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October 2016 issue - No 64

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***Oilers ensure no
wi-fi slip-ups!***

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#64 EDITOR

Wi-fi plays an ever important role in everyday life – and sporting clubs recognize that fans want the latest sports news while they're at games, which is why Edmonton Oilers has just been fitted with 417 wi-fi antennas providing state-of-the-art connections throughout their home at Rogers Place.

The ice hockey club is said now to contain enough wiring to “wrap around the world” following the installation, including what appears to be the metal boxes built into handrails that are actually wi-fi antennas. You can read the full story on page 9.

Venezuelan president Nicola Maduro has approved a production recovery plan for the country's steelmaker, Sidor, with the intention of production of four million tonnes of steel by 2018. The company's current capacity allows for 425,000 tonnes per month, or 5.1 million tonnes of crude steel each year. It can also produce 390,000 tonnes of rebar and 600,000 tonnes of wire rod each year. Read the details on page 17.

IWCS opens its doors on October 2nd with the technical symposium being staged at the Rhode Island Convention Center, Rhode Island. There is a full program of papers, as well as the traditional exhibition, and you can read about some of the exhibitors in our coverage, which starts on page 36.

David Bell
Editor

PAGE
06

PAGE
09

PAGE
24

PAGE
30

PAGE
36

PAGE
48

CONTENT

SHOW DIARY / 2016 - 2017

MAKING THE NEWS / *Industry news from the USA*

EUROPE NEWS / *The latest news from Europe*

ASIA & AFRICA NEWS / *The latest news from Asia & Africa*

IWCS 2016 / *Rhode Island Convention Center*

PRODUCTS, MACHINES AND TECHNOLOGY / *The latest news from*

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12

#64 OCTOBER
2016 ISSUE



14



18



25

m machine industries



27



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31



35

DIARY SHOW EVENTS

2016

OCTOBER

2-5 October 2016

IWCS

Rhode Island, USA

Conference and Exhibition

www.iwcs.org

OCTOBER

5-7 October 2016

Wire & Cable India

Mumbai, India

Exhibition

www.wire-india.com

2017

MARCH

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TEL

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Exhibition

www.voli.com.tr

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MAKING THE NEWS

Oilers ensure no wi-fi slip-ups!

Edmonton Oilers' home arena, Rogers Place, is said to contain enough wiring to "wrap around the world" following the installation of 417 wi-fi antennas around the building.

The communications technology in the arena is described as "state-of-the-art", including what appear to be metal boxes built into handrails in the lower bowl that are actually wi-fi antennas.

Rogers Communications Inc president Guy Laurence, said: "The one thing wireless networks don't like is steel and, as you look around the stadium, you will see there's 9,000 metric tonnes of steel. There was quite a design issue for us to provide excellent wireless coverage." Rogers has invested \$15 million in

the facility and the surrounding Ice District, Mr Laurence said. "Because it's the newest stadium in North America, it's naturally got the newest of everything," he added.

He estimates that the hardware will last five to ten years, while the software can be upgraded constantly.

Rogers made changes even before the doors opened, switching all the TVs it has provided – including 48 in the SportsNet Club – to high-definition 4K as the company became one of the world's largest producers of 4K content.

"We can keep the stadium up to date for years and years and years," Mr Laurence added.



An end to strikes

New York Power Authority (NYPA) will use Vesper Marine's WatchMate asset protection system to protect a critical 7.5-mile stretch of four submerged cables in the Long Island Sound.

The cables are buried 10 feet deep under the Sound, and twice have been seriously damaged by tugboat anchors. The repair process can take five to eight months and "tens of millions of dollars" to fix, according to Robert J Schwabe, director, asset and maintenance management, NYPA. Cable strikes also bring a significant safety and environmental hazard: the repair process demands divers in the water to jet out the cable, find the break and bring it to surface, and the DCL 45 low viscosity fluid used for insulation within the cable poses an environmental risk.

The most recent anchor strike, in 2014, occurred in winter, meaning the divers

were working in arduous conditions, taking two months to jet out enough cable to find the fault, while releasing thousands of gallons of DCL 45 fluid.

The solution uses two land-based communication towers to establish a set of virtual beacons to mark the cable field, clearly visible on a commercial vessel's electronic charts. The Vesper Maritime system monitors vessels constantly, and a set of web-based software rules, created by NYPA and Vesper, determine if a vessel is likely to anchor in the potential strike zone. A safety message is delivered automatically and directly to the bridge of the vessel and copied to NYPA.

"There were other systems that offered notification, but they first notified the Coast Guard and then the vessel, which could take up to half an hour," said Schwabe. "You don't have that much time."



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Breaking ground for the new plant, March 2016. Photograph courtesy of Sonnedix

Solar plant nears commissioning

Yarotek, in partnership with Oriana Energy LLC, a subsidiary of Sonnedix Group, has announced the energization of the Oriana solar farm, a 45MW AC solar photovoltaic power plant.

The plant is the second built by the partnership in Puerto Rico recently, and is the largest of its kind in the Caribbean.

Andreas Mustad, CEO of Sonnedix, commented: "It is a landmark moment for Sonnedix. With this milestone, we have more than tripled our operating capacity over the past eighteen months." The announcement comes at a period of significant growth for Sonnedix, with recent acquisitions and new connections of over 100MW in Italy, Chile and South Africa.

The energization process, defined as Initial Synchronization Date, marks the date

when Oriana's solar power generating equipment is synchronized to the Puerto Rico Electric Power Authority's electrical transmission grid.

The process is executed progressively, integrating the produced energy into the authority's grid in a safe manner, and monitoring energization requirements at incremental power levels. Further acceptance tests are conducted to assure a smooth transition of energy into the grid.

With an investment in excess of \$160 million, the construction of this solar power plant created over 1,000 direct jobs during construction, mostly residents of Isabela and nearby communities. Greece-based company METKA-EGN constructed the facility, and will commission and operate it following completion.

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Bright outlook for solar

The latest US solar market insight report from GTM Research and the Solar Energy Industries Association shows that solar installation businesses have added 2,051MW of PV capacity in the second quarter of 2016, a year-on-year growth rate of 43 percent. This is the 11th consecutive quarter in which over 1GW of PV was installed.

“We’re seeing the beginning of an unprecedented wave of growth that will occur throughout the remainder of 2016, specifically within the utility PV segment,” said Cory Honeyman, GTM Research associate director of US solar research. “With more than 10GW of utility PV currently under construction, the second half of this year and the first half of 2017

are on track to continue breaking records for solar capacity additions.”

The residential market segment also hit a major milestone this year with one million residential rooftop installations. The report notes that California’s solar market has experienced a slowdown, but other state markets, including Utah and Texas, have grown. Residential PV installations grew 1 percent over the first quarter of the year, and 29 percent annually.

The report also revealed that solar prices have continued to drop across all market segments. Collectively, solar prices are 18 percent lower than they were in 2015, and 63 percent lower than they were five years ago.

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In and out

End-users are increasingly looking to customize their environments with converged lighting, climate and security control systems that utilize power-over-ethernet cabling, presenting a challenge where systems span between indoor and outdoor spaces. To fulfill this need, Superior Essex has launched indoor/outdoor CMR/CMX configurations of its PowerWise 1Gb 4-pair power-over-ethernet (4PPoE) cable.

“From external building security, and access controls in parking decks, to outdoor wifi networks that connect entire campuses, we are seeing a wide range of applications for PoE in the outdoor space,” said Will Bryan, vice president of marketing for Superior Essex International LP – communications. “For these emerging applications, we wanted to offer our customers a complete PowerWise cabling solution set to help connect their entire space with PoE cabling infrastructure.”

PowerWise I/O 1G 4PPoE cable is specifically designed to meet the high power and data demands of PoE applications. Utilizing 22 AWG copper conductors, PowerWise 1G 4PPoE cable delivers 60W of power to PoE-enabled devices with 97 percent power efficiency, and 100W of power at 88 percent power efficiency, while also supporting 1Gb data transmission. In spaces with hundreds of PoE devices, this power efficiency can yield savings of thousands of kilowatt hours per year, which translates to thousands of dollars in saved utility costs. PowerWise I/O 1G 4PPoE cable is believed to be the only cable of its type to offer environmental product declarations and health product declarations, which contribute toward credits in LEED certification.

Stepping up steel production

Venezuelan president Nicolas Maduro has approved a production recovery plan for the country's steelmaker, Sidor. The goal of the plan is to produce four million tonnes of crude steel by 2018.

The plan will have six steps, including the activation of an electric arc furnace in the billet area, and the resumption of rolling trains of wire rod and rebar.

"In the first month of this plan, we were able to produce 45,000 metric tons of crude steel, which were rolled into rebar

and wire rod," said Sidor's president, Justo Noguera Pietri.

The second phase, currently ongoing, projects a monthly output of 100,000 tonnes of crude steel.

Sidor's installed capacity allows production of 425,000 tonnes per month, or 5.1 million tonnes per year, of crude steel. It also can produce 390,000 tonnes per year of rebar and 600,000 tonnes of wire rod, among other products.

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The Fluke Networks FI-500 fiber video inspection probe.
Photograph courtesy of Fluke Networks

Illuminating

Fluke Networks FI-500 fiber video inspection probe, with its PortBright™ integrated flashlight feature, is an invaluable new scope for fiber technicians working in crowded, low light environments.

Dirty fiber optic endfaces are a major source of problems in singlemode and multimode fiber optic systems. The FI-500 provides a cost effective means for technicians to quickly determine if endfaces are contaminated or damaged. Although FI-500 is approximately half the price of most fully automated inspection scopes, it provides many of the same features, including autofocus, a large backlit display, a freeze view, and a wide variety of tips for inspecting almost any fiber endface.

The FI-500 provides illumination to help the user locate the right fiber or

port in dark or crowded panels, plus a rugged “liquid lens” technology for fast autofocus. Controls on the probe enable one-handed operation, including a pause button which freezes the image. The compact probe provides a 610x460 micron field of view, with a range of zoom and centering functions. The large display provides an instant view of fiber contamination in the bulkhead or patch cords.

“For fiber technicians trying to troubleshoot problems in today’s complex, compact and low-visibility fiber locations, the FI-500 provides the simplicity and practicality of a manual inspection scope, but with advanced features to reduce troubleshooting and inspection time,” said Harvey Trager from Fluke Networks.

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HELUKABEL TRAY X

The cross-linked (thermoset) polyethylene (XLPE) insulated control cable from Helukabel

New control cable

Helukabel has announced the addition of a cross-linked (thermoset) polyethylene (XLPE) insulated control cable, suitable for industrial equipment manufacturers in Canada and any who export to the United States.

The new Tray X is an NFPA 79-2012 tray-rated, flexible control power cable suitable for machinery in tool and plant construction, and can be installed in dry, humid or damp environments, in pipes, underground, or in open, unprotected installation from the cable rack to industrial plant machinery.

They are 600V and WTC 1,000V rated, for use in 1kV wind turbine cable tray applications.

The XLPE insulation, with its low capacitance, is suited to applications that require long cable runs, and conductor temperature resistance of 105°C allows a higher current load rating and a smaller cross-section when installing in small spaces.

Tray X is currently available in sizes 20 AWG to 500kcmil in various conductor configurations and with a shielded variant if required.

MidAmerican Energy is finalizing its plans to begin construction of a 2,000MW wind farm in Iowa.

The Iowa Utilities Board (IUB) has given consent for the \$3.6 billion Wind XI wind farm, which will comprise 1,000 wind turbines across multiple sites in Iowa.

The wind farm will be developed in three phases, with completion of the entire wind farm expected in 2019. The project is a key part of the firm's vision to meet all of its customers' electricity needs with renewable energy.

"Wind energy helps us keep prices stable and more affordable for customers, provides jobs and economic benefits for communities and the state, and contributes to a cleaner environment for everyone," said Bill Fehrman, president and CEO of MidAmerican Energy. The company has yet to finalize the locations of the wind turbines.

The first of the Wind XI wind turbines will come into service in 2017. When Wind XI is completed, MidAmerican's annual renewable energy generation is expected to reach a level that is equivalent to approximately 85 percent of the company's Iowa retail customers' annual use.

Wind to spread across Iowa

More power in sight for Brazil

Enel, through its renewable energy subsidiary Enel Green Power Brasil Participações Ltd (EGPB), has begun work on the Horizonte solar plant, located in Tabocas do Brejo Velho in the state of Bahia in north-eastern Brazil.

“With the start of construction of Horizonte, Enel has reached yet another milestone in the implementation of its growth plan in Brazil,” said Carlo Zorzoli, Enel’s country manager in Brazil. The new facility will have an installed capacity of 103MW and will be able to generate over 220GWh per year.

Horizonte is owned by a special purpose vehicle (SPV) held by EGPB and is expected to enter into service in the second half of 2017. Enel will be investing around \$110 million in the construction of the facility.

Horizonte will be supported by 20-year power supply contracts for the sale of generated energy.

The Enel Group is also building two further solar projects in Bahia: Ituverava (254MW) and Lapa (158MW). Horizonte will be located adjacent to Ituverava, allowing EGP to pool resources, both during the construction and operation of the two projects, which will share connection infrastructure.

EGPB currently has a total installed capacity of 546MW, of which 401MW comes from wind, 12MW from PV solar and 133MW from hydro, with 442MW of wind, 102MW of hydro and 807MW of solar projects still under construction.




Image: NASA

Fiber in orbit

NASA will use Molex's Polymicro Technologies™ optical fiber in its ICESat-2 satellite. The satellite will measure changes in Earth features, such as melting ice sheets.

The optical fiber will be used onboard ICESat-2 and in ground support equipment (GSE) assemblies. The custom fibers are composed of high OH glass/glass fiber, including a glass core, glass cladding layer, acrylate buffer and a protective nylon outer jacket.

Gary MacDonald, technical sales supervisor, Molex, commented: "Molex has an ongoing relationship with NASA Goddard and our optical fiber is currently in use on the Mars Rover Curiosity as well. We consider it an honor and a privilege to have been chosen to supply our custom fiber on such a remarkable venture."

The Mars Rover Curiosity includes an armor jacketed fiber optic assembly

built with Molex Polymicro Technologies FVA300330500 (high OH) fiber.

ICESat-2's photon-counting laser altimeter will measure the round trip time of individual laser photons reflecting off the ground and returning to the satellite's receiver telescopes at a rate of 10,000 laser pulses per second. By matching those times with the satellite's precise location in space, the mission will determine the elevation of features on Earth.

It will build on key elevation observations of the cryosphere begun by the original ICESat satellite (2003 to 2009) and the Operation IceBridge airborne campaign (2009 to the present) to provide a continuous record of changes occurring in the 21st century. ICESat-2 will have a design life of three years and enough fuel to operate for seven years.

EUROPE NEWS



Image: EDF Energy

HINKLEY C DECISION

The Hinkley C nuclear power plant is to proceed after the UK government agreed a revised deal with French firm EDF.

UK energy minister Greg Clark said that the government had put a series of safeguards in place to prevent the nuclear plant changing hands without approval, and that a new legal framework would be developed for future foreign investment in critical infrastructure.

EDF said that the government's decision was "good news for British consumers and industry" and that the project would deliver safe, reliable and cost-competitive electricity. "The government has looked at all the component parts of the deal and its decision confirms once again the strength of the project and its benefits to British consumers," the company said in a statement.

Hinkley C is financed by EDF and Chinese firm CGN, a factor that has led to concerns over national security and the extent to which foreign investment in critical infrastructure should be allowed. "Having thoroughly reviewed the proposal for Hinkley Point C, we will introduce a series of measures to enhance security and will ensure Hinkley cannot change hands without the government's agreement," said Clark, adding: "Britain needs to upgrade its supplies of energy, and we have always been clear that nuclear is an important part of ensuring our future low-carbon energy security."

Hinkley will meet seven per cent of Britain's electricity needs and is the first of several new nuclear projects planned in the UK to plug the country's forecasted energy gap.



Delta development

BP Exploration (Delta) Ltd has ordered approximately 100km of static umbilicals and associated accessories from Nexans for the next stage of the West Nile Delta project. The umbilicals will help BP, and its partner Deutsche Erdoel AG (DEA), develop the Giza, Fayoum and Raven gas condensate fields and other resources in the BP and DEA concessions located between 65km and 85km from the coast of Alexandria.

The electrical cables will be manufactured at Nexans' plants in Rognan and the umbilicals will be developed, manufactured and tested at Nexans' Halden, Norway plant. Delivery is scheduled for 2018.

BP and Nexans are working together on phase 1 of the West Nile Delta project.

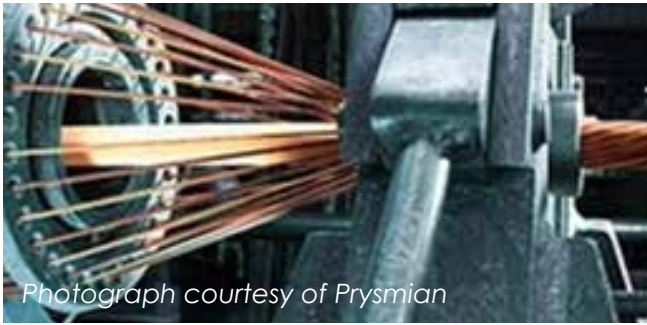
Storage secured

Oceanteam Solutions has been awarded a long-term contract to supply an offshore transmission owner (OFTO) with port facilities, loadouts and storage of cables at Oceanteam's own cable storage facility in Velsen Noord, Netherlands.

Oceanteam's cable handling crew will transfer the cable to a 120-tonne liftable cable basket, designed and engineered by Oceanteam Solutions, where it can be stored for up to 20 years.

The Oceanteam facility benefits from skilled cable handling crew and engineers with specialist cable transfer, storage and installation equipment readily available. Cable storage units (static tanks, turntables, cable baskets and reels) can be placed at any required position and in any size.

"We are very pleased with this contract and to have the opportunity to welcome another client to our storage facility. With our support on this long-term project it again shows the demand of a cable storage hub, with direct access to the North Sea, and the fully integrated range of services Oceanteam Solutions offers," said Lex van Doorn, managing director of Oceanteam Solutions.



Photograph courtesy of Prysmian



Telecom cable capacity

A statement from Italy-based cable manufacturer Prysmian has revealed plans to raise the output capacity of two telecoms cable production facilities in Slatina, Romania, and Presov, Slovakia.

“Both plants will be the biggest in Europe for their category once they reach full capacity in the beginning of 2017,” the statement said.

The company is aiming to double the output capacity of its Romanian factory in 2017, and to triple its production capacity by 2020. To fulfill the planned investment, Prysmian has secured a grant from the Romanian government.

Prysmian’s Slatina factory was launched in 2013 and currently exports 70 percent of its output.

World first?

Nexans cable technology has been selected by VBMS for what is believed to be the world’s first 66kV offshore wind farm.

As part of its own contract with EDF Energy Renewables, VBMS will use Nexans 66kV inter-array cable system to provide the subsea connection between the offshore turbines and the onshore grid for the Blyth Offshore Demonstrator wind farm project.

The Blyth project, located 5.7km off the port of Blyth in Northumberland (UK), consists of three arrays of five wind turbine generators. The 66kV inter-array cable network and separate export cables will carry the energy onshore. The subsea cable will be manufactured and tested at Nexans’ factory in Hanover, Germany, and will be supplied, in 2017, in one length. The related connectors will be manufactured by Nexans Power Accessories in Belgium, and have been developed from 33kV technology.



Taking a major share

Leoni has purchased 51 percent of the Chinese wiring harness manufacturer Wuhan Hengtong Automotive, so becoming a supplier to the Dongfeng Group and assuring its future growth in the Asian market.

Wuhan Hengtong's 13,000m² harness plant is located approximately 700km west of Shanghai, and produces wiring systems for local car manufacturers, including the Dongfeng Group, China's second largest car producer. It will also supply DPCA, a joint venture between Dongfeng and the French manufacturer PSA.

Closing procedure is anticipated within the next three months.

High voltage acquisition

NKT Cables will acquire ABB's high voltage cable system business, part of the ABB power grids division currently undergoing a strategic review.

NKT Cables designs, manufactures and supplies power cables for low, medium and high voltage solutions, mainly for the alternating current sector. It has major production facilities in Europe and China as well as sales offices around the world.

"We are combining two strong cable portfolios rooted in a shared Nordic heritage that will be more competitive on a larger scale under NKT Cables' ownership, while maintaining access to supply through a long-term strategic partnership," said ABB CEO Ulrich Spiesshofer.

"ABB's high voltage cable business will add considerable strength to our portfolio and bring us a world class manufacturing operation. We will leverage the technology, domain competence and highly skilled workforce to grow this business," said Michael Hedegaard Lyng, president and CEO of NKT Cables. "We look forward to ramping up our long-term partnership that will serve future projects all around the world."



Eva Schinkinger, CEO

Advanced cable ship

Following a recent keel-laying ceremony, DEME's latest subsea cable installation and trenching vessel, *Living Stone*, is under construction at the LaNaval shipyard near Bilbao, Spain.

The vessel will be equipped with two turntables below deck, each with 5,000 tons cable capacity. Together the turntables can transport over 200km of cable for installation in a single trip. A third carousel can be accommodated above deck with an additional load capacity of 2,000 tons and a 600-ton crane. A system developed in-house by Tideway is said to enable the *Living Stone* to install cables faster, more efficiently, and in longer lengths than any other cable installation vessel.

Living Stone features DP3 (dynamic positioning) capability and dual-fuel engines, LNG being its prime fuel. The vessel has a green passport and clean design notation, awarded to owners and operators who choose to design and operate their vessels in an environmentally sustainable approach.

Living Stone will be deployed by DEME's Dutch subsidiary, Tideway. The vessel is scheduled for delivery in the second quarter of 2017.

Plant investment

Austria's cable and wire harness maker Gebauer & Griller Kabelwerke GmbH is looking to invest around \$11 million to expand its output capacity in Moldova. The company describes its operations as a supplier of thermoplastic-insulated cables and wires.

The potential expansion could create about 400 new jobs in Moldova, with a further 400 employees to be added when the production facility reaches its full capacity in 2018.

The investment was unveiled by Eva Schinkinger, the company's managing director, following a meeting with officials from the Moldovan ministry of economy.

Gebauer & Griller Kabelwerke currently operates a plant in northern Moldova, partly financed by an investment loan from the European Bank for Reconstruction and Development (EBRD).

Established in 1940, Gebauer & Griller Kabelwerke supplies its output to the automotive, telecoms, elevator and escalator industries. The Vienna-based company also has operations in the US, Mexico, India, the Czech Republic and Slovakia.

ASIA & AFRICA NEWS



Image: www.kaec.net

CABLE FACILITY MAKES FIRST MOVE INTO THE VALLEY

International Trade Gateway Company (ITG) is to establish a high-voltage cable factory in Saudi Arabia's King Abdullah Economic City (KAEC).

The company has signed an agreement with KAEC for the purchase of a 9,000m² plot. The cable factory is expected to be the first of its kind in the economic city.

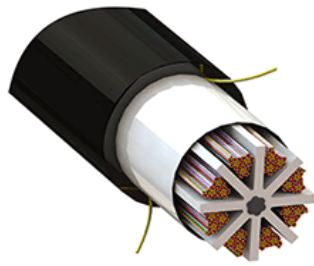
A strategic advantage of the Industrial Valley is its direct link to King Abdullah Port, which greatly increases the efficiency of imports/exports and manufacturing.

“We will develop a new production facility that will expand our services and propel our strategic plans. We have determined that KAEC’s Industrial Valley is the ideal location from which to expand our business and reach a wider group of investors due to

the strategic location, ease of procedures for new investments, and high quality infrastructure,” said Khalid Makki, president of ITG.

To date, the Industrial Valley has attracted 120 national and global corporations; the construction materials production sector is considered one of the six target sectors for the area.

ITG manufactures fireproof structural cabling in the 450 to 750kV and 600 to 7,000kV ranges, as well as low-voltage cables, flex cables, and gear and gauging instrument connection cables.



Count aims high

Sumitomo Electric Industries has released a new series of ultra-high fiber-count ribbon cables to meet the growing need for high fiber density in data centers. The new cables are available in fiber counts of 1,152, 1,728 and 3,456.

The highest fiber-count cable accommodates 3,456 fibers in an outer diameter of 34mm. The cable's flexibility allows easy installation in a two-inch duct space.

The company's pliable ribbon technology enables the 12-fiber ribbon to conform to small diameters and to be spliced with a conventional 12-fiber mass fusion splicer. The new cables feature a slotted configuration for easy handling and quick fiber identification.

The cables offer a choice of either a steel strength member or an all-dielectric strength member in the center of the cable. Also featured is a dry water-blocking tape that eliminates the cleaning and blocking preparation associated with standard gel-filled cables. The use of a completely dry cable speeds up overall installation, termination and splicing, while significantly saving time and costs.

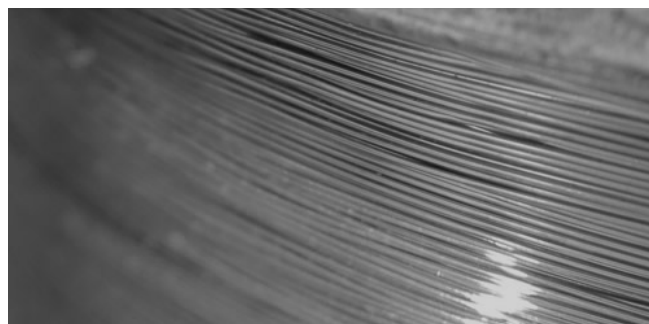
Cable coming ashore

Huawei Marine Networks Co Ltd has been selected by Super Sea Cable Networks Pte Ltd to deploy SeaX-1, a subsea cable system between the eastern seaboard of Peninsular Malaysia, Singapore and Indonesia.

Known as SEA Cable Exchange-1 (SeaX-1), the system comprises a 250km high speed, large capacity, 24-fiber pair undersea fiber optic cable to connect Mersing (Malaysia), Changi (Singapore), and Batam (Indonesia).

Once commissioned, the system will be fully owned and operated by Super Sea Cable Networks Pte Ltd and will assist operators in the region to meet increasing bandwidth demand. The system is scheduled for completion by the end of 2017.

Super Sea Cable Networks Pte Ltd is a Singapore-based company with a facilities-based operator (FBO) license. The company will be supported by SACOFA Sdn Bhd, a telecommunication infrastructure provider in East Malaysia, to handle the landing in Malaysia, and by its affiliate company, PT Super Sistem Ultima, to construct the landing in Indonesia.



Global Gateway

NEC Corporation has signed a contract with PT Telekomunikasi Indonesia (Telkom) to develop the Indonesia Global Gateway cable system (IGG), connecting the cities of Dumai, Batam, Jakarta, Madura, Bali, Makassar, Balikpapan, Tarakan and Manado with Singapore.

The IGG is a 100Gbps x 80 wavelengths x 4 fiber-pair optical fiber submarine cable system, measuring approximately 5,300km. Once IGG is completed, in early 2018, the cable will not only enhance connectivity among these major cities, but will provide direct connectivity between two international submarine cables one from Europe landing in Dumai, and the other from the west coast of the US, terminating in Manado.

“NEC is honored to be selected once again by Telkom as the supplier of an optical fiber submarine cable system. ... Since first building an optical fiber submarine cable system for Telkom in 1991, NEC has continuously helped to expand Indonesia’s domestic connectivity. The Papua Cable System (SMPCS) being the latest such contribution, NEC is proud to have the chance to add yet another page to its service history with the IGG,” said Mr Toru Kawauchi, general manager, submarine network division, NEC Corporation.

Wire investment

JFE Shoji Trade Corporation has acquired shares in PT Mega Pratama Ferindo (MPF). MPF is a steel wire drawing company based in Indonesia, processing cold heading quality wire. With many automotive parts manufacturers establishing their production bases in Indonesia, increasing demand for cold drawn wire is also expected in the future. JFE Shoji was looking to expand production of wire rods for Japanese customers based in Indonesia and will achieve this with its investment and joint venture with MPF.

MPF, a subsidiary of Garuda Multi Investama, was founded in 1995 and has worked with JFE Shoji/JFE Steel since 2011.

This investment will enable JFE Shoji to not only supply wire rods produced by JFE Steel for MPF, but also construct an entire supply chain for processing cold drawn wire in Indonesia for the export market.



Australian minister for the environment and energy Josh Frydenberg



Clean energy funding

Australia's government has announced the creation of a \$15 million seed fund to back the development of clean energy technologies.

Australian minister for the environment and energy Josh Frydenberg announced that the fund (CESF) will be managed by Artesian Venture Partners and will invest in between 30 and 50 start-up businesses over the next five years.

Some of the finance will come from the state-owned Clean Energy Innovation Fund (CEIF), established earlier this year to drive research in clean energy technology.

The Australian government believes that the seed fund model will help to build partnerships between the Australian investment community and tech firms, helping to overcome a recent general decline in venture capital investment. Josh Frydenberg said in a statement: "Technologies and businesses will be attracted to the early stage financial support of the seed fund and create a pipeline of potential deals for more substantial later-stage capital investors."

North West data passage

Nextgen Group and Alcatel-Lucent Submarine Networks (ASN) have launched Australia's first purpose-built, subsea fiber optic network to serve the growing need for telecommunications services in Australia's North West growth corridor.

The North West Cable System (NWCS) creates a link from Darwin, in the Northern Territory, to Port Hedland in Western Australia, connecting offshore gas and oil facilities in the Browse Basin to onshore data centers and business headquarters.

The high speed data communication cable is integrated into Nextgen's 17,000km national transmission network and Metronode's national network of data centers.

Nextgen Group's CEO, David Yuile, said the \$139m cable system will not only provide essential support for Australia's offshore oil and gas projects, but promote competition with new telecommunication infrastructure for businesses and consumers in regional communities at the cable landing points.



Pump manufacturer takes new direction

CRI Group, a pump manufacturer based in Coimbatore India, has announced its move into high end specialized wire and cable. In its first phase, the company has established a manufacturing plant with an integrated cable compound manufacturing facility, capable of processing over 10,000 tonnes of copper.

CRI's wires and cables division will benefit from CRI Group's longstanding relationships with reputed EPC contractors, retailers, consultants and contractors. The company has a distribution network in 120 countries, seven foreign subsidiaries and 32 branches in India. In addition to sales through its existing channels, CRI is establishing a new distribution network for some of its wire and cable products.

The company has developed a winding wire with higher dielectric strength and DC solar cables. Its wider cable range will include lead-free insulated cables, EPDM cables, special oil-resistant and chemical-resistant cables for waste water, communication cables, halogen-free flame-retardant cables, termite-resistant wires, flexible power cables for industrial applications, and submersible cables.

Power under scrutiny in the Philippines

The Philippines government is considering commissioning its only nuclear power plant, a Westinghouse pressurized water reactor, completed over 20 years ago but never put into operation.

The energy secretary, Alfonso Cusi, said that reviving the 620MW plant in Bataan province would need a \$1 billion investment. "We have to weigh all our options, with emphasis not just on meeting capacity requirements, but sustainability and environmental obligations as well," Cusi said, speaking at the opening of an international conference on nuclear power in Manila.

The late dictator Ferdinand Marcos ordered the plant in 1976 in response to rising energy prices, and it was finished in 1984. Work was halted in 1985 when contractual disputes arose between the Philippine government and Westinghouse. The plant was subsequently declared unsafe because it sits on a major earthquake fault line and near the Pinatubo volcano, which was dormant at that time.

To meet the country's required additional capacity, Cusi said, the Philippines needs to build 6,086MWe, of which 5,094MWe should be baseload and 992MWe for merit and peaking.



IWCS



THE
**International
Cable • Connectivity
Symposium**

Industry Leadership, Innovation
and Professional Development



October 2-5, 2016
Rhode Island Convention Center

Exhibitors' Listing

3N International Inc	418
Advaris GmbH	434
AGC Chemical Americas Inc	400
Allied Industrial Group Inc	427
Amaral Automation	129
American Kuhne (a brand of Graham Engineering Corp)	429
Arkema Inc	411
Artofil	209
ASI/Silica Machinery LLC	300
AW Machinery	336
BASF Corp	206
Bedford Specialty Sales Inc	137
Borealis Compounds Inc	208
Breen Color Concentrates Inc	105
BUSS Inc USA	334
Cable Components Group LLC	312/414
Carris Reels	212
CERSA MCI	201
Chase/Neptco	100
Chengdu Centran Industrial Co Ltd	203
Cimteq Cable Design & Manufacturing Software	420
Clinton Instrument Company	205
Coats	128
Colorant Chromatics	425
Conneaut Industries Inc	113
De Montfort University	437
DeWAL Industries Inc	307
DSM Functional Materials	104
E-BEAM Services Inc	236
Elecom Tape	335
Enercon Industries	406
EuroWire, wiredInUSA & Wire & Cable ASIA Magazines	237
Ever FLON Fluoropolymers	107
Excelitas Technologies (OmniCure®)	224
Fiber-Line LLC	415
Fiber Optic Center Inc/Technical Horsepower Consulting LLC	421
Fil-Tec Inc	408
Fine International Corp	112
Gem Gravure Company Inc	114
Guill Tool & Engineering Co Inc	135
Hengtong Optic-Electric Co Ltd	204
Heraeus Noblelight America LLC	109
Huestis Industrial	401
Huntsman International LLC	302
Inhol/Melos	417
International Wire & Cable Symposium Inc	337
Isotek Corporation - An Isabellenhütte Co	324
J M Huber	119
Jinhua Yonghe Fluorochemical Co Ltd	234

Leoni Wire Inc	116
Lloyd & Bouvier	227
Lubrizol	405
Maillefer Extrusion Oy	207
Medek & Schörner GmbH	305
Mexichem Specialty Compounds	101
MGS Manufacturing Inc	110
Microdia SA	426
Miltec UV	318
Monson Companies, part of Azelis Americas	330
Nabaltec AG	325
NDC Technologies Inc	118
Oden Technologies Inc	403
OptEM Engineering Inc	320
PE.fiberoptics Ltd	329
Photon Kinetics Inc	125
Pittsfield Plastics	331
Rennsteig Tools Inc	229
Roblon A/S	226
Rosendahl Nextrom Technologies	225
S&E Specialty Polymers	230
SACO AEI Polymers	402
Saint-Gobain	219
Service Thread Manufacturing Co	228
Shenzhen Delifeng Trading Company Ltd	308
Sikora International Corp	424
Stewart Group Ltd	202
T & T Marketing Inc	124
Teknikor	304
Teknor Apex Company	213
Tektapes	235
Tensor Machinery	428
Thermoplastics Engineering Corp	301
TMS/AESA/MFL Group	200
Toner Plastics	303
Unigel Inc	412
W Gillies Technologies LLC	328
Wardwell Braiding Co	130
Web Industries Inc	218
Weber & Scher Mfg Co Ltd	435
Windak Inc	231
Wire Association International/Wire Journal International	419
Wire & Cable Technology International & WCISA®	136
Wire & Plastic Machinery Corp	319
Wire World Internet	436
Wonderful Hi-Tech Co Ltd	127
Yangtze Optical Fibre & Cable Joint Stock Ltd Co	430
Zumbach Electronic Corp	131

Exhibitors' Products

Advaris Informationssysteme

Booth 434

Advaris is a supplier of special software solutions and consultancy for cable and wire manufacturers, with customers ranging from small and medium companies to global players like Nexans, Southwire, General Cable, and many more.

Advaris's functional modules designed for engineering and production management guarantee integration of processes without the need of installing costly interfaces.

From the first customer contact to the processes of cable design, costing, manufacturing, quality control, warehouse management, and full ERP systems including invoicing and shipping, the C2 system supports the entire business process to the release for manufacture of routings, BOMs and test plans.

As the central product data management system, C2 provides the technical master data for production scheduling, materials management, shop floor control, quality assurance and sales.

C2 can be seamlessly linked with Cable MES – the manufacturing execution system for wire and cable makers.

Thus Industry 4.0 – also called the Smart Factory – is no longer Utopia, but is becoming an established way of life in cable industry.

Chengdu Centran

Booth 203

Centran Industrial is a global supplier of raw materials for the cable and wire industry, and one of the largest manufacturers of water-blocking tape and yarn, PET yarn, marking tape, etc.



▲ Some of the tapes on offer from Chengdu Centran

Total capacity is 5,000m for water-blocking tape and yarn. With strong emphasis on quality and customer satisfaction, the company is ISO 9002 certified and has become a reliable source of quality products in the international market having exported to more than 45 countries worldwide.

Cimteq Ltd

Booth 420

The world of cable manufacturing is a constantly evolving environment. The speed at which the systems and processes available to manufacturers are changing and developing means that in order to keep ahead of the competition companies



need to be confident in their systems and be sure that the way in which they are operating is providing them with the best efficiencies, quality of product, return on investment and ultimately profitability.

The 21st Century has seen phenomenal developments in terms of software and technological advancement, therefore it is only natural that this in itself will revolutionise the manufacturing industry. The onset of what is essentially the fourth phase of an industrial revolution that began back in the 1700s has seen the manufacturing world become increasingly driven by digital systems and the 'Internet of Things', providing increased capabilities in terms of designing, planning, controlling and monitoring down to extremely tight parameters.

Cimteq, one of the leading software designers within the cable industry, is no stranger to this concept. Its systems fully embrace and promote the idea that through the adoption of sophisticated design and manufacturing software systems manufacturers can produce cable faster, smarter and more profitably whilst adapting quickly to changes in the manufacturing environment.

In the increasingly fast paced world there is more reliance on machines to design, produce and manage logistics, freeing up the human element of the workforce to focus on monitoring output, application of experience and teaching the machines.

Ali Shehab, chief executive of Cimteq, envisages these 'Smart Factories' as the future of wire and cable production and

the products are geared towards this, even going so far as to contain technology that allows the users to teach the machine how to behave and to communicate with other systems and devices.

The launch of CableSuite by Cimteq and its partner, Innovites, earlier this year provides a resource to cable manufacturing companies in terms of helping them to embrace the concept of streamlining their production, designing their product more accurately and controlling the production and manufacturing process closely to reduce waste, improve efficiency and provide improvements in profitability.

CableSuite consists of two of Cimteq's products: CableBuilder and CableMES. CableBuilder comprises a host of components including cable design, quotation, 2D and 3D drawings, PDM, manufacturing waste simulation and quality control.

CableMES is a cable-specific manufacturing execution system based on the Wonderware platform and covers warehouse management, product traceability, performance management and job management.

Clinton Instrument Company Booth 205

The Clinton Instrument Company, specialist in spark test technology for the wire and cable industry and inventor of the high frequency sine wave spark tester, will be exhibiting its newest offering, the model

Exhibitors' Products

HF-15B high frequency sine wave spark tester, the flagship model of the new B-series.

This new design combines the latest in control technology with the robust and reliable 3kHz spark test platform.

There are many new features of the HF-15B, including a split electrode design for easy string up and digital signal processor (DSP) based voltage regulation and fault detection.

The fault detection circuit has been upgraded and test voltage is now monitored directly from the electrode, instead of a transformer winding.



▲ The new HF-15B series from Clinton

The fault circuitry can now differentiate between four types of fault conditions: simple pinholes, a series of closely spaced

pinholes, direct metal contact from the center conductor to the electrode, and gross lengths of bare wire.

The new "RC" controller comes fixed to the unit, but can be detached and mounted remotely up to 60 meters away from the test module/electrode. It has a large alphanumeric display/user interface and can be rotated in its bracket to accommodate different viewing angles. The display makes configuration of the equipment easy; all configuration parameters can be changed directly from the front panel menu structure.

Once configured, the system can be passcode protected. In cases where a local display is not required, or centralised process control is desired, the equipment can be configured and controlled directly from PLCs or computers using Modbus RTU (RS-485 full duplex). Optional communication protocols include Ethernet/IP, Profinet, and Profibus, Modbus TCP and analog communications, making the equipment compatible with previous Clinton equipment with analogue control.

When simple control output is all that is required, there are four sets of relay contacts that provide information without requiring advanced programming. These include "high voltage ON" signals to alert operators of the presence of high voltage, a fault relay which actuates when a fault is detected, a "Voltage Watchdog" which will change state when the test voltage has risen above or dropped below a preset level, and a "Bare Wire Alarm" which will



signal when long lengths of bare wire are detected.

Clinton will also exhibit and demonstrate the STCAL automatic spark tester calibration system. The STCAL system will calibrate high frequency AC, mains frequency AC, and DC spark testers to all major specifications. Calibration is automatically performed and documented on all of Clinton's new B-Series spark testers and selected A-Series models. Manual or assisted calibration can be performed on older Clinton units as well as equipment manufactured by others.

When paired with Clinton's model SM sensitivity tester, a complete calibration solution to IEC and NEMA standards is provided.

Maillefer **Booth 207**

Maillefer staff will be on hand to discuss high performance and cost-effective manufacturing solutions for fiber optic cables. "IWCS is an important venue for the cable and connectivity industry and we are proud to join the suppliers' exhibition," said Dr Mikko Lahti, R&D director.

At the conference Dr Lahti will present his paper entitled 'Exploring the Limits of Buffering Process for Both Standard and Micro Tubes'. He will be available during the whole conference and suppliers' exhibition to discuss the results of his work and the manufacturing solutions currently available.

The company's high performance solutions offer a wide variety of innovations. For example, the compression technology with tension feedback serves to keep precise control of excess fiber length (EFL) on the fiber optic secondary coating line OEL 40. And with OEL 40///Explore Maillefer has reached the ultra-high production speed of 1,000m/min.

The company provides manufacturing solutions for every stage of the fiber optic cable process. The portfolio includes tight buffering, secondary coating, SZ stranding and jacketing lines available for production ranging from long haul cables to FTtx with low fiber counts and short lengths.

Medek & Schörner **Booth 305**

Medek & Schörner produces a range of cable marking machines:

Cable marking machines:

- High quality gravure printers (LAN cables, control cables, etc) for speeds up to 1,200m/min
- Water misting unit for the application of fine water dust for pre-cooling of the hot wire immediately after the extruder
- Embossing meter markers/hot foil sequential meter markers for high accuracy of length measurement (power cables, telecommunication cables, optical fibre cables, etc)
- High performance ring markers for marking telephone wires, switchboard

Exhibitors' Products

- wires, automotive cables and LAN cables
- Video system for monitoring the print quality of fast-running cable printing machines, eg allowing real-time inspection for bad quality and/or missing prints
- Laser marking system for cables

Optical fibre coating systems:

- Top speed optical fiber processing systems
- Optical fiber color coding up to 3,000m/min



▲ Optical fiber coloring from Medek & Schörner

- Ring marking of optical fibers at speeds up to 1,150m/min
- Tight buffering up to 1,300m/min
- Fiber ribbon production with excellent ribbon planarity and for speeds up to 1,000m/min
- CFU production of compact fiber units
- Copper wire insulation with UV varnishes (enameled wire)

- Manufacture of dimension-sensitive precision micro flexible flat cables (FFC) using UV resins

NDC Technologies (Beta LaserMike) Booth 118

NDC Technologies will be demonstrating the latest Beta LaserMike system solution for in-process measurement and automated quality testing of cable.

The Beta LaserMike measurement system solution is designed to improve product quality, increase productivity, optimise process reliability, and reduce manufacturing costs.

NDC will be exhibiting its range of AccuScan diameter and ovality gauges including the economical AccuScan 4012 single-axis gauge and the AccuScan 5000 Series two-axis gauges.

The AccuScan 4012 offers manufacturers a compact, economical gauge for measuring product diameters up to 12mm with ± 0.0005 mm accuracy.

The AccuScan 4012 provides highly flexible communications with easy connection to a host PC or PLC using RS-232, DeviceNet, Profinet, Profibus, Ethernet/IP, and Ethernet TCP/IP. The AccuScan 5000 Series offers high-speed, highly reliable two-axis diameter and ovality measurements for products up to 80mm. The AccuScan 5000 Series effectively monitors cylindrical round



and special-shaped products for optimum process control and immediately catches product flaws with high-speed tolerance checking.

The Beta LaserMike products team will also present its new AccuScan 6000 Series – a four-axis scanning diameter and ovality gauge that provides the highest ovality and flaw detection accuracy compared to three-axis gauges.

The latest DCM ES-2G LAN/data cable testing system enables cable makers to test more cable faster and with higher quality results. The DCM ES-2G efficiently tests Cat 5/6/6a/7/7a/8 cables to 2.2GHz. A new innovative technology eliminates the effect of jacket removal on reflection measurements, such as input impedance and return loss. An automated four-pair switching platform enables operators to perform cable testing in less than three minutes.

Easy-to-use testing software offers complete test management and reporting capabilities.

In addition, the other latest Beta LaserMike products on display include:

- LN3015/LN3040 Series three-axis lump and neckdown detectors for the quick, reliable detection and location of product flaws before they become costly production problems to ensure maximum quality control.

Rosendahl & Nextrom Booth 225

Over recent months, Rosendahl and Nextrom has been focusing strongly on how to create even more customer value with its advanced manufacturing technology.

Industry 4.0 – “Smart Factory” – is becoming a reality and opening new doors both for suppliers and manufacturers. It is an industrial revolution which facilitates information management.



▲ Smart operation with RIO line control

The main benefit is concerned with predictive maintenance, backtracking of processes and online monitoring. Rosendahl & Nextrom takes this revolution seriously and is proud to present the opportunities provided by its technology, not only for an individual investment, but for the entire product life cycle.

Exhibitors' Products

Outstanding technological developments which will be presented at the exhibition are:

- processing high-temp materials and silicone rubbers
- producing loose tubes with fiber overlength control at extremely high speeds
- recycling helium during fiber draw
- VAD/OVD preform technology
- and much more

Sikora **Booth 424**

Sikora is presenting a full program of proven and innovative non-contact measuring and control devices for quality assurance and cost reduction in the wire and cable industry.



▲ *The X-Ray 6000 Pro measures diameter, ovality, wall thickness and concentricity of cables*

The company will showcase the Wire-Temp 6000, a non-contact conductor temperature measurement system that is

now also available for diameters up to 2" (50mm) and suitable for installation in CV lines.

Another highlight will be the X-Ray 6000 Pro for online measurement of wall thickness, concentricity and diameter of up to three layers of different material for increased process stability, quality and cost saving at the production of cables.

In addition, Sikora will present its broad product range of devices for classic and high-end diameter measurement with the Laser Series 2000/6000. Visitors will also get to know the equally precise as reliable Lump 2000 devices with double sensor technology for lump detection on the product surface.

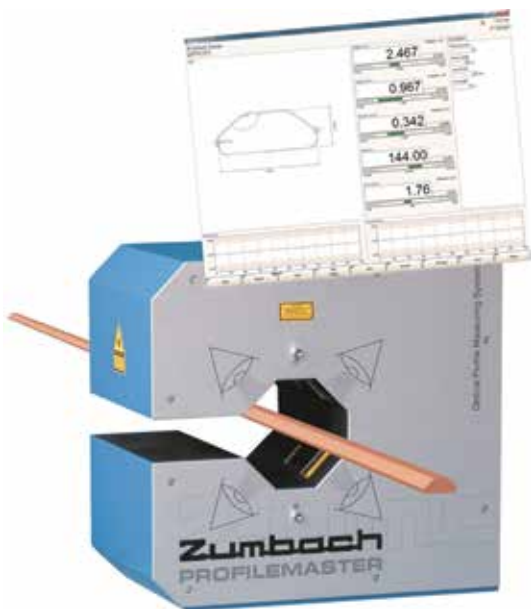
Wire & Plastic Machinery Corp **Booth 319**

With over 30,000 items of machinery in stock and eight warehouses, Wire & Plastic Machinery Corp supplies used wire and cable equipment throughout the world. The company is actively engaged in purchasing high-quality used equipment for stock to offer its customers a one-stop selection. The equipment is sold either in its original state or after mechanical and electrical refurbishing to today's standards.

A wide range of equipment is available for producing almost all cable types such as fiber optic, low-voltage cables, data cable, automotive and specialized electrical cables.

Zumbach Electronic AG Booth 131

Zumbach will be able to give detailed information on its wide range of measuring and control solutions for process monitoring, quality control and cost-effective production.



▲ The new Profilemaster PMM 10 profile measuring unit for shaped wire and similar

Sensors

- New DC and high frequency AC spark tester generation with local BAE 2 SP control and display unit that accurately maintains test voltage under any conditions, including highest capacitive loads
- New, advanced KW Trio fault detectors with local BAE 2 KW control and display unit
- New 1, 2 and 3 axis diameter gauges for any cable and wire and any budget.

Besides the complete line of Odac laser diameter gauges, new models with special beam geometry, fault detection function and high scan rate will be exhibited

- MSD gauges diameter and ovality with multi-source device technology
- The advanced Odex concentricity and diameter gauge for wire extrusion. Fully non-contact, based on magnetic and laser technology
- New ultrasonic wall thickness and eccentricity scanners of the Umac series with quick and easy adaptation to cable diameters and space-saving integration
- Profilemaster profile and shape measurement systems using light section principle and machine vision

Data acquisition, processing and display units (processors)

- Modular high-performance USYS IPCe data acquisition, processing and display units

Complete measuring and control systems

- Dynamic Rayex D and static Rayex S series: X-ray measuring and control system for CV lines, for wall thickness (three layers), eccentricity and diameter/ovality for CV lines
- Wallmaster/Umac – Dialcal systems: Ultrasonic wall thickness and eccentricity systems for cable jackets and Dialcal option for fully automatic calibration and control

PRODUCTS
MACHINES
TECHNOLOGY



Sheathing for added safety

Melos has introduced a thermoplastic, low smoke halogen-free MDH-based sheathing compound, said to offer easy processing at up to 230°C. Its features include high flexibility at low temperatures, oil and fuel resistance, and superior fire behavior and CPR results.

Mecoline S TP 1034 F provides a wide processing window for greater flexibility and a stable and higher output for the extruder.

Although Mecoline S TP 1034 F does not need cross-linking, it will meet the stringent requirements for cable applications in environments such as wind turbines. The new compounds complement the existing range of high grade Mecoline TP compounds.

Flexibility at low or high temperatures, oil and fuel resistance (oil resistance I and II according to UL 1277) and improved burning properties are the compound's key properties. Flame spread tests according to DIN EN 50399 (CPR) gave a B2s1d0 rating. The tested cable construction was H05Z1Z1-F (thermoplastic, flexible HFFR insulation according to T16/T17, medium LOI, with no bedding compound).

Automation cables

Flamar, a Molex company, has launched a line of standard industrial automation cables for signal and control equipment and processes, servomotors, I/O modules, EtherNet IP and other network applications.

Flamar standard industrial automation cables are available in multiple jacket materials (PVC, WSOR, PUR and TPE).

The weld-slag and oil-resistant WSOR cables are tested and certified for compatibility

with Ecolab® hygiene solutions commonly used in the food and beverage industry for completely safe plant cleaning.

Machine builders, line builders, and robotic and system integrators can choose Flamar standard industrial automation cables in a range from 26 AWG to 10 AWG suitable for applications in food and beverage, material handling, automotive lines and other manufacturing operations as well as commercial vehicles (forestry, mining machines). Engineered and constructed to suit challenging conditions, with continuous flexing up to millions of bending cycles, the cables are rated for temperature ranges down to -40°C and up to 105°C. They are compatible with all standard industrial connectors, including RJ45, and the Brad® range of circular connectors for servo motors, as well as mPm® DIN valve and Molex heavy duty connectors.

All Flamar standard industrial automation cables are UL AWM/CSA certified and specific series are also UL listed.

New Cat 6a

TE Connectivity (TE) has launched Raychem ruggedized Cat 6a cable to help meet the demands of harsh environment military and aerospace applications. The cable design provides 10Gb/sec data transmission.

Raychem cat 6a cable is constructed with engineered fluoropolymers able to support ANSI/TIA-568-C specifications for stable performance in extreme conditions over long lengths. The new cable is compatible with most high speed connectors (38999, ARINC) as well as TE's CeeLok FAS-T and CeeLok FAS-X connectors. It is available in two wire gauges: the industry standard 24 AWG and a smaller 26 AWG for size and weight critical applications.

Raising the alarm

Cresatech, a supplier of machine-to-machine communication technology, has completed a successful trial with ScottishPower Energy Networks to reduce copper theft from vulnerable substations.

The purpose of the project was to evaluate a new technology that could continuously monitor the integrity of substation earthing equipment for disturbance due to theft, degradation or removal of metallic infrastructure. By deploying Cresatech CuTS® ZM, a scalable solution designed for service environments where safety and continuity are paramount, ScottishPower is immediately alerted when theft events occur.

The project received extremely positive feedback: "During the trial period there was not a copper theft incident at any of the chosen 25 sites," the report from ScottishPower Energy Networks and Cresatech highlighted. "A number of pre-planned and random tests were carried out to simulate the removal or tampering of earthed infrastructure.

"These tests provided confirmation that the Cresatech CuTS unit and service is a viable solution for the detection and mitigation of safety impact and service continuity issues that result from metal infrastructure theft from electrical networks."

Mark Cowan, head of sales at Cresatech, said: "The worldwide metal theft pandemic has significant security, safety, service continuity and financial consequences in many service environments, and we are regularly reminded of the consequential damage, power losses, fires, death and injury to both the public and company employees associated with metal theft from electrical power delivery networks. This

project was therefore the ideal opportunity to demonstrate the effectiveness of a low-cost solution to address this issue."

Smaller cable cleats

Ellis has developed an all-plastic trefoil cable cleat for smaller electrical cables.

Trident is a trefoil polymeric cleat, available in six sizes from 24mm to 54mm diameter. The cleat fills a gap in the company's portfolio, but also signals Ellis's intent to expand sales in continental Europe where similar products are in particularly high demand.

Richard Shaw, managing director of Ellis, said: "We pride ourselves on having the strongest and deepest product portfolio of any cable cleat manufacturer, which means we're always looking at ways of adding to what we already offer.

"All-plastic trefoil cleats for this size of cable have been popular in Germany and Holland for a long time, but with demand beginning to grow in a number of other markets, both at home and abroad, we decided the time was right to strengthen our hand."



▲ The new cable cleat for smaller electrical cables

Trident has an FEA optimized design and is manufactured as standard in V0 0H 30 percent glass-filled nylon. It is also available in a London Underground Ltd (LUL) approved polymer that meets London Underground standard 1-085. Both versions of the product have been short-circuit tested to IEC61914.

Trident cleats for 34mm–41mm are available now, with other sizes becoming available as tooling is finalized.

No rough with the smooth

FocalSpec Inc, a supplier of optical precision 3D scanning sensors and solutions, has announced the North American launch of its new non-contact wire, cable and filament surface roughness measurement system, the MicroProfiler MP 900.



▲ The new non-contact wire, cable and filament surface roughness measurement system from FocalSpec

The MP 900 is based on FocalSpec's patented line confocal imaging (LCI) technology that enables accurate in-production roughness measurement from a fast moving surface of any type and color. The system scans and analyzes a product's surface profile at the rate of 512,000 points per second.

Maximum line speed is 500 feet per minute. The minimum reported Ra is 0.2 μ m (8 μ in) and other standard roughness parameters, such as Rz, can also be calculated. Roughness of the product is displayed in real-time, and operators are automatically alerted to abnormal process changes. All roughness results from the entire length of each produced reel are stored in the system's database for quality certification and production reporting purposes.

"Continuous surface roughness measurement allows manufacturers to really optimize their processes for each product and material," said Juha Saily, sales manager for FocalSpec Inc. "Other benefits include improved product quality, reduced scrap, faster process startups and changeovers, and reduced labor needed in quality control activities."

Antibacterial cabling

Reichle & De-Massari (R&M) has launched a special line for health institutions new outlets and patch cords with antibacterial properties in compliance with ISO 22196.

The R&MhealthLine range is designed for patient rooms and similar deployment areas with an inherent risk of infection. "According to the WHO, around 16 million people die every year from infections contracted in hospitals. We want to make a contribution to reducing the risk of infection," said Matthias Gerber, R&M market manager LAN cabling. "With the installation of R&MhealthLine, clinics can further improve their risk management in the IT area."

Properties protecting against the bacterial strains *Staphylococcus aureus* and *Escherichia coli* were successfully demonstrated in laboratory tests.

R&MhealthLine offers the first consistent and complete range for network equipment in environments reserved for patients and people requiring care. It comprises outlets with RJ45 sockets, shielded and unshielded patch cords for connecting computers, multimedia, communication and medical devices, as well as shutters and coding elements from the R&M security system. R&MhealthLine products are as easy to install and operate as standard products. They are compatible with the modular cabling system R&Mfreenet, which covers all areas of structured building cabling.

ABB	28
Alcatel-Lucent Submarine Networks	34
BP Exploration (Delta) Ltd	26
Cresatech	50
DEME	29
Deutsche Erdoel AG	26
EDF	25
Ellis	50
Enel Green Power Brasil Participações Ltd	22
Flamar,	49
Fluke Networks	18
FocalSpec Inc	51
Gebauer & Griller Kabelwerke GmbH	29
Helukabel	20
Huawei Marine Networks Co Ltd	32
International Trade Gateway	31
Leoni	28
Melos	49
MidAmerican Energy	21
Molex	23, 49
NASA	23
NEC Corporation	33
New York Power Authority	10
Nexans	27
Nextgen Group	34
NKT Cables	28
Oceanteam Solutions	26
Oriana Energy LLC	12
Prysmian	27
PT Mega Pratama Ferindo	33
PT Telekomunikasi Indonesia	33
Reichle & De-Massari	51
Rogers Communications Inc	9
Sidor	17
Sonnedit Group	12
Sumitomo Electric Industries	32
Superior Essex	16
TE Connectivity	49
Vesper Marine	10
Wuhan Hengtong Automotive	28
Yarotek	12

EDITORIAL

Clinton Instrument Company..... 17

Gem Gravure 8

Messe Düsseldorf..... 11

NDC Technologies..... 7

Sikora 15

Zumbach Electronic 2

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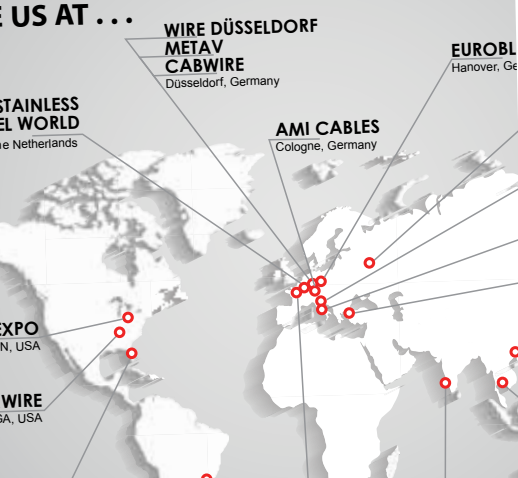
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