

# **CONNECT AND PROTECT**

# **Data & Networking Solutions**

Featuring the nVent CADDY Cat HP J-Hook System & WBT Performance Cable Tray





# The nVent CADDY Data & Networking Solutions Guide

From single wire to large bundle and cable tray, nVent CADDY has products and engineered solutions to fit any datacom need.

Our problem-solving, time-saving solutions include products you know and trust from J-Hooks to Telescoping Strut Replacement to the NEW nVent CADDY WBT Performance Cable Tray. All products are designed to work together to make your cable installation easier.

Trust nVent CADDY for datacom solutions that bring you the highest quality for the lowest total installed cost.

nVent CADDY offers products for any cabling installation need – single wire to large bundle and cable tray. Learn more about our products and find your ideal solution mix with our convenient guide.

Installation Need	Featured Products	Learn More
Wire Basket Tray and Ladder Supports	WBT Performance Cable Tray Universal Tray Support Wire Basket Support Clip Rod Lock Telescoping Strut	Pages 4-9
Large Bundle	Cat HP J-Hook Tree Cat Adjustable Cable Supports Cat CM CAT425	Pages 10-13
Medium Bundle	Cat HP J-Hook Low Voltage Accessory Clip	
Small Bundle and Single Cable	Metal Pressure Clip Cable Snap Clip	<b>Page</b> 15

# nVent CADDY WBT Performance Cable Tray System

The nVent CADDY WBT Performance Cable Tray System is an industry leading continuous cable tray and pathway support solution for today's high-performance cabling systems. Highly engineered features help ensure a secure installation that complies with industry codes and standards for high-performance cables. This robust solution gives confidence to the specifier that their data installations are ideally supported with the innovative Shaped Tray, Form Liners, and accessory exits and drop outs. Clever design allows the installer to maximize field efficiency with the PreForm and the No Splice. The nVent CADDY WBT Performance Cable Tray System provides the perfect combination of performance, time savings and versatility required by today's datacom and electrical contractors.



### WBT PERFORMANCE CABLE TRAY





nVent CADDY's Shaped Wire Technology increases cable support by 400% while also increasing tray stiffness. The T-Weld Edgewire eliminates sharp edges to improve safety. With one of the widest trays in the industry, this product is ideal for high-performance applications such as high-wattage POE and ultra high data rates.

Save time on the jobsite with our responsive design and layout services and innovative products:

- WBT Preform eliminates field cutting
- WBT No Splice allows you to combine splicing & support into one step
- WBT Form is a cost-effective alternative to solid tray
- Trapeze Support Solutions facilitate prefabrication

### Made in the USA 블

- 100% recycled domestic steel
- LEED credits
- Largest domestic supply capacity
- Superior quality & product consistency

### cUL/UL Classified Painted Tray ເຟິ້ມs

- UL® Classified as an equipment ground conductor
- Each section is masked & shipped with clip no field prep required
- Multiple painted options stocked, custom colors available





Standard fray support area: .0078125" sq. .03125" sq. (based on cable contact area of .125") Cabling

# nVent CADDY WBT Performance Cable Tray System

Today's datacenters and on-location datacom solutions are critical to a business' operations. The nVent CADDY WBT Performance Shaped Cable Tray meets and exceeds the demands for the most complex data centers and small businesses alike.

Compared to traditional round tray technology, the shaped tray wires are specially designed to reduce cable strain while maximizing installation flexibility, resulting in a system that can be installed on longer runs with more complex shape configurations than others. The WBT Performance Shaped Cable Tray provides the ideal foundation required by today's datacom and electrical contractors.

### WBT PERFORMANCE CABLE TRAY



### Features & Benefits

- Provides optimal support for all high-performance data cable, fiber, & PoE with "Shaped Tray" technology
- UL® Classified as an equipment ground conductor
- Extensive size range with industry leading tray width capability
- Available in multiple finishes and materials powder coat paint, zinc plated, stainless steel
- Custom configurations special sizes, widths, & depths

# nVent CADDY WBT Preform

Solve common cable pathway, cable tray joining and direction changes with the nVent CADDY WBT Preform. Corners, tees, intersections and cable reductions are easy thanks to the innovative plastic insert that works perfectly with the entire nVent CADDY WBT Performance Cable Tray line of solutions. When properly installed, the WBT Preform transition molds can save time and increase labor efficiency, while providing ease of maintenance for future cable expansions.

### **WBT PREFORM**



Configuration	Tray	Traditional Configuration	WBT Preform	Time Savings (%)
Radius	2x8	7 minutes	1 minute	85%
Radius	4x12	20 minutes	2 minutes	90%
Tee (Corner Splice)	4x12	8 minutes 45 seconds	2 minutes 30 seconds	70%
Tee (Radius)	4x18	10 minutes	2 minutes 30 seconds	74%
Intersection	6x24	29 minutes	4 minutes 45 seconds	83%

# nVent CADDY WBT Splicing Systems

On-site splicing and joining of cable tray can add time and money to any installation effort. The nVent CADDY WBT Splicing Systems provide innovative ways to save contractors time while providing lasting, reliable solutions that are aesthetically pleasing. Everything from the traditional nut & bolt splice to the innovative nVent CADDY WBT Performance Cable Tray NoSplice Supports. All solutions are UL classified when utilizing the entire tray solution.

Features & Benefits

### WBT PERFORMANCE CABLE TRAY





NoSplice Supports

Nut & Bolt Splices



Tray Width	Splice Quantity	Traditional Splice	WBT NoSplice	Time Savings (%)
2x12	4	75 Seconds	10 Seconds	86%
4x12	6	135 Seconds	10 Seconds	93%
4x18	7	160 Seconds	20 Seconds	87%
4x24	8	180 Seconds	20 Seconds	89%

• UL® Classified as an equipment ground conductor

splice feature great labor savings

radius, and bar splices

splice combinations

• Nut & Bolt - Splice kits, washer supports, & innovative double

· Reinforced Splices - Increase splice stability with corner,

· NoSplice Supports - Eliminates redundant support and

# nVent CADDY WBT Inserts, Liners, & Covers

Solutions for fiber optic cable runs or open ceiling architecture can be effectively solved with the nVent CADDY WBT Form, WBT3, and Covers. The highly configurable system allows for sensitive cable protection and is visually suitable for open ceilings while utilizing the WBT Performance Cable Tray system.

### **WBT FORM**





### Features & Benefits

- UL<sup>®</sup> 94 V0 polymer
- RoHS compliant
- Cost-effective option to
  metallic liners
- Provides solid top & side surface
- Score material for custom fit
- Multiple colors available

### WBT3 & COVERS



- Easily snaps in place
- Effective protection for sensitive cable runs
- Provides top, bottom & side surfaces
- Cost-effective option to solid trough tray
- Multiple colors available

# nVent CADDY WBT Cable Routing Accessories

Ensure that your high performance cabling is properly routed, segregated, and secured utilizing nVent CADDY WBT waterfalls, drop outs, and dividers. These products are designed to effectively route cable within the tray as well as transition out to the next branch pathway. Minimize the risk of improper cable distribution by utilizing these specialized cable routing accessories.

### WBT CABLE DROPOUTS & EXITS



### Features & Benefits

- Controls cable transitions out of tray to nVent CADDY J-Hooks or nVent CADDY WBT Performance Cable Tray
- Cable drop outs are tool free
- · Cable exits utilize standard WBT hardware
- Multiple colors available

Cable Dropout

### WBT FLEX DIVIDERS, GUIDES, & BRIDGES



- Flex dividers available in UL<sup>®</sup> 94 V0 rated polymers & pre-galv steel
- Divider posts & cable guides are tool free
- WBT Bridge is designed to simply slip over any installed Preform fitting

# nVent CADDY Rod Lock Telescoping Strut

nVent CADDY solves common wire basket tray support installation challenges with innovative solutions that maximize labor efficiency and reduce complexity. nVent CADDY WBT has the right solutions for your needs, from nVent CADDY Rod Lock Trapeze that is used to facilitate prefabrication to open-sided supports for wall and ceiling mounts, to SpeedLink wire hanging.

### **ROD LOCK STRUT NUT**





### **Features & Benefits**

- Combines traditional strut with Rod Lock
- Simple solution for multi-tiered trapeze installations
- Designed for open-side-up or open-side-down strut configurations

Factory installed sections of strut with Rod Lock technologyIdeal for prefabricated and multi-tiered trapeze installations

• Fast, "push-to-install" technology

### **ROD LOCK STRUT**



### **TSR - TELESCOPING STRUT REPLACEMENT**





### Features & Benefits

Features & Benefits

- Highly configurable
  - Rivnut: captive threaded nuts
  - Rod Lock: easy "push-to-install" design

• Use SN series nut as an installation aide

Fast, "push-to-install" technology

- Retrofit: slotted ends allow the bracket to be installed above an existing trapeze
- No Nut: can be attached directly to a wall for wall-mounted applications
- Standard strut profile runs the entire length of the part, allowing most standard fittings to be placed anywhere between the rods

### **UTS - UNIVERSAL TRAY SUPPORTS**





- · Ideal for ceiling and wall mount applications
- Range of sizes
  - UTS150 (6"), UTS200 (8"), UTS300 (12")
- C-Shape enables ease of cable install

# nVent CADDY Strut & Threaded Rod Hardware

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**





### Features & Benefits

- 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

### **SNSW FLANGED NUT**





### Features & Benefits

- Ideal for retrofit projects, such as trapeze installations, where disassembly of the support system is not desired
- · Functions as a hex nut and flat washer combined
- Use as a stopper when installing nVent CADDY Rod Lock assemblies

### **SN SERIES NUT**





### **Features & Benefits**

- Allows side mounting of nut to threaded rod
- Use as a stopper when installing nVent CADDY Rod Lock assemblies

### 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.



# nVent CADDY Tray & Ladder Supports

### WBS - WIRE BASKET SUPPORTS





### SPEED LINK SYSTEM





### Features & Benefits

- · Accommodates threaded rod suspension without strut
- Range of installations
  - Riv-nut, retrofit, side-mount
  - 3/8", 1/2"
  - M8, M10
- Tool free, snaps in place
- Add on features to hang J-Hooks or other accessories

- Extremely flexible
  - Various lengths available
  - Catalogue of nVent CADDY attachments to structure
  - Infinitely adjustable
- Low profile device minimizes visual impact
- Keyless release easy to use





Product	Rod Lock Strut Nut	Universal Tray Supports	Rod Lock Strut	Telescoping Strut Replacement	Wire Basket Supports	Speed Link
Part number	A12H2000PG w/ CRLS37EG	UTS300 UTS200 UTS150	CRLP Family	TSR1220	WBS1 WBS2 WBS37	SLK & SLS Family
Supporting length	Various	12", 8", & 6"	Type A – 14" – 50" Type C – 14" – 38"	12" – 19 1/2"	Various	Various
Benefits	Combines traditional strut w/ Rod Lock	Multiple mounting options Open "C" design	Eliminates field cutting	Telescoping support for fast adjustment	Tool-free supports	Replaces rod, easy to adjust, fast
Ideal for	Prefab large tray	Wall & ceiling mount	Prefab large tray	Prefab retrofit	Retrofit smaller tray	Open-ceiling architecture

# nVent CADDY Cat HP J-Hook System

The nVent CADDY Cat HP J-Hook System is an advanced, non-continuous pathway support solution for today's highperformance cabling systems. Highly-engineered features help ensure a stable and secure installation that complies with industry codes and standards for high-performance cables. The nVent CADDY Cat HP System is a cost-effective alternative to using wire mesh cable tray, ladder tray or similar complex alternatives. It requires significantly less material and installs in a fraction of the time of other methods. This versatile solution accommodates a wide range of attachment methods and is available as individual J-Hooks, pre-built nVent CADDY Cat HP assemblies and multi-tiered trees, as well as interchangeable nVent CADDY Cat HP components. The Cat HP J-Hook System provides the perfect combination of performance, time savings and versatility required by today's datacom and electrical contractors.



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

During installation, cables are bent or flexed in order to accommodate various environmental conditions such as getting around obstacles and making elevation or directional changes. Minimum bend radius refers to the smallest radius the cable is allowed to be bent without degrading performance. Depending on cable types and industry standards, minimum cable bend radius varies. However, it can typically be calculated by using the following formula:

# (Minimum bend radius = cable outer diameter x cable multiplier)

ANSI/TIA 568.0-E for Generic Telecommunications Cabling requires a minimum bend radius of 4 times the cable diameter for 4-pair balanced twisted-pair cable during and after installation. So for a typical CAT 6A



cable (about ¼" diameter), bend radius for appropriate cable supports such as a J-Hook need to be at least 1". This standard is meant to ensure quality performance and connectivity, support technological innovation, and provide superior, globally accepted products.

Comply Brand Test 1 Results with TIA nVent **YFS** CADDY 2.84" NO А 0.04" NO В 0.16" NO Typical deformation S 0.21" caused by noncompliant J-hooks



### COMPETITIVE COMPARISON

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

### Test 1

In order to find out 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 5-foot spacing and 1-foot sag, left in position for 24 hours. The cables were then offset from the J-Hook in order to examine the cable jackets for deformation. The results are shown in the table to the 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. nVent CADDY Cat HP J-Hook System is the only J-Hook that provides proper bend radius (greater than 4x cable diameter per TIA 568.0-E).

\*Mitutoyo Contracer C-3000. Content © Mitutoyo (UK) Ltd 2012.

Cable	Diameter	Required Bend Radius*
CAT 5e	0.20"	0.80"
CAT 6	0.21"	0.84"
CAT 6A	0.27"	1.08"

\*Required bend radius per TIA 568.0-E.



# Power over Ethernet (PoE)

IEEE 802.3 initially standardized Power over Ethernet (PoE) in 2003. Since then, it has become the standard for transmitting power and data through the same cable.

### **TYPICAL APPLICATIONS FOR PoE**

- Infrastructure WAP, routers
- · Communications VoIP, intercom, displays
- · Controls & Security IP camera, automation, access points
- Lighting LED (indoor & outdoor)
- Implementing the use of PoE applications simplifies installation and potentially lowers costs

### **INSTALLATION BENEFITS FOR PoE**

- · Smart devices power & data in one
- · Reduced power consumption
- · Flexibility & adaptability
- With all these benefits, the technology continues to put the power transmission capacity. This is commonly referred to as high wattage PoE, typically transmitting 60 100W.

### CHALLENGES FOR PoE

- Heat generation
- · Can impair transmission rates
- Long-term cable degradation
- 328 ft run limit
- Installers of structured cables can take several actions to mitigate the excessive heat generated by PoE:
- 1. Higher-rated category cables, which can greatly diminish the impact on temperature most common: 5e, 6, 6A, 7
- 2. Use cables with high gauge copper conductors (up to 22) & temperature rated insulation jackets/shielded cables
- 3. Control bundle size & spacing in basket tray / ladder rack installations
- 4. Use metallic non-continuous cable supports superior 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 ANSI/TIA 568-E 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.









### TIA 568-E

Min bend radius = 4x cable diameter (copper) Min bend radius = 20x cable diameter (fiber) **TIA TSB-184-A & ISO\IEC TR 21925** Bundle = close pack for 1m **ANSI/BICSI D044** Bundle = close pack for 24in Max bundle size & spacing specs **IEEE 802.3bt** Type 3 – 60W; Type 4 – 99W

### 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.

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

# nVent CADDY J-Hooks – Large Bundle

nVent CADDY provides multiple options to effectively support large bundles of high-performance category cable. When cable tray is either not cost effective or difficult to install in tight spaces, these nVent CADDY non-continuous cable supports will help the contractor meet the application requirements.

### CAT HP J-HOOK TREES



### Features & Benefits

- Ideal solution for segregating multiple runs of cable following the same path
- Includes all benefits of the Cat HP J-Hooks
- Multiple attachment methods wall, ceiling, beam flange
- Multiple capacity & color configurations

### **U-HOOK**





### **Features & Benefits**

- Ideal for retro-fit installations
- Multiple configurations center hung threaded rod, cantilever with UTS, & strut mounted pathway
- Move large amounts of cable

**CAT425** 

- Highly configurable, various attachments to structure
- String, flexible fabric cable saddle
- Move large amounts of cable in a narrow pathway



# nVent CADDY J-Hooks – Medium Bundle

nVent CADDY provides multiple options to effectively support medium bundles of high-performance category cable. Branching out from primary cable tray pathways, these nVent CADDY non-continuous cable supports will help the contractor meet the application requirements.

### CAT HP J-HOOK









## Generous bend radius meets all global high-performance cable requirements

Features & Benefits

- Ensures data integrity
- Eliminates cable kinks & installation damage
- · Superior load ratings and rigidity
  - Maximizes installation efficiency
  - Ease of installation: cable pulling accessories
- Accommodates PoE spacing requirements
- Color options for cable run identification
- · Provides confidence to meet local standards & regulations
- cULus<sup>®</sup>, DIN 4102

### CAT100CM





### Features & Benefits

- · Low-profile solution for ceiling installations
- Create center hung trees
- Specially designed double J-Hook has large-diameter, rounded support surfaces
- Move large amounts of cable in a narrow pathway

### CAT CR50





### Features & Benefits

- Cost-effective means of cable management
- Easy to install, squeeze to close
- Suitable for air handling spaces (plenum)







- 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
- · Great alternative to vertical ladder of wire basket solutions

# nVent CADDY J-Hooks – Small Bundle & Single Cable

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 deck. Some of them offer a low-profile feature for better aesthetics and to accomodate tight spaces.

### **PKM – METAL PRESSURE CLIP**



### Features & Benefits

- 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







### Features & Benefits

- Cost-effective means to support small branch runs
- Available in multiple structural attachments

### CABLE SNAP CLIP





### **Features & Benefits**

- Easy, hammer-on installation
- · Secure low voltage effectively to beam flange
- Wide range of sizes

### 4H24ST3





- Easy, hammer-on installation
- · Secure low voltage effectively to beam flange
- Bend tab allows for easy installation

# nVent CADDY Cat HP Factory Assemblies

nVent CADDY Cat HP assemblies are the fastest CATs in the Cat HP family because they provide a high-performance J-Hook solution in a single assembly. They are ready to use right out of the box with a broad range of attachment methods. Cat HP assemblies are ideal for new construction or when the structural attachment requirements are well understood and installation speed is critical.

### Features & Benefits

- · The ideal assembly, ready out of the box
- · Multiple attachments, configurations, and orientations offer the ability to tailor the solution to the application
- · Universally compatible with commercially available structural elements
- · Portfolio offers the widest range of options to best meet your installation needs

### CAT HP FACTORY ASSEMBLIES

### Flange/I-Beam





nVent CADDY Cat HP J-Hook with BC200 Beam Clamp, Swivel



nVent CADDY Cat HP J-Hook with BC Beam Clamp



nVent CADDY Cat HP nVent CADDY Cat HP J-Hook with BC Beam J-Hook with BC26 Clamp, Swivel Beam Clamp



nVent CADDY Cat HP J-Hook with Hammer-On Flange Clip



nVent CADDY Cat HP J-Hook with Hammer-On Flange Clip, Swivel



Clip



nVent CADDY Cat HP nVent CADDY Cat HP J-Hook with C Purlin

Clip



nVent CADDY Cat HP J-Hook with Z Purlin J-Hook with Z Purlin Clip, Swivel

### **Concrete/Steel Deck**



nVent CADDY Cat HP J-Hook with Shot-Fire Bracket Drop Bar



nVent CADDY Cat HP J-Hook with Shot-Fire Bracket

nVent CADDY Cat HP J-Hook with Angle



nVent CADDY Cat HP Angle Bracket



Drop Smooth Rod J-Hook with Pin Driven with Shot-Fire Bracket







nVent CADDY Cat HP J-Hook to Pedestal

nVent CADDY Cat HP J-Hook to Strut

nVent CADDY Cat HP J-Hook to T-Grid



nVent CADDY Cat HP J-Hook to Rod/Wire





# nVent CADDY Cat HP Field Assemblies

nVent CADDY offers an innovative solution to contractors who run into unknown challenges on the jobsite. nVent CADDY Cat HP Field Assemblies enable the contractor to carry a limited inventory while servicing the job at hand. A great way to stock service trucks is with a standard size J-Hook and a range of structural components.

### CAT HP MODULAR ASSEMBLIES



### **Component Assembly**

# <image>

- Easy-to-install components, one component fits the range of Cat HP J-Hooks
- Multiple attachments, configurations, and orientations offer the ability to tailor the solution to the application
- Universally compatible with commercially available
  structural elements
- Portfolio offers field component options to best meet your installation needs





# nVent CADDY Rooftop Pyramid 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 TRAY & CONDUIT SUPPORTS**





### Features & Benefits

- Compatible with all membrane materials for rooftop installations
- Tool-free options for ease of installation
- Durable materials for environmental performance
- · Plenum rated options for raised floor applications

# nVent CADDY Seismic Bracing

From design to construction to inspection, we keep our process transparent to ensure a full understanding of the final bracing installation, whether it requires cable or rigid bracing solutions.

### WE MAKE SEISMIC SIMPLE

- Working with you to design a turn-key, fully engineered, complete bracing system that meets your needs
- Identifying the appropriate products from the broad offering
- Offering compatible fixing, fastening and support products
- Explaining installation techniques and tips to meet the evolving codes and standards requirements



# nVent Data & Networking Solutions

The highest amount of data and network availability is crucial in today's connected world and ever-expanding IT and communication requirements demand remote equipment solutions in places where they never existed. nVent CADDY is proud to be a part of the broad portfolio offered by nVent Data & Networking solutions. This modular and broad portfolio combined with design and project support, enables you to specify and deploy your project on time to ensure data and network infrastructure availability and protection.



### FROM THE EDGE TO THE CLOUD

To learn more about nVent's full collection of Data & Networking products and support services, visit nvent.com/applications/dns

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