


# Energy Efficient Data Center Cabinet Systems



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<https://marketplace.cisco.com/catalog> and search Panduit.

## PANDUIT®

building a smarter,  
unified business foundation  
**Connect. Manage. Automate.**



**Using the Panduit Energy Efficient Data Center Cabinet System, you can greatly improve the energy efficiency of your data center while confidently increasing your kW per cabinet density to increase utilization of your data center space.**

### Factors Effecting Efficiency

- Inlet temperatures
- $\Delta T$  across heat exchanger
- Capacity utilization

### Efficiency Influencers

- Inlet temperatures
- Set points
- Hot air/cold air leakage and recirculation
- Server/CRAH fan speeds
- kW per cabinet density

### Enabling Improved Efficiency

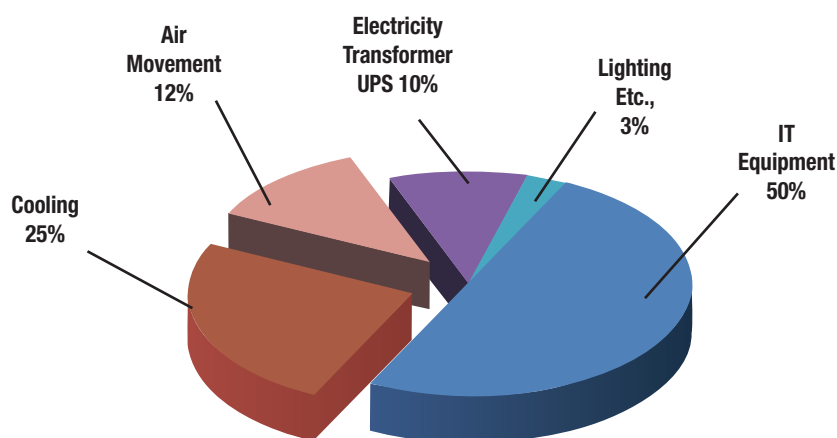
- Seal every gap for complete separation of cooling and exhaust air
- Direct cold air to where it needs to go
- Contain cooling and exhaust air for maximum cooling capacity efficiency
- Monitor to maintain operational and energy efficiency

## Reduce Operational Costs, Improve Capacity Utilization, and Lower Power Usage Effectiveness (PUE)\*

Driven by explosive data processing growth, Data Center Managers face multiple, competing demands: reducing operational costs, improving energy efficiency, and optimizing available capacity, while sustaining a low total cost of ownership.

To meet these demands while minimizing the risk to service levels, the available data center space is often underutilized while being overprovisioned with excess power and cooling capacity regardless of actual IT equipment and space utilization. Today, a typical data center consumes about 3-5kW per cabinet due to power and cooling concerns, while the available cabinet space can accommodate 15kW or more per cabinet if managed effectively.

As energy and construction costs continue to rise, over-provisioning and under-utilization are no longer sustainable. Energy costs related to cooling account for approximately 37% of the overall data center power consumption<sup>1</sup> and are one of the fastest rising data center operational costs<sup>2</sup>.




Average data center energy usage allocation<sup>1</sup>

\*Power Usage Effectiveness – a metric used to measure how effectively input power is used. It is expressed as a ratio of power available to power used.

<sup>1</sup> Average Data Center Energy Usage Allocation, Lawrence Berkeley National Laboratory 2007

<sup>2</sup> 451 Research has published 'Highly Energy-Efficient Datacenters in Practice,' October 2012



Power and cooling capacity remain the top targets for efficiency improvement and optimization of cooling capacity is often the simplest way for data center operators to realize short term savings and directly impact PUE<sup>3</sup>.

Panduit Labs research confirms that raising the supply air temperature in a data center is one of the most effective means to reduce energy consumption. In addition, higher return temperatures enable a higher CRAH  $\Delta T$  across the heat exchangers allowing the cooling system to operate more efficiently.

A key way to realize this energy efficiency potential and enable maximum capacity utilization is to eliminate the mixing of cold and hot air within the cabinet and at the room level delivering higher return air temperatures to the cooling system and allowing higher room set points.

**1°C rise in chiller water temperature translates into  
3-4% cooling system energy savings<sup>4</sup>.**

<sup>3</sup> How To Measure Energy Consumption In Your Data Center, Gartner Core RAS Research Note G00205428, 8 September 2010  
<sup>4</sup> Design Considerations for Datacom Equipment Centers ASHRAE 2005, ISBN 1-931862-94-X. Page 138

# Complete Hot Air/Cold Air Separation is Critical to Energy Efficiency and Capacity Utilization

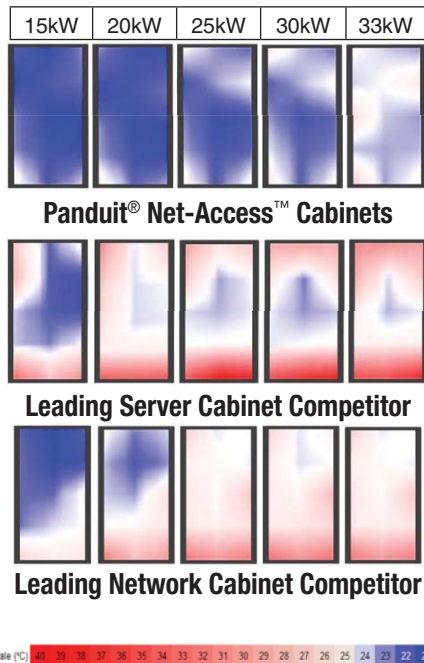
Panduit's Energy Efficient Data Center Cabinet System offers containment, in-cabinet ducting, and improved sealing that optimizes air separation and provide superior energy savings compared to competitive offerings.

Optimized energy efficiency and capacity utilization begin with improved sealing. Even small air leaks within a cabinet will impact data center energy efficiency, regardless of the heat load. Leaks allow hot air recirculation forcing IT equipment inlet fans to work harder and consume more energy, limiting per cabinet power utilization. Panduit® Net-Access™ Cabinets reduce the air leakage typical in competitive cabinets by as much as 80%.

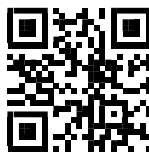
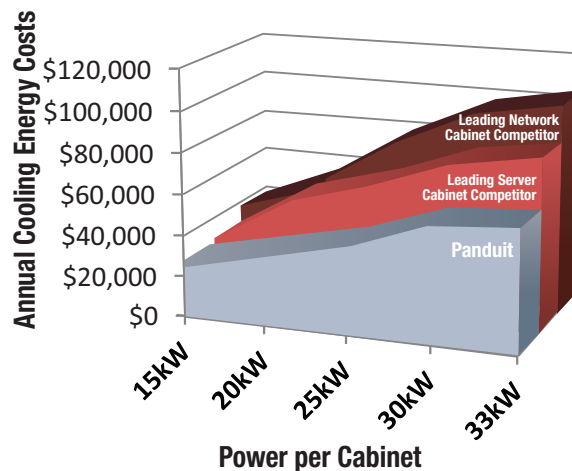
The graphics below illustrate the impact these leaks have on inlet temperatures. By preventing hot air recirculation, a more consistent inlet temperature gradient can be realized across the entire front of the cabinet allowing the data center set point to be raised. This results in reduced cooling expense leading to the ability to increase density power usage per cabinet, and increase available capacity.

**Improved sealing coupled with containment leads to a \$500 annual savings in cooling costs per cabinet for high density applications at \$ .10 per kWh at 15kW per cabinet<sup>7</sup>.**

**Inlet Air Temperature Gradients at Front of Cabinets Comparison<sup>7</sup>**



**Impact of Net-Access™ Cabinet with Net-Contain™ Containment System on Cooling Energy Costs vs. Competition<sup>7</sup>**



**Scan to learn how Panduit delivered a 27% energy savings with Energy Efficient Cabinets and Containment.**

With improved cabinet **sealing, in-cabinet ducting, containment, and monitoring**, the results show you can significantly increase energy efficiency by raising the set point temperature in the entire data center.

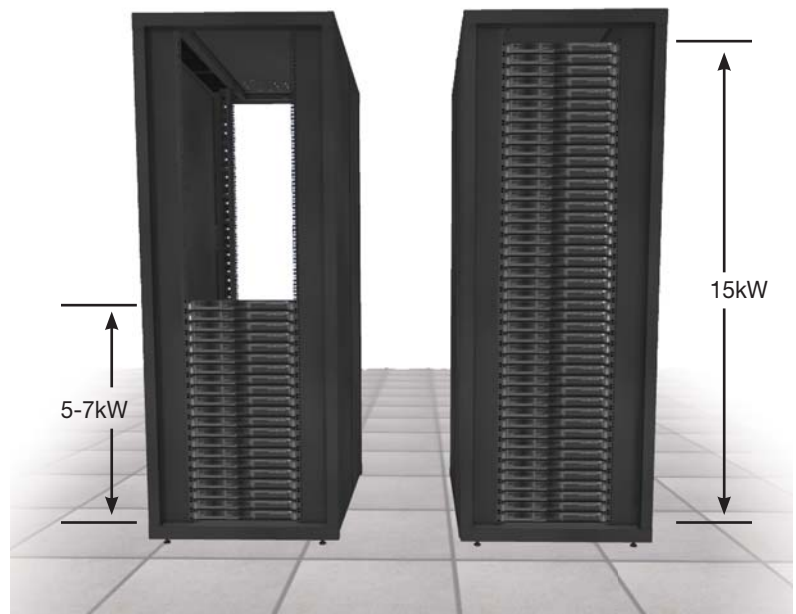


# Increase Density to Optimize Data Center Capacity

Panduit Net-Access™ PDUs, integrated into thermally optimized Net-Access™ Cabinets, enable data center managers to realize higher capacity utilization and reduced OpEx and CapEx costs.

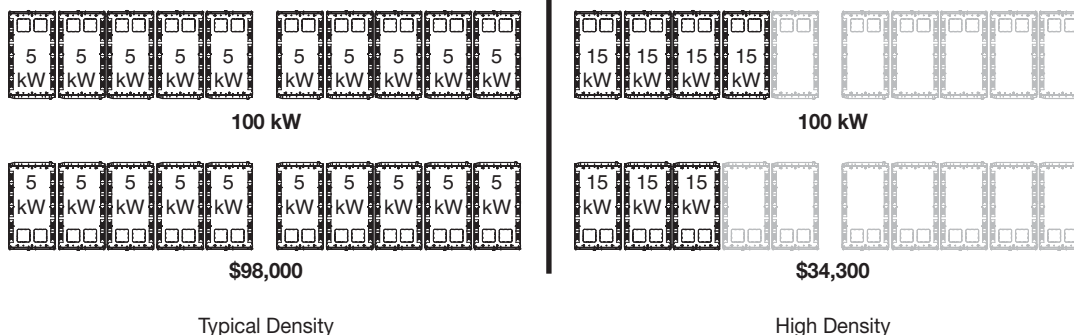
Typical cabinets are loaded to 5 to 7kW on average, which is often far less than the physical space available within the cabinet resulting in overprovisioning or the need to build expensive new whitespace.

Gartner estimates that data center floor space costs \$4,900 per cabinet annually in CapEx and OpEx (excluding power and cooling) regardless of capacity utilization.\*



\$4,900 per Cabinet Space

## Impact of Increasing Density



Increasing the density of a 100kW data center can reduce floor space costs from \$98,000 to \$34,300 and yield up to \$63,700 in annual savings versus competitive offerings.

# Seal, Direct, Contain, and Monitor to Improve your PUE

**Panduit Energy Efficient Data Center Cabinet System provides total separation allowing higher data center set points and reduced cooling system energy consumption by up to 40%.<sup>5</sup>**

## Seal every gap for complete separation of cooling and exhaust air

Net-Access™ Cabinets and Sealing Accessories eliminate leakage through the cabinet structure preventing re-circulation of hot exhaust air back into equipment inlets.

## Direct cold air to where it needs to go

Net-Access™ In-Cabinet Ducting directs cool air directly into the intake fans preventing recirculation and reducing inlet air temperature by as much as 14°C, lowering fan energy consumption<sup>6</sup>.

## Contain cooling and exhaust air for maximum cooling capacity efficiency

Net-Contain™ Vertical Exhaust Duct and Cold Aisle Containment Systems eliminate hot air recirculation and mixing with cold air allowing room and chilled water temperature set points to be raised and PUE to be lowered.

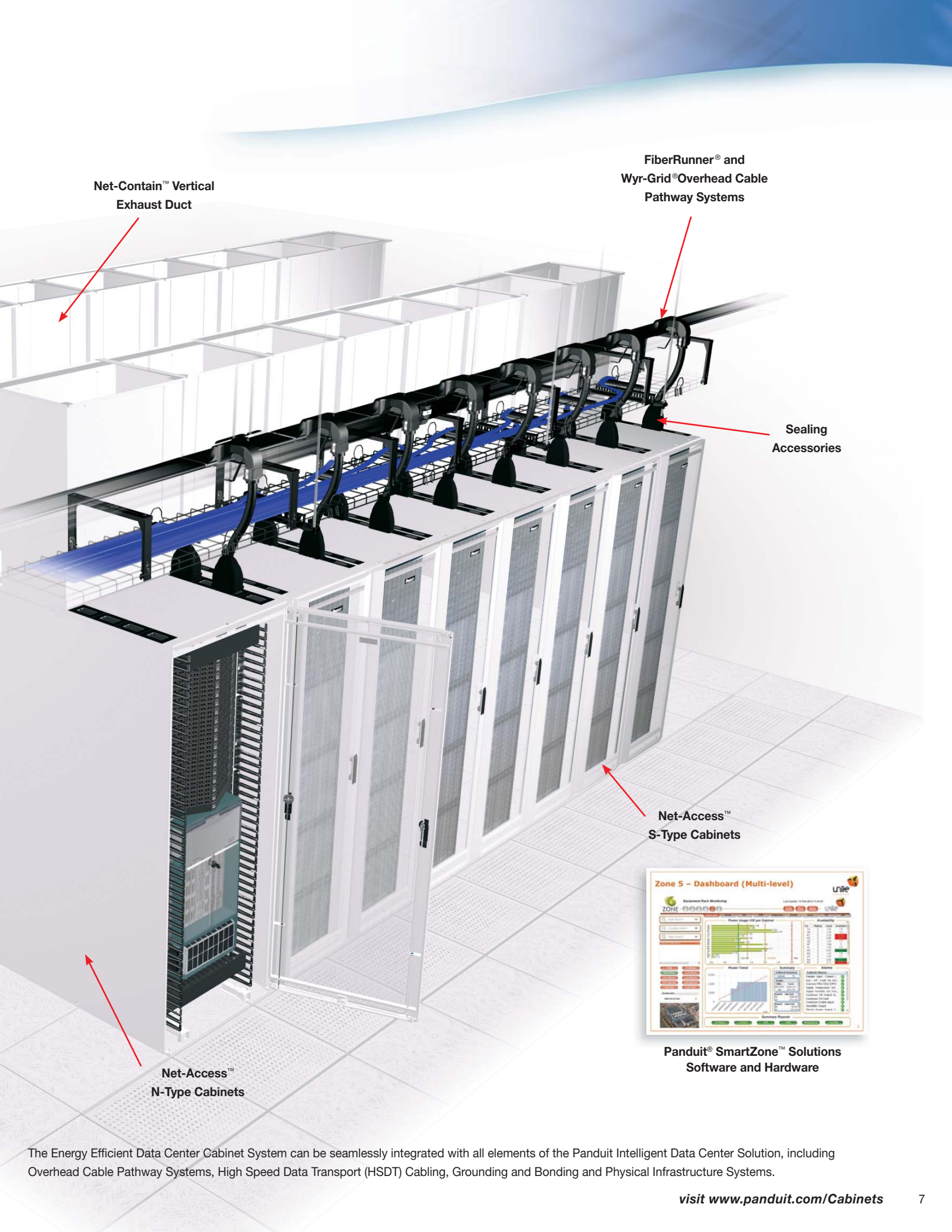
## Monitor to maintain operational and energy efficiency

Once the physical infrastructure has been optimized for thermal efficiency, Panduit® Physical Infrastructure Manager (PIM™) Software and the Unite Technologies™ by Panduit Platforms allow continuous monitoring of highly accurate, granular PUE measurements in real-time to maintain thermal efficiency in dynamic data center environments.



<sup>5</sup> Impact of Air Containment Systems, Panduit White Paper #WP-20, June 2012

<sup>6</sup> The Use of In-Cabinet Ducting to Improve Inlet Air Temperatures, Panduit White Paper RKAT02--WW-ENG, December 2012



Net-Contain™ Vertical Exhaust Duct

FiberRunner® and Wyr-Grid® Overhead Cable Pathway Systems

Sealing Accessories

Net-Access™ S-Type Cabinets

Net-Access™ N-Type Cabinets



Panduit® SmartZone™ Solutions Software and Hardware

The Energy Efficient Data Center Cabinet System can be seamlessly integrated with all elements of the Panduit Intelligent Data Center Solution, including Overhead Cable Pathway Systems, High Speed Data Transport (HSDT) Cabling, Grounding and Bonding and Physical Infrastructure Systems.



# Seal Every Gap for Complete Separation of Cold Intake and Hot Exhaust Air

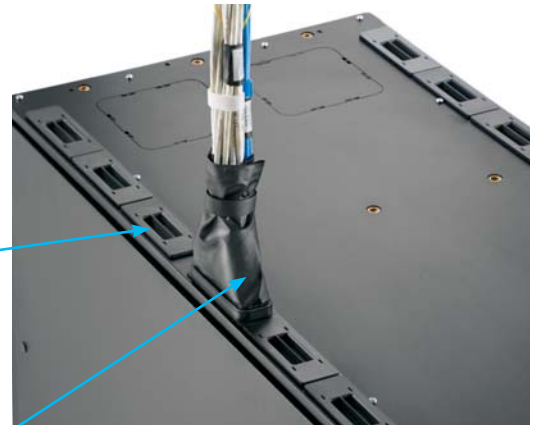


## Complete Air Seal Features Reduce Air Leakage Throughout the Cabinet Structure by as much as 25%<sup>7</sup>

Net-Access™ Cabinets have been designed to eliminate every possible air gap other than those needed to mount equipment. This minimizes by-pass air and recirculation in the cabinet providing lower inlet temperatures.

### Cabinet Top Seal

Net-Access™ Cabinets are provided with pre-installed 1.5" x 5" or 3.5" x 5" cabinet top covers and cable protection bezels to eliminate air leakage from unused cable entry holes.



### Cool Boot® Cabinet Top Air Sealing Fitting

Eliminate air leakage where data cable bundles enter the cabinet.



### Tool-Less Blanking Panels

Snap-In Panels optimize cooling efficiency by eliminating bypass airflow and hot air mixing in cabinets.



### Cool Boot® Raised Floor Grommet

Stop bypass air in new or retrofit raised floor applications where power and data cable pass through a cutout into a rack or cabinet, saving \$46 per floor tile cutout annually<sup>8</sup>.



Scan to learn more about the  
Cool Boot® product overview.



## Direct Cold Air To Where It Is Needed

Net-Direct™ Inlet Ducts enable optimized containment by effectively directing airflow to improve network reliability

- Inlet duct solutions deliver cooling air directly from the cold aisle into the intake fans of switches
- Inlet ducts are completely passive, requiring no energy to operate and eliminating a point of failure
- Ensures front to back cooling airflow which enables an effective deployment of network switches with a Net-Contain™ Cold Aisle Containment deployment
- Inlet ducts enable reduced fan power energy consumption by allowing lower fan speeds, improving the reliability of the switch

Available for: Cisco^ Nexus, Catalyst and MDS Switches and Juniper EX Series Switches



## Direct Hot Air To Where It Needs To Exhaust

Net-Direct™ Exhaust Ducts direct hot exhaust air out of a cabinet away from adjacent devices within non-contained environments

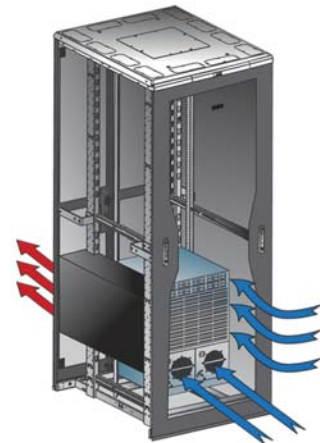
- Exhaust duct solutions channel hot exhaust air directly to the hot aisle, away from the cold air inlet of adjacent switches
- Exhaust ducts are completely passive, requiring no energy to operate and eliminating a point of failure
- Ensures switch exhaust airflow is directed to the hot aisle enabling effective deployment of network switches with a standard hot aisle/cold aisle configuration
- Exhaust ducts enable reduced fan power energy consumption by allowing lower fan speeds, improving the reliability of the switch

Available for: Cisco^ Nexus and Catalyst Switches



^Cisco is a registered trademark of Cisco Technology, Inc.

**Patented® In-Cabinet Ducting** optimizes cooling system efficiency by establishing front-to-back airflow patterns through the cabinet.

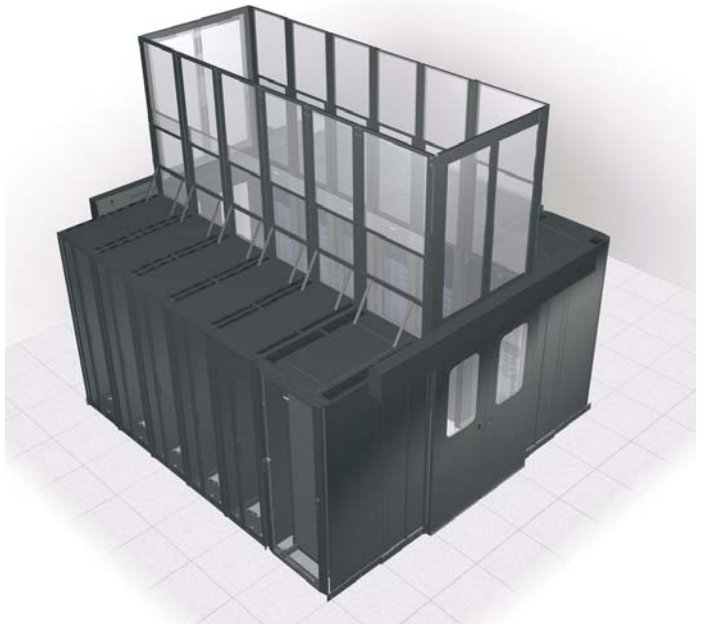
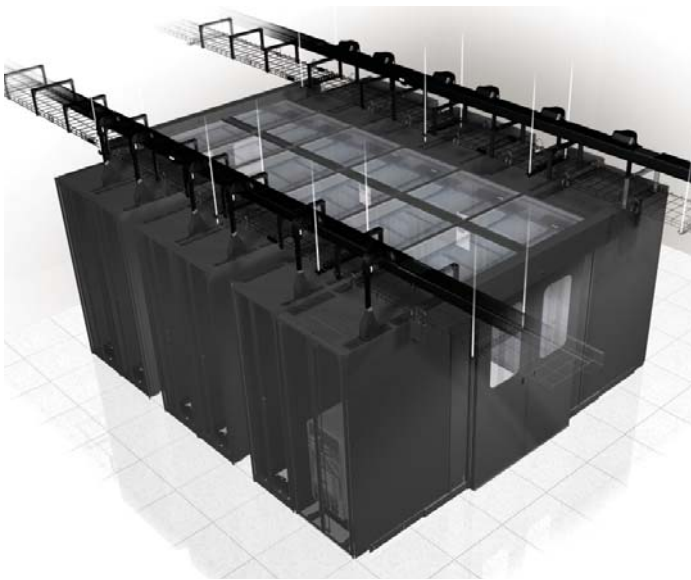


# Contain Cold Air or Hot Air to Maximize Cooling and Space Capacity Utilization

## Net-Contain™ Aisle Containment Systems

### Deliver Efficient Cooling for High Density Applications

Data Center Managers, challenged to maximize the utilization of available rack-space and cooling capacity, often increase the power density per cabinet. As cabinet power densities rise, containment architectures are the optimal approach, ensuring uniform cooling air temperature is delivered to equipment in high density PODs allowing full utilization of available cabinet space and cooling capacity.



Scan to view the Panduit® Net-Contain™ Cold Aisle Containment Application at EMC's Durham North Carolina Data Center.

## Net-Contain™ Aisle Containment System Benefits

- **Data Center Design Versatility** – Translucent panels provide built-in provisions for fire suppression, environmental monitoring, security devices and other utilities to accommodate all application requirements
- **Complete Application Flexibility** – System can be used for slab floor or raised floor applications. Modular design enables varying aisle widths and accommodates intermixed Net-Access™ Cabinet widths and in-row coolers to support various network architectures and heat densities
- **Reduced Operational Costs** – Sliding doors allow easy accessibility for efficient moves, adds and changes and automatically return to closed position optimizing air containment. Net-Contain™ Components are engineered to seal, minimizing leakage to less than 3%

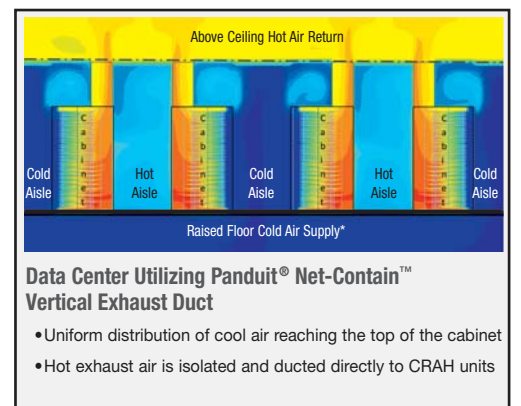
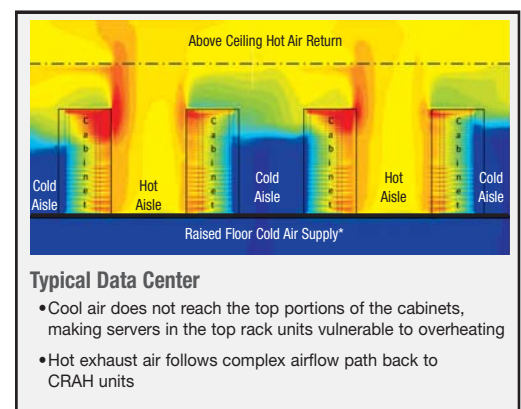
# Net-Contain™ Vertical Exhaust Duct

## Passive Cooling for High Density Applications

Net-Contain™ Vertical Exhaust Duct (VED) Systems optimize cooling energy utilization to support high density heat loads to enable 30kw or greater per cabinet. VEDs passively separate hot exhaust air from cooling air and direct hot exhaust air from active equipment into the Computer Room Air Handler (CRAH) air return system, allowing higher return air temperature improving CRAH and heat exchanger system efficiency up to 40% or more.



Scan to view the Panduit® Net-Contain™ Vertical Exhaust Duct Application at Cisco Allen Data Center.

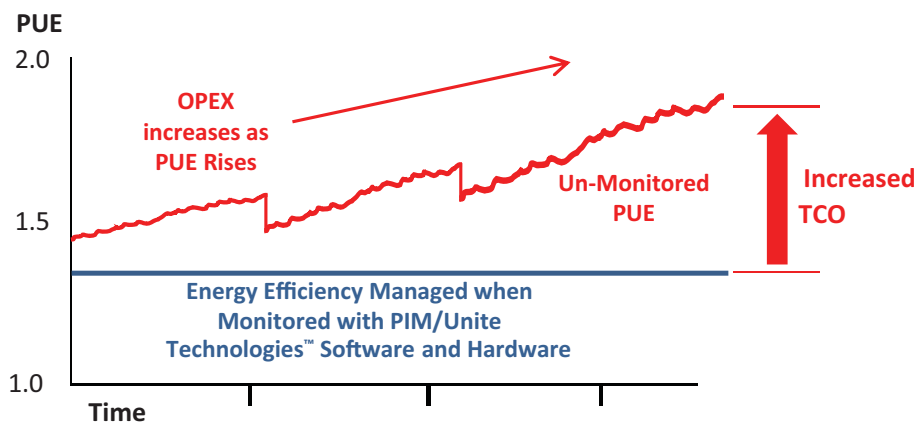


## Net-Contain™ Vertical Exhaust Duct System Benefits

- **Flexibility and Versatility** – Multiple sizes, heights and adjustable height features allow system to adapt to virtually any data center structure including slab floors or raised floors and facilities with or without drop ceilings
- **Speed Deployment and Reduce Installation Cost** – Fast, simple assembly and integral ceiling seal reduce installation time by 30% compared to competitive offerings
- **Enhance Your Data Center Environment** – Vertical Exhaust Duct and Net-Access™ Cabinets with sealed, solid rear doors dampen equipment noise
- **Bond Vertical Exhaust Duct with single connection improves system reliability and protection to personnel** – Entire VED is fully electrically bonded to the cabinet requiring no grounding whips for protection of equipment and personnel

# Monitor to Maintain Operational and Energy Efficiency

Data center managers are challenged to maintain and manage energy efficiency gains in a highly dynamic, virtualized environment in which power consumption, environmental and capacity utilization variables are constantly changing. Without the ability to monitor these variables in the data center, efficiency gains, PUE reductions and the ability to maximize capacity utilization while maintaining SLA's will erode over time leading to a higher total cost of ownership.



## Panduit® SmartZone™ Solutions Enable Real-Time Monitoring, Visualization, and Reporting

Panduit® SmartZone™ Software, Gateways, and Appliances provide management information by monitoring power and environmental conditions in real time from the entire facility, down into individual cabinets. This capability enables the data center manager to optimize capacity and reduce CapEx and OpEx costs.

Power and environmental monitoring is only one component of Panduit's DCIM offering. SmartZone™ Software also enables the tracking, allocation, and utilization of critical IT assets within your data center.





# Power Distribution Units (PDUs)

## Power and Environmental Hardware

As power densities increase, monitoring of power and environmental information using an intelligent power distribution unit (PDU) is critical to preventing power overload and downtime. Panduit supports power and environmental management through two distinct intelligent PDU families: PViQ™ PDUs connect directly to the network and SmartZone™ PDUs which connect via a gateway. Panduit intelligent PDUs integrate seamlessly into Panduit® SmartZone™ Software, enabling real-time monitoring of physical infrastructure power consumption, temperature, and humidity levels for enhanced system reliability and operational efficiencies. (See pages 34 and 35 for a list of PDU and sensor part numbers).

Panduit's comprehensive PDU offering is available globally in a variety of power configurations to match typical applications, and can be configured to meet customer specific needs.

**Panduit Power Distribution Units (PDUs)** – Safely and efficiently manage and distribute power to multiple devices through a single power connector to enhance scalability of network build outs.

Through integration with the SmartZone™ Software Suite, PDUs send power and temperature readings to allow:

- Automated documentation and visualization of power utilization and environmental conditions
- Recognition and notification of faults or power disruptions
- Identification of available related capacity

**Environmental Sensors** – Environmental Sensors are available as externally placed sensors to measure and trend environmental conditions such as temperature and humidity levels, at the cabinet level. These intelligent sensors transmit real-time environmental information, providing notification of exceeded thresholds to quickly identify and resolve issues, identify hot and cold spots in the data center and automate collection of real-time and accurate environmental information.

These sensors send cabinet-level information to the SmartZone™ Software to allow:

- Automated documentation and visualization of temperature and humidity levels
- Recognition and notification of exceeded temperature thresholds and/or other environmental-specific concerns
- Trending analysis to uncover developing thermal issues that may impact optimal performance and efficiency

# Net-Access™ N-Type Cabinets

Optimum Accessibility and Cable Management for High Density Applications

Net-Access™ N-Type Cabinets are the first choice for data center managers and systems integrators specifying high density network, storage and compute applications that require optimal thermal management and the capacity to manage high cable densities.

Integral cabinet air seal features and integration with passive hot and cold air containment components drive efficient utilization of cooling capacity and reduce cooling energy consumption. The Net-Access™ inset frame design efficiently manages large quantities of cables and provides space for unmatched access reducing operational costs. This industry leading design also maximizes airflow and provides easy access to equipment for ongoing operational efficiencies, providing exceptional value in a 800mm (31.5") wide enclosure.



## **Inset frame provides up to 10% more space for cable management and cooling airflow**

Industry leading inset cabinet frame posts create a large area for airflow to provide proper heat dissipation and enable easy access to equipment, in-cabinet ducting and cabling, speeding deployments and reducing operational costs.



## **Dual hinged doors speed deployments and moves, adds, and changes by 30%**

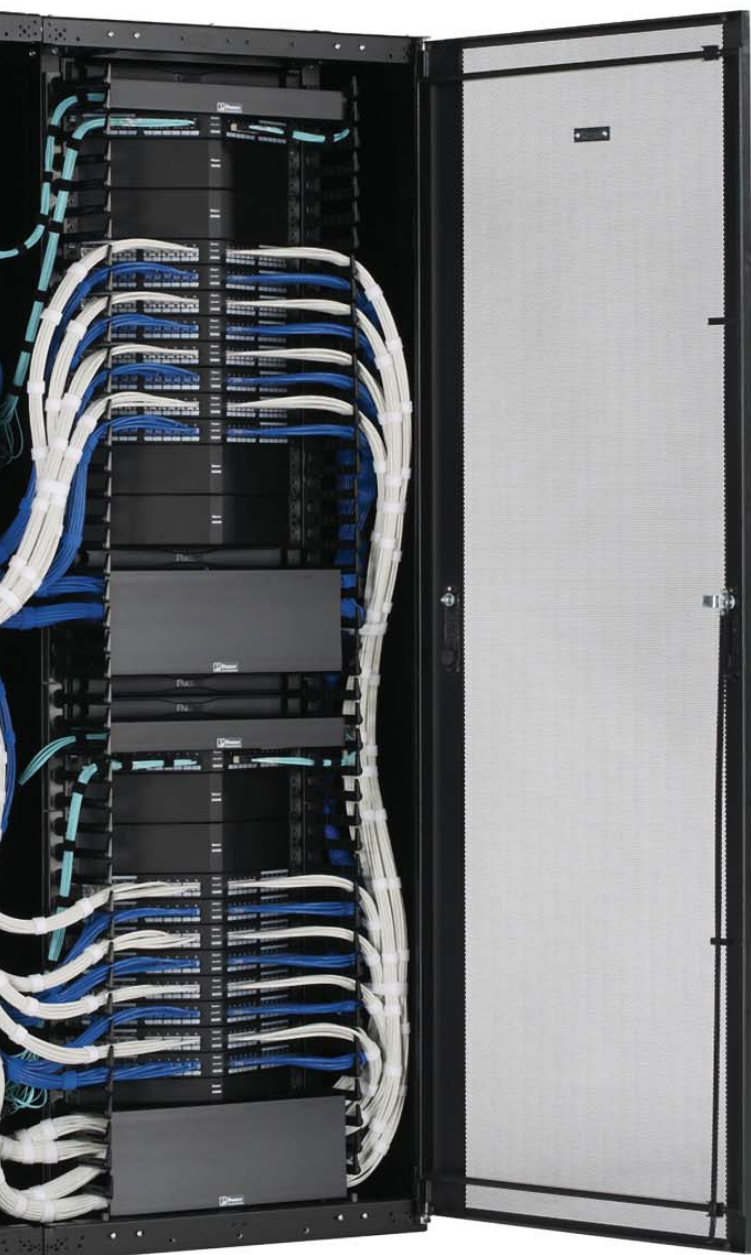
IT staff is scarce, downtime is expensive. For a 120 rack dynamic data center, our cabinets save you up to an hour a day, adding up to \$18,250 per year savings for your staff.



## **Efficiently manage high cable densities**

Modular snap in fingers align with rack spaces to simplify cable management, providing proper bend radius control and organizing cables for faster moves, adds and changes and installations.





**Open rail mounting creates more cable management space and equipment positioning flexibility**

High strength frame eliminates need for support members between rails, providing unobstructed space between the frame and the side panels.



**Vertical split side panels enable fast access to equipment**

Innovative vertical split side panels and optional vertical split hinged side panels allow fast easy access to end of row network equipment and cabling, eliminating time consuming handling.



**Innovative Leveling Feet Design Reduces Cabinet Installation Time by 80%**

Heavy duty, M14 thread top drive leveling feet are easily accessed and allow cabinets to be leveled in less time than typical leveling feet.



**Bond cabinets to the telecommunications grounding infrastructure with single connection, reducing installation time**

Entire cabinet is fully electrically bonded, requiring no grounding whips to doors or side panels for protection of equipment and personnel.





# Net-Access™ S-Type Cabinets

Cost Effective and Versatile Cabinets for all Data Center Applications and Facilities Designs

Net-Access™ S-Type Cabinets provide data center managers and systems integrators an unprecedented range of features in a cost effective cabinet platform for server, network, and pre-configured cabinet applications.

Integral cabinet air seal features and seamless integration with passive hot and cold air containment components provide efficient utilization of cooling capacity, and contribute to reduced cooling energy consumption. An innovative frame design maximizes RU utilization saving as much as 15% of the floor space while safely accommodating dynamic equipment loads. Offered in a variety of widths, heights, and depths, they can be specified for a variety of applications in any facility to meet the diverse application needs of today's data centers.



Large selection of standard cabinet widths, heights, and depths offered in:

- 600mm (24"), 700mm (28"), and 800mm (31.5") Widths
- 1070mm (42") and 1200mm (48") Depths
- 42 RU, 45 RU, and 48 RU Heights
- Black and White Color Option
- Static Load Rating 1,364kg (3,000 lb.)
- Rolling Load Rating 1,136kg (2,500 lb.)







#### **Out-Set Cable Entry Improves Floor Space Utilization by 5%**

Network cable entry locations are outside of equipment area, allowing top 2 RUs to be used, optimizing cabinet utilization and saving floor space.



#### **Zero RU E-Rail Vertical Patching Adds Capacity and Improves Floor Space Utilization by 10%**

Unique Zero RU E-Rail is the industry's only vertical patching system for 600mm (24") wide cabinets integrating with Quick-Net™ Copper and Fiber Cabling Systems, optimizing cabinet utilization and saving floor space.



#### **Innovative Leveling Feet Design Reduces Cabinet Installation Time by 80%**

Heavy duty, M14 thread top drive leveling feet are easily accessed and allow cabinets to be leveled in less time than typical leveling feet.

**A 15% savings in floor space means you can build a 420 server POD with 10 server cabs versus a competitor's cabinet that would require 12 server cabinets to hold equivalent amount of servers.**  
**CapEx savings<sup>10</sup> \$900/ft<sup>2</sup> x 16ft<sup>2</sup> = \$14,400 capital savings per POD.**

10) Cost Model: Dollars per kW plus Dollars per Square Foot of Computer Floor, Uptime 2008

# Simplify and Accelerate Data Center Deployments

Net-Access™ Cabinets Enable Pre-Configuration of Network Equipment

## Pre-Configured Solutions Add Value and Reduce Installation Time and Cost

Dynamic rated Net-Access™ N-Type and S-Type Cabinets allow pre-installation of IT equipment for faster deployments and time to production. Panduit Pre-Configured Solutions are fully tested and validated physical infrastructures that ensure best practice installations and optimal system performance. Each configuration accelerates deployment and promotes rapid upgrades requiring zero reconfigurations and downtime.

## Fast, Single Part Number Quoting and Procurement

Simply attach pre-priced, robust Pre-Configured Solutions to active gear quotes:

- Reduce quote time
- Procure complete infrastructures with a single part number
- Ensure accurate delivery of all parts to the job site

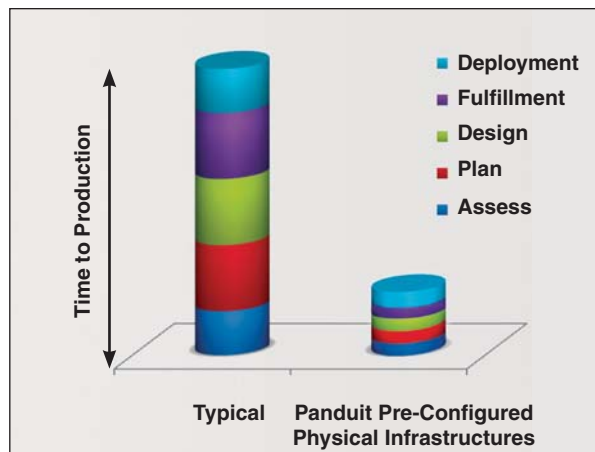
## Maximize the Speed of Deployment and Overall Execution

Pre-Configured Solutions can save up to 80% in deployment time.

- Solutions arrive pre-assembled, kitted, and ready to rack and roll
- Factory installed cable managers, patch cable kits, and cabling instructions ensure a precise deployment and professional appearance



**Nexus 7009 “Heavy Copper”  
Pre-Configured Physical Infrastructure**



### Reduced Time to Production up to 80%

Arrive factory designed, tested, and validated to improve:

- Assessment time up to 80%
- Planning time up to 80%
- Design time up to 80%
- Fulfillment time up to 90%
- Deployment time up to 65%

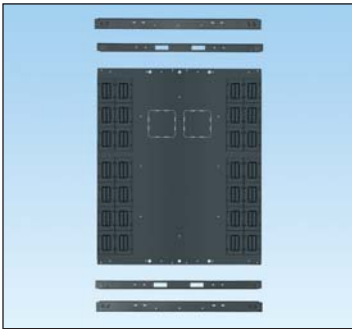
Refer to Panduit Pre-Configured Physical Infrastructures for Cisco^ Nexus, UCS, and Catalyst Platforms, SA-RKCB28.

**Major Private Cloud Provider  
reduced system assembly  
time by up to 7 hours per  
cabinet, improving cost  
and speeding delivery.**

^Cisco is a registered trademark of Cisco Technology, Inc.

# Net-Access™ Cabinet and Thermal Management Solution for Cisco^ Nexus 7018 Switch

Panduit offers a Net-Access™ Cabinet solution designed to meet the thermal and operating requirements of the modular, high density Cisco^ Nexus 7018 Switch. Based on a standard 800mm (31.5") wide Net-Access™ N-Type Cabinet, an easy to use expansion module provides space to route and manage high densities of cables. Internal ducting enables front to back cooling air flow and improved reliability.



## Simple conversion for Standard 800mm N-Type Cabinet

Extension kit enables 800mm Net-Access™ N-Type Cabinet to be extended to 1,000mm (40") wide, reducing shipping costs and simplifying handling.



## Passive inlet and exhaust duct ensures cooling airflow

Prevents recirculation of exhaust air into the switch, ensuring lower inlet temperature and reduced fan energy consumption.



## Cable management fingers route, manage and protect high cable densities

Fingers align with rack spaces to ensure proper bend radius and superior management of high densities of I/O cables, keeping them clear of cold air flow while maintaining access to power supplies and fan modules, reducing operational costs.



Net-Access™ N-Type Cabinet with Cisco^ Nexus 7018 Extension Kit Installed



# Net-Access™ Integral Cabinet Top Cable Routing System

Speed deployments and optimize overhead space utilization

Net-Access™ Cabinets are available with an Integral Cabinet Top Cable Routing System that protects, routes, and manages large quantities of twisted pair data cables into and out of any Net-Access™ Cabinet. This versatile system is integral to the top of the cabinet and easily integrates with other cable pathways used throughout the data center, providing up to a 30% reduction in installation costs.




Net-Access™ Integral Cabinet Top Cable Routing System deployed on Net-Access™ Cabinets.




# Net-Access™ N-Type Cabinet Specifications

- Welded and assembled steel frame construction
- Easy maintenance powder coat finish
- Adjustable rear equipment rails with continuous positioning
- Large cable entry/cable access
- Doors include keyed swing handles
- Side panels
- Dual hinge door for maximum accessibility between adjacent cabinets
- Cabinet supplied with 2 sets of high density cable management fingers (SN25F)

- Cable entry holes are equipped with plastic sealing plugs
-  UL 2416 standard compliant and have been static load tested to 1,360kg (3,000 lb.)
- EIA-310-E compliant
- Rolling Load of 1,136kg (2,500 lb.)
- Cabinet ships assembled, one per pallet
- N-Type Cabinets include hardware kit: #12-24 screws, or M6 screws and cage nuts
- Casters are supplied separately

# Net-Access™ S-Type Cabinet Specifications

- Welded and assembled steel frame construction
- Easy maintenance powder coat finish
- Adjustable rear equipment rails with infinite positioning
- Doors include keyed swing handles
- Side panels include keyed quarter-turn latches
- Large cable entry/cable access
- PDU brackets (SPDUBRK) included

- Cable entry holes are equipped with plastic sealing plugs
-  UL 2416 standard compliant and have been static load tested to 1,360kg (3,000 lb.)
- EIA-310-E compliant
- Rolling Load of 1,136kg (2,500 lb.)
- Cabinet ships assembled, one per pallet
- S-Type Cabinets include hardware kit: M6 screws, and cage nuts
- Vertical airdams included
- Casters are pre-installed

# Net-Access™ Cable Capacity Charts

Opening Size	Top Cap Opening Cable Capacity								
	Area		Cable Capacities						
	In. <sup>2</sup>	Cm. <sup>2</sup>	Cat. 6A 0.354" (8.99mm)	Cat. 6A 0.310" (7.87mm)	Cat. 6A 0.297" (7.54mm)	Cat. 6 0.250" (6.35mm)	Cat. 5e 0.187" (4.75mm)	Fiber (3mm)	QuickNet™ Cassettes
5" x 3.5"	15.6	100.7	63	82	90	127	227	569	8
5" x 1.5"	6.5	42.2	26	34	37	53	95	239	8

Cabinet Size (mm)	Cable Pathways (Per Side)							
	Area		Cable Capacities					
	In. <sup>2</sup>	Cm. <sup>2</sup>	Cat. 6A 0.354" (8.99mm)	Cat. 6A 0.310" (7.87mm)	Cat. 6A 0.297" (7.54mm)	Cat. 6 0.250" (6.35mm)	Cat. 5e 0.187" (4.75mm)	Fiber (3mm)

## N-Type (Front Side)

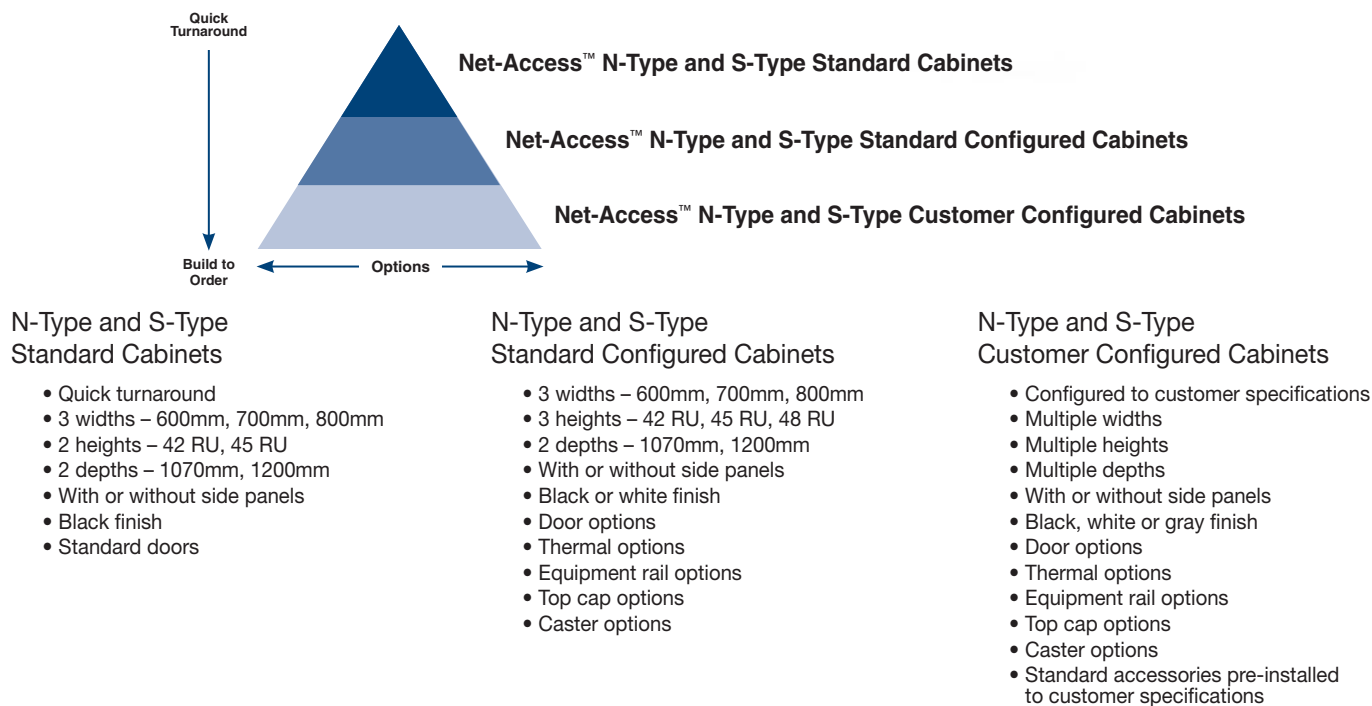
800x1070	43.8	282.7	178	232	252	357	638	1599
800x1200	43.8	282.7	178	232	252	357	638	1599

## S-Type (Rear Side)

600x1070	18.5	119.4	75	98	106	150	269	675
600x1200	30.5	196.8	123	161	176	248	444	1113
700x1070	32.4	208.9	131	171	186	263	471	1181
700x1200	53.4	344.4	216	282	308	434	777	1948
800x1070	46.3	298.4	187	245	267	376	673	1688
800x1200	76.3	491.9	309	404	440	621	1110	2783

# Net-Access™ N-Type and S-Type Cabinet Offering and Availability Overview

Multiple cabinet solutions to meet your project goals – from standard cabinets for quick turnaround to customer configured cabinet for specific deployments, Net-Access™ N-Type and S-Type Cabinets provide a complete solution to meet customer requirements.



## Net-Access™ N-Type and S-Type Standard Cabinets

		N-Type Width	S-Type Width			
		800mm	800mm	700mm	600mm	
With Side Panels	42 RU	N8212B	S8212B	S7212B	S6212B	1070mm depth
	45 RU	N8512B	S8512B	S7512B	S6512B	
	42 RU	N8222B	S8222B	S7222B	S6222B	1200mm depth
	45 RU	N8522B	S8522B	S7522B	S6522B	
Without Side Panels	42 RU	N8219B	S8219B	S7219B	S6219B	1070mm depth
	45 RU	N8519B	S8519B	S7519B	S6519B	
	42 RU	N8229B	S8229B	S7229B	S6229B	1200mm depth
	45 RU	N8529B	S8529B	S7529B	S6529B	

### N-Type Standard Components:

- #12-24 tapped rails
- Dual hinge front door/split rear door
- No POU brackets
- Two sets of fingers
- Solid side panels
- No casters

### S-Type Standard Components:

- Cage nut rails
- Single hinge front door/split rear door
- Caster and POU brackets included
- Cable management optional

## Net-Access™ N-Type Standard Configured Cabinets

Series	Width	Height	Depth	Side Panels	Color	Standard Options (Select Only One)
N	8 = 800mm	2 = 42 RU 5 = 45 RU 8 = 48 RU	1 = 1070mm 2 = 1200mm	2 = 2 Side Panels* 9 = No Side Panel	B = Black W = White	C = Cage Nut Rails E = Single Hinge Front Door and Cage Nut Rails S = No Doors** T = Integral Cabinet Top Cable Routing System** TC = Integral Cabinet Top Cable Routing System and Cage Nut Rails U = Vertical Blanking and Cage Nut Rails V = VED Ready** Y = VED Ready and Cage Nut Rails YT = VED Ready, Cage Nut Rails, and Integral Cabinet Top Cable Routing System

\*Standard side panel. \*\*Includes #12-24 tapped equipment rails. V, Y and YT - Only available for 1200mm deep cabinets. See page 25.

Standard Configurations have 6 characters with only one standard option suffix.

N	8	2	1	2	B		
---	---	---	---	---	---	--	--

## Net-Access™ S-Type Standard Configured Cabinets

Series	Width	Height	Depth	Side Panels	Color	Standard Options (Select Only One)
S	6 = 600mm 7 = 700mm 8 = 800mm	2 = 42 RU 5 = 45 RU 8 = 48 RU	1 = 1070mm 2 = 1200mm	2 = 2 Side Panels* 9 = No Side Panel	B = Black W = White	A = Switch Configured with Front Cable Management (PDU bracket not included) A9 = Switch Configured with Front Cable Management and No Casters F = Vertical Cable Management Fingers P = Vertical Patching Equipment Rails S = No Doors T = Integral Cabinet Top Cable Routing System T9 = Integral Cabinet Top Cable Routing System and No Casters V = VED Ready V9 = VED Ready and No Casters 9 = No Casters

\*Standard side panel. P - Only available for 600mm wide S-Type Cabinets. V and V9 - Only available for 1200mm deep cabinets. See page 25.

Standard Configurations have 6 characters with only one standard option suffix.

S	6	2	1	2	B		
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## Net-Access™ N-Type and S-Type Customer Configured Cabinets

Cabinets can be configured to customers' specifications. Multiple options are listed below, but may not be available for all configurations. For other possible options please contact your sales person or Customer Service.

- Multiple Widths
- Multiple Heights
- Multiple Depths
- Doors – Single Hinge, Dual Hinge, Split Doors, or None
- Side Panels – 0, 1, or 2
- Black, White or Gray Finish
- #12-24 Tapped or Cage Nut Rails
- Standard, VED, Integral Cabinet Top Cable Routing System, or VED and Integral Cabinet Top Cable Routing System
- Vertical Patching
- Vertical Blanking Panels
- Cable Management
- Casters
- PDU Brackets
- Combination Locks

# Net-Access™ N-Type and S-Type Cabinets with Integral Cabinet Top Cable Routing System

		N-Type Width	S-Type Width			
		800mm	800mm	700mm	600mm	
With Side Panels	42 RU	N8212BT	S8212BT	S7212BT	S6212BT	1070mm depth
	45 RU	N8512BT	S8512BT	S7512BT	S6512BT	
	48 RU	N8812BT	S8812BT	S7812BT	S6812BT	
	42 RU	N8222BT	S8222BT	S7222BT	S6222BT	1200mm depth
	45 RU	N8522BT	S8522BT	S7522BT	S6522BT	
	48 RU	N8822BT	S8822BT	S7822BT	S6822BT	
Without Side Panels	42 RU	N8219BT	S8219BT	S7219BT	S6219BT	1070mm depth
	45 RU	N8519BT	S8519BT	S7519BT	S6519BT	
	48 RU	N8819BT	S8819BT	S7819BT	S6819BT	
	42 RU	N8229BT	S8229BT	S7229BT	S6229BT	1200mm depth
	45 RU	N8529BT	S8529BT	S7529BT	S6529BT	
	48 RU	N8829BT	S8829BT	S7829BT	S6829BT	

For other colors replace suffix B (Black) with W (White).

## N-Type Integral Top Cabinet Components:

- 12-24 tapped rails
- Dual hinge front door/split rear door
- No POU brackets
- Two sets of fingers
- No casters

## S-Type Integral Top Cabinet Components:

- Cage nut rails
- Single hinge front door/split rear door
- No cable management
- Caster and POU brackets included



# Net-Access™ N-Type and S-Type Vertical Exhaust Duct (VED) Cabinets (VED Sold Separately)

		N-Type Width	S-Type Width			
		800mm	800mm	700mm	600mm	
With Side Panels	42 RU	N8222BV	S8222BV	S7222BV	S6222BV	1200mm depth
	45 RU	N8522BV	S8522BV	S7522BV	S6522BV	
	48 RU	N8822BV	S8822BV	S7822BV	S6822BV	
Without Side Panels	42 RU	N8229BV	S8229BV	S7229BV	S6229BV	1200mm depth
	45 RU	N8529BV	S8529BV	S7529BV	S6529BV	
	48 RU	N8829BV	S8829BV	S7829BV	S6829BV	

\* VED cabinets only available in 1200mm depths.  
For other colors replace suffix B (Black) with W (White).

## N-Type VED Cabinet Components:

- #12-24 tapped rails
- Dual hinge front door/solid rear door
- No POU brackets
- 2 sets of fingers
- VED top cap ready
- Vertical blanking panels with pass-throughs
- Rear floor seals
- No casters

## S-Type VED Cabinet Components:

- Cage nut rails
- Single hinge front door/solid single hinge rear door
- No cable management
- VED top cap ready
- Vertical blanking panels
- Front and rear floor seals

# Net-Contain™ Vertical Exhaust Ducts (VEDs)



Part Number	Description
<b>Net-Contain™ Vertical Exhaust Duct for Net-Access™ N-Type and S-Type Cabinets</b>	
<b>C2VED**I1626^^</b>	Net-Contain™ VED **mm width cabinet – 406mm (16") up to 660mm (26") height – ^^ colored.
<b>C2VED**I2638^^</b>	Net-Contain™ VED **mm width cabinet – 660mm (26") up to 965mm (38") height – ^^ colored.
<b>C2VED**I3866^^</b>	Net-Contain™ VED **mm width cabinet – 965mm (38") up to 1,676mm (66") height – ^^ colored.

\*\* = 08 = 800mm, 07 = 700mm, 06 = 600mm ^^ = B1 = Black, W1 = White.

# Net-Contain™ Cold and Hot Aisle Containment



C2HACT8F04DFB



C2HAC\*\*I1626  
C2HAC\*\*I2638  
C2HAC\*\*I3866



C2HACERI1626  
C2HACERI2638  
C2HACERI3866

Part Number	Description
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## Net-Contain™ Aisle Containment Sliding Doors

C2CACT5F**SD^^	Net-Contain™ Sliding Door CAC for **ft (**mm) aisle- capable of 42 up to 45 RU – ^^ colored.
----------------	--

\*\* = 04 = 4ft (1200mm), 06 = 6ft (1800mm) ^^ = B1 = Black, W1 = White.

## Net-Contain™ Integral Low Profile Ceiling Structure for Net-Access™ N-Type and S-Type Cabinets

C2CAC08F**IR^^	Net-Contain™ (CAC) Integral Roof for 800mm width cabinet with **ft (**mm) aisle width – ^^ colored.
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C2CAC07F**IR^^	Net-Contain™ (CAC) Integral Roof for 700mm width cabinet with **ft (**mm) aisle width – ^^ colored.
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C2CAC06F**IR^^	Net-Contain™ (CAC) Integral Roof for 600mm width cabinet with **ft (**mm) aisle width – ^^ colored.
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\*\* = 04 = 4ft (1200mm), 06 = 6ft (1800mm) ^^ = B1 = Black, W1 = White.

## Net-Contain™ Integral Roof Wall Panels

C2CAC**F08WP^^	Net-Contain™ Integral Roof Wall Panel for **mm width cabinet – ^^ colored.
----------------	--

\*\* = 08 = 800mm, 07 = 700mm, 06 = 600mm ^^ = B1 = Black, W1 = White.

## Net-Contain™ Row Base Cooling Blanking Panels

C2CAC**ABWPA^^	For cold aisle containment systems using row base cooling equipment.
----------------	--

\*\* = 06 = 600mm, 04 = 400mm, 03 = 300mm ^^ = B1 = Black, W1 = White.

## Net-Contain™ Aisle Containment Sliding Doors

C2CACT5F04SD^^	Net-Contain™ Sliding Door CAC for 4 ft. (1200mm) aisle- capable of 42 up to 45 RU – ^^ colored.
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^^ = B1 = Black, W1 = White

## Sliding Door Frame Adapter for 4' (1200mm) Aisle Containment Sliding Doors

C2HACT8F04DFB1^^	Net-Contain™ Hot Aisle Containment Sliding Door Frame Adapter for 4 ft. (1200mm) aisle, capable of 42 RU up to 48 RU.
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^^ = B1 = Black, W1 = White

## Net-Contain™ Adjustable Vertical Wall for Net-Access™ N-Type and S-Type Cabinets

C2HAC**I1626^^	Net-Contain™ Hot Aisle Containment Adjustable Vertical Wall (16" - 26") for **mm width cabinets.
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C2HAC**I2638^^	Net-Contain™ Hot Aisle Containment Adjustable Vertical Wall (26" - 38") for **mm width cabinets.
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C2HAC**I3866^^	Net-Contain™ Hot Aisle Containment Adjustable Vertical Wall (38" - 66") for **mm width cabinets.
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\*\* = 06 = 600mm, 04 = 400mm, 03 = 300mm ^^ = B1 = Black, W1 = White.

## Adjustable EOR Vertical Wall

C2HACERI1626^^	Net-Contain™ Adjustable End of Row Vertical Wall (16" - 26") for 900mm/1000mm/1200mm aisle widths.
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C2HACERI2638^^	Net-Contain™ Adjustable End of Row Vertical Wall (26" - 38") for 900mm/1000mm/1200mm aisle widths.
----------------	--

C2HACERI3866^^	Net-Contain™ Adjustable End of Row Vertical Wall (38" - 66") for 900mm/1000mm/1200mm aisle widths.
----------------	--

^^ = B1 = Black, W1 = White

# Net-Contain™ Universal Aisle Containment System



Part Number	Description
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## Net-Contain™ End of Row Frame for Roofing

<b>CUEFRT8F**ST^^</b>	Net-Contain™ UAC End of Row Frame for Roofing - 42/45 RU high.
<b>CUEFRT9F**ST^^</b>	Net-Contain™ UAC End of Row Frame for Roofing - 48/52 RU high.

\*\* 04 = 4' (1200mm) aisle width, 06 = 6' (1800mm aisle width) ^^ = B1 = Black, W1 = White.

## Net-Contain™ Mid-Span Post

<b>CUSMPR52ST01B1</b>	Net-Contain™ Mid-Span Post 42 RU to 52 RU high.
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## Net-Contain™ Mid-Span Cabinet Support

<b>CUCMSS**ST01NC</b>	Net-Contain™ Mid-Span Cabinet Support
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\*\*03 = 300mm, 06 = 600mm

## Net-Contain™ Aisle Containment Sliding Doors

<b>C2CACT5F**SD^^</b>	Net-Contain™ Sliding Door CAC for **ft (**mm) aisle- capable of 42 up to 45 RU – ^^ colored.
-----------------------	--

\*\* = 04 = 4ft (1200mm), 06 = 6ft (1800mm) ^^ = B1 = Black, W1 = White.

## Net-Contain™ Integral Ceiling Structures

<b>CURFS06F**HB^^</b>	Net-Contain™ 600mm Roofing Section.
<b>CURFS07F**HB^^</b>	Net-Contain™ 700mm Roofing Section.
<b>CURFS08F**HB^^</b>	Net-Contain™ 800mm Roofing Section.

\*\* 04 = 4' (1200mm) aisle width, 06 = 6' (1800mm aisle width) ^^ = B1 = Black, W1 = White.

## Net-Contain™ End of Row Frame for Vertical Walls 42/45 RU High

<b>CUEFVT8F04ST^^</b>	Net-Contain™ End of Row Frame for Vertical Walls - 42/45RU - 4ft. (1200mm) aisle width.
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^^ = B1 = Black, W1 = White.

## Adjustable EOR Vertical Wall

<b>C2HACER11626^^</b>	Net-Contain™ Adjustable End of Row Vertical Wall (16" - 26") for 900mm/1000mm/1200mm aisle widths.
<b>C2HACER12638^^</b>	Net-Contain™ Adjustable End of Row Vertical Wall (26" - 38") for 900mm/1000mm/1200mm aisle widths.
<b>C2HACER13866^^</b>	Net-Contain™ Adjustable End of Row Vertical Wall (38" - 66") for 900mm/1000mm/1200mm aisle widths.

^^ = B1 = Black, W1 = White

## Net-Contain™ Vertical Wall Adapter

<b>CUVWA06S**ST^^</b>	Net-Contain™ Vertical Wall Adapter
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\*\*06 = 600mm, 07 = 700mm, 08 = 800mm ^^ = B1 = Black, W1 = White.

## Net-Contain™ Adjustable Height Vertical Walls

<b>C2HAC**11626^^</b>	Net-Contain™ Adjustable Vertical Wall (16" - 26").
<b>C2HAC**12638^^</b>	Net-Contain™ Adjustable Vertical Wall (26" - 38").
<b>C2HAC**13866^^</b>	Net-Contain™ Adjustable Vertical Wall (38" - 66").

\*\*06 = 600mm, 07 = 700mm, 08 = 800mm ^^ = B1 = Black, W1 = White.

## Net-Contain™ Vertical Wall Brace

<b>CUVWB12S12ST^^</b>	Net-Contain™ Vertical Wall Brace, 4 ft. (1200mm) aisle width.
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^^ = B1 = Black, W1 = White.

## Net-Contain™ Wall Beam

<b>CUWBSS**ST01^^</b>	Net-Contain™ Wall Beam, 1 piece.
<b>CUWBPS**ST02^^</b>	Net-Contain™ Wall Beam, 2 pieces.

\*\*06 = 600mm, 07 = 700mm, 08 = 800mm, 24 = 2400mm ^^ = B1 = Black, W1 = White.

## Net-Contain™ Full Blanking Panel

<b>CUFBPR**06HB^^</b>	Net-Contain™ Full Blanking Panel 600mm wide.
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\*\*42 = 42 RU, 45 = 45 RU, 48 = 48 RU, 52 = 52 RU ^^ = B1 = Black, W1 = White.

## Net-Contain™ Top of Cabinet Blanking Panel

<b>CUTBPR0610HBN1</b>	Net-Contain™ Top of Cabinet Blanking Panel 600mm high x 1000mm wide.
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# Net-Access™ Cabinet Accessories



Part Number	N-Type Compatible	S-Type Compatible	Description
<b>POU Brackets and Cable Management</b>			
SN15F	x	x	Finger Kit, 100mm (3.9") depth that attaches to posts on 42 RU through 48 RU cabinets.
SN25F	x	x	Finger Kit, 150mm (5.9") depth that attaches to posts on 42 RU through 48 RU cabinets.
S7VPPB		x	Vertical patching bracket for 700mm wide cabinets.
SN8VPPB	x	x	Vertical patching bracket for 800mm wide cabinets.
NERSS	x		End of row slack spool.
NACSS	x		Center slack spool for between cabinets, adjustable 210mm (8.3") to 267mm (10.5") .
NVPDUB	x		POU brackets, sold in pairs.
SPDUBRK		x	POU brackets, sold in pairs.
S2BRK6		x	Combination POU/cable management bracket, 152mm (6") wide full length for 42 RU through 48 RU cabinet.
S2BRK12		x	Combination POU/cable management bracket, 305mm (12") wide full length for 42 RU through 48 RU cabinet.
S1DR		x	1 RU D-ring cable retainer, 80mm (3.1" ) x 40mm (1.5"), bag of 8pcs, attaches to S2BRK6/S2BRK12.
S2DR		x	2 RU D-ring cable retainer, 80mm (3.1") x 80mm (3.1"), bag of 8 pcs, attaches to S2BRK6/S2BRK12.
S1LR		x	1 RU L-ring cable retainer, 60mm (2.2") x 100mm (3.8"), bag of 8pcs, attaches to S2BRK6/S2BRK12.
S2LR		x	2 RU L-ring cable retainer, 85mm (3.4") x 100mm (3.8"), bag of 8pcs, attaches to S2BRK6/S2BRK12.
<b>Castors and Locks</b>			
NCSTR4	x		Caster Kit. 2 fixed casters for front of cabinet, 2 swivel casters for rear of cabinet, 4 mounting plates and 24 screws. Casters add 24mm (1") to height of cabinet.
SCSTR4		x	Caster Kit. 2 fixed casters for front of cabinet, 2 swivel casters for rear of cabinet, and 16 screws. Casters add 24mm (1") to height of cabinet.
CCL3	x	x	Three digit combination lock with key over ride for single hinge or split doors.



# Net-Access™ Cabinet Accessories (continued)



NVBP



S\*\*SHDB



SN\*\*SDB

Part Number	N-Type Compatible	S-Type Compatible	Description
<b>Vertical Blanking Panels</b>			
NVBP	x		Vertical blanking panels with pass-through holes for 42 RU through 48 RU cabinets.
S6VBPN		x*	Vertical blanking panel for 600mm cabinets.
S7VBPN		x*	Vertical blanking panel for 700mm cabinets.
S8VBPN		x*	Vertical blanking panel for 800mm cabinets with 25mm (1") x 127mm (5") knock-outs.
<b>Single and Dual Hinge Doors</b>			
N82SHDB	x		Single hinge door for 42 RU 800mm wide cabinet.
N85SHDB	x		Single hinge door for 45 RU 800mm wide cabinet.
N82DHDB	x		Dual hinge door for 42 RU 800mm wide cabinet.
N85DHDB	x		Dual hinge door for 45 RU 800mm wide cabinet.
S62SHDB		x	Single hinge door for 42 RU 600mm wide cabinet.
S65SHDB		x	Single hinge door for 45 RU 600mm wide cabinet.
S72SHDB		x	Single hinge door for 42 RU 700mm wide cabinet.
S75SHDB		x	Single hinge door for 45 RU 700mm wide cabinet.
S82SHDB		x	Single hinge door for 42 RU 800mm wide cabinet.
S85SHDB		x	Single hinge door for 45 RU 800mm wide cabinet.
<b>Split Doors</b>			
S62SDB		x	Split doors for 42 RU 600mm wide cabinet.
S65SDB		x	Split doors for 45 RU 600mm wide cabinet.
S72SDB		x	Split doors for 42 RU 700mm wide cabinet.
S75SDB		x	Split doors for 45 RU 700mm wide cabinet.
SN82SDB	x	x	Split doors for 42 RU 800mm wide cabinet.
SN85SDB	x	x	Split doors for 45 RU 800mm wide cabinet.

\* For use with S-Type switch configured cabinets.

## Net-Access™ Cabinet Accessories (continued)



N\*\*SPS



N\*\*SPH



S\*\*SPSE

Part Number	N-Type Compatible	S-Type Compatible	Description
<b>Side Panels</b>			
N21SPS	x		Split side panel set for 42 RU 1070mm depth cabinet.
N51SPS	x		Split side panel set for 45 RU 1070mm depth cabinet.
N81SPS	x		Split side panel set for 48 RU 1070mm depth cabinet.
N22SPS	x		Split side panel set for 42 RU 1200mm depth cabinet.
N52SPS	x		Split side panel set for 45 RU 1200mm depth cabinet.
N82SPS	x		Split side panel set for 48 RU 1200mm depth cabinet.
N21SPH	x		Split hinged side panel set for end of row application for 42 RU 1070mm depth cabinet.
N51SPH	x		Split hinged side panel set for end of row application for 45 RU 1070mm depth cabinet.
N81SPH	x		Split hinged side panel set for end of row application for 48 RU 1070mm depth cabinet.
N22SPH	x		Split hinged side panel set for end of row application for 42 RU 1200mm depth cabinet.
N52SPH	x		Split hinged side panel set for end of row application for 45 RU 1200mm depth cabinet.
N82SPH	x		Split hinged side panel set for end of row application for 48 RU 1200mm depth cabinet.
S21SPSE		x	Split side panel set for 42 RU 1070mm depth cabinet.
S51SPSE		x	Split side panel set for 45 RU 1070mm depth cabinet.
S81SPSE		x	Split side panel set for 48 RU 1070mm depth cabinet.
S22SPSE		x	Split side panel set for 42 RU 1200mm depth cabinet.
S52SPSE		x	Split side panel set for 45 RU 1200mm depth cabinet.
S82SPSE		x	Split side panel set for 48 RU 1200mm depth cabinet.

\* For use with S-Type switch configured cabinets.

# Net-Access™ Cabinet Accessories (continued)



SN7TCDW  
SN8TCDW



SN1070CREC  
SN1200CREC  
SN1200VCREC



RSHLF23  
RSHLF



SN\*RC



N\*RT



S\*RP

Part Number	N-Type Compatible	S-Type Compatible	Description
<b>Integral Cabinet Top Cable Routing System</b>			
SN8TCDW	x	x	Divider wall with screws for integral cabinet top cable routing system to enhance cable management. For 800mm wide cabinet.
SN7TCDW		x	Divider wall with screws for integral cabinet top cable routing system to enhance cable management. For 600mm and 700 mm wide cabinets.
SN1070CREC	x	x	End of row cap kit for integral cabinet top cable routing system. Includes brackets and screws for 1070mm deep cabinet.
SN1200CREC	x	x	End of row cap kit for integral cabinet top cable routing system. Includes brackets and screws for 1200mm deep cabinet.
SN1200VCREC	x	x	End of row cap kit for integral cabinet top cable routing system. Includes brackets and screws for 1200mm deep VED cabinet.
<b>Shelves</b>			
RSHLF23	x	x	Shelf kit includes mounting bracket and screws. Shelf dimensions: 44mm (1.7")H x 483mm (19")W x 584mm (23")D. Load rating 275 lbs. (124kg).
RSHLF	x	x	Shelf kit includes mounting bracket and screws. Shelf dimensions: 44mm (1.7")H x 483mm (19")W x 762mm (30")D. Load rating 275 lbs. (124kg).
<b>Equipment Rail Sets</b>			
SN2RC	x	x	Cage nut rear rails for 42 RU cabinet, sold in pairs.
SN5RC	x	x	Cage nut rear rails for 45 RU cabinet, sold in pairs.
N2RT	x		Tapped (#12-24 ) rear rails for 42 RU cabinet, sold in pairs.
N5RT	x		Tapped (#12-24 ) rear rails for 45 RU cabinet, sold in pairs.
S2RP		x	Vertical patching cage nut rails for 42 RU 600mm wide (0 RU QuickNet™) cabinet.
S5RP		x	Vertical patching cage nut rails for 45 RU 600mm wide (0 RU QuickNet™) cabinet.
<b>Floor Seals</b>			
N2EOR1BA1070B1	x		End of row floor seal for 1070mm deep cabinet.
N2EOR1CA1200B1	x		End of row floor seal for 1200mm deep cabinet.
S2EOR1BA1070B1		x	End of row floor seal for 1070mm deep cabinet.
S2EOR1CA1200B1		x	End of row floor seal for 1200mm deep cabinet.
C2FAB06A1200B1	x	x	Front or back floor seal for 600mm wide cabinet.
C2FAB07A1200B1	x	x	Front or back floor seal for 700mm wide cabinet.
C2FAB08A1200B1	x	x	Front or back floor seal for 800mm wide cabinet.

# Net-Direct™ In-Cabinet Ducting



CDE1



CDE2



CNLTD21B2



CNLTD52A2



CNLTD142A3



CNLTD72A3



DIBBC2314S21W



DIRLC2214M21W



DIRBB2007S21W



Exhaust Ducts

Part Number	Description
<b>Inlet Ducts</b>	
CDE1	Net-Direct™ Air Inlet Duct, 1 RU that resides below the switch provides cold aisle airflow to Cisco^ 4948, 4928, and 4924. Optimized for use in server cabinet applications.
CDE2	Net-Direct™ Air Inlet Duct, 1 RU that resides in-line and below switch provides cold aisle airflow to Cisco^ Nexus N2K-C2148T-1GE, N2K-C2248TP-1GE, and N2K-C2232PP-10GE fabric extenders and Cisco^ WS-C4948E-F, WS-C4948E-F-S, and WS-C4948E-F-E. Optimized for use in server cabinet applications.
CNLTD21B2	Net-Direct™ Air Inlet Duct designed for Cisco^ Catalyst 4900M switch. Consists of one 2 RU inlet duct and a side duct.
CNLTD52A2	Net-Direct™ Air Inlet Duct designed for Cisco^ Catalyst 6504-E switch. Consists of 2 RU top and 2 RU bottom inlet ducts and a side duct.
CNLTD142A3	Net-Direct™ Air Inlet Duct designed for Cisco^ Nexus 7009 switch. Consists of 3 RU top and 3 RU bottom inlet ducts and a side duct.
CNLTD72A3	Net-Direct™ Air Inlet Duct designed for Cisco^ MDS 9506 switch. Consists of 3 RU top and 3 RU bottom inlet ducts and a side duct.
DIBBC2314S21W	Net-Direct™ Air Inlet Duct designed for Cisco^ MDS 9513 switch. Consists of 2 RU top and 3 RU bottom inlet ducts and a side duct.
DIRLC2214M21W	Net-Direct™ Air Inlet Duct designed for Cisco^ Catalyst 6509-E switch. Consists of 2 RU top and 2 RU bottom inlet ducts and a side duct.
DIRBB2007S21W	Net-Direct™ Air Inlet Duct designed for Cisco^ Nexus 7004 switch. Consists of one 2 RU inlet duct and a side duct.
<b>Exhaust Ducts</b>	
DERLCC6509A	Net-Direct™ Air Exhaust Duct for Net-Access™ N-Type 1070mm Depth Cabinets. Designed for Cisco^ 6509 switch.
DERLCC9513A	Net-Direct™ Air Exhaust Duct for Net-Access™ N-Type 1070mm Depth Cabinets. Designed for Cisco^ 9513 switch.
DERLCC7009A	Net-Direct™ Air Exhaust Duct for Net-Access™ N-Type 1070mm Depth Cabinets. Designed for Cisco^ 7009 switch.
DERLCC6513A	Net-Direct™ Air Exhaust Duct for Net-Access™ N-Type 1070mm Depth Cabinets. Designed for Cisco^ 6513 switch.

^Cisco is a registered trademark of Cisco Technologies, Inc.



# Net-Direct™ In-Cabinet 7018 Ducting and 7018 Accessories



DIEBCC7018B



DIRLD0425S27W



DIRLC7018VP51



DIRLC7018VP4248



N1000EXT



NVBPA7018B



NVPDUB7018

Part Number	Description
<b>7018 Ducting Solution</b>	
<b>DIEBCC7018B</b>	Net-Direct™ Air Inlet and Exhaust Ducting (blanking panels not included) designed for Cisco^ Nexus 7018 switch in a 1000mm wide Net-Access™ N-Type Cabinet.
<b>DIRLD0425S27W</b>	Net-Direct™ Air Inlet Ducting with left and right side blanking panels for 42/48 RU cabinet designed for Cisco^ Nexus 7018 switch in a 1000mm wide Net-Access™ N-Type Cabinet .
<b>DIRLC7018VP51</b>	Net-Direct™ Air Inlet Ducting with left and right side blanking panels for 51 RU cabinet designed for Cisco^ Nexus 7018 switch in a 1000mm wide Net-Access™ N-Type Cabinet.
<b>DIRLC7018VP4248</b>	Net-Direct™ Air Inlet Ducting with right side only blanking panel for 42/48RU cabinet designed for Cisco^ Nexus 7018 switch in a 1000mm wide Net-Access™ N-Type Cabinet .
<b>7018 Cabinet Kits</b>	
<b>N1000EXT</b>	Extension kit to expand 800mm wide x 1200mm deep Net-Access™ N-Type Cabinet to 1000mm. For use with cabinets N8229BS, N8529BS, and N8829BS.
<b>7018 Vertical Blanking Panels</b>	
<b>NVBPA7018B</b>	Vertical blanking panels with pass-through holes for 42 RU through 48 RU 1000mm wide cabinet.
<b>N-Type Cabinet Split Doors</b>	
<b>N2SD1000</b>	One set of split doors (used front or back) for 1000mm wide Net-Access™ N-Type Cabinet 42 RU.
<b>N5SD1000</b>	One set of split doors (used front or back) for 1000mm wide Net-Access™ N-Type Cabinet 45 RU.
<b>N8SD1000</b>	One set of split doors (used front or back) for 1000mm wide Net-Access™ N-Type Cabinet 48 RU.
<b>NVPDUB7018</b>	Net-Access® N-Type PDU Bracket for 1000mm wide cabinets.

^Cisco is a registered trademark of Cisco Technologies, Inc.

# Power Outlet Units (POUs) North America



VB1A1M2BM30P1



QN1A1D0BA24E1



QL1B1F0BA2401

Part Number	Description
<b>Vertical Metered POUs</b>	
VB1A1M2BM30P1*	30A, Single Phase, L5-30P Plug, 120V, (24) C-13/(6) C-19 Receptacles.
VB1B1L2BN30P1*	30A, Single Phase, L6-30P Plug, 208V, (24) C-13/(6) C-19 Receptacles.
VB1B1J0BA30P1*	20A, 3 Phase WYE, L21-20P Plug, 208V, (24) C-13/(6) C-19 Receptacles.
VB1B1P3BN30P1*	30A, 3 Phase WYE, L21-30P Plug, 208V, (24) C-13/(6) C-19 Receptacles.
VB1B1N3BN30P1*	30A, 3 Phase Delta, L15-30P Plug, 208V, (24) C-13/(6) C-19 Receptacles.
VB1D1Q3BN30P1*	30A, 3 Phase WYE, L22-30P Plug, 230/400V, (24) C-13/(6) C-19 Receptacles.
VB1B2C3BN30P1*	60A, Single Phase, IEC 60309 - 6H 2P+E Blue Watertight Plug, 208V, (24) C-13/(6) C-19 Receptacles.
<b>Vertical Networked with Environmental POUs</b>	
QN1A1M2BM24E1**	30A, Single Phase, L5-30P Plug, 120V, (24) C-13/(6) C-19 Receptacles.
QN1B1L2BN30P1**	30A, Single Phase, L6-30P Plug, 208V, (24) C-13/(6) C-19 Receptacles.
QN1B1P3BN30P1**	30A, 3 Phase WYE, L21-30P Plug, 208V, (24) C-13/(6) C-19 Receptacles.
QN1B2G6BN24R1**	60A, 3 Phase Delta, IEC 60309 - 6H 3P +E Splashproof Plug, 208V, (18) C-13/ (6) C-19 Receptacles.
<b>Vertical Switched with Per Outlet Monitoring POUs</b>	
QL1B1F0BA2401***	20A, Single Phase, L6-20P Plug, 208V, (21) C-13/(3) C19 Locking Receptacles.
QL1B1J0BA2401***	20A, 3 Phase WYE, L21-20P Plug, 208V, (21) C-13/(3) C19 Locking Receptacles.
QL1B1P3BN2401***	30A, 3 Phase WYE, L21-30P Plug, 208V, (21) C-13/(3) C19 Locking Receptacles.

\*For no local monitor, replace "1" with "0", e.g. VB0A1M2BM30P1

\*\* For Networked current monitoring, replace "QN" with "QZ", e.g. QZ1A1D0BA30P1

\*\*\* For Switched without per outlet monitoring, replace "QL1" with "QS1", e.g. QS1B1F0BA2401

# Power Outlet Units (POUs) Global



VB1D2B2BM30P1



QN1D2A0BA30P1



QL1D2A0BA2401

Part Number	Description
<b>Vertical Metered POU</b>	
VB1D2A0BA30P1*	16A, Single Phase, IEC 60309 - 6H 2P+E Blue Splashproof Plug, 230V, (24) C-13/(6) C-19 Receptacles.
VB1D2B2BM30P1*	32A, Single Phase, IEC 60309 - 6H 2P+E Blue Splashproof Plug, 230V, (24) C-13/(6) C-19 Receptacles.
VB1D2P3BN30P1*	32A, 3 Phase WYE, IEC 60309 - 6H 3P+N+E Red Splashproof Plug, 230/400V, (24) C-13/(6) C-19 Receptacles.
<b>Vertical Networked with Environmental POU</b>	
QN1D2A0BA30P1**	16A, Single Phase, IEC 60309 - 6H 2P+E Blue Splashproof Plug, 230V, (24) C-13/(6) C-19 Receptacles.
QN1D2B2BN30P1**	32A, Single Phase, IEC 60309 - 6H 2P+E Blue Splashproof Plug, 230V, (24) C-13/(6) C-19 Receptacles.
QN1D2Q0BA30P1**	16A, 3 Phase WYE, IEC 60309 - 6H 3P+N+E Red Splashproof Plug, 230/400V, (24) C-13/(6) C-19 Receptacles.
QN1D2P3BN30P1**	32A, 3 Phase WYE, IEC 60309 - 6H 3P+N+E Red Splashproof Plug, 230/400V, (24) C-13/(6) C-19 Receptacles.
<b>Vertical Switched with Per Outlet Monitoring POU</b>	
QL1D2B2BN24AA1***	32A, Single Phase, IEC 60309 - 6H 2P+E Blue Splashproof Plug, 230V, (20) C-13/(4) C-19 Receptacles.
QL1D2P3BN2401***	32A, 3 Phase WYE, IEC 60309 - 6H 3P+N+E Red Splashproof Plug, 230/400V, (21) C-13/(3) C-19 Receptacles.

\*For no local monitor, replace "1" with "0", e.g. VB0A1M2BM30P1  
 \*\* For Networked current monitoring, replace "QN" with "QZ", e.g. QZ1A1D0BA30P1, note port speed for "QZ" units is 10 half duplex.  
 \*\*\* For Switched without per outlet monitoring, replace "QL1" with "QS1", e.g. QS1B1F0BA2401

# PViQ™ Sensors Global



PVQ-EST-18



PVQ-ESTAFHD-18



PVQ-ESDPK



PVQ-ESWK

Part Number	Description
PVQ-EST-18	Environmental temperature sensor with 18' cord.
PVQ-ESTAFHD-18	Temperature, humidity, airflow, and dew point sensor with 18' cord.
PVQ-ESDPK	Door position sensor kit.
PVQ-ESWK	Water sensor kit.

# Blanking Panels and Blanking Shade



TLBP1



TLBP2



TLBPBPT1S



FLBSIMS

Part Number	Description
<b>Tool-Less Blanking Panels</b>	
TLBP1S-V	19" (483mm) width for 3/8" cage nut holes (may be used with or without cage nuts installed). 1 RU.
TLBP2S-V	19" (483mm) width for 3/8" cage nut holes (may be used with or without cage nuts installed). 2 RU.
TLBP1R-V	19" (483mm) width for tapped rails. 1 RU.
TLBP2R-V	19" (483mm) width for tapped rails. 2 RU.
<b>Pass-Through Blanking Panels</b>	
TLBPBPT1S	19" (483mm) width for 3/8" cage nut holes (may be used with or without cage nuts installed). 1 RU, with pass-through areas.
<b>Blanking Shade</b>	
FLBSIMS	Full-length blanking shade blanks out 4-45 consecutive rack units on standard 19.00" (482.6mm) wide vertical mounting rails; black.



# Sealing Accessories



CTGN1X5



CTGN3X5



CTGN6X6



CTCN1X5



CTCN3X5



CTNBZL6X6



BFS100X2000



RFG12X

Part Number	Description
<b>Cool Boot® Cabinet Top Air Sealing Fitting</b>	
CTGN1X5	Used to seal off 1" x 5" cabinet top openings when cables are routed through the top of a cabinet. Airtight fabric and Ultra-Cinch™ Tie close top of fabric, minimizing hot air bypass around cables to improve cooling of network equipment and reduce energy costs. For use with 600mm wide Net-Access™ Cabinets.
CTGN3X5	Used to seal off 3" x 5" cabinet top openings when cables are routed through the top of a cabinet. Airtight fabric and Ultra-Cinch™ Tie close top of fabric, minimizing hot air bypass around cables to improve cooling of network equipment and reduce energy costs. For use with 700mm, 800mm, and 1000mm wide Net-Access™ Cabinets.
CTGN6X6	Used to seal off 6.5" x 6.5" cabinet top openings when cables are routed through the top of a cabinet. Airtight fabric and Ultra-Cinch™ Tie close top of fabric, minimizing hot air bypass around cables to improve cooling of network equipment and reduce energy costs. For use with 600mm, 700mm, 800mm, and 1000mm wide Net-Access™ Cabinets.
<b>Cabinet Top Cover and Cable Protection Bezel</b>	
CTCN1X5	Used to seal off 1.5" x 5" cabinet top openings. Can also be used to add the CTGN1X5 to openings where the snap-on cover has been removed. For use with Net-Access™ Cabinets.
CTCN3X5	Used to seal off 3.5" x 5" cabinet top openings. Can also be used to add the CTGN3X5 to openings where the snap-on cover has been removed. For use with Net-Access™ Cabinets.
CTNBZL6X6	Used to provide a protective edge for cables routed through the 6.5" x 6.5" cabinet top openings after knock-outs are removed. Can also be used to add the CTGN6X6 to openings where knock-out has been removed. For use with Net-Access™ Cabinets.
<b>Blanking Foam Strips</b>	
BFS100X2000	Adhesive-backed blanking foam strips conform to minimize gaps and prevent bypass air within network cabinets. Removable and repositionable acrylic-based adhesive is aggressive to provide suitable strength, however, will not leave residue on equipment. 4.0" x 100" roll perforated 1.0" in width and 20.0" in length.
<b>Cool Boot® Raised Floor Air Sealing Grommet</b>	
RFG12X4SMY	Overall size of 12" x 4" (304.8mm x 101.6mm) allows for 10.2" x 2.2" (259.1mm x 55.9mm) maximum capacity. Surface mount product can be installed over any opening less than 10.2" x 2.2" (259.1mm x 55.9mm).
RFG12X4Y	Overall size of 12" x 4" (304.8mm x 101.6mm) allows for 10.2" x 2.2" (259.1mm x 55.9mm) capacity. Includes flexible sub-grommet to prevent damage to cable from sharp edges of cut floor tile.

# Telecommunications Grounding Accessories



CNBK



RGCBNJ660P22



RGS134-1Y



RGESD2B-1



RGS134B42-1  
RGS134B-1  
RGS134B48-1



RGESDWS



RGRB19Y  
RGRB19CN

Part Number	Description	Std. Pkg. Qty.
CNBK	Green bonding cage nut, includes 50 #12-24 bonding cage nuts (.06 – .11 thick panel) and 50 #12-24 x 1/2" bonding screws with #2 Phillips/slotted combo hex head (use 5/16" or 8mm socket).	1
RGCBNJ660P22	Mesh common bonding network (MCBN) jumper kit; #6 AWG (16mm <sup>2</sup> ); 60" (1.52m) length; 45° bent lug on grounding strip side; provided with .16oz. (5cc) of antioxidant, two each #12-24 x 1/2", M6 x 12mm, #10-32 x 1/2" and M5 x 12mm thread-forming screws and a copper compression HTAP for connecting to the SBG (MCBN) in sizes ranging from #6-#2 AWG (16 – 25mm <sup>2</sup> ).	1
RGS1341Y	Rack grounding strip kit; 78.65" (2m) length; .67" (17mm) width; .05" (1.27mm) thickness; provided with .16oz (5cc) of antioxidant, one grounding sticker, three each #12-24 x 1/2", M6 x 12mm, #10-32 x 1/2" and M5 x 12mm thread-forming screws.	1
RGS134B-1	Cage nut grounding strip kit; 78.65" (2m) length; .67" (17mm) width; .05" (1.27mm) thickness; provided with .16oz (5cc) of antioxidant, one grounding sticker, three cage nut bonding studs, eight #12-24 bonding nuts and three stip clips.	1
RGS134B42-1	Equipment grounding strip kit, 42 RU, for cage nut mounting rails.	
RGS134B48-1	Equipment grounding strip kit, 48 RU, for cage nut mounting rails.	
RGESD2B-1	ESD port kit for cage nut rail fasteners: two-hole ESD port with 5/8" hole spacing, provided with an ESD protection sticker, 16oz. (5cc) of antioxidant, two cage nut bonding studs and two #12-24 bonding nuts.	1
RGESDWS	Adjustable fabric ESD wrist strap with 6' coil cord, banana plug, 1 megohm resistor and 4mm snap.	1
RGRB19Y	Grounding busbar; 19" (483mm) length; tin-plated; fourteen holes arranged for flexibility in mounting; provided with two each #12-24 x 1/2" and M6 x 12mm thread-forming screws.	1
RGRB19CN	Grounding busbar; 19" (483mm) length; tin-plated; twenty holes arranged for flexibility in mounting with twenty #12-24 x 1/2" hex head screws installed; mounting hole sets have 5/8" (15.9mm) spacing; provided with two cage nut bonding studs and four #12-24 bonding nuts.	1

Refer to [www.panduit.com/grounding](http://www.panduit.com/grounding) for detailed information on the complete line of StructureGround™ Grounding System products.

# Energy Efficient Data Center Cabinet System

## A Part of Panduit's Intelligent Data Center Solution

Panduit's Unified Physical Infrastructure<sup>SM</sup> (UPI)-based Intelligent Data Center Solutions embody the next wave of systems integration and risk management by aligning and harmonizing critical systems to support the delivery of secure, energy-efficient, always-on, real-time data and services. Energy Efficient Cabinet Systems are one of the key pillars of the Panduit Intelligent Data Center Solution that include:

**Intelligent Software and Hardware** — Panduit Physical Infrastructure Manager<sup>™</sup> (PIM<sup>™</sup>) Software Platform works seamlessly with PanView iQ<sup>™</sup> (PViQ<sup>™</sup>) System Hardware and select third-party devices providing an end-to-end physical to logical view of your data center and extended enterprise. Panduit's Intelligent Software and Hardware enable effective optimization of your data center's space, power, and capacity planning through 10% OpEx savings in energy costs, 75% faster moves, adds, and changes (MACs), and 80% faster mean time to repair (MTTR).

**Data Center Advisory Services** — Panduit Data Center Advisory Services provide a full range of physical infrastructure layer services to help you assess, design, and maintain resilient, sustainable solutions that deliver operational flexibility to reduce costs by up to 20%, and meet future requirements.

**High Speed Data Transport (HSDT) Copper and Fiber Cabling Systems** — Panduit HSDT Solutions are both protocol and media agnostic, delivering maximum flexibility during planning, designing, commissioning, and operation of the data center. Our HSDT Solutions enable advanced network architectures such as 10/40/100 Gig Ethernet LANs and 8/16/32 Gig Fibre Channel SANs and can provide a 10% improvement in network throughput.

**Pre-Configured Physical Infrastructures** — Panduit helps reduce deployment times up to 65% and mitigates the risk of adopting new technologies with reliable and robust Pre-Configured Infrastructures. Panduit utilizes optimized reference designs collaboratively engineered with our partners, to enhance the physical infrastructure of their technology platforms and seamlessly integrate physical and logical systems.

**Physical Infrastructure Foundation** — Critical to the deployment of our Intelligent Data Center solution is the physical infrastructure foundation in the data center, which includes such items as:

**Pathways:** Provide the best method to route and manage the growing amount of data and power cabling while ensuring high levels of network performance

**Zone Cabling:** Serves as a main distribution point for a particular zone, increasing network flexibility, manageability, accessibility, and efficiency

**Bonding and Grounding:** Provides a high quality, visually verifiable and dedicated grounding path to maintain system performance, improve network reliability, and protect network equipment and personnel

**Identification and Labeling:** Enhance the appearance of installations by presenting a clear and efficient way to label according to TIA/EIA-606-A standards

## Real-World Solutions

*With a proven reputation for excellence and innovation, Panduit and our partners work with you to overcome challenges and implement real-world solutions that create a competitive business advantage. Panduit offers the broadest range of solutions, from data centers and intelligent buildings to manufacturing operations, to help you build a **smarter, unified business foundation**.*



### Technology Leadership

Panduit develops innovative physical infrastructure solutions that meet the rapidly changing needs of our clients, from hardware and software to advisory services. This commitment is supported by investment in advanced research, solutions-focused product development, world-class manufacturing, and collaboration with customers at the forefront of technology.



### Partner Ecosystem

Our best-in-class partner ecosystem offers a comprehensive portfolio of services that span the project lifecycle, from planning and design to delivery, deployment, maintenance, and operation. Panduit business partners – distributors, and certified architects, consultants, engineers, designers, system integrators, and contractors – are qualified to help you achieve your objectives and realize predictable and measurable results.



### Strategic Alliances

Panduit cultivates long-term strategic alliances with industry leaders, including Cisco Systems, EMC, IBM, and Rockwell Automation, to develop, optimize, and validate solutions for our customers. This investment in people and resources helps solve our customers' greatest business challenges.



### Global Business Commitment

Panduit is committed to delivering a consistently high level of quality and service the world over. With a presence in more than 100 countries, local Panduit sales representatives and technical specialists offer guidance and support that bring value to your business. Our global supply chain, which includes manufacturing, customer service, logistics, and distribution partners, provides prompt response to your inquiries and streamlines delivery to any worldwide destination.



### Sustainability

With a commitment to environmental sustainability, Panduit develops and implements solutions that protect, replenish, and restore the world in which we live. This commitment is demonstrated by Panduit's LEED Gold certified World Headquarters, leveraging the Unified Physical Infrastructure<sup>SM</sup> approach to enable convergence of critical building systems to drive energy efficiency and ongoing operational improvement.

*Transform Your  
Physical Infrastructure*

*Call or visit us online,  
we can show you how.*

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