are ideal for new construction or when the structural attachment requirements are understood and installation speed is critical.



## CAT HP J-HOOK

- Cat HP J-Hooks have a wide base design and smooth beveled edges to provide a large bending radius for current and future high-performance data cables and fiber optics.
- The J-Hooks are designed to provide a strong and stable pathway support installation.



## CAT600R

- Makes vertical cable pulling easier - locking mechanism opens during pull and re-engages when cable is released
- Includes pre-riveted assembly that twist-locks into the strut
- Rounded edges help prevent cable damage



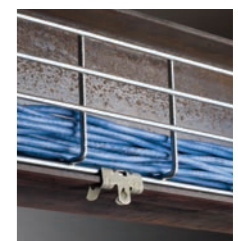
## CAT CR50

- Works with CAT 5e and higher, fibre optic and coaxial cable
- Suitable for air handling spaces (plenum)
- CR50 allows for horizontal and vertical



## CABLE TRAY WITH FLANGE CLIP

- Quick and easy
- Low weight alternative to traditional cable tray
- Utilizes the lost space within the beam.



## CAT100CM

- Double J-Hooks can be mounted vertically along the same drop rod to create a tree configuration
- Allows addition of cables even when fixed flush to overhead decking
- Rounded edges help prevent over-bending and kinking of cables



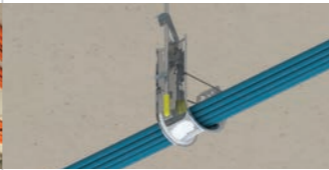


MEDIUM BUNDLE

# Small Bundle

As cable quantity gets smaller along the cable pathway, nVent CADDY offers products that are not only cost effective but also quick to attach to various structures from metal beam, threaded rod, to rooftop. Some of them offer a low profile feature for better aesthetics and accommodate for tight space.

## NON-CONTINUOUS CABLE SUPPORTS, SMALL

Product	Cable to Flange Clip	Metal Pressure Clip, Fire-Rated	Cat HP J-Hook
Part number (example)	4H241214B	PKM10H6IN	CAT16HP
Article number (example)	170640	182048	181061
Cable Capacity	2	10 to 18	10 to 20
Picture			
Applications	Metal structures	Concrete ceiling and wall	Wall, ceiling, beam, purlin, rod, pedestal, strut, t-grid, etc.
Plus	Great for cable containment	Low profile, E30 Fire rating per DIN4102-12	Versatile; best bend radius
Minus	Minimum bend radius	Only for concrete	-

	Cable to Flange Clip	Metal Pressure Clip, Fire-Rated	CAT16HP
Ease of install	●	●	●
Bend radius	◐	◐	◐
Versatility	◐	◐	●

## METAL PRESSURE CLIP, FIRE-RATED

- Ideal for smaller runs of cable
- Flexible clip retains shape and allows for cables to be inserted after installation
- Rounded edges help prevent cable damage
- Low-profile allows for installations in tight space
- Includes insert for E30 fire rating according to DIN 4102-12



## CAT HP J-HOOK: CAT16

Cat HP J-Hook: CAT16 have a wide base design and smooth beveled edges to provide a large bending radius for current and future high-performance data cables and fibre optics. The J-Hooks are designed to provide a strong and stable pathway support installation.



## CABLE TO FLANGE CLIP

- Provides support for low voltage cables
- Requires only a hammer to install
- Combine bridle rings with other nVent CADDY fasteners to support cables from flange, purlin, drop wire, t-grid, etc.

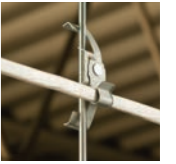


# Single Cable

	Cable/Conduit to Wire Clip	Cable Snap Clip
Ease of install	●	◐
Bend radius	◐	◐
Versatility	◐	◐

## CABLE/CONDUIT TO WIRE CLIP

Supports non-metallic sheathed cable with ground wire



## CABLE SNAP CLIP

Clip snaps on flange and cable snaps into clip



# Rooftop Options

	Pyramid ST Strut-Based Supports	Pyramid ST Bridge Assembly	Pyramid Tool-Free Cable Tray Support Kit
Ease of install	◐	◐	●
Versatility	●	◐	◐
Capacity	◐	●	◐

## PYRAMID ST STRUT-BASED SUPPORTS

Offer an ideal solution for mounting electrical and mechanical applications to strut. Superior load distribution and a low abrasion foam interface combine to ensure that the roof membrane is protected despite varying roof surfaces and shifting caused by expansion and contraction.



## PYRAMID ST BRIDGE ASSEMBLY

- Ideal for supporting multiple pipe runs, cable tray and air handling units
- Foam bottom offers low abrasion interface for better roof membrane protection



## PYRAMID TOOL-FREE CABLE TRAY SUPPORT KIT

- Push-in pins install without tools
- Pins and base will not corrode
- Accommodate most perforated cable tray
- Ready to use out of the box, saving installation time and labor



## Code Compliance

Contractors can count on nVent CADDY premium quality solutions to comply with industry codes and certifications. Our solutions undergo multiple certifications.

## EU Standard EN 50174-2: 2009

nVent CADDY datacom products are consistent with the requirements of EU Standard EN 50174-2. As mentioned previously, J-Hooks maintain a bend radius greater than or equal to 8 times the cable diameter for a 4-pair balanced cable. This is specified in the installation instructions.

Additionally, J-Hooks and cable tray supports allow cable bundles to be pulled through without coming in contact with abrasive supports in the cable fill area.

## Fire Rating

nVent CADDY fixing and fastening products for cable tray systems with any of the above logos in this brochure have been tested in accordance to DIN4102-12 and have an E30, E60 or E90 classification approval.

For more information about fire rated products and applications, please contact technical support.



Our powerful portfolio of brands:

**CADDY ERICO HOFFMAN RAYCHEM SCHROFF TRACER**



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