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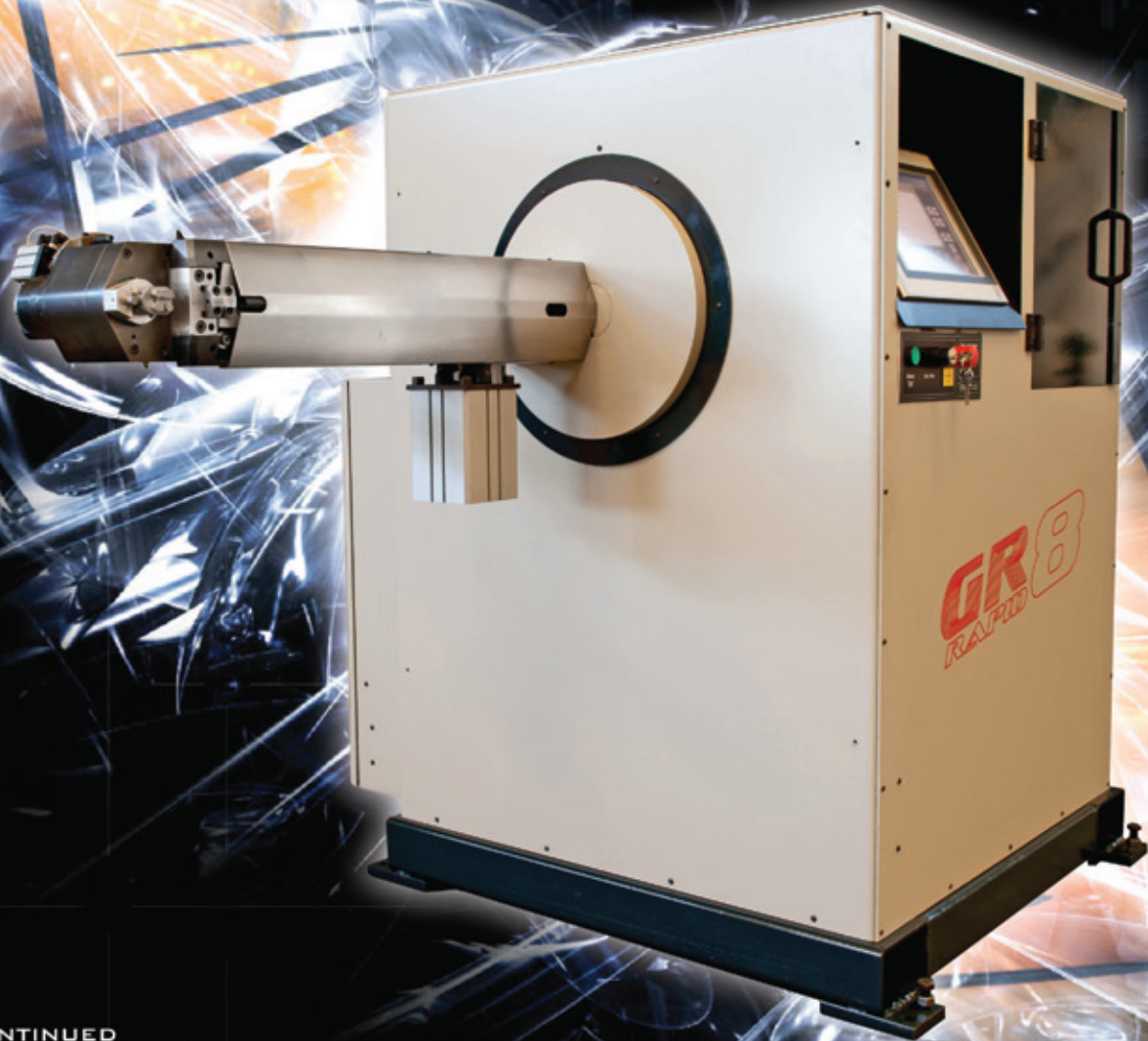
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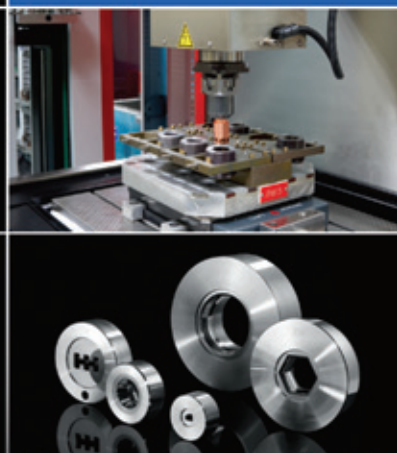
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# Leading from the front – it’s the IWCS

I have always had a fond attachment to the IWCS conference and exhibition. It was the first ever wire and cable event I attended, back in 2006.

Two weeks into my role I arrived bright-eyed on my first visit to the US shoreline to be greeted by some generous and welcoming people from within the industry.

Since then, and the unforgettable worldwide recession, IWCS (see our preview on page 50) has gone through a period of rebranding but the message clearly remains the same.

Advances in the industry are highlighted to rooms full of attentive listeners, eagerly anticipating changes in a rapidly evolving industry.

This has been the underpin of the organisers since its inception some 61 years ago. The fact that the event remains as strong as ever today is testament to the effort and determination of those people.

Staying on the American side of the pond, our Focus on USA feature this issue (page 52) highlights the buoyancy of the market and the efforts US firms are going to to ensure they remain ahead of the competition.

The fact that this has been the most popular of our ‘Focus On’ sections since we began in May is hardly surprising given the size of the country. But the determination of those who have submitted editorial has shone through.

There is also a strong feature this month on ‘steel wire, rod and rope production, machinery and equipment’ (page 43), which gives an insight into this fascinating part of the industry.

I would like to end by saying thank you to everyone for your comments on the new EuroWire website we launched in September. We hope that this multi-media site, regularly updated with the latest news, adds reading and viewing pleasure.



David Bell  
 Editor

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Srl, Milano, Italia

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- Focus on Switzerland  
& Austria

## Getting Technical

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# IWCS 2012

## November 2012

11–14 Nov: **IWCS** –  
technical conference –  
Rhode Island, USA

**Organisers:** IWCS

**Tel:** +1 717 993 9500

**Email:** phudak@iwcs.org

**Website:** www.iwcs.org

## 2012

### November 2012

15–18 Nov: **Kablo & Tel** – exhibition  
– Istanbul, Turkey

**Organisers:** CNR Holding

**Fax:** +90 212 465 7476

**Email:** info@cnrexpo.com

**Website:** www.cnrexpo.com

27–28 Nov: **Wire & Cable Asia** –  
conference – Shanghai, China

**Organisers:** Integer Research

**Fax:** +44 207 503 1266

**Email:** info@integer-research.com

**Website:** www.integer-research.com

### April 2013

23–25 Apr: **Interwire** – trade  
exhibition – Atlanta, Georgia, USA

**Organisers:**

Wire Association International

**Fax:** +1 203 453 8384

**Email:** info@wirenet.org

**Website:** www.wirenet.org

### June 2013

25–28 Jun: **wire Russia** – trade  
exhibition – Moscow, Russia

**Organisers:**

Messe Düsseldorf GmbH

**Fax:** +49 211 4560 7740

**Email:** info@wire-russia.com

**Website:** www.wire-russia.com

### September 2013

17–19 Sept: **wire/Tube SE Asia** –  
trade exhibition – Bangkok, Thailand

**Organisers:**

Messe Düsseldorf Asia Pte Ltd

**Fax:** +65 6332 9655

**Email:** wire@mda.com.sg

**Website:**

www.wire-southeastasia.com



Above – “Nascar Hall of Fame reception 2011”  
Courtesy of the IWCS

Left – “Roger Williams Statue, Rhode Island”  
bigstockphoto.com Photographer – Ken Kohn



▲ Silvio Oriani

▲ Guests at the gala dinner in Düsseldorf

## ‘Duty to honour’ golden anniversary

OM LESMO celebrated the company's 50<sup>th</sup> anniversary with a gala dinner at wire 2012 in Düsseldorf.

Customers celebrated with Dr Alvaro Piva, president and CEO, who has personally managed the company for more than 20 years, Eng. Giovanni Cecchini-Manara, commercial director, and Dr Maria Laura Piva, at present acting as marketing manager.

During a speech, Giovanni Cecchini-Manara said: "50 years makes a long life, actually longer than mine, and to be here today makes me very proud, because we are the result of the efforts of so many good people before us.

"The good work of the persons who

came before us, inside the company, and especially the very good partnership and support that you, our clients and partners, have generously extended to us in so many ways along the years, are the fundamentals that make possible our presence here today."

He added: "Let me thank, in particular, all those clients who have repeatedly put their trust in our equipment, installing in their factories many machines along the years.

"I am thinking of clients everywhere in the world, in all the five continents.

"It is with a lot of enthusiasm that today we celebrate our golden jubilee.

"It is not only an anniversary; it is a remarkable achievement that we have the duty to honour."

And it was a double celebration for OM Lesmo, which also marked the long service of Silvio Oriani, who has worked for the company for almost 30 years.

His expertise – including 30 years as manager in a cable-making factory – has always been in the interests of the customers, finding them the most suitable solutions to their problems, from stand to special – and often peculiar – production requirements.

**OM Lesmo – Italy**  
**Website:** [www.omlesmo.com](http://www.omlesmo.com)

# Cables at the forefront of innovation

THE European cable industry is showing signs of consolidation according to AMI's latest report.

AMI's guide to the cable extrusion industry in Europe provides detailed information on 325 cable extrusion sites across Europe, from multinational groups such as Prysmian and Nexans to smaller new sites looking to make their mark.

This new guide reports a slight drop of around five per cent in the number of operational cable extrusion sites in Europe since its last edition in 2008. The total consumption of compounds also dropped from 1.45 to 1.23 million tonnes over the same period with Italy and Germany leading the way.

Manufacturers continue to refocus their product range with plants specialising in the production of specific cables supplied to certain markets, which are often driven by local demand. In terms of materials, the report confirms PVC is the dominant polymer due to its competitive price, technical performance and ease of processing. Linear grades of PE and low smoke zero halogen (LSFOH) materials have grown rapidly despite small volumes.

Whilst the figures suggest the market remains stagnant, cables continue to be at the forefront of technical innovation in the plastics sector in terms of formulation and modification of resin and development of additives. The renewable energy sector is also showing signs of growth and its demand for cable applications will offer encouragement to the European cable industry.

Demand in Poland bucks the European trend, however. Unlike almost all European nations, Poland has remained relatively untouched by the economic recession and its cables sector now accounts for around ten per cent of European polymer consumption.

The local construction and infrastructure market, buoyed by the Euro 2012 football championship together with attractive overheads and labour costs, are the driving forces behind this upturn.

## Applied Market Information – UK

Website: [www.amiplastics.com](http://www.amiplastics.com)

## New managing director

Sergio A Filippini has been appointed managing director sales and marketing at Friedrich Kocks GmbH & Co KG in Hilden, Germany.

The independent, medium-size, family-owned company has been successful in mill construction worldwide for more than 60 years.

Mr Filippini joined the Kocks Group in January 2001 as president of Kocks Pittsburgh until now. He succeeds Mr Pascal Rénevier.

## Friedrich Kocks GmbH & Co KG – Germany

Website: [www.kocks.de](http://www.kocks.de)



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# ReneSola Saw wire plant commissioned in China

GCR Eurodraw has completed and commissioned a plant for the production of 9,000 tons per year of saw wire at Sichuan Ruiyu Photovoltaic Materials Co Ltd, in Sichuan Province, a company of ReneSola Group.

ReneSola is a leading manufacturer of solar wafers and provider of solar module OEM services. Its solar products include virgin polysilicon, monocrystalline and multicrystalline solar ingots and wafers, photovoltaic (PV) cells and modules.

Innovative technologies, a reputation for quality and reliability, and expanded operational capabilities have helped the company develop a diversified customer base of leading solar companies while allowing capture of new growth opportunities.

Concurrently, ReneSola has developed new G6 multicrystalline furnaces based on G5 ones, which further improves the production capacity of the silicon wafers.

GCR designs and manufactures machines

and equipment, processing lines as well as complete plants for the steel wire industry including 'turnkey' projects, all related to the cold process, that is downstream of the hot rolling mills.

As well as covering dry and wet drawing, coating lines, stranding and cabling, GCR Eurodraw can also provide technical and technological services, know-how and manufacturing technology, training of personnel, supervision of installation and start-up, and technical assistance services.

**GCR Eurodraw SpA – Italy**  
**Website:** [www.gcrgroup.com](http://www.gcrgroup.com)

## New website launch

*EuroWire* – the most important source of information in the wire and cable industries – has launched its new multi-media website.

The site, at [www.read-euowire.com](http://www.read-euowire.com), brings you the latest news from around the world, videos, and can be read on PC, tablet or your mobile phone.

## SMS in control

The SMS group took over 59.1 per cent of the shares in Paul Wurth SA, Luxembourg, that were previously owned by ArcelorMittal and the Luxembourg fund Luxempart.

40.8 per cent of the shares remain with the Luxembourg shareholders controlled by the state. The purchase is still subject to review and approval by the anti-trust authorities.

Paul Wurth will continue to operate as a self-standing corporation within the SMS group. With more than 1,600 employees and 27 subsidiaries, it ranks among the world's leading suppliers of blast furnaces, coking plants, and green technology for metallurgical plants.

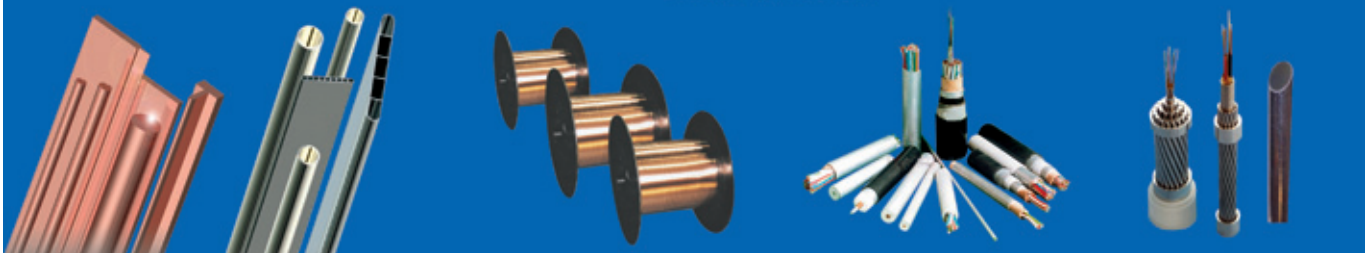
With more than 11,000 employees, the SMS group generated sales of around €3 billion in 2011. Led by SMS Holding GmbH it is a group of global players in plant and machinery construction for steel and non-ferrous metals processing.

**SMS Holding GmbH – Germany**  
**Website:** [www.sms-group.com](http://www.sms-group.com)

## Continuous Extrusion & Cladding Machinery For Copper And Aluminum



Dalian Konform Technical Company Ltd-China has started systematic researches in the continuous extrusion and cladding technology since 1984. The equipments have been widely applied to make Copper & Aluminum Rectangular Conductor, Busbar, Aluminum Round & Multi-void Tube, As wire & Sheathed Cable, etc. Now over 1000 lines have been supplied to over 40 countries, including USA, Germany, Japan, Italy, UK, Brazil, Poland, and so on.



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# It's a gold for Dow's Endurance!

THE Dow Endurance™ family of insulation and semi-conductive materials from Dow Electrical and Telecommunications (Dow E&T) provide high quality performance while ensuring durable and reliable power supply during and after the 2014 Winter Olympic Games in Sochi, Russia.

With product and technical support from Dow E&T, Dow Inside licensee Sevkaabel Group was awarded the bid to provide cable being installed in the Sochi and Krasnodar regions of Russia.

This cable installation makes it possible to bring increased electrical capacity to power in Olympic venues in the mountain resort of Krasnaya Polyana and the ski resort complexes in Rosa-Hutor and the Imeretinskaya Valley.

The bid included Dow solutions for medium voltage (MV) and high voltage (HV) cables. The cables will be installed underground to manage long-term reliability issues, some of which are associated with the extreme weather and terrain conditions in the region.

"Increasingly, underground power cables are being recognised for technical advantages and consistent performance," says Filip Tauson, commercial director Europe/Middle East/Africa, Dow E&T.

"In addition to the obvious benefits for power losses associated with challenging terrain and weather, underground systems offer improved economics over the life of the system with lower short- and long-term maintenance costs with a life expectancy of more than 40 years."

Vladimir Bukhin, director general, Sevkaabel Group, added: "The combination of our manufacturing expertise and quality products, combined with Dow E&T's technology leadership and commitment to innovation will enable us to deliver the long-life, reliable cables that our industry demands."

The MV and HV cables destined for the Winter Olympic Games installations range from 6kV to 220kV – all manufactured to

meet stringent industry standards using Dow Endurance materials. Installation has already been completed for 54km of 110kV HV cable and 340km of 10kV MV cable.

"The super-clean Dow Endurance™ insulation and semi-conductive compounds from Dow E&T will help provide the reliability and long service life needed to support the Krasnodar region well past the Sochi 2014 Olympic Winter Games and into the future," added Mr Tauson.

"As a Worldwide Olympic Partner, The Dow Chemical Company and its business units like Dow E&T, are proud to support our customer and the Sochi Olympic Winter Games Organising Committee in this important project."

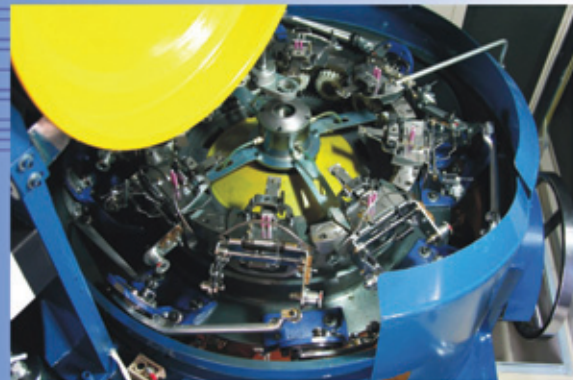
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# University initiative for new division

CONTINUOUS casting technology specialist Rautomead Limited of Dundee, Scotland, has revealed the latest initiative for the company's new 'Advancing Metals Technology' division: a further collaboration with the 'Brunel Centre for Advanced Solidification Technology' (BCAST) unit at Brunel University.

The initiative follows hot on the heels of an on-going innovative and successful project in which Rautomead's new division is working closely with key BCAST department personnel on the development of an entirely new process for extruding aluminium alloys in the semi-solid state that deliver significant gains such as reducing energy consumption and improving grain structure.

The new initiative, conducted under the auspices of Director of BCAST Professor Zhongyun Fan, has some extremely ambitious objectives.

Based around the trialling of a number of different methodologies to reduce or refine grain size in the casting of copper and copper alloys, these trial methodologies include the use of melt shearing (the physical shearing of the molten material), the use of refining materials (colloquially referred to as 'salt and pepper'), and the use of ultrasonics.

Prior to the project in question, very little development work of this nature had ever been undertaken in the field of copper alloys, thus these experiments, conducted by a number of different teams at Brunel in conjunction with Rautomead, were often embarking upon virgin territory.

The project's objectives extend way beyond those of a mere academic exercise.

For a customer, the ability to control grain size and ultimately cast at a smaller size will deliver a number of key gains, principally better mechanical properties and significantly less downstream processing, with consequent savings in time, space and energy consumption, making the casting process significantly more valuable.

'Advancing Metals Technology' is a new and scientifically based metals research and development division within Rautomead, with a specific focus on the scientific exploration and development of non-ferrous metals and processes, to drive improvements in metallurgical efficiency in a wide range of global production processes and end-user applications.

In addition to pursuing in-house research projects, the new division's mandate covers the involvement in a wide range of individual projects with universities and research groups in the UK and overseas, of which the on-going collaboration with BCAST is a high profile and highly successful example.

Further collaborations will be sought with both existing and prospective customers, with the goal of providing new and innovative processes and products within the non-ferrous metals technology market.

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## New furnace for India

Tenova LOI Italimpianti and Tenova Hypertherm have signed a contract with BMM Ispat Ltd for a 160t/h walking beam furnace.

BMM Ispat, located at Hospet, in the state of Karnataka, South India, is setting up a 850,000tpa merchant bar mill with all upstream facilities such as blast furnace, coke oven batteries, steel melting shop, and continuous caster as part of its 2 million tonnes per year steel plant, which will integrate an existing operational plant producing sponge iron, pellets, TMT bars and power. Siemens VAI will supply the rolling mills.

BMM Ispat chose Tenova as furnace supplier due to its technical references and performance of the furnaces supplied for similar applications in India. The main feature of the new furnace is the use of low calorific value maximising the use of blast furnace gas. The combustion system of the new furnace will be fuel flexible, allowing use of 100% HFO initially, fuel mix of BFG and HFO as well as mixed gas in the future.

With this contract, Tenova LOI Italimpianti and Tenova Hypertherm have further strengthened their presence in the Indian market.

Tenova LOI Italimpianti is a leading supplier of industrial furnaces and services for the metal industry. Tenova is a worldwide supplier of advanced technologies, products and engineering services for the iron, steel and mining industries providing innovative, integrated solutions for complete process areas.

**Tenova LOI Italimpianti – Italy**  
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In the automotive wire industry, market leaders including Leoni, Delphi and Force have been Singcheer's major customers in China for more than 10 years already; while in the building wire industry, Singcheer has been always working closely with Far East, Baosheng, TBEA.



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# A complete view of its customers

With a customer base of approximately 8.5 million connected households throughout Germany, Kabel Deutschland (KD) turned to Jacada, a leading global provider of customer service experience technology, to provide a single yet comprehensive view of its customers.

In doing so, KD has been able to increase customer and agent satisfaction while reducing operational costs, average handle time and streamlining work processes.

Jacada's solution integrates vital applications and multiple customer

communication channels across KD's contact centres to provide a single, optimised view of customer information. This integration enables agents to easily navigate through customer data and services in a more efficient manner.

"Customers demand a positive and productive experience every time they engage with a company. We are committed to delivering customer service technology that enables a company to achieve an effective and consistent customer experience," said Gideon Hollander, CEO for Jacada.

"Kabel Deutschland sought out leading technology solutions to help deliver a better customer experience and as a result they've shown their customers they value their business and will continue to make their needs a priority."

Jacada's customer service solutions include a mobile service platform, customer-facing desktops, and agent scripting technologies that simplify the way companies interact with their customers.

**Kabel Deutschland – Germany**  
Website: [www.kabeldeutschland.de](http://www.kabeldeutschland.de)

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# Combining work and family life at the office



▲ The parent-and-child office helps mothers and fathers in a child-care emergency

SIKORA now has a parent-and-child office. Fathers and mothers have the opportunity to bring their children into the company in a child-care emergency. In the parent-and-child office, they can continue working while caring for their children. The aim of this facility is to strengthen reconciliation of work and family life.

In particular, at unpredictable situations as for example when child-care is missing or to bridge holiday time of kindergartens, the office helps to combine familiar and professional reasons.

"The facility is a relief and also helps

to avoid absenteeism of the working parents," said Bernadette Sikora, managing partner of Sikora Holding GmbH & Co KG. "Moreover, it increases attractiveness of working with Sikora."

The recently furnished parent-and-child office addresses children of all ages. From the changing table pad, a lying area, child bed, toys, painting supplies, to books and toy blocks, parents have everything their children need.

Equipment was financed by the company and from donations by employees.

**Sikora AG – Germany**  
Website: [www.sikora.net](http://www.sikora.net)

# Seminar helping the cable makers

THE newly established Gauder Group Middle East Centre hosted a maintenance-orientated services seminar, which focused on the needs of cable makers who run Pouttier/Setic rotating machines.

Open to the Gauder Group customers, the seminar featured experts from the Pouttier/Setic service and engineering teams who discussed ways in which customers can restore machine productivity and improve product quality. The seminar was developed in response to customer expectations in predictive maintenance (vibration analysis, mechanical thermography), slip rings cleaning and maintaining (to avoid major electrical crashes), wire paths evolution to limit tensions and increase production speeds, Bluetooth transmission, belt tension impact on rotating assemblies and other critical components.

The event attracted some 15 participants representing four countries: United Arab Emirates, Saudi Arabia, Oman and Bahrain. The service centre is dedicated to offer the best service to numerous Pouttier and Setic customers in the Middle East according to the strong and sustained development of cable industry in this area.



▲ Helping customers first hand at the Gauder Group Middle East Centre

**Gauder Group Middle East – Bahrain**

**Website:** [www.gaudergroup.com](http://www.gaudergroup.com)

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# The wire and cable industry goes digital

CREATING links is important. And who knows it better than a web portal?

expowire.net, known as wiredrawing.net, can announce the onset of various collaborations.

One of the most significant ones to be established is with ACIMAF, the Italian wire machinery manufacturers' association, founded in 1987 to promote the image of Italian technology in the

field of machines and products for wire and cable manufacturing.

ACIMAF now has its own online showcase on expowire.net, which already hosted many ACIMAF members. This partnership is in line with the portal's intent to cooperate with all the international trade associations of the wire, cable, fasteners and metal working field.

Companies on expowire.net can also now

get a ten per cent discount on both the shell scheme and space only option at the Wire & Cable Expo in Tianjin, China, from 25<sup>th</sup>-27<sup>th</sup> June 2013.

expowire.net is also involved in the organisation of Made in Steel 2013, the event that gathers producers, distributors, users and the whole world that lives "off" and "for" steel.

The conference and exhibition will take place in Milan, Italy, from 3<sup>rd</sup>-5<sup>th</sup> April 2013. Members of expowire.net are entitled to a special five per cent discount on the exhibition fees.

But expowire.net is not working only on building partnerships and offering further advantages to its members. expowire.net, which is already translated in English, German, French, Spanish and Italian, will soon be available in Russian and Chinese.

**expowire.net - Italy**  
**Website:** www.expowire.net

## Nexans lands €110m contract

Nexans has been awarded contracts worth around €110 million by Libya's PEWCO (Public Electrical Works Company), a wholly-owned subsidiary of GECOL, the state-owned company responsible for the production and distribution of electrical power, to supply cables for projects to upgrade the country's power transmission and distribution infrastructure.

The contracts involve the supply of over 1,000km of high-voltage (HV) and low and medium-voltage (MV) cables. The transmission contract comprises 245kV underground cables to be manufactured and supplied by Nexans France. The 33kV and 15kV distribution cables and the optical fibre cables will be supplied by Nexans Greece, while the accessories will be supplied by Nexans Italy.

PEWCO will install the cables. Nexans will supply all required accessories as well as optical fibre cables (for substation automation, control and communications and monitoring of the cable temperature), as well as engineering services, technical assistance and training to PEWCO and GECOL.

Cable delivery and installation is expected to take place during 2012 and 2013.

**Nexans - France**  
**Website:** www.nexans.com

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**CABLES**



## A bright 2013 ahead

QUEINS Machines, a member of Wilms Group since the end of 2011, is going successfully into the fourth quarter of 2012.

A recently finished planetary strander for the production of umbilicals is now being assembled at the customer's facility.

A rigid strander for 800mm spools is being installed at the customer's plant.

Queins also has a planetary strander – 6x1600 – ready for dispatch to another client.

Also introduced this year will be a 91-wire rigid strander, a 37-wire rigid strander and a double twist buncher.

**Queins Machines GmbH – Germany**  
**Website:** [www.queins.com](http://www.queins.com)

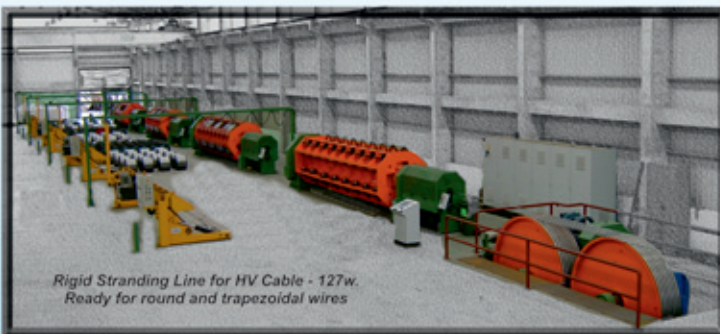
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▲ The cable being installed on the London Underground

## Tratos cables are approved for London Tube use

SPECIALIST cable manufacturer Tratos is pleased to announce its Firesafe TW950e cables have been approved to London Underground Limited (LUL) standard 1-085 A3 and are now authorised for use in sub-surface locations, including tunnels and underground stations.

Firesafe TW950e is an enhanced fire resistant cable for systems needing to operate fully during a fire for longer periods than those normally required for single phase evacuation; these include fire detection, alarm and emergency voice communication systems.

In addition to LUL standard 1-085 A3, Firesafe TW950e conforms to BS7629-1:1997 (incorporating Amendments Nos 1 & 2), meets class PH120 in accordance with BS EN 50200:2000 and meets the requirements of enhanced fire resistant cable as described in BS 5839-1:2002 clause 26.2, defined in BS 8519.

In addition to sub-surface locations, Firesafe is also suitable for use in high rise buildings that do not have sprinkler systems and have passed evacuation arrangements, or large premises

where areas remote from the fire could remain occupied on the condition the fire does not damage cables serving the alarm system in those locations.

**Tratos - Italy**

**Website:** [www.tratos.co.uk](http://www.tratos.co.uk)

## New role for Dirk

Dirk Bauer has taken over leadership of the CCTV technical sales department at Hradil Spezialkabel GmbH, Bietigheim, Germany.

Before joining Hradil, Mr Bauer was a staff-member at Umwelttechnik Hoffmann in Krefeld. His main objective is the continuous development of all worldwide sales and service activities.

**Hradil Spezialkabel GmbH - Germany**

**Website:** [www.hradil.de](http://www.hradil.de)

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# Heavy-duty deal is done

NANJING Iron and Steel Co signed a contract with the German company Friedrich Kocks for the supply and the commissioning of a three-roll reducing and sizing block 370/4 in heavy-duty design [RSB++] for a new SBQ bar mill.

NISCO is part of the Nanjing Iron and Steel Union Company Limited with its headquarters in Nanjing and is listed on the Shanghai Stock Exchange. It has approximately 11,400 employees and operates blast furnaces and rolling mills with a production of 6.8m tons in 2011.

After completion the new rolling mill will produce 800,000t/a of first class SBQ-bar within the range of 16-80mm diameter. Downstream the roughing and intermediate mill, consisting of 20 stands, the four stand 370mm reducing and sizing block will produce all finished dimensions in coils and in straight lengths onto the cooling bed. The three-roll RSB design also enables controlled rolling at low temperatures within the range of up to 60mm diameter.

The heavy duty RSB allows rolling out of only one pass series from the roughing and intermediate mill and significantly reduces the number of required feeders.

Any finished dimension of the complete dimensional range can be produced in any desired sequence with a minimum number of roll sets and just a few stand changes.

The optimum adjustment values for motor speed, rolls and guides as well as gear steps are calculated by the bar mill configuration system Bamicon in relation to the final product.

Besides the reducing and sizing block with the automatic quick stand changing system the scope of supply comprises the bar mill configuration program Bamicon and the remote-controlled adjustment of pass and guides of the three-roll stands in the mill line as well as the roll shop with quick roll change and Capas, the computer aided system for accurate adjustment of rolls and guides in the stands.

The supervision of erection, commissioning and the training of customer personnel complete the contract package. Delivery is expected for the third quarter of 2013.

**Friedrich Kocks GmbH & Co KG – Germany**  
**Website:** www.kocks.de

## Three new directors for Keighley

Keighley Laboratories, experts in the analysis, testing and heat treatment of metals, has appointed three of its long-serving managers to divisional directors, in recognition of their contribution to past performance and their key roles in future growth plans.

Together clocking up almost a century of work experience with the West Yorkshire firm, Michael Emmott becomes divisional

commercial director for the heat treatment division, Matthew Mellor is now divisional technical director responsible for the technical services division, including the test house, machine shop and chemical laboratory, while David Wright has been named divisional production director for the heat treatment division.

**Keighley Labs – UK**  
**Website:** www.keighleylabs.co.uk



▲ David Wright, Michael Emmott and Matthew Mellor

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# Data centres using Datwyler

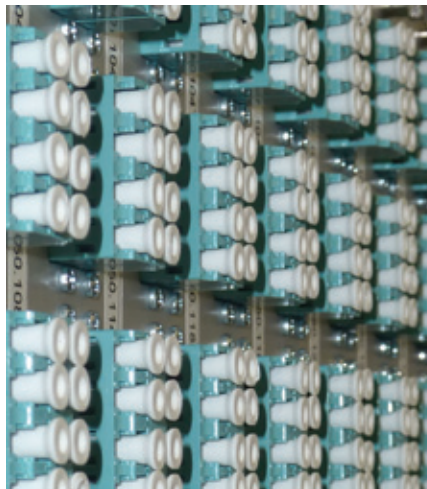
THE city of Zurich, Switzerland, is using Datwyler cabling systems in the conversion and construction of its data centres.

Thanks to largely pre-assembled solutions TurnKey Communication AG has been able to implement quick, space-saving installations, which will also allow reliable transmission of future applications. On the two data centre sites the installation teams created altogether around 10,000 fibre optic and 4,200 copper links.

Zurich Organisation and Informatics (OIZ) is the city's centre of IT expertise, responsible for the provision of basic IT services and interdepartmental IT projects. As part of the municipal IT strategy, which is based on standardisation and consolidation, OIZ has built a second data centre in the metropolitan area, in the industrial area of Hagenholz, for the redundant provision of key components in parallel to the data centre in Albisrieden.

At the end of August 2011 the city of Zurich awarded Maréchaux Elektro AG the contract for communications cabling to both data centre sites. This company commissioned TurnKey Communication AG to carry out the detailed planning and the cabling work for the project. Turnkey collaborated with Datwyler in selecting a new premium quality cabling solution.

The fibre optic (FO) system is a modularly expandable solution recently developed by Datwyler, allowing packing densities of up to 96 fibres per rack unit (U). It is based on sub-racks fitted with pre-assembled slide-in cassettes (FO modules).



▲ The city of Zurich, Switzerland, is using Datwyler cabling systems in its data centres

On the back of each of these modules are two MTP couplers, and they are cabled with MTP mini-trunks. At the front they provide OIZ with 12 LC Duplex or E2000 connections as required. The 10G-capable copper cabling installed in parallel consists of Category 7 type CU 7702 4P data cables and IEC Standard-compliant Cat. 6A RJ45 modules, pre-assembled to one end. The other end was terminated on-site.

The FO trunk variants used in the data centre sites include trunks with 12, 24, 48, 72 and 144 fibres, pre-assembled with MTP, LCD or E2000 connectors. In the central distribution racks the mini-trunks – almost all of them with bend-optimised OM3 multimode fibres – are lined up with 1,500 FO modules in 270 sub-racks with 4U (including patch management tray) and in the server racks in 210 FO panels with 1U.

For the termination of the copper cables Datwyler supplied 135 3U sub-racks with 1,160 modular 6-port front panels and 285 1U panels with 24 ports. The scope of the delivery also included 13,300 FO duplex and 9,100 copper patch cables for the connection of active devices.

Acceptance testing of more than 14,000 links in total was carried out on completion of each construction phase, most recently in spring 2012.

Thanks to the MTP Elite ferrules and the very precise connector configuration used by Datwyler, the cables and modules achieved excellent insertion and return loss values.

**Datwyler – Germany**  
**Website:** [www.datwyler.com](http://www.datwyler.com)

## It's full steam ahead for Tratos cables

Tratos Cavi SpA has been awarded the contract to supply DP World with Tratosflex ESDB reeling cables for installation in the cranes at the Jebel Ali port in Dubai.

The port is in the process of electrifying its existing diesel-driven RTG cranes as a means of significantly reducing energy costs and CO<sub>2</sub> emissions. As part of this process, Tratosflex ESDB cables will be fitted to the newly electrified cranes.

The decision to specify Tratosflex ESDB cables was based on a combination of quality product used extensively in similar applications worldwide (including the Busan Port terminal in Korea) and strong local support from the Tratos office located in Jebel Ali Free Zone.

Tratosflex ESDB is different from other reeling cables available in that Tratos engineers have modified the internal cable design, tightening the structure against the internal relative movement to accommodate high speed applications; this prevents

the common problem of twisting that affects cables reeling at high speed.

Twisting makes cable cores elongate unevenly which in turn leads to conductors on the outer layer of a strand facing a greater risk of being broken. A broken cable reeling at high speed is dangerous and can cause extensive and costly damage to equipment.

A medium voltage rubber insulated and sheathed drum reeling cable, Tratosflex ESDB operates in temperatures from -20°C to +60°C.

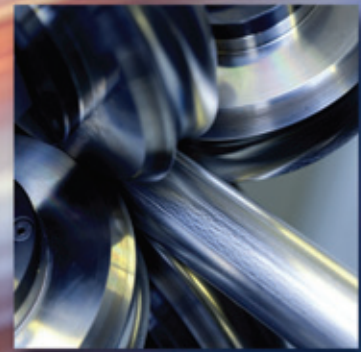
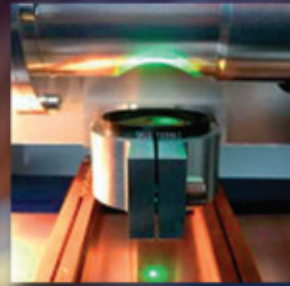
Tratosflex ESDB is one of the range of cables for moving applications from Tratos, which include mono-spiral and multi-spiral reeling, basket reeling, festoons and spreaders. The cables can supply power, control and signalling functions including fibre-optic cables and components.

**Tratos Cavi SpA – UK**  
**Website:** [www.tratos.co.uk](http://www.tratos.co.uk)

▶ The Tratosflex ESDB cable



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# Transatlantic Cable

## Taxing the Olympians

▶ US medallists came back from London to a hearty welcome home – but also with hefty tax obligations

“When sprinter Allyson Felix returns home to Southern California with her Olympic gold medal, she may have to share her good fortune with her government.”

Writing in the *Los Angeles Times* on 10<sup>th</sup> August, Patrick McGreevy was referring to the \$25,000 honorarium that American Gold medallists receive from the US Olympic Committee. It is subject to both federal and state taxes, as is the \$15,000 for silver medallists and the \$10,000 for bronze winners.

According to data from the US Olympic Committee, 93 medals were won by US athletes who reside in California or list a hometown in the state: 52 golds, 28 silvers and 13 bronzes. These represent about 35 per cent of the total number of medals won by US athletes. The taxes involved are not inconsiderable. A gold medallist taxed at the California average rate of 5.8 per cent could pay \$1,450 in state taxes on \$25,000, state officials said.

Americans for Tax Reform calculated that the same gold medallist would also pay close to \$9,000 to the Internal Revenue Service (IRS) in federal income tax, although some tax experts say athletes could pay less after taking deductions for their training expenses.

Writing two days before the close of the Olympics, Mr McGreevy reported that a bipartisan group of state lawmakers wanted to help Ms Felix and more than 30 other California medallists by exempting the honorariums and the value of their medals from state taxes.

The legislators were following the lead of members of Congress who had proposed forcing the IRS to stay clear of medals earnings.

“These Olympians are ambassadors for our country and our state, and their sacrifices are often overlooked and taken for granted,” said Assemblyman Allan Mansoor (Republican, of Costa Mesa), adding that some athletes and their families “go through severe financial hardships” to finance their training.

But opponents of the bill sponsored by Mr Mansoor, which would have exempted Olympians from paying taxes on their medals, held that the winners were likely to field lucrative endorsement offers on their return from London.

“I enjoy watching and honouring the Olympic athletes,” Assemblyman Tom Ammiano (Democrat, of San Francisco), told the *Times*. “But I think our tax focus should be placed on making sure California’s budget burden is shared fairly. If California wants to go for the gold, we could close tax loopholes now enjoyed by the wealthy.”

In the end, Mr Ammiano’s view prevailed. On 16<sup>th</sup> August – four days after the spectacular closing ceremony in London – the Senate Appropriations Committee shelved the Mansoor measure. Some senators questioned the fairness of waiving taxes on Olympic medals, given that champs in other contests have to pay Uncle Sam on their winnings. Others suggested that awarding tax breaks may not be the best thing right now, given California’s current budget woes.

On leaving office in January 2011 the state’s former governor, Arnold Schwarzenegger – who resumed his action-hero Hollywood career with the opening of “The Last Stand” on 16<sup>th</sup> August – bequeathed California a \$26bn deficit. His successor, Gov Jerry Brown, has since whittled the shortfall to \$9bn.

That is extraordinary progress, by any measure; but evidently it is not enough to induce a tax-forgiveness mood in those charged with closing the gap completely.

## Telecom

▶ The United States to the United Nations: regulatory control of the Internet is in safe hands with us, and will stay there

In a display of unanimity that would be remarkable at any time – but especially within months of the US presidential election set for 6<sup>th</sup> November – the US House of Representatives on 2<sup>nd</sup> August voted 414-0 to notify the United Nations International Telecommunication Union that the Internet does not require new international regulations.

The House resolution calls on US government officials to tell the ITU and other international organisations that it is the “consistent and unequivocal policy of the United States to promote a global Internet free from government control.”

The lawmakers were serving notice that they strongly support the status quo whereby several non-profit US agencies oversee the technical specifications and domain name system of the Internet. Independent of the US government, these agencies nonetheless operate officially under the control of the United States Department of Commerce.

# Transatlantic cable

The administration of President Barack Obama had already declared it the intention of the US to stick with the current system.

The assertiveness out of Washington was prompted by the approach of the World Conference on International Telecommunications (WCIT), the treaty-writing conference that the ITU will host 3<sup>rd</sup>-14<sup>th</sup> December in Dubai.

American officials expect other countries to urge the ITU to take Internet governance away from the Internet Corporation for Assigned Names and Numbers (ICANN) and other organisations now under DOC supervision.

As well as pushing for international Internet traffic taxes, some countries may also be expected to push for more surveillance of Internet users in the name of fighting spam or fraud. It is here that the House resolution, sponsored by Representative Mary Bono Mack, throws down the gauntlet.

The unanimous vote, Ms Bono Mack said in a statement, "sends a clear and unmistakable message: the American people want to keep the Internet free from government control and prevent Russia, China and other nations from succeeding in giving the UN unprecedented power over Web content and infrastructure. We cannot let this happen."

The California Republican, who asserted that the United Nations has for nearly a decade been "angling quietly" to become the epicentre of Internet governance, warned against back-room wheeling and dealing at Dubai. Secret negotiations leading up to WCIT could be "devastating" to Internet freedom and economic development, she said.

Several US tech trade groups supported the House resolution. In a blog post to the IDG News Service (3<sup>rd</sup> August), Ken Salaets, director of global policy at the Information Technology Information Council, wrote: "[The vote] was an important step to underscore for the world that the United States will stand firmly against regulation of the Internet and strongly for online freedom."

The practical effect of all this position-taking may be doubted, as the US cannot be forced to comply with any alterations to the International Telecommunications Regulations (ITR).

This is the treaty that sets out rules for the flow of traffic among telecom networks and the calculation of charges for traffic exchanged between carriers in different countries.

The rise of the Internet and mobile devices has led to calls for revision, and representatives from at least 178 nations will be reviewing the 1988 treaty at Dubai. But the ITU has made it clear that any changes to the treaty must have unanimous support, and says it would block an attempt by any signatory to put any matter to a vote.

## In brief...

➤ Even in the age of smartphones some 83 per cent of Canadians maintain an active phone landline, according to a survey commissioned by Primus Canada, a subsidiary of the largest alternative telecommunications service provider in Canada.

For keeping in touch on a regular basis email does top the home phone, but only slightly. Some 33 per cent of Canadians customarily choose email, 30 per cent a phone call, 23 per cent social media, and 11 per cent a text message.

➤ When it comes to the total amount of time Canadians spend online, email accounts for most of it, followed by general research, banking, news and social networking.

The online survey among 1,516 randomly selected Canadian adults was conducted on one day in May by Vancouver-based marketing research organisation Angus Reid Forum. The results were statistically weighted to ensure a sample representative of Canada as a whole, including French-speaking Québec.

## Futures Markets

### Betting on derivatives over stocks and bonds, the Chicago exchange CME envisions a London outpost in the New Year

With plans for a derivatives market in London by mid-2013, Chicago-based CME Group Inc, owner of the world's largest futures exchange, is setting up in competition with European counterparts Liffe and Eurex, owned by NYSE Euronext and Deutsche Boerse, respectively. Those operators had their plan to merge blocked by European antitrust authorities in February.

Phupinder Gill, CME's chief executive officer, said in a 20<sup>th</sup> August interview in London with Nandini Sukumar of *Bloomberg News* that his company would start with currency futures for all of the G7 nations.

The new exchange, CME Europe, will use its own CME Globex electronic trading system; and its London-based clearinghouse, CME Clearing Europe, will process the transactions.

CME planned an early filing with the securities regulator of the United Kingdom as the first step in the process. Ms Sukumar, who is Bloomberg's pan-European market structure and exchange correspondent, noted that CME Group has become the most valuable exchange operator in the world, capitalising on the higher profitability of derivatives while the value of equity trading has declined.

The CME Group was formed from the 2007 merger of two of Chicago's largest futures exchanges: the Chicago Mercantile Exchange and the Chicago Board of Trade.

Running exchanges in which investors can trade in energy and metals and other commodities, ten years after going public the company controls 98 per cent of the US futures market.

Richard Perrott, exchange analyst at the London office of Berenberg Bank, Germany's oldest private bank, told Ms Sukumar that CME's new site selection "makes sense, given that close to half of global OTC (over the counter) activity occurs in London."

➤ Today, the value of outstanding derivatives contracts has surpassed by many times the value of such traditional financial products as stocks and bonds.

To promote greater market transparency, regulators across the globe have been pushing to move derivative trades onto exchanges.

The establishment of its London outpost indicates that CME has recognised that this trend holds opportunities for established players.

# Transatlantic cable

## Steel

### A new scrap futures contract for the US will target recyclers, mini mills, and construction companies

Only days before creating news with its plans for a for a derivatives market in London ("Futures Markets," above), CME Group Inc said it had set a 10<sup>th</sup> September launch date for the US scrap futures contract announced by the company in June. This will be the second scrap contract and the 13<sup>th</sup> steel and steel raw materials derivative product for the Chicago-based exchange.

The extension of its reach in ferrous derivative products has a basis in CME's perception of growing interest in hedging among recyclers, mini mills which use scrap as raw material, and construction companies which buy long steel products derived from steel scrap.

While the contract, to be cash settled against an index price set by the metals trade publication *AMM*, is focused on the United States – the industry's largest scrap exporter – CME has said that it hopes its price will become a global benchmark.

US investment banks including JPMorgan Chase were reported to be interested in the new CME contract. Again according to Reuters, the contract could benefit from declining interest in the four-year old physically backed steel billet futures offered by the London Metal Exchange.

With a growing investor base and greater liquidity in its US hot-rolled-coil (HRC) contract, CME is also working on launching ferrous contracts in China, the world's largest steel producer and consumer.

The contract announced 17<sup>th</sup> August is subject to regulatory approvals.

### Whether or not Bain Capital brought down GST Steel, the newcomer Custom Truck & Equipment is an unqualified success

On the presidential campaign trail this summer and autumn, Republican challenger Mitt Romney relied heavily on his tenure as head of the Boston-based private investment firm Bain Capital to showcase his executive credentials. Supporters of the incumbent, Barack Obama, took a contrary view: that Mr Romney during his tenure as CEO presided over the destruction of American firms and jobs in the interests of Bain and its investors.

A political TV ad produced by the Obama campaign featured an interview with a couple whose life took a sharp turn for the worse after Bain forced the closure of a Kansas City, Missouri, steel plant, at the loss of 750 jobs. When the Romney people found and trumpeted some holes in the sufferers' story, the extent of Bain's culpability, if any, was lost in the resulting din. Yet again, the murky politics of an election season had crowded out sober evaluation.

Writing in the *Kansas City Star*, Lee Hill Kavanaugh suggested that another important story had been obscured in the media coverage of the closure of GST Steel Co, whose steelmaking days may be over but whose former plant floor is far from idle. Itself a successor of an Armco Steel plant at the site, GST was succeeded

in turn by Custom Truck & Equipment, known as CTE, which believes it is the biggest provider of truck cranes in the world. Its business is booming. ("CTE's Success Is a Quiet Chapter in Story of GST Steel's Demise," 17<sup>th</sup> August)

The family operation sells new and used trucks, truck parts, cranes, cement mixers, and engines. About 170 people work at CTE, retrofitting the industrial vehicles in 28 bays. "Basically, we think of this place like a seashell," Fred Ross, president and eldest of 12 siblings who grew up in the area, said of the old plant. "It's the same as if one animal died and then another moved in."

The enterprising Rosses bought about 18 acres of the GST property and spent \$6mn gutting the old mill to its skeleton before refurbishing. CTE is building two more structures on an additional 35 acres acquired from GST, which itself purchased 300 acres of Armco's roughly 1,000-acre property, where heavy metals still contaminate the soil in spots. CTE also has three locations in Texas and recently expanded into Wisconsin.

On the day of Ms Kavanaugh's visit to the Kansas City plant, 23 trucks were parked in a ruler-straight, five-row formation. "A bumper crop," she pronounced it. "Everywhere one looked, gleaming trucks were within a screwdriver's reach."

Acknowledging his satisfaction at the new life in the old place – with Americans "making things that are being sold and shipped all the way to Mongolia" – Mr Ross also noted his family's frustration at the duelling TV ads of the recent political season. He wishes that the cameras panning over the site had taken in just a little more than the still-empty and padlocked buildings from the Armco era. "It would have shown more of the story," wrote Ms Kavanaugh. "The CTE chapter."

### Elsewhere in steel . . .

AK Steel (West Chester, Ohio) announced that, as of 4<sup>th</sup> September shipments, it increased transaction prices for all Type 201, 301, 430, 430 Ultra Form®, 409 and 409 Ultra Form flat rolled stainless steel products. The company said that prices for its Types 409 and 409 Ultra Form products were raised by two cents per pound. Increases on the other steels were to be achieved through a two-point reduction in the functional discount. All of AK Steel's raw material surcharges for stainless steel products, including those for materials under 0.015" in thickness, remain in effect.

## Commerce

### Overseas-minded American companies are advised to forget the BRICs, cultivate the CIVETS

"The past decade was all about the BRICs, the massive economies of Brazil, Russia, India and China, which kicked off at the beginning of the new century, boomed, and are now slowing. Taking their place is a new group of fast-rising economies promising businesses outsized returns." Business Without Borders, an online platform for US businesses looking to expand beyond their national borders, defines this group laying claim to the next decade as the CIVETS: Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa. Taken together, the rising middle class, young populations and rapid growth rates of the CIVETS are seen to "make the BRICs look dull in comparison."

# Transatlantic cable

More connected by trade to the developed than to the emerging economies, the BRICs are feeling the same slowdown effects as the company they now keep. Brazil is forecast to grow only 3 per cent this year. China is well off its double-digit rates of the past decade. Russia is expecting 3.2 per cent growth in 2012. Even India, with a GDP target of 6.9 per cent growth for 2012, shows a sharp decline from the 9.6 per cent pace of 2010.

As noted by Deborah Stokes of Business Without Borders, the CIVETS, meanwhile, are at the lift-off point. All six countries in the group are trending upwards; and four of them (Egypt and South Africa being the exceptions) are posting growth rates higher than 5 per cent. Wrote Ms Stokes, "Lacking the size and heft of the BRICs, these upstarts nevertheless offer a more dynamic population base (average age 27), soaring domestic consumption, and more diverse opportunities for businesses seeking international expansion."

## Spotlight on: Brazil

Commodity-driven growth slowing, the Brazilian economy relies increasingly on a newly prosperous but debt-laden middle class

Brazil, which for most of its modern history has been a nation of the starkest economic divide between rich and poor, now has a burgeoning middle class that is driving a boom in business. According to the Fundação Getúlio Vargas (FGV), a private think tank established in 1944, an estimated 40 million Brazilians joined the ranks of the country's middle class between 2003 and 2011. The rise has provided them with enormous purchasing power, and the national economy has grown to meet the new demand.

FGV defines Brazilian middle-class (or Class C) households as those with annual incomes of \$7,200 to \$31,080. In 1993, just over 45 million people were considered Class C. In 2011, their ranks had grown to more than 105 million and they accounted for 46 per cent of the buying power in the country. According to the Brazilian Support Service for Micro and Small Businesses, a private industry group, in 2000 some 4.2 million small businesses had fewer than 100 employees. A decade later, 6.1 million small businesses had such workforces and the number of larger businesses had doubled to 60,000.

The extraordinary growth of the middle class may be attributed at least in part to an array of cash-transfer social programmes that pay Brazilians a stipend for meeting social goals, such as keeping their children in school. With the slowing of Brazil's commodity-driven growth over the past year, the government will be looking to domestic (particularly Class C) consumers to spur on the economy. As reported by the *Associated Press* on 9<sup>th</sup> August, the Central Bank has already slashed a benchmark interest rate to a record low, hoping it will spark consumer spending by generally making credit more available.

➤ The question arises whether, or how soon, Brazil may confront a lesson from many another suddenly prosperous middle class: that easy credit is a two-edged sword. By some measures, the well-heeled "new Brazilians" are already too indebted to support a major share of future growth.

Economists estimate that 20 per cent of household monthly income in Brazil goes toward debt service. Again according to the AP, the Serasa Experian credit rating agency disclosed that, in the first half of 2012, consumer defaults in Brazil were 19.1 per cent higher than in the same period of 2011.

## Automotive

Crash test results suggest that a midsize luxury car may come with a safety trade-off

The Insurance Institute for Highway Safety (Arlington, Virginia) is an independent, non-profit educational organisation funded by US insurers. Of the 11 cars subjected to a new frontal crash test developed by the IIHS, most midsize luxury cars received low or mediocre performance scores. All cars tested were from the 2012 model year.

Only the Acura TL, Volvo S60 and Infiniti G earned good or acceptable ratings. Four cars – the Acura TSX, BMW 3 Series, Lincoln MKZ and Volkswagen CC – earned marginal ratings. Four others – the Mercedes C-Class, Lexus IS 250, Audi A4 and Lexus ES 350 – earned poor ratings.

The new test was designed to replicate what happens when a car strikes another car or a fixed object such as a tree or utility pole.

The test strikes 25 per cent of a car's front end into a five-foot rigid barrier at 40 miles per hour. Marginal or poor ratings indicate the cars would not protect occupants very well in a real-world crash.

IIHS crash test results are closely watched by the auto industry and often lead to changes in design or safety features. Good scores are also frequently emphasised in car advertising.

Dorothy Fabian – USA Editor



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## ESM leads the field in research

WHILST the commercial production of optical fibre may be in decline for telecoms applications, and copper cable increasingly the preferred alternative, considerable research effort is now being focused on a new generation of fibre optic products, leading to the prowess of UK-based Engineering Services Management (ESM) being in considerable demand.

This specialist company has recently been responsible for the design, build and installation of a bespoke, dual-purpose fibre optic tower to draw fibre and canes for research. Whilst a comparable commercial system is a large steel fabricated structure, the ESM system is modular and much more compact, designed to suit the space and access restrictions of a research environment.

An essential part of the fibre optic production process for which this ESM system has been designed is the smooth, friction-free vertical feed of the glass preform, a cylindrical glass blank, into an in-line furnace. As it melts, a thin strand of silica is produced that is ultimately coated with resin for additional strength and flexibility.

The basis of this vertical feed mechanism is a reduced engineering package from HepcoMotion®. This screw driven linear actuator system, specified for clean room conditions, comprises a heavy-duty beam onto which is mounted a Profile Screw Driven PSD120. This product is particularly suited to Z-axis applications and features HepcoMotion® Herculane wheels which provide smooth, low maintenance performance.

The PSD120 ball screw drive and linear guide are housed in a strong aluminium beam protected by a stainless steel cover strip that runs the entire length of the product to prevent ingress of dirt and debris. It is therefore an ideal alternative to a linear motion system with integral bellows that could easily cause particle contamination of a sensitive environment.

The system was designed to be a simple solution for the main tower construction and for the purpose was supplied with joining plates for easy on-site assembly. The T-slots on the beam also provide a simple method of attachment for ancillary components.

The ball screw drive is required for small slow adjustments of the glass furnace position.



▲ *The expertise of ESM in global demand*

On the ESM 'mini' tower, the chuck that holds the glass preform securely as it enters the furnace is attached to an extra large carriage plate on the PSD120. To provide the stability required to ensure high linearity of feed movement, the PSD120 was also specified with additional Utilitrac® rollers to increase moment capacity and rigidity.

The first of the ESM compact fibre optic towers is now installed and operating well at the Max Planck Institute in Germany, a leading centre of excellence for photonics crystal fibre and soft glass

fibre development. It houses a research group led by Belfast-born Professor Philip St John Russell FRS, the eminent scientist whose extensive work in this field resulted in the realisation of photonic crystal fibres in 1996.

The second tower was delivered to the University of Malaya in Kuala Lumpur, Malaysia in 2010 for research into flat fibres. A third tower was shipped to Brazil in February this year.

**Engineering Services Management – UK Website:** [www.esmgroup.co.uk](http://www.esmgroup.co.uk)





▲ Overview of the USYS IPC 1, 2 and 8 processors with separate touch screen display

# Cost-effective multi-sensor process control and data acquisition

THE USYS IPC models are powerful, modular and very flexible processor systems, which are suitable for any manufacturing process in the wire and cable, plastic or rubber industries

and for all processes in the cold steel and metals industries. The USYS IPC systems are an alternative to the other processor and display unit of the USYS series.

The economic and space-saving USYS IPC hardware complements the USYS family of processors.

It offers the flexibility to mount the processor in a convenient location while mounting the LCD touch screen at a more appropriate location for the operator.

The front panel of the industrial processor provides power on/off switch, USB keyboard/mass storage connector; USYS IPC 2 & USYS IPC 8 also with PS 2 keyboard connector.

A passive back plane features the connectors for all measuring gauges, Ethernet and USB connectors, I/O board slots as well as serial and parallel connectors for peripherals.

With Zumbach's new concept of modular extension modules, the customer invests only in what he or she really needs to match the required measurement and control challenges, and thus reaching quality requirements.

## C2G presents RapidRun at conference

C2G, a provider of high performance cabling and connectivity solutions, will be presenting at the Synaxon UK National Conference its RapidRun® line of products.

C2G announced the partnership with Synaxon UK in 2011. This partnership enables C2G to reach out to the dealer group's member community and gives them access to exclusive C2G promotions and offers on its products.

Synaxon managing director Derek Jones praised C2G for its product strategy and market approach, saying: "C2G is a powerful partner with our business. Their comprehensive range of products, combined with a real partnership approach to market development, has driven impressive growth."

The Synaxon UK National Conference is its flagship event, which will host several of the vendor and distribution partners along with the member community.

C2G will be presenting the RapidRun line of products – the most complete modular cabling system built to save installation time, accommodate changes, and evolve with customers' constantly expanding needs.

**C2G – USA**

**Website:** [www.c2g.com](http://www.c2g.com)

**Zumbach Electronic AG – Switzerland**  
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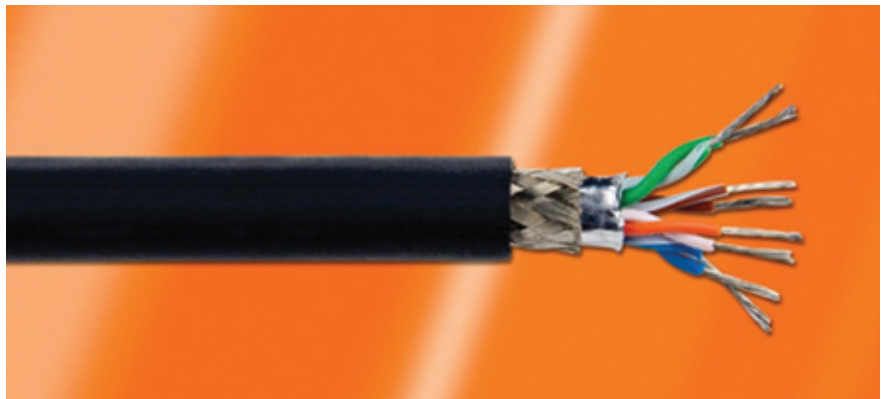


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▲ The new high performance industrial Ethernet cable, part of the Xtra-Guard range

## High performance industrial Ethernet cable

ALPHA Wire Company, a supplier of advanced solutions and service in wire, cable and tubing, has extended its high performance Xtra-Guard range with the addition of industrial Ethernet cable, designed for applications that require a chemical-, abrasion- and sunlight-resistant Cat 5e cable with a wide temperature range (-50°C up to +125°C).

Featuring an abrasion-resistant thermoplastic elastomer jacket with 3x the low temperature flexibility and superior resistance to solvents, chemicals and fuels than ordinary PVC, the new Cat 5e cables are designed to provide rugged, durable connectivity for the most challenging networking needs.

Xtra-Guard Industrial Ethernet cables are available in a choice of unshielded, foil shield, or Supra-Shield® foil/braid.

Alpha Wire's Supra-Shield uses a combination of aluminium/polyester/ aluminium foil and tinned copper braid that offers exceptional EMI performance and flexibility.

Additionally, the cables are UV and fluid resistant, meet UL 1666

Riser and CSA FT-4 flame tests, and are suitable for use in NFPA 79 applications. This connectivity cable is available in a temperature range of -50°C up to +125°C on FEP-insulated conductors and -50°C up to +105°C on polyethylene-insulated conductors.

The TPE jacket is available in black with standard lengths of 152 metres (500 feet). Other colours, including red and teal, are available as special orders.

Specific applications for Industrial Ethernet include robotics/actuators at the machine device level, PLCs at the control level, and servers at the corporate enterprise level, along with any application that includes temperature extremes, outdoor, mechanical abuse, exposure to chemicals, or electrically noisy environments.

Industries and organisations that will benefit from this new cable include military, oil and gas, mining, high-speed communications, process control systems, safety and security interconnect and semi-conductor OEMs.

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# Optical fibre production without the compromise

ALL over the world huge amounts of electronic data are transferred every day more quickly and over longer distances. Data transfer is mainly done via cables with optical fibres.

In order to transmit data without loss, optical fibres have to meet the highest quality requirements.

Sikora offers a complete series of measuring and control devices that are used in the drawing tower during the production of optical fibres or in further production processes at the manufacture of optical fibre cables.

The Fibre Series 6000 monitors and controls the entire drawing process and optimises the productivity of the production.

The Fibre Laser 6003 is an innovative device for diameter measurement of bare fibres as well as coated optical fibres.

The measuring principle is based on diffraction analysis – a method that does not require optical elements and moving parts.

The technology is based on the modern CCD-line technique combined with laser diodes as light sources and intelligent, powerful software.

A first gauge head is installed after the preform to measure the diameter and position of the bare fibre.

On the basis of the change in position the gauge head calculates the tension by means of an FFT-analysis.

The single values of the fibre position are graphically visualised by the processor system Fibre Ecocontrol in the form of a scatter plot and ensure highest accuracy.

A second gauge head before the coating measures the cold diameter of the fibre and provides spinning information via FFT of the ovality.

For this position, Sikora offers a gauge head with airline detection, the Fibre Laser 6300 Airline.

This device additionally detects the smallest airlines from 0.5 micrometres. The second gauge head is typically used for diameter control while the the first gauge head after the preform can



▲ Production data of the Fibre Series 6000 are visualised at the processor system Fibre Ecocontrol

realise the control. This is decided by the manufacturer of optical fibres.

A third Fibre Laser 6003 measures the diameter after the coating. In the case of a secondary coating an additional gauge head can be installed.

2,500 measurements per second with high single value precision and a short exposure time of 1.2 microseconds always guarantees the highest precision.

The unique measuring principle assures an accuracy of 0.05 micrometres at a repeatability of 0.02 micrometres.

For continuous quality control a reliable lump detector is essential. With a measuring rate of  $3 \times 100$  kHz the 3-axis Fibre Lump 6003 detects the smallest lumps down to a minimum size of 5µm.

In combination with the Sikora double sensor technology, punctual non-conformities on the surface are detected. The faults are analysed regarding type, dimension, length, quantity and position.

The data provided by the gauge heads is recorded and displayed by the processor system Fibre Ecocontrol. At the monitor the diameter of the bare and coated fibre is displayed.

The exact position in the measuring field is visualised in the form of the scatter plot. In addition, the vibration frequency of the fibre is displayed.

The devices of the Fibre Series 6000 have diverse interfaces such as RS485, RS232, LAN (Ethernet), four analogue outputs (uni-/bipolar) or optional Profibus-DP as well as alternative industrial field buses such as CANopen, Ethernet/IP, DeviceNet and ProfiNet.

Factory-calibrated, they keep their accuracy over the entire life cycle. The optical measuring principle without moving parts assures a mean time between failure (MTBF) of 15 years. Maintenance is not required.

For the production of loose tubes or optical fibre cables sheathing lines Sikora offers innovative technologies.

The company's expert team gladly supports you to find the right product solution for your application: sales@sikora.net

**Sikora AG – Germany**  
Website: [www.sikora.net](http://www.sikora.net)

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# High-speed PlasmaAnnealer for stainless steel and nickel alloy wire



▲ The new PlasmaAnnealer from Plasmaid

PLASMAIT has introduced the new PlasmaAnnealer for continuous heat treatment, degreasing and oxide removal of stainless steel and nickel alloy wires up to 5mm in diameter.

This new machine can be designed for annealing, stress relieving or material hardening applications featuring process speeds of up to 300m/min.

Energy efficient, the high-speed plasma-heating concept allows for accurate targeting of mechanical properties of the processed material. The plasma heating is complemented with an appropriate length dwell zone for annealing of materials with extended recrystallisation time.

Small and homogeneously distributed grain combined with exceptional surface condition improves material susceptibility to cold working, which manifests itself in better drawability and lower drawing die wear rate of plasma annealed materials.

PlasmaAnnealer is equipped with a

vacuum system to ensure controlled inert atmosphere and exceptionally low usage of purging gas.

The manufacturer, who adopted plasma annealing, has recognised the value from low cost of ownership in comparison to traditional tube or muffle furnaces.

The benefits of plasma treatment include more than 60 per cent lower energy use, up to 10 times lower purging gas consumption, in addition to the savings from dry, chemical-free degreasing and surface cleaning. Increased annealing speeds by the factor of 5-10 result in lower capital expenditure in take-ups and pay-offs and associated costs of maintenance.

PlasmaAnnealer suits applications with demanding surface or annealing requirements in the medical, precision mechanical, welding, marine, aerospace and energy sectors.

**Plasmaid GmbH – Germany**  
**Website:** www.plasmaid.com

**Chonghong Industries Ltd.**

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Web: http://www.chonghongmetal.com/  
email: jackychen8325@gmail.com

## Spectrum's Sienna 800 Duo is launched

SPECTRUM Technologies has launched its new model in the Sienna range of laser wire stripping systems, the Sienna 800 Duo.

The Sienna 800 series brings exciting new capabilities to the standard Sienna range with the introduction of high speed single-side scanning optics for the ablation (including stripping and marking possibilities) of a variety of insulation materials.

The Sienna 800 series is designed to house one of three laser types depending on the end application. However, the 800 Duo contains two laser sources – a 50 Watt CO<sub>2</sub> and a 30 Watt YAG scriber.

The 800 series tooling offers a process area of 118mm by 118mm (4.65" x 4.65") and is easy to insert and remove for repeatable processing. The material to be ablated is processed from above and a rotating jig is available to turn the part over to accurately process the underside.

The 800 series is controlled by an integrated PC with colour touch-screen and graphical HMI and USB port to ensure the equipment is simple to operate, and delivers strip accuracies of  $\pm 0.1\text{mm}$  (0.004").

The result is one machine that is capable of fulfilling a number of different end applications including:

- Removal of insulation from hard to strip wire and cables
- Stripping of magnet wire (patented process)
- Stripping of flat laminated cables (FLCs) and other products where the insulation is bonded to the conductor
- Scribing metal shields
- Marking onto various surfaces
- Research and development applications.

**Spectrum Technologies plc – UK**  
Website: [www.spectrumtech.com](http://www.spectrumtech.com)



▲ The Sienna 800 Duo from Spectrum Technologies

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# Production lines for precision micro metal tubes with optical fibres

THE MACHINES, of Switzerland, supplies two fully automated and continuous operating production plants for OPGW applications.

The full supply scope covers a wide range of precision formed and welded metal tubes with optical fibres, like FIST, which are integrated into a number of different end products such as OPGW, OPPC and fibre optic submarine cables.

The precision micro tubes with optical fibres are specified in many different diameters, wall thicknesses and with many different numbers of fibres.

The fibre excess length in the precision micro-tube is controlled and adjusted to suit the application.

The lines are equipped with tape feeding (pay-offs); laser cross welding and tape accumulator for full continuous and non-stop operation. The lines are equipped with high precision tension controlled multi fibre pay-off stations.

The heart of the lines, bringing together the fibres and the metal tape, feature:

- Precision tape guiding and edge cutting, when required
- High precision tape forming benches
- Precisely controlled jelly filling (thixotropic gel compound)



▲ Excellence in production from THE MACHINES

- Robot controlled orbital welding
- Patented welding-seam following and tracking system
- Perfect and fault-free welding with real time vision systems
- On-line welding seam control ECC100 for a 100% quality inspection of the weld
- Trend display, recording and tracking of all relevant process parameters
- Fault-free welding of tubes with tolerances to  $\pm 0.01$  mm

Down-stream operations complete the solution featuring:

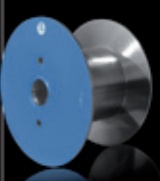


- Draw down stations for exact final tube dimensions
- Drying, cleaning and oil separation unit
- Capstan with precision controlled line tensions throughout the whole process
- Fibre over length station – regulated and fibre slack-length controlled
- Documented during the entire production process
- Auto traversing winding (take-up) for precision winding of spools from 630mm to 1,250mm

THE MACHINES' excellence in production technology covers a wide range of applications and fields of expertise in extrusion lines for drip irrigation systems, stand-alone equipment for drip irrigation systems, multilayer piping, metal tape forming and welding, laser welding as well as all up-and-down stream operations in tape or pipe pay-offs and take-ups.




All equipment and machines are conceived, developed and implemented in-house by THE MACHINES, and supported by technical know-how, engineering and service from a team of experienced specialists.


**THE MACHINES – Switzerland**  
Website: [www.the-machines.ch](http://www.the-machines.ch)

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## Lubrication provides rod anti-friction coat at all speeds

Advertisement on behalf of Decalub

THE innovative LVC/PDH lubrication system provides a high-performance anti-friction coat, reliable lubrication for the most demanding drawing applications, allowing the highest drawing speed with all steel rods/wires, including mechanically descaled uncoated 0.85-0.88 %C rod.

Applications include drawing of spring wire, high-tensile rope wire, PC strand wire, CO<sub>2</sub> welding wire, plating wire, cold heading wire, etc.

The LVC/PDH lubrication system features automatic control of lubrication parameters, including lubricant pressure, temperature and viscosity, enabling the use of standard high melting lubricants (+220°C=428°F) which are converted from solid into liquefied state and instantaneously deposited on bare rod, generating exceptional thermal stability in all drafts at the highest drawing speed, replacing phosphate, borax and their wet pre-coating substitutes, completely eliminating rod residual moisture.

In operation, all these parameters 'communicate' together in a sensitive and automatic multi-way interaction to form a consistent exceptionally adherent full-film anti-friction lubricant coat, weight-adjustable, enabling frictionless drawing by physical separation of wire-die contact in all drafts, eliminating friction heat, greatly increasing die life, providing superior surface quality and improved wire ductility.



▲ Rod coating and lubrication by LVC/PDH system

Typical applications with the LVC/PDH coated rod: Output of 2.2 tonne/hour with 5.5mm 0.83-0.88%C mechanically descaled bare rod, in a 'frictionless' drawing application with die life of 200 tonnes/die in the first draft and a die wear of 0.20 micron/tonne of wire drawn in the last draft.

Spring wire is drawn from mechanically descaled bare rod, without pre-coating chemicals, at 18m/s (3,600ft/min); 5.5mm 0.72 %C rod drawn to 2.35mm at 16m/s (3,200ft/min); 0.5mm 0.85-0.88 %C rod drawn to 4.22mm at 8-9m/s (1,800ft/min).

**Decalub – France**  
**Fax:** +33 1 60 20 20 21  
**Email:** info@decalub.com  
**Website:** www.decalub.com

## Fine magnet and enamel wire stripper

Eraser's model RT2S fine magnet wire stripper will strip film type insulations including Formvar, ML, enamel, varnish, isonel, and more from 28AWG to 48AWG.

The conical wheels rotate at high speed to generate frictional heat which softens the insulation on the wire.

The machine features a strip length stop for consistent strip lengths, a dust take-off port for environmental safety and close-up, multiple-wire stripping capability.

The unit also cleans and polishes leads of small electronic components and removes oxidation and other contaminants from leads as small as 0.0012" diameter.



▲ The RT2S from Eraser

**Eraser Inc – USA**  
**Website:** www.eraser.com

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▲ The MK2 from SKET

## SKET Central Stranders – three generations

SKET Central Stranders have significantly changed modern stranding technology. Maximum cage rotational speeds of 500rpm and linear stranding speeds of up to 180m/min are reached in practical application.

In the manufacture of overhead lines of all types and copper and aluminium wire conductors (round, sector shaped, compacted and non-compact, straight and pre-spiralled) with cross-sections up to 1,200mm<sup>2</sup> or more, the central strander has proven successful over a period of more than ten years. More than 150 stranding units are in operation worldwide.

The market responsibility resulting from this success has led to the engineers and fitters at SKET being involved in a continuous process of optimisation of machine detail and in a programme of further development, which has been in clearly defined stages.

SKET can differentiate between three distinct machine generations.

The basic version of the machine uses entirely mechanical solutions for the functioning of the stranding rotor. Customers have judged this basic design to be of significant advantage and it is also a factor in the reliability and low maintenance characteristics of the machine.

This version remains the one most favoured by the marketplace and is a perfectly good solution for the majority of applications. As is the case with the following two generations, it is designed to provide optimum feed of the stranding stock direct from wire containers making

use of a further advantage relating to stranding with a central strander: bobbin winding, bobbin transport and loading and unloading of bobbins are all done away with.

A second generation made possible the use of the machine together with smaller diameters of copper wire, whilst maintaining the same bobbin pay-off capacity (700kg of copper wire), for example as a screening machine. An adjustable pneumatically operating system operates in conjunction with the well tried and tested mechanically operating friction clutches which control the centrally mounted bobbins.

This system makes possible the starting up of fully loaded bobbins and the maintenance of stretch free tension in the wire with small diameters of soft copper wire (approx. 1.4mm).

Using the same principle, machines (type MKZ 250, with bobbins designed for 550kg aluminium wire) have also been used successfully in conjunction with larger bobbin volumes of thicker aluminium wires.

The development of the third generation was brought about by the extreme requirements related to the tolerances imposed on the conductive values related to finished conductors. With copper prices rising, the exact maintenance of a minimum cross-sectional area became an important cost factor.

For the stranding process, this means that the requirement is for constant tension in each wire irrespective of how much wire is on the bobbin and in all stranding

conditions (starting up, stationary running, slowing down). All tension control solutions using mechanical friction are subject to fluctuating friction values. An electro motor generated coupling torque is much more exact and energy efficient and enables the wire tension to be similarly exactly set and maintained at a constant level.

The centrally located bobbins in machines of the third generation are mounted on coaxially arranged special motors. The motors work on the modern 'torque motor' principle and their torque or speed can be set via an intelligent power converter to guarantee constant tension during the stranding process (using a process patented by SKET). Furthermore, the energy used in the coupling process can be fed back into the mains supply using a suitable control circuit.

This solution has one further significant advantage: the motors used in conjunction with the centrally located bobbins work in four-quadrant mode. They are able to provide the direct drive function to the central bobbins as they are filled with wire. A fill factor controlled motor speed maintains the linear speed at a constant level. The friction wheel system previously required for the winding operation is completely eliminated; only the system for the cylindrical traversing of the wires during the winding operation remains.

Machines of the third generation also differ from their predecessors in their external appearance.

**SKET Verseilmaschinenbau GmbH – Germany**  
**Website:** [www.sketvmb.de](http://www.sketvmb.de)



# X-ray technology tailored to your needs

SIKORA offers two X-ray measuring systems for quality control during cable production.

Customers who measure up to three cable layers during production choose the X-Ray 6000 Pro. For cable production lines where only one cable layer is measured, the X-Ray 6000 Basic is available.

The X-Ray 6000 Basic measures the wall thickness, the eccentricity and the outer diameter of single-layer cables. In particular, in insulation and jacketing lines where only the outer jacket is measured, the X-Ray 6000 Basic is used.

The production data is clearly displayed on a 7" monitor, which is integrated directly in the measuring system. The operation is intuitive via touch-screen.

In combination with the processor system Ecocontrol 600 or 6000 an automatic control of the line is possible. By controlling line speed or extruder rpm the cable parameters are controlled to the nominal value.

The Basic device is a cost-efficient and

at the same time powerful alternative to the X-Ray 6000 Pro, which measures up to three layers of different materials.

With the Basic the operator receives an X-ray device that includes exactly the functions that are required.

For cables where only one material layer needs to be tested, the X-Ray 6000 Basic proves to be an efficient and reliable partner.

The X-Ray 6000 Pro measures the wall thickness, the eccentricity, the diameter and ovality of up to three different cable layers.

This device is suitable for products requiring a precise measurement of the insulation wall thickness of the individual material layers.

The system includes as a standard the display and control device Ecocontrol 6000 with a vertical arranged 22" TFT monitor.

It is either mounted directly at the X-Ray gauge head, a separate stand, or is remotely integrated in the control cabinet of the line control.

As the 7" monitor of the Basic model, the Ecocontrol 6000 is conveniently operated via touch screen and shows all measuring values numerically and graphically as well as trend and statistical data.

The Professional device includes a control of the line speed or extruder rpm under consideration of the minimum values as a standard.

From the very first day of operation, both X-ray devices, the X-Ray 6000 Pro and the X-Ray 6000 Basic, ensure a continuous online quality control at the cable production.

An offline quality control is not necessary. Simultaneously, the systems reduce the wall thickness to a minimum value.

Quality assurance and the reduction of material lead to a significant increase of productivity.



▲ The new X-Ray 6000 Basic for quality control of single-layer products

**Sikora AG – Germany**  
Website: [www.sikora.net](http://www.sikora.net)

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▲ The PWM P1500 is one machine featured in the videos

# PWM launches new cold welding video demonstrations

PWM, leading manufacturer of cold pressure welding machines and dies, has produced a series of videos demonstrating four of its high-performance cold welders in action.

The videos show how PWM's P1500, P1000, EP500 and HP200 cold welders utilise the multiple upset technique to create strong, permanent welds on copper and aluminium wire and rod, without heat, flux or fillers.

Steve Mepsted, managing director of PWM, said: "We have been manufacturing cold welding machines and dies for over 25 years but still find that many wire and cable manufacturers are unfamiliar with the process and the benefits it offers. Cold welding is cleaner and easier than electrical welding and also more cost-effective, particularly for joining large rod sections up to 30mm diameter.

"The videos give manufacturers an opportunity to watch the process from start to finish. They can see how our user-friendly machines operate and view the welds produced by our precision-engineered UK-made dies. These welds are reliable, consistent and stronger than the parent material, and the electrical integrity of the material is not affected."

PWM's EP500, P1000 and P1500 freestanding rod welders cater for wire/rod sizes from 5mm to 30mm (0.197" to 1.181"). The HP200 portable model, mounted on a trolley, is for wire 2mm to 6.50mm (0.079" to 0.256") diameter.

The videos can be viewed at the company's website.

**Pressure Welding Machines Ltd – UK**  
**Website:** [www.pwmltd.co.uk](http://www.pwmltd.co.uk)

## New software, better functionality

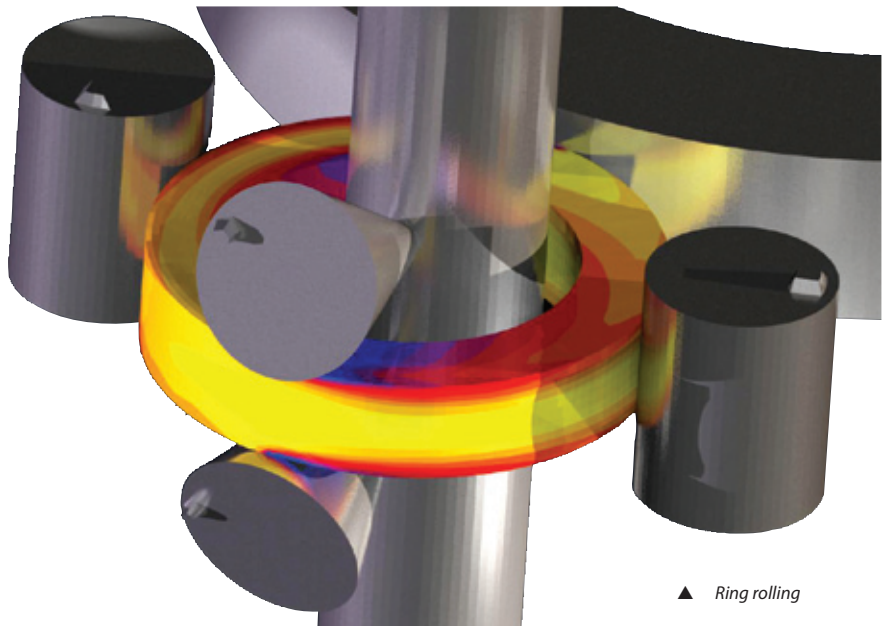
THE Hamburg-based software company Simufact Engineering now offers new versions of its simulation software Simufact.forming and Simufact.welding.

Providing more functionality for a broader scope of application, the new software versions are employed for the design and optimisation of manufacturing techniques in metal processing.

With the new releases, companies aiming to link various production processes (from semi-finished material to finished component) have come closer to their goal of an integrated, cross-process approach in the simulation of entire process chains.

Simufact simulation solutions cover all essential production processes from forging to cold massive forming, rolling, sheet metal forming, mechanical joining, heat treatment, and welding. Interfaces also allow customers a fast and reliable integration of software in their CAD/CAE environments.

A major step forward is Simufact's



▲ Ring rolling

integration of material data in the simulation of forming and joining processes: Simufact.forming 11 and Simufact.welding 3.1 not only offer a multitude of new, experimental material

data; they also provide access to high quality analytical material data.

**Simufact Engineering GmbH – Germany**  
Website: [www.simufact.com](http://www.simufact.com)

# The New Wire Drawing Standard

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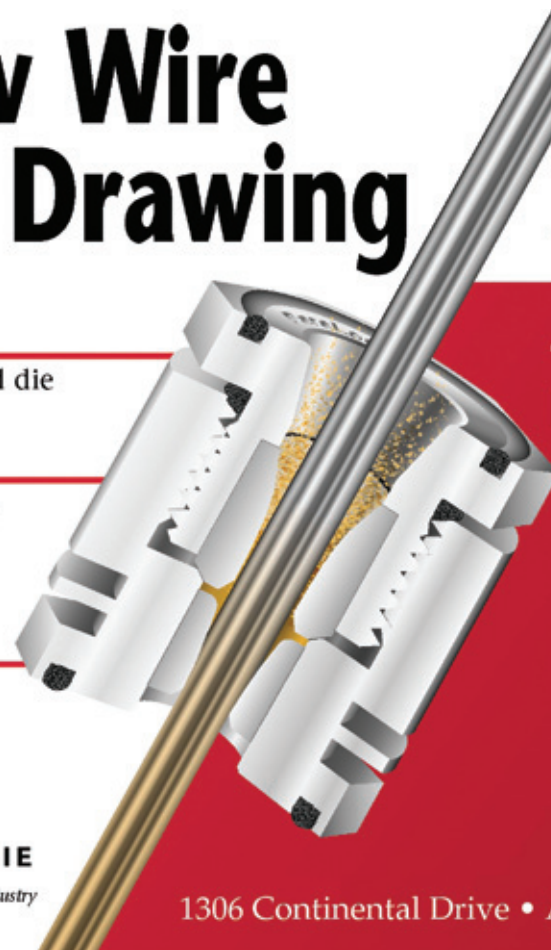
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# New machine, bright new future for PS

PS Costruzioni has recently pioneered its latest cable packaging line model, the new Double Automatic Spooling line, model PS630/15 2B – a result of PS's commitment to material-technology based innovation and product development.

This machine, which has the capability to execute the manufacturing process fully automatically, having the operator purely as a supervisory function, has already been sold and installed by some of the most demanding customers throughout the world, who are taking advantage of its engineering excellence and high level of performance.

Customer feedback on this new product has already been favourable.

Another outstanding strength of this machine, 'ad-hoc' built with distinctive features of reliability and solidity, is the possibility to work on three shifts, immediately giving customers the chance



▲ The spooling phase in the new PS630/15 2B

to maximise their investment.

This line has been conceived to work with the following technical features:

- Spools diameter: from 400mm up to 630mm
- Flexible cable diameter: from 6mm up to 15mm
- Rigid cable diameter: from 6mm up to 10mm

- Flat cable: width from 4mm up to 16 mm
- Thickness from 4mm up to 7mm
- Full spool max weight: 150kg
- Spools wrap material: stretch film.

Linear speed ranges from 0 up to 400/500m per minute, depending on the cable type, the length to be wound and diameter of the reel barrel.

The line consists of:

Driven pay off, accumulator, metre counter plus one spark tester, double automatic spooling head (400/630), labelling machine, automatic pallet unit and an automatic pallet wrapper.

The machine is available in different models, depending on spool dimensions, and customer service provides tailor-made offers.

**PS Costruzioni Meccaniche Srl – Italy**  
**Website:** [www.pscostruzioni.com](http://www.pscostruzioni.com)

# Customised solutions for cable and hose burning

SPECIALISED in the laser engraving of printing rolls made of steel, especially dedicated to the cable and hose industry, siba extends its delivery programme and services by offering a large range of gravure and ring-marking inks and customised solutions for the inline video inspection of printed materials.

The print quality is essential and a video inspection is the solution to contain the production costs.

For any kind of printing method, an inline video recognition of marking errors during the production process will immediately reduce rejects and follow-up costs caused by complaints.

Inline video inspection cannot only check the marking quality, but also

the brightness, the colour or contour measurement, as well as the material deformation.

The system is scalable, combinable with other inspection systems, and additional customer features can easily be added and integrated in each specific environment.

siba is not simply offering high quality goods at competitive prices, like engraved wheels mirror polished, bright printing inks and tailor-made inspection solutions, but an accurate comprehension of customers' problems, thanks to the experience of its staff acting in this branch for many years.

In barely two years, this young and dynamic team and its innovative approach to the markets allowed siba to reach a recognised position in the cable and hose

industry, and to play a significant role in the market as reliable supplier.

Equipped with the newest engraving technologies, oriented on tailor-made solutions, siba matches its customers' specific requirements with its famous sense of service and technical knowledge. Accuracy in customer assistance, quality in goods and rapidity in delivery remain the key words and the guideline.

To strengthen its commitment in terms of quality and reliability siba is completing now the whole ISO certification procedure, in order to be certified ISO 9001 till the end of 2012. A milestone for the future, but above all a step further to the success.

**siba GmbH – Germany**  
**Website:** [www.sibaweb.de](http://www.sibaweb.de)

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# Steel wire, rod & rope production

**T**he superbly engineered and complex apparatus reviewed here provides a starting place for a seemingly limitless array of carbon steel and stainless steel wares, in applications from a dentist's drill to a crane tall as a skyscraper.

Such versatility is possible only with designed-in acceptance of a broad range of criteria imposed by customers without end-product inhibitions: galvanized, bright, lubricated, dry; round and compacted; tensile strength, hardness, weldability; sizes from 1mm up to 83mm and beyond.

The website of a manufacturer of steel wire

rope asks an interesting question about the company's highly evolved product.

With its mass of wires moving together, in unison and harmony, and bending in response to defined and lengthening factors – all the while resisting the effects of heat, fatigue, rotation, crushing, and metal loss and deformation – is the wire rope itself perhaps entitled to be called a machine?

Probably the providers of the products and services featured in this section of EuroWire would not go so far. But they will understand the thinking behind the question.

## Unique cleaning

Manufacturing wire and cable, rods, tapes, tubes and fasteners requires lubrication. Before further processing, such as galvanising, extrusion or welding, the lubricant residues need to be cleaned off. Hielscher Ultrasonics offers a unique ultrasonic cleaning process for efficient inline cleaning.

Ultrasound is well known for its capabilities in the cleaning of metal parts. There are two working principles. Firstly, there is an oscillation of the cleaning liquid itself that causes a movement of the liquid in relation to the parts to be cleaned. Secondly – and more importantly – is the cavitation caused by high amplitudes. Cleaning is often a bottleneck in the wire production line.

High power combination with high efficiency makes high cleaning speeds possible at reasonable costs. Furthermore, these devices should be run-dry protected to ensure that the systems won't be destroyed by a simple error such as a pump failure or the missing maintenance of the liquid tanks. This protection is accomplished by holding the amplitude constant and by this preventing it from rising above critical limits as a consequence of the missing load.

Hielscher Ultrasonics has developed and installed such high-power ultrasonic processors in industrial wire cleaning systems. They meet industrial requirements in performance, efficiency and reliability.

The high frequency in combination with the high amplitudes causes extreme accelerations, which the liquid cannot follow. Since the forces become higher than the adhesion and cohesion within the liquid and between liquid and oscillating surface, small vacuum bubbles emerge. These bubbles implode after growing to the critical limit of approximately 100µm. This effect is called cavitation.

These implosions create shock waves and liquid streams of up to 400km/h. These conditions will overcome the surface tension of wire contaminations (drawing oil, lubricants, grease, stearats, resins, etc).

The intensity of the emerging cavitation rises with an increase in amplitude. Furthermore, the cavitation will be stronger for lower frequencies such as 20kHz. Frequencies below 20kHz are not really applicable, since they are within the audible range.

With a rise in frequency, the cavitation reduces. Since the intensity of the ultrasonic oscillations and the induced cavitation diminishes very fast with the distance from the sonotrode, a low distance between sonotrode and the wire to be cleaned is necessary. The sound intensity equals the ratio between power input and liquid volume. Thus, the intensity increases with an increase in power and with a decrease in liquid volume.

For the application of ultrasonic wire cleaning in the industry the ultrasonic components have to be integrated in a complete system. Such a system consists of the high-power ultrasonic processors, liquid circulations and drying. To increase the efficiency, the liquid circulations are supplied with filter cartridges and oil skimmers to extend the maintenance cycles and to reduce the consumption of chemicals. The liquid tanks are installed in double version and change automatically for maintaining the inactive tanks.

Besides the technical parameters, costs and benefits are important, when considering investing in alternative wire cleaning systems.

The costs of an ultrasonic wire cleaning system are the sum of the investment costs and the operation costs. The initial investment costs result from the purchase price, installation costs, training and required space. Operation costs include labour, power consumption, maintenance, cleaning liquid consumption and costs of the disposal, pressured air, spares and required space for set-up.

One advantage of the ultrasonic wire cleaning described above is the in-line cleaning. In comparison to batch cleaning (such as acid cleaning baths) costs are reduced by a decrease in necessary operating steps. In addition, the continuous in-line cleaning reduces the number of interruptions in the production process.

**Hielscher Ultrasonics GmbH – Germany**  
**Website:** [www.hielscher.com/wire](http://www.hielscher.com/wire)



▲ A complete tape cleaning system with high-power ultrasonic processors and three separate pairs of tanks

Many companies still clean coils of wire in acid baths. This is a non-continuous batch process – consuming time and chemicals. Cleaning the wire inline with the other production steps leads to continuous production. Furthermore, speeding up the cleaning often enables the company to make use of the capacity of the rest of the line.

For industrial wire cleaning, powerful ultrasonic processors are needed that can run continuously.

## Ropes for all

Chonghong Industries manufactures and supplies galvanised aircraft cables, steel wire ropes of various structures and specifications, brake wires for cars, motorcycles and bicycles, stainless steel ropes, non-rotating steel ropes, elevator wire ropes, and wire ropes for special uses. The company's current annual capacity is 4,000 tons of galvanised steel ropes.

Backed by a complete line-up of production equipment, advanced testing measures, and experienced staff, Chonghong can guarantee a reliable and quality product. The company exports to more than 60 countries in the EU, North America, South and Central America, the Middle East and Southeast Asia.

**Chonghong Industries – China**  
**Website:** [www.ch-industrial.com](http://www.ch-industrial.com)

► Chonghong exports to more than 60 countries



## Exotic alloys and emergency service

Alloy Wire International is a manufacturer in exotic alloys like Inconel, Monel, Hastelloy and Nimonic, which are used for the production of springs, specialist seals, fasteners and other demanding applications for industries where an aggressive environment is encountered. Starting from as large as 21mm wire, they make the wire (either round, flat or shaped) to any customer size down as far as 0.025mm. Spring makers and other customers like the fact that there are no minimums – with some customers ordering just three metres of wire for the job in hand.

AWI has won worldwide customer accreditation for making and delivering wire quickly – with a typical turn around time of three weeks.

And when that's not quick enough – for that occasion when, for example, an aircraft or oil platform or naval vessel needs a spring or springs within days, AWI manufactures the spring maker's wire via its emergency manufacturing service.

AWI is an expanding company. Its recent investments in brand new equipment such as multi-zone annealing furnace and 250kN Zwick tensile tester, and 100 per cent factory expansion are part of its programme to retain preferred supplier status for the long-term future.



▲ The Alloy Wire International plant

AWI's shaped wire division has seen similar commitment to its future with the acquisition of a new larger factory, the installation of CNC equipment, roll profile grinding and wire straightening and cutting machines.

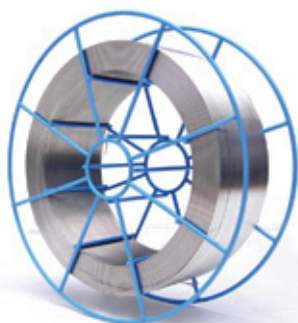
Its customers are as diverse as model rail profile to wire profile for aero engines.

**Alloy Wire International – USA**  
Website: [www.alloywire.com](http://www.alloywire.com)

## Worldwide appeal

Nevatia Steel & Alloys is an ISO 9001:2008, ISO 14001:2004 & OHSAS 18000:2007 accredited company, incorporated in 1988 for manufacture of stainless steel wires.

The company's manufacturing facilities are strategically located close to the port of Mumbai, India, and have a capacity of 9,000mt per annum.



▲ Meeting international standards

Over the years, its products have been exported to a large part of the international community with major destinations including North and South America, Australia, Canada, Europe, South Africa, Israel, Korea, Turkey and Vietnam.

The Nevinox® brand MIG (GMAW) and TIG (GTAW) stainless steel filler welding wires have recently been accredited with Deutsche Bahn (DB) approval in addition to prestigious approvals from Bureau Veritas for marine applications, TUV for pressure vessels and equipment and the CE Mark.

**Nevatia Steel & Alloys Pvt Ltd – India**  
Website: [www.nevatiasteel.com](http://www.nevatiasteel.com)

Nevatia Steel wires are manufactured in compliance with international standards of quality and are in accordance with customers stringent specifications. Wires are made in a variety of grades (AISI 201, 202, 204Cu, 304, 304L, 316, 316L, 302, 303, 302HQ, 314, 321, ER308L, ER309L, ER316L, ER 347, 310, 410, 420, 430, 430L, etc) in the size range of 0.10mm to 12mm in wire and in the size range of 2mm to 6mm in bright bars, having demanding applications in various fields like braiding, knitting, weaving, cold heading, redraw, spring, electro-polish, nails, staple wire, MIG, TIG, core for welding electrodes and general purpose.

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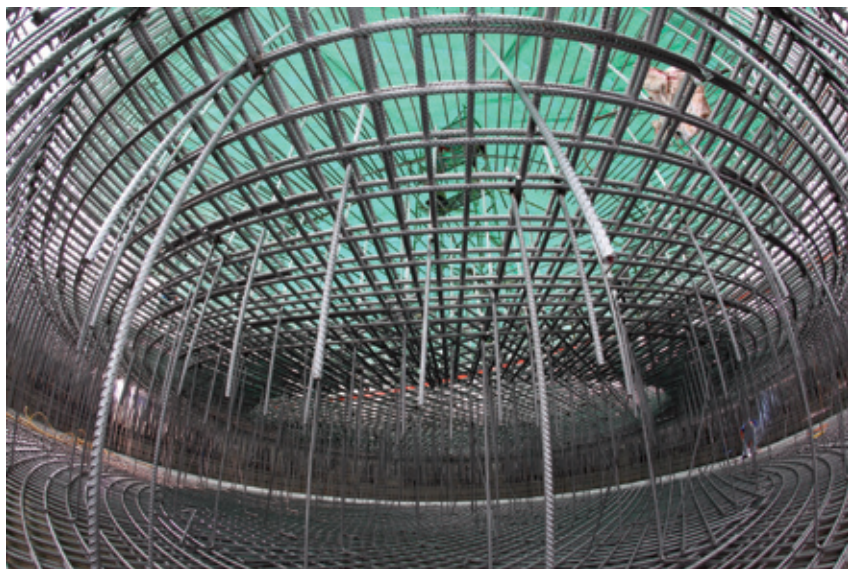
**NEW 001TS series solves the problem of high-temperature mounting, and will meet the highest finish specifications.**

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**Europe branch:**  
Company: SFD Europe  
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Tel: +39-011-6603313  
Fax: +39-011-6608733  
E-mail: [sfdenlope@gmail.com](mailto:sfdenlope@gmail.com)

# Stainless steel rebar for 1,000 years

Corrosion of steel reinforcement is the main cause of premature failure of concrete structures in the world today. Stainless steel rebar is an insurance against corrosion and spalled concrete. To ensure long life spans, stainless rebar has been used successfully in highly demanding structures, including bridges and other road infrastructure, which show no signs of deterioration after decades of service.



▲ *Stainless steel rebar used in a temple construction in Thailand*

Using stainless steel reinforcement (or SSR for short), the long-term cost is often lower than for normally used carbon steel as a result of reduced maintenance costs. Outokumpu provides stainless SSR in several grades. The latest addition in the family is the lean duplex designation, LDX2101®.

A good example of sustainable solutions enabled by stainless steel rebar is the Gateway Upgrade Project, the largest road and

bridge project in Queensland's history in Australia which was completed in 2011. To ensure a long lifespan, the bridge design specifies duplex LDX2101® stainless steel reinforcement bar in the most critical bridge structures – the splash zones of the two main river pylons. By using stainless steel for about two per cent or 130 tonnes of the steel reinforcement in the bridge, it was possible to increase the planned lifetime of the whole structure.

The new bridge now has a design life of 300 years. At the same time overall life cycle costs were considerably lower, and it was possible to create a lighter structure.

Another example of using lean duplex rebar can be found in a Buddhist temple in Chounbri province in Thailand.

The very ambitious goal of the project is to have the temple to serve for more than 1,000 years. To ensure this, stainless steel rebar is used in the most critical concrete structures, particularly in the groundwork and in the pagoda.

As in these cases, stainless steel is specified selectively for parts where it makes a positive contribution. In this way, structures can be built either with no extra cost or for a lower cost than by using carbon steel reinforcement. LDX 2101® offers a cost-effective alternative for durable reinforced concrete structures. Due to its

good price stability, LDX 2101® offers construction projects vitally important predictability in costs.

The win-win outcome from the use of LDX 2101® rebar is much improved sustainability in our constructed environment.

**Outokumpu – Finland**

**Website:** [www.outokumpu.com](http://www.outokumpu.com)

## Complete service

GER SA Belgium has specialised in the sale of new and second-hand machinery for the wire and cable, ferrous and non-ferrous industry since 1980. For sale are single machines and complete plants for steel rod and wire, non-ferrous wire, steel ropes, electrical insulated cables, etc.

A large stock of machinery immediately available guarantees quick help and in case the customer doesn't find the equipment he is looking for in the listing, GER will search for the machine needed. Amongst them there are rod breakdown machines, fine and intermediate single or multi-wire drawing machines, bunchers, cage and tubular stranders, laying-up machines, armouring machines, drum twisters, extrusion equipment, spoolers, coilers and take-ups.

Worldwide exports and selling the machinery in the as-is condition or, upon request, reconditioned and modernised make, GER a strong partner for the industry. The sales department can also send an estimate for complete, ready-to-use production units.

GER also offers brand new electrical control systems, using state-of-the-art drives and components. Test-runs of the machines before shipment as well as installation and commissioning of the machines at the customer's plant and at the same time training for the operators complete the service for the customer.



▲ *New and second-hand machinery from GER*

**GER SA – Belgium**

**Website:** [www.ger.be](http://www.ger.be)



## Perfect winding with precision take-ups

Roblon take-ups offer precision winding at high speed (up to 300m/min) and can be used directly in the production line or as part of a rewinding line. Fitted with a precision unit for winding of round, rectangular and figure-8 materials they ensure perfectly wound reels.



▲ Precision is the name of the game for Roblon

The take-ups are ideal for winding of wires, cables and plastic and steel tubes. The perfect positioning of material means longer lengths per reel and higher pay off speed of material during installation/use. When the reel is traversing, the sensitive die holder automatically controls the traversing speed in order to obtain a correct position of the dies.

A sensor detects the flanges of the reel and changes traversing direction when the dies reach the flanges. This means no settings of end stops, even when changing reel size. During operation the lifting arms are adjusting the horizontal position of the drum in order to maintain a constant winding point. The traversing reel and the automatic height adjustment have very little influence on the product. The take-ups operate with a constant tensile force and the fixed winding point ensures no strain on the product.

Roblon precision take-ups are easily integrated into new or existing production lines and can be controlled by the line control. Because the take-ups are 100 per cent automatic the need to manually monitor the winding is eliminated just as there are no health and safety issues associated with guiding the cables to the reel. Furthermore, Roblon precision take-ups can be supplied with fencing according to machine directive 2006/42/EC. The Roblon precision take-ups can wind materials ranging from Ø2-20mm and are supplied with easily exchangeable pulleys for different product diameters.

Roblon A/S – Denmark

Website: [www.roblon.com](http://www.roblon.com)

## Customers on a global scale

Goodcomer has been producing aluminium ferrules for wire rope in Taiwan for over 25 years.

The company is able to supply seamless aluminium ferrules in sizes from 8mm to 102mm according to EN13411-3 (DIN3093), standard (seamed ferrules for sizes 1mm to 7mm are also available).

ISO 9001 certified since 2010, Goodcomer has an excellent reputation with customers from Singapore, Japan, Hong Kong, Korea and Dubai.

Goodcomer Co Ltd – Taiwan  
Website: [www.goodcomer.com](http://www.goodcomer.com)

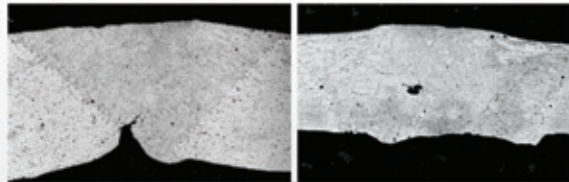
▼ Goodcomer supplies ferrules for wire rope



# THE MACHINES

EXCELLENCE IN PRODUCTION TECHNOLOGY

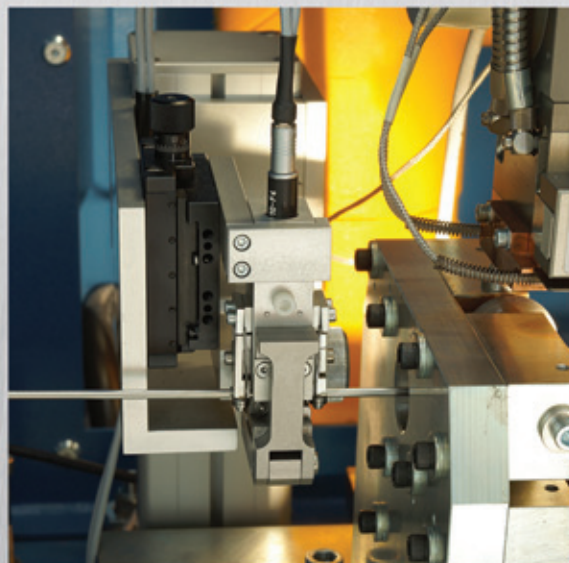
## In-line weld quality monitoring



## Weld seam inspection Internal crack observer

### ECC100 - ICO quality system for weld seam inspection and internal crack observer

- ✓ Multichannel remote field Eddy current testing
- ✓ Non destructive testing with high sensitivity
- ✓ Detection of small and hidden defects
- ✓ Alarm signals and trend monitoring



T.H.E. MACHINES  
Switzerland

[info@the-machines.ch](mailto:info@the-machines.ch)  
[www.the-machines.ch](http://www.the-machines.ch)



# Reaching the market globally

Hasçelik Group, a leading Turkish aluminium and steel manufacturer, has four plants dedicated to producing and exporting worldwide. The company has been producing the following products since 1989:

#### Has Celik cable plant

- All aluminium conductors (AAC)
- All aluminium alloy conductors (AAAC)
- Aluminium conductors steel reinforced (ACSR)
- OPGW composite optical grounding wire
- Aluminium clad wire and strand alumoweld
- 9,5 EC grade aluminium rod
- Aerial bundled cables (0.6-1kV ABC Cables)
- Underground 0.6-1 kV aluminium power cable NAYY, NA2XY
- From 6kV to 66kV underground XLPE insulated copper or aluminium power cables

#### Coreal cable plant

- All aluminium alloy conductors (AAAC)
- Aluminium conductors alloy reinforced (ACAR)
- Aluminium conductors steel reinforced (ACSR)
- All aluminium conductors (AAC)
- Aluminium alloy wire rod 9.5-12mm EC Grade, 6000 Series

- Aerial bundled cables (0.6-1kV ABC cables)
- Underground 0.6-1 kV aluminium power cable
- XHHW-2, SER, SEU LV aluminium building wires
- LV service drop aerial bundled cables
- 600 volt UD cables

#### Has Celik steel wire rope plant

- Galvanised, single stranded ropes as earth wire
- Galvanised and bright steel wire ropes for different applications and purposes from 8mm to 70mm
- Galvanised, stranded steel wires for ACSR steel core and suspension wires for telecommunication cables

With modern facilities, equipment and technologies, plus engineers with many years of experience in production, Coreal and Hasçelik are producing steel and aluminium products in accordance with world standards such as EN, ASTM, BS, GOST, DIN, UNE, IEC, IEEE and NFC. With a strong commitment to quality, the company has developed a quality control team inspecting quality throughout every phase of the production.

#### Hascelik Halat San Tic AS – Turkey

**Website:** [www.hascelik.com.tr](http://www.hascelik.com.tr)

[www.coreal.com.tr](http://www.coreal.com.tr)

## £30m site to produce world's largest multi-strand ropes

Bridon International is launching a new £30 million state-of-the-art factory that will produce multi-strand ropes in gross piece weights of up to 650 tonnes – making them the largest and most complex in the world.

This will enable Bridon to keep pace with the ambitions of the oil and gas industry, supporting operators in reaching greater depths and working in more challenging environments. Enabling the manufacture of such vast and complex ropes, the world's largest 'rope closing' machine has been installed at the facility.

The closer is used to form dozens of strands of wire into a single finished rope and is the first of its kind capable of making a 600 tonne rope in a single pass, enabling the production of longer and higher capacity ropes in a single piece and avoiding the need for multiple passes. The Bridon Neptune Quay site, which is located on Newcastle's Tyneside, will be fully operational by January 2013. The site's deep-water portside location

will allow Bridon to use innovative loading solutions to reduce both delivery timescales and order lead times for customers.

Jon Templeman, chief executive of the Bridon Group, said: "The ropes produced at this state-of-the-art facility will expand the boundaries of the possible for customers across the sector.

"Bridon Neptune Quay has been built to help us solve our customers' most significant technological challenges – whether it is reaching new depths off the coast of Brazil or operating in some of the most challenging environmental conditions on earth.

"This factory, which is the most advanced of its kind ever built, is a crucial part of Bridon's work to become the global technology leader in wire and rope solutions."

#### Bridon International – UK

**Website:** [www.bridon.com](http://www.bridon.com)



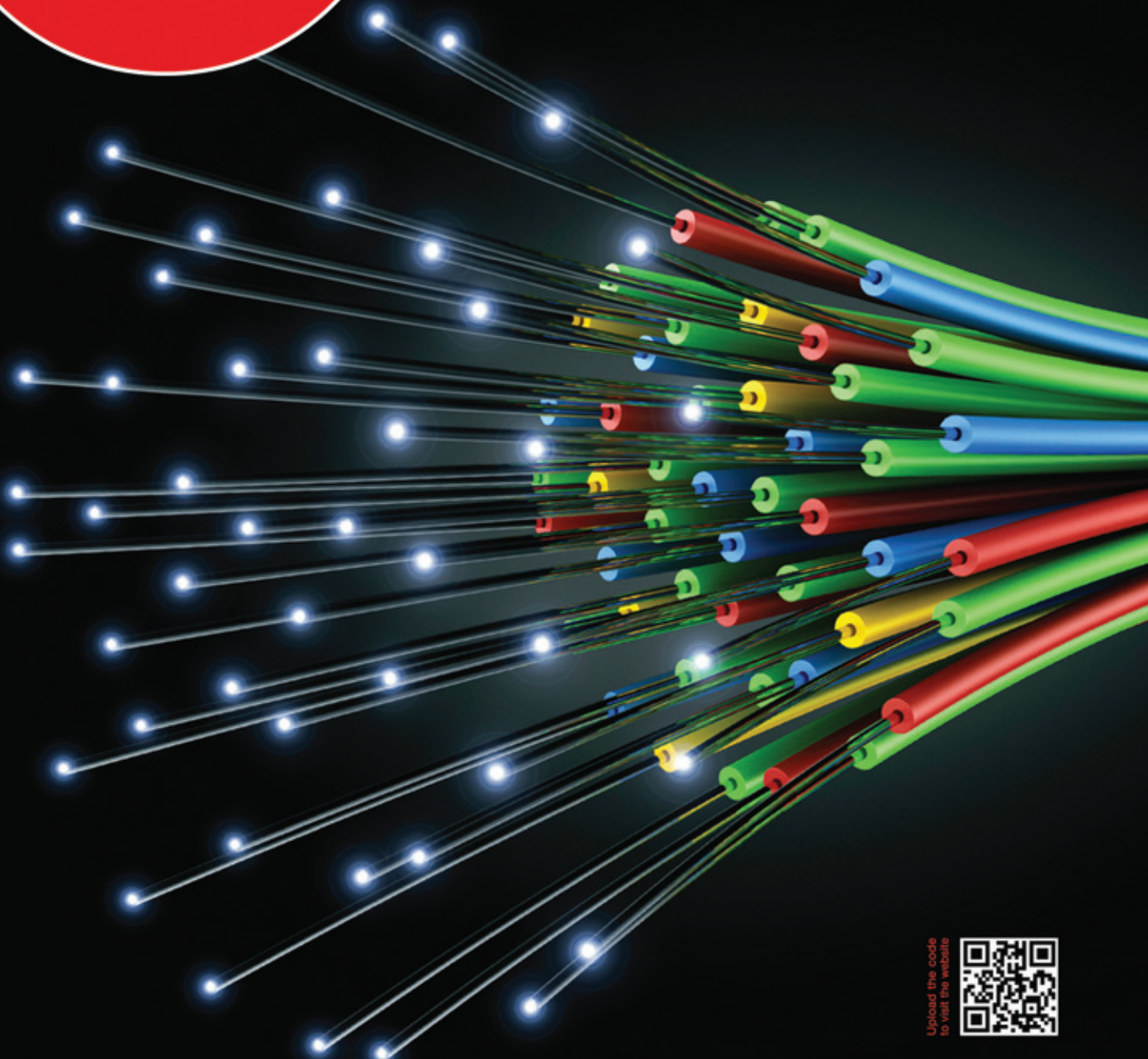
▲ The world's largest and most complex multi-strand ropes will be made at Bridon's new site in Newcastle, UK

15-18 NOVEMBER 2012

5<sup>th</sup> Cable & Wire Fair

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NOVEMBER 11<sup>th</sup>-14<sup>th</sup>, 2012

Providence, Rhode Island, USA

WEBSITE [WWW.IWCS.ORG](http://WWW.IWCS.ORG) TEL: +1 717 993 9500

# 61<sup>st</sup> IWCS conference at Rhode Island

Rhode Island Convention Center, Providence, USA, is the venue this month as the 61<sup>st</sup> International Wire and Cable Symposium arrives in town.

This well respected conference and exhibition is the premier technology event in the wire and cable industry where product design, materials, applications and processes are presented in a symposium format.

For more than 60 years, the IWCS – a non-profit organisation – has planned, promoted and coordinated the exchange of technical information on wire, cable and fibre optics within industry and government. And this year is no exception over the week where industry experts deliver speeches and white papers on changes during the last 12 months.

In addition to this, the programme includes professional development courses on Sunday,

### ▼ Suppliers Exhibition

10<sup>th</sup> November providing tutorials on basic and emerging technologies, and a suppliers exhibition with more than 100 companies on display.

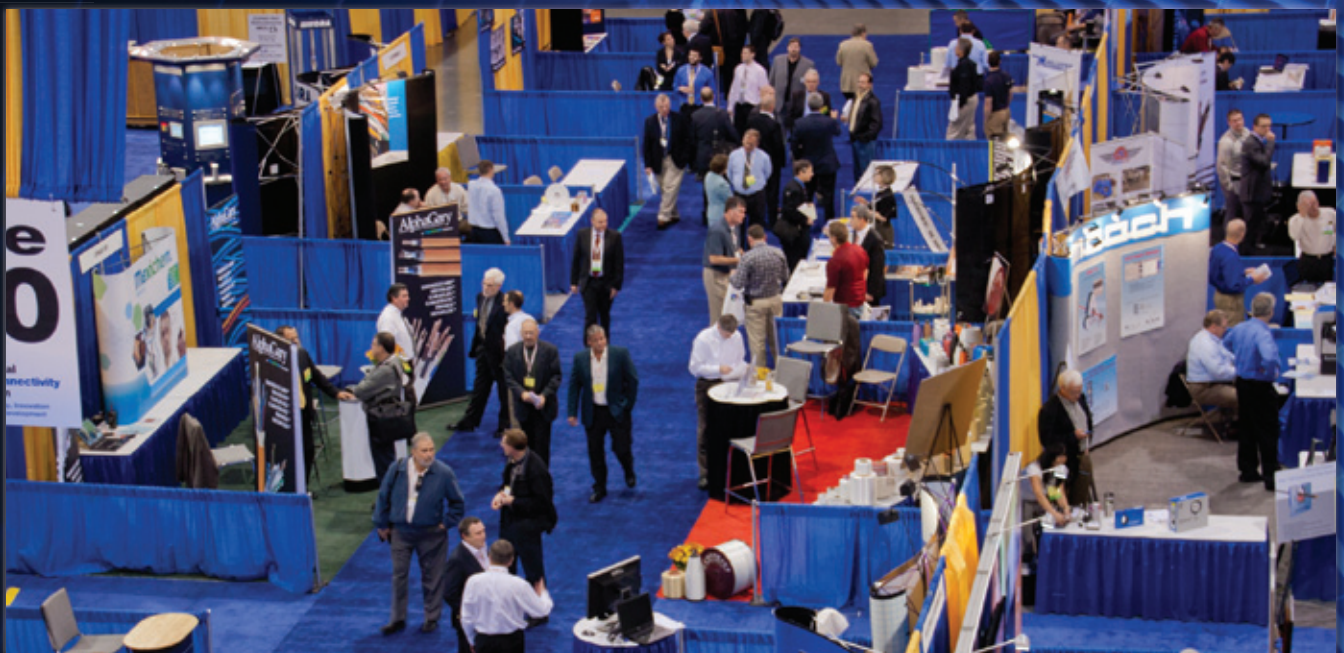
This year's event also sees a return of the popular Monday night football, hosted by Cable Components, in the ballroom from 6pm on the Monday, 11<sup>th</sup> November.

This year's event will see Troy Brown, a former wide receiver with the New England Patriots, giving opening comments and signing autographs.

The conference gets underway on Sunday, 10<sup>th</sup> November, with personal development courses, followed by 17 sessions on Monday, Tuesday and Wednesday.

The exhibition runs on Tuesday from 2pm-6pm and on Wednesday from 10am-6pm, again at the Rhode Island Convention Center.

- More information and company booth descriptions will be available in the November issue of our sister publication, *wiredInUSA* ezine, at [www.wiredinusa.com](http://www.wiredinusa.com)



# IWCS 61<sup>st</sup> Conference 2012 exhibitor listing

AGC Chemicals Americas Inc .....	401	Nabaltec AG .....	331
AKSH Technologies Ltd .....	402	NEPTCO .....	100
AlphaGary Corp .....	113	OFS .....	109
Amaral Automation .....	117	OptEM Engineering Inc .....	224
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American Kuhne/AW Machinery .....	412	PE fiberoptics .....	328
Arkema Inc .....	424	Photon Kinetics Inc .....	208
ASI/Silica Machinery LLC .....	300	Pittsfield Plastics .....	335
Aurum Chemicals Corporation .....	323	PrintSafe .....	125
AW Machinery LLC .....	412	PROMET International Inc .....	239
Beta LaserMike .....	135	Prysmian .....	430
Borealis Compounds Inc .....	305	Roblon A/S .....	218
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Guill Tool & Engineering Co Inc .....	220		
Hoowaki LLC .....	231		
Huestis .....	302		
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Intras .....	330		
j–fiber .....	400		
Joe Snee Associates Inc .....	414		
JM Huber Engineered Materials .....	206		
King Industries .....	407		
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MGS Manufacturing Inc .....	209		
Miltec UV .....	308		
Mossberg Associates Inc .....	330		

## ▼ IWCS Executive Forum



# Focus on USA

## The United States of wire and cable

Customer service is number one in America as companies, large and small, show their dedication and expertise



### Drawn wire from family-owned firm

Phifer offers a vast range of drawn wire products, all made in the USA in state-of-the-art manufacturing facilities located in Tuscaloosa, Alabama.

A family-owned and-operated company, Phifer has 60 years of wire drawing experience and is an international leader in the manufacture of aluminium round wire for a wide variety of applications. Phifer has some of the most diverse capabilities in the industry, producing

◀ Part of Phifer's range



Photo: Bigstockphoto.com - 'The Statue of Liberty & New York' by Gary 718

Packages include coils and stem carriers from 14kg-680kg (0.032" to 0.4375"), fibreboard drums, and over 40 spools and reels.

Innovative machinery has expanded and improved Phifer's selection, especially for manufacturers of rivets, staples and other fasteners. Phifer also offers chemical processing and cleaning for improved appearance and enhanced performance.

Phifer is ISO registered and employs a large international sales staff fluent in many languages.

The company exports to over 100 foreign countries and holds the Presidential "E" and "E-Star" awards for export excellence.

**Phifer Incorporated – USA**  
**Website:** [www.phifer.com](http://www.phifer.com)

## Testing in less time with higher quality results

Beta LaserMike offers the DCM ES-2G cable test system for the automated testing of category LAN/data cables.

The DCM ES-2G is an ideal bench-top test solution for compliance testing of high-performance, individually shielded, twisted-pair Cat 7/7a cables up to 2 GHz.



▲ The DCM ES-2G cable test system

The ISTP test heads provide an easy means for connecting the Cat 7 cable under test to the test system, minimising external influences and providing proper isolation.

A UTP cable fixture extends the testing range, enabling cable producers to test non-individually shielded, twisted-pair Cat 5/6 cables.

The base unit includes the automatic switching and baluns needed to interface the cable under test to an external vector network analyser. The DCM ES-2G is also suitable for testing upcoming 40-Gigabit ethernet cable applications.

The heart of the system is the Windows-based software engine that includes a simple, easy-to-use test programme with automatic comparison to the test specification, full test reporting, and data management.

**DCM Industries – USA**  
**Website:** [www.betalasermike.com/dcm](http://www.betalasermike.com/dcm)

custom aluminium round wire from numerous alloys in diameters 0.11mm-11.1mm.

Applications include coaxial cable braid shielding, shipboard cable armouring, hose braiding, rivets, weaving wire, industrial knitting, wire forms, tea bag staples, semiconductor bonding, medical devices, stranded power cables, fencing, hinge pins and food packaging clips.

Newer products include copper clad aluminium, low carbon steel and bronze wire 0.127mm-0.50mm (0.005"-0.020"). Available packages for fine diameter wires include numerous returnable and disposable spools 0.34kg-14kg (0.75lb-30lb).

Phifer also offers new precision-winding capabilities for aluminium thermal spray and metallising applications.



## Dedication is what it takes

Keir Manufacturing is an American-based manufacturer of high-purity 99.8% Alumina ceramic guides, the Frontiersman™ line of air wipes, and composite flyer bows serving the global wire and cable industry.

The company is dedicated to making products that enable manufacturing processes to run more efficiently and productively through the application of leading edge materials. The solutions are focused on process improvement, energy savings, and longer operating life.

Keir's patented SureShot and SplitShot air wipes provide a far more effective drying method that does not depend on high-volume air consumption. The efficient design yields effective drying using a very low volume of compressed air and lasts much longer than other brands due to the rugged ceramic insert lining the wire path. This equates to over 25 per cent reduction in compressed air usage and an operating life of years versus months.

Keir's triaxially braided composite Standard and BackBone™ flyer bow constructions have greater durability than layered/laminated designs allowing them to take more hits and endure higher stress yielding increased operating life and less machine downtime.

The more aerodynamic BackBone™ design functions at lower power consumption and higher TPM with improved wire quality and a further reduction in bow breakage. Up to 40 per cent less energy (AMPS) is used along with a decrease in wire scrapped.

**Keir Manufacturing Inc – USA**  
**Website:** [www.keirmfg.com](http://www.keirmfg.com)

## Stripping and twisting for tiny cables

Tenborg Technologies has launched the new Nitronic ST215W stripping and twisting machine with way-back, especially designed for tiny cables and wires with diameters of up to 50awg.

The precise and repeatable stripping of hard to strip micro-coaxial cable, teflon, kapton and kynar is guaranteed by the fully adjustable centring unit and proven four-blade system. The centring unit, with its infinite adjustability, allows you to centre the wire or cable relative to the blades.

This system provides precise centring but without transferring any pressure to the cable. This prevents any damage or marks on the insulation and allows for the processing of micro-coaxial cables.

Stripping on the ST215W can be accomplished with or without rotation. The new feature is the infinitely adjustable 'wayback'. This function allows for the blades to open a few hundredths of a millimetre or a thousandth of an inch before the withdrawal. This again increases the stripping quality, especially when these small cables have such tight tolerances in diameter.

Key benefits include a sensor activated start cycle (optional foot pedal activation), easily adjustable blade feed rates, quick length and diameter control and safety shield/slug guard.

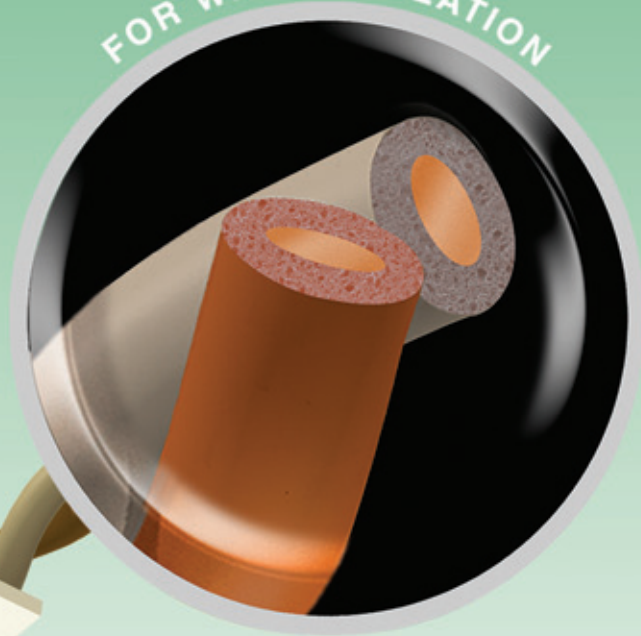
**Tenborg Technologies LLC – USA**  
**Website:** [www.tenborgtechnologies.com](http://www.tenborgtechnologies.com)



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**UL Recognized -  
Plenum (CMP) Cable - QMTM2**

**U.S. Patent No. 7,968,613  
Pending European Patent Application  
No. 11169333.9**



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**ISO 9001:2008 REGISTERED**

## 200 years of expertise

The combination of all the companies within Numalliance™ makes an impressive 200 years of expertise.

Latour turns 140 in 2012 and displays a new line of Robomac® twin heads.

Multiple option on feeding as well as straightening, the group has certainly taken advantage of its know-how to reduce the last interbend to 50mm (2") and give additional push bending and 180° bend on the machine.

More than 30 years ago, the current president and chief executive, Joel Etienne, founded Macsoft.

A small player in the beginning, Macsoft has always been the spearheading innovation in the CNC wire business, putting innovative and unprecedented solutions on the market.

Macsoft teamed up with another firm, Satime, to provide a more integrated solution and secondary operation.

The partnership grew in a merger when Numalliance™ was founded and integrated with Latour.

With a total over 200 years of expertise, the natural slogan for Numalliance™ is 'beyond bending'. To celebrate the group has launched a line of Twin Head benders, based on the Robomac® Touch and Form bending technique.



▲ Experience and knowledge from Numalliance

The line has already gained a huge momentum in the industry. The basic version of the bender has only six servos but the machine has room so up to 14 movements can be combined.

From the feeding source a selection of options are available. The standard machine comes with a 4m (12ft) bed

and loads the pre-cut wire from the magazine located in the back.

Alternatively the machine can grab a wire from a coil and position the wire directly on the bending head or that same feed line can deliver the straightened wire to the hopper in the back.

Straightening can be conventional or rotary. Also standard is the retractable centre that gives the 3D to the part enabling one last interbend of 50mm (2").

The machine uses the same user-friendly interface as its feed and form counterpart, the Touch & Form, and offers the teach-in pendant as part of the trouble shooting programming. Tooling is compatible with all the Robomac® line.

The Robomac® 21xx comes with an optional control feature that enables push bending wire up to 12mm (0.45"), and is capable of bending 180° in one movement.

**Numalliance – USA**  
**Website:** [www.numalliance.com](http://www.numalliance.com)

## WET WIRE? Try Frontiersman Air Wipes



**Frontiersman Air Wipes** dry quietly with minimum compressed air. With replaceable, wear resistant ceramic inserts, the **Frontiersman Air Wipes** last longer.

We also manufacture ceramic guides and components



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**USA**

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## New website with new features

The Eraser Company, a manufacturer of wire, cable and tube process equipment, has launched its new website, [www.eraser.com](http://www.eraser.com)

Solutions to wire processing needs are now at your fingertips! The site's homepage welcomes visitors with a clean, uncluttered design and easy navigation. Features of the site include:

RSS feed, blog, testimonials, insert wizard, product videos, dynamic search, website translation, detailed images of products, Eraser certification programme and links to product operating manuals.

Coming soon are live chat, the wheel wizard, online ordering and an interactive catalogue.

Since 1911 a wide variety of industrial manufacturing companies have taken advantage of Eraser's broad product line and superior customer service.

"In an effort to make Eraser products more visible and to more effectively connect with our customers, we are thrilled to announce the introduction of a brand new website," said Richard DePaulis, chief operating officer.

"This is one small but very visible part of the many changes being made here at The Eraser Company."

**The Eraser Company Inc – USA** **Website:** [www.eraser.com](http://www.eraser.com)

## Finding welds in automotive wire

Magnetic Analysis Corp's Minimac® MAC 40 is successfully used to detect butt welds, breaks and/or broken strands, laps, seams, slivers, and cracks in magnetic and non-magnetic grades of wire at speeds up to 4,000ft/min.

Typically, large spools of stranded copper automotive wire are run through an extrusion line. However, it is difficult and time consuming to thread the wire when the end of a coil is near. Therefore, the beginning of the next coil is welded to the end of the previous one to maintain a constant run.

In this application, the Minimac instrument uses eddy current technology with high speed test coils to detect the weld during the extrusion and coating process at speeds of 1,200ft/min to 3,500ft/min. Outputs are tracked by the customer's PLC and allow the weld zone to be cut out down-line, before shipment to the end user.

The Minimac is a high performance, low cost, compact eddy current tester designed for production line applications. Complete networking capabilities are included. In the installation described above, the customer uses a portable monitor and keyboard for setup and then allows the tester to run unmonitored.

**Magnetic Analysis Corporation – USA**  
Website: [www.mac-ndt.com](http://www.mac-ndt.com)



▲ The Minimac from Magnetic Analysis

# The New Wire Drawing Standard

### Universal

The most commonly utilized die system in the world today.

### Efficient

Maximizes die performance, increasing machine utilization and decreasing production costs.

### Practical

Simple design makes the system easy to use.

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Is your company utilizing the most advanced die technology available? Chances are, your competition already is. Call Paramount to get started today.

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Drawing Systems for the Wire Industry



## New line for CAP

CAP Technologies has started the first Electro-Plasma cleaning and coating line for processing multiple strands of wire rod.

The EPT plant is located in Denham Springs, Louisiana, USA, and will process commercial wire products, high tensile armour wire, spring wire and PC strand wire. Annual production, which began on 1<sup>st</sup> September, will be 25-35,000 tons.

The EPT process employs a first of a kind atmospheric plasma process which allows for the in-line cleaning of mill scale, rust, complex oxides, coating (single metals or alloys) and drawing of the coated material without the loss of coating material and without the loss of any mechanical properties.

Coating does not cause any loss of tensile strength, which occurs during HDG. Zinc coatings have been proven to provide at least three times the life of HDG coatings at approximately one half the coating weight.

Also proven, EPP processing, cleaning and coating does not under any circumstances cause hydrogen embrittlement. The process is suited for both ferrous and non-ferrous materials. Most importantly, the process is a GREEN technology, closed loop system.

In addition to the production line, CAP has created a complete multi-faceted research line capable of processing wire rod, wire and stranded fine wire to 0.3mm diameter along with odd shaped parts and pieces for applications outside the wire rod industry. Single wires can be as small as .325mm in diameter.

CAP Technologies, in addition to the current 55,000ft<sup>2</sup> facility, recently acquired additional land that will house CAP Engineering, due for start-up in the latter part of 2012.

**CAP Technologies – USA**

**Website:** [www.captechnologiesllc.com](http://www.captechnologiesllc.com)

## Shaft-less series pay-offs and take-ups

Huestis Industrial's new shaft-less series pay-offs and take-ups are efficient and "Huestis rugged", featuring a small footprint allowing the customer to install them in "tight" places, where manufacturing space is at a premium.

They are capable of handling package sizes from a 12" spool up to a 36" reel, as well as weights up to 2,500 pounds. These are offered with multiple options and possibilities, tailored to the customer needs.

Pneumatic, hydraulic, and electric versions are available allowing customers to define the solution that will work best for their manufacturing processes.

This series was developed to address the needs of circuit-sized production. Huestis has allowed the customer to have single or multiple units that can be dropped in place and they are able to meet a variety of conditions.

The ability to handle a small spool all the way up to a full size production reel gives the customer a machine that can do it all.

They can be as simple or sophisticated as the customer requires. The company's engineering department is available to design each pay-off or take-up to suit and is backed by warranty and outstanding customer service.

**Huestis Industrial – USA**

**Website:** [www.huestis.com](http://www.huestis.com)

## Reinforced plastic guide pulleys from Wyrepak

These highly durable reinforced pulleys, with their replaceable contact rings, are ideal for guiding or redirecting all types of wire.

Flanges are bolted together, so individual parts can be replaced when worn or damaged. Each can come with single or double bearings. The replaceable contact ring is available in hardened rubber, tungsten carbide coated steel or ceramic coated steel. The nitrile (rubber) has high abrasive resistance and reduces vibration. They are offered in sizes from 2.5"/89mm to 16"/445mm.

Small pulleys: These 'no-torque' small pulleys consist of a ceramic contact ring mounted on tough, reinforced plastic flanges. Each pulley comes with a single bearing. They are offered in sizes ranging from 15mm to 50mm.

**Wyrepak Industry – USA**

**Website:** [www.wyrepak.com](http://www.wyrepak.com)

## Putting the customer first in wire drawing

Blachford has been supplying the global wire drawing industry and many of the world's largest wire drawing companies since the 1950s with cost effective, meticulously researched, and innovative wire drawing lubricant programmes.



▲ Blachford staff – ready to help meet customer needs

The company's reputation for developing lubricant products and programmes, precisely matching its customers' technical requirements is well earned and by design.

Blachford's in-field engineers and experienced research and development team work closely with customers to fully understand each application's technical requirements. As the wire industry continues to globalise, there is increasing pressure on wire producers to remain profitable through product differentiation.

Blachford offers its customers a sustainable competitive advantage by leveraging its core competency – designing lubricant programmes that match customers' specific needs.

The company is dedicated in its commitment to ISO 9001 approved product quality.

Whether working to develop products that impart specific finished wire characteristics, or to enable its customers to produce more quality tons faster and less expensively, Blachford's unique combination of technically advanced products and customer-focused approach helps to give customers a competitive edge.

**Blachford – USA**

**Website:** [www.blachford.com](http://www.blachford.com)

# Lloyd & Bouvier

WIRE & CABLE MACHINERY



## GENUINE SKILLED PROFESSIONAL

- Complete source for new, used and rebuilt equipment for the wire & cable industry.
- We buy your used wire & cable equipment.
- We are staffed by wire & cable professionals who will review your specific application.
- Accredited machinery appraisers evaluating small lots to full plants anywhere in North America.



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## Capital Harness MPM cuts the costs

Mentor Graphics' Capital Harness MPM™ is a software application that helps wire harness manufacturers cut production costs.

Addressing manufacturing process management, Capital Harness MPM systematically models harness designs against production capabilities to create structured bill-of-materials data. This data is typically used to drive enterprise resource management (ERP) systems.



▲ Capital Harness MPM delivers important additional production engineering capability to Capital's define-design-build-service flow

Capital Harness MPM is part of the Capital® tool suite, a powerful electrical system and wire harness design environment for the automotive, aerospace and defence industries.

Wire harness manufacturing is a logistically challenging, multi-stage process that is difficult to optimise, especially because designs change frequently and configuration complexity is high. By analysing harness designs against factory capabilities, Capital Harness MPM helps identify what, where and how harnesses and their constituent sub-assemblies should be built.

Manufacturing costs can be reduced by accurately reflecting optimised manufacturing patterns. In addition, Capital Harness MPM helps minimise inventory and obsolescence costs and achieve economies of scale by identifying sub-assemblies that are common across different harness designs. The automation delivered also helps minimise manufacturing engineering errors and cycle times, and reduces staff training costs.

Technically, Capital Harness MPM

employs a reasoning engine especially developed for the wire harness domain. This reasoning engine intelligently decomposes harness designs into hierarchical assembly steps that match production capabilities.

Manufacturing intellectual property can be flexibly and securely captured using an extensible rules-based approach so that, for example, custom-built production equipment can be modelled. Design data created in the Mentor® Capital HarnessXC™, Capital ModularXC™ or VeSys® Harness tools can also be analysed.

**Mentor Graphics – USA**  
**Website:** [www.mentor.com](http://www.mentor.com)

## New single-axis laser diameter gauge

Beta LaserMike introduces its new AccuScan 4012 single-axis diameter gauge for on-line production.

The AS4012 includes all the powerful features of the larger AccuScan 5000 series of diameter gauges but in a compact, cost-efficient package. This laser diameter gauge integrates DSP technology and specially engineered optics enabling it to capture high-accuracy, low-drift measurements regardless of where the product is positioned in the measuring gate.



▲ The AS4012 from Beta LaserMike

The AS4012 performs 1,200 scans/second and can measure product diameters from 0.1 to 12mm (0.004 to 0.47") with accuracies to  $\pm 0.0005\text{mm}$  ( $\pm 0.000020"$ ). It also offers highly flexible communications, making it easy to connect to a host PC or PLC using RS-232,

DeviceNet, Ethernet IP, Profibus, and Profinet. In addition, the AS4012's small footprint enables it to be installed at a wider range of locations on the product line.

The new AS4012 can be equipped with a number of accessories such as an optional, ultra-bright display and operator interface for the easy viewing and configuration of measurement data. The AS4012 features rugged construction with a completely sealed enclosure to IP 65 (NEMA 4) standards for durable, reliable operation.

**Beta LaserMike – USA**  
**Website:** [www.betalasermike.com](http://www.betalasermike.com)

## One-stop shop for customer needs

Mercury Wire Products, established in 1967, is a global manufacturer of high quality custom wire, cable and engineered assemblies.

A lean manufacturing enterprise with a skilled workforce organised around customer-focused work teams, the company culture of continuous improvement guarantees that it never stops working to be the strongest link in its customer supply chain.

Mercury Wire Products offers a one-stop solution from concept design, engineering and production to terminated assemblies and just-in-time stocking programmes.

With decades of expertise in custom cable manufacturing and value added processes, coupled with experienced and dedicated people, it allows the company to be a one-stop source for a wide range of products and services including:

- Design engineering/problem solving solutions
- Customised cable specifications
- Rapid prototype manufacturing
- Quick response with superior customer service
- Flexible lean manufacturing – no quantity too small

Mercury partners with OEM manufacturers in a variety of markets, and its products are relied upon when quality and performance are critical.

**Mercury Wire Products – USA**  
**Website:** [www.mercurywire.com](http://www.mercurywire.com)

## Two new single-twist bunchers

Dynamex, based in Carson, California, has designed the 1250 and 1000 – two new high-speed single-twist bunchers for aluminium and copper, and high-speed single-twist cablers for insulated cables.

The machine control is by an intuitive colour touch-screen HMI and a PLC with product-recipe.

The touch-screen also clearly displays the status of all operating IOs and any alarm.

The dialled-in lay is maintained extremely accurately throughout the reel build-up. The machines have a built-in loader that lowers the full reel quickly to the shop floor.

Multi-position driven pay-offs and longitudinal in-line taping pay-offs are also available from Dynamex.

**Dynamex Corporation – USA**  
Website: [www.dynamexcorp.com](http://www.dynamexcorp.com)



▲ The STB 1250 from Dynamex

## Huestis Industrial Cable Jacket Strippers

**Who do you call when you've just run a rush order, the jacket has defects, and there isn't enough time to remake the entire job?**

Huestis Industrial, of course! Our cable jacket strippers will save you time and money salvaging the valuable core, allowing you to re-extrude the job fast to keep your customers happy and your remake costs down. In many cases, one job provides the payback for your investment.

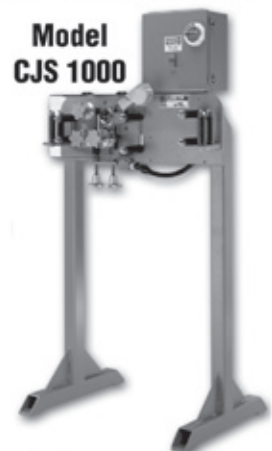
**For more details or to place an order, call us at 800-972-9222, or email us at [sales@huestis.com](mailto:sales@huestis.com)**



**Model BJS 1000\***

*Strippers can be customized to meet your specific requirements.*

*\* Model BJS 1000 is bench mounted. All other models are free standing.*



**Model CJS 1000**

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Air Wipes, Pay-offs, Take-ups, Buncher Pay-offs, Accumulators, Spoolers, Cold Pressure Welders, Cable Jacket Strippers, Custom Machinery

## Global supplier of compounds

In more than six decades as a supplier to wire and cable manufacturers, Teknor Apex has developed compounds for every type of insulation, jacket, plug, and connector application in the industry.

Its database includes many thousands of custom and standard vinyl (PVC) and thermoplastic elastomer (TPE) formulations. The company's laboratories provide valuable customer support by carrying out most tests required for compliance with ASTM, UL, CSA, NEMA, SAE, ISO, IEC and other industry codes and standards. All of the company's products are RoHS and REACH compliant.



▲ Wire products from Teknor Apex

The Vinyl Division is a pioneer in the application of plastics to wire and cable, having produced its first vinyl products in 1946. The PVC resins used in manufacturing vinyl compounds are made flexible with plasticisers, many of which are manufactured by the Teknor Apex Chemical Division.

- Apex® vinyl compounds make up the broadest and most widely used range of wire and cable products. Teknor Apex offers more than 200 standard Apex products and maintains a database of over 3,000 Apex formulations
- Fireguard® low-smoke, flame resistant compounds meet and exceed all applicable UL requirements pertaining to applications in copper and fibre optic plenum cables used in commercial buildings
- Halguard® halogen-free flame retardant products are low-smoke compounds suitable for cables used in appliances, computer interconnect, and central office switching equipment
- Flexalloy® vinyl elastomers based on ultra-high-molecular-weight (UHMW) PVC provide rugged performance under aggressive environmental conditions. With a brittle point of -50°C and a high temperature rating of +105°C, Flexalloy compounds stay flexible, withstanding extreme cold, searing heat, and wet environments without cracking, softening or

compromising the integrity of the cable. These compounds can be used for both insulation and jacketing

- Speciality products include conductive vinyl, conductive polyolefin, and custom-formulated compounds based on blends and alloys with nitrile rubber, thermoplastic polyurethane, and other polymers

The Thermoplastic Elastomer Division produces a broad range of compounds for the wire and cable industry. Included are formulations based on three widely differing TPE chemistries:

- Styrene block copolymer compounds combine superior electrical properties with flexibility and toughness. They are used in a wide range of power, communications and data cable, as well as in injection moulded plugs and connectors. With brittle points as low as -100°C, and continuous operating temperatures UL rated for 105°C and 125°C, these span a wide temperature range
- Thermoplastic vulcanisates (TPVs), which consist of dynamically crosslinked elastomers in a polyolefin matrix, provide rubber-like flexibility and elastic recovery, weather resistance, ozone and oil resistance, tear resistance, long term ageing resistance, and excellent tactile properties
- Thermoplastic olefins (TPOs) are polyolefin/rubber blends that provide rubber-like feel and physical properties and resistance to heat aging and ozone. They are available in flame-retardant grades for both fibre optic and copper cable applications

A privately held firm founded in 1924, Teknor Apex operates 12 compounding facilities in the US, Europe, Singapore and China and sells in 90 countries. In Europe it has offices in the Netherlands and the UK and plants in the UK and Belgium. Teknor Apex Asia Pacific is based in Singapore and manufactures compounds there and in Suzhou, China. The company maintains dedicated business units for bioplastics, colour masterbatches, nylons, thermoplastic elastomers, toll and speciality compounds, and flexible and rigid vinyl.

**Teknor Apex – USA**

**Website:** [www.teknorapex.com](http://www.teknorapex.com)

## Catering for all your needs

Tensor Machinery is a designer and builder of cabling equipment for the wire and cable industry, and provides a wide variety of solutions to manufacture fibre optic or copper cable including individual pieces of equipment to complete cable manufacturing lines ready to produce cable.

Products include: UV colouring lines, loose tube manufacturing, SZ stranding lines, armouring lines, yarn serving, pay-offs, take-ups and jacketing lines for indoor and outdoor cable products.

Tensor's main focus has been on fibre optic cable equipment since 1985 but it can also provide some equipment solutions for the copper wire and power cable industries. All Tensor equipment is engineered to withstand the daily demand placed on it by production and it uses the latest in mechanical, electrical and electronic technology. As companies look to enter into the different cable markets or are looking at cost reduction, many have turned to Tensor as the solution.

**Tensor Machinery Ltd – Canada**

**Website:** [www.tensorfiber.com](http://www.tensorfiber.com)



## New dual 50" shaftless take-up

Lloyd & Bouvier is offering a new 50" shaftless dual reel take-up design.

Take-up consists of two individual 50" welded plate frames bolted together, with common traverse mounted on dual linear bearings, and a continuous belt drive activated with a servo motor.

A clamp and pulley system can be incorporated into the traverse system to direct and hold the wire during crossover.

Take-up accepts reel diameters from 50" to 24" and reel widths from 40" to 20". Reel lifting is accomplished through pneumatically loaded cylinders to lift reels up to 5,000lb.

Gate arm positioning for various reel widths is accomplished through an AC gear motor with automatic centring via Acme threaded rod activation. Take-up is powered by a 10 HP AC motor with an in-line reducer to provide maximum torque.

A NEMA panel is provided, housing the 10 HP AC Vector main drive and all related electrical components.

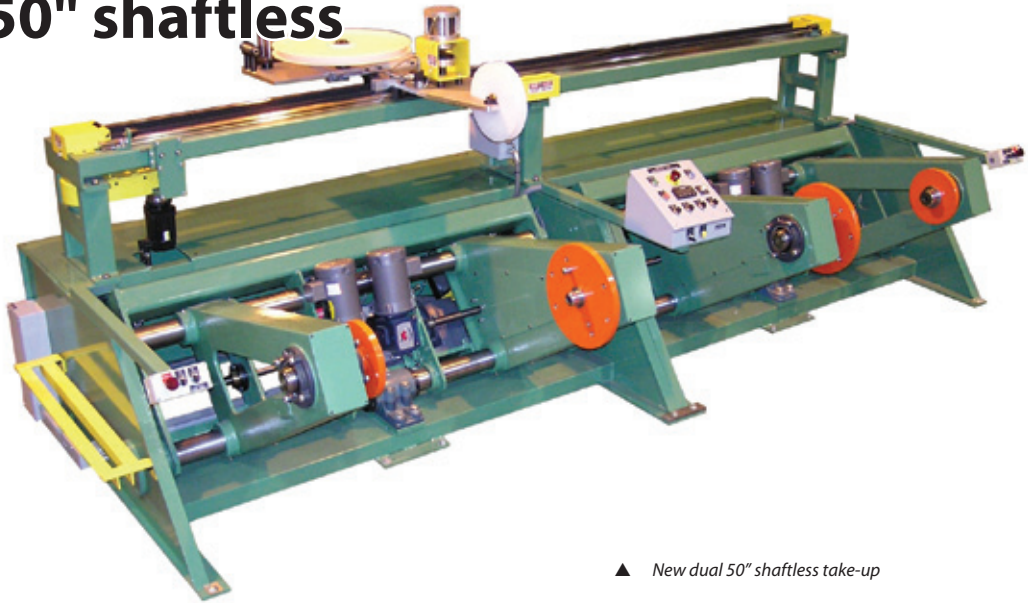
## Is the Inter-8 weave cable for you?

Is your signal susceptible to cross-talk?

Have you sampled Magnetic Shield Corporation's Inter-8® weave cable which provides substantial improvement over conventional "twisted pair" by reducing electromagnetic radiation, cross-talk, and pickup of external noise?

There are four types to choose from - with or without high temperature insulation or low-frequency braided shielding.

**Magnetic Shield Corporation – USA**  
Website: [www.magnetic-shield.com](http://www.magnetic-shield.com)



▲ New dual 50" shaftless take-up


Operator controls are mounted on both sides and centre of the frame for easy access. Pintles and drive rotors are provided and customised to individual customer requirements.

The shaftless dual reel design provided by Lloyd & Bouvier offers a safe and efficient alternative to the older shaft style dual reel take-ups, eliminating operator handling of heavy shafts and fighting with damaged locking collars when loading and unloading reels.

**Lloyd & Bouvier Inc – USA**

Website: [www.lloydbouvier.com](http://www.lloydbouvier.com)


### Up to 250,000 Pounds of Reel Handling Capabilities



Tulsa Power Gantry Systems' Traversing Frame Take-ups and Payoffs are some of the most advanced on the market today now with capacities up to 250,000 pounds.

The units offer true walk through capability and unlimited lateral movement for your reel handling. Plus traversing the entire reel in front of the line creates an optimum layer wound package. The telescoping portal design conforms to your reel size, minimizing floor space requirements. Main drive systems are engineered to your specifications and feature an operator color touch screen interface. Overhead beam and fixed frame units also available.

Reel in the power of Tulsa Power for all your take-up & payoff solutions.



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## Cutting edge technology

Whether modernisation of existing power networks, or establishment of new ones, the further development of electronic data transfer systems or the progress in automotive technology: All these activities are dependent on differently constructed wires, cables and cords which must meet increasing demands.

Therefore, wire and cable manufacturers are continually faced with tasks necessitating cutting edge manufacturing technology. One competent and experienced partner on whom North American wire and cable manufacturers can rely is Niehoff Endex (NENA), the North American subsidiary of Maschinenfabrik Niehoff.

On 1<sup>st</sup> January 1985, Niehoff established its subsidiary Niehoff-Herborn of America

Inc, and by August 1985 the then threefold Niehoff team working in a small rented office received its first major order for commissioning a new line. In 1991 Niehoff of America (NoA) opened its new training and demonstration facility in Swedesboro, NJ. By merging NoA and Endex, the former Bekaert Engineering of North America in 1999, Niehoff Endex (NENA) came into existence.

NENA, currently headed by Robert Wild (CEO), provides the wire and cable industry in the USA, Canada and Mexico with high quality energy and cost efficient equipment, a reliable after sales service with prompt technical support and competent machine operator training courses.

NENA is responsible for the entire Niehoff product range – machines and lines which cover nearly all processes for the production of non-ferrous wires and downstream processes into insulated data cables and special cables – and is capable of providing turnkey production systems.

In the manufacturing department Niehoff machinery is adapted to the requirements of the American market and Endex products like the EDR rod breakdown machines for inline operation with extrusion and the ECC continuous coilers for insulated, plated or bare wire applications are built.

Advanced remote diagnostic capabilities, via telephone modems built into the equipment's electrical controls, allow for quick and precise troubleshooting. NENA also stocks most commonly used spare parts that are available for immediate delivery.

NENA also assumed the American representation of Niehoff partner companies like HFSAB (horizontal lead extruders and CRRS cable repair and recovery system), Bühler Würz Kaltwalztechnik (cold rolling mills) and Reber (filtration systems).

**Niehoff Endex North America Inc – USA**  
Website: [www.niehoff-usa.com](http://www.niehoff-usa.com)



▲ Staff at RSCC Aerospace & Defense

## Wiring for the forces

RSCC Aerospace & Defense is a Berkshire Hathaway wire and cable company dedicated to the development, design and manufacture of high performance wire and cable for the demanding environments of the aerospace and defence industry, including land, air, sea and space applications.

Products include M24640, M24643, M22759, M81044, M27500 and custom cable solutions.

Product innovation, 80/20 principles and lean manufacturing are at the core of the company's philosophy.

Its capabilities include irradiation cross-linking and custom compound development to create innovative solutions to even the most severe environments that cables can be subjected to.

RSCC's focus is to supply the best cable solutions for war fighters that will perform as needed when deployed by the armed services.

**RSCC Aerospace & Defense – USA**  
Website: [www.rscaerodefense.com](http://www.rscaerodefense.com)

## Tackling an expensive problem

The FL-20A cable fault locator is Clinton Instrument's newest quality tool for the wire and cable industry. Cable rejected during the hi-pot test has always been an expensive problem for the manufacturer.

Until now, finding opens and shorts with an analogue cable fault locator took expertise and patience, since the procedure required tedious metre and sensitivity adjustments as well as mathematical calculation once the test was completed.

The digital FL-20A automates cable fault detection greatly and reduces the time and training required to find these problems. Opens, metallic shorts, or high voltage shorts between conductors or between conductor and shield are pinpointed quickly and with ease.

The operator simply connects the FL-20A test probes to each end of the cable under test, enters the cable length and



▲ *More portability from the FL-8A*

gauge size on the digital front panel display, and selects "Shorts" or "Opens" to begin the test.

Within a few seconds, the unit calculates the distance of the fault site from each test probe and displays the location in feet or metres. The failure can then be cut out or repaired and the remaining good product salvaged, resulting in great savings to the producer.

The FL-20A, a compact 15"W x 14"D by 10"H weighing only 30lb, is significantly smaller and lighter than its predecessors. It promises a great return on investment by salvaging expensive cable assemblies

and lowering the costs associated with salvage.

For the customer that needs portability and battery power, there is a smaller, less powerful but equally accurate cable fault locator, the FL-8A.

Many users, typically in the oil, gas and undersea industries, have reels of wire that are not located on the factory floor. The FL-8A is perfect for testing reels located in remote locations.

Clinton Instrument is also developing a new calibration unit that will calibrate both high frequency and mains frequency AC as well as DC spark test units from any manufacturer.

Using a simple, lightweight Windows-based tablet, the operator can calibrate to any known norm or specification with the interface units that comprise the STCAL calibration system.

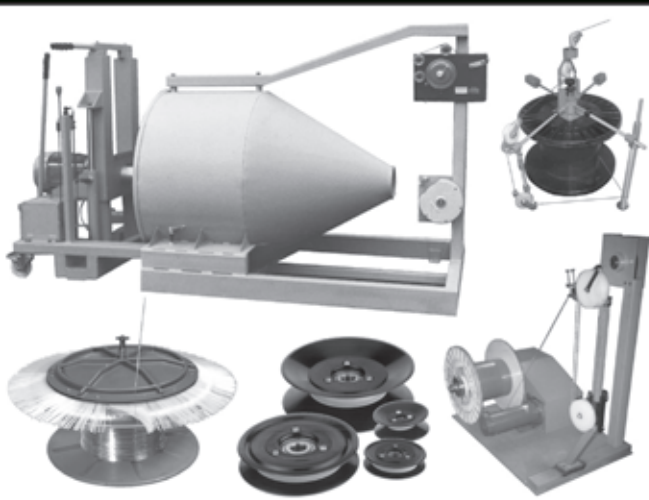
Once calibration is complete, the unit will allow for uploading of data to a host computer or server via a simple USB flash drive unit.

**The Clinton Instrument Company – USA**  
**Website:** [www.clintoninstrument.com](http://www.clintoninstrument.com)

# WYREPAK

DESIGNERS & MANUFACTURERS OF PAYOFF & TENSION CONTROL EQUIPMENT FOR WIRE & CABLE

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68 Buttonwood Street, Bristol, Rhode Island 02809-0718 USA • tel: 800.972.9222 or 401.253.5500 fax: 401.253.7350

## Resins improve wire and cable compounds

Ensuring increased crosslink density, improved electrical properties and better water resistance, Ricon® polybutadiene resins from Cray Valley are an effective choice for manufacturers looking to create high-performance wire and cable compounds for harsh environments.

These resins are particularly effective in applications such as down-hole oil well service cables and submerged large-diameter, high-voltage power transmissions lines that require the highest level of moisture resistance.

Ricon resins act as coagents to improve physical and electrical properties in EPM/EPDM and EVA/EVM rubber compounds. Functionalised polybutadiene resins also improve the performance properties of CPE rubber compounds.

Ricon products are also effective cure coagents for peroxide-cured formulations of saturated elastomers. Using these resins as a curing agent also lessens the possibility of homopolymerisation and increases the delta torque in most rubber compounds.

Ricon resins are more soluble than most monomeric coagents currently used in wire and cable formulations, improving cross-linking density by making more efficient use of radicals.

The resins provide a more uniform cross-link for better overall performance characteristics. At the same time they will not significantly alter the polarity of the compound.

Incorporating Ricon resins improves electrical properties such as volume resistivity and dielectric strength. These coagents can also show dramatic reduction of water swell in polymer compounds compared to other additives.

Ricon resin functionality is valuable and effective in a range of applications in the wire and cable manufacturing industry. These polybutadiene resins are especially suitable for applications where durability, water resistance, and improved electrical properties are required in challenging environments.

**Cray Valley HSC – USA**  
**Website:** [www.crayvalley.com](http://www.crayvalley.com)

## NSCR700 series cable reel handles live electric cable

Hannay Reels NSCR700 heavy-duty spring rewind cable reel features a compact mounting base and narrow frame for use with live electrical cable involving power tools, lighting, machinery, generators and more.

This configuration allows easy installation in any confined area where working space is limited.

A powerful spring motor provides self-contained rewind power, a non-sparking ratchet assembly locks the reel in place when the desired length of cable is paid out and a declutching arbour prevents against damage from reverse winding for quick set-up and take-down.

The NSCR700 houses a standard 3-conductor, 45 amp, 600 volt collector assembly with 8 gauge wiring from the collector ring to the junction box.

Accommodating 50 to 120-feet of 14/3 to 8/3 AWG live electrical cable, this model is equipped with a four-way adjustable roller assembly.

A cable stop is also available to prevent



▲ The NSCR700 heavy-duty spring rewind cable reel roller and connector damage and permit cable length adjustment.

**Hannay Reels – USA**  
**Website:** [www.hannay.com](http://www.hannay.com)

## Causing a storm

AIM's patented AFM 3D8-S is capable of unmatched versatility, fast output and low cost maintenance. Hybrid forming technology provides the user with the competitiveness needed in today's ever-changing marketplace. Models available are from 2.5mm to 16mm.

Standard two-year warranty, DXF importation, animation simulator and ease of programming are a few of the features on the AFM series machines. In addition, options include inline drilling, chamfering, press operations, marking and part numbering.

Upgraded and updated 2D and 3D CNC wire bending solutions, single and double bending head machines with Fanuc robotics integration and complete automated systems are all options from AIM.

Completely automated work cell solutions take wire from coil, form, weld



▲ The AFM 3D8-S from AIM

and systematically arrange the finished parts.

In all instances, wire can be fed directly from a coil, straightened, bent and cut using a software package that provides flexibility and simplicity in programming and is offered in all "universal languages."

**AIM Inc – USA**  
**Website:** [www.aimmachines.com](http://www.aimmachines.com)

## Process solutions for very small wire

The employment of wire and cable in the US has been steadily increasing, especially in the medical and electronic markets. The application demand of smaller and more compact product designs has placed demands not only on the suppliers of these two items but even more so on products and the machines that can process the base items into ever more sophisticated products and subassemblies.

Wire diameters of under a millimetre (0.040") are increasingly being utilised for applications in the medical and electronic market places. The material composition of the wire used in such applications can be of very special alloys or as in many medical applications, high tensile stainless steel. The end products or subassemblies made from these small diameter wires require more advanced processing and forming equipment.

TAK Enterprises, of Bristol, Connecticut, USA, has been an innovator and manufacturer of machines and systems for the processing and forming of wire and narrow strip type materials since 1981, and has recently been recognised with lifetime achievement awards for this work.



▲ *The TAK programmable rotary wire straightener*

The newest product to be offered by TAK that satisfies many of the demanding needs of these small diameter applications is the new "Programmable Rotary Wire Straightener". This system is ideally suited to produce extremely straight and precisely cut-to-length wire pieces automatically. The system is fully equipped and configured to take standard DIN style spools of wire, pay the wire out under controlled tension, rotary straighten the wire, feed to whatever length desired, cut the wire to length without hindering the wire feed, provide

a square end burr-free cut, and stack finished wire pieces for collection. The system can either continuously produce cut pieces until the material runs out, produce pieces based on a quantity limit, or provide batch quantities of a total production quantity on command.

The TAK PRWS (programmable rotary wire straightener) is designed to run operator free from pre-programmed settings entered into the controller. These "programmed" settings include:

- Payout tension value
- Wire feed speed
- Clockwise rotating arbor speed
- Counter-clockwise rotating arbor speed
- Cut length
- Quantity

In addition to system monitoring sensors for such things as out of wire and low air pressure, the system design allows for the integration and control of additional devices that might include eddy current checking, mechanical sorting, or even wire marking devices.

**TAK Enterprises Inc – USA**  
**Website:** [www.takenterprises.com](http://www.takenterprises.com)



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+1 860 583 4646

## Dow's 4,700-acre site



▲ *The Seadrift, Texas, site of Dow Electrical and Telecommunications*

Dow Electrical & Telecommunications is a global provider of products, technology, solutions and knowledge that helps set standards for the reliability, longevity, efficiency, ease of installation and protection that the power and telecommunications industries can count on in the transmission, distribution and consumption of power, voice and data.

Dow E&T works together with cable makers, other industry suppliers, utilities, municipalities, testing institutes and diverse organisations to help develop solutions and create mutual value that will sustain these industries for years to come.

State-of-the-art production, packaging and distribution facilities for Dow E&T that serve the global wire and cable industry are located in Seadrift, Texas.

Jacketing, insulation and semi-conductive compounds for use in power and telecommunications wires and cables are manufactured in two dedicated plants within Dow's Seadrift Operations' 4,700-acre complex.

Knowing that cable longevity and reliability are essential to efficient and cost-effective utility operations, Dow E&T initiated and maintains strict manufacturing parameters to help ensure

product consistency and cleanliness batch-to-batch.

Facility design in Seadrift begins with a fully enclosed raw materials system. Compounding and extrusion are monitored with automated process controls including metal detection and removal systems.

Finished compounds are packaged in a cleanroom environment in moisture-impervious containers prior to shipment to customers. On-site analytical laboratories thoroughly test incoming raw materials and provide in-process monitoring during manufacturing to ensure that finished products are as contaminant-free as possible.

Originally constructed in the 1950s, Seadrift Operations continuously updates its facilities to meet industry demands. Recent improvements at Dow E&T's Seadrift plants comprise new leading-edge technology and enhanced capabilities to produce DowEndurance™ HFDC 4202 EC insulation, Dow's advanced performance medium voltage (MV) offering.

These improvements also benefit production of jacket and insulation compounds for high voltage (HV) and extra high voltage (EHV) applications.

These proprietary measures are being undertaken as part of the continuous improvement efforts to help ensure stringent materials cleanliness that is especially crucial to the super clean compounds expected for HV and EHV cable applications.

Upgraded process controls also are being implemented along with next generation Most Effective Technology (MET) for reaction and cross-linkable polyethylene material facilities.

For over 50 years, Seadrift operations has been the second largest Dow-owned facility in Texas.

It employs over 600 Dow employees and nearly 500 resident contract workers.

It operates 24 hours a day and is responsible for approximately 3.7 billion pounds of materials production per year.

In addition to facilities dedicated to Dow E&T, the complex also produces plastics, glycols and oxide derivatives for diverse industries including automotive, packaging, health and hygiene, building and construction, apparel and agriculture.

**Dow Electrical and Telecommunications – USA**  
**Website:** [www.dow.com](http://www.dow.com)

## High performance

Cable Components Group (CCG) designs, engineers and manufactures high performance extruded products for the wire and cable, fibre optic and industrial markets.

CCG's extrusion capability is predominately focused on engineered resins, (fluoropolymers) and speciality compounded products, (chemically foamable FEP, PFA, ETFE, PVDF, ECTFE, etc) and uses these polymers to manufacture tubing, tapes, crosswebs, staple fibre and non-wovens.

These products and materials characteristically provide excellent fire retardancy, low-smoke generation enhanced electrical performance, especially suited to the evolving needs of the wire and cable industry. Additionally, chemical resistance is another benefit of these engineered resins and compounds that are targeted for industrial markets for pipes, tubing, non-wovens for filtration, etc.

A total of 24 of the 30 CCG extrusion lines are suitable for high temperature materials and are capable of manufacturing foamed products, ie crosswebs, tapes, etc, which are sold under the FluoroFoam® brand name.

The core competency of CCG, along with its 11 patents, focuses on wire, cable and fibre optic extruded fillers and tubes which are made for high temperature, as well as low temperature applications. The cable fillers include crosswebs, tapes, tubes, monofilaments and other tight tolerance profiles for Category 6, 6e and 6A LAN cables, as well as other industrial cables. Two new product lines are being added to the 2012 product offering:

- FluoroSpun® – Flame-retardant non-woven tapes and core wraps that are made from extruded fluoropolymer fibres and made into non-wovens via needle punching or via CCG's revolutionary melt-blown non-woven process.
- Speciality film and shielding tape slitting – available in a range of widths on pads or cobbles.

Fluorofoam® Masterbatch technology:

For the wire and cable market, the FluoroFoam® chemically foamable fluoropolymer extrusion technology, which was initially launched by CCG for category cable crosswebs and tapes, is now being made and sold in a masterbatch pellet form for the stringent NFPA 262 Plenum Cable Standard (formerly UL 910).

The FluoroFoam® masterbatch pellet used for insulating category 5e, 6, 6e, 6A and 7 LAN cable applications exhibits extremely low levels of flame spread of 1.0ft on a 4 pair CMP cable, as well as negligible (0.16) peak and (0.07) average smoke generation.

FluoroFoam® is chemically foamable from a pelletised masterbatch and can generate a range of foam rates from 25-55 per cent. The beneficial aspects include enhanced electricals, excellent crush resistance/physical properties, accruing from foam cell structure of less than 0.001" on average. FluoroFoam® masterbatch chemically foamable FEP pellets provide a unique processability, akin to solid FEP extrusion, wherein running speeds of 1,600 to 1,800 fpm are readily attainable for thin wall CMP communications cables.

**Cable Components Group – USA**  
**Website:** [www.cablecomponents.com](http://www.cablecomponents.com)

## More than a die company

Paramount Die is more than just a die company with its sales engineers averaging over 20 years of experience in the wire industry, helping customers with expertise in all areas of the wire drawing process.

Several trends have shaped the company's development, including the ever-growing need for wire drawers to outsource finished die requirements.

As this has caused wire drawers to become more dependent on die suppliers, great pressure has been placed on Paramount to increase capacity for die finishing, reduce finished die costs, and improve lead times.

Reducing cost has been done by standardising on cost effective carbide inserts and increasing quality and capacity through automation. Many highly automated machines now run on "Lights Out Operation" meaning that they will continue to produce product as long as there is raw material being fed into the system. This not only improves production output, but also the quality.

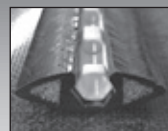
Average lead times have been reduced from three weeks to just under five days. Another major wire industry trend has been the steady increase in drawing speeds.

By placing an extreme amount of stress on drawing dies, faster drawing speeds have further increased the importance of die design and lubrication. In response, Paramount has worked continuously to improve the wear resistance and strength of all its products.

**Paramount Die Company – USA**

**Website:** [www.paradie.com](http://www.paradie.com)

### KEIR - BackBone™ Flyer Bow



#### Features:

- Improved bow strength (no holes)
- Wire is out of the airstream
- Bow shaped like a wing for improved aerodynamics and low cw factor
- Wear strip eliminated and replaced by wear bushings with windows for easy inspection and dust cleaning
- Wear bushings can be changed while bow is mounted on the rotor

#### Advantages:

- Lower power (amps) consumption and reduced noise
- Higher TPM – maintaining wire quality
- Reduced bow breakage
- Increased life on wear surfaces reducing down-times and maintenance
- Wire breakds are contained within the bow – extending bow life

US Patent #6,233,513  
#5,809,703 and Other  
Patents Pending



#### KEIR Manufacturing Inc.

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Website: [www.BackBoneBows.com](http://www.BackBoneBows.com)  
[www.KEIRmfg.com](http://www.KEIRmfg.com)



Photo: bigstockphoto.com - Hollywood, California by Andy Z

## New coiler from Tulsa cuts costs

Tulsa Power has launched the ACT coiler, a new line of Automatic Cut and Transfer coiling equipment. This new coiler series has generated tremendous interest not only in wire and cable processes, but tubing and profile applications.

These new systems have the ability to spool or coil and are fully automatic and highly reliable. The new technology and “no nonsense” design appear to address customer-identified weaknesses of other equipment offerings, namely “overly engineered” systems and reliability issues.

This series of coilers is adaptable for the toughest wire and cable application requiring accumulation, a contact dancer, hydraulic cutting and on-line printing to the ultra-critical micro tubing applications requiring non-contact, ultrasonic position control for extremely low running tension.

The ease of operation and user friendly interface allow a single operator to oversee multiple lines generating a labour savings over previously used manual and semi-automatic systems. Couple an ACT coiler with now available on-line packaging equipment, ie multiple position twist-tie, stretch wrap, coil counting and boxing, and the process becomes even more automated and labour saving.

**Tulsa Power Inc – USA**  
**Website:** [www.tulsapower.com](http://www.tulsapower.com)



▲ The new ACT coiler from Tulsa Power



## Unique portfolio

To meet the evolving fire performance and environmental compliance criteria in North and South America, Europe, the Middle East and Asia, AlphaGary has developed a unique portfolio of speciality compounds for a wide variety of cable designs and applications – both copper and fibre optic:

- Smokeguard™ low smoke vinyl alloys meeting RoHS environmental compliance for North American plenum and European CPD Class B1/B2
- Megolon™ halogen-free materials for IEC 60332-1/60332-3C, European CPD Classes C through E, power cable sheathing and crosslinkable insulations
- Garaflex™ TPE styrenic, vinyl, olefinic/EPDM, and vulcanisate blends
- Garathane™ thermoplastic urethane flame retardant blends and alloys

AlphaGary offers colour concentrates to support all of its compound types, both custom-matched and to standards such as Munsell and RAL.

The company delivers world-class support to help customers choose the most appropriate materials for their speciality cable designs. It has ISO 9001 registered facilities in the USA, UK, Mexico and Colombia.

**AlphaGary Corporation – USA**  
**Website:** [www.alphagary.com](http://www.alphagary.com)

## 120 years' experience

Chase Corporation's recent acquisition of NEPTCO Inc combines two companies with over 120 years of industry experience.

As a wholly owned subsidiary of Chase Corporation, NEPTCO will continue to offer products and services under the globally recognised NEPTCO brand. The combination of Chase and NEPTCO offers a comprehensive family of engineered materials for telecommunications and energy cable OEMs.

The product portfolio includes industry recognised brands such as Chase & Sons® tapes and Chase BIH<sub>2</sub>Ock® strandfill compound; NEPTAPE® shielding, separator and marker identification tapes; Lightline®, Flexline®, Fiberbundle® and Araglass® non-metallic strength elements for fibre optic cable; and Powerline®, Aquablok® and Permablok™ coating and water blocking cable solutions.

In addition to serving the wire and cable industry, both companies produce and sell a diverse range of products to markets outside of wire and cable by leveraging core-manufacturing competencies.

With headquarters and manufacturing facilities in the US, the collective capabilities of Chase and NEPTCO provide the broadest range of products in the industry as well as premier customer service.

**NEPTCO Inc – USA**  
**Website:** [www.neptco.com](http://www.neptco.com)

## Connecting people worldwide

CommScope has played a role in virtually all the world's best communication networks by creating the infrastructure that connects people and technologies through every evolution.

Its portfolio of end-to-end solutions includes critical infrastructure customers need to build high-performing wired and wireless networks. As much as technology changes, the company's goal remains the same: to help customers create, innovate, design and build faster and better. CommScope will never stop connecting and evolving networks for the business of life at home, at work and on the go.

Network operators face an escalating demand for digital voice, high-speed data, and high-definition video. CommScope provides innovative optical and RF infrastructure solutions that help operators plan, deploy, and maintain services to residential and commercial customers.

High-speed networking, cloud computing, data centre consolidation and in-building wireless coverage are transforming the way businesses and public entities operate. CommScope solutions empower communication applications in the boardroom, operating room and classroom, trains, in airports



▲ CommScope's headquarters

and in stadiums, and anywhere people gather for work and play.

People want to connect anywhere, anytime, everywhere – all the time – including residents of some countries who are enjoying access to wireless communication for the first time.

CommScope solutions span the entire RF landscape, helping wireless carriers manage increasing cell site complexity and optimise network planning, capacity, coverage and performance.

**CommScope Inc – USA**  
**Website:** [www.commscope.com](http://www.commscope.com)

# Fire resistant optical cable

By L Caimi, D Ceschiati and M Maritano, Prysmian SpA, Milan, Italy,  
and E Consonni, Prysmian Cavi e Sistemi Italia Srl, Milan, Italy

## Abstract

A new family of optical fire resistant cables has been developed, used to provide the necessary levels of safety in critical environments as public buildings, subways and also in industrial areas.

These new cables maintain their optical transmission characteristics with very limited change in attenuation for a long time in compliance with international standards. This innovative cable design, using special ceramifiable compound and appropriate flame shields allow control of heat release and to guarantee the right level of mechanical protection for the optical fibres during the burning phase, limiting in this way any variation in attenuations and avoiding transmission interruptions.

## 1 Introduction

Low-Smoke-Zero-Halogen (LSZH) flame-retardant and fire-resistant cables, both copper and optical, are widely used to provide the necessary levels of safety in critical environments such as public buildings, ie hospitals, nursing and rest-homes, cinemas and theatres, subways, railway tunnels, and also in industrial areas.

With regard to optical cables, when a fire occurs, the additional attenuation of the optical fibre directly affects the signal transmission performance and hence the effectiveness of the security systems where uninterrupted transmission is needed for operation of emergency devices such as phones, closed-circuit television, automatic doors, building management systems and fire alarms. The functionality of the optical cable must be maintained during the fire occurrence and usually also for a predetermined period of time.

Starting from this scenario a fire resistant cable family has been developed with a high fibre count in a compact design, all dielectric or metal armoured constructions.

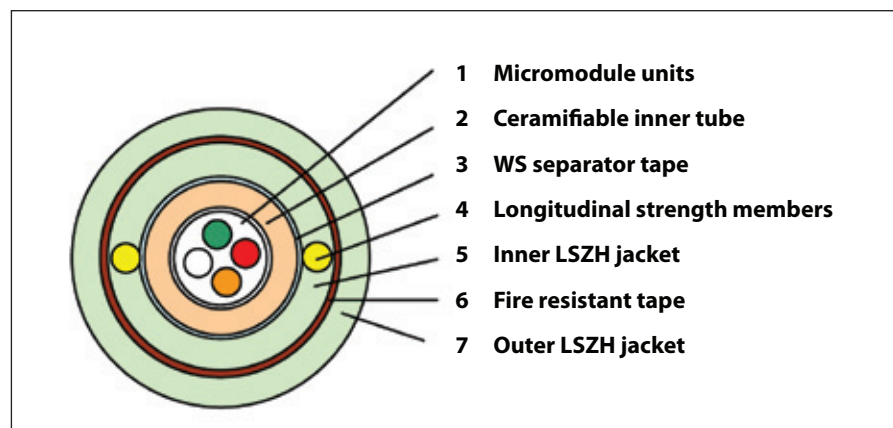
## 2 Fire resistant optical cable: new cable family solution

The conventional fire resistant cables are not able to completely avoid the attenuation increase of the optical signal during a fire exposure; but, what is worse, the optical performances fully vanish when the fire is off and some mechanical breaks of the brittle glass fibres occur. In fact in the transition areas between the cable portions directly exposed to flame and the contiguous parts not burned, especially

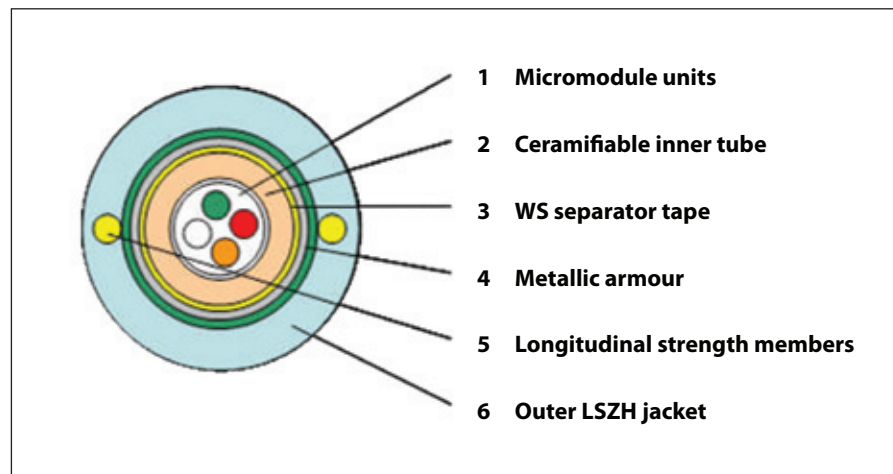
during the cooling phase, the materials still surrounding the fibres cool down and shrink causing local pressure on the fibres that, without the coating protection, can break or can increase dramatically the signal attenuation.

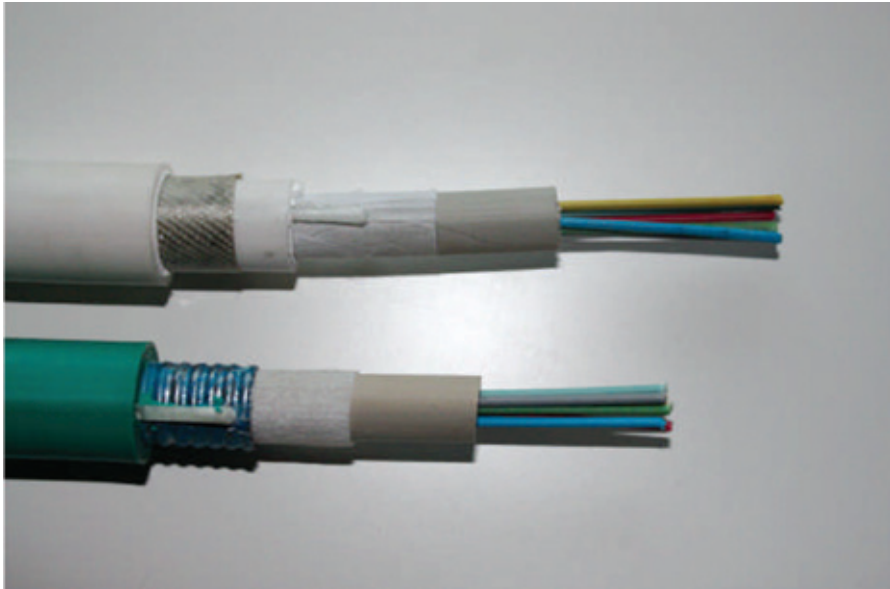
The typical fibre organisation in an optical cable is based on multi-loose stranded plastic tubes; the present trend is to increase the fibre count, reducing or at least not increasing the size of the final cable. For the above reasons a different cable design has been developed to increase the density of fibres and to facilitate the fibre access.

▼ Figure 1: All dielectric cable design



▼ Figure 2: Metallic armoured cable design





▲ **Picture 1:** Metallic and all dielectric cable version



▲ **Picture 2:** IEC 60331-25 fire test



▲ **Picture 3:** EN 50200 fire test

Depending on the application sometimes the fire resistance requirement is combined with barriers to animal attacks and superior mechanical performance, so a metallic protection is needed; in other cases the problems induced by magnetic or electric interference lead to an all dielectric solution.

Both constructions have been developed taking care to meet needs of the diversified installations and markets. Therefore the developed cable family has been designed to match the following requirements:

- maintain the optical transmission capability during the fire
- avoid breaks of the optical fibres after the fire extinguishing
- increase the fibre count in a more compact design
- have a metallic protection or a full dielectric design

As a consequence of the above requirement the new cables have been designed with a construction based on:

- optical fibres organised in bundles in the form of micromodules
- a surrounding tubular layer made of a special ceramifiable material

- a supplementary flame shielding, metallic or dielectric
- a flame retardant LSZH sheath

## 2.1 Ceramifiable layer as first absolute fire barrier

In order to ensure an absolute protection to the optical fibres during fire, it is

important to build around them an impassable barrier.

Whilst a metallic tube could represent an obvious solution, different shrinkage behaviours between metal and glass and some manufacturing limitations can make this way not so viable. Moreover plastic materials are not suitable to resist temperature up to 800-1,000°C, and also if in flame retardant version with proper mineral additives, fully disappear reduced in brittle ashes.

The solution is a material that is able to withstand the flame action without burning or collapsing for a sufficient time to allow the formation of an underlying layer of a ceramifiable material to complete the ceramisation.

A special compound has been developed based on a mixture of inorganic fillers characterised by different behaviour in temperature progressively melting and controlling the viscosity and the sintering ability.

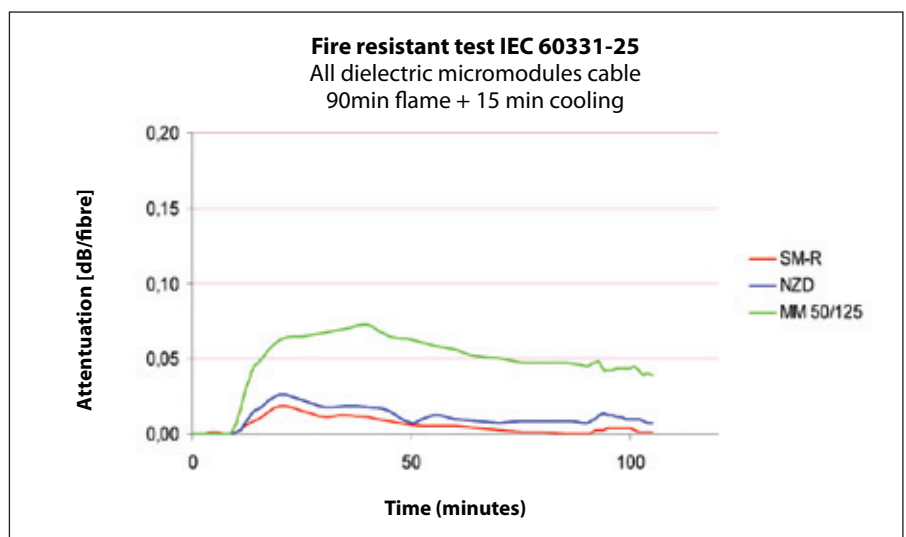
It is helpful to introduce a second flame shielding layer in the design of the cable, in order to avoid a direct contact of the ceramifiable tube with fire; in fact the shielding layer allows a more homogeneous and progressive compacting process of the ceramifiable special compound, obtaining a final solid tubular element which protects uniformly the optical fibres.

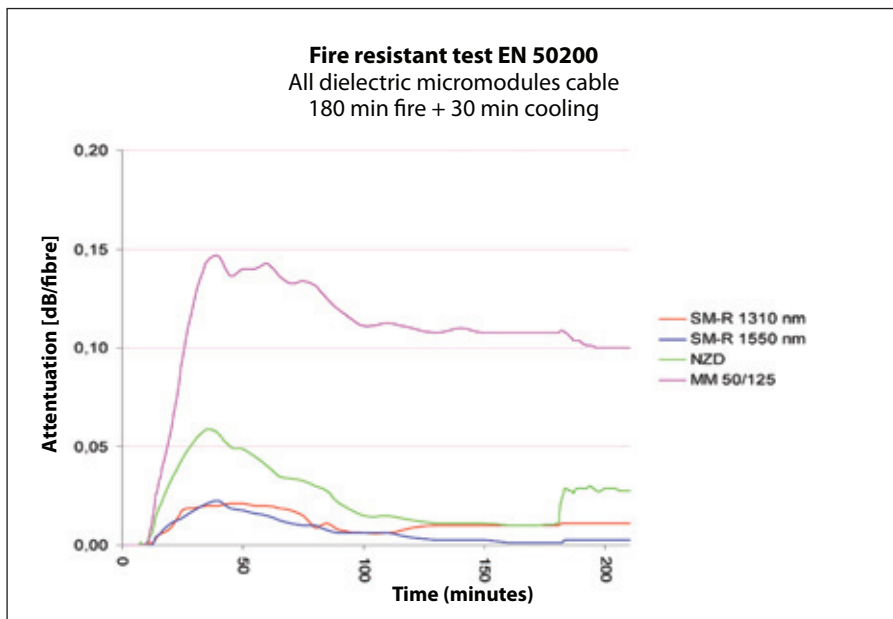
In this case the type of shielding can be quite conventional, ie made by mica tape or steel tape.

## 2.2 Cable design

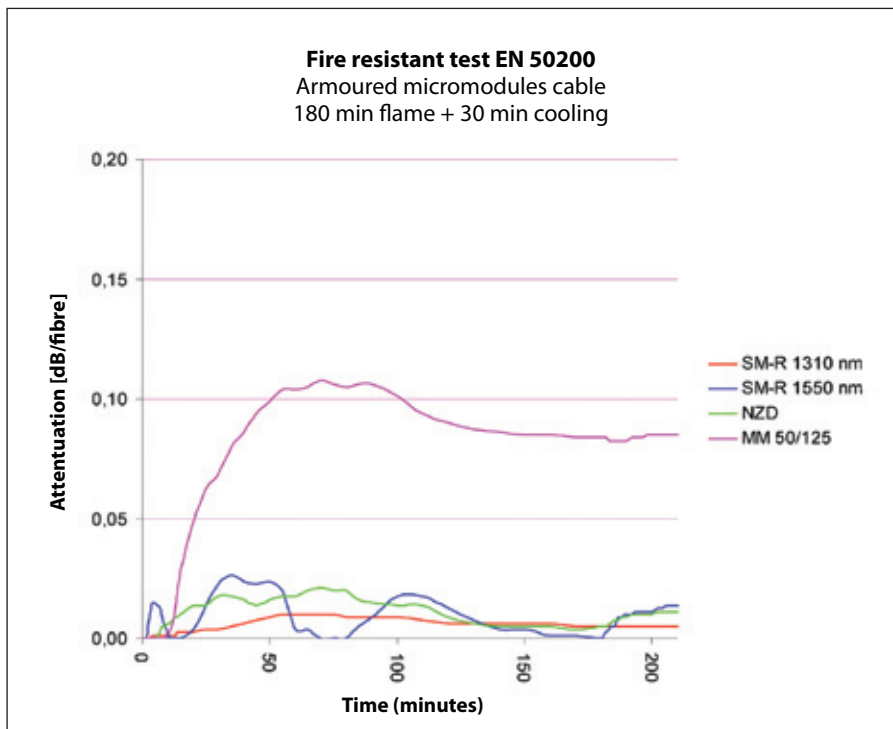
Starting from the idea of a fire resistant cable based on a ceramifiable tube surrounded by an external fire shielding that protects from direct contact with fire,

▼ **Figure 3:** Fire resistant test of all dielectric versions according to IEC 60331-25





▲ **Figure 4:** Fire resistant test of all dielectric versions according to EN50200



▲ **Figure 5:** Fire resistant test of the armoured version according to EN50200

the other elements of the cable design are driven by the mechanical and optical requirements based on the installation and operating conditions.

For the dielectric version, over the central ceramifiable inner tube an intermediate flame retardant sheath is applied reinforced by two glass rods longitudinally embedded into the wall of the jacket; the glass rods withstand both tensile load and low temperature shrinkage. Then some fire resistant tapes are applied together with the outer LSZH sheath. The cross section of the all-dielectric version developed is shown in *Figure 1*.

For the metallic armoured version, the corrugated steel tape is applied over the ceramifiable tube followed by an outer HFFR sheath reinforced by two glass rods with the same function described above. The cross section of the armoured version developed is shown in *Figure 2*.

### 2.3 Cable trials and production

Cables in all dielectric and metallic versions have been developed from 48 to 144 optical fibres. Many experimental trials have been carried out before the production of the final versions; then the cables have been fully characterised for optical, mechanical and thermal

performances, together with the fire behaviour as reported in the following. In *Picture 1* two cable samples are shown.

### 2.4 Cable characterisation

The two cable designs have been manufactured with three different types of optical fibres, ie SM-R, NZD and MM. The cables have been tested according to the main international fire tests, IEC 60331-25 and EN50200. In *Pictures 2* and *3* the fire tests performed on the cables are shown. Each type of fibre has been closed in loop and connected with a Led-Power meter, measuring the increase of attenuation at 1,310 and 1,550 nm in the circuit with SMR fibres, at 1,550 nm with NZD fibres and at 1,300 nm with MM fibres.

The fire lasted 90 or 180 minutes and the recording of the attenuation values has been extended up to 15 or 30 minutes later. Examples of some test results are collected in *Figures 3* to *5*.

All the results are positive with very limited attenuation increase (less than 0.2 dB/fibre) for any of the fibre types tested. This really confirms that the ceramifiable protection, in combination with an appropriate cable design, is able to preserve the fibre performance from fire load also in cable solutions with high fibre density.

## 3 Conclusion

The cable family developed with a special protective layer to preserve the fibres transmission performances from fire action is particularly effective when the application of flame is turned off and the material contractions start. The cables have been developed in metallic armoured and all dielectric version with the optical fibres organised in micromodules up to 144 fibres with a very compact design, and are now available on the market. ■

## 4 Acknowledgements

The authors would like to thank their many colleagues within Prysmian who have contributed to this work, and in particular Paolo Marelli and Gianluigi Radaelli for the helpful support.

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## „Ehrenpflicht“ Goldjubiläum

OM LESMO feierte das 50. Jubiläum des Unternehmens mit einem Galadinner bei der wire 2012 in Düsseldorf.

Die Kunden feierten zusammen mit Dr. Alvaro Piva, Präsident und CEO, der persönlich das Unternehmen über 20 Jahre lang leitete, mit Dipl. Ing. Giovanni Cecchini-Manara, kaufmännischer Leiter, und mit Dr. Maria Laura Piva, die derzeit als Marketingleiterin arbeitet.

Während einer Rede sagte Giovanni Cecchini-Manara: „50 Jahre sind ein langes Leben, eigentlich länger als meins, und heute hier sein zu können macht mich sehr stolz, denn wir sind das Ergebnis all der Bemühungen von so vielen guten Menschen, die vor uns tätig waren.“

„Die gute geleistete Arbeit der Personen, die hier vor uns tätig waren, und vor allem die sehr gute mit Ihnen - unseren Kunden und Partnern - auf so vielen Weisen großzügig über die Jahre hinaus erweiterten Partnerschaft und Unterstützung, sind die Basis, auf der unsere heutige Präsenz möglich wurde.“

Er fügte hinzu: „Ich möchte insbesondere all den Kunden danken, die ihr Vertrauen wiederholt in unsere Ausrüstungen gesetzt haben, durch die zahlreichen Maschinen, die in den Jahren in deren Werken installiert wurden. Dabei denke ich an Kunden rund um die Welt, in allen fünf Kontinenten.“

„Mit einer Menge Begeisterung feiern wir



▲ Gäste beim Galadinner in Düsseldorf

heute unser Goldjubiläum. Es handelt sich nicht lediglich um ein Jubiläum; es ist ein hervorragender Erfolg, dem wir unsere Ehre zu erweisen haben.“

Und es war ein doppeltes Jubiläum für OM Lesmo, denn es wurde auch durch die lange Beschäftigung von Silvio Oriani gekennzeichnet, der im Unternehmen fast 30 Jahre lang tätig war.

Seine Kompetenz – einschließlich 30 Jahre als Leiter in einem Kabelherstellungswerk – stand schon immer im Interesse der Kunden, dank seiner Fähigkeit die geeignetste Lösung für deren Probleme zu finden, von standardmäßigen bis zu speziellen – und oft einzigartigen – Produktionsanforderungen.

**OM Lesmo – Italien**  
Website: [www.omlesmo.com](http://www.omlesmo.com)



▲ Silvio Oriani

## Neue Software, bessere Funktionalität

Das Hamburger Softwareunternehmen Simufact Engineering stellt ab sofort die neuen Versionen seiner Simulationssoftware Simufact.forming und Simufact.welding zur Verfügung.

Mehr Funktionalität für ein vergrößertes Einsatzfeld bei zugleich vereinfachter Bedienung – so lautet das Credo für die neuen Softwareversionen, die für die Auslegung und Optimierung von Produktionsprozessen in der Metallverarbeitung zum Einsatz kommen.

Unternehmen, die verschiedene Fertigungsprozesse in der Prozesskette (vom Halbzeug zum fertigen Bauteil) miteinander verknüpfen wollen, kommen mit den neuen Simufact Software-Releases dem Ziel einer ganzheitlichen Betrachtung und prozessübergreifenden simulatorischen Abbildung gesamter Prozessketten wieder ein Stück näher.

Mit seinen Simulationslösungen deckt Simufact alle wesentlichen Produktionsprozesse ab – vom Schmieden

über die Kaltmassivumformung, Walzen, Blechumformung, mechanisches Fügen bis hin zur Wärmebehandlung und dem Schweißen.

Standardisierte Schnittstellen unterstützen die Kunden dabei, die Simufact-Lösungen schnell und zuverlässig in vorhandene CAD-/CAE-Umgebungen zu integrieren.

Einen großen Schritt nach vorne macht Simufact bei der Integration von Materialdaten in die Simulation von Umform- und Fügeprozessen: Simufact.forming 11 und Simufact.welding 3.1 erschließen dem Anwender nicht nur eine Vielzahl von neuen, experimentell ermittelten Materialdaten, sondern ermöglichen den Zugang zu qualitativ hochwertigen analytischen Materialdaten zugunsten einer deutlich höheren Genauigkeit der Simulationsergebnisse.

**Simufact Engineering GmbH – Deutschland**  
Website: [www.simufact.com](http://www.simufact.com)

## Verbindung von Arbeit und Familienleben im Büro

SIKORA verfügt nun über ein Eltern-Kind-Büro. Väter und Mütter haben die Möglichkeit, ihre Kinder mit ins Unternehmen zu bringen in einer Kinderbetreuung für den Notfall. Durch das Eltern-Kind-Büro können sie weiterarbeiten und dabei ihre Kinder betreuen. Ziel dieser angebotenen Möglichkeit ist es, die Vereinbarkeit zwischen Arbeit und Familienleben zu fördern.

Insbesondere in unvorhersehbaren Situationen, wie z. B. wenn eine Kinderbetreuung fehlt oder bei Ferienzeiten der Kindergärten wegen verlängerter Wochenenden, bietet dieses Büro eine Unterstützung um Familien- und Berufsansforderungen zu vereinbaren.

„Dieses Service gilt als Unterstützung und hilft auch dabei die Abwesenheit der arbeitenden Eltern zu vermeiden“, so Bernadette Sikora, geschäftsführender Partner von Sikora Holding GmbH & Co KG. „Außerdem wird damit das Interesse bei Sikora angestellt zu sein gesteigert.“



▲ Die Eltern-Kind-Stelle bietet Müttern und Vätern eine Unterstützung in einer Kinderbetreuung für den Notfall

Das kürzlich eingerichtete Eltern-Kind-Büro richtet sich an Kinder jedes Alters. Von der Wickeltischauflage, einem Liegebereich, einem Kinderbett, Spielzeuge, Malmaterial, Bücher und Bauklötze, stehen Eltern alles was ihre Kinder benötigen könnten zur

Verfügung. Die Ausstattung wurde vom Unternehmen finanziert sowie durch Spenden zahlreicher Angestellten.

**Sikora AG – Deutschland**  
**Website:** [www.sikora.net](http://www.sikora.net)

## Industrielles Hochleistungs-Ethernet-Kabel

Alpha Wire Company, ein führender Hersteller fortschrittlicher Lösungen und Dienstleistungen im Bereich Draht, Kabel und Rohre, hat seine Xtra-Guard-Hochleistungspalette erweitert durch das Hinzufügen eines industriellen Ethernet-Kabels, das für Anwendungen bestimmt sind, die einen abriebfesten sowie chemikalien- und sonnenlichtbeständiges Cat 5e-Kabel mit einem großen beständigen Temperaturbereich (-50°C bis +125°C) benötigen.

Mit einem abriebfesten thermoplastischen Elastomer-Mantel mit dreimaliger Niedertemperatur-Flexibilität und hochwertiger Beständigkeit gegen Lösungsmittel, Chemikalien und Treibstoffe als gängiges PVC, sind die neuen Cat 5e-Kabel so entworfen worden, dass sie eine robuste, dauerhafte Verbindung für die herausfordernden Netzwerkanforderungen bieten.

Xtra-Guard Industrial Ethernet-Kabel sind in einer Auswahl von ungeschirmten



▲ Das neue industrielle Hochleistungs-Ethernet-Kabel, Teil der Palette Xtra-Guard

Folienschirm- oder Supra-Shield®-Folie/-Geflecht verfügbar. Das Supra-Shield von Alpha Wire setzt eine Kombination von Aluminium/Polyester/Aluminiumfolie und verzinkten Kupfergeflecht ein, die eine hervorragende EMI-Leistung und -Flexibilität bietet.

Darüber hinaus sind die Kabel UV- und flüssigkeitsbeständig, erfüllen UL 1666 Riser und CSA FT-4 Flammentests und eignen sich für die NFPA 79 Anwendungen.

Dieses Anschlusskabel ist in einem Temperaturbereich von -50°C bis +125°C bei FEP-isolierten Leitern und -50°C bis +105°C bei Polyethylen-isolierten Leitern verfügbar. Zur

Verfügung steht der TPE-Mantel in schwarz mit Standardlängen von 152 m (500 Fuß). Andere Farben, einschließlich rot und blaugrün, sind als Sonderauftrag vorhanden.

Spezielle Anwendungen für das industrielle Ethernet schließen Robotertechnik/Stellantriebe beim Maschinen-Vorrichtungsniveau ein sowie PLCs bei der Kontrollebene und Servers beim Unternehmensniveau, gemeinsam mit allen Anwendungen, die Temperaturextremen, den Außenbereich, den mechanischen Widerstand, die Aussetzung gegenüber Chemikalien oder elektrischen geräuschvollen Umgebungen einbeziehen.

Unter den Industrien und Organisationen, die von diesen neuen Kabel profitieren, ist der Bereich Militär, Öl und Gas, Bergbau, Hochgeschwindigkeitskommunikationen, Prozesssteuerungssysteme, Schutz- und Sicherheitsverbindung und Hersteller von Originalteilen von Halbleitern.

**Alpha Wire – USA**  
**Website:** [www.alphawire.com](http://www.alphawire.com)

# Feuerhemmende Lichtwellenleiterkabel

Von L Caimi, D Ceschiati und M Maritano, Prysmian SpA, Mailand, Italien, und E Consonni, Prysmian Cavi e Sistemi Italia Srl, Mailand, Italien

## Übersicht

Eine neue Generation feuerhemmender Lichtwellenleiterkabel wurde entwickelt, um die geforderten Sicherheitsniveaus in kritischen Umgebungen zu erfüllen, wie z. B. bei öffentlichen Gebäuden, U-Bahn sowie Industriebereichen. Diese neuen Kabel behalten ihre optischen Übertragungssysteme mit einem sehr geringen Dämpfungswechsel eine lange Zeit bei, entsprechend der internationalen Standards. Dieser innovative Kabelaufbau, mit Einsatz eines speziellen keramisierbaren Compounds und geeigneten Flammenabschirmungen, ermöglicht die Überwachung der Wärmefreisetzung und die Gewährleistung des geeigneten Niveaus an mechanischen Schutz für die Lichtwellenleiter während der Brandphase. Somit werden alle Dämpfungsänderungen begrenzt und Übertragungsunterbrechungen vermieden.

## 1 Einleitung

Raucharme, halogenfreie (LSZH) flammwidrige und feuerbeständige Kabel, aus Kupfer sowie aus Lichtwellenleitern, werden verbreitet eingesetzt um die erforderlichen Sicherheitsniveaus in kritischen Umgebungen zu erfüllen, wie z. B. bei öffentlichen Gebäuden bzw. Krankenhäusern, Alters- und Pflegeheimen, Kinos und Theatern, U-Bahn, Straßentunneln sowie Industriebereichen.

Bei Lichtwellenleiterkabeln wird im Brandfall die Signalübertragungsleistung von der zusätzlichen Dämpfung des Lichtwellenleiters auf direkte Weise beeinflusst und somit die Wirksamkeit des Sicherheitssystems, wo eine ununterbrochene Übertragung für die Betätigung von Notgeräten erforderlich ist, wie z. B. Telefon, Videoüberwachung, automatische Türen, Gebäudeautomation und Feueralarme. Die Funktionalität des Lichtwellenleiterkabels muss während des Brandfalls erhalten bleiben und in der Regel auch für einen vorgegebenen Zeitraum. Von diesem Szenario ausgehend wurde eine feuerhemmende Kabelgeneration mit einer hohen Faserzahl entworfen, in einer

kompakten Ausführung, voll dielektrisch oder mit armierten Metallaufbauten.

## 2 Feuerhemmendes Lichtwellenleiterkabel: Lösung mit neuer Kabelgeneration

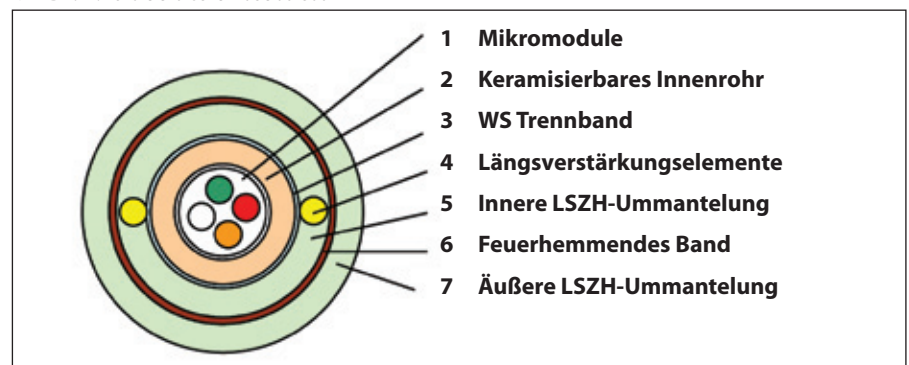
Konventionelle feuerhemmende Kabel können nicht völlig die Dämpfungserhöhung des optischen Signals während einer Brandeinwirkung vermeiden; schlimmer ist jedoch, dass die optischen Leistungen völlig verschwinden, wenn der Brand gelöscht ist und einige mechanische Brüche bei den spröden Lichtwellenleitern entstehen. Tatsächlich erweist sich in den Übergangsbereichen zwischen den Kabelabschnitten, die direkt den

Flammen ausgesetzt werden, und in den angrenzenden nicht verbrannten Teilen, insbesondere während der Kühlphase, dass das Material, das sich noch um die Fasern befindet, abkühlt und schrumpft und somit einen örtlichen Druck an den Fasern bewirkt, die ohne Beschichtungsschutz brechen oder die Signaldämpfung erheblich erhöhen können.

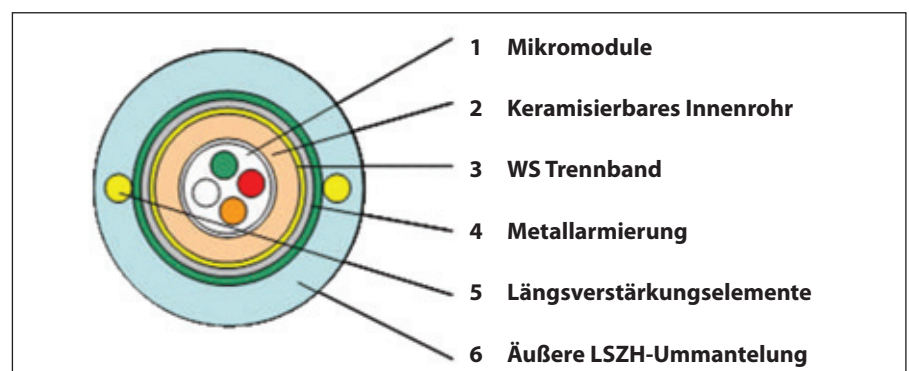
Der typische Faseraufbau in einem Lichtwellenleiterkabel basiert auf verseilten Kunststoff-Bündeladern (multi-loose); der aktuelle Trend ist die Faserzahl zu erhöhen und dabei die Größe des Endkabels zu reduzieren oder zumindest nicht zu erhöhen. Aus den oben genannten Gründen wurde ein unterschiedlicher Kabelaufbau entworfen, um die Dichte der Fasern zu erhöhen und den Faserzugang zu erleichtern.

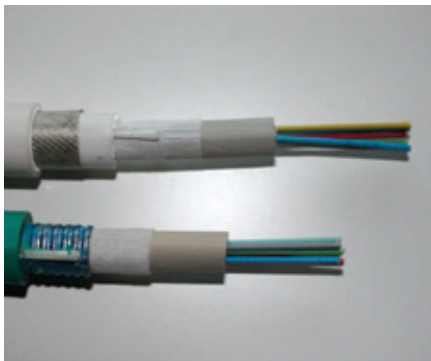
Abhängig von der Anwendung werden gelegentlich die Anforderungen hinsichtlich der Feuerbeständigkeit

▼ Bild 1: Volldielektrischer Kabelaufbau



▼ Bild 2: Metallisch armierter Kabelaufbau





▲ Bild 1: Metallische und volldielektrische Kabelversion



▲ Bild 2: IEC 60331-25 Brandtest



▲ Bild 3: EN 50200 Brandtest

mit Barrieren gegen Tierangriffe und überlegener mechanischer Leistung kombiniert, daher ist ein Metallschutz erforderlich; in anderen Fällen führen die Probleme, die durch magnetische oder elektrische Interferenz verursacht werden, zu einer volldielektrischen Lösung.

Bei der Entwicklung beider Aufbauten wurde berücksichtigt, dass die Anforderungen diversifizierter Anlagen und Märkte erfüllt werden. Daher wurde die entwickelte Kabelgeneration entworfen, um sich nachfolgenden Anforderungen anzupassen:

- Einhaltung der optischen Übertragungsfähigkeit während des Brandfalls
- Vermeidung von Brüchen bei den Lichtwellenleitern nach der Feuerlöschung
- Erhöhung der Faserzahl in einem kompakteren Aufbau
- Vorhandensein eines Metallschutzes oder einer volldielektrischen Ausführung

Als Konsequenz der oben beschriebenen Anforderung, wurden die neuen Kabel mit einem Aufbau entworfen, der basiert auf:

- Lichtwellenleiter in Bündel organisiert in der Form von Mikromodulen
- eine umliegende rohrförmige Schicht aus einem speziellen keramisierbaren Werkstoff
- eine zusätzliche Flammenabschirmung, metallisch oder dielektrisch
- ein flammwidriger LSZH-Mantel

## 2.1 Keramisierbare Schicht als erste absolute Brandbarriere

Um den Lichtwellenleitern während eines Brands einen absoluten Schutz zu gewährleisten, ist es wichtig um den Lichtwellenleitern herum eine undurchlässige Barriere zu bauen. Während ein Metallrohr eine offensichtliche Lösung darstellen könnte, ist diese Lösung nicht ganz so durchführbar wegen der unterschiedlichen Schrumpfungsverhalten zwischen Metall und Glas sowie einiger Herstellungseinschränkungen. Darüber hinaus sind Kunststoffmaterialien nicht dazu geeignet, Temperaturen bis zu

800-1000°C standzuhalten, auch in der flammwidrigen Version mit geeigneten Mineraladditiven, verwandeln sie sich völlig in Asche.

Die Lösung ist ein Werkstoff, der einer Flammenwirkung widerstehen kann ohne zu brennen oder sich in einer ausreichenden Zeit zu zersetzen, um somit die Bildung einer darunterliegenden Schicht eines keramisierbaren Materials zu ermöglichen und daher die Keramisierung zu vervollständigen. Ein spezielles Compound wurde entwickelt basierend auf einer Mischung anorganischer Füllmaterialien, die sich durch ein anderes Verhalten bei der Temperatur auszeichnen, die stufenweise die Viskosität sowie die Sinterfähigkeit schmilzt und regelt.

Es ist sinnvoll im Kabelaufbau eine zweite Schicht zur Flammenabschirmung einzuführen, um einen direkten Kontakt zwischen dem keramisierbaren Rohr und dem Feuer zu vermeiden; denn die Abschirmungsschicht ermöglicht ein einheitlicheres und ein schrittweises Verdichtungsverfahren des keramisierbaren speziellen Compounds, wodurch wiederum ein festes rohrförmiges Endelement entsteht, das

die Lichtwellenleiter gleichmäßig schützt. In diesem Fall kann der Abschirmungstyp ziemlich konventionell sein, bzw. aus Glimmer- oder Stahlband.

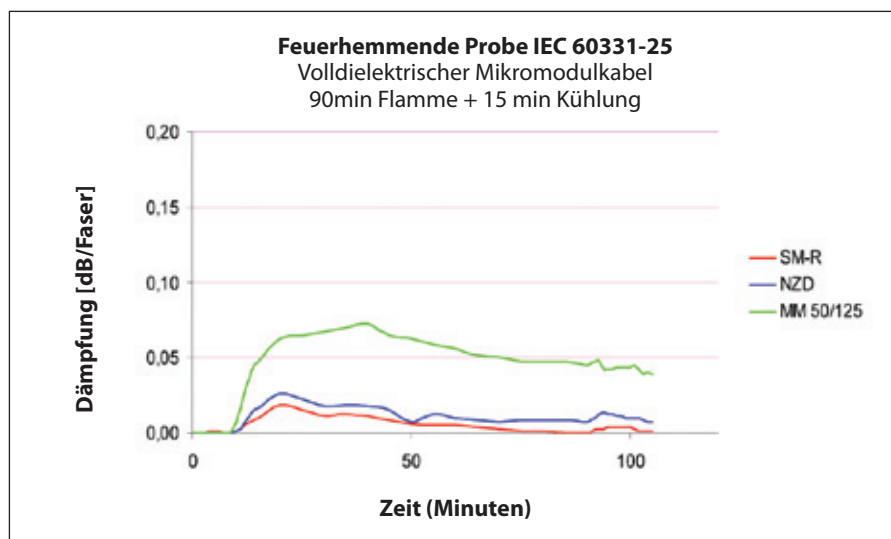
## 2.2 Kabelaufbau

Von der Idee eines feuerhemmenden Kabels ausgehend - das auf einem keramisierbaren Rohr basiert, umgeben von einer äußeren Feuerabschirmung, die gegen einen direkten Kontakt mit dem Feuer schützt - hängen die anderen Elemente des Kabelaufbaus von den mechanischen und optischen Anforderungen ab, basierend auf den Installations- und Betriebsbedingungen.

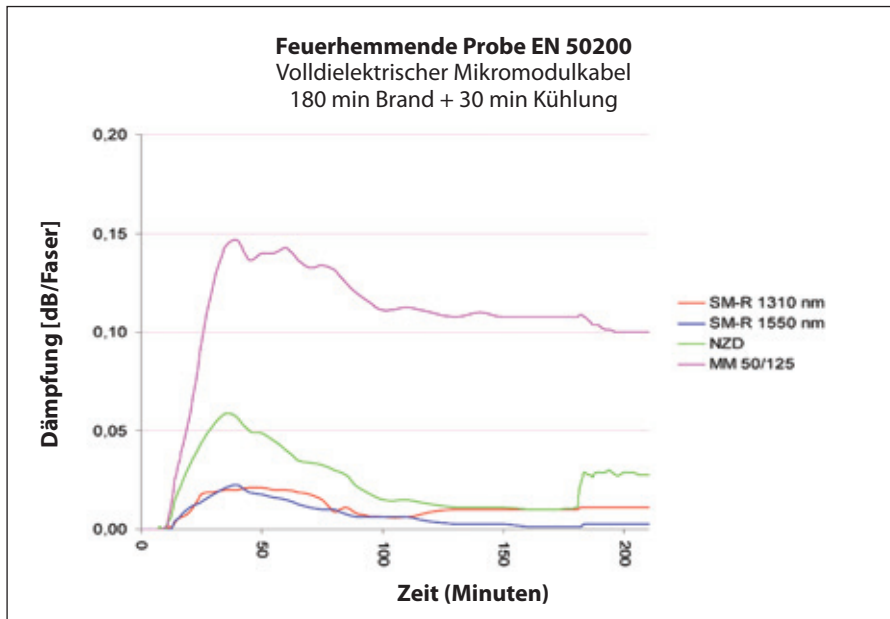
Für die dielektrische Version wird über das zentrale keramisierbare Innenrohr ein flammwidriger Zwischenmantel eingesetzt, der durch zwei längsweits in der Umhüllungswand eingebettete Glasstäbe verstärkt ist; diese Glasstäbe können sowohl der Zugbeanspruchung wie Niedertemperaturschrumpfung widerstehen. Danach werden einige feuerhemmende Bänder gemeinsam mit dem äußeren LSZH-Mantel angebracht.

Der Querschnitt der entwickelten volldielektrischen Version ist in Bild 1 dargestellt.

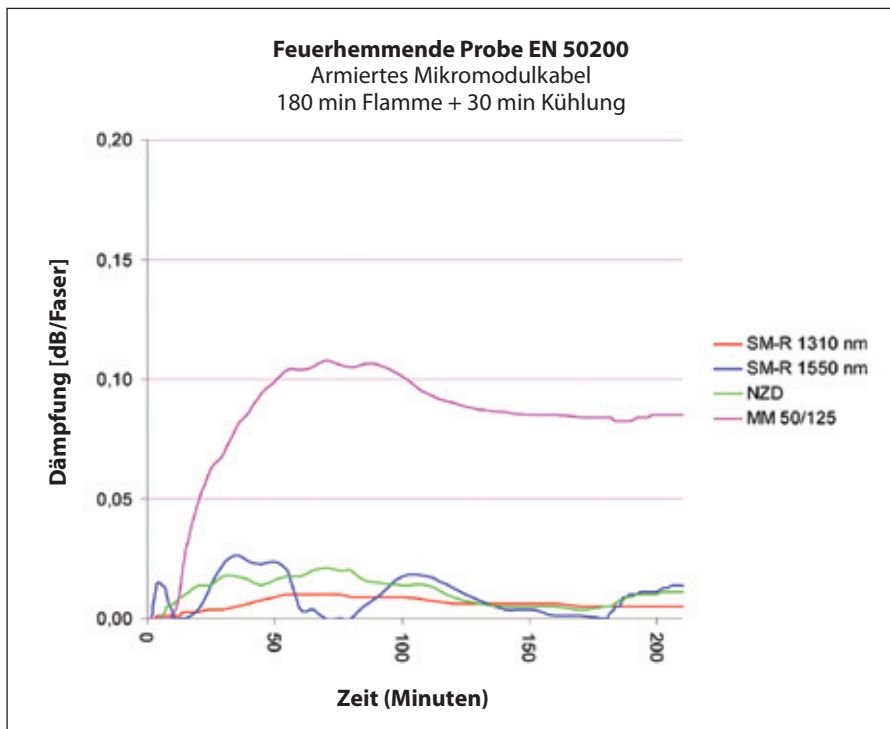
▼ Bild 3: Feuerhemmende Probe volldielektrischer Versionen gemäß IEC 60331-25







▲ Bild 4: Feuerhemmende Probe voll-dielektrischer Versionen gemäß EN50200



▲ Bild 5: Feuerhemmende Probe der armierten Version gemäß EN 50200

Bei der metallischen armierten Version wird das Stahlwellenband über das keramisierte Rohr aufgetragen, gefolgt von einem äußeren HFFR-Mantel, verstärkt durch zwei Glasstäbe mit gleicher obenerwähnter Funktion.

Der Querschnitt der entwickelten armierten Version ist in Bild 2 dargestellt.

### 2.3 Kabeltests und -produktion

Kabel in voll-dielektrischer und metallischer Version wurden von 48 bis 144 Lichtwellenleiter entwickelt. Viele Versuchstests wurde vor der Produktion der Endversionen durchgeführt; danach

wurden die Kabel komplett gekennzeichnet hinsichtlich der optischen, mechanischen und thermischen Leistungen, gemeinsam mit dem Brandverhalten, wie nachfolgend berichtet. In Bild 1 sind zwei Kabelproben dargestellt.

### 2.4 Kabelbezeichnung

Zwei Kabelaufbauten wurden mit drei unterschiedlichen Typen von Lichtwellenleitern hergestellt, d. h. SM-R, NZD und MM.

Die Kabel wurden entsprechend den wichtigsten internationalen Brandtests geprüft, bzw. IEC 60331-25 und EN50200.

Bild 2 und 3 zeigen die an den Kabeln durchgeführten Brandtests.

Jeder Fasertyp wurde in Schleifen geschlossen und an den Led-Stromzähler angeschlossen, wobei die Erhöhung der Dämpfung bei 1310 und 1550 nm im Kreislauf mit SMR-Fasern, bei 1550 nm mit NZD-Fasern und bei 1300 nm mit MM-Fasern gemessen wurde. Das Feuer dauert 90 oder 180 Minuten und die Erfassung der Dämpfungswerte wurde um bis zu 15 oder 30 Minuten später erweitert. Beispiele einiger Prüfergebnisse sind in den Bildern 3–5 gesammelt. Sämtliche Ergebnisse sind positiv mit einer sehr eingeschränkten Dämpfungserhöhung (unter 0,2 dB/Faser) für jeder der geprüften Fasertypen. Das stellt eine deutliche Bestätigung dafür dar, dass der keramisierte Schutz, in Kombination mit einem geeigneten Kabelaufbau, die Faserleistung vor der Brandlast schützen kann, auch bei Kabellösungen mit hoher Faserdichte.

## 3 Schlussfolgerung

Die Kabelgeneration, die mit einer speziellen Schutzschicht entworfen wurde, um die Faserübertragungsleistungen vor der Feuerwirkung zu schützen, ist besonders wirksam, wenn die Beflammung abgestellt wird und die Materialschumpfung beginnt.

Die Kabel wurden in metallischer armierter und voll-dielektrischer Version entwickelt, mit Lichtwellenleitern in Mikromodulen bis zu 144 Lichtwellenleitern organisiert, in einer sehr kompakten Ausführung, und sind nun auf dem Markt erhältlich. ■

## 4 Danksagung

Die Autoren möchten den zahlreichen Kollegen bei Prysmian danken, die zu dieser Studie beigetragen haben, und insbesondere Paolo Marelli und Gianluigi Radaelli für die hilfreiche Unterstützung.

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# Чествование золотого юбилея

Компания «ОМ ЛЕСМО» (OM LESMO) отметила пятидесятилетнюю годовщину своего создания торжественным ужином на выставке wire 2012 в Дюссельдорфе.

Праздничное мероприятие проводилось совместно с заказчиками в присутствии президента и главного исполнительного директора д-ра Альваро Пива (Alvaro Piva), который осуществляет личное руководство компанией на протяжении более 20 лет, коммерческого директора, технолога Джованни Чеккини-Манара (Giovanni Cecchini-Manara) и д-ра Марии Лауры Пива (Maria Laura Piva), в настоящее время занимающей должность руководителя отдела сбыта. В своем выступлении Джованни Чеккини-Манара сказал следующее: «50 лет – это большой срок, больше даже, чем мой собственный жизненный путь, и я крайне горд тем, что сегодня присутствую здесь, поскольку наша компания является собой результат тех усилий, которые были предприняты до нас столь многими достойными людьми».

«Превосходная работа тех, кто работал в компании до нас, и, в особенности, тот высочайший уровень партнерского взаимодействия и поддержки, который



▲ Гости на торжественном ужине в Дюссельдорфе



▲ Сильвио Ориани

вы, наши заказчики и партнеры, в столь многих направлениях демонстрируете по отношению к нашей компании на протяжении многих лет, – это тот фундамент, который лежит в основе самой возможности нашего существования здесь и сейчас». «Разрешите мне поблагодарить, – добавил он, – в частности, всех заказчиков, которые неоднократно демонстрировали со своей стороны доверие выпускаемому нашей компанией оборудованию, установив на своих предприятиях на протяжении многих лет большое количество производственных установок. Я говорю о заказчиках во всех странах мира, на всех пяти континентах».

«Мы с большой радостью отмечаем золотой юбилей нашей компании. Это – не просто юбилей, а выдающееся

достижение, которому мы обязаны воздать славу». Впрочем, для «ОМ лесмо» это стало двойным торжеством: юбилей компании совпал с годовщиной работы в ней Сильвио Ориани (Silvio Oriani), который проработал на предприятии почти 30 лет.

Его профессиональные знания и опыт, в том числе полученные за 30 лет работы руководителем кабельного предприятия, всегда служили интересам заказчиков и были направлены на поиск наиболее подходящих решений стоящих перед ними задач – от испытательного стенда до специальных и зачастую строго индивидуальных технологических требований.

**OM Lesmo (Италия)**  
Web-страница: [www.omlesmo.com](http://www.omlesmo.com)

## Новые программы – более высокий уровень функциональности

«Симуфакт инжиниринг» (Simufact Engineering), компания-разработчик программного обеспечения со штаб-квартирой в Гамбурге, теперь предлагает новые версии выпускаемых ею программных средств имитационного моделирования – Simufact.forming и Simufact.welding.

Предоставляя увеличенные функциональные возможности для более широкой сферы применения при одновременном повышении простоты и удобства пользования, новые версии программного обеспечения используются для разработки и оптимизации производственных технологий в металлообрабатывающей промышленности.

С новыми версиями программного обеспечения компании «Симуфакт» предприятия, стремящиеся объединить различные производственные процессы в единую технологическую цепочку (от полуфабрикатов до готовых комплектующих изделий), смогли приблизиться к своей цели – комплексному, кросс-функциональному подходу при моделировании полных технологических цепочек. Решения по имитационному моделированию

от компании «Симуфакт» распространяются на все важнейшие производственные процессы: отковки до холодной объемной штамповки, прокатки, листовой штамповки, механической сборки, термообработки и сварки. Стандартные интерфейсы также обеспечивают для заказчиков быструю и надежную интеграцию программного обеспечения «Симуфакт» в используемые ими программные комплексы автоматизированного проектирования и конструирования.

Серьезным успехом стала интеграция компанией «Симуфакт» технических данных на материалы в процесс моделирования технологий штамповки и сборки: версии Simufact.forming 11 и Simufact.welding 3.1 не только предлагают множество новых, экспериментально полученных данных на материалы, но и предоставляют возможность доступа к высококачественным аналитическим данным, обеспечивая таким образом точность результатов моделирования.

**Simufact Engineering GmbH (Германия)**  
Web-страница: [www.simufact.com](http://www.simufact.com)

# Сочетая работу с семейной жизнью в офисе

Теперь в компании «Сикора» (Sikora) есть кабинет помощи родителям и детям. В случае острой необходимости в уходе за ребенком папы и мамы имеют возможность привести своих детей в компанию. В кабинете помощи они могут продолжать работу одновременно с уходом за детьми. Целью создания этого кабинета является совмещение трудовой и семейной жизни. В частности, в непредвиденных ситуациях, например, когда отсутствует возможность ухода за ребенком, либо в случае закрытия детских садов на период летних отпусков существование кабинета помогает сочетать семейные и профессиональные обязанности.

«Кабинет стал средством помощи, позволяющим предупредить невыход на работу работающих родителей, – сказала Бернадетта Сикора (Bernadette Sikora), управляющий партнер «Сикора холдинг ГмБХ & Ко КГ» (Sikora Holding GmbH & Co KG). – Более того, это увеличивает привлекательность работы в компании «Сикора». Недавно открывшийся кабинет помощи родителям и детям работает с детьми всех возрастов. В



▲ Кабинет помощи родителям и детям приходит на выручку мамам и папам по уходу за детьми в экстренных случаях

распоряжении родителей есть все необходимое для их детей – от столов с подставками для пеленания, места для питания, детских кроваток, игрушек, принадлежностей и материалов для рисования до книг и детских кубиков.

Оборудование было закуплено за счет средств компании и на пожертвования со стороны многих сотрудников.

**Sikora AG (Германия)**  
Web-страница: [www.sikora.net](http://www.sikora.net)

## Высококачественный кабель для промышленных сетей Ethernet

Компания «Алфа уайр» (Alpha Wire), поставщик передовых решений и услуг на рынке проволочно-кабельной продукции и трубных изделий, расширила выпускаемую ею линейку высококачественных кабелей Xtra-Guard, дополнив ее кабелем для промышленных сетей Ethernet, предназначенным для условий, в которых требуется использование химически стойких, устойчивых к абразивному износу и воздействию солнечных лучей кабелей категории 5e, рассчитанных на широкий диапазон температур (от -50°C до +125°C).

Новые кабели категории 5e в износостойкой оболочке из термопластичного эластомера, демонстрирующей трехкратное увеличение гибкости при низких температурах и более высокую стойкость к воздействию растворителей, химических реагентов и топлива по сравнению с оболочкой из обычного ПВХ, должны обеспечить

прочность и долговечность соединений для решения наиболее сложных задач организации сетей.

Кабели серии Xtra-Guard для промышленных сетей Ethernet выпускаются в нескольких исполнениях на выбор: неэкранированные, с фольгированным экраном или комбинированным экраном из фольги и оплетки типа Supra-Shield®. В предлагаемом компанией «Алфа уайр» экроне Supra-Shield используется комбинация трехслойной фольги (алюминий, полиэфирная смола, алюминий) и оплетки из луженой меди, которая обеспечивает исключительно высокие эксплуатационные показатели защиты от электромагнитных помех и гибкости. Кроме того, кабели характеризуются стойкостью к воздействию ультрафиолетового излучения и жидких сред, соответствуют критериям испытаний на огнестойкость, предусмотренным стандартами Лаборатории по технике безопасности

США UL 1666 Riser (для кабелей, прокладываемых в вертикальных стойках) и Канадской ассоциации по стандартизации CSA FT-4, а также пригодны для применения в соответствии с требованиями Национальной ассоциации пожарной безопасности NFPA 79.

Соединительные кабели данного типа предлагаются в исполнении с изоляцией из сополимера тетрафторэтилена и гексафторпропилена для использования в диапазоне температур от -50°C до +125°C и с изоляцией из полиэтилена для использования в диапазоне температур от -50°C до +105°C. Кабели с оболочкой черного цвета из термопластичного эластомера стандартно предлагаются мерными длинами по 152 метра (500 футов). Кабели с оболочкой других цветов, включая красный и бирюзовый, производятся по специальным заказам.

**Alpha Wire (США)**  
Web-страница: [www.alphawire.com](http://www.alphawire.com)

## Огнестойкие волоконно-оптические кабели

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### Аннотация

Разработано новое семейство огнестойких волоконно-оптических кабелей, предназначенное для обеспечения необходимого уровня безопасности на критически важных объектах, таких как общественные здания, метрополитен, а также в промышленных зонах.

Новые кабели в течение длительного времени сохраняют свои характеристики светопропускания с очень незначительным изменением затухания сигнала в соответствии с требованиями международных стандартов. Предлагаемая инновационная конструкция кабеля, в которой используются специальный керамообразующий композиционный материал и соответствующие плазмезащитные экраны, позволяет контролировать тепловыделение и гарантирует надлежащий уровень механической защиты оптических волокон в фазе горения, ограничивая тем самым пределы отклонения затухания и предотвращая прерывание передачи сигнала.

### 1 Введение

Не поддерживающие горения кабели из безгалогенных материалов с низким выделением дыма (LSZH) и огнестойкие кабели, как медные, так и оптоволоконные, широко используются для обеспечения необходимого уровня безопасности на критически важных объектах, таких как общественные здания, т. е. больницы, дома для престарелых, санатории, кинотеатры и театры, метрополитен, железнодорожные туннели, а также в промышленных зонах.

Применительно к волоконно-оптическим кабелям дополнительное затухание сигнала в оптическом волокне при возникновении пожара непосредственным образом

сказывается на характеристиках пропускания сигнала, а там, где для работы вспомогательных устройств, таких как телефоны, системы кабельного телевидения, автоматические двери, системы управления зданием и пожарная сигнализация, требуется непрерывная передача сигнала, – соответственно и на эффективности систем безопасности. Работоспособность волоконно-оптического кабеля должна обеспечиваться во время пожара и, как правило, также в течение заданного периода времени после него. Исходя из этого сценария было разработано семейство огнестойких кабельных изделий с большим числом волокон в компактном, полностью диэлектрическом или металлоармированном исполнении.

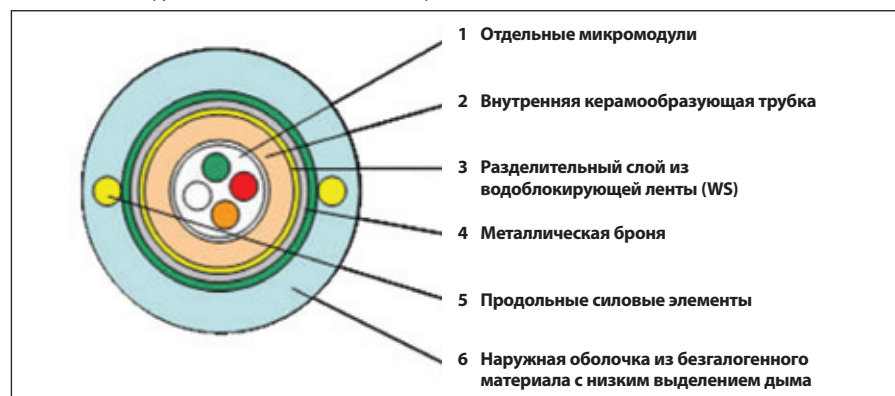
### 2 Огнестойкие волоконно-оптические кабели: новое семейство кабельных изделий модернизированной конструкции

Обычные огнестойкие кабели не способны полностью предупредить усиление затухания оптического сигнала под воздействием огня, но что еще хуже, так это то, что после тушения пожара отмечается полная утрата оптических свойств, и происходят

▼ Рис. 1. Полностью диэлектрическая конструкция кабеля



▼ Рис. 2. Конструкция кабеля с металлической броней



отдельные механические разрушения хрупкого стекловолокна. Фактически на участках перехода между сегментами кабеля, которые подверглись непосредственному воздействию огня, и не обгоревшими прилегающими сегментами, особенно на стадии охлаждения, температура оставшегося вокруг волокон материала снижается, и происходит его усадка, в результате чего возникает локальное давление на волокна, что в отсутствие защитной оболочки может привести к разрыву волокон или существенному усилению затухания сигнала.

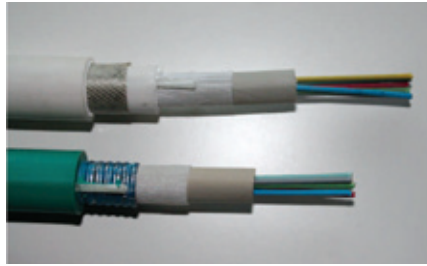
В основе стандартной схемы размещения волокон в волоконно-оптическом кабеле лежит многомодульная конструкция, состоящая из пластмассовых модульных трубок, скрученных вокруг центрального силового элемента. В настоящее время наблюдается тенденция к наращиванию числа волокон с уменьшением или, как минимум, без увеличения диаметра конечного кабельного изделия. В силу вышеуказанных причин была разработана иная конструкция кабеля, позволяющая увеличить плотность волокон и обеспечить доступ к ним.

В зависимости от сферы применения кабельных изделий требования к огнестойкости в ряде случаев регламентируются в сочетании с необходимостью в использовании материалов, обеспечивающих защиту от повреждений в результате действий животных, а также с обязательными высокими физико-механическими свойствами, поэтому должна предусматриваться защита металлическим покрытием; в других случаях нарушения, вызываемые магнитными или электрическими помехами, обуславливают использование полностью диэлектрической конструкции.

Обе конструкции разработаны с учетом требований различных установок и конъюнктуры рынка. В этой связи при разработке нового семейства кабельных изделий проектировщики стремились выполнить следующие требования:

- обеспечить пропускную способность оптических сигналов во время пожара;
- не допустить повреждения оптических волокон после тушения пожара;
- увеличить число волокон в более компактной конструкции;
- обеспечить металлическую защиту или предусмотреть полностью диэлектрическое исполнение.

Ввиду вышеуказанных требований конструкция новых кабелей создана на основе следующих компонентов:



▲ Фото 1. Кабель с металлической броней и полностью диэлектрический кабель

- оптических волокон, сгруппированных в пучки в форме микромодулей;
- сопредельного трубчатого слоя вокруг волокон, выполненного из специального керамообразующего материала;
- дополнительного пламезащитного экрана из металла или диэлектрика;
- оболочки из не поддерживающих горения безгалогенных материалов с низким выделением дыма.

## 2.1 Слой из керамообразующего материала, как первый высокоэффективный противопожарный барьер

Для обеспечения стопроцентной защиты оптических волокон во время пожара необходимо создать вокруг них непреодолимый барьер. Несмотря на очевидную возможность использования в качестве нужного решения металлической модульной трубки, из-за различий в параметрах объемного сжатия металла и стекла, а также определенных производственных ограничений данный способ может представляться не таким уж бесспорным. Более того, пластмассы не могут выдерживать температуру со значениями, достигающими 800-1000°C, при этом они, пусть даже при использовании не поддерживающей горения рецептуры с соответствующими минеральными присадками, превращаются в золу с неустойчивой структурой и полностью разрушаются.

Решением этой проблемы является создание материала, способного выдерживать воздействие пламени без обгорания или разрушения в течение достаточного времени для образования нижележащего слоя из керамообразующего материала, завершающего процесс керамизации. Разработан специальный состав на основе смеси из неорганических наполнителей, характеризующихся разными свойствами в условиях температурного воздействия, с нарастающим оплавлением и регулированием вязкости и спекаемости. Для целей предупреждения прямого контакта керамообразующей трубки с огнем представляется целесообразным



▲ Фото 2. Испытание на огнестойкость согласно стандарту МЭК 60331-25



▲ Фото 3. Испытание на огнестойкость согласно стандарту EN 50200

предусмотреть в конструкции кабеля второй экранирующий слой, защищающий от воздействия пламени. Фактически такой экранирующий слой позволяет добиться более высокой однородности и поступательности процесса уплотнения структуры специального керамообразующего композиционного материала, с получением конечного твердотельного элемента трубчатой топологии, который обеспечивает равномерную защиту оптических волокон. В этом случае оболочка может быть совершенно стандартного типа, т. е. выполненной из микаленты или стальной ленты.

## 2.2 Конструкция кабеля

Как и в рамках концепции создания огнестойкого кабеля на основе керамообразующей трубки, окруженной внешним огнестойким экраном, который защищает от непосредственного контакта с огнем, в основу всех остальных элементов конструкции кабеля также заложены требования к физико-механическим и оптическим характеристикам с учетом условий монтажа и эксплуатации.

В диэлектрической конструкции на центральную внутреннюю керамообразующую трубку наложена промежуточная, не поддерживающая горения оболочка, которая армирована двумя продольными стеклянными стержнями, заделанными в стенку

оболочки; при этом стеклянные стержни выдерживают нагрузки как при растяжении, так и при усадке под воздействием низких температур. Поверх нанесены несколько слоев огнестойкой ленты, а также наружная оболочка, выполненная из безгалогенного материала с низким выделением дыма. Вид в разрезе усовершенствованной, полностью диэлектрической конструкции представлен на рис. 1.

В конструкции с металлической броней поверх керамообразующей трубки сначала нанесена гофрированная

стальная лента, а затем – наружная оболочка из безгалогенного и не поддерживающего горения материала, армированная двумя стеклянными стержнями, которые выполняют ту же функцию, которая описана выше.

Вид в разрезе усовершенствованной конструкции с металлической броней представлен на рис. 2.

### 2.3 Испытания и производство кабельных изделий

Разработаны кабельные изделия полностью диэлектрической конструкции и в исполнении с металлической броней, с количеством оптических волокон от 48 до 144 штук. Перед изготовлением окончательной конструкции проведены многочисленные испытания, после чего выполнены исследования оптических, физико-механических и тепловых характеристик, а также параметров огнестойкости кабелей, результаты которых приводятся ниже. На фото 1 представлены два образца кабелей.

Рис. 3. Испытание на огнестойкость кабелей полностью диэлектрической конструкции согласно стандарту МЭК 60331-25

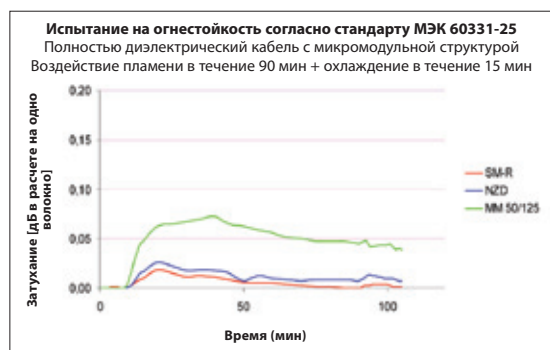


Рис. 4. Испытание на огнестойкость кабелей полностью диэлектрической конструкции согласно стандарту EN 50200

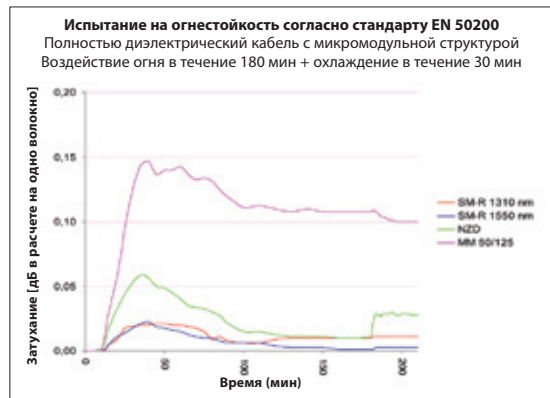
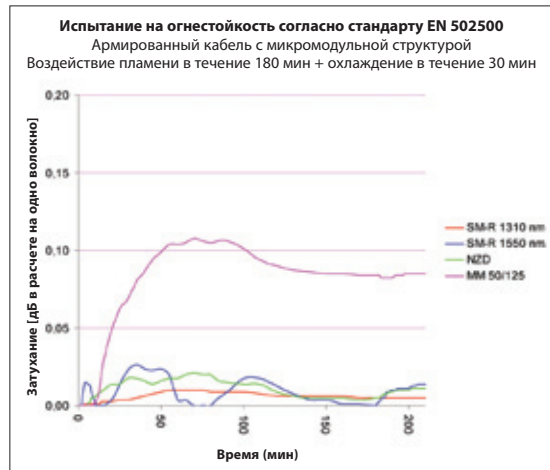


Рис. 5. Испытание на огнестойкость армированных кабелей согласно стандарту EN 50200



### 2.4 Исследование характеристик кабельных изделий

Обе рассматриваемые конструкции кабеля изготовлены с использованием оптических волокон трех разных типов, а именно: одномодовых волокон с пониженным затуханием (SM-R), волокон с ненулевой дисперсией (NZD) и многомодовых волокон (MM). Испытания кабелей проводились в соответствии с основными международными стандартами определения огнестойкости, т. е. МЭК 60331-25 и EN 50200. На фото 2 и 3 представлены стенды, использовавшиеся для испытаний кабелей.

Кабель из оптоволокон каждого типа закольцовывался с подключением измерителя мощности со светодиодным индикатором для определения увеличения затухания сигнала при длине волны 1310 и 1550 нм в цепи из одномодовых волокон с пониженным затуханием, при длине волны 1550 нм в цепи из волокон с ненулевой дисперсией и при длине волны 1300 нм в цепи из многомодовых волокон.

Продолжительность воздействия огня составляла 90 или 180 минут, а последующая регистрация значений затухания сигнала была увеличена соответственно до 15 или 30 минут. Отдельные результаты испытаний представлены на фото 3, 4 и 5.

Все испытания дали положительные результаты при очень ограниченном росте затухания сигнала (менее 0,2 дБ в расчете на одно волокно) в оптических волокнах любого типа. Это является реальным подтверждением способности керамообразующей защиты в сочетании с соответствующей конструкцией кабеля обеспечивать сохранение эксплуатационных характеристик оптоволокон под воздействием пожарной нагрузки также и в кабельных конструкциях с высокой плотностью волокон.

## 3 Заключение

Разработанное семейство кабельных изделий с особым защитным слоем для обеспечения сохранения пропускной способности оптических волокон в условиях воздействия огня демонстрирует особенно высокую эффективность по окончании воздействия источником пламени и с началом сжатия материала. Кабели имеют конструкцию с металлической броней и полностью диэлектрическое исполнение с укладкой до 144 оптических волокон в очень компактные микромодули и в настоящее время уже предлагаются на рынке.

## 4 Выражение признательности

Авторы хотели бы поблагодарить своих многочисленных коллег из компании «Призмиян», которые сделали возможным написание настоящей работы, и, в частности, Паоло Марелли и Джанлуиджи Радаэлли за их любезную поддержку.

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# OM Lesmo célèbre son 50ème anniversaire

OM LESMO a célébré le 50ème anniversaire de la société avec un dîner de gala à wire 2012 à Düsseldorf.

Les clients ont fêté l'événement avec M. Alvaro Piva, président et directeur général, qui a personnellement dirigé la société pendant plus de 20 ans, M. Giovanni Cecchini-Manara, directeur commercial, et Mme Maria Laura Piva actuellement directrice du marketing.

Durant son discours, M. Giovanni Cecchini-Manara a affirmé: "50 ans sont une longue vie, en fait plus longue que la mienne, et je suis fier d'être ici aujourd'hui parce que nous sommes le résultat des efforts de nombreuses personnes valables qui ont travaillé avant nous."

Le bon travail exécuté par les personnes qui nous ont précédé au sein de la société et spécialement la collaboration optimale et le support que vous, clients et partenaires, nous avez généreusement offert de différentes façons au fil des années, sont les raisons essentielles à la base de notre présence ici aujourd'hui."

Il a également ajouté: "Laissez-moi remercier, en particulier, tous les clients qui ont accordé leur confiance, à maintes reprises, à nos équipements en installant, au fil des ans, différentes machines dans leurs usines. Je parle des clients que nous avons de par le monde, dans les cinq continents.



▲ Invités au dîner de gala à Düsseldorf

C'est avec un grand enthousiasme qu'aujourd'hui nous célébrons notre 50ème anniversaire. Il ne s'agit pas seulement d'un anniversaire, mais également d'une réussite importante que nous avons le devoir d'honorer".

Cet événement a été une double célébration pour OM Lesmo, qui a également mis en évidence les presque 30 ans de bons et loyaux services dans notre société de M. Silvio Oriani.

Sa compétence, avec 30 ans de service comme directeur d'un établissement de production de câbles, a toujours été mise au service des clients, à la recherche des solutions les plus indiquées pour résoudre leurs



▲ Silvio Oriani

problèmes, dans le but de satisfaire les exigences de production standard ou spécifiques et souvent même particulières.

**OM Lesmo – Italie**

**Website:** [www.omlesmo.com](http://www.omlesmo.com)

## Nouveau logiciel, meilleure fonctionnalité

La société informatique Simufact Engineering basée à Hambourg, offre actuellement de nouvelles versions de son logiciel de simulation Simufact.forming et Simufact.welding.

Fournir une majeure fonctionnalité pour un champ d'application plus ample et en même temps une utilisation simplifiée, est l'objectif des nouvelles versions de logiciel utilisées pour la conception et l'optimisation des techniques de fabrication dans le processus des métaux.

Avec les nouveaux modèles de logiciel Simufact, les sociétés qui désiraient connecter les différents processus de production dans la chaîne de processus (du matériau semi-fini au composant fini) ont presque atteint leur objectif consistant à réaliser une approche intégrée, transversale dans la simulation de toute la chaîne de processus.

Les solutions de simulation de Simufact couvrent tous les processus de production essentiels allant du forgeage à forgeage massif à froid, les jonctions mécaniques, les traitements thermiques et les soudages. En outre, les interfaces standard permettent aux clients une intégration rapide et fiable du logiciel Simufact dans les environnements correspondants CAD/CAE.

Un progrès significatif est représenté par l'intégration des données du matériel dans la simulation des processus de formage et de jonction. Simufact.forming 11 et Simufact.welding 3.1 non seulement offrent une multitude de données nouvelles et expérimentales sur le matériel, mais ils fournissent également l'accès aux données analytiques des matériaux de haute qualité en assurant ainsi des résultats de simulation précis.

**Simufact Engineering GmbH – Allemagne**

**Website:** [www.simufact.com](http://www.simufact.com)

# Concilier le travail et la vie familiale dans le bureau

SIKORA dispose actuellement d'un bureau où les employés peuvent amener leurs enfants. Les pères et les mères ont la possibilité d'amener leurs enfants sur leur lieu de travail en cas d'urgence. Dans le bureau, destiné aux parents et aux enfants, ils peuvent continuer à travailler et en même temps s'occuper de leurs enfants. Le but de ce service est de mieux concilier le travail et la vie familiale.

En particulier, en cas d'imprévus, tels que manque d'un service de supervision des enfants ou pour faire face aux congés des écoles maternelles, le bureau permet de concilier les raisons familiales et celles professionnelles.

"Ce service est un soulagement et il contribue en outre à éviter l'absentéisme des parents qui travaillent", a déclaré Bernadette Sikora, associé directeur de Sikora Holding GmbH & Co KG. "De plus, l'intérêt de travailler avec Sikora est ainsi accentué".

Le bureau récemment, meublé pour



▲ Le bureau prévu pour accueillir les enfants des employés contribue à aider les mères et les pères en cas d'urgence

veiller sur les enfants des employés, accueille des enfants de tous âges. Les parents peuvent disposer de tout ce dont les enfants ont besoin (table à langer, aires de repos, lit, jouets, matériel pour les dessins, livres et jeux de briques

de construction). L'équipement a été financé par la société et par les donations de nombreux employés.

**Sikora AG – Allemagne**  
**Website:** [www.sikora.net](http://www.sikora.net)

## Câble Ethernet Industrial à hautes performances

Alpha Wire Company, fournisseur de solutions et de services avancés dans le secteur du fil, du câble et des tubes a étendu sa gamme de câbles Xtra-Guard hautes performances en ajoutant le câble Ethernet Industrial conçu pour des applications exigeant un câble de Cat 5e résistant aux agents chimiques, à l'abrasion et à la lumière solaire et pouvant supporter une ample gamme de températures (de -50°C à +125°C).

Caractérisés par un revêtement élastomérique thermoplastique résistant à l'abrasion, trois fois plus flexibles aux basses températures et avec une résistance supérieure aux solvants, aux substances chimiques et aux combustibles par rapport au PVC traditionnel, les nouveaux câbles de Cat 5e sont conçus pour fournir une connectivité durable et fiable indiquée pour les exigences les plus rigoureuses du réseau.

Les câbles Ethernet Industrial

Xtra-Guard sont disponibles dans une gamme de versions sans revêtement, revêtus avec des feuilles de métal, ou avec une feuille/tresse Supra-Shield®.

La version Supra Shield d'Alpha Wire utilise une combinaison d'aluminium/polyester/feuille d'aluminium et tresse de fil de cuivre étamé offrant des performances excellentes d'interférence électromagnétique (EMI) et de flexibilité.

En outre, les câbles sont résistants aux rayons UV et aux fluides, conformes aux exigences des essais à la flamme selon les normes UL 1666 Riser et CSA FT-4 et indiqués pour l'utilisation dans les applications NFPA 79.

Ce câble de connectivité est disponible pour une gamme de températures allant de -50°C à +125°C sur des conducteurs pourvus d'isolement FEP et des températures allant de -50°C à +105°C sur des

conducteurs pourvus d'isolement en polyéthylène. Le revêtement TPE est disponible en noir avec des longueurs standard de 152 mètres (500 pieds).

Le câble est également disponible en d'autres couleurs, y compris le rouge et le turquoise pour des commandes spécifiques.

Des applications spécifiques pour Ethernet Industrial comprennent la robotique/les actionneurs au niveau du dispositif de la machine, les API au niveau du contrôle, et les serveurs au niveau de la société, ainsi que des applications comprenant l'utilisation à des températures extrêmes, en plein air, l'usure mécanique, l'exposition aux agents chimiques ou des environnements bruyants d'un point de vue électrique.

**Alpha Wire – États-Unis**  
**Website:** [www.alphawire.com](http://www.alphawire.com)



# Câble à fibre optique résistant au feu

Par L Caimi, D Ceschiati et M Maritano, Prysmian SpA, Milan, Italie, et E Consonni, Prysmian Cavi e Sistemi Italia Srl, Milan, Italie

## Résumé

Une nouvelle famille de câbles à fibre optique résistants au feu a été développée afin d'offrir les niveaux de sécurité nécessaires dans les environnements critiques tels que les bâtiments publics, les métros et les zones industrielles.

Ces nouveaux câbles maintiennent leurs caractéristiques de transmission optique avec une variation d'atténuation minimale pour un temps prolongé conformément aux normes internationales. Cette conception de câble innovée, utilisant un composé céramifiable spécifique et des gaines ignifuges appropriées permet de contrôler l'émission de chaleur et de garantir le niveau de protection mécanique requis par les fibres optiques pendant la phase de combustion, en limitant ainsi les variations d'atténuation et les interruptions de transmission.

## 1 Introduction

Les câbles LSZH, à basse émission de fumée et sans halogènes, retardeurs de flamme et résistants au feu, en cuivre et optiques, sont largement utilisés pour fournir les niveaux de sécurité nécessaires dans les environnements critiques tels que les bâtiments publics, c'est-à-dire: hôpitaux, cliniques et maison de retraite, cinémas et théâtres, métros, chemins de fer souterrains ainsi que les zones industrielles.

En ce qui concerne les câbles de fibre optique, en cas d'incendie, l'atténuation supplémentaire de la fibre optique influence directement les performances de transmission des signaux et, par conséquent, l'efficacité des systèmes de sécurité exigeant une transmission ininterrompue pour le fonctionnement des dispositifs d'urgence tels que les téléphones à circuit fermé, les portes automatiques, les systèmes de gestion du bâtiment et les alarmes d'incendie.

En outre, la fonctionnalité du câble à fibre optique doit être maintenue en cas d'incendie et, souvent, même pour un temps prédéterminé. En partant de cette situation, une famille de câbles résistants au feu, avec un grand nombre de fibres a été

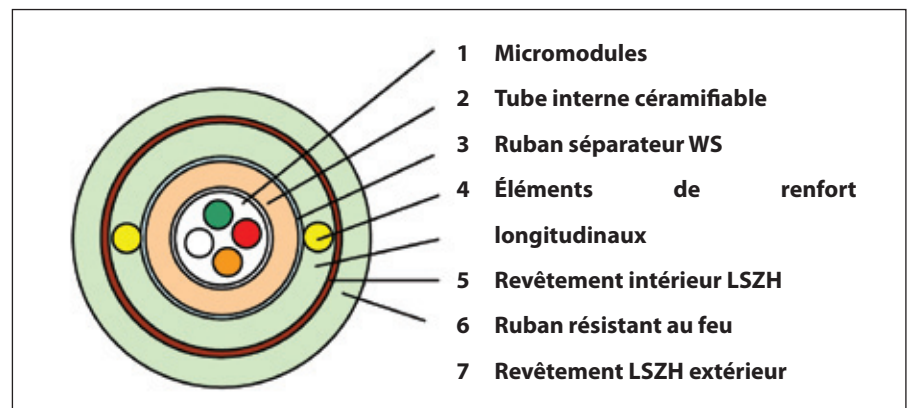
développée dans une structure compacte et totalement diélectrique ou avec une armure métallique.

## 2 Câble à fibre optique résistant au feu: solution avec une nouvelle famille de câbles

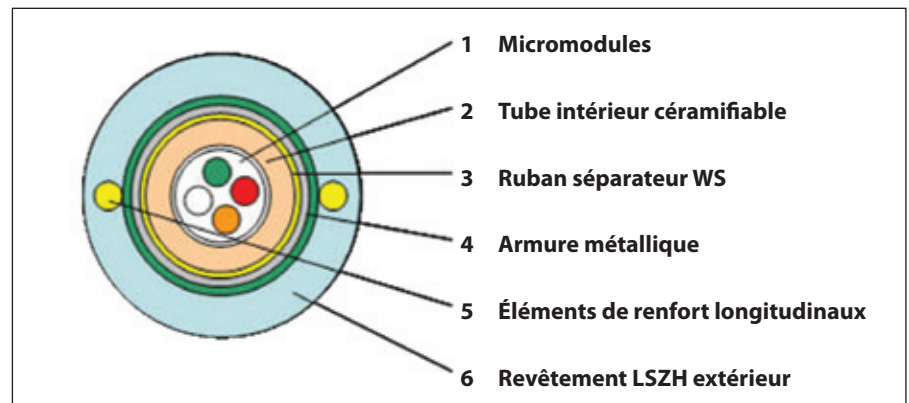
Les câbles résistants au feu traditionnels ne peuvent éviter complètement l'augmentation d'atténuation du signal optique durant l'exposition au feu; en outre, ce qui est pire, c'est qu'à la suite de l'extinction d'un incendie les performances optiques disparaissent complètement et des ruptures mécaniques se produisent dans les fibres de verre fragiles.

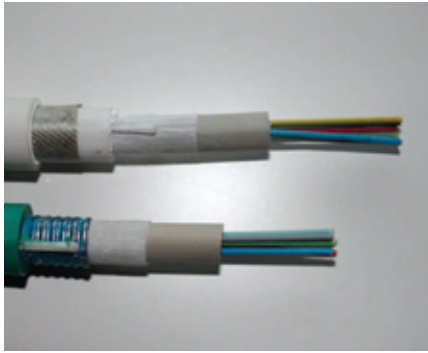
En fait, dans les zones de transition entre les sections de câble directement exposées à la flamme et les parties contiguës non brûlées, notamment durant la phase de refroidissement, les matériaux entourant encore les fibres, se refroidissent et se contractent en provoquant une pression locale sur les fibres qui, privées de la protection du revêtement, peuvent subir des ruptures ou peuvent augmenter considérablement le signal d'atténuation. La disposition typique des fibres dans un câble à fibre optiques se base sur une structure multitube, constituée de tubes en plastique assemblés toronnés; actuellement il y a la tendance à augmenter le nombre des fibres et à réduire ou tout du moins à éviter d'augmenter les dimensions du câble final. Par conséquent, une nouvelle conception de câble permettant d'augmenter la densité des fibres et de faciliter leur accès a été développée.

▼ Figure 1: Structure du câble entièrement diélectrique



▼ Figure 2: Structure du câble armé métallique





▲ **Photo 1:** Version du câble métallique et entièrement diélectrique



▲ **Photo 2:** Essai de résistance au feu IEC 60331-25



▲ **Photo 3:** Essai de résistance au feu IEC 50200

En fonction de l'application, parfois les spécifications de résistance au feu sont associées à l'installation de barrières de protection contre les animaux et à des performances mécaniques supérieures, en exigeant une protection métallique. Dans d'autres cas, les problèmes dus à des interférences magnétiques ou électriques exigent une solution complètement diélectrique.

Les deux structures ont été développées dans le but de répondre aux exigences d'installations et de marchés différents. Par conséquent, on a conçu une famille de câbles pour répondre aux exigences suivantes:

- maintenir la capacité de transmission optique pendant l'incendie
- éviter des ruptures optiques après l'extinction de l'incendie
- augmenter le nombre de fibres dans une structure compacte
- disposer d'une protection métallique ou d'une structure entièrement diélectrique

Conformément aux spécifications indiquées ci-dessus, les nouveaux câbles ont été conçus avec une structure basée sur:

- des fibres optiques organisées en faisceaux sous forme de micromodules
- une couche tubulaire réalisée avec un matériau spécifique céramifiable autour des fibres
- un gainage supplémentaire anti-flamme, métallique ou diélectrique
- un revêtement LSZH retardeur de flamme

## 2.1 Couche céramifiable comme première barrière absolue anti-feu

Pour garantir une protection totale des fibres optiques pendant un incendie, il est important de réaliser une barrière impénétrable autour des fibres. Un tube métallique pourrait représenter une solution logique, mais pas facile à réaliser à cause des différentes réactions de contraction entre le métal et le verre et de certaines limitations de fabrication. En outre, les matières plastiques ne sont pas

conçues pour résister à des températures arrivant jusqu'à 800-1000°C et, et également dans la version retardatrice de flamme avec des additifs minéraux appropriés, ils se transforment en cendre.

La solution est un matériau capable de résister à l'action de la flamme sans brûler ou de se détériorer pendant un temps suffisant à consentir la formation d'une couche de base de matériau céramifiable pour compléter la céramisation.

Un composé spécifique a été développé, basé sur un mélange de matériaux de remplissage inorganiques qui répondent de façons différentes à la température, ils s'amalgament graduellement et contrôlent la viscosité et la capacité de sintérisation.

Il est avantageux d'introduire une deuxième couche de gainage résistant à la flamme dans la structure du câble pour éviter le contact direct du tube céramifiable avec le feu. En fait, la couche de gainage permet un processus de compactage plus homogène et graduel du composé céramifiable spécifique jusqu'à obtenir un élément tubulaire solide qui protège les fibres optiques de façon uniforme.

Dans ce cas, le type de gainage peut être traditionnel, par exemple de ruban en mica ou en acier.

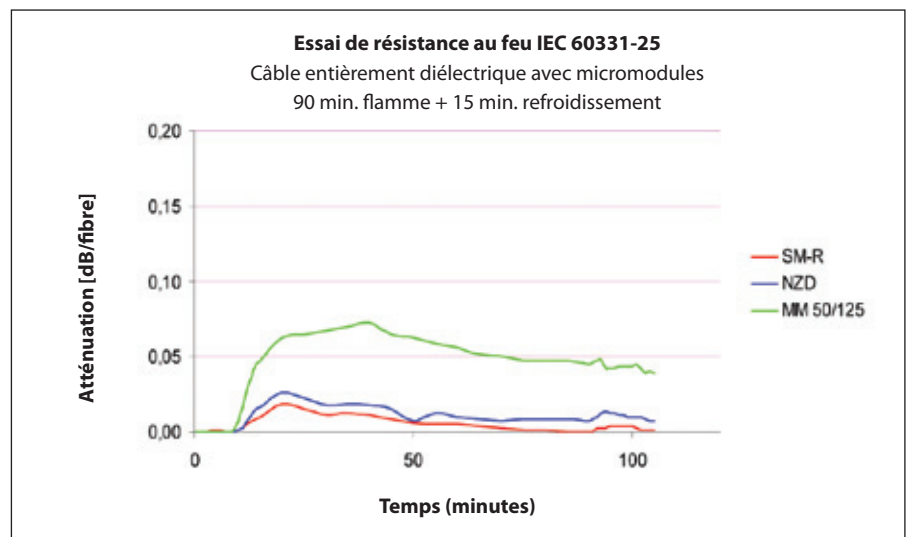
## 2.2 Structure des câbles

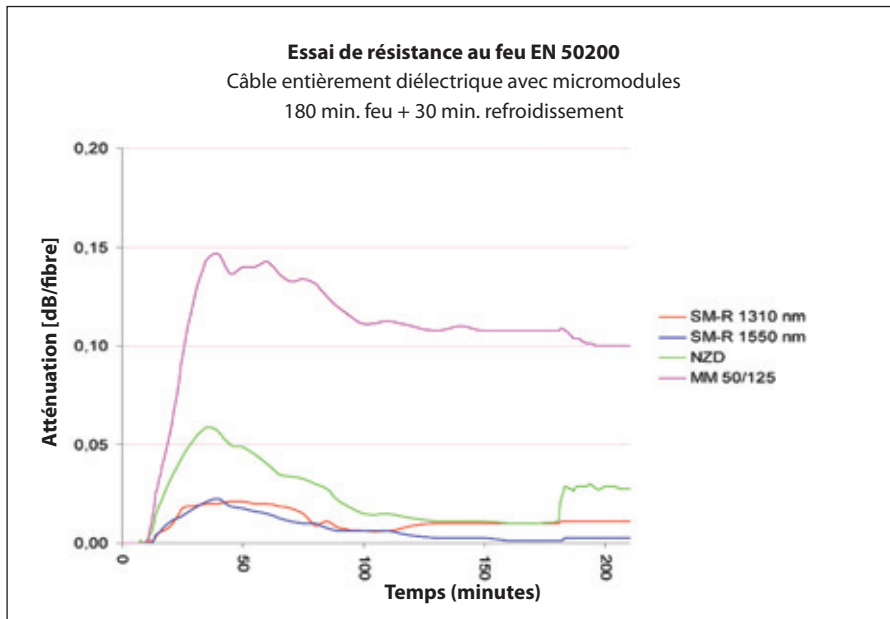
En partant de l'idée d'un câble résistant au feu, consistant en un tube céramifiable entouré d'un gainage extérieur de protection contre le contact direct avec le feu, les autres éléments de la structure du câble dépendent des spécifications mécaniques et optiques basées sur les conditions d'installation et de fonctionnement.

En ce qui concerne la version diélectrique, au-dessus du tube central intérieur céramifiable on applique une gaine intermédiaire retardatrice de flamme et renforcé par deux tiges de verre longitudinales incorporées dans la paroi de revêtement; les tiges de verre résistent à la force de traction et à la contraction par refroidissement. Ensuite, des rubans résistants au feu sont appliqués avec la gaine LSZH extérieure. La section de la version complètement diélectrique développée est représentée à la Figure 1.

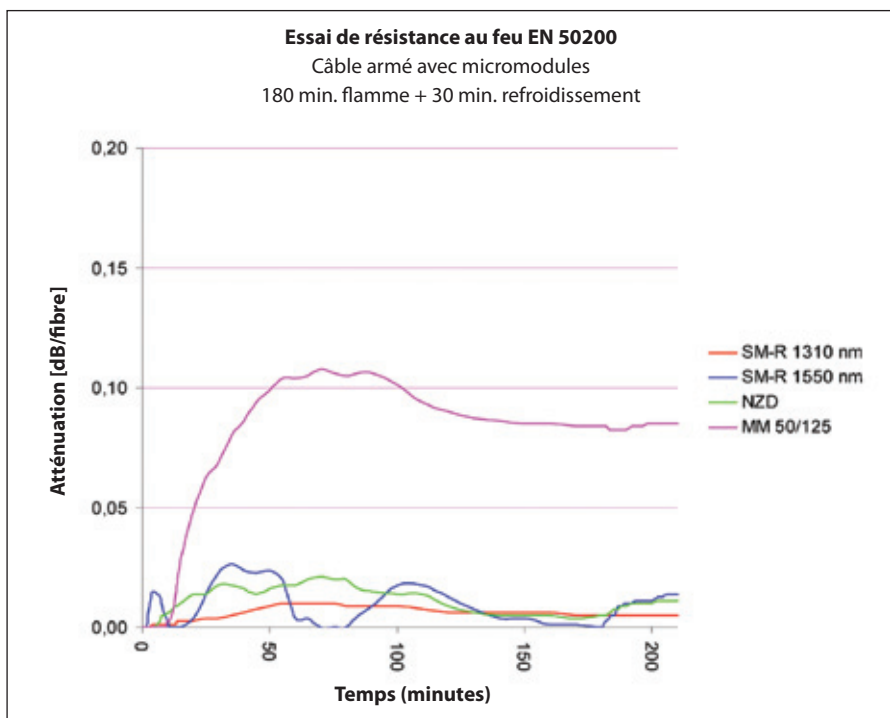
La version métallique armée prévoit l'application d'un ruban d'acier ondulé sur

▼ **Figure 3:** Essai de résistance au feu des versions entièrement diélectriques conformément à la norme IEC 60331-25





▲ **Figure 4:** Essai de résistance au feu des versions entièrement diélectriques conformément à la norme EN50200



▲ **Figure 5:** Essai de résistance au feu de la version armée conformément à la norme EN50200

le tube céramifiable et ensuite d'une gaine HFFR extérieure renforcée avec deux tiges de verre ayant la même fonction décrite ci-dessus. La section de la version armée développée est illustrée à la Figure 2.

### 2.3 Essais et production des câbles

Des câbles en version entièrement diélectrique et métallique ont été développés de 48 à 144 fibres optiques. De nombreux essais ont été effectués avant de produire les versions finales.

Ensuite, les câbles ont été complètement caractérisés pour les performances optiques, mécaniques et thermiques et

pour leur comportement au feu comme décrit ci-après. La Photo 1 montre deux échantillons de câbles.

### 2.4 Caractérisation des câbles

Deux conceptions de câble ont été mises au point avec trois types différents de fibre optique, SM-R, NZD et MM.

Les câbles ont été essayés conformément aux principaux essais de résistance au feu internationaux tels que les normes IEC 60331-25 et EN50200.

Les photos 2 et 3 illustrent les essais de résistance au feu réalisés avec les câbles.

Chaque type de fibre a été renfermé dans un circuit et a été connecté à un mesureur de puissance à diode électroluminescente, mesurant l'augmentation de l'atténuation à 1310 et 1550nm dans le circuit avec les fibres SMR, à 1550nm avec les fibres NZD et à 1300nm avec les fibres MM.

L'exposition au feu a été de 90 ou 180 minutes et l'enregistrement des valeurs d'atténuation a été prolongé jusqu'à 15 ou 30 minutes plus tard.

Les exemples de certains résultats des essais sont illustrés aux Figures 3-5. Tous les résultats sont positifs avec une augmentation d'atténuation très réduite (moins de 0,2 dB/fibre) pour tout type de fibre testée.

Cela confirme clairement que la protection céramifiable, associée à une structure de câble appropriée, peut maintenir les performances des fibres en cas d'incendie, également dans le cas de solutions avec câbles à haute densité de fibres.

## 3 Conclusions

La famille de câbles développée avec une couche protectrice spécifique pour sauvegarder les performances de transmission des fibres de l'action du feu est particulièrement efficace lorsque cesse l'action de la flamme et que la contraction du matériau commence.

Des câbles en version entièrement diélectrique, équipés d'une armure métallique avec jusqu'à 144 fibres optiques arrangées dans des micromodules et une structure plus compacte, ont été développés. Ils sont actuellement disponibles sur le marché. ■

## 4 Remerciements

Les auteurs souhaitent remercier les nombreux collègues de Prysmian qui ont collaboré à la réalisation du présent article, et en particulier Paolo Marelli et Gianluigi Radaelli pour leur support précieux.

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# OM Lesmo celebra il suo 50° anniversario

OM LESMO ha celebrato il 50° anniversario della società con una cena di gala a wire 2012 a Düsseldorf.

I clienti hanno festeggiato l'evento con il Dr. Alvaro Piva, presidente e direttore esecutivo, che ha personalmente diretto la società per oltre 20 anni, l'Ing. Giovanni Cecchini-Manara, direttore commerciale, e la Dr. Maria Laura Piva attualmente direttrice del marketing.

Durante il suo discorso, Giovanni Cecchini-Manara ha affermato: "50 anni sono una lunga vita, effettivamente più lunga della mia, e sono fiero di essere qui oggi perché noi siamo il risultato degli sforzi di numerose persone capaci che hanno lavorato prima di noi."

Il valido lavoro delle persone che ci hanno preceduto all'interno della società e specialmente l'ottima collaborazione e il supporto che voi, clienti e soci, ci avete generosamente offerto in vario modo nel corso degli anni, sono le ragioni fondamentali che hanno reso possibile la nostra presenza qui oggi."

Ed ha inoltre aggiunto: "Consentitemi di ringraziare, in particolare, tutti i clienti che hanno ripetutamente riposto la loro fiducia nei nostri equipaggiamenti, installando nelle proprie officine varie macchine nel corso degli anni."



▲ Ospiti alla cena di gala a Düsseldorf

Mi riferisco ai clienti che abbiamo in tutto il mondo, in tutti e cinque i continenti.

È con molto entusiasmo che oggi festeggiamo il nostro 50° anniversario. Non si tratta solo di un anniversario, ma di un conseguimento importante che abbiamo l'obbligo di onorare".

È stata una doppia celebrazione per OM Lesmo che ha anche testimoniato il lungo servizio prestato da Silvio Oriani che ha lavorato nella società per quasi 30 anni.

La sua competenza, con 30 anni come dirigente in uno stabilimento di produzione di cavi, è sempre stata posta al servizio dei clienti, alla ricerca delle soluzioni più adeguate per risolvere i loro problemi, nell'intento di soddisfare le



▲ Silvio Oriani

esigenze di produzione standard o speciali e spesso persino singolari.

**OM Lesmo - Italia**  
Website: [www.omlesmo.com](http://www.omlesmo.com)

## Nuovo software, migliore funzionalità

La società informatica Simufact Engineering con sede ad Amburgo, offre ora delle nuove versioni del proprio software di simulazione Simufact.forming e Simufact.welding.

Fornire una maggiore funzionalità per un campo di applicazione più ampio e contemporaneamente un utilizzo semplificato, è l'obiettivo delle nuove versioni di software utilizzate per la progettazione e l'ottimizzazione delle tecniche di fabbricazione nella lavorazione dei metalli.

Con i nuovi modelli del software Simufact, le società che volevano

collegare vari processi di produzione nella catena di processo (dal materiale semifinito al componente finito) hanno quasi raggiunto il loro obiettivo di realizzare un approccio integrato, trasversale nella simulazione dell'intera catena di processo.

Le soluzioni di simulazione di Simufact coprono tutti i processi produttivi essenziali dalla forgiatura alla deformazione massiva a freddo, la laminazione, la formatura di lamiera, le giunzioni meccaniche, i trattamenti termici e le saldature. Le interfacce standard inoltre, consentono ai clienti un'integrazione rapida e affidabile del

software Simufact nei rispettivi ambienti CAD/CAE.

Un passo in avanti significativo è rappresentato dall'integrazione dei dati relativi al materiale nella simulazione di processi di formatura e giunzione. Simufact.forming 11 e Simufact.welding 3.1 non solo offrono una moltitudine di dati nuovi e sperimentali sul materiale, ma forniscono anche l'accesso a dati analitici dei materiali di alta qualità assicurando così risultati di simulazione precisi.

**Simufact Engineering GmbH - Germania**  
Website: [www.simufact.com](http://www.simufact.com)

## Cavo Ethernet Industrial ad alte prestazioni

Alpha Wire Company, fornitore di soluzioni e servizi avanzati nel settore del filo, del cavo e dei tubi, ha ampliato la sua gamma di cavi Xtra-Guard ad alte prestazioni con l'aggiunta di un cavo ethernet industriale progettato per applicazioni che richiedono un cavo di Cat 5e resistente alle sostanze chimiche, all'abrasione e alla luce solare e che possa sopportare un'ampia gamma di temperature (da -50°C a +125°C).

Caratterizzati da un rivestimento elastomerico termoplastico resistente all'abrasione, 3 volte più flessibili alle basse temperature e con una resistenza superiore ai solventi, alle sostanze chimiche e ai combustibili rispetto al normale PVC, i nuovi cavi di Cat 5e sono progettati per fornire una connettività durevole e affidabile adatta ai più rigidi requisiti della rete.

I cavi Ethernet Industrial Xtra-Guard sono disponibili in una gamma

di versioni senza rivestimento, rivestiti con foglio, o con foglio/treccia Supra-Shield®. La versione Supra Shield di Alpha Wire utilizza una combinazione di alluminio/poliestere/foglio d'alluminio e treccia di filo di rame stagnato che offrono eccellenti prestazioni di interferenza elettromagnetica (EMI) e di flessibilità. Inoltre, i cavi sono resistenti ai raggi UV e ai fluidi, superano i test di infiammabilità secondo le norme UL 1666 Riser e CSA FT-4 e sono indicati per l'utilizzo in applicazioni NFPA 79.

Questo cavo di connettività è disponibile per una gamma di temperature da -50°C a +125°C su conduttori provvisti di isolamento FEP e temperature da -50°C a +105°C su conduttori provvisti di isolamento in polietilene. Il rivestimento TPE è disponibile in colore nero con lunghezze standard di 152 metri (500 piedi). Il cavo è disponibile anche in altri colori, inclusi

il rosso e il verde turchese su ordini speciali.

Applicazioni specifiche per Ethernet Industrial comprendono robotica/attuatori a livello del dispositivo della macchina, PLC a livello di controllo, e server a livello di imprese, nonché applicazioni che prevedono l'utilizzo a temperature estreme, all'esterno, l'usura meccanica, l'esposizione ad agenti chimici o ad ambienti rumorosi da un punto di vista elettrico.

Le industrie e le organizzazioni che avranno dei benefici da questo nuovo cavo comprendono il settore militare, il settore petrolifero e del gas, il settore minerario, le comunicazioni ad alta velocità, i sistemi di controllo dei processi, l'interconnessione dei sistemi di protezione e di sicurezza e i fabbricanti di semi-conduttori (OEM).

**Alpha Wire – Stati Uniti**  
**Website:** [www.alphawire.com](http://www.alphawire.com)

# Conciliare il lavoro e la vita familiare nell'ufficio

SIKORA dispone attualmente di un ufficio dove i dipendenti possono portarsi i figli. Padri e madri hanno l'opportunità di portare i propri figli in azienda in situazioni di emergenza per l'accudimento dei bambini. Nell'ufficio per genitori e figli, essi possono continuare a lavorare e contemporaneamente occuparsi dei propri figli. Lo scopo di questo servizio è di conciliare meglio il lavoro e la vita familiare.

In particolare, in situazioni imprevedibili, come ad esempio quando manca un servizio di assistenza per i bambini, o per sopperire alla chiusura delle scuole materne durante i periodi di vacanza, l'ufficio consente di conciliare le esigenze familiari con quelle professionali.

"Questo servizio rappresenta un sollievo e inoltre contribuisce ad evitare l'assenteismo dei genitori che lavorano", ha dichiarato Bernadette Sikora, managing partner di Sikora Holding GmbH & Co KG. "Inoltre, aumenta l'interesse per lavorare con Sikora".

L'ufficio recentemente arredato per



▲ L'ufficio predisposto per accogliere i figli dei dipendenti contribuisce ad aiutare madri e padri in situazioni di emergenza di accudimento dei bambini

accudire i bambini dei dipendenti, è adatto a bambini di ogni età. I genitori possono disporre di tutto ciò che i bambini necessitano (fasciatoio da tavolo, area di riposo, lettino, giocattoli, materiale per disegni, libri e giochi di costruzioni).

L'equipaggiamento è stato finanziato dalla società e dalle donazioni di numerosi dipendenti.

**Sikora AG – Germania**  
**Website:** [www.sikora.net](http://www.sikora.net)

# Cavo a fibra ottica resistente al fuoco

A cura di L Caimi, D Ceschi e M Maritano, Prysmian SpA, Milano, Italia, e E Consonni, Prysmian Cavi e Sistemi Italia Srl, Milano, Italia

## Riassunto

Una nuova famiglia di cavi a fibra ottica resistenti al fuoco è stata progettata allo scopo di offrire i livelli di sicurezza necessari in ambienti critici quali edifici pubblici, metropolitane e zone industriali.

Questi nuovi cavi mantengono le loro caratteristiche di trasmissione ottica con una variazione di attenuazione minima per un tempo prolungato conformemente alle norme internazionali. Questa struttura di cavo innovativa, per la quale viene utilizzato un composto ceramificabile specifico e guaine ignifughe appropriate, consente di controllare il rilascio di calore e garantire il livello adeguato di protezione meccanica richiesto dalle fibre ottiche durante la fase di combustione, limitando così le variazioni di attenuazione ed evitando interruzioni di trasmissione.

## 1 Introduzione

I cavi LSZH, a bassa emissione di fumo e privi di alogeni, ritardanti di fiamma e resistenti al fuoco, sia di rame che ottici, sono ampiamente utilizzati per fornire i livelli di sicurezza necessari in ambienti critici come edifici pubblici, vale a dire ospedali, case di cura e residenze per anziani, cinema e teatri, metropolitane, tunnel ferroviari e anche nelle zone industriali.

Per quanto riguarda i cavi di fibra ottica, in caso di incendio, l'attenuazione aggiuntiva della fibra ottica influenza direttamente le prestazioni di trasmissione dei segnali e, conseguentemente, l'efficacia dei sistemi di sicurezza che richiedono una trasmissione ininterrotta per il funzionamento dei dispositivi di emergenza quali telefoni, televisioni a circuito chiuso, porte automatiche, sistemi di gestione dell'edificio e allarmi antincendio.

Inoltre, la funzionalità del cavo a fibra ottica deve essere mantenuta quando si verifica l'incendio e, sovente, anche per un periodo di tempo predeterminato. Partendo da questa situazione, è stata sviluppata una famiglia di cavi resistenti al fuoco con un alto numero di fibre in

una struttura compatta, con struttura totalmente dielettrica o armatura metallica.

## 2 Cavo a fibra ottica resistente al fuoco: soluzione con una nuova famiglia di cavi

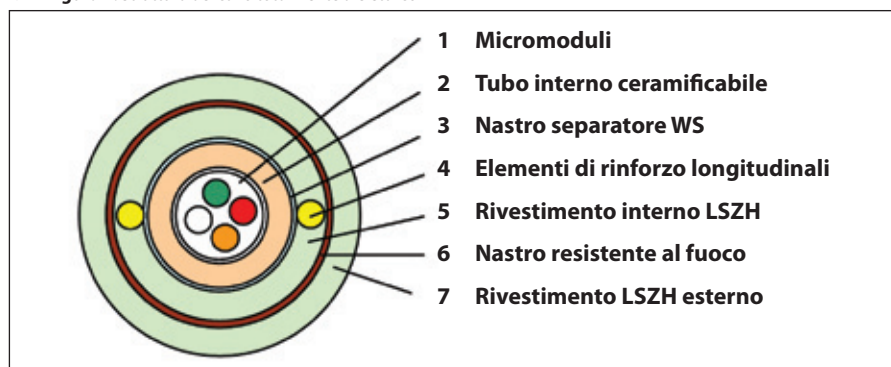
I cavi resistenti al fuoco tradizionali non possono evitare completamente l'aumento di attenuazione del segnale ottico durante l'esposizione al fuoco; inoltre, ciò che è peggio, in seguito allo spegnimento di un incendio le prestazioni ottiche scemano completamente e si verificano alcune rotture meccaniche nelle fragili fibre di vetro. In effetti, nelle zone di transizione fra le sezioni di cavo direttamente esposte alla fiamma e le parti contigue non bruciate, specialmente durante la fase di raffreddamento,

i materiali che ancora circondano le fibre, si raffreddano e si contraggono causando una pressione locale sulle fibre che, sprovviste di rivestimento protettivo, possono rompersi o aumentare notevolmente l'attenuazione del segnale.

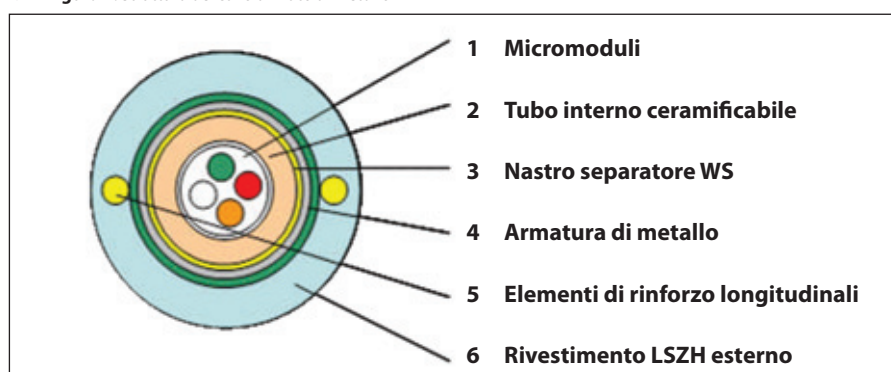
La disposizione tipica delle fibre in un cavo a fibre ottiche si basa su una struttura multi tubo lasca (multi-loose), costituita da tubi di plastica trefolati; la tendenza attuale è di aumentare il numero di fibre, riducendo o almeno non aumentando le dimensioni del cavo finale. È stato pertanto sviluppata una nuova struttura di cavo che consente di aumentare la densità di fibre e facilitarne l'accesso.

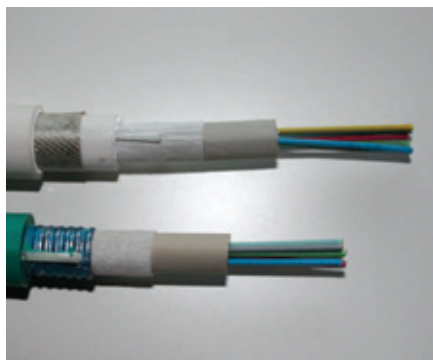
A seconda dell'applicazione, a volte i requisiti di resistenza al fuoco si combinano con la necessità di disporre delle barriere contro l'attacco di animali e prestazioni meccaniche superiori ed è quindi richiesta una protezione metallica; in altri casi, i problemi dovuti a interferenze magnetiche o elettriche richiedono una soluzione completamente

▼ Figura 1: Struttura del cavo totalmente dielettrico



▼ Figura 2: Struttura del cavo armato di metallo





▲ Foto 1: Versione del cavo metallico e totalmente dielettrico



▲ Foto 2: Prova di resistenza al fuoco IEC 60331-25



▲ Foto 3: Prova di resistenza al fuoco IEC 50200

dielettrica. In entrambi i casi, sono state sviluppate strutture di cavi che possono rispondere alle necessità di impianti e mercati diversificati. Pertanto, è stata progettata una famiglia di cavi che soddisfa i seguenti requisiti:

- mantenere la capacità di trasmissione ottica durante l'incendio
- evitare rotture delle fibre ottiche dopo l'estinzione dell'incendio
- aumentare il numero di fibre in una struttura compatta
- disporre di una protezione di metallo o di una struttura interamente dielettrica

Conformemente ai requisiti sopra indicati, i nuovi cavi sono stati progettati con una struttura basata su:

- fibre ottiche disposte in fasci sotto forma di micromoduli
- strato tubolare realizzato con speciale materiale ceramificabile attorno alle fibre
- schermatura aggiuntiva contro la fiamma, metallica o dielettrica
- rivestimento LSZH ritardante di fiamma

## 2.1 Strato ceramificabile come prima barriera assoluta contro il fuoco

Al fine di garantire una protezione totale alle fibre ottiche durante un incendio, è importante costruire una barriera impenetrabile attorno ad esse. Un tubo di metallo potrebbe costituire una soluzione logica, ma questa soluzione non è di facile realizzazione a causa delle diverse reazioni alla contrazione tra il metallo e il vetro e di alcune limitazioni di fabbricazione. Inoltre, i materiali plastici non sono adeguati a resistere a temperature fino a 800-1000°C e, anche nella versione ritardante di fiamma con additivi minerali appropriati, si riducono completamente in cenere.

La soluzione consiste in un materiale in grado di resistere all'azione della fiamma senza bruciare o disfarsi per un tempo sufficiente da consentire la formazione di uno strato di base di materiale ceramificabile per completare la ceramizzazione. È stato sviluppato un composto speciale, basato su una miscela di riempimenti inorganici che rispondono

in modo diverso alla temperatura, si fondono gradualmente e controllano la viscosità e la capacità di sinterizzazione.

È utile introdurre un secondo strato di schermatura resistente alla fiamma nella struttura del cavo per evitare il contatto diretto del tubo ceramificabile con il fuoco; in effetti, lo strato di schermatura consente un processo di compattazione più omogeneo e graduale del composto ceramificabile speciale fino ad ottenere un elemento tubolare solido che protegge le fibre ottiche in modo uniforme. In questo caso il tipo di schermatura può essere tradizionale, ad esempio di nastro mica o di acciaio.

## 2.2 Struttura dei cavi

Partendo dall'idea di un cavo resistente al fuoco costituito da un tubo ceramificabile circondato da una schermatura esterna di protezione dal contatto diretto con il fuoco, gli altri elementi della struttura del cavo dipendono da requisiti meccanici e ottici basati sulle condizioni di installazione e di funzionamento.

Per quanto riguarda la versione dielettrica, sopra il tubo centrale interno ceramificabile si applica una guaina

intermedia ritardante di fiamma rinforzata da due barre di vetro longitudinali inghisate nella parete del rivestimento; le barre di vetro resistono sia al carico di trazione sia alla contrazione da raffreddamento. Quindi, si applicano alcuni nastri resistenti al fuoco assieme alla guaina LSZH esterna.

La sezione della versione completamente dielettrica sviluppata è illustrata sulla Figura 1.

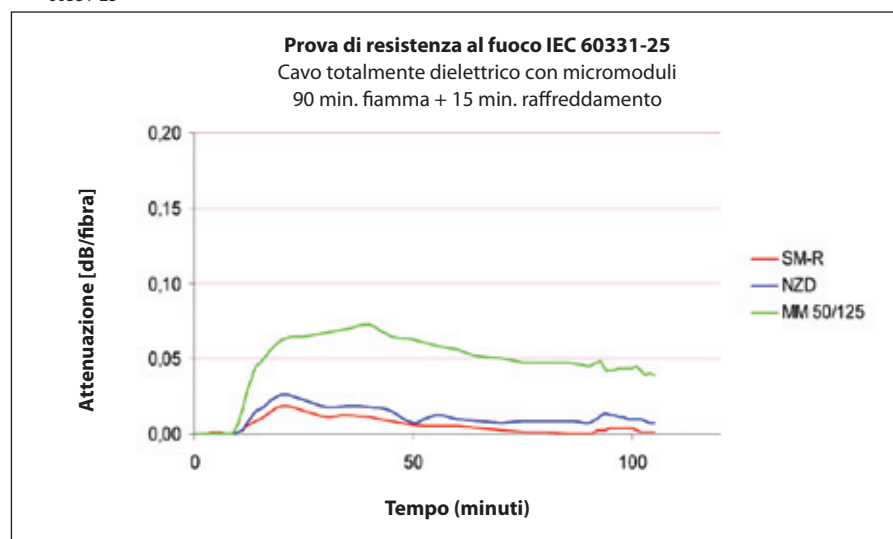
Per la versione armata di metallo, si applica un nastro di acciaio ondulato sopra il tubo ceramificabile, e quindi una guaina HFFR esterna rinforzata con due aste di vetro con la stessa funzione sopra descritta.

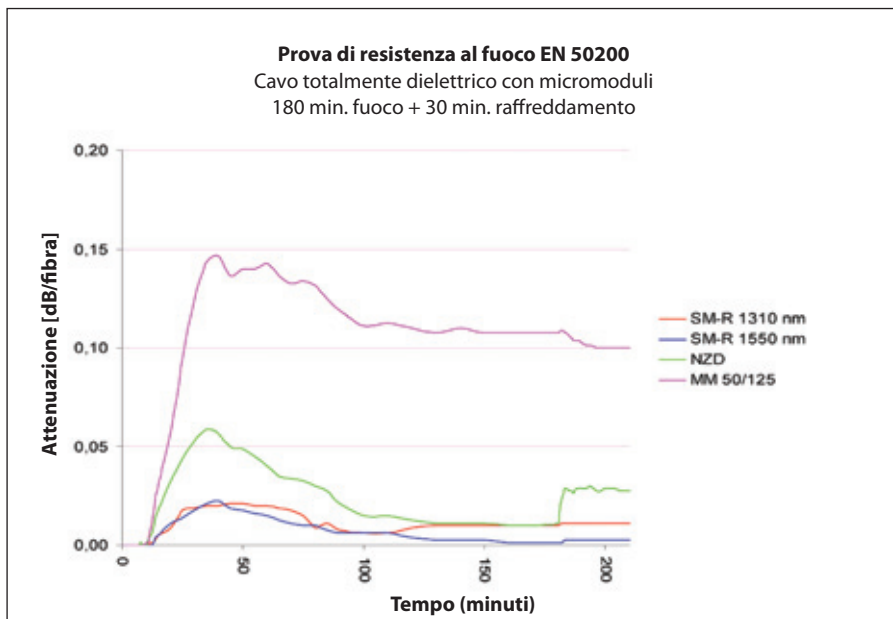
La sezione della versione armata sviluppata è illustrata sulla Figura 2.

## 2.3 Prove e produzione dei cavi

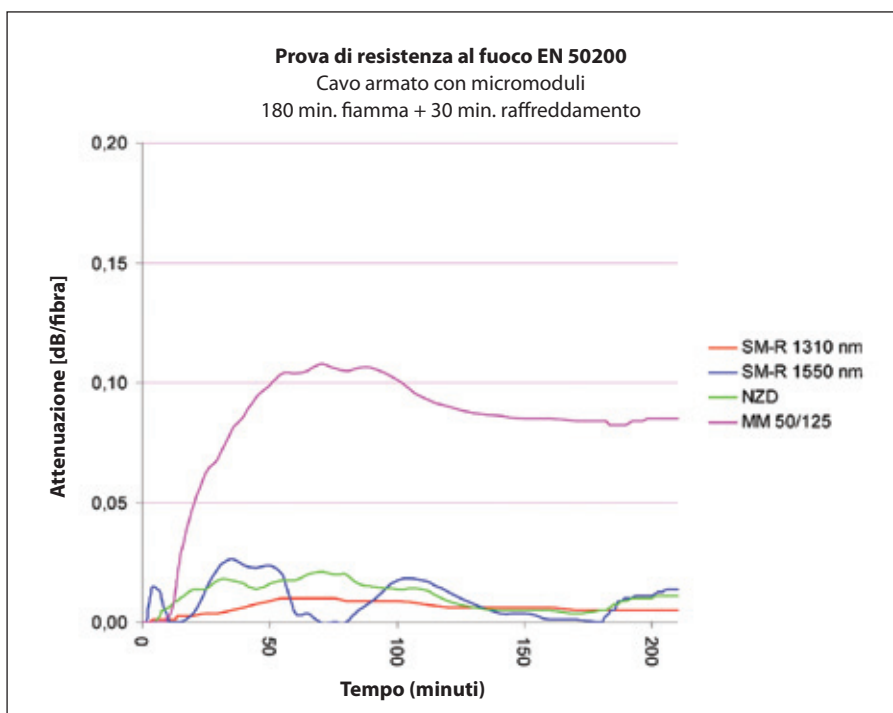
Sono stati sviluppati cavi in versione completamente dielettrica e metallica da 48 a 144 fibre ottiche. Sono state effettuate numerose prove prima di produrre le versioni finali. Quindi i cavi sono stati caratterizzati completamente per le prestazioni ottiche, meccaniche e termiche e per il loro comportamento

▼ Figura 3: Prova di resistenza al fuoco delle versioni totalmente dielettriche conformemente alla norma IEC 60331-25





▲ **Figura 4:** Prova di resistenza al fuoco delle versioni totalmente dielettriche conformemente alla norma EN50200



▲ **Figura 5:** Prova di resistenza al fuoco della versione schermata conformemente alla norma EN50200

al fuoco come descritto qui di seguito. Nella Foto 1 si possono apprezzare due campioni di cavi.

#### 2.4 Caratterizzazione dei cavi

Sono state realizzate due strutture di cavo con tre tipi diversi di fibra ottica, SM-R, NZD e MM. I cavi sono stati testati secondo il principale protocollo internazionale delle prove di resistenza al fuoco come le norme IEC 60331-25 e EN50200. Le Foto 2 e 3 illustrano le prove di resistenza al fuoco realizzate con i cavi.

Ciascun tipo di fibra è stato chiuso in un circuito e collegato ad un misuratore di

potenza a led, che misurava l'aumento dell'attenuazione a 1310 e 1550nm nel circuito con fibre SMR, a 1550nm con fibre NZD e a 1300nm con fibre MM.

L'esposizione al fuoco è stata di 90 o 180 minuti ed è stata estesa la registrazione dei valori di attenuazione fino a 15 o 30 minuti più tardi.

Gli esempi di alcuni risultati delle prove sono illustrati nelle Figure 3-5.

Tutti i risultati sono positivi con un aumento di attenuazione molto ridotto (meno di 0,2 dB/fibra) per qualsiasi tipo di

fibra provata. Ciò conferma chiaramente che la protezione ceramificabile, combinata con una struttura di cavo appropriata, può mantenere le prestazioni delle fibre in caso di incendio, anche nel caso di soluzioni con cavi di alta densità di fibre.

### 3 Conclusioni

La famiglia di cavi sviluppata con uno strato protettivo speciale per salvaguardare le prestazioni di trasmissione delle fibre dall'azione del fuoco, è particolarmente efficace quando cessa l'azione della fiamma e inizia la contrazione del materiale.

Sono stati sviluppati cavi in versione totalmente dielettrica e con un'armatura di metallo con fino a 144 fibre ottiche disposte in micromoduli con struttura molto compatta, ora disponibili sul mercato. ■

### 4 Ringraziamenti

Gli autori desiderano ringraziare tutti i numerosi colleghi di Prysmian che hanno collaborato alla realizzazione del presente articolo, e in particolare Paolo Marelli e Gianluigi Radaelli per il loro utile supporto.

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# OM Lesmo celebra su 50º aniversario

OM LESMO celebró el 50º aniversario de la empresa con una cena de gala en wire 2012 Düsseldorf.

Los clientes celebraron el acontecimiento con Álvaro Piva, presidente y director ejecutivo, quien lleva al frente de la empresa más de 20 años, Giovanni Cecchini-Manara, director comercial, y Maria Laura Piva, actualmente directora de marketing.

Durante su discurso, Giovanni Cecchini-Manara dijo: "50 años son toda una vida, más larga incluso que la mía, y poder estar aquí hoy es todo un honor para mí, porque somos el resultado de los esfuerzos de muchas personas que trabajaron con empeño antes que nosotros."

"La obra llevada a cabo por quienes estuvieron en la empresa antes que nosotros, y especialmente la extraordinaria relación y apoyo que ustedes, clientes y socios, nos han querido brindar de muy diversas maneras en estos años, es lo que hace posible que estemos aquí reunidos hoy."

Sucesivamente, añadió: "En particular, permítanme transmitir mi agradecimiento a los clientes que depositaron su confianza en nuestros equipos más de una vez, instalando variedad de máquinas en sus fábricas a lo largo de todos



▲ Invitados en la cena de gala organizada en Düsseldorf

estos años. Y me refiero a los clientes que tenemos en todos los rincones del mundo, en los cinco continentes."

"Hoy celebramos nuestro 50º aniversario con gran entusiasmo. No se trata de un simple aniversario, sino de un reconocido éxito al que tenemos que rendir homenaje."

OM Lesmo celebró por doble partida destacando también el largo servicio prestado por Silvio Oriani, quien lleva casi 30 años trabajando para la empresa.

Su experiencia, con 30 años a sus espaldas como director de una fábrica de cables, siempre ha sido puesta al servicio de los clientes, en la búsqueda de las



▲ Silvio Oriani

soluciones más adecuadas para sus problemas intentando satisfacer exigencias de producción estándares o especiales y, a menudo, incluso raras.

**OM Lesmo – Italia**  
Website: [www.omlesmo.com](http://www.omlesmo.com)

## Nuevo software, mejor funcionalidad

Simufact Engineering, proveedora de soluciones software con sede en Hamburgo, ofrece ahora nuevas versiones de su software de simulación Simufact.forming y Simufact.welding.

Las nuevas versiones de software, actualizadas para ofrecer mayor funcionalidad en un campo de aplicación más amplio además de un uso simplificado, sirven para diseñar y optimizar las técnicas manufactureras para el procesamiento de metales.

Con las nuevas versiones del software Simufact, las empresas que querían reunir varios procesos de producción en la cadena de proceso (de material semi acabado a componente acabado) se han aproximado más a su objetivo de conseguir un método de proceso cruzado integrado en la simulación de la entera cadena de proceso.

Las soluciones de simulación de Simufact cubren todos

los procesos de producción básicos desde el forjado hasta el conformado masivo en frío, laminación, conformado de chapa metálica, unión mecánica, tratamiento térmico y soldadura.

Las interfaces estándares también les permiten a los clientes integrar software Simufact en sus entornos CAD/CAE de manera rápida y fiable.

Un importante avance en Simufact es la integración de datos del material en la simulación de procesos de forjado y unión: Simufact.forming 11 y Simufact.welding 3.1 no sólo ofrecen una gran variedad de datos nuevos y experimentales sobre el material, sino que además dan acceso a datos analíticos de alta calidad del material, asegurando así precisión en la simulación.

**Simufact Engineering GmbH – Alemania**  
Website: [www.simufact.com](http://www.simufact.com)

# Conciliando vida laboral y familiar en la oficina

SIKORA tiene ahora una oficina donde los empleados pueden llevarse a sus pequeños.

Las madres, y padres, pueden llevar a sus hijos a la empresa en situaciones de emergencia. En la oficina, debidamente equipada, pueden seguir realizando su trabajo mientras cuidan de sus hijos. El objetivo de este servicio es conciliar aún más la vida laboral y familiar.

En particular, en situaciones imprevisibles, como por ejemplo cuando no hay servicio de guardería o éstas hacen puente, la oficina permite a sus empleados conciliar la vida familiar y laboral.

"Este servicio representa un alivio para los padres y previenen el asenteísmo en el trabajo", comentó Bernadette Sikora, socio gerente de Sikora Holding GmbH & Co KG. "Además, aumenta el interés por trabajar con Sikora".

La oficina recién equipada para cuidar a los hijos de los empleados acoge a niños de todas las edades. Los niños disponen de todo lo que necesitan (cambiadores



▲ La oficina preparada para acoger a los pequeños supone un alivio para sus empleados en situaciones de emergencia

de pañales, zona de descanso, cunitas, juguetes, pinturas, libros y piezas de juguete).

la empresa y donaciones de muchos empleados.

El equipamiento fue financiado por

**Sikora AG – Alemania**  
Website: [www.sikora.net](http://www.sikora.net)

## Cable Ethernet Industrial de alto rendimiento

Alpha Wire Company, proveedor de soluciones avanzadas y servicios por hilo, cable y tubo, ha ampliado su gama Xtra-Guard de alto rendimiento con el nuevo cable Ethernet Industrial, diseñado para aplicaciones que requieran cable de Cat. 5e resistente a agentes químicos, a la abrasión y a la luz solar y que puedan soportar un amplio campo de temperaturas comprendido entre -50°C y +125°C.

Los nuevos cables de Cat. 5e, provistos de cubierta elastomérica termoplástica resistentes a la abrasión, tres veces más flexibles a baja temperatura y más resistentes a los disolventes, agentes químicos y combustibles que el PVC corriente, están diseñados para ofrecer conectividad duradera y fiable para las exigencias de red más duras.

Los cables Ethernet Industrial de la gama Xtra-Guard están disponibles en versión sin blindaje, con blindaje

de lámina o de lámina/trenza Supra-Shield®. En la versión Supra-Shield de Alpha Wire se combinan láminas de aluminio-poliéster-aluminio y trenzas de cobre estañado que ofrecen excelentes prestaciones frente a las interferencias electromagnéticas (EMI) y de flexibilidad. Además, los cables son resistentes a los rayos UV y a los líquidos, superan los ensayos de propagación de la llama, según lo establecido en las normas UL 1666 (Riser) y CSA FT-4, y son aptos para aplicaciones conformes a la norma NFPA 79.

Este cable de conectividad está disponible para una gama de temperaturas comprendidas entre -50°C y +125°C en conductores aislados con FEP y entre -50°C y +105°C en conductores aislados con polietileno. La cubierta de TPE está disponible en color negro en longitudes estándares de 152 metros (500 pies). El cable está disponible también en color rojo y verde

turquesa para pedidos especiales.

Los campos de aplicación específicos para Ethernet Industrial comprenden la robótica/accionadores en el nivel del dispositivo de la máquina, PLCs en el nivel de control, y servidores en el nivel de empresa, además de cualquier uso en condiciones térmicas extremas, en exteriores, mal trato mecánico, exposición a agentes químicos o entornos ruidosos eléctricamente.

Entre los sectores industriales y organizaciones que se beneficiarán con el uso de este nuevo cable están las del sector militar, petróleo y gas, minas, comunicaciones a alta velocidad, sistemas de control de proceso, interconexión de sistemas de protección y seguridad y fabricantes (OEMs) de semiconductores.

**Alpha Wire – Estados Unidos**  
Website: [www.alphawire.com](http://www.alphawire.com)

# Cable de fibra óptica resistente al fuego

Por L Caimi, D Ceschiati y M Maritano, Prysmian SpA, Milano, Italia, y E Consonni, Prysmian Cavi e Sistemi Italia Srl, Milano, Italia

## Resumen

Se ha desarrollado una nueva familia de cables de fibra óptica resistentes al fuego para ofrecer los niveles de seguridad necesarios en entornos críticos como edificios públicos, metros y áreas industriales.

Estos nuevos cables mantienen sus características de transmisión óptica con una variación de atenuación mínima a largo plazo de acuerdo con las normas internacionales. Este diseño de cable innovador, para el que se usa un compuesto ceramizable especial y blindajes resistentes a la llama apropiados, permite controlar la emisión de calor y garantizar el nivel de protección mecánica requerido para las fibras ópticas durante la fase de quemado, limitando de esta manera las variaciones de atenuación y evitando interrupciones de transmisión.

## 1 Introducción

Los cables LSZH, de baja emisión de humo y libres de halógenos, retardantes de la llama y resistentes al fuego, de cobre y ópticos, son muy utilizados para proveer los niveles de seguridad necesarios en entornos críticos como edificios públicos, es decir, hospitales, enfermerías y residencias de ancianos, cines y teatros, metros, túneles, y también en las áreas industriales.

Por lo que se refiere a los cables de fibra óptica, en caso de incendio la atenuación adicional de la fibra óptica afecta directamente a las prestaciones de transmisión de las señales y, por consiguiente, a la eficiencia de los sistemas de seguridad que requieren una transmisión ininterrumpida para el funcionamiento de los dispositivos de emergencia como teléfonos, televisión en circuito cerrado, puertas automáticas, sistemas de gestión del edificio y alarmas contra incendios. Además, la funcionalidad del cable de fibra óptica debe ser mantenida cuando surge el incendio y, a menudo, también durante un determinado tiempo.

Partiendo de esta situación, se ha desarrollado una familia de cables resistentes al fuego con un alto número de fibras en un diseño compacto, con estructura totalmente dieléctrica o armadura de metal.

## 2 Cable de fibra óptica resistente al fuego: solución con nueva familia de cables

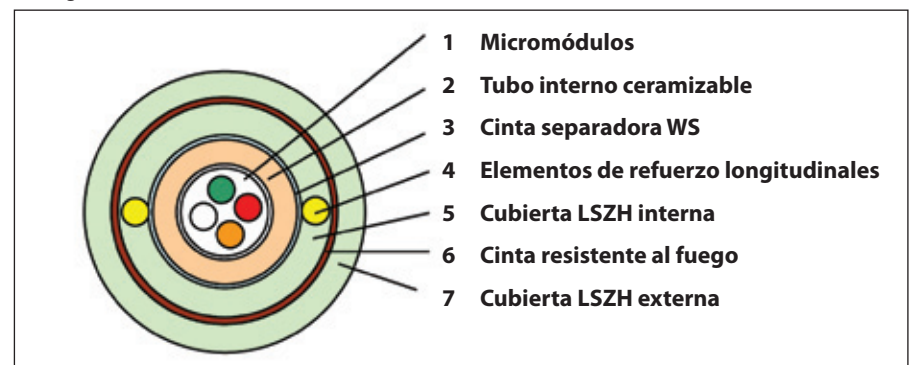
Los cables resistentes al fuego convencionales no pueden evitar completamente el aumento de atenuación de la señal óptica durante la exposición al fuego; además, lo peor es que, después de un incendio, las prestaciones ópticas se esfuman totalmente debido a roturas mecánicas de las frágiles fibras de vidrio. En efecto, en las zonas de transición

entre los tramos de cable directamente expuestos a la llama y las partes contiguas no quemadas, especialmente durante la fase de enfriamiento, los materiales que todavía rodean a las fibras se enfrían y se contraen causando presión local sobre las fibras que, desprovistas de revestimiento protector, pueden romperse o aumentar considerablemente la atenuación de la señal.

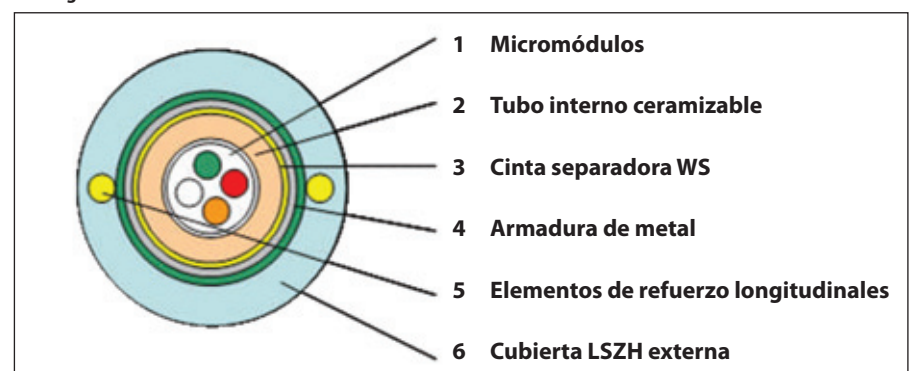
La organización típica de las fibras en un cable de fibra óptica se basa en una estructura multitubo holgado formada por tubos de plástico trenzados; la tendencia actual es aumentar el número de fibras, reduciendo o por lo menos no aumentando las dimensiones del cable acabado. Por lo tanto, se ha desarrollado un nuevo diseño de cable que permite aumentar la densidad de fibras y facilitar su acceso.

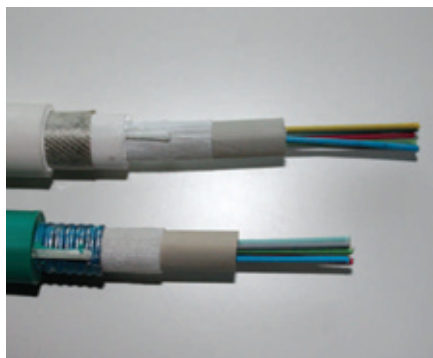
Según la aplicación, a veces los requisitos de resistencia al fuego se combinan con

▼ **Figura 1:** Diseño de cable totalmente dieléctrico



▼ **Figura 2:** Diseño de cable armado de metal





▲ Foto 1: Versión de cable metálico y totalmente dieléctrico



▲ Foto 2: Ensayo de resistencia al fuego IEC 60331-25



▲ Foto 3: Ensayo de resistencia al fuego IEC 50200

la necesidad de disponer barreras contra el ataque de animales y prestaciones mecánicas superiores y, por lo tanto, se requiere una protección de metal; en otros casos, los problemas debidos a interferencia magnética o eléctrica requieren una solución completamente dieléctrica.

En ambos casos, se han desarrollado estructuras de cables que puedan responder a las necesidades de distintas instalaciones y mercados.

Por lo tanto, se ha diseñado una familia de cables que cumple los requisitos siguientes:

- mantener la capacidad de transmisión óptica durante el incendio
- evitar roturas de las fibras ópticas después de la extinción del incendio
- aumentar el número de fibras en un diseño compacto
- disponer de una protección de metal o un diseño totalmente dieléctrico

De acuerdo con los requisitos indicados arriba, se han diseñado los nuevos cables con una estructura basada en:

- fibras ópticas dispuestas en fajos en forma de micromódulos
- capa tubular de un material ceramizable especial alrededor de las fibras
- blindaje suplementario resistente a la llama, de metal o dieléctrico
- revestimiento LSZH retardante de la llama

## 2.1 La capa ceramizable como primera barrera absoluta contra el fuego

Para asegurar total protección a las fibras ópticas durante un incendio, es importante disponer una barrera impenetrable alrededor de las fibras. Un tubo de metal podría representar una solución lógica, pero esta solución no es fácil de realizar por las distintas respuestas ante la contracción del metal y del vidrio y por algunas limitaciones de fabricación.

Además, los materiales plásticos no son adecuados para resistir a temperaturas

superiores a 800-1000°C e, incluso en versión retardante de la llama con aditivos minerales apropiados, se deshacen completamente en cenizas.

La solución es un material que pueda resistir a la acción de la llama sin quemarse o deshacerse durante un tiempo suficiente para permitir la formación de una capa de base de material ceramizable para completar la ceramización.

Se ha desarrollado un compuesto especial, basado en una mezcla de rellenos inorgánicos que responden de manera distinta a la temperatura, se funden gradualmente y controlan la viscosidad y la capacidad de sinterización.

Es útil introducir otra capa de blindaje resistente a la llama en el diseño del cable para evitar el contacto directo del tubo ceramizable con el fuego; en efecto, la capa de blindaje permite un proceso de compactación más homogéneo y gradual del compuesto ceramizable especial, hasta obtener un elemento tubular sólido final que protege las fibras ópticas de manera uniforme. En este caso el tipo de blindaje puede ser convencional, por ejemplo de cinta de mica o de acero.

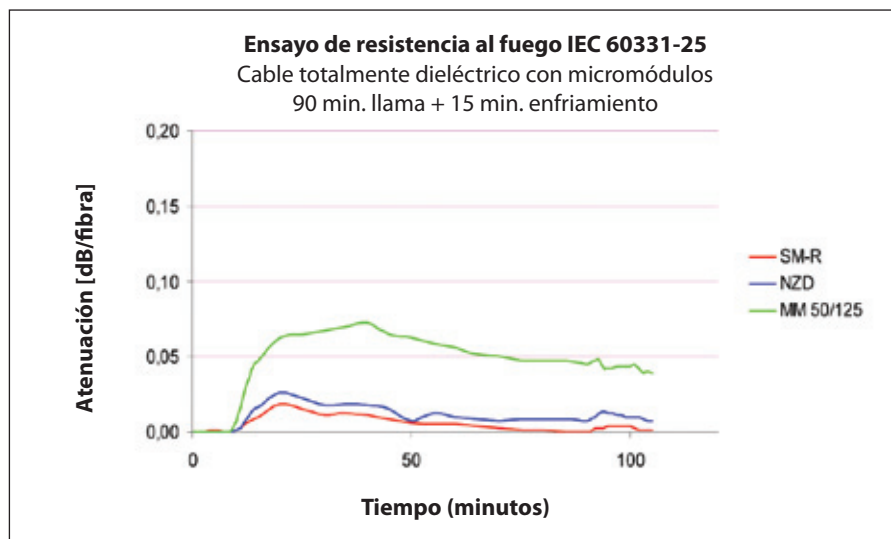
## 2.2 Diseño de los cables

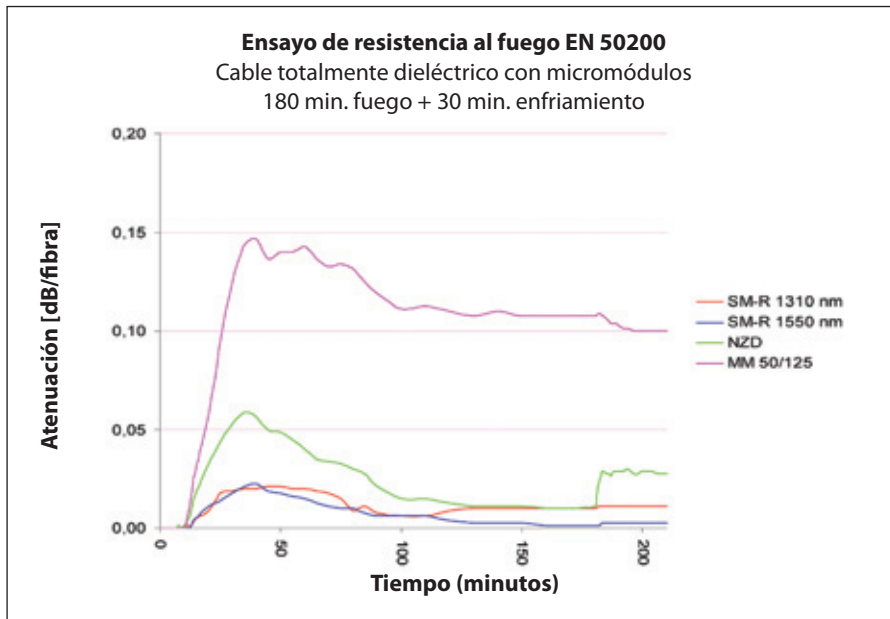
A partir de la idea de un cable resistente al fuego basado en un tubo ceramizable rodeado por una pantalla externa de protección contra el contacto directo con el fuego, los otros elementos del diseño del cable dependen de los requisitos mecánicos y ópticos, en base a las condiciones de instalación y funcionamiento.

Para la versión dieléctrica, sobre el tubo interno ceramizable central se aplica una pantalla intermedia retardante de la llama reforzada por dos varillas de vidrio longitudinales empotradas en la pared de la cubierta; las varillas resisten a la carga de tracción y a la contracción por enfriamiento. Luego, se aplican algunas cintas resistentes al fuego junto con la pantalla LSZH externa. La sección de la versión totalmente dieléctrica desarrollada está ilustrada en la *Figura 1*.

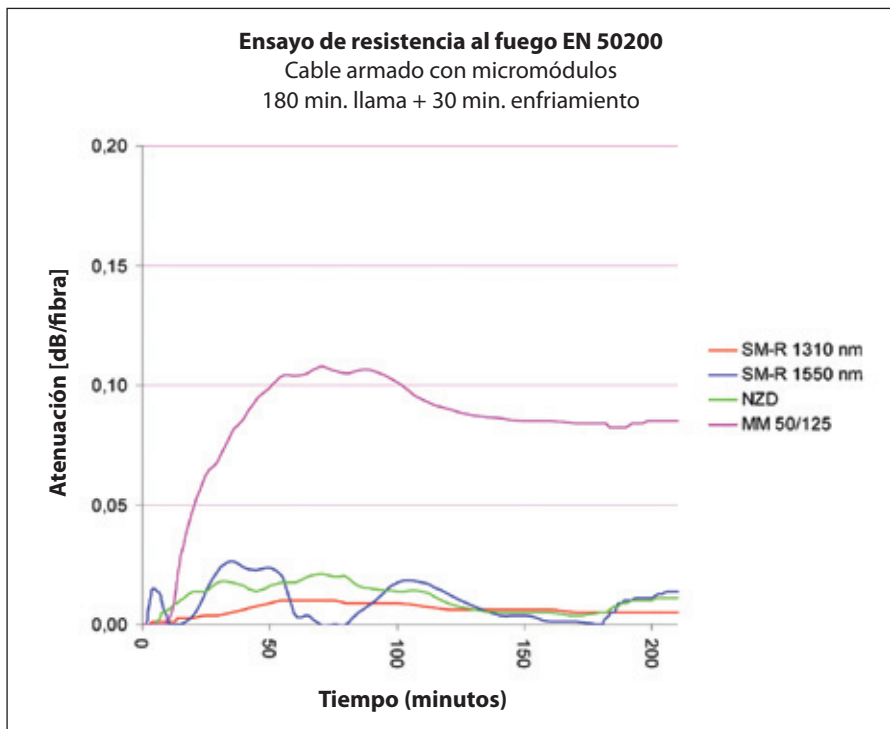
Para la versión armada de metal, se aplica una cinta de acero corrugado sobre el tubo ceramizable, seguida por una pantalla HFFR externa reforzada con dos varillas de vidrio con la misma función indicada arriba. La sección de la versión armada desarrollada está ilustrada en la *Figura 2*.

▼ Figura 3: Ensayo de resistencia al fuego de las versiones totalmente dieléctricas según la norma IEC 60331-25





▲ **Figura 4:** Ensayo de resistencia al fuego de las versiones totalmente dieléctricas según la norma EN50200



▲ **Figura 5:** Ensayo de resistencia al fuego de la versión armada según la norma EN50200

### 2.3 Ensayos y producción de los cables

Se han desarrollado cables en versión totalmente dieléctrica y metálica de 48 a 144 fo. Se han realizados numerosos ensayos antes de producir las versiones finales; luego, los cables han sido caracterizados completamente para sus prestaciones ópticas, mecánicas y térmicas, y para su comportamiento frente al fuego, como se ilustra a continuación. En la Foto 1 se pueden ver dos muestras de los cables.

### 2.4 Caracterización de los cables

Se han fabricado dos diseños de cable con tres tipos distintos de fibra óptica,

SM-R, NZD y MM. Los cables han sido probados según el protocolo de los ensayos de resistencia al fuego internacionales más importantes, como los requeridos por las normas IEC 60331-25 y EN50200. En la Fotos 2 y 3 se muestran los ensayos de resistencia al fuego realizados con los cables.

Cada tipo de fibra ha sido cerrado en un circuito y conectado con un medidor de potencia de leds midiendo el aumento de atenuación a 1310 y 1550nm en el circuito con fibras SMR, a 1550nm con fibras NZD y a 1300nm con fibras MM. La exposición al fuego ha sido de 90 o 180 minutos y

se ha extendido el registro de los valores de atenuación hasta 15 o 30 minutos después.

Los ejemplos de algunos resultados de los ensayos están ilustrados en las Figuras 3-5.

Todos los resultados son positivos con aumento de atenuación muy bajo (menos de 0,2 dB/fibra) para cualquier tipo de fibra probada.

Esto confirma claramente que la protección ceramizable, combinada con un diseño de cable apropiado, puede mantener las prestaciones de las fibras en caso de incendio incluso en cables de alta densidad de fibras.

## 3 Conclusiones

La familia de cables desarrollada con una capa protectora especial para preservar las prestaciones de transmisión de las fibras de la acción del fuego es especialmente eficaz cuando cesa la acción de la llama e inicia la contracción del material.

Se han desarrollados cables en versión totalmente dieléctrica y con armadura de metal con fibras ópticas dispuestas en micromódulos de hasta 144 fo con diseño muy compacto, y ahora están disponibles en el mercado. ■

## 4 Agradecimientos

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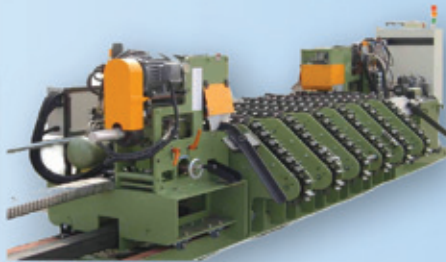
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