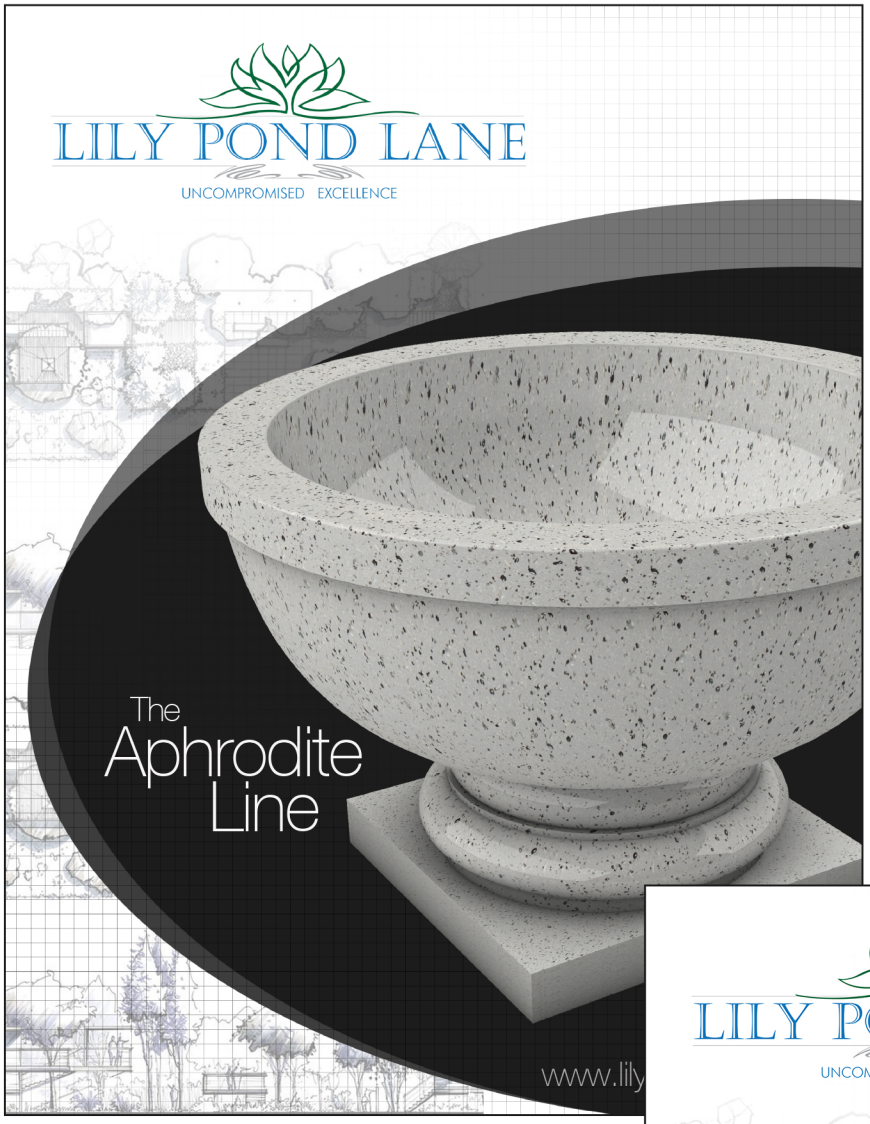
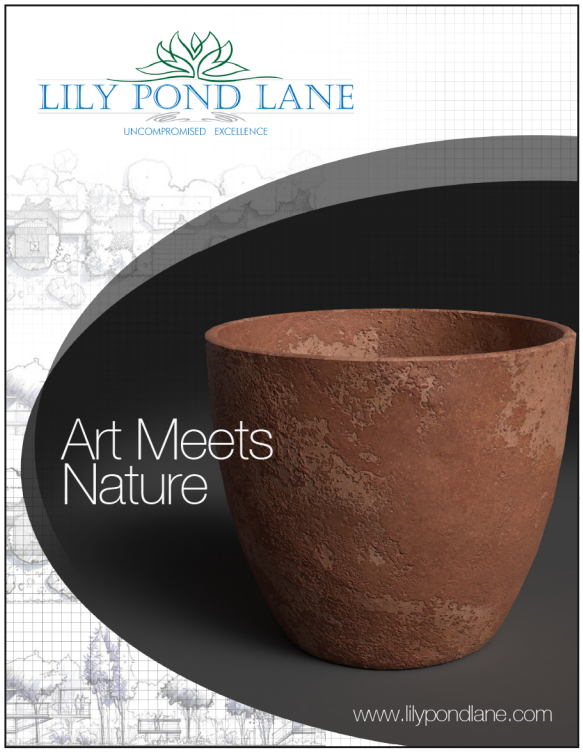
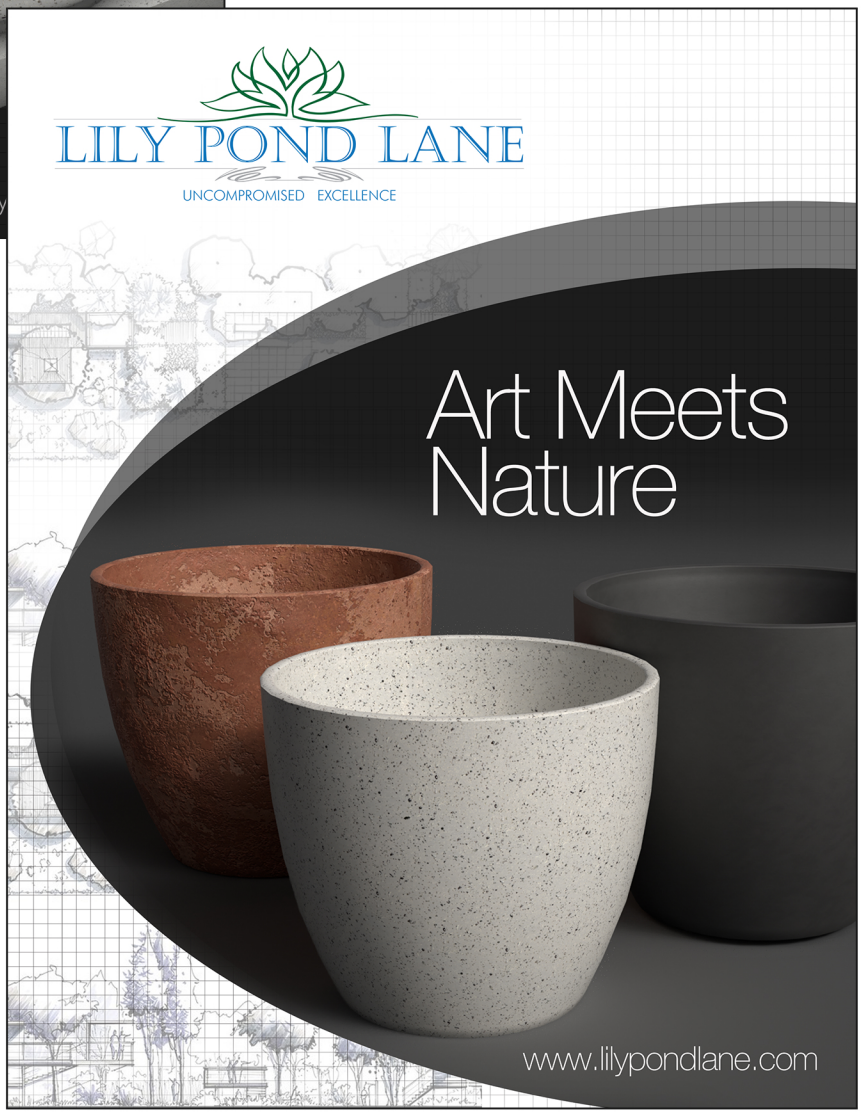
Branding Project utilizing 3D Modeling and Rendering.







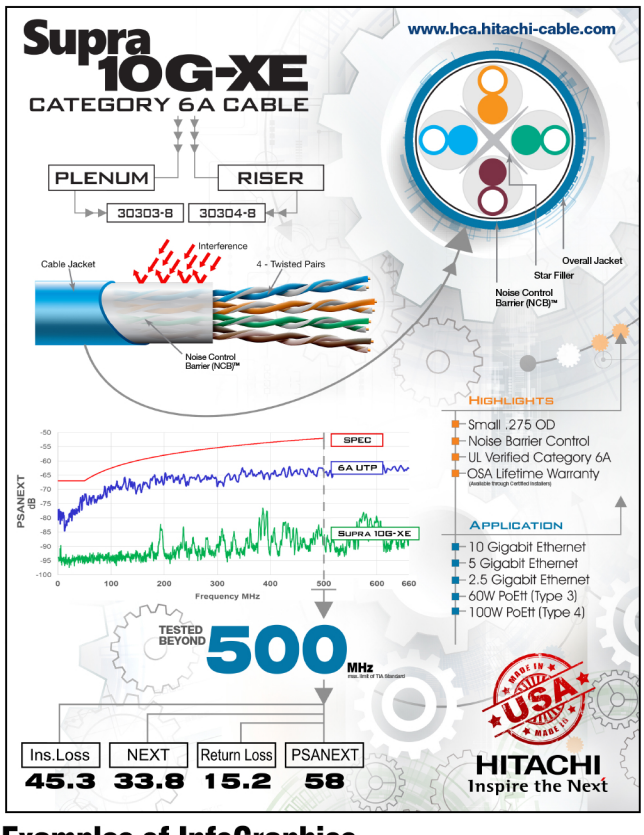
LILY POND LANE
UNCOMPROMISED EXCELLENCE

Lily Pond Lane
SIMPLICITY IN ELEGANCE

LILY POND LANE
WHERE ART AND NATURE CONVERGE

Lily Pond Lane

3 Fold DOD Targeted brochure



Examples of InfoGraphics

3 Fold Promotional folder

Sourcing from New England

HCA sources the raw material, cardboard packaging and the copper rod from which the wire is drawn, within a 100 mile radius of our manufacturing facility. As environmental awareness has increased, so has HCA's commitment to minimize its impact on both the environment around our manufacturing facility and the locations at which our products are installed.

Potential for LEED Points

In regards to U.S. Green Building Council LEED points, HCA offers a number of opportunities where end-users can submit for LEED points. LEED points are available for Regional Materials (1 point), Innovation in Design (1-5 points) and Construction Waste Management (1-2 points). Points may also be obtained for Construction Waste Management by properly recycling all HCA cardboard packaging. HCA is pleased to be able to provide opportunities for LEED points. As we continue to improve our products and our manufacturing facility, we hope to increase the number of LEED point opportunities we can provide.

Customer Pride

From Boston, Massachusetts to Bar Harbor, Maine and everywhere in between, we take exceptional pride in providing our cables to local companies and institutions. Hundreds of New England companies, colleges and universities utilize our cables. Many of them have even come to our Manchester facility for a tour and to learn how copper and fiber optic communication cables are made. In fact, prospective customers from around the country regularly come to Manchester to see how we make our cables. If they haven't decided on a cable manufacturer before their visit, they have after.

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Hitachi Cable America Inc.

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Tel: 603.669.4347 • Sales: 800.772.0116 • Fax: 603.669.9621
www.hca.hitachi-cable.com

07/2019

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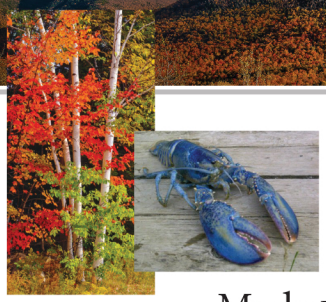


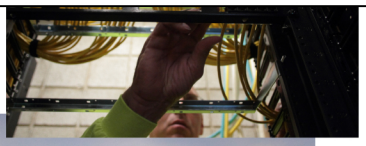
Made In
New England

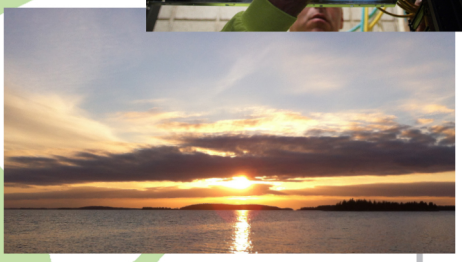
Hitachi Cable America Inc.

About Hitachi Cable America

Hitachi's expertise in making cable goes back well over 100 years. Though we are known globally for engineering superior products that delivery industry leading performance, we in New Hampshire also take great pride in our New England roots. In 1986, Hitachi Cable America (HCA) was established in Manchester as the U.S. manufacturing location for copper and fiber optic communication cables for North America. Over the years our product offering has evolved from a handful of specialized cables to a wide range of cables for an ever-growing list of applications. Our 300,000 square-foot facility in Manchester, New Hampshire now manufactures over 4,500 different cables. HCA employs over 200 people and runs twenty-four hours a day, seven days a week, supporting local, national and international customers. Products manufactured at HCA include high performance copper and fiber optic communication cables, flat and round electronics cables and custom cables. These cables support popular applications such as Ethernet, Industrial Ethernet, data centers, cellular and DAS wireless applications, robotics, aerospace, medical, oil & gas exploration, mining and more.

HCA is a technology leader in the design and manufacture of cables and has many notable achievements, including the first UL verified Category 6A cable and Drybit™, the first plenum-rated, indoor/outdoor Category 6 and 6A cables designed for wet places and plenum spaces.





detection sensors. So, aisles in the warehouse remain unlit unless someone enters an aisle and triggers a motion sensor. To add additional light, there are 90 skylights spread through the manufacturing and warehouse areas.

HCA recycles 100% its cardboard waste and 100% of its white office paper waste. During an average month, HCA recycles nearly 14,000 pounds of cardboard and 2,000 pounds of white office paper including junk mail, catalogs, magazines, etc. HCA's goal is to limit the amount of material going to a landfill to as small an amount as possible. This message has been communicated to all employees. To further help limit what goes to the landfill, the employees took it upon themselves to initiate a recycling program that includes all aluminum can and plastic bottle waste generated by employees. The cans and bottles are accumulated and then sent for recycling when quantities are sufficient.

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High Performance Medical Solutions

- Discrete & Bundled Cable
- Catheter Tubing
- Medical Machining
- Assembly & Fabrication Services

Global Medical Excellence

Table of Contents

REACHCompliant

RoHS

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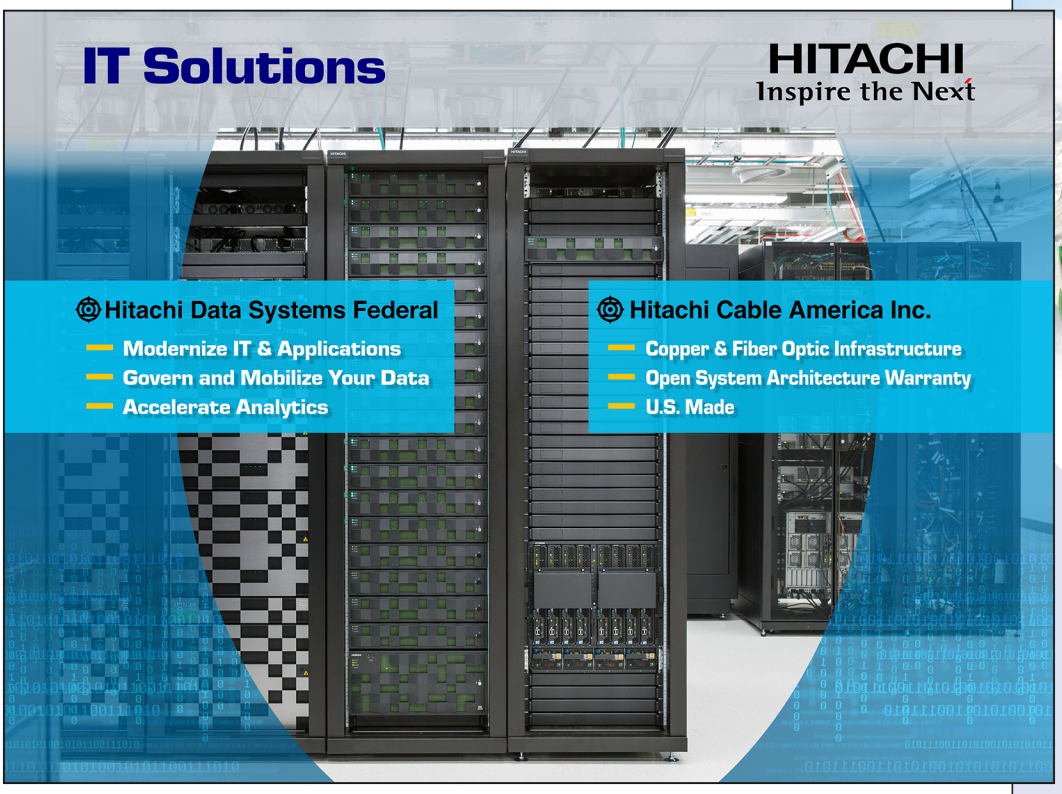
CATHETER TUBING & ASSEMBLIES

52 pg Medical Tech Catalog

Tradeshow Booth Designs



80 Page Catalog. I created all content including 3D Model renders and photography.

Hitachi Cable America Inc.

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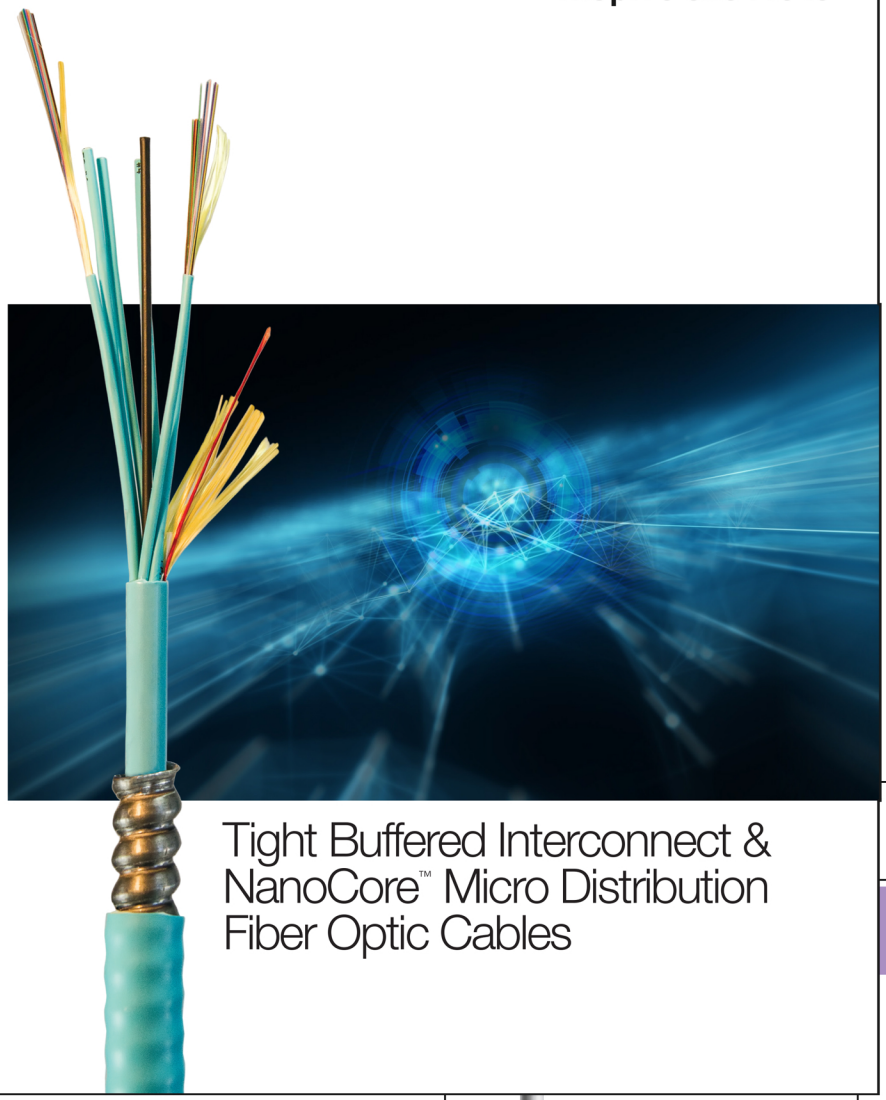

Tight Buffered Interconnect & NanoCore™ Micro Distribution Fiber Optic Cables

NanoCore®

Nanocore® Fiber Optic Solutions

From security cameras and lighting systems to SANs and WANs, the demand on the physical network infrastructure has never been greater. And, there is no end in sight. Bandwidth demands from an ever increasing list of Internet of Things (IoT) devices, as well as continued growth in online shopping, gaming, movies and television and the migration to a paperless world across all industries have created a never ending thirst for bandwidth. In addition to the users, the data centers that support these systems must keep up with the bandwidth demand. To support all of these users and more, Hitachi Cable America (HCA) offers our NanoCore® family of micro distribution fiber optic cables.

Available with high bandwidth Multimode and Singlemode fiber optic glass, the NanoCore family is designed to provide the highest levels of throughput in the smallest cable possible. With an industry leading 144-fiber, 9.9mm outside diameter cable, the NanoCore line is ideal anywhere where space is limited, but network demands are high. For this reason, Hitachi now offers a 288-fiber NanoCore cable.

Whether they are installed in the top of rack in a data center or in the horizontal cable space in a call center, NanoCore cables are able to deliver the bandwidth where it is needed. They offer an extremely small outside diameter because they utilize loose tube 250 micron optical fibers. Due to advances in optical fiber manufacturing and the rise of bend-insensitive optical fibers, the fibers can now be more easily integrated into a wide range of cable constructions. When NanoCore cables are married to high-density MPO connectors, you can establish data rates of 100 gigabit per second and even higher. With a cable about as big around as a #2 pencil, that's impressive.

This catalog includes the complete range of NanoCore constructions to meet your specific needs, including tight buffered interconnect cables. All NanoCore cables are made with pride at the Hitachi Cable America facility in Manchester, NH.

INDOOR
NanoCore® 2 Through 24 fibers

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Product Highlights

- REACH & RoHS 2 compliant.
- Made in USA.
- All multimode, and singlemode cables (except OM1) utilize bend-insensitive optical fibers.
- 250 micron loose tube design allows for higher fiber strand counts in a smaller overall diameter cable.
- LSHF with (OFNR) rating enables use in riser-rated environments. See note under part number table.
- Halogen free design offers improved safety performance.
- Ideal for MPO (MTP™) style connectors.
- Each fiber is color coded for easy identification.
- Flexible and easy to handle.
- Lightweight, flexible Aramid yarns enhance strength.
- When necessary, color-coded binders separate fiber strands into bundles of 12.

Options

- Enhanced bend insensitive OS2 optical fiber is available (ITU-T G.657.B3 & G.657.A2).
- Standard jacket colors are:
  Yellow: OS2
  Orange: OM1 & OM2
  Aqua: OM3 & OM4
  Note: Erika Violet for OM4 is available
- 16 Fiber colors are available.
- Colored threads are used to bundle fibers.

Applications

- Applications include 10, 40 & 100 gigabit Ethernet, Fibre Channel, Video, Security, Automation.
- OM5 supports applications utilizing Short Wave Division Multiplexing (SWDM).

Standards

- TIA/EIA- 568 -C.3
- ISO/IEC 11801, 2nd edition
- Telcordia GR-409-CORE
- OS2 glass is compliant to ITU-T G.657.A1

NanoCore® Interconnect (Single Jacket) Micro Distribution (LSHF/Riser)

Low Smoke No Halogens (UL) OFNR c(UL) OFNR FT4

PART NUMBERS BY FIBER COUNT

FIBERS	Cable OD mm	FIBERS/ BUNDLE	62.5 UM OM1	50 UM OM2	50 UM OM3	50 UM OM4	50 UM OM4+	50 UM OM5	8.3 UM OS2
2	2.0	-	62424-2	62425-2	62426-2	62427-2	62428-2	62747-2	62429-2
2	3.0	-	62338-2	61631-2	61632-2	61941-2	62438-2	62748-2	61772-2
4	2.0	-	62424-4	62425-4	62426-4	62427-4	62428-4	62747-4	62429-4
4	3.0	-	62338-4	61631-4	61632-4	61941-4	62438-4	62748-4	61772-4
6	2.0	-	62424-6	62425-6	62426-6	62427-6	62428-6	62747-6	62429-6
6	3.0	-	62338-6	61631-6	61632-6	61941-6	62438-6	62748-6	61772-6
12	2.0	-	62424-12	62425-12	62426-12	62427-12	62428-12	62747-12	62429-12
12	3.0	-	62338-12	61631-12	61632-12	61941-12	62438-12	62748-12	61772-12
16	3.0	-	62338-16	61631-16	61632-16	61941-16	62438-16	62716-16	61772-16
16*	3.0	8 X 2	62701-16	62702-16	62703-16	62704-16	62705-16	62706-16	62707-16
24*	3.0	12 X 2	62424-24	62425-24	62426-24	62427-24	62428-24	62747-24	62429-24

LSHF (Low Smoke Halogen Free) is a new flame rating developed by Underwriters Laboratories (UL). It identifies the cable as being low smoke while also containing zero halogens.

SPECIFICATIONS BY FIBER COUNT

FIBERS	FIBERS/ BUNDLE	CABLE OD		RECOMMENDED MAXIMUM LOADS INSTALL		OPERATION		COMPRESSION	IMPACT	CABLE WEIGHT	
		in.	mm	lbs	N	lbs	N	N/cm	N-m	lbs/kft	Kg/Km
2	-	0.078	2.0	50	222	15	67	35	0.74	2.5	3.7
2	-	0.118	3.0	100	445	30	134	100	2.94	4.8	7.2
4	-	0.078	2.0	50	222	15	67	35	0.74	2.6	3.8
4	-	0.118	3.0	100	445	30	134	100	2.94	4.9	7.4
6	-	0.078	2.0	50	222	15	67	35	0.74	2.7	4.0
6	-	0.118	3.0	100	445	30	134	100	2.94	5.0	7.5
12	-	0.078	2.0	50	222	15	67	35	0.74	3.0	4.4
12	-	0.118	3.0	100	445	30	134	100	2.94	5.3	7.9
16	-	0.118	3.0	150	668	45	200	100	2.94	5.2	7.7
16*	8 X 2	0.118	3.0	150	668	45	200	100	2.94	5.2	7.7
24*	12 X 2	0.118	3.0	150	668	45	200	100	0.74	5.9	8.8

Cable Characteristics

Notes: Part number rows in upper table directly correspond to cable characteristic rows in the same location of the lower table. *These cable designs utilize color-coded binders to separate subunits.

Hitachi Cable America Inc.

Located in Manchester, New Hampshire, Hitachi Cable America's (HCA) 300,000 square-foot facility produces over 4,500 unique cable constructions. HCA has been manufacturing cables at this facility since 1986 and operates 24/7 to supply demand. In addition to producing network related cables, HCA builds cables for the medical industry, the cellular phone industry, industrial applications, supercomputing and more.

Products from Hitachi Cable America Include:

Category 5e, 6 & 6A Cables
Category 7,7A & 8 Cables
Fiber Optic Cables (indoor, outdoor & armored)
NanoCore™ Micro Distribution Fiber Optic Cables
Industrial Ethernet Cables
Coaxial & Mini-coaxial Cables
Distributed Antenna System Cables
Round & Ribbon Electronic Cables
MudGuard-EX™ Drilling Mud Resistant Cables

MADE IN USA

HCA is proud to use Corning Optical Glass in all standard fiber optic cable constructions.

plus CORNING ClearCurve® Optical Fiber

For more information about Open System Architecture, please contact us.

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Hitachi Cable America Inc.

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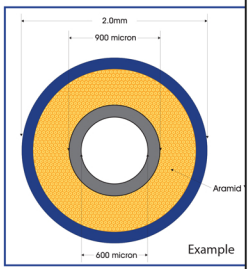
www.hca.hitachi-cable.com

01/2020

Reinforced Furcatio



Features and Benefits

- **Tight dimensional control for easy fiber insertion**
- **Available in Zipcord construction**
- **Aramid reinforced for added mechanical protection**
- **Variety of sizing options to meet customer requirements**
- **UL94 V-0 material options**
- **18 color options**
- **Low shrinkage for improved environmental performance**
- **Jacket material options include Hytrel®, LSZH, PVC**
- **Bare fiber or tight buffered protection options**
- **Wide operation temperature range material options (-40 deg**
- **Tube can be customized to customer standards (minimum c**
- **Jacket color matched to all HCA fiber optic cables**
- **Standard inner tube color is white**

Applications

- **Breaking-out/Fanning-out cables to connectors**
- **Patching active devices**
- **Specialty fiber protection**
- **Coupler and splitter applications**

10 page Brochure

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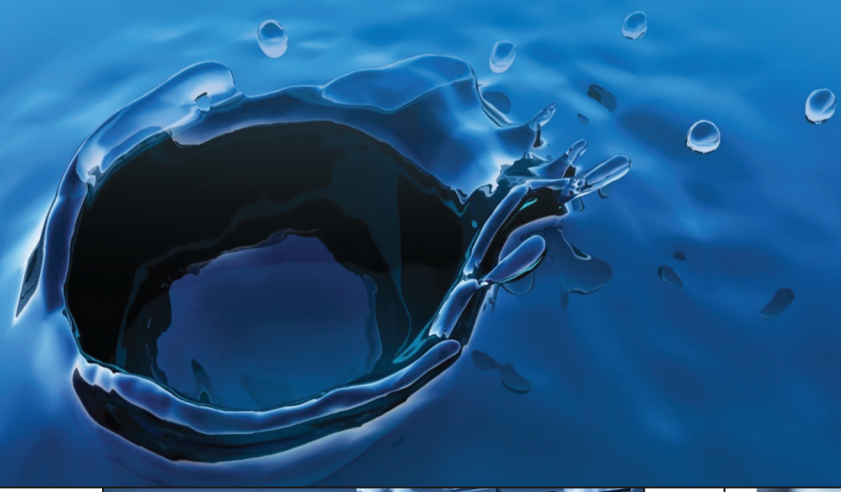
Open System Architecture



Open System Architecture vs Closed Solutions

In network infrastructure, the term open system architecture refers to the practice of using virtually any combination of standards-compliant cable and connective hardware in the design of the network. The standard, ANSI/TIA-568-C.1, dictates the performance requirements of the network components to ensure that they will accommodate the applications that were designed to operate over them. By employing the open system architecture philosophy, the end user has the freedom to choose the products that best meet their specific needs. They can then be confident that the solution they chose will support all applications designed to operate over that solution. Just like a standard light bulb will fit into any lamp and work when you flip the switch, so will the network perform when you use components that meet or exceed the standards.

Of course there are also different levels of quality and performance to choose from in the market place. Certainly a wise choice, especially when it comes to cable for the open system architecture infrastructure, is to select a company that offers guaranteed performance, a substantial warranty, such as a lifetime warranty, and has sufficient personnel, both internally and externally, to properly support the customer. If an issue arises, it's good to have quick and easy access to the manufacturer. Other items that can contribute to confidence in a product's selection are if it is manufactured in the U.S. and if the company makes its facility accessible to visitors. Generally, companies that build a quality product are proud to show customers how they do it. Since a network infrastructure can be a significant investment, typically in the thousands or even millions of dollars, knowing the origin of the products and being familiar with their manufacturers could very likely influence your decision when selecting components.

Closed solutions, ones in which a specific cable and connectivity manufacturer must be used in order to obtain a warranty, are typically marketed as providing better performance than standards-based solutions. This may or may not be the case. These closed solutions may involve the components from two companies or a single company. Often, a connectivity manufacturer aligns with a cable manufacturer. In some instances all materials come from one company, or at least, have one company's name printed on them. Few companies actually make both the cable and connective hardware themselves.

Closed solutions offered by a single company or from a collaborative effort between companies are not new. They have been around for a number of years. And, virtually all of them tout some advantage that its solution offers over the others. But, how can you really tell which one is the best? How much is fact and how much is hype? In fact, just recently, two solutions, each comprised of a connectivity manufacturer and a cable manufacturer, broke off their long-term relationships and switched partners. Was this done to provide a better product to the customer? Was it done because of a new corporate sales strategy? Regardless, when two companies market a closed solution jointly, it may have more to do with their sales channels than their quest for higher performance. These are just some of the items to consider when choosing materials.

At Mayer Electric, we believe the best method for selecting the appropriate products for an infrastructure is to evaluate the performance, warranty and overall value that the individual components offer. With that information, you can then build the best infrastructure for your company. An open architecture solution offers users the freedom to choose the materials that best meet their needs.

BICSI (Building Industry Consultant Services International), so those who require credits to maintain a BICSI certification can receive them by attending Hitachi Cable's training programs. Hitachi Cable America's facility is located in Manchester, New Hampshire. All copper premise and fiber optic cables are manufactured there and facility tours are available. If you need direct support from the manufacturer, it's available directly from Hitachi Cable America.

When it comes to a warranty, no company offers a warranty more comprehensive than Hitachi Cable America's Lifetime Warranty.

Performance

Is performance of the network infrastructure important? You bet it is. Studies have indicated that approximately 50% of network throughput problems are related to the network infrastructure. So, when trying to obtain the best value for the investment, it is very important to select high quality, high performance products. The purveyors of closed solutions contend that only their solutions can provide exceptional performance. The performance they offer may be good, but is it measurably better than that which can be obtained by combining a leading cable manufacturer and a leading connectivity brand? We obtained 3rd party test results for Hitachi Cable America and eight connectivity manufacturers. The Hitachi Cable America cable used was its Category 6 PLUS™ cable (30025-8). The data (below) indicates that when the PLUS™ cable is mated to the connectivity shown, the resulting permanent link (a circuit including cable and connectors at each end) provides performance in excess of the parameters established in the ANSI /TIA-568-C.1 standard. For example, both ACRN and PSACRN, identified in the yellow boxes, demonstrate that there is significant margin over the limits in the Category 6 standard. ACRN (Attenuation-to-Crosstalk Ratio Near-end) is the relationship between a signal on a conductor and associated noise emanating from an adjacent conductor. Near-end indicates it is at the main tester end of the link being tested. ACRN is calculated from attenuation and NEXT (crosstalk) measurements. PSACRN is the difference between a twisted pair's attenuation and combined crosstalk from adjacent pairs. Both ACRN & PSACRN are key performance indicators in a permanent link.

If noise overcomes a signal on a conductor, it will corrupt it. Higher ACRN and PSACRN vales are desirable. Therefore, if you chose an open system architecture solution that includes the PLUS™ Category 6 cable from Hitachi Cable America, you will have a solution that will support all applications intended for Category 6.

If you are seeking the best value for your infrastructure investment, it is clear that an open system architecture solution featuring cable and connectivity tested and verified to the standard will perform as well as if not better than closed solutions. **Open system architecture solutions can be a better value and offer equal or better electrical performance than closed solutions.**

Hubbell & Hitachi PLUS™ Category 6 Cable	
ACR-N (dB)	11.2
Frequency (MHz)	75.0
Limit (dB)	26.0

HellermanTyton & Hitachi PLUS™ Category 6 Cable	
ACR-N (dB)	9.1
Frequency (MHz)	162.9
Limit (dB)	15.3
S ACR-N (dB)	10.4
equency (MHz)	94.3
mit (dB)	23.5

CC & Hitachi PLUS™ Category 6 Cable	
CR-N (dB)	7.8
equency (MHz)	71.2
mit (dB)	30.0
S ACR-N (dB)	9.8
equency (MHz)	71.2
mit (dB)	28.0

MP & Hitachi PLUS™ Category 6 Cable	
CR-N (dB)	8.7
equency (MHz)	14.8
mit (dB)	48.4
S ACR-N (dB)	10.1
equency (MHz)	14.8
mit (dB)	46.0

ystimax & Hitachi PLUS™ Category 6 Cable	
CR-N (dB)	11.6
equency (MHz)	24.3
mit (dB)	43.0
S ACR-N (dB)	13.3
equency (MHz)	24.3
mit (dB)	40.6

MAYER ELECTRIC SUPPLY

Ranked among the nation's largest, and most rapidly expanding distributors of electrical supplies, Mayer reaches its markets currently through locations in Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Texas, Tennessee, and Virginia and continues to explore expansion opportunities throughout the southern U.S. Founded in 1930 and headquartered in Birmingham, Alabama, Mayer employs over 950 people and has annual sales of over $609 million.

Hitachi Cable America Inc.

Located in Manchester, New Hampshire, Hitachi Cable America's (HCA) 300,000 square facility produces over 4,000 different cables. Products manufactured include HCA's high-performance copper and fiber optic communication cables, as well as flat and round electronic cables and custom cables. HCA products are used world-wide across a wide spectrum of industries, including medical, financial, manufacturing, educational, government and military.

MAYER ELECTRIC SUPPLY

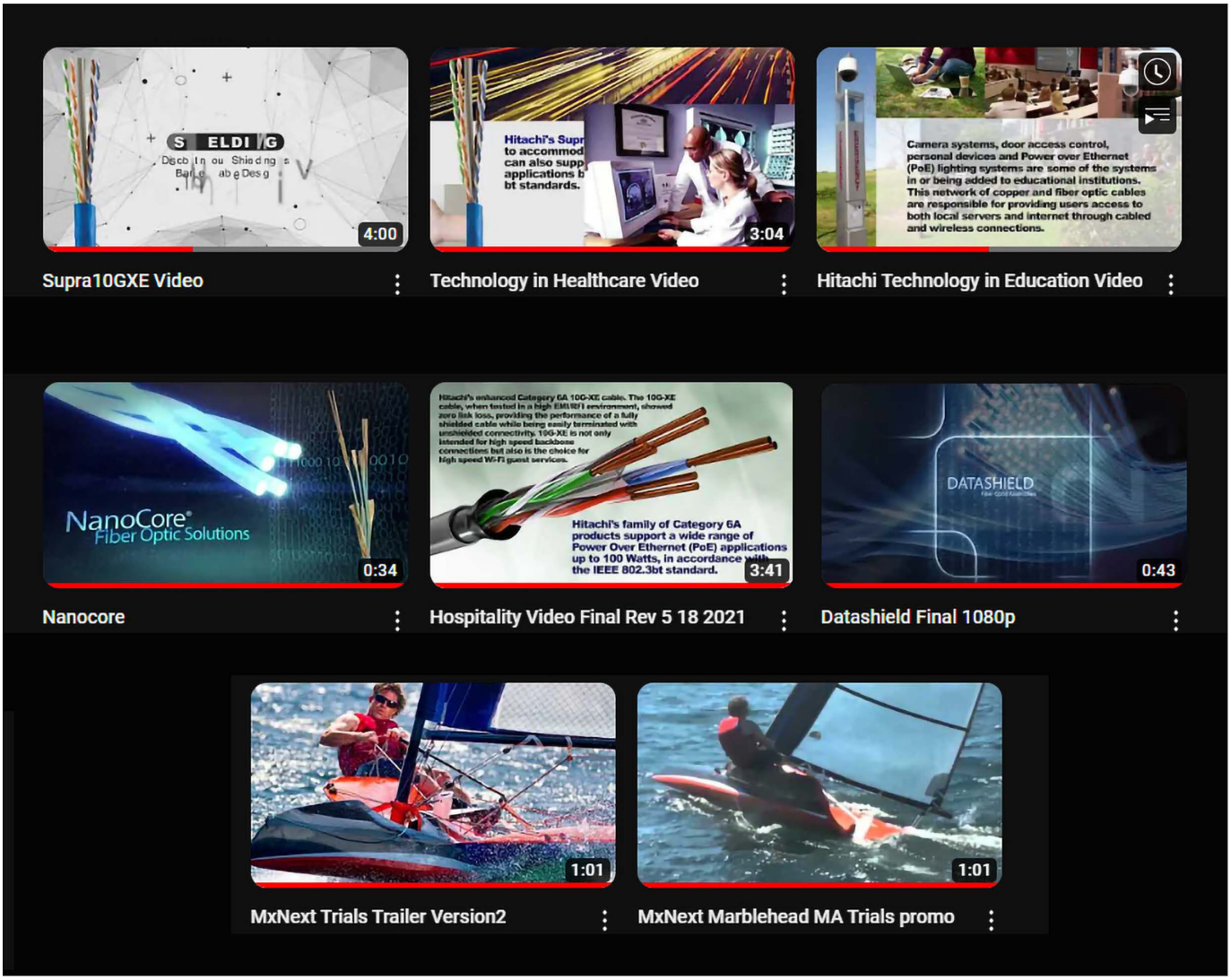
1-866-637-1255

What is Open System Architecture?

If you are installing a Category 5e, 6 or 6A infrastructure, there is a sizeable selection of well know products available. What makes one product a wiser choice than another? Which one offers maximum performance, while also providing the best value? Should you buy the heavily marketed closed brand solution that touts unmatched performance or should you pick and choose the products that best meet your specific needs? If you do the latter, what kind of performance can you expect to get? The closed solutions appear to offer the best performance. But, they are also asking a premium for that performance. If you own this project, you want the best value possible. You want high performance, without the high price.

The purpose of this paper is to illustrate why open system architecture, a standards based network solution approach, is a viable alternative to those closed solutions. This paper will also provide examples of the exceptional performance delivered by an open system architecture solution that includes Category 6 cable from Hitachi Cable America and connectivity from 8 well-known connectivity manufacturers.

Examples of Video Shorts



Videos utilize photography and imagery that I've shot or created myself. 3D Elements such as special effects and wires were self created as well. Some elements of special effect were created using third party templates and improved or altered by myself.