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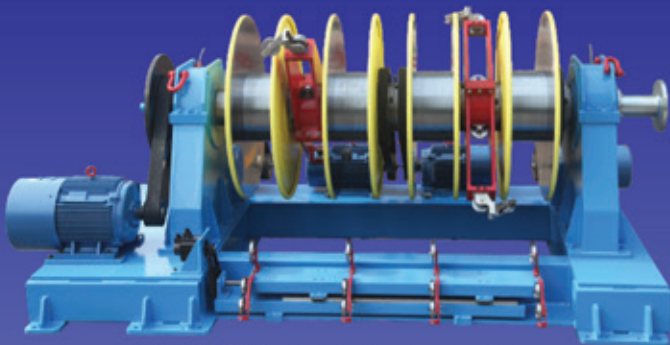
# Wire & Cable

July 2016

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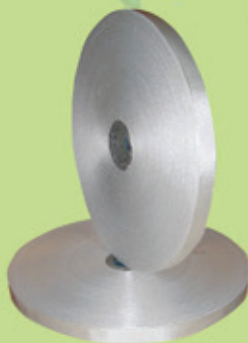
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# Highly energised Düsseldorf the 'best yet' – the exhibitors

When companies hail wire 2016 as 'the best yet' and 'really powerful and highly energised', it is easy to understand why wire and cable professionals from around the world embark on the biennial expedition to Düsseldorf, Germany.

Whilst organisers Messe Düsseldorf may well have encountered a three per cent dip in visitor numbers, the exhibiting companies had nothing but praise for the whole exhibition and the organisers.

"wire 2016 was definitely the biggest and the best yet in terms of getting so many suppliers, customers and agents together in one venue," said Mark Venables, managing director of Alloy Wire International.

The fact that his company received more than 250 serious enquiries during the five-day show is testament to confidence coursing through the industry at the moment.

You can turn to page 49 to see our review of the show, and more comments from some of the exhibiting companies.

In this issue you can also find out why die making is always held in high regard in the wire plant in our feature on dies starting on page 45.

There is also the latest industry and technology news, as well as regular features Telecom News and From the Americas for you to enjoy.

David Bell  
Editor



## When and where

### 2016

26–29 September:

**wire China** –  
trade exhibition –  
Shanghai, China

#### Organisers:

SECRI and Messe Düsseldorf  
(Shanghai) Co Ltd

**Fax:** +86 216 169 8301

#### Email:

shanghai@mdc.com.cn

**Website:** www.wirechina.net

### 2016

2–5 October

**IWCS** –  
symposium and trade  
exhibition –  
Rhode Island, USA

#### Organisers:

IWCS

**Tel:** +1 717 993 9500

**Email:** phudak@iwcs.org

#### Website:

www.iwcs.org

### 2016

5–7 October

**Wire and Cable India** –  
trade exhibition –  
Mumbai, India

#### Organisers:

Messe Düsseldorf India  
Pvt Ltd

**Fax:** +91 112 697 1746

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

#### Website:

www.wire-india.com

### 2016

25–29 October:

**EuroBLECH** – trade  
exhibition – Hanover,  
Germany

#### Organisers:

Mack Brooks Exhibitions  
Ltd

**Fax:** +44 1727 814 401

**Email:** info@euroblech.com

#### Website:

www.euroblech.com





○ Companies in China, Korea and Taiwan have boosted Kocks' order book this year

# Hectic Asian order book

IT has been a hectic few months for German wire rod and bar mill manufacturer Friedrich Kocks.

Korean special steel producer SeAH Changwon Integrated Special Steel Corp chose the company, along with Morgårdshammar AB and AIC, for a modernisation project at its steel plant in Changwon.

The SeAH group acquired SeAH Gangwon Integrated Special Steel Corp, formerly known as POSCO Specialty Steel and Sammy Steel, in March 2015.

The company is Korea's only domestic producer of stainless steel rods and wires made from high-quality special steel materials.

With an annual steelmaking capacity reaching 1.2 million tons and one million tons of steel products, SeAH CSS is among the top ten producers of special steels.

Two existing Kocks blocks – a precision sizing block (PSB) and a 370/10 3-roll intermediate block will be replaced by two 2-high HV stands, three loopers, a crop and cobbler shear

and a 370++ RSB SCS® of the latest design with six stand positions.

Chinese company Yongxing Special Stainless Steel Co Ltd placed an order with Kocks for an RSB® 370++/4 reducing and sizing block in SCS® design.

The private company, listed on the stock exchange, was established in 2000 by its parent company and two subsidiaries, Huzhou Yongxing Special Steel Imp and Exp Co Ltd, and Huzhou Yongxing Materials Recycling Co Ltd.

It is one of the three leading Chinese stainless steel producers with a production of 250,000t/a.

The 3-roll reducing and sizing block will be implemented in a new combined wire rod and bar mill producing high-quality stainless steel as well as nickel-based alloys. The Kocks block will be installed downstream of a reversing roughing mill and an intermediate continuous mill consisting of 14 HV-stands.

Taiwan company Feng Hsin Steel Co Ltd has also signed a contract with Kocks for the delivery and

commissioning of an RSB SCS 370++/5 for its works in Taichung City.

This RSB of the latest SCS generation will replace the existing Kocks precision sizing block operated by Feng Hsin since 1990.

Besides the RSB SCS, the scope of supply comprises the engineering and process for a water cooling line for low temperature rolling, a snap shear and roller tables, as well as assembly and commissioning supervision.

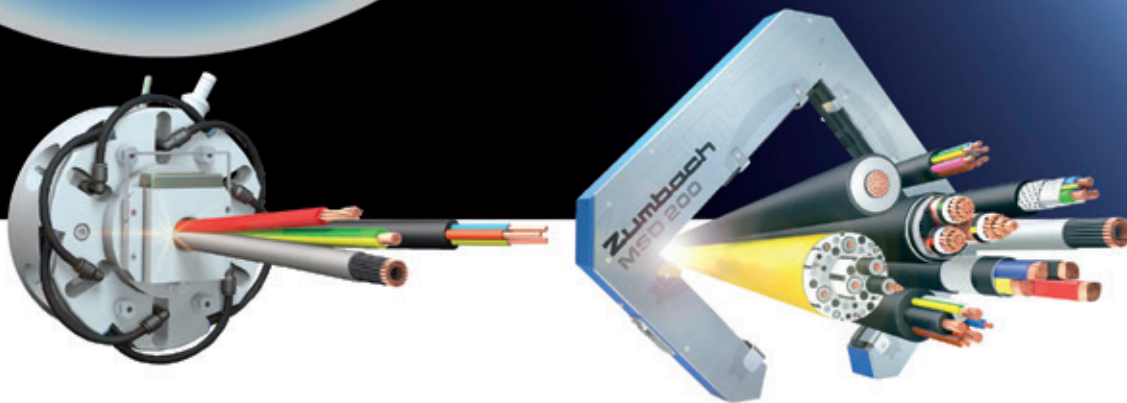
The contract is completed by the configuration program Bamicon, which calculates, based on the largest database of material characteristics, the optimum adjusting values for motor speeds, rolls and guides as well as the gear stage depending on the required end product; the quickest automatic stand changing system in the industry as well as the rollshop with quick roll change; and CAPAS, the computer-aided system to precisely adjust rolls and roller guides of 3-roll stands.

**Friedrich Kocks GmbH & Co KG – Germany**  
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## The highest fibre count cable to date installed in Australia

PRYSMIAN has marked the launch of local manufacture of its new Flextube® cable technology with another world first – the installation of its highest fibre count cable to date.

TPG, one of Australia's leading Telcos, required the highest fibre count cable possible, in an ultra-dense single cable solution for a particular application. Using its innovative Flextube technology, Prysmian responded, manufacturing a cable with a capacity of 2,112 fibres.

"It is not only the highest fibre count cable ever manufactured by Prysmian but it also exhibits the world's highest fibre density. The 2,112 fibres are contained within a single sheath 24mm in diameter, making it the highest density optical cable solution in the world, with a record breaking 4.7 fibres/mm<sup>2</sup>.

"The cable was designed to be slim enough to fit inside a 32mm subduct (with an internal diameter of just 28mm), fully maximising the available space," said Jack Clements, technical sales manager at Prysmian Australia.

Prysmian has partnered with TPG telecom for many years and TPG was one of the first companies in Australia to trial the Flextube product. Flextube is a revolutionary cable, designed to be extremely compact, lightweight and flexible and also much faster to install.

Using Flextube, Prysmian states that it continues to lead the way in ultra-dense cable solutions and this new record-breaking cable sees the company add to its already extensive Flextube range.

A 1.8km section of the 2,112F cable was deployed in Melbourne CBD and installed within a subduct of 28mm internal diameter. The cable was spliced at both ends using Prysmian's latest high capacity joint enclosures. The joints are able to store up to 2,688 fibre splices and are modular in design, able to be scaled up and down depending on the customer's requirements.

"Prysmian continues to push the boundaries in terms of telecom solutions. We respond to market demand through innovation and currently the market is demanding higher capacity cables. It's not just about offering new innovative cable designs but offering a complete network solution including jointing and connectivity products," said Alice Codenotti, key account manager at Prysmian Australia.

"Being able to install over 2,000 fibres in one go brings us major advantages in terms of installation costs per fibre and utilisation of our infrastructure. It also helps us secure capacity in high demand areas, helping us to future proof our fibre network," said Liz Goyeneche, network design and planning manager at TPG Telecom.

**Prysmian Group – Italy**  
**Website:** [www.prysmian.com](http://www.prysmian.com)



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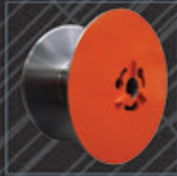
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## Schuler takes over die construction specialist



○ The AWEBA group is a full-service provider of dies

SCHULER AG is to take over the die construction specialist AWEBA and greatly expand its activities in this business field. Based in Aue, Germany, the AWEBA Group is a full-service provider of dies and fixtures. Under the terms of the purchase agreement, Schuler will acquire a 100 per cent stake in AWEBA Werkzeugbau GmbH Aue.

The transaction is still subject to the approval of the relevant anti-trust authorities. AWEBA Werkzeugbau GmbH was previously held by private and institutional investors. The parties have agreed not to disclose any details about the purchase agreement.

AWEBA was founded in 1882 as Bernhard Hiltmann Spezialfabrik für Schnitt und Stanzwerkzeug. The company today supplies international customers in the automotive and electrical industries, as well as machine and plant manufacturers. The product portfolio includes forming, cutting, hydroforming, and die-casting dies, as well as fixtures and a comprehensive range of services.

In fiscal year 2015, the AWEBA Group generated sales revenue of around €60 million.

Schuler CEO Stefan Klebert said: "We are delighted to add a successfully managed company like AWEBA to our group. With its high level of expertise in research and development and excellent engineering know-how, the company is a perfect fit for Schuler. The acquisition is part of our growth strategy."

The AWEBA Group employs around 600 people, including almost 200 highly skilled engineers and toolmakers. The company owns 40 valuable patents in the field of die manufacturing.

The AWEBA takeover is Schuler's second major acquisition in the last 12 months. Last year, the company acquired a majority stake in the Chinese press manufacturer Yadon, with annual sales of around €110 million.

**Schuler AG – Germany**  
Website: [www.schulergroup.com](http://www.schulergroup.com)





# 台灣國際金屬科技展

## International Metal Technology Taiwan

### December 6-8, 2016 高雄展覽館

### iMT 2015 Facts

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4,657 Visitors

172 Exhibitors

from 11 countries  
US, Germany, Japan, France, Italy, Australia, Switzerland, UK, Indonesia, Singapore...etc.

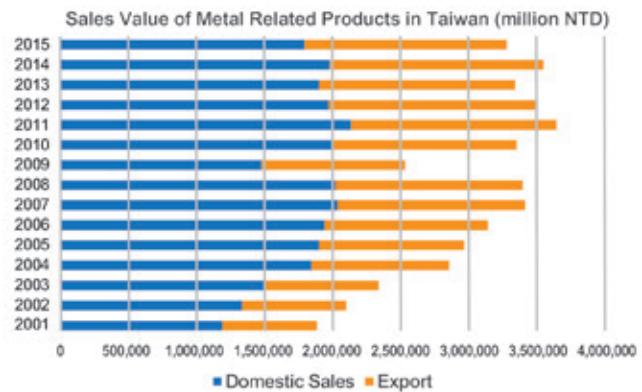
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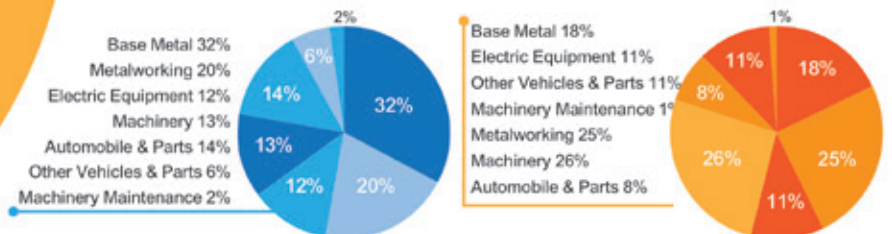
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### Market Output



Domestic Sales (2011-2015) Breakdown of Export Value (2011-2015)



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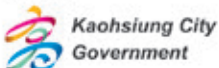
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## Expanding sales and service in China

SCHMOLZ + Bickenbach is expanding its sales and services network in China. In January the company began operating a new warehouse for special steel with a first focus on tool steel in Chongqing.

The 2,000m<sup>2</sup> facility is equipped with sawing technologies and high-tech milling machines. Customers benefit from shorter delivery times and tailor-made cutting services for the tool steels from the group's own production.

The product portfolio includes cold-work and high-speed steel grades, steel for plastic moulding and hot work steel from the Schmolz + Bickenbach companies Deutsche Edelstahlwerke, Germany, and Finkl Steel (USA).

With expanded sales and service capacities, Schmolz + Bickenbach International is now also able to meet the needs of local companies in the automotive and plastic moulding industries from a central location in China.

The Chongqing-Chengdu area represents between 10 and 15 per cent of the total Chinese tool steel demand. Jack Huan, former sales manager of the Ninghai (Zhejiang) warehouse, is appointed manager of the new warehouse.

He has many years of experience in senior management in the Chinese tool steel business and with his team will



○ With the new warehouse for special steel in Chongqing, China, the company is able to meet the needs of local manufacturers of automotive components and plastic moulds

provide local customers with the necessary technical support to benefit from the group's product quality.

Other warehousing and commercial platforms of Schmolz + Bickenbach International in China are located in Dongguan (Guangdong), in Taicang (Jiangsu), in Ninghai (Zhejiang) and in

Shanghai. The group will now be able to provide service and support to the most important industrial areas in China.

**Schmolz + Bickenbach International GmbH – Switzerland**

**Website:** [www.schmolz-bickenbach.com](http://www.schmolz-bickenbach.com)

### It's all in a name!

DS Brookes Ltd, Davis-Standard's subsidiary in the West Midlands, UK, will now be called Davis-Standard Limited. The modification is in name only, better reflecting Davis-Standard's global market position and current activities.

Davis-Standard Ltd will continue supplying screws and barrels associated with the DS Brookes brand, and will remain Davis-Standard's key supplier of extrusion systems for the EMEA (Europe, Middle East, Africa) region. This includes support of aftermarket and spare parts activities across all product platforms.

"The name change better aligns with Davis-Standard's corporate uniformity in serving customers worldwide," said Mark Woodgate, managing director of Davis-Standard Ltd. "In addition to this development, we are pleased to announce that our facility is Davis-Standard's European service centre for blown film, servicing the recently acquired Gloucester Engineering product range."

**Davis-Standard LLC – USA**  
**Website:** [www.davis-standard.com](http://www.davis-standard.com)

### Free monthly webinars

The IWCS International Cable & Connectivity Symposium has launched a free monthly webinar series of peer-reviewed presentations on technologies and trends in wire, cable and connectivity for the communications, data, electronics, power, industrial, automotive and aerospace industries.

Held on the third Friday of every month at 10.30am Eastern USA time, the webinars run for 45 minutes and include an interactive question-and-answer period. A webinar recording is available on [www.iwcs.org](http://www.iwcs.org) in the Webinar Archive about two weeks after each live presentation.

Launched in November 2015, the month following the IWCS 2015 Symposium, the IWCS Webinar Series presents technical topics of interest to those in the industry. An example of a popular recent topic from March is Development of a Totally Dry Aerial Dielectric Self Support Cable Family, which was presented by Tim Goddard of OFS.

**IWCS – USA**  
**Website:** [www.iwcs.org](http://www.iwcs.org)



## Production throughput up to 20 per cent

KABTEK has improved its weekly production throughput up to 20 per cent by using CablePlan Plannica.

InnoVites, a provider of enterprise software for wire and cable manufacturers and distributors, distributes CablePlan around the globe in the wire and cable market.

Kabtek is a global manufacturer of cable, offering industrial products including silicon cables, rubber-based command control, power and mid-voltage cables, and exports more than 80 per cent of total production to the leading western European countries.

Abdurrahman Güngör, COO at Kabtek, said: “CablePlan Plannica is helping Kabtek to improve the production throughput rate up to 20 per cent through weekly planning of its new 21,000m<sup>2</sup> dedicated indoor facility producing approximately 700-1,000 tons per month, reduce the master planning cycle from days to minutes, and provide Kabtek with an opportunity to revise its master plans multiple times throughout the week, and generate a master plan that conforms 100 per cent to a variety of customer- and cable-specific constraints.

“Kabtek has expanded the scope of its involvement with CablePlan and is currently implementing CablePlan Chronica to minimise the setup times and improve overall

OEE (operational equipment efficiency) across its entire facility, and integrating CablePlan Promica to provide optimal quotations to its customers.”

Albert Groothedde, CEO at InnoVites, added: “We are excited about the results cable manufacturers can achieve with CablePlan. The results at Kabtek are a strong proof how production planning software can significantly improve production efficiency.”

**InnoVites BV – Netherlands** Website: [www.innovites.com](http://www.innovites.com)

**Kabtek – Turkey**

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

## Newcomer at T&T

Michael Roussel has joined T&T Marketing Inc as account manager, New England. He will also have product manager responsibilities. In the wire and cable industry, he has worked for AlphaGary and most recently as sales manager at Carris Reels. His professional memberships and affiliations include Wire Association International, ASTM International and Society of Plastics Engineers.

**T&T Marketing Inc – USA**

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

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## Groundbreaking impulses for the industry

THE latest issue of the Niehoff Magazine, the customer journal of the Niehoff Group, was published shortly before the wire 2016 trade fair in Düsseldorf, Germany, in April.

Under the title "Groundbreaking impulses for the wire and cable industry", the Niehoff exhibits are described along with technical data: A rod breakdown machine type MSM 86, a rotary braiding machine type BMV 16 Z + BZ 380, an inductive inline annealer type RI 120, a data cable stranding line type ARD 630 D + ALB 600 + DSI 631 and a bunching line type D 562 + ARP 630. Also the Niehoff Original+ After Sales service with its offerings is introduced, as well as the exhibits of Niehoff's partner company HFSAB (components of its latest horizontal lead extruder).

In an interview entitled "They only speak of Düsseldorf", Friedrich-Georg Kehrer, project director at organisers Messe Düsseldorf, talks about special features of this event. The situation of Europe's wire and cable industry and some trends are subject of the article "Imagine life without our products".

A further focus of this issue is the in-house exhibition which took place in the new Niehoff factory in Schwabach immediately after the wire trade fair. There were shown a completely new multi-wire line type MMH 112 + RM 202 + S 632, which embodies a new machine generation, a double-twist bunching machine type D 632 for the manufacture of strands of copper alloys for automotive wires, a barrel coiler type WF 651 with new patented locking system, the rotary braiding machines type BMV 16 and BMV 124, the new generation of the NPS double spooler type SV 402 D and more.

An article under the heading "All specialists under one roof" describes

### New managing director

Ambrell Corporation has appointed Henk Kleef as the new managing director for its European operations. Mr Kleef will manage all aspects of Ambrell's business in Europe including the United Kingdom, the European Union and Eastern Europe.

**Ambrell Corporation – USA**  
Website: [www.ambrell.com](http://www.ambrell.com)

details of the buildings, its equipment and measures to achieve a high level of energy efficiency. In the company portrait Norbert Kordes Kabel und Leitungen GmbH u Co KG, Uslar, one of the biggest copper cable manufacturers in Germany, is introduced.

Biannually the Niehoff Magazine informs about company news and developments, trade shows and events

and other interesting topics. The magazine, published in English and German with summaries in Chinese and Russian, can be obtained from Niehoff headquarters in Germany or any Niehoff subsidiary and service office all over the world. It is also available at the Niehoff website.

**Maschinenfabrik Niehoff GmbH & Co KG – Germany**  
Website: [www.niehoff.de](http://www.niehoff.de)

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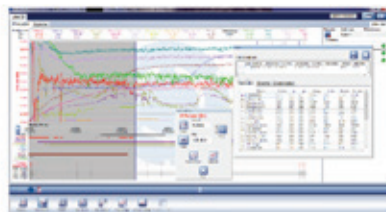
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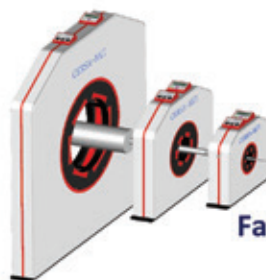
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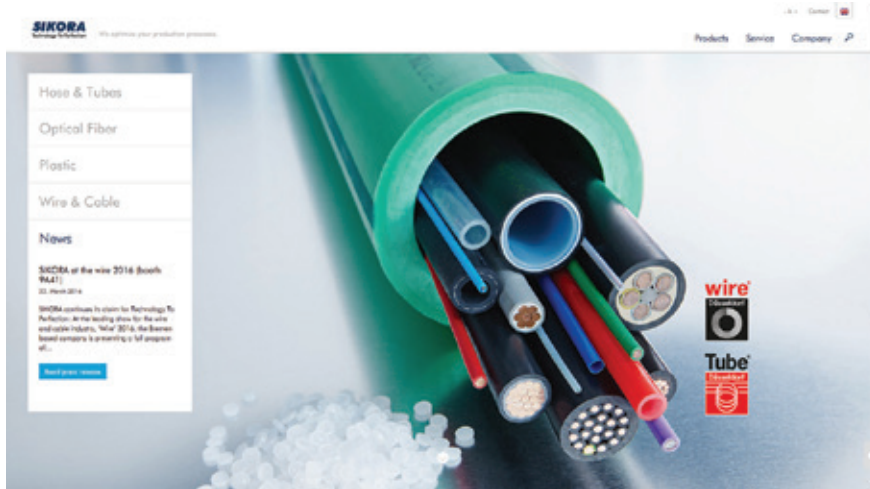
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○ The new Sikora website

## New website for Sikora

WITH the relaunch of the company website Sikora has presented its new corporate design with a clear, intuitive structure, pictures and the brand colours of blue and white.

Using easy navigation, the new web presence guides the visitor to the desired pages. The changing topics with large pictures on the homepage inform about industries and news about the company. Via the menu item 'Service' the visitor finds an overview of all Sikora services and is directly navigated to the new support and spare part request form.

The section 'Company' offers customers, candidates and media representatives important and clearly structured information on the company. Its social media channels, providing a direct connection to social

networks such as Twitter, are also integrated.

A further highlight of the new web presence is the flexible layout. Whether PC, tablet or smartphone, the website is responsive and adjusts automatically to every terminal and every display. Therefore, the functionality of the website remains in any situation, and all information is fast, easy and user-friendly retrievable.

"With the relaunch of our website we present ourselves in a new design and at the same time modern, intuitive and emotional," said Harry Prunk, member of the board. "Our users find their way around our page, independently of the device they are using."

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

## Teknor Apex strengthens European presence

Teknor Apex has acquired Plastic-Technologie-Service (PTS), a German-based custom compounder of thermoplastic elastomers (TPEs) and engineering thermoplastics (ETPs). The deal, for an undisclosed amount, became final on 31<sup>st</sup> March.

PTS operates a manufacturing plant at Steinsfeld, Germany, with more than 20,000 tons of installed capacity, as well as a technical support facility. A marketing office 10km away in Tauberzell includes facilities for training, seminars and discussion with customers of possible solutions for automotive, electrical, consumer product, and other applications. The company has more than 100 employees.

The product portfolios of PTS are diverse. TPEs include block copolymers based on a number of polymer chemistries, TPVs, and polymer blends. ETPs include several types of polyamide plus PBT, polycarbonate (PC), and PC/ABS blends.

**Teknor Apex Company – USA**

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

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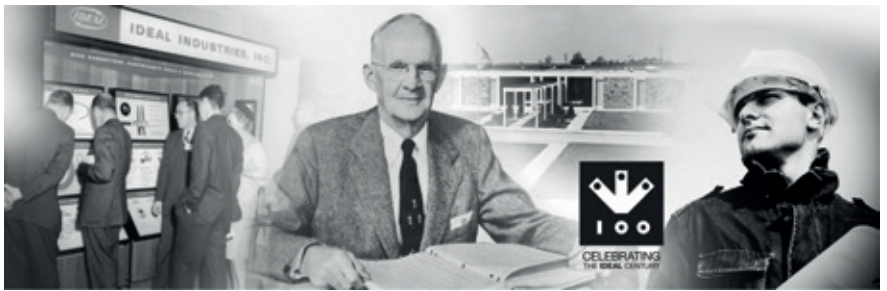


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○ A glance through the past 100 years at Ideal Industries

## Centenary celebrations for Ideal

IDEAL Networks celebrates the 100<sup>th</sup> birthday of parent company Ideal Industries Inc, which has been designing tools and solutions that make a true difference for millions of professional tradesmen.

100 years ago, founder J Walter Becker launched the Ideal Commutator Dresser Company from his mother's kitchen with the belief that every product should be worth more than its price. Service, he said, is part of the product.

Since then, Ideal Industries has grown into an authority on electrical installation and testing. In its 100 years of business it has acquired several other companies including the LAN tester division of Acterna (formally Wavetek), and a major ATM, xDSL, SDH/Sonet, Gigabit Ethernet, and IP hand-held testing equipment provider, Trend Communications.

Ideal Industries has achieved many industry firsts and was proud to launch the market's first hand-held Cat 5 cable certifier (LANTech 100) in 1993. Since then it has released the first tester for Class F/FA, the first dedicated tester for Cat 6A cabling, the first tester to include a tone generator and colour screen, and the first tester to have an autotest button on the remote to save time.

Today, it continues to develop the iconic products and practical technology demanded by critical industries like data communications, aerospace, electrical, wire processing, automotive, construction and more.

There are now eight companies in the Ideal group, trading worldwide across six continents.

Many important sectors have Ideal to thank in part for their progress. For

example, its wire strippers have been used on many commercial jets flying today; and its products have even been to the moon as part of the critical equipment on NASA missions.

In the past 100 years, Ideal has grown to become a major manufacturer of portable test equipment with true heritage and expertise in both LAN and WAN installation and maintenance. Through its Networks brand it now supplies data cable testers, network testers and telecom/enterprise testers all over the world.

"Innovation and quality have been central to everything Ideal Industries has done over the past century. As we reach this important milestone, Ideal Networks continues its commitment to offering both a range of unique, effective products and leading customer service," said Tim Withershoven, global marketing manager for Ideal Networks.

**Ideal Industries – USA**  
**Website:** www.idealindustries.com

## Hatebur's deal for Calvi

The Swiss forming machinery specialist, Hatebur Umformmaschinen AG, has agreed to buy Carlo Salvi SpA, a cold forming machine builder based in Garlate, Italy. The two firms explained that Hatebur will buy all the shares of privately held Carlo Salvi, and that the organisation's locations and employees will continue unchanged.

Carlo Salvi develops and manufactures cold forming machines. It has 92 employees, operating from facilities in Italy, China, the USA and UK.

**Hatebur Metalforming Equipment Ltd – Switzerland**  
**Website:** www.hatebur.com



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# Taking cables to the Amazon Rainforest

BRAZIL'S Connected Amazonia Program will include Nexans submarine fibre optic cables. The project aims to bring the Internet to four million people in the Amazon Rainforest. The project comprises 7,700km of cables to connect 52 municipal areas through five separate cable routes on and beneath riverbeds in the Amazon.

For Brazil's Connected Amazonia Program, one of largest submarine fibre projects in the world, 275km of Nexans cables will be installed in riverbeds between Coari and Tefé. The entire network will be made up of five data highways: Upper Negro river, Upper Solimões, Madeira, Purus and Juruá.

For this project, Nexans recommended using high performance cables that have a minimal environmental impact. This allows the project to serve the needs of local communities while preserving the fragile Amazon Rainforest ecosystem.

Nexans has supplied cables that will not release harmful substances into the delicate river ecosystem and have no negative impact on the environment. The fibre optic cables from the URC-1 family of cables meet all international standards for submarine cables.

To handle the strong currents in the river that occur throughout the year, a flat-bottomed barge will be used as the cable-laying vessel. For additional security, five support vessels will accompany the cable-laying barge. In the future, local teams with specialist tools can maintain the cables.

The Connected Amazonia Program aims to bring a high quality Internet connection to the State of Amazonas, not only to connect residents to the Internet, but also to enable telemedicine, distance learning and greater interconnection between health, security and traffic services. The programme aims to do this while minimising the environmental impact of the installation.

Brazil is ranked fourth in the world for the number of users accessing the Internet and this will only grow with this project. In order to provide a premium service, the cables were



○ Taking the Internet to four million people in the Amazon Rainforest

manufactured at Nexans Norway, a specialist plant focussing on high performance Ethernet solutions, and shipped to Brazil for installation.

Ragnar Vogt, director at Nexans Norway, said, "This project will do more than connect native people to the Internet. It will bring investment, improved healthcare and better access to education to traditionally isolated regions."

"We are proud to be helping to bring technology to the Amazon Rainforest. Nexans is looking forward to the challenge of working in such a unique environment. To ensure the programme got all the expertise we could offer, the Norwegian and Brazilian teams worked together to combine technological and local area knowledge."

**Nexans – France**  
Website: [www.nexans.com](http://www.nexans.com)

## Controlling design and manufacture of cables

April witnessed the launch of what has been described as 'the cable manufacturer's dream' – a single comprehensive set of tools to control the design and manufacture of cables in one place.

The product is called CableSuite and is the result of a partnership between UK-based Cimteq and InnoVites, of the Netherlands. The two companies selected the wire exhibition in Düsseldorf, Germany, to unveil their project.

CableSuite is a complete and fully integrated enterprise software solution that supports all business functions of cable manufacturers and distributors, combining CableBuilder, CablePlan, CableERP and CableMES.

CableSuite enables a cable manufacturer or distributor to significantly optimise and accelerate its business processes through its combination of tools.

Ali Shehab, of Cimteq, said: "CableSuite is a natural progression for both ourselves and InnoVites in the way in which we can assist our customers by helping them to become more efficient through the use of our products. By packaging the core elements of our flagship systems together in the form of CableSuite we can truly deliver a one-stop-shop solution to allow cable manufacturers to design and manufacture cable more efficiently and profitably. We are excited to witness the transformation our clients' experience upon adopting the system."

**Cimteq Ltd – UK**

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

**InnoVites BV – The Netherlands**

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





○ 来自中国、韩国和台湾的公司使Kocks今年的订单大增

## Kocks订单忙碌

去年，德国线材棒材轧机制造商 Friedrich Kocks 订单非常忙碌。

Seah Changwon Integrated Special Steel Corp 以及 Morgårdshammar AB 和 AIC 在其昌原钢铁厂进行现代化改造项目，与韩国特殊钢制造商持续了数十年的成功合作。

SeAH group 于2015年3月收购了 SeAH Cangwon Integrated Special Steel Corp，该公司前身为 POSCO Specialty Steel and Sammy Steel。

SeAH CSS 是韩国国内唯一使用高质特殊钢材生产不锈钢材和线材的制造商。公司年产能炼钢达120万吨，钢铁产品100万吨，跻身十大特种钢制造商之一。

Kocks 现有的两种定径机 - 精密定径机 (PSB) 和 370/10 3辊中间座已被两个 2-高压座、3个活套、废料剪切和一个最新设计具有六个支架位置的 370++ RSB SCS® 所替代。

中国公司 Yongxing Special Stainless Steel Co Ltd 已向 Kocks 订购了一台 SCS® 设计的 RSB® 370++/4 减定径机。

Yongxing Special Stainless Steel Co Ltd 是一家私营企业，在证券交易所成功挂牌上市，公司成立于2000年，由母公司和两家全资子公司 Huzhou Yongxing Special Steel Imp and Exp Co Ltd 和 Huzhou Yongxing Materials Recycling Co Ltd 公司构成。

是国内前三名的专业从事不锈钢棒线材生产与开发的企业，年产能达到25万吨。

3辊减定径机将用于新的组合线棒材轧机来制造高质不锈钢和镍基合金。Kocks 减定径机安装在可逆式粗轧机和含有14个高压座中间连轧机的下游。

台湾公司 Feng Hsin Steel Co Ltd 也与 Kocks 签署了合同，为其台中工厂交付和调试 RSB SCS® 370++/5。新一代

SCS® RSB® 将取代现有的 Kocks 精密定径机 (PSB)，该定径机自1990年就开始在 Feng Hsin 运行。

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除了 RSB SCS®，供货范围还包括低温轧制水冷却线的工程工艺、快速剪切和滚子台以及提供安装和调试监督。合同还包含配置程序 Bamicon，基于材料特性的最大数据库，根据终端产品，计算电机速度、轧辊、滑轨以及齿轮级的最佳调整值；另外，还提供行业内最快的自动支架更换系统、具有快速换辊和 CAPAS 的轧辊车间以及精确调整轧辊和滚轮导轨 3辊支架的计算机辅助系统。

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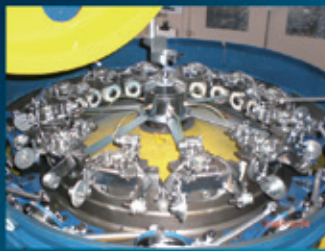
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○ AWEBA group 是全方位的模具供应商

此次交易最终由相关反垄断部门进行批准。在此次收购之前，AWEBA Werkzeugbau GmbH由私人机构和投资者所有。各方均同意不披露任何关于收购协议的细节。AWEBA创立于1882年，当时名为Bernhard Hiltmann Spezialfabrik für Schnitt und Stanzwerkzeug。如今，公司为众多汽车和电气行业的国际客户以及机床和工厂制造商供货。所提供的产品组合包括成形、切割、液压成形、压铸模具和夹具以及相关全方位服务。AWEBA Group在2015财年的销售收入约为6000万欧元。

Schuler CEO Stefan Klebert对此收购说道：“我们非常高兴像AWEBA这样管理如此成功的公司加入Schuler。凭借一流的研发实力和优良的工程技术，他们将与Schuler完美契合。我们将此次收购作为公司发展战略的一部分。AWEBA能够为我们的成形技术产品组合提供有力的补充，满足特定市场需求，同时有助于拓展Schuler在模具制造领域中的现有业务范围并巩固优势地位。”

AWEBA Group现有员工大约600人，其中近200人为训练有素的专业工程师和模具制造人员。公司在模具制造领域拥有40项重大专利技术。此次收购AWEBA是Schuler过去12月间第二大规模的收购业务。去年，公司收购了中国压力机制造商Yadon的多数股权，该公司去年的销售额约为1.1亿欧元。

Schuler AG – 德国  
网址: [www.schulergroup.com](http://www.schulergroup.com)

## CablePlan实现产量提升20%

Kabtek通过使用CablePlan Plannica，使其周产量提升了20%。InnoVites专门为电线电缆制造商和分销商提供企业软件，为全球电线电缆市场分销CablePlan。

Kabtek为全球电缆制造商提供工业产品，包括硅缆、橡胶指挥控制系统以及电力和中压电缆，生产的产品超过80%出口到发达的西欧国家。Kabtek首席运营官Abdurrahman Güngör说道：“CablePlan Plannica帮助Kabtek提高了产能，每周产量提高了20%，公司新的21,000m<sup>2</sup>室内专用设施每月产能700-1,000吨，降低了总体规划周期，而且Kabtek可以在一周内多次修改其总体规划，并生成100%符合客户特定电缆要求的主要计划。”

“凭借CablePlan，Kabtek扩大了生产活动的范畴，目前正在应用CablePlan Chronica来尽量减少设置时间和改善整个设施的总体OEE（运行设备效率）和集成CablePlan Promica，为客户提供最优化的报价。”InnoVites CEO Albert Groothedde补充说：“我们很高兴，电缆制造商使用CablePlan后收效显著。Kabtek的收益就是一个很好的说明，生产计划软件可以显著提高生产率，从而积极影响电缆制造商的盈利。”

InnoVites BV – 荷兰 网址: [www.innovites.com](http://www.innovites.com)

Kabtek – 土耳其 网址: [www.kabtek.com](http://www.kabtek.com)

## Davis-Standard 合并公司名称

DS Brookes Ltd是Davis-Standard在英国西米德兰兹郡的子公司，将更名为Davis-Standard Limited。公司名称修改后，更能体现Davis-Standard的全球市场地位和当前的公司活动。

Davis-Standard Ltd继续使用关联品牌DS Brookes供应螺杆和机筒，仍然是Davis-Standard在EMEA（欧洲、中东和非洲）挤出系统的重要供应商，支持Davis-Standard旗下所有产品平台和传统品牌的售后和备件活动。

“公司名称更改后，能够更好地与Davis-Standard标准保持一致，为全球客户提供优质的服务，”Davis-Standard Ltd总经理Mark Woodgate表示。“除此之外，我们很高兴地宣布，我们还是Davis-Standard吹塑薄膜的欧洲服务中心，为近期收购的Gloucester Engineering产品系列提供服务支持。因此，我们委任Jon Bourne为服务中心经理。他将为我们带来超过35年Gloucester、Battenfeld/Gloucester和Gloenco品牌经验。”

Davis-Standard, LLC – 美国  
网址: [www.davis-standard.com](http://www.davis-standard.com)

## Sikora启用新网站

Sikora将启用新的公司网站，界面清晰，结构直观，图片和品牌颜色为蓝色和白色，用户体验非常友好。使用简单的导航，新网页引导访问者到所需页面。主页上使用改变主题的大型广告图片告知行业和公司新闻。通过“服务”菜单项，访问者可以找到所有关于Sikora服务的概述，并直接导航到新的支持和备件申请表。

“公司”栏目提供关于公司客户、候选人、媒体代表等重要、结构清晰的信息。社交媒体渠道链接到社会网络，例如Twitter。

新网页的另一亮点是布局灵活。无论是PC、平板电脑或智能手机，网站都能相应和自动调整每一终端和显示页面。因此，在任何情况下，网站功能都很稳定，所有信息都提供快速、便捷和人性化的检索。“新网站呈现的是我们新的设计，同时风格现代、直观和友好”，董事会成员Harry Prunk说道。“我们的用户不再依靠使用设备就可以在页面上找到他们想要的操作路径。”

Sikora AG – 德国  
网址: [www.sikora.net](http://www.sikora.net)



## Prysmian在澳大利亚生产最高密度光缆

Prysmian已在澳大利亚启动生产Flextube®光缆，该光缆将创下光纤密度最高的行业记录。TPG是澳大利亚领先的电信运营商，要求光缆内集成的光纤芯数尽可能最高，超高密度的光缆适合于特定的应用。使用创新Flextube技术，Prysmian能够应对此挑战，实现了2,112根光纤一根光缆的记录。“Prysmian制造的光缆不仅内部光纤芯数多，更重要的是光纤密度创了世界记录。在不到24mm直径内放入2,112根光纤，光纤密度达到4.7根光纤每平方毫米，成为世界上最高密度的光缆解决方案。这种光缆可以很好地放入外径32mm（内径28mm）的细导管中，充分最大化可用空间，”Prysmian澳大利亚技术销售经理Jack Clements表示。

Prysmian与TPG电信公司合作多年，TPG是澳大利亚率先使用Flextube产品的客户之一。Flextube是一种革命性的电缆，设计非常紧凑，重量轻，应用灵活，安装也快。使用Flextube，Prysmian将继续引领超高密度电缆解决方案，新的创记录光缆进一步扩充了Flextube产品的范畴。TPG电信周五在墨尔本CBD地区利用1.8km光缆实现了2,112根光纤一根光缆的行业记录，安装在内径不到28mm的导管中。电缆使用Prysmian最新的高容量光缆交接盒两端拼接。交接盒最高支持2,688根光纤，并可根据客户需求量身定制。

“Prysmian将继续拓展电线解决方案。我们将通过创新来快速响应市场需求，目前，市场需要更高容量的电缆。我们不仅提供新的电缆设计，而且提供了一个完整的网络解决方案，包括交接和连接产品，”Prysmian澳大利亚大客户经理Alice Codenotti表示。“能够在根细管内容纳2,000多根光纤，在安装成本上更有优势，而且确保了业务容量的需求，让光纤网络资源更好地面向未来，”TPG电信网络设计和规划经理Liz Goyeneche表示。

“去年我们曾经利用Prysmian的1728芯光纤光缆，今年又使用了高达2112根光纤的一根光缆。该技术不断发展，TPG将热衷于利用最尖端的产品，以应对客户的各种需求，”TPG电信光纤运营部总经理Reggie Naik说道。上周，Prysmian Flextube光缆生产线在悉尼北部海滩德威的世界一流电信工厂首次在澳大利亚启动生产，以更好地服务于不断增长的当地市场需求。

**Prysmian Group - 意大利**  
网址: [www.prysmian.com](http://www.prysmian.com)

## 扩张中国销售与服务市场



随着中国重庆特殊钢新仓储的建立，公司能够满足当地汽车零部件和塑料模具制造商的需求

Schmolz + Bickenbach正在扩大其在中国的销售和服务网络。一月，公司开始运营新的特钢仓储，首次重点发展在重庆的工具钢。占地2,000平米的设施配备有锯切技术和高科技铣床。集团自己生产的工具钢，缩短了交货时间，并能够定制切割服务，因此客户大大受益。

产品组合包括Schmolz + Bickenbach旗下控股公司Deutsche Edelstahlwerke（德国）和 Finkl Steel（美国）生产的冷作工具钢和高速钢、塑料模具钢和热作工具钢。

凭借不断扩大的销售和服务能力，Schmolz + Bickenbach International现已能够满足中国中部地区汽车、塑料模具等行业企业的需求。

重庆-成都地区占整个中国工具钢需求的10-15%。之前任宁海（浙江）仓储经理Jack Huan被任命为新仓储经理。

Jack Huan多年来一直在中国工具钢行业从事高级管理，经验非常丰富，他将和团队一起为当地客户提供必要的技术支持，客户将从集团高质产品中获益。

Schmolz + Bickenbach International在中国的其它仓储和平台分别位于东莞（广东）、太仓（江苏）、宁海（浙江）和上海。集团现已能够为中国的绝大多数重要工业领域提供服务和支撑。

**Schmolz + Bickenbach International GmbH - 瑞士**  
网址: [www.schmolz-bickenbach.com](http://www.schmolz-bickenbach.com)

## 月度免费网络研讨会

IWCS国际电缆与连接研讨会已推出每月一次的免费网络研讨会，主要针对同行审议的电线、电缆和连接行业通信、数据、电子、电力、工业、汽车和航空航天等领域的技术和发展趋势。网络研讨会于每月的第三个星期五美国东部时间上午十点半举行，历时45分钟，包括互动问答时间。现场播出两周后，可登录网站[www.iwcs.org](http://www.iwcs.org)在Webinar Archive栏目下查询往期研讨会视频。继IWCS 2015研讨会之后，于2015年11月推出的IWCS网络研讨会，展示了业界关注的技术主题。例如，3月份的热门话题是关于全干式航空介电自支撑电缆系列，该主题由OFS公司Tim Goddard呈现。

**IWCS - 美国**

网址: [www.iwcs.org](http://www.iwcs.org)





○ Better environmental stability because of the new technology

## Cable breakthrough

PRYSMIAN Group is launching a new breakthrough cable technology for the development of power transmission grids that will ensure better environmental sustainability, higher electrical performance and lower costs. The group has completed the successful development and testing of its new P-Laser 525kV cable system for high voltage direct current (HVDC) applications.

"This is a significant and important new technology that shapes the progress of HVDC in the cable industry and reconfirms once again our undisputed leadership in driving technological innovation within the sector," said Massimo Battaini, senior vice president energy projects at Prysmian Group.

P-Laser is the name given to the

advanced and innovative technology that permits a more efficient cable production with lower environmental impact than traditional XLPE (cross-linked polyethylene).

Manufacture is performed in a single and continuous process and does not require chemical reactions to achieve the properties required for the long-term electrical integrity of HVDC insulation systems. This feature gives the benefit of shorter production times and results in both reduced energy consumption and lower greenhouse gas emissions. P-Laser is particularly suitable for HVDC applications, moreover, it is the first HVDC cable that can be fully recycled at system end-of-life.

P-Laser technology is fully compatible with existing cable and accessory

technologies, and provides better electrical performance and a higher material integrity for HVDC in comparison to traditional XLPE-insulated cables. From an efficiency perspective, P-Laser technology has higher thermal performance properties, which increase the power transmission capability of the cable system for a given conductor size, thereby enabling average overall cost reductions of approximately 10 per cent per transmitted MW.

This milestone achievement follows the group's recent announcement of the successful testing of the XLPE extruded cable solution at the same voltage level (525kV DC) in December 2015.

**Prysmian Group – Italy**  
**Website:** [www.prysmian.com](http://www.prysmian.com)



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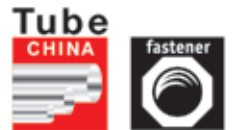
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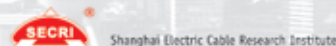
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## Latest version of flagship software launched

LaserLinc, Inc, a USA manufacturer of precision measurement equipment for diameter, wall thickness, ovality, concentricity, eccentricity and inside diameter, has released the latest version of its flagship Total Vu™ HMI software.

The Total Vu HMI hosts LaserLinc's line of laser micrometers and ultrasonic devices. The latest release provides the flexibility to make the optimal solution for in-process measurement and control, or inspection applications.

Main features are:

- Optimise what the operator sees and what they do using fully customisable displays
- Tabbed displays make navigation easy; multiple displays, or touchscreens, put access wherever needed
- Electronic and print report generation
- Customise templates with Excel
- OPC client and server software permits seamless sharing of information with enterprise systems



- The new software from LaserLinc
- Variety of connections – Ethernet to laser OD gauges, ultrasonic wall gauges, and discrete I/O
- Variety of processors – industrial, all-in-one, mini, laptop – to satisfy cost, environmental or other needs
- Off-the-shelf hardware and cables – for easy purchasing, installation, maintenance, upgrades and expansion
- Combine any set of standard

features and optional plug-in modules to create the perfect solution

The system can be extended in the future by adding modules, gauging and I/O, or by modifying displays and system configuration.

**LaserLinc – USA**  
Website: [www.laserlinc.com](http://www.laserlinc.com)

## Efficient, highly precise ODAC 14XY laser gauges

THANKS to the compact design, the ODAC® 14XY measuring heads from Zumbach can be used in virtually every manufacturing process in the wire and cable industry, the plastics and rubber industry as well as the steel and metal industry.

The technological basis considered for these measuring heads is always of the latest technology, with laser diodes as light sources combined with intelligent and powerful measured-value processors which facilitate a simple and flexible integration.

Zumbach's long-standing experience as a pioneer of in-line measuring technology, combined with high production figures result in a product with an excellent price-performance ratio.

Amongst the outstanding features are single scan calibration (CSS), with single scan monitoring and high data rate output of up to 125 data packages per second.

The measuring heads can be used with



○ ODAC 14XY measuring head with optional local display LOC 01

all line speeds. Vibrations during production have no noticeable influence on measurements.

This is specially suited for fine and extra fine wires, enamelled wires, cables, steel cords, fibres, medical tubing, extruded plastic or rubber products.

The ODAC 14XY models are available for two measuring ranges:

- Micro version from  $\varnothing 0,015$  up to 3mm (0.0006 up to 0.12"). Thanks to the use of a special laser, these versions can measure smallest diameters within the micrometre range
- Standard version from  $\varnothing 0.06$  up to 16mm (0.0024 up to 0.64")

All the measuring heads of the ODAC series have adaptive signal processing (patent DE3111356), which makes subsequent regular re-calibrations superfluous. Only in instances of component exchange or compliance to calibration regulations ISO 9000/9001 etc would re-calibration be required.

All the relevant parameters for accuracy are continuously monitored by the measuring system and automatically compensated. This is valid, in particular, for possible long-term changes of the behaviour of the scanner motor or the measuring electronics.

**Zumbach Electronic – Switzerland**  
Website: [www.zumbach.com](http://www.zumbach.com)



## Good electrical conductivity and tensile strength

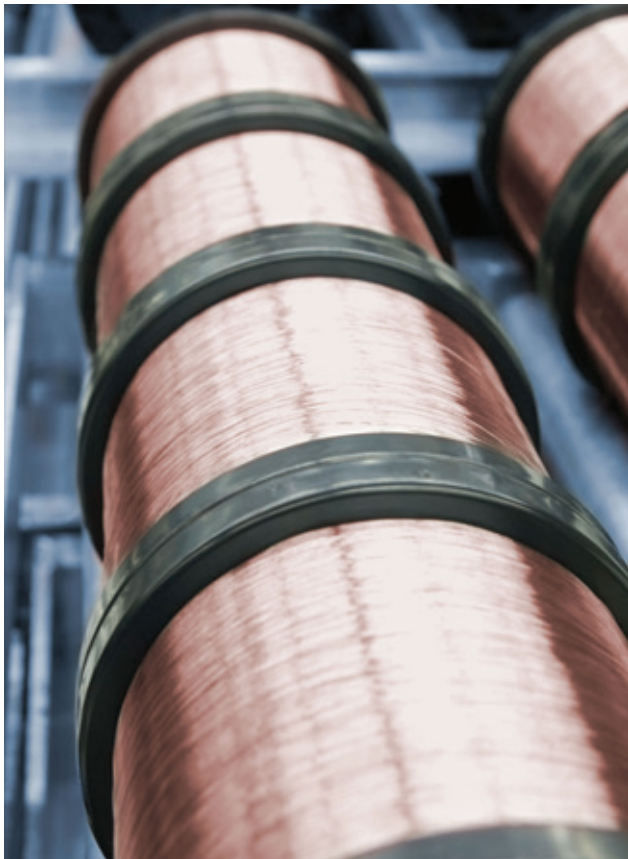
WIRES with high electrical conductivity as well as high tensile strength properties are required for certain tasks. Because their mechanical strength is too low, pure copper wires, the best of all industrially used conductors, are not usually suited for these applications. However, ISA-CON® wires, which combine both properties in an optimal manner, are well suited.

The brand designation stands for copper-based alloys that have been developed by Isabellenhütte, a manufacturer of high-tech alloys, which produces them in the form of wires. The ISA-CON414 and ISA-CON1000 material types currently form the focus of the production programme. The designations consist of the brand name and the minimum tensile strength (TS) in MPa\*. Both alloys have a higher TS than copper (200 MPa).

The other important property is electrical conductivity: for pure copper, it is 58 x 106 S/m, which is equivalent to 100 per cent IACS (international annealed copper standard). At 90 per cent IACS when annealed, the ISA-CON 414 material comes very close to copper.

The high-strength material ISA-CON1000, at 60 per cent IACS, is also considerably more conductive than the widely used copper-clad stainless steel wires, which achieve 40 per cent IACS.

ISA-CON414 is a RoHS-compliant material that can replace similar materials containing cadmium and fulfils



○ ISA-CON wires well suited for high electrical conductivity and high tensile strength

the requirements of the ASTM B624 norm (standard specification for high-strength, high-conductivity copper-alloy wire for electronic application). The high-strength material ISA-CON1000 contains the alloy elements silver and zircon.

Wires made of both materials are able to intercept high tensile loads elastically, have a high degree of hardness, are corrosion resistant and retain their properties for long periods of use, even at higher temperatures.

ISA-CON wires are delivered as round and stranded wires with diameters ranging from 0.05 to 0.3mm. ISA-CON414 wires are also available in rods with diameters ranging from 0.8 to 1.2mm.

Typical fields of application are signal and overhead wires for railways and automotive cables. In light of the need to save space and weight, the automotive industry and other sectors require conductive wires with the smallest possible diameters (miniaturisation) that are also able to reliably fulfil increasingly strict demands in terms of load capacity and required service life.

\* 1 MPa = 1N/mm<sup>2</sup>

**Isabellenhütte Heusler GmbH & Co KG – Germany**  
Website: [www.isabellenhuette.de](http://www.isabellenhuette.de)

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## Experts for plasticising oils

H&R Group has been focusing on its expertise in plasticising oils for polymer compounding, along with water blocking technology and dielectric compounds for the energy, telecommunication and fibre optic sectors.

Two areas that were of particular interest to visitors at the recent wire 2016 exhibition were plasticising oils for polymer compounding and the water blocking of XLPE cables.

In Europe, the wire and cable sector is one of the largest users of PVC for cable sheathing and insulation.

Without plasticisers the cable sheathing and insulation would become brittle and crack, resulting in safety and down-time issues for cable networks.

H&R, with extensive experience in this area, offers a range of plasticisers with different viscosities to meet the requirements of both cable designers and polymer compounders. Its Pionier oils range is seen as an alternative to phthalates and is also suited to NBR in a number of sheathing and insulation applications.

Used since the late 1960s, XLPE cables have brought cost, performance and environmental benefits to cable networks around the world.

In order to maintain reliability of XLPE cables the H&R Group has developed Strandblok, specifically for the sealing of conductor strands in AC and DC XLPE cables.

Based on synthetic hydrocarbons and fillers, Strandblok offers cable designers compatibility with polymers used in cable construction, as well as exhibiting water resistance – making it suitable for offshore/subsea applications.

**H&R Group – UK**  
Website: [www.hur.com](http://www.hur.com)



○ Focusing on its expertise





○ 由于新技术使环境稳定性更好

## 电缆界新的里程碑

Prysmian Group目前在高压直流电缆研发上又取得了重大突破，它不仅以更低成本的方式输送更多容量，还保证了更好的环境可持续性和更高的电气性能。新研发的用于高压直流系统的P-Laser 525kV电缆系统已成功通过测试。

“这显然是一项重要的新技术，体现了高压直流在电缆领域的最新进展，也再次肯定了我们在业界无可争议的领导地位，”Prysmian Group 能源项目高级副总裁Massimo Battaini表示。

“我们很荣幸提供这一先进的技术，满足更多客户关于电网升级换代需求，以及提高电网性能且降低环境影响，同时降低更多成本，”他补充说。

这款高压直流电缆之所以命名为P-Laser是因为它采用了最先进和最创新的技术，比传统的交联聚乙烯电缆更加有效，且减少对环境的影响。

生产这种高压直流电缆是在单一且持续的过程中完成的，并不需要化学反应，以实现高压直流绝缘系统长期的电气性能，这样使得生产时间大大减少，从而减少能源消耗，降低温室气体排放。

P-Laser特别适合于高压直流应用，此外，这是全球首个可以实现充分回收的高压直流电缆。

P-Laser技术与当前电缆和组件技术完全兼容，较之传统的交联聚乙烯绝缘电缆能

够提供更好的电气性能和材料的完整性。从能效角度来看，P-Laser技术具有更高的热性能，这就增加了在同样导体尺寸下的输电容量，所以整体来看，每兆瓦电力输送，P-Laser高压直流电缆大约能降低成本10%左右。

P-Laser在世界上率先应用到高压直流地下与海底系统。在达到次里程碑前，集团刚宣布于2015年12月用于高压直流系统的525kV挤出型电缆系统成功通过测试，进一步重申了Prysmian 的承诺和领导地位，集团将一如既往致力于电缆技术的创新。

**Prysmian Group – 意大利**  
网址: [www.prysmian.com](http://www.prysmian.com)



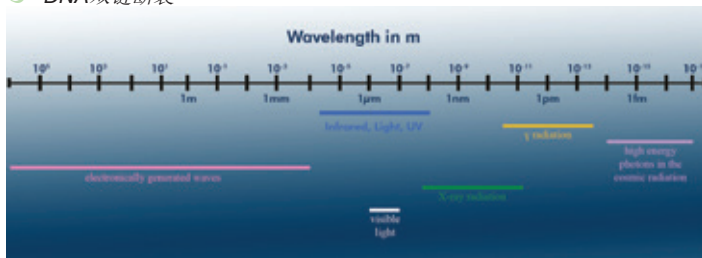
## 电离辐射的几个应用

太阳凭借其温和的辐射，造就了世间万物。然而，人类不能暴露在辐射下太久。当遭遇无形、硬紫外线照射，保护措施必不可少，以防止皮肤受损。

X射线波谱从硬紫外线辐射开始，再转化为超硬紫外线辐射，已被诸多领域证明是福音设备，尤其是医学诊断和癌症治疗。另外，在过去几十年里，X射线辐射已成为工业领域必不可少的珍贵应用。

太阳光紫外线辐射率的能量对人体皮肤的渗透率很低，X射线辐射是能够完全渗透所有人体组织的。在这两种情况下，对人体皮肤和身体内部造成的损害可能导致细胞的恶性变化。原则上，一个体细胞的所有物质可能被损坏，但是最终关于遗传物质(DNA)的损害是非常严重的。

### ○ DNA 双链断裂



DNA 双链断裂不仅是因为受到X射线辐射。目前，有一个共同的认识，就是细胞代谢产生的氧自由基连续引起DNA发生变化。现代化的方法证明每天每个单细胞在0.1和5之间DNA双链断裂。这个数字逐年递增。99.9%的损害通过内源性修复细胞机制而消除。即使不能实现，一个新细胞也将替代缺陷细胞。

暴露于电离辐射也具有相对风险。今天，生物剂量是估算可能过量辐射暴露的国际公认方法。因此，特殊生物标志物的使用，就像指纹在照射细胞中。

正如衣服提供对太阳紫外线辐射的保护，X射线也能够通过适当的材料屏蔽。具有所谓高原子序数的材料特别适合。这方面的相关材料有钢、铜和铅。通过使用这种材料，中等能量的X射线辐射，例如用于工业测量技术，可以被减弱，以至于这些装置外部所不在的背景辐射只是很轻微或根本不会增加。

不同于放射同位素，辐射只能屏蔽，但是没有X射线辐射产生。此外，X射线辐射不能导致放射性材料中的放射能，这是因为X射线辐射的能量太低，不足以形成辐射和放射性同位素。即使是X射线管，就像所有其它X射线装置的内部组件，在阳极电压失活后，完全没有辐射，因此能够随意操作。

X射线辐射很有利用价值，关闭时X射线装置的辐射就可以被关掉。如果X射线管没有阳极电压，那么利用高能量X射线辐射破坏退化的肿瘤细胞就可以用来治疗恶性肿瘤。约10兆电子伏的能量领域被称为伽马辐射。

根据欧洲条例 96/29/Euratom，基于X射线的测量装置，外部距离0.1 m，其辐射不允许超过最大值1 μSv/h。限制范围这么低，因此，患癌风险的重要统计证明是不可能的。

听起来可能令人咋舌，但现代研究指向完全相反的方向。换句话说，小剂量X射线辐射，类似于光的紫外线辐射，刺激免疫系统，因此，甚至可能更健康。

Sikora AG – 德国  
网址: www.sikora.net

## LaserLinc推出新版主打软件

美国LaserLinc, Inc公司专业制造精密测量设备，用于测量直径、壁厚、椭圆度、同心度、偏心率和内径，最近推出最新版主打软件Total Vu™ HMI。

Total Vu HMI为LaserLinc系列激光千分尺和超声波设备提供程序。推出的新版更具有灵活性，为在线测量、控制和检测应用提供最优解决方案。

### 主要特征如下:

- 使用完全可定制显示器，优化操作者所见所做
- 标签显示更易于导航; 多个显示器或触摸屏，可访问任何区域
- 生成电子和打印报告
- 具有Excel自动模板
- OPC客户端和服务端软件允许企业系统无缝信息共享
- 多种连接 - 以太网到激光外径测量仪、超声波壁测量仪和分离I/O
- 多种处理器 - 工业、一体化、微型、笔记本电脑 - 满足成本、环境等其它要求
- 现成的硬件和电缆 - 便于采购、安装、维护、升级和扩展



### ○ LaserLinc提供的新软件

结合任意一组标准功能和可选插件模块可创建完美的解决方案。

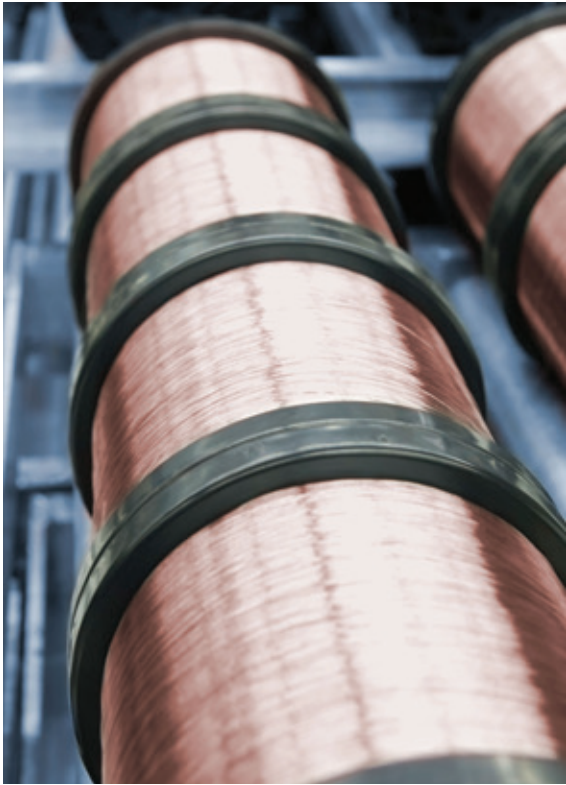
系统通过增加模块、计量和I/O或通过修改显示和系统配置，未来可以扩展。Total Vu解决方案提供的现有能力一般情

况下不适用于其它供应商的自定义。这种模块化、可扩展的平台在保证收益最大化的同时，最大限度减少成本。

LaserLinc – 美国  
网址: www.laserlinc.com



## 良好的导电性和高抗张强度



某些应用领域要求电线具有高导电性和高抗张强度。由于机械强度低，纯铜线作为工业使用最广泛的导线，通常不适合于这些应用。然而，ISA-CON®电线具备良好的导电性和高抗张强度，是最理想的解决方案。Isabellenhütte是高科技合金制造商，从品牌名称就能看出其生产铜基合金，通常生产铜合金电线。ISA-CON414和ISA-CON1000是主要生产材料。这些名称就包含了品牌和每兆帕最小的抗张强度 (TS)。

其它重要特性包括导电性：纯铜为58 x 106 S/m，相当于导电率100% IACS(国际退火铜标准)。导电率90% IACS退火后，ISA-CON 414非常接近铜。高强度材料ISA-CON1000导电率60%IACS时，比广泛应用的铜包覆不锈钢丝的导电性更强，铜包覆不锈钢丝只有 40% IACS。

ISA-CON414是一种符合RoHS标准的材料，可替代含有镉的类似材料，满足ASTM B624(高强度、高导电铜合金电子应用的标准规格) 的标准要求。高强度材料ISA-CON1000含有合金元素银和锆。这两种材料制成的电线能够弹性拦截高拉伸载荷，具有硬度高、耐腐蚀的特点，即使在高温环境下也能长期保持其性能。电线涂覆镍、锡或银的能力在某些应用中也有显著的优势。

ISA-CON电线有圆线和绞线，直径从0.05到0.3mm。ISA-CON414线材直径从0.8到1.2mm。主要应用领域包括铁路信号与架空电线和汽车电缆。根据节省空间和重量轻的使用要求，汽车和其它行业需要导线直径尽可能小(微型化)，并且能够胜任载荷和使用寿命等方面的需求。同样，这种电线也适用于插头和开关这样的接触元件。一般情况下，ISA-CON电线在不断发展的能源、发电、管理和数据传输等领域的应用会越来越广泛。

\* 1 MPa = 1N/mm<sup>2</sup>

Isabellenhütte Heusler GmbH & Co KG – 德国  
网址: [www.isabellenuette.de](http://www.isabellenuette.de)

○ ISA-CON 电线非常适用于高导电性和高拉伸强度

## 高效、高精度ODAC 14XY激光测量仪

由于采用了紧凑型设计，Zumbach公司制造的ODAC® 14XY测量头几乎可以应用于电线电缆、塑料橡胶和钢铁金属行业的所有加工过程。

这些测量头总是应用最新的技术，例如激光二极管作为光源，智能强大的测量值处理器有助于简便灵活的集成。

作为在线测量技术领域的先驱，Zumbach悠久的行业经验结合高产数据，使得产品具有优越的性价比。

卓越的特征包括单扫描校准(CSS)，具有单扫描监控和每秒高达125数据包的高数据速率输出。测量头可根据所有线速度使用。生产过程中的振动对测量结果没有明显的影响。

该测量仪特别适用于精细和特细电线、漆包线、电缆、钢帘线、光纤、医疗用管、挤出塑料盒橡胶产品。

ODAC 14XY适用于两种类型的测量范围：

- 微型，直径从0.015到3mm(0.0006-0.12")。由于使用了特殊激光，这些版本能够测量微米范围内的最小直径。
- 标准型，测量范围从直径0.06到16mm(0.0024-0.64")。

ODAC系列所有的测量头都有自适应信号处理(专利DE3111356)，这使得随后的定期重新校准是多余的。只有在交换组件或符合校准规范ISO 9000/9001等情况下，才需要重新校准。所有准确性的相关参数都通过测量系统连续监控和自动补偿。这是非常有效的，尤其对于扫描电机或测量电子可能发生长期变化的行为，效果更为显著。

灵活的通信集成：

- 串行RS-232 /-422 /-485
- 以太网TCP/IP
- Profibus DP



○ ODAC 14XY 测量头具有可选本地显示 LOC 01

- Profinet IO V2.3
- J/J-M(数据，连接到Zumbach USYS 处理器)

Zumbach Electronic – 瑞士  
网址: [www.zumbach.com](http://www.zumbach.com)



# India Insight

## Earth gets an hour 'off' – just for a day

ON 19<sup>th</sup> March, Tata Power Delhi Distribution (TPDDL) supported the Earth Hour campaign, an international annual initiative by WWF (World Wide Fund for Nature) that urges people across the world to turn off non-essential lights and electrical appliances for one hour between 8.30pm and 9.30pm.

The company was joined by fellow residents in expressing its support for the environment in this way.

The move resulted in a saving of 55MW in TPDDL's network areas, north and northwest Delhi, during the Earth Hour.

TPDDL runs several awareness campaigns on its social media platforms and at consumer care centres to spread the message about climate change and energy saving.

Commenting on the global initiative, Praveer Sinha, CEO and ED, TPDDL, said: "Tata Power Delhi Distribution has been at the forefront for conserving our environment, and our customers from north and northwest Delhi responded enthusiastically to the global call for switching off non-essential lights for an hour.



○ Tata Power supported this year's Earth Hour campaign

"We also appeal to all our consumers to make it a habit to switch off non-essential lights on a daily basis, and also to adopt efficient electrical appliances and renewable sources of power like roof-top solar wherever possible."

**Tata Power Delhi Distribution – India**  
Website: [www.tatapower-ddl.com](http://www.tatapower-ddl.com)



## A renewable portfolio

Tata Power Solar has commissioned a 4.8MW solar power plant for Rajaram Maize Products in Rajnandgaon district in Chhattisgarh state, India. The company now meets its entire power requirement through renewable energy, making it one of the few business entities in India to do so.

The solar power plant was constructed within three months, using Tata Power Solar's modules, and will remove approximately 5,180 tonnes of CO<sub>2</sub> emissions per annum.

Speaking on the project, Ashish Khanna, ED and CEO, Tata Power Solar, said: "It is exciting to see manufacturing companies like Rajaram Maize Products move from conventional power to 100 per cent renewable energy, and shows the shifting trend of companies accepting solar as a mainstream source of power."

Rajaram Maize Products has a strong focus on renewable energy and has already installed a biomass-based cogeneration plant, a solar rooftop installation, windmills and a biogas engine at its facility. Total power generated from this 4.8MW ground-mount solar installation will be used for captive consumption by its factory.

Nitin Gupta, MD, Rajaram Maize Products, said: "We have had a long-term vision of offsetting our conventional power source with renewable and solar energy, from a green as well as cost-benefit perspective."

**Tata Power Solar – India**

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

## AOC market survey

A new market research report, "Active optical cable market, by protocol (InfiniBand, Ethernet, serial-attached SCSI (SAS), and others) form factor (QSFP, CXP, and others), end-user application (data centre, consumer electronics, and others), and geography – global trends and forecast to 2022", estimates that the active optical cable market will reach \$3.43 billion by 2022, at a CAGR of 27.1 per cent.

Data centres are expected to lead the active optical cable market for end-user applications. Data centres also need a broad portfolio of fibre optic modules to connect servers, switches and storage, which is accomplished by active optical cable. In addition, the consumer electronics market is an emerging market for active optical cable owing to its application in 4K TV, and digital signage sectors.

Active optical cable for InfiniBand is expected to show high growth during the forecast period. The interface of this protocol in commercial applications such as servers and supercomputers plays a key role in market growth.

The market in Asia-Pacific is expected to show the highest CAGR between 2016 and 2022 because of the rapid usage of active optical cable in China. Increasing adoption of active optical cable (AOC) in data centres and consumer electronics, among others, is expected to drive the AOC market in this region.

The report also profiles the most promising players in the sector. The conclusion of the 155-page report, published by MarketsandMarkets, is that increasing bandwidth requirements and deployments of data centres are factors that will drive growth.

**MarketsandMarkets – India**

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

## Power plant stays in the family

JSW Energy is to spend around \$782 million on a 1,000MW coal-fired power plant from Jindal Steel & Power, though full details, including the final price, are yet to be confirmed. Jindal Steel & Power's chief executive, Ravi Uppal, said a deal was under negotiation, but declined to give more details. The deal would help reduce debt at Jindal Steel & Power, majority-owned by JSW's Sajjan Jindal's younger brother, Naveen. At the end of December 2015, net debt at Jindal Steel & Power stood at \$7 billion, nearly eight times the company's current market capitalisation.

The power plant deal would help JSW Energy in its efforts to nearly triple its power generation capacity to around 12,000MW by early in the next decade. Jindal Steel and Power commissioned the first of the four 250MW units at the site in Chhattisgarh in eastern India in 2007, and became the first private company to establish an independent power plant.

**JSW Energy – India**

**Website:** [www.jsw.in/energy](http://www.jsw.in/energy)

**Jindal Steel & Power – India**

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

## Growth through acquisition

Cable manufacturing company CMI has completed its acquisition of General Cables Energy (GCE), a fully owned subsidiary of General Cable Corporation (GCC). GCE, and its facility in Himachal Pradesh, will now become a wholly owned subsidiary of CMI.

"CMI has also inherited GCC's international processes and systems for manufacturing specialised cables, through this acquisition," said Amit Jain, CMI's managing director, adding that by this acquisition CMI will exponentially increase its manufacturing capabilities. Amit Jain continued that the facility is likely to be operational by the first quarter of 2016-2017, after which CMI is likely to be amongst the leading manufacturers in the country in the sectors in which it operates.

**CMI Ltd – India**

**Website:** [www.cmilimited.in](http://www.cmilimited.in)



## The FBI and the bounty hunters: \$1.3 million buys help in one of the world's most publicised hacking jobs

On 21<sup>st</sup> April, at an Aspen Institute technology conference in London, a moderator put a blunt question to the director of the US Federal Bureau of Investigation. How much, FBI chief James B Comey Jr was asked, did his agency pay an outside group, as yet unidentified, to help bypass the encryption of the iPhone used by an attacker in the 2<sup>nd</sup> December mass shooting in San Bernardino, California? "A lot," Mr Comey said, to audience laughter. But when he expanded on his answer it became possible to arrive at a sum. "Let's see," he continued. "More than I will make in the remainder of this job, which is seven years and four months, for sure." According to the *New York Times*, Mr Comey makes about \$185,100 a year – so he stands to earn at least \$1.35 million at that base rate of pay for the remainder of his ten-year term. Neither he nor the bureau, an arm of the US Department of Justice, said more on the topic. But, since Justice is still trying to force Apple Inc (Cupertino, California) to help unlock encrypted phones in Boston and elsewhere, what the FBI was charged by the undisclosed accomplices is of keen interest to businesses worldwide.

*Times* reporters Eric Lichtblau and Katie Benner wrote that the \$1.3 million price-tag, if confirmed, appears in line with what companies have offered for identifying vulnerabilities in the iOS mobile operating system developed by Apple and distributed exclusively for its hardware. They cited the example of Zerodium, a Washington-based security firm, which said last Autumn that it would pay \$1 million for information on weaknesses in Apple's iOS 9 operating system. (The iPhone used by the San Bernardino gunman ran iOS 9.) Hackers eventually claimed that bounty. Alex Rice, a co-founder and chief technology officer of the security firm HackerOne (San Francisco), told the *Times* that several factors go into the pricing of "bug bounties". According to Mr Rice, who also started Facebook's bug bounty programme, the highest premiums are paid when the buyer does not intend to disclose the flaw to a party able to fix it. He said: "The cost of keeping a flaw secret is high."

When companies run bug bounty programmes, Mr Rice said, they may pay about \$100,000 to hackers who show them system vulnerabilities that must be fixed. He added, "When you sell at a high price, you have to be OK with the possibility that the person you sold the flaw to could do something bad with it."

- The *Times's* Mr Lichtblau (in Washington) and Ms Benner (in San Francisco) summarised the history since San Bernardino, when the Justice Department went to court to try to force Apple to develop a new operating system to allow access into the encrypted phone. This set off a heated debate in the USA about privacy versus national security. The department withdrew its case after the FBI was contacted by the outside party who demonstrated a way around the phone's internal defences. These would have destroyed the data inside after ten failed password attempts and would have meant longer and longer intervals in between guesses at the password. With those mechanisms disabled, the FBI was able to use "a brute force attack" – using computers to guess vast numbers of password combinations at once – to get inside the phone. The net cost of the assistance: \$1.3 million – which the bureau perhaps considers cheap at the price.
- In a postscript to the above, Mr Lichtblau on 23<sup>rd</sup> April reported that the Justice Department announced having gained access to an encrypted iPhone used by a Brooklyn drug dealer – the second time in less than a month that it had unlocked such a device after initially asserting it could do so only with Apple's help. The Brooklyn phone had succeeded San Bernardino's at the centre of the Justice Department standoff with Apple over issues of privacy and security. In a letter to a federal judge in the Eastern District of New York, prosecutors said that an unidentified person had given the phone's passcode to investigators.

## A study of Latin American wireless markets finds no allocation of spectrum to the level recommended by the ITU

As reported by Juan Pedro Tomás in *RCR Wireless News*, according to 5G Americas no country in Latin America reached even 50 per cent of the 1,300MHz of mobile spectrum suggested by the International Telecommunication Union (ITU) for 2015.

The pro-GSM trade industry organisation, based in Bellevue, Washington, USA, warned that the lack of sufficient spectrum for mobile development represents negative consequences for Latin American users; it also limits the growth potential of the telecom industry in the region. ("5G Americas: LatAM Markets Lack Mobile Spectrum," 22<sup>nd</sup> April)

The ITU – the UN specialised agency which coordinates international management of the radio-frequency spectrum and satellite orbits – establishes the spectrum allocation requirements for IMT-2000 and IMT-Advanced technologies (3G and 4G, respectively) to work efficiently.

But the 5G Americas white paper disclosed that only four of the 20 countries in the region stretching from Mexico to Cape Horn allocated more than 30 per cent of the recommendation in the ITU-R M.2078 report last year.

The leaders were Brazil (41.7 per cent), Chile (35.8 per cent), Nicaragua (32.3 per cent) and Argentina (31 per cent), all four having allocated the 700MHz band.

Three countries stood below 20 per cent: Panama (16.9 per cent), Guatemala (16.2 per cent) and El Salvador (16 per cent). The remaining Latin American countries lay between the 20 per cent and 30 per cent compliance levels.

Urging that regulators in Latin America recognise the importance of making more radio spectrum available for mobile services, 5G Americas emphasised the positive impact on gross domestic product (GDP) to be expected from such investment.



Mobile broadband, the white paper asserted, “is capable of bridging the digital divide” and offering new development opportunities: especially in rural and remote areas where fixed telecommunications operator infrastructure is rare, making wireless the only alternative for bringing broadband services to the population.

Mr Tomás noted that, according to 5G Americas, most regulatory agencies in Latin America have expressed interest in auctioning spectrum on the 700MHz band in the near future. At least eight countries had already made allocations in the first quarter of 2016.

### Elsewhere in telecom . .

➤ TowerXchange, specialising in research into the telecom tower industry, believes that European telecoms are on the cusp of a major shift in infrastructure ownership, to play out over the next five years.

As reported by Anne Morris of *FierceWireless:Europe* (22<sup>nd</sup> April), a new TowerXchange study indicates that 48 per cent of the mobile towers in Europe will be owned by independent tower companies by 2020 as mobile network operators continue to divest their infrastructure.

Also on 22<sup>nd</sup> April, Telefónica Deutschland became the latest operator to demonstrate the trend, with plans to sell almost all of its mobile towers to Telxius – the new mobile tower unit set up by Telefónica in Spain. The German provider said it will be receiving \$662 million for 2,350 towers.

➤ The 13<sup>th</sup> Five-Year Plan, as outlined by China’s legislature, envisions a total population 85 per cent covered by a mobile broadband network by 2020, up from the current 57 per cent.

But Naomi Ng of the *South China Morning Post* (24<sup>th</sup> April) cautioned that Chinese telecoms and handset makers face a challenging year ahead as smartphone subscriber growth cools.

Competition among operators and smartphone vendors can be expected to intensify in

an already saturated market, pushing companies to evolve as the country’s economy undergoes the transition from a manufacturing-based model to one led by the service economy.

Analysts told the *Post* that this presents an opportunity for China’s telecom industry; and Steve Lo, a technology managing partner with Ernst and Young in Beijing, noted that the industry would be receiving significant support in terms of investment by the government.

But the increasing rivalry will, Ms Ng wrote, put pressure on corporate profits even as it favours market leaders like state-owned China Mobile, the world’s largest wireless network operator by subscribers.

➤ While Internet usage in Canada has sharply increased over the past half-decade, according to new research from the Canadian Radio-television and Telecommunications Commission (CRTC) only around 33 per cent of Canadians are satisfied with the cost of their home Internet connections; and approximately that percentage is unhappy about the speed and reliability of the service.

As Canadian Internet providers are among the few in the OECD to enforce data transmission caps, respondents to a recent CRTC survey also complained of a lack of capacity.

Telecoms Tech reported (1<sup>st</sup> April) that OpenMedia campaigns director Josh Tabish declared these findings “unsurprising” since incumbent Internet providers dominate more than 90 per cent of the Canadian market.

Mr Tabish noted that the OECD ranks Canada 30<sup>th</sup> among 34 countries in broadband affordability.

➤ Declaring 2015 “the year IoT gained legitimacy,” Verizon asserts that the concept of network connectivity among physical objects is now “mainstream”.

In its 24-page report “State of the Market: Internet of Things

2016”, issued on 5<sup>th</sup> April, the New Jersey-based telecom describes a broadening IoT marketplace, with “companies across all industries [now having] IoT squarely on their radar.”

Thus the projected 17 per cent jump from 9.7 billion connected devices in 2014 to more than 25.6 billion in 2019, hitting 30 billion in 2020.

For carriers mulling where to concentrate their resources, Mark Bartolomeo, vice president for IoT connected solutions at Verizon, identified smart cities as one of the areas of greatest need. He cited the great number of municipalities demanding “solutions that address sustainability, safety and economic growth.”

➤ According to the market research company Vertical Systems Group (Norwood, Massachusetts), the “fibre gap” continued to narrow in the USA last year as business fibre penetration in commercial buildings grew to 46.2 per cent. (The gap refers to the remaining commercial buildings without optical fibre facilities that readily connect to business network services.)

The research covered fibre-connected multi-tenant and company-owned buildings with 20 or more employees: more than two million individual business establishments.

It was found that fibre penetration increased as network operators targeted greenfield metro areas and mid-size multi-tenant buildings for new installations.

Fibre access to network services is being pre-built into nearly every new commercial building across the USA.

Vertical Systems pronounced fibre the most widely deployed access technology for delivery of carrier Ethernet services in the USA, increasingly drawn upon to support higher-speed hybrid VPNs, cloud and Internet connectivity; as well as mobile traffic aggregation and emerging SDN-enabled Dynamic Network Connectivity Services (DNCS).



## 联邦调查局与赏金猎人: 1,300,000美元高价高调启用黑客

4月21日于伦敦举行的一次白杨技术会议上，一位主持人向联邦调查局局长James B. Comey Jr问了一个直接的问题：FBI到底付给某匿名机构多少钱以解密12月2日加州圣博娜迪诺枪击案嫌疑人的苹果手机。“很多，”Comey先生，观众大笑。但随着他对此进行进一步解释时，大家对具体数字有了一定概念。“这么说吧”他继续说“可以确定的是，比我做FBI局长剩余的时间——也就是七年四个月——的薪水都高”。据纽约时报报道，Comey先生一年的薪水约185,100美元——也就是说在他十年任期剩下时间里，他的薪水总额最起码可以达到1,350,000美元。他以及联邦调查局（美国司法部的分支机构）都没有就此话题进行进一步说明。然而，既然司法部一直想要在波斯顿及其他地方得到苹果公司（位于加州库比蒂诺）的帮助以解锁加密手机，那么全球各公司自然对匿名企业状告联邦调查局一事表示强烈兴趣。

时代周刊记者Eric Lichtblau和Katie Benner写道，1,300,000美元如果得到确认，与一些企业悬赏以寻找苹果公司及专为其硬件配套的iOS移动操作系统的漏洞是异曲同工的。他们援引一家位于华盛顿的系统安全公司Zerodium例子，去年秋季该公司发起悬赏活动，设置超过1,000,000美元的奖金来悬赏那些在iOS 9系统中找到漏洞的黑客，（加州圣博娜迪诺枪击案枪手的手机的正是iOS 9系统）该黑客最终拿到了该赏金。Alex Rice，一家名为HackerOne（三藩市）的安全企业的合伙人及首席技术官，告诉时代周刊“漏洞赏金”定价的几大要素。据Rice先生（发起脸书漏洞悬赏项目）说买家在不希望将漏洞暴露给能弥补漏洞的一方时，往往愿意支付更高昂的额外费用。他说“将缺陷保密的代价是高昂的”。当公司开始漏洞悬赏项目时，Rice先生说，他们可能给那些向他们展示必须修复的系统漏洞的黑客们支付100,000美元美金。他补充说“当你卖在高价时，你必须接受的一个事实是——购买漏洞者可能会利用这些漏洞做坏事。”

时代周刊的Lichtblau先生（华盛顿）和Benner小姐（三藩市）归纳了自圣博娜迪诺枪击案以来的司法部以诉诸公堂的形式迫使苹果公司开发允许进入加密手机新系统的各项事件。这在美国引起了关于如何权衡隐私权和国家安全之间矛盾的热议讨论。在一家外部公司与联邦调查局联系并展示了如何绕过苹果手机内部系统防御方法后，司法部撤销了该案件诉讼。这些系统防御方法设定用户尝试十次密码错误后，手机数据可能会被销毁，同时可再次输入密码时间间隔时间也随之延长。在关闭（屏蔽）这些系统防御机制后，联邦调查局就可以使用“暴力攻击”——通过计算机瞬间计算大量可能的密码组合以进入手机。得到这种协助手段的代价：1,300,000万美元——可能联邦调查局还觉得价格很便宜。

后记，4月23日Lichtblau先生还报道了司法部宣布进入了一个曾由布鲁克林区毒贩使用的iPhone——这是在不到一个月内初期认为只有得到苹果公司帮助才能做到的看法之后司法部第二次成功自行完成手机解锁。布鲁克林电话案成为继圣博娜迪诺枪击案后司法部与苹果公司就个人隐私与国家安全考量僵持的风口浪尖。检察官在一封写给纽约东区联邦法官的信中说某位匿名人士向调查员报告了该电话的密码。

## 一项针对拉丁美洲无线市场的研究发现拉美并未配置由ITU推荐的频谱

正如Juan Pedro Tomás在RCR 无线新闻上报道的那样，根据5G美洲所言在拉丁美洲没有任何国家达到了由国际电信联盟推荐的2015年1,300MHz移动频谱标准的50%。这一总部位于华盛顿贝尔维尤亲GSM行业组织警告说移动通讯发展缺乏足够频谱意味着拉美用户的糟糕使用体验；同时也限制了电信业在该地区的发展。（“5G 美洲：拉美市场缺乏移动频谱”4月22日）

国际电信联盟（联合国下属机构，负责协调国际无线电射频谱及卫星轨道管

理）设立了IMT-2000及IMT-先进技术（分别为3G和4G）频谱分配要求标准。但是5G美洲白皮书揭示由墨西哥到好望角这一地区20个国家中仅有4个国家分配了去年ITU-R M.2078报告推荐标准的30%。

其中巴西41.7%，智利35.8%，尼加拉瓜32.3%及阿根廷31%，这四个国家都分配了700MHz频率。三个国家不到20%：巴拿马16.9%，危地马拉16.2%及萨尔瓦多16%。其他拉美国家普遍达到20%到30%之间。除敦促拉美国家监管部门充分认识为移动服务提供更多无线电频谱的重要性外，5G美洲还强调对这项技术投资会对GDP（国内生产总值）产生积极影响。该白皮书称移动宽带在“连接数字鸿沟”的同时，提供新

的发展机遇：特别是在那些固定通信运营商基础设施极度匮乏的边远地区，无线通信是唯一可以带给当地用户宽带服务的选项。Tomás先生说，5G美洲的报道表面大部分拉美监管机构对近期竞卖700MHz波段表达了关注和兴趣。2016年第一季度至少有八个国家已经开始了配置工作。

## 电信在其他地区.....

► TowerXchange（专营电信铁塔行业）相信基础设施所有权转移风口浪尖的欧洲电信公司在未来五年将逐步破产出局。正如4月22日FierceWireless:欧洲的Anne Morris报道，一项新的TowerXchange研究表明因移动网络运营商不断减少对基础设施的投资，截止2020年欧洲现有48%移动铁塔将由单独铁塔公司所有。无独有偶，同在4月22日，代表这一趋势的运营商德国Telefónica，将出售其几乎所有的移动铁塔给Telxius（有Telefónica在西班牙成立的移动铁塔公司）。这家德国供应商说这项涉及2,350个铁塔的交易额将达到662,000,000万美元。

► 在中国提出的十三五计划中，展望了2020年前实现现有可享受移动宽带服务总人口比例由57%提高到85%。但南华早报的Naomi Ng警告说中国电信企业及设备生产商将面临因为智能手机用户增长不断减缓的充满挑战的一年。运营商之间以及智能手机销售商之间在已经饱和和市场中越来越残酷的竞争，也将迫使企业在中国由产品制造经济模式转为服务经济的转型背景中不断继续发展。分析师告诉早报记者，这也为中国电信企业提供了一次机遇。与安永合作一家位于北京的技术管理公司的Steve Lo说该行业将会得到各界大力支持，特别是政府投资方面的支持。但不断升级的竞争将会给压缩电信企业利润空间，即便是国有且拥有世界上最多用户的最大无线运营商中国移动也将面临同样的压力。

► 在过去五年中，加拿大的因特网发展迅速，根据一项加拿大广播电视及电信委员会（CRTC）的新研究表明，只有约33%的加拿大人对他们的家用互联网接入表示满意；同时约有33%的用户对速度和可靠性表示不满。因加拿大因特网供应商是为数不多经济合作与发展组织中实施数据传输覆盖的国家之一，最近一项CRTC的调查显示用户也对容量不足表示不满。Telecoms Tech在4月1日的报道中开放媒体活动主管Josh Tabish宣称这些发现“不足为奇”，因为现有因特网供应商垄断了超过90%的加拿大市场。Tabish先生也提到经济合作与发展组织将加拿大在宽带购买力方面在34个国家中排名第30位的现实情况。

## The airbag recalls

### A 17-year-old girl is the tenth USA victim of faulty Takata airbag inflators. How great is the danger to the driving public?

Attributed to shrapnel from an exploding airbag, the 31<sup>st</sup> March death in Texas of the teenaged driver of a 2002 Honda Civic has refocused attention on airbag inflators made by Japanese auto parts maker Takata Corp, now the subject of several industry investigations. At least 11 people – ten in the USA and one in Thailand – have died in incidents linked to Takata inflators: metal cartridges loaded with propellant wafers which in some cases have ignited with explosive force. More than 50 million autos equipped with the devices have been recalled worldwide.

In the USA, Takata inflators have figured in 28.8 million recalls, mainly of cars from model years 2002 to 2015. In what the National Highway Traffic Safety Administration (NHTSA) said is the “largest and most complex safety recall in [the nation’s] history,” vehicles made by 14 different automakers have been recalled for replacement of frontal airbags on the driver’s side or passenger’s side, or both.

In the first public government accounting of Takata airbag inflators in unrecalled vehicles on USA roads, the auto safety regulators on 13<sup>th</sup> April put the number of such devices at some 85 million. Under an agreement concluded last year, Takata has until 2019 to prove the soundness of the inflators.

Meanwhile, together with Toyota Motor Corp and other automakers, Honda Motor Co (which so far has recalled the greatest number of vehicles over the airbag issue) has said it will not install Takata inflators in new models.

As observed drily by Andrew Krok in *Roadshow* (15<sup>th</sup> April), any additional recalls “would likely leave a strong financial impression [on Takata].” The company has posited a worst-case scenario in which the recalls cost it about \$24 billion, well in excess of revenues from its last fiscal year. If a recall of those 85 million inflators should be launched, wrote Mr Krok, “That’s about as worst-case as it gets.”

Worse still, of course, would be further deaths and injuries: “a potentially disastrous outcome from a supposedly life-saving device,” as noted by *Consumer Reports* (“Takata Airbag Recall - Everything You Need to Know,” 14<sup>th</sup> April)

#### ‘Putting the dangers in perspective’

*Consumer Reports* (Yonkers, New York) was established in 1936 to provide unbiased product testing and ratings. In its Takata coverage the independent, non-profit organisation pointed out that establishing the root cause of the incidents and determining which of the company’s several inflator designs is involved have posed difficulties for investigators. It now appears that there are multiple possible causes and contributing factors.

It has been established that if high humidity or something else causes the wafers inside the inflator to break down, the

propellant burns too rapidly, creating excessive pressure within the device. Several years of driving in regions of the USA that experience high heat and humidity could, it is now believed, produce that breakdown effect. Even the design of the car could contribute to it. Poor quality control in manufacture of the inflator could, of course, be implicated. Equally might it not be.

🕒 In a passage headed “Putting the Dangers in Perspective,” *Consumer Reports* observed that, “as awful as they are,” ruptured-inflator incidents are very rare. In June of 2015, Takata stated that it was aware of 88 ruptures (67 driver-side and 21 passenger-side) out of over 1.2 million airbag deployments spread over 15 years.

Thus the conclusion drawn by *Consumer Reports* that airbags in general are not dangerous. As it noted, “The [US] Department of Transportation estimates that, between 1987 and 2012, frontal airbags have saved 37,000 lives.”

## Aluminium

### A United Steelworkers trade case in the USA draws “a line in the sand” against aluminium imports, mainly from China

China, which already accounts for more than half the world’s aluminium production, is expanding capacity even as its economy decelerates. The result has been a surge in aluminium exports and falling prices for other producers.

Claiming that the Chinese export surge has seriously injured the American industry and threatens additional job and capacity losses, the United Steelworkers (USW) on 18<sup>th</sup> April filed a petition with the USA International Trade Commission (ITC) that seeks to stem the flow of primary unwrought aluminium imports. (Primary unwrought aluminium typically undergoes further processing by the original producer or other manufacturer.) The petition invokes Section 201 of the 1974 Trade Act, last resorted to by President George W Bush in 2001 in a successful push for American tariffs on steel imports.

While China is clearly the major focus of the USW, any action taken by the ITC would affect imports from other countries, as well. Most of the aluminium currently flooding the American market comes from Canada, the Middle East, Russia and Venezuela, and the union’s Section 201 case addresses imports from around the world. It requests four years of increased tariffs, capped at a price “allowing domestic producers to effectively operate and, hopefully, restore production.”

The petition also calls for USA negotiations with trading partners, mainly China, centred on the scaling-back of over-production. Declaring that world markets are being destroyed by China’s policies and practices, Tom Conway, USW international vice president, said at the union’s Pittsburgh headquarters, “This vital case draws a line in the sand. We will not cede primary unwrought aluminium production.”



## **Closed, idled, at-risk USA smelters**

There is no denying that American and other aluminium firms are restructuring and cutting back on production in current conditions of imbalance in global supply and demand. In what it describes as an efficiency initiative, Alcoa, the foremost American aluminium producer, has announced the closing of a series of domestic smelters as it relies more heavily on production in Canada, Iceland and Saudi Arabia. At the same time, Canadian and other smelters have stepped up shipments of raw aluminium to the United States.

"In states all across the country, America's aluminium producers have closed, idled or are at risk," said USW international president Leo W Gerard at the time of the ITC filing.

"In 2011 there were 14 smelters in the United States. Today there are only eight, of which only five are currently operating. [One of these was expected to be idled by the end of June.] Two of the five now operating are at 50 per cent or less of capacity."

For its part, China – whose exports to the United States are an important source of domestic employment – professes innocence of wrongdoing. While its own customs figures show a jump in exports of aluminium of more than 27 per cent over the past two years, the government-affiliated China Aluminium Association takes the position that an increasing need for aluminium in high-speed railway equipment, aerospace and electronics justifies an expansion in Chinese production capacity and an incidental rise in exports.

Section 201 cases are not easy to win, requiring proof not merely of injury but of "serious injury" to a domestic industry from imports; and even if it prevails the USW case would take some time to produce any real effect. Meanwhile, presidential aspirant Donald J Trump's populist appeals for tougher USA trade policies, including a steep tariff on goods from China, attracted attention in China this spring. During a visit to Washington in April, Chinese finance minister Lou Jiwei told the *Wall Street Journal* that the imposition of such a tariff would violate World Trade Organization rules.

## **Steel**

### **In tandem to the tensions over aluminium, low-priced Chinese exports continue to roil the steel market**

A senior official in the China Iron & Steel Association (CISA) has rejected the charge that China bears any special responsibility for the over-supply of steel in the world. Speaking to the *Wall Street Journal* on the sidelines of an industry conference held in Hong Kong in April, Li Xinchuang, the vice secretary general of the China Iron & Steel Association (CISA), claimed that overcapacity in the steel industry is a global phenomenon. "It is not only a situation in China," said Mr Li. "We have both good quality and price. It is not about price alone."

He further told the *WSJ's* Asia correspondent Biman Mukherji that China would hit back at any increase in tariffs on its steel exports imposed by other countries. Said Mr Li, "We are against anti-dumping action and we will take measures." ("China's Steel Body Sees Red Over Tariff Measures to Stall Exports," 6<sup>th</sup> April)

In March, the US Department of Commerce imposed preliminary duties on imports of cold rolled steel, used extensively to make auto parts, from seven countries including China, whose steel imports received a 265.79 per cent tariff.

India last year raised import taxes on steel by five percentage points to 12.5 per cent on flat products and 10 per cent on long products. It also added a temporary 20 per cent "safeguard" duty on hot rolled coils after local producers claimed to have suffered damage from cheap imports.

On 19<sup>th</sup> April it became apparent that China is doubling down on its disavowal of responsibility in the matter of steel over-supply. One day after the major steel-producing countries, meeting in Brussels, acknowledged failure to come together on a remedy, a spokesman for China's Ministry of Commerce betrayed some exasperation.

"China has already done more than enough [to reduce capacity in its steel sector]," Shen Danyang told reporters in Beijing. "What more do you want us to do?"

The reference would have been to the 2.3 per cent cutback in Chinese steel production (to 803.8 million metric tons) last year, the first drop since 1981. According to Reuters, the current drive by Beijing to cut industrial capacity will force China to lay off some 1.8 million coal and steel workers. The central government will allocate \$15.5 billion to cushion the effect of the job losses and to discharge debt.

### **Elsewhere in steel**

As reported in the *Northwest Indiana Times* (1<sup>st</sup> April), the Korean steel producer Posco is seeking final local approval and property tax abatement for a new 120,000-square-foot wire rod processing plant in the Port of Indiana-Jeffersonville. The \$19 million project – a joint venture with JP Steel, also Korean – would be Posco's second USA plant. Kyu Tae Kim, the company's finance director, said the plant would supply its automotive customers on a just-in-time (JIT) delivery basis.

The Posco announcement came a day after Delaware-based Nuco Steel Bar Technologies said it was investing \$36.9 million to build a 150,000ft<sup>2</sup> bar mill in Valparaiso, Indiana. Construction was to begin in May, with completion set for sometime in 2017. Target sectors are automotive, agricultural, hydraulic, and tool manufacturing.

As noted on *thesteelreport.com* (29<sup>th</sup> March), Nuco claims to be building "the most advanced cold draw bar mill in North America," with continuous processing capability.

According to co-founder Michael Pitteric, at full strength the mill will process 50,000 tons of carbon, alloy and tool-grade steel into flat, round and square steel bar in one shift.

Indiana has led the USA in steel production for 35 straight years, but layoffs and plant closings have taken a severe toll on the industry. Nuco, like Posco, sought local help with its financing and reportedly obtained \$600,000 in incentives from the Indiana Economic Development Corp on its pledge to create new jobs.

🌐 *WLWT News 5* in Cincinnati, Ohio, reported that the Kentucky House of Representatives on 1<sup>st</sup> April voted 97-0 in support of a bill that sweetens an economic incentives package intended to persuade AK Steel (West Chester, Ohio) to resume full operations at its Ashland steel mill in northeastern Kentucky. The measure, which awaits the governor's signature, would extend existing incentives and offer new ones that would help offset the costs of re-starting the blast furnace at the mill.

Citing unfair competition from imported steel, AK Steel in December shut down the furnace and related steelmaking operations at Ashland, putting hundreds of people out of work. The hot-dip galvanising line that primarily serves automotive customers was kept running, according to the company.

🌐 Global steel giant ArcelorMittal has permanently idled the 84" hot strip mill at its Indiana Harbor facility in East Chicago, Indiana, in accord with the Action 2020 "strategic roadmap" announced by the company when it posted its 2015 earnings. With 4,770 employees, Indiana Harbor is the largest integrated steelmaking facility in the United States.

Karen Caffarini of the *Chicago Post-Tribune* reported (2<sup>nd</sup> April) that the move was expected by the United Steelworkers local at the mill, who said that the 300 workers there would be reassigned elsewhere onsite or at the company's Burns Harbor complex in Illinois, or out of the area. Arcelor Mittal spokeswoman Mary Beth Holdford told the *Post-Tribune* that the company was considering all options at its mills in the USA and beyond, to optimise assets but "without layoffs by leveraging natural attrition."

## Cybersecurity

### While energy faces more cyber attacks than any other USA industry, shape-shifting malware continues to plague the individual

As reported on 15<sup>th</sup> April by Katie Bo Williams in the Washington-based daily *The Hill*, researchers at IBM Corp discovered a new type of malicious software used to steal from banking customers. To that point in the month, the so-called GozNym virus – a hybrid of two known malware strains – had targeted 22 banks, credit unions, and popular e-commerce platforms in the USA, and two financial institutions in Canada. The incursions netted the

hackers roughly \$4 million. Unlike other cyberattacks that target either systems or employees of the bank, GozNym reportedly employs a phishing scheme to trick the customer into clicking a malicious link in an email. The link installs the virus on the victim's computer, where it lies dormant until the bank account is accessed online.

Etay Maor, a senior fraud prevention strategist at Trusteer, the Boston-based IBM computer security division, told the *Wall Street Journal* that GozNym is able to record and transmit information in different ways, including recording keystrokes or taking screen captures of the bank account screen. According to Mr Maor, IBM believes the attackers originate from a criminal organisation in Eastern Europe.

🌐 Ms Williams noted that the USA has been cracking down on Eastern European nationals who profit from malware. Last Autumn, Russian national Dmitry Belorossof was sentenced to four-and-a-half years in prison for his role in distributing and managing banking malware that infected over 11 million computers worldwide and is thought to be responsible for over \$500 million in losses. That scheme linked spam emails and commercial Internet ads to malware to distribute and install a bot known as Citadel onto victims' computers. Like Citadel, the GozNym virus discovered by IBM in April is a Trojan – malware masquerading as legitimate software.

### ***A testing lab best known for its stamp of approval on microwaves and TV sets rolls out standards for Internet-connected products***

As well as enhancing awareness and protections at the government level, President Barack Obama's Cybersecurity National Action Plan (CNAP), released in February, aims at empowering Americans to take better control of their own digital security.

In response, Underwriters Laboratories (UL) in April announced its Cybersecurity Assurance Program (CAP), which uses a new set of standards to test network-connected products for software vulnerabilities. The new UL certification is intended for both vendors of Internet of Things (IoT) products and buyers of those products who want to mitigate their cybersecurity risks. It is also expected to be used for testing and certifying IoT devices within critical infrastructures such as energy and utilities.

UL, an independent provider of safety-focused advice, testing and certifications for over 120 years, worked with the US Department of Homeland Security to develop CAP. As reported by Matt Hamblen of *Computerworld*, the Northbrook, Illinois-based company developed the new testing standards with input from industry officials and academics as well as the government. ("UL Takes on Cybersecurity Testing and Certification," 5<sup>th</sup> April)

Ken Modeste, leader of cybersecurity technical services at UL, noted that information on the software elements in a given device is not as readily available as with hardware, where flaws can be traced to a known source. Thus one cause of security breaches is that remedial "patches" are not always incorporated into the finished product. Mr Modeste told *Computerworld* that CAP will help



software and equipment makers not to miss any patches and updates issued by third parties and open-source contributors. Pricing for the UL testing is still under study but will be “economically reasonable,” according to UL, whose CAP programme relies on a publicly available government database on product vulnerability worldwide. Kept by the National Institute of Standards and Technology (NIST) and updated daily, this monitors desktop and mobile platforms to locate patches to the security flaws of specific versions of software.

Mr Modeste said that the CAP standards have been tested in pilot programmes with several vendors since last September. But he makes no outside claims for the programme. As he told *Computerworld's* Mr Hamblen, “The challenge of solving cybersecurity is a long game and there’s no silver bullet for it.”

## More on drones

### Normally occupied with military technology, a USA defence agency turns its skills to neutralising recreational drones

Earlier in the year, in this space, we reported on a worrisome trend in the United States: the rising number of near-collisions between manned aircraft and recreational and commercial drones (“Close Encounters,” WCA, March 2016). Now, the Defense Advanced Research Projects Agency (DARPA) – the arm of the Department of Defense responsible for the development of emerging technologies for the military – has announced it is conducting tests of a system intended to limit the chances of aircraft and drones crashing into each other.

DARPA’s Aircrew Labor In-Cockpit Automation System (ALIAS) is among the latest innovations born at or inspired by the legendary defence agency, which include Windows operating systems, Google maps, Siri voice recognition, the Global Positioning System (GPS), and the Cloud. Established in response to the surprise launch of the Soviet Sputnik satellite in 1958, DARPA also invented the digital protocols that made the Internet possible.

As reported by Don Reisinger of *PC Magazine*, the first test of ALIAS featured a system-equipped drone that continually tracked in real time a Cessna 172G “Skyhawk” aircraft in its vicinity. According to DARPA the drone was able to detect the plane’s approach from “various vertical and horizontal distances” and change its own flight path to avoid a collision.

Describing ALIAS as “a toolkit for advancing in-flight automation,” Dr Dan Patt, a programme manager at DARPA’s Tactical Technology Office, posited the system as deployed by the Skyhawk. He wrote in a statement, “What pilot wouldn’t want to set a box on the dashboard that would provide an additional pair of eyes to alert of potential collisions?” But any pilot would no doubt prefer a smaller presence on the dashboard; and on *pcmag.com* Mr Reisinger identified size – that of a “shoebox” – as the biggest challenge to the widespread adoption of ALIAS.

DARPA is working to trim down the housing as well as to improve the system’s detection capabilities in low-light conditions. (“DARPA Tech Looks to Avoid Drone-Plane Collisions,” 6<sup>th</sup> April)

PC reported that DARPA has been working on ALIAS technology for two years. At full development the agency expects to present a “tailorable, drop-in, removable kit that would enable high levels of automation in existing aircraft and facilitate reduced need for onboard crew.”

## On the job

### Metal wire soldered into window glass frames enables adaptation to sunlight conditions

While centred on a glassmaking business, a job market feature in the *New York Times* disclosed an inventive use for wire. As described to the *Times's* Patricia R Olsen, a window technician for SageGlass (Faribault, Minnesota) solders wiring that allows panes of glass, some weighing over 530 pounds, to adjust their tint levels. Following are excerpts from Ms Olsen’s interview with the technician, Candy Urch. (“Wielding a Soldering Gun to Give Panes Their Brains,” 16<sup>th</sup> April)

#### Q. What does SageGlass do, and what is your role there?

A. We make tintable glass that allows businesses to control the amount of sunlight entering their buildings without having to use window blinds or shades. My role is toward the end of the manufacturing run. [With a soldering gun] I install the wiring around the edges of the windows. The wires run to a control panel that is often located in a maintenance closet in the customer’s building. The window itself is controlled by a light switch.

#### Q. Do you work on a production line?

A. Yes. The closest person works about ten feet from me. I use a computer to summon a window to my workstation, and when I’m done attaching the wiring and soldering it to the frame, I release it for the final step, where the glass gets sealed.

#### Q. How many windows a day do you wire?

A. It depends on their size. I have to turn the larger ones around to the right to wire all four sides. While an air controller helps lift them, they’re still heavy to move. The company would like us to do four of the larger windows an hour.

#### Q. What do you find challenging about the job?

A. When the line is slow or frames are needed, I’m occasionally asked to help make them. That’s challenging because their placement on the glass requires an even tighter tolerance than the wiring. I need to know metric measurements, and the work is very precise.

**Dorothy Fabian**  
Features Editor

## 安全气囊召回

**一个17岁的美国女孩成为了日本高田公司安全气囊增压泵次品的第十位受害者。这对驾驶公众的危险到底有多大？**

3月31日，德克萨斯州一名青少年驾驶一辆2002年产本田思域汽车时，由于安全气囊爆炸弹出的碎片导致死亡，本次事件使得社会焦点再次集中到由日本汽车零部件制造商高田公司所生产的安全气囊增压泵上。高田公司现在正面临着几项行业调查。已有至少11人（10人在美国，1人在泰国）死于与高田公司增压泵相关的事故：充满推进薄片的金属筒在某些情况下会引发爆炸性的威力。全球有超过5000万装配有该增压泵的汽车已被召回。

在美国，高田公司预计召回2880万台增压泵，主要涉及2002年到2015年生产的车型。美国国家公路交通安全管理局(NHTSA)表示这是“[美国]历史上最大规模、最复杂的一次安全召回。”

由14个不同的汽车制造商生产的车辆被召回，用以更换驾驶座正面或乘客一侧的安全气囊，或两者都换。在第一份公开政府会计报告中，4月13日汽车安全监管部估计在美国行驶的未被召回的汽车中，高田公司生产的这款安全气囊增压泵数量在8500万台左右。在去年达成的最终协议中，至2019年之前，高田公司必须证明问题增压泵的稳固性。

与此同时，本田汽车公司（到目前为止由于安全气囊问题召回汽车数量最多的公司）连同丰田汽车公司(Toyota Motor Corp)和其他汽车制造商已表示，不会在新的车型上安装高田公司生产的增压泵。安德鲁克罗克(Andrew Krok)在4月15日的《路网通》(Roadshow)的报道中指出，任何额外的召回“都将有可能给[高田公司]带来严重的财务影响。”公司已做好了最坏的打算，召回成本可能高达240亿美元，远超过其上一年度财务年度的收入。克罗克先生写道，如果启动召回其他8500万只增压泵，“这差不多就是最坏的情境了。”

当然，更糟的是继续出现死亡和伤害事故，《消费者报告》(Consumer Reports)将其描述为：“用于救生的设备带来的潜在灾难性后果。”（“高田公司安全气囊召回——你需要知道的一切”，4月14日）。

### “正视危险”

《消费者报告》(位于纽约州扬克斯)成立于1936年，旨在提供公正的产品测试和评级服务。这家独立的非营利组织在其关于高田公司的报道中指出，找出事故的根本原因并确定该公司涉事增压泵设计对调查者来说是个困难。现在看来，具有多种可能的原因和影响因素。

目前确定的是，如果由于高湿度或其他原因导致增压泵内部晶片破碎，推进剂燃烧过快，就会在设备内部产生过大的压力。据悉，在美国高温和高湿度地区行驶多年的车辆就可能造成上述破坏效果。甚至汽车自身的设计也有可能成为上述后果的诱因，同样也有可能不是。

在一篇题为《正视危险》的文章中，《消费者报告》注意到，“像高田公司增压泵这样由于破裂而导致如此严重后果”的事故非常罕见的。2015年6月，高田公司发表声明称目前已知在15年内120万多个安全气囊中有88个破裂报告（其中67个在驾驶员一侧，21个在乘客一侧）。因此，《消费者报告》得出结论称一般情况下安全气囊并不危险。它指出，“[美国]交通部估计，在1987年至2012年间，驾驶室前方的安全气囊拯救了37,000人的生命。”

## 铝业新闻

**美国钢铁联合会有一个贸易案旨在与进口铝材划清“一条界线”，主要应对来自中国的铝材进口**

中国的铝产量已经占全球产量的半数以上，且在其经济下行的情况下，铝产量仍在继续增长。结果导致中国铝出口量激增，导致其他生产商价格下降。美国钢铁工人联合会(USW)声称中国的铝出口量激增已严重危害到美国工业并造成就业机会和行业产能的减少。联合会于4月18日向美国国际贸易委员会(ITC)提交了一份请愿书，旨在阻止初级未锻造铝材的进口。（初级未锻造铝材通常需要经过初级生产商或其他制造商的进一步加工处理。）请愿书援引了1974年贸易法案的第201节内容，而该章节内容上次被援引时，正是在2001年乔治·W·布什总统成功推动美国钢铁进口关税的时候。

尽管中国已成为美国钢铁工人联合会的主要焦点，但是美国国际贸易委员会(ITC)的任何行动也仍然可能影响到其他国家的铝进口。目前充斥着美国市场的铝材大部分来自加拿大、中东、俄罗斯、委内瑞拉，联合会引用第201节的案例列出了世界各地的进口量。联合会请求在关税提升后的四年中，将进口价格限定在“允许国内生产商有效地运作，并有望恢复生产”的范围内。

请愿书还呼吁美国与以中国为主的贸易伙伴进行协商，重点在于在减少产量过剩。美国钢铁联合会国际副总裁汤姆·康威(Tom Conway)称中国的政策和行为正在破坏世界市场，这位副总裁在其位于匹兹堡的总部说道：“在这生死攸关的情势下，我们必须与进口铝材划清界线。我们不会放弃初级未锻造铝的生产。”

### 美国许多冶炼厂关闭、闲置或处于危机当中

无可否认，在当前全球供给和需求不平衡的情势下，美国铝业及其他一些铝业公司都在进行重组或削减生产。美国第一铝材生产商，Alcoa，在一项其称之为“效率计划”的文件中宣布关闭一系列国内的冶炼厂，将生产重心转移至在加拿大，冰岛，和沙特阿拉伯。与此同时，加拿大和其他地区的冶炼厂也在加紧将铝原料运往美国。

“在全美各个州内，很多铝生产商已经关闭，闲置或处于危机当中”，美国钢铁工人联合会国际主席里奥·W·杰拉德(Leo W Gerard)在向美国国际贸易委员会提交请愿书时说道：“2011年美国有14家冶炼厂。如今只剩8家，其中只有5家目前还在运营。（其中还有一家将于6月底被闲置。）而这5家尚在运营的冶炼厂中有两家只发挥了其50%甚至更少的产能。”

中国对美国的铝材出口为美国创造了众多的就业机会，就其本身而言，中国无需承担破坏美国铝业的责任。中国的海关数据显示，在过去的两年里其铝出口量激增逾27%，而中国政府下属中国铝业协会则认为：高速铁路设备，航空航天业，电子产业对铝的需求增长，这说明中国铝生产能力扩大是合理的，而铝出口量的增长纯属偶然。

要赢得贸易方案中第201节的案例并不容易，它们不但要求证明进口会对国内工业产生危害，而且要求是“严重危害”；即使符合上述情形，钢铁工人联合会也还需要一段时间来验证实际效果。

与此同时，总统候选人唐纳德·川普(Donald J Trump)的民粹主义也呼吁更为紧缩的美国贸易政策，其中包含对中国商品施加高额的关税。今春这一观点在中国引发了关注。中国财政部长楼继伟4月份访问华盛顿期间告诉《华尔街日报》(Wall Street Journal)，实施这样的关税将违反世界贸易组织(WTO)的规定。



## 钢铁新闻

### 紧随着铝出口量激增带来的紧张局势，低价的中国出口产品继续震荡着钢材市场

中国钢铁工业协会(CISA)的一位高级官员否认了中国应对世界钢铁供应量过剩承担责任的指责。4月在香港举行的一次行业会议上，中国钢铁工业协会(CISA)副秘书长李新创在会议间隙接受《华尔街日报》采访时称，钢铁行业的产能过剩是一种全球性的现象。

“这不仅是中国的情况，”李先生说。“我们的质量和价格都很好。这不仅仅是价格的事。”

他进一步告诉《华尔街日报》驻亚洲记者Biman Mukherji说，中国将对任何其他国家提高中国钢铁出口关税的行为进行反击。李先生说：“我们反对反倾销行动，并且将采取应对措施。”（“中国钢铁组织对阻止中国出口的关税措施表示愤怒”，4月6日）

今年3月，美国商务部初步裁定对来自包括中国在内的7个国家的进口冷轧钢材实施关税。冷轧钢材被广泛用于汽车零部件制造，其中来自中国的进口钢材被征收265.79%的关税。印度去年将板材和长材的进口关税各提高了五个百分点，分别提高至12.5%和10%。由于当地生产商声称遭受到来自低价进口产品的重创，印度还对热轧线材增收了一个20%的临时“保护”关税。

4月19日，中国再次声明其不会对钢铁供应过剩问题承担任何责任。在布鲁塞尔主要钢铁生产国会议的第二天，谈及各国无法在补救措施上达成一致的问题时，中国商务部发言人显得有些愤慨。“中国（在减少钢铁行业产能方面）已经做得够多了，”沈丹阳在北京告诉记者。“你们还想让我们做什么？”参考数据显示，去年中国削减了钢铁产量的2.3%（削减至8.038亿吨），这是自1981年以来钢铁产量的首次下降。据路透社报道，当前北京降低工业产能的措施将迫使中国遣散约180万煤炭和钢铁工人。中央政府将投入155亿美元以缓解失业造成的影响及偿还债务。

### 其他钢铁新闻.....

据4月1日《西北印第安纳时报》(Northwest Indiana Times)报道，韩国钢铁制造商浦项制铁(Posco)正为其在印第安纳州杰斐逊维尔港口建立一个新的120,000平方英尺的线材加工厂寻求当地政府的最终批准和财产减税。浦项制铁与韩国JP钢铁合资的一项1900万美元的项目将成为其在美国的第二个工厂。公司财务总监Kyu Kim Tae说工厂将按准时交付制(JIT)向客户供应汽车。

在浦项制铁发表上述声明的前一天，位于特拉华州的Nuco钢筋技术公司表示将投资3690万美元在印第安纳州瓦尔帕莱索建造一个150,000平方英尺的轧钢厂。该项目定于今年5月份开工，2017年年内完成。其目标产业是汽车、农业、水力以及工具制造业。正如3月29日thesteelreport.com网所述，Nuco公司声称其正在建设一家具备连续加工能力的“北美最先进的冷拔轧钢厂”。联合创始人迈克尔·比德里克(Michael Pitteric)称，轧钢机在最大马力情况下能一次性将50,000吨碳、合金，和工具级钢铁加工成板材，圆形或方形钢筋。印第安纳州已经连续35年占领美国钢铁产量的首位，但裁员和工厂关闭也对该产业产生了严重的影响。Nuco公司和浦项制铁一样，也在寻求当地帮助融资，据报道其承诺将创造新的就业机会并因此从印第安纳经济发展公司获得了600,000美元的财政奖励。

俄亥俄州辛辛那提WLWT5频道4月1日报道，肯塔基州众议院以97比0的投票支持率通过了一项议案，该议案提出经济激

励计划旨在说服AK钢铁(俄亥俄州，西切斯特)恢复其在肯塔基州东北部的阿什兰(Ashland)钢铁厂的全面运作。该议案尚在等待州长签字批准，这将扩大现有的激励机制，并提供新的激励措施以抵消重启轧钢厂高炉的成本。由于来自进口钢材的不公平竞争，AK钢铁12月关闭了在阿什兰的炼钢炉和其他相关的钢铁运营产业，致使数百人失去工作。据该公司称，主要供应汽车客户的热浸镀锌生产线还在继续运行。

全球钢铁巨头安赛乐米塔尔(ArcelorMittal)已经永久闲置了其位于印第安纳州东芝加哥印第安纳港的第84家热轧带钢厂。公司在公布2015年业绩时宣布了2020年行动“战略路线图”，此举恰与该战略相符。印第安纳港是美国最大的综合炼钢场地——拥有4770名员工，其中4124名兼职，895名全职。《芝加哥邮报论坛》(Chicago Post-Tribune)的凯伦·卡法里尼(Karen Caffarini) (4月2日)报道称，此举正是美国联合钢铁会当地公司组织所期待的，他们称可以将这里的300名工人重新分配至当地的其他工厂或其位于伊利诺斯州伯恩斯港的综合工厂，又或者仅选择离开该工厂。安赛乐米塔尔发言人玛丽·贝思·霍德福德(Mary Beth Holdford)告诉《邮报论坛》，公司正考虑所有可能的选择以对其在美国及其他地区的工厂进行资产优化，但会“利用自然减员并不会裁员。”

## 更多新闻——关于无人机

### 通常忙于军事技术的美国国防机构开始将其技术转向阻止私用无人机

今年早些时候，在这个版块中，我们报道过一个令人担忧的趋势：在美国越来越多的载人飞机和私人或商业无人机几近相撞（“亲密接触”，WCA, 2016年3月）。现在，国防高级研究计划局(DARPA)——国防部负责新兴军事技术发展的部门——已宣布它正在对一套旨在限制飞机和无人机相撞几率的系统进行测试。国防高级研究计划局(DARPA)的机组工作人员座舱内自动化系统(ALIAS)是最新的创新之一，它诞生于或说灵感来自于这个传奇般的国防机构，该系统装配有Windows操作系统，谷歌地图，Siri语音识别，全球定位系统(GPS)以及云系统。美国国防部高级研究计划局建立于1958年，旨在应对当时的苏联人造卫星发射，此外它还发明了数字协议，让互联网成为可能。据《个人电脑杂志》(PC Magazine)记者唐·瑞尼斯特(Don Reisinger)报道称，ALIAS的第一项测试对象是一架装有系统的无人机，可持续实时追踪位于其附近的一架塞斯纳(Cessna) 172G“空中之鹰”飞机。据DARPA宣称，这架无人机能够根据“不同的垂直和水平距离”来检测飞机靠近的方向，并改变自己的飞行路径以避免相撞。

DARPA战术技术办公室的一名项目经理丹·帕特(Dan Patt)博士将ALIAS描述为“一个改进飞行自动化的工具包”，他接受空中之鹰委派而安置了该系统。他在一份声明中写道，“如果有个小盒子能提供一双额外的眼睛来提醒可能发生的碰撞，哪个飞行员会不想在仪表盘上放这么个盒子呢？”但任何飞行员无疑会更希望这个盒子能在仪表盘上占据更小的空间；在pcmag.com网站上，瑞尼斯特先生确认了盒子的大小——与“鞋盒”一样大——这对ALIAS的大范围应用来说是最大的挑战。美国国防部高级研究计划局正在努力减少遮蔽物并同时提高系统昏暗条件下的侦测能力。（“美国国防部高级研究计划局技术部致力于避免无人机与飞机相撞”，4月6日）

《个人电脑杂志》报道，美国国防部高级研究计划局对于ALIAS技术的研发已进行了两年。通过全面开发，计划局预计将有望提供一个“可量身定制的，方便造访的，可移动的工具，以在现有飞机上实现高度自动化进而减少对机组工作人员的依赖。”

专栏编辑: Dorothy Fabian

# *Dies*



**A single misplaced stroke will destroy the potential rare gem within a rough diamond – and so it is in wiremaking. If a die is “off”, the feedstock that is drawn through it is, too. For a production run of wire on a machine operating at high-flow velocities, this is death – waste – by a thousand cuts.**

**With a product no thicker than a human hair, surface defects are not to be tolerated. For this reason die making has always held a high place in the wire plant. In this era of progressive, secondary, and compound dies, it still does.**



## VNT dies for smaller sizes

VNT dies were introduced for compacting and drawing for larger sizes, and they are now available for RBD and intermediate (smaller) sizes. Ajex & Turner is the first company in India to introduce VNT dies in the range from 0.8 to 70mm for copper/aluminium/stainless steel/CO<sub>2</sub>/MIG/high and low carbon wire.

The comparison between VNT dies and tungsten carbide dies shows that the tungsten carbide dies are the most popular due to low prices but quickly lose tolerance and do not possess the precious low-friction characteristic. As far as PCD dies are concerned though, they are better than tungsten carbide dies in terms of characteristics but the high rates of PCD dies, equally increases with bigger hole diameter. For largest diameter of compacting power cables, the prices of PCD dies goes completely out of reach, increasing the production cost.



○ A range of dies from Ajex & Turner

The fair comparison makes it clear that the VNT die is the best solution due to economic and performance. It has multi-layer coating of pure nanocrystalline diamond and is not mixed with any other hard material. Due to its diamond coating there is less friction on the wire surface, which also gives good wire surface finish and the same characteristic of diamond coating, maintaining +0 tolerance throughout its working life.

It plays a major role in reducing copper and aluminium dust, thus saving the metal.

**Ajex & Turner – India**  
**Website:** [www.ajexturner.com](http://www.ajexturner.com)

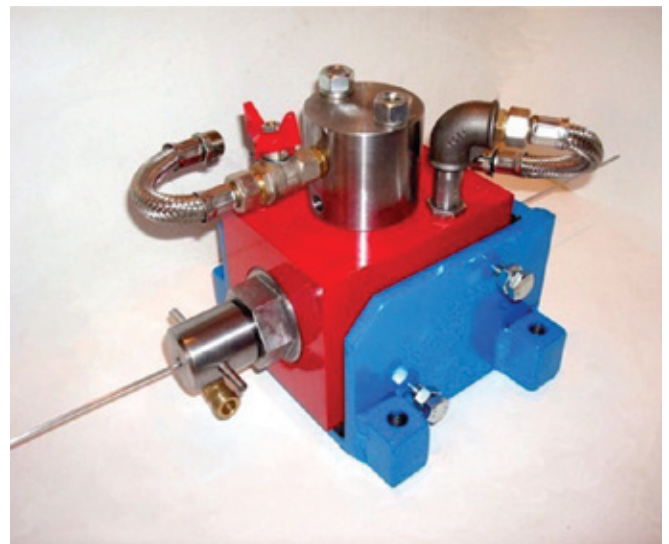
## Wire green cleaning provides glossy finish resisting corrosion

The PWC-S system performs wire cleaning and polishing in-line with the wire drawing machine at 6 to 12 m/s (1,200 to 2,400 ft/min). The exceptional cleanliness that is obtained allows wire direct brass coating, copper coating, galvanising and wire cleaning prior to heat treatment, and coating applications including patenting, annealing, painting, plastic coating, etc.

The system incorporates new technology that enables normal cold plant water to be converted into a unique cleaning medium generating high pressure wetting/contaminants extreme pressure extrusion hydrodynamic cavitation displace/and contaminants flush out, used to clean drawn wire at high speed in a completely green application, providing wire glossy finish in plating quality, exiting the unit totally dry.

The PWC-S system effectively removes lubricant residue from the base material and is particularly recommended for cleaning applications with wires drawn upon severe conditions resulting in increased heat and burned lubricant tightly bound to the wire surface and embedded in micro-cavities. For a clean mirror reflective wire finish for decorative applications, the system can be used with emulsion including a new rust preventive additive diluted at 3 to 5 per cent concentration.

The PWC-S unit is compact and can be easily installed on the finishing/last block of a wire drawing machine.



○ Wire cleaning by PWC-S system

The system provides the ultimate combination of simplicity and effectiveness: acid-free, caustic-free, without ultrasonic, without chemicals, hermetically sealed zero-emission system, no fumes, and no foam.

Economical and environmentally friendly, the system provides significant process savings in production of clean wire.

**Decalub – France**  
**Website:** [www.decalub.com](http://www.decalub.com)

## Using its broad skills for best service

Involved in the fields of tungsten carbide tools since 1870 and machinery for decades, Agir Technologies takes advantage of its broad skills to provide the best to its partners.

Besides the wide range and the quality of the tools, Agir has provided solutions and competent advice to various requests.

This well-known company exports its tungsten carbide tools, machines and know-how to five continents and over 60 countries.

First for its own needs in tungsten carbide dies and then for its partners, Agir has made a point of developing the machinery sector by creating and building a wide range of machines.

From a unique shaving head to the various polishing lathes, not forgetting the numerous grinding machines, the company is able to handle the most complex of requests.

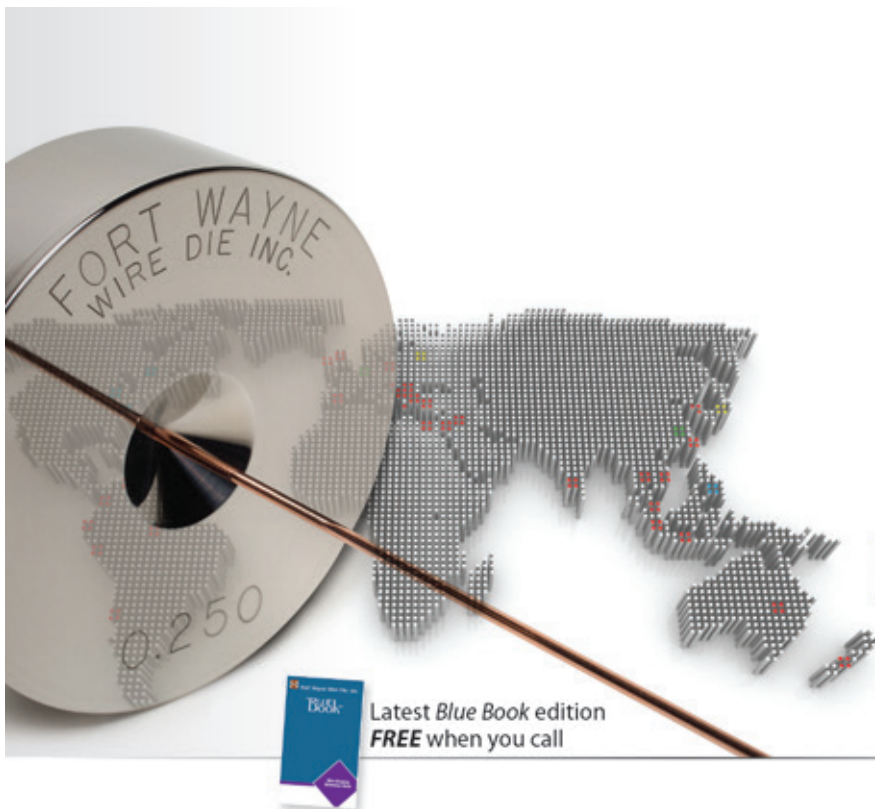
Horizontal or vertical, for large or small diameters, half or fully automatic, with a wide range of options (spindle, chuck, motorisation), substantial possibilities exist to help you improve efficiency and master your manufacturing processes.



○ Solutions and advice from Agir

**Agir Technologies – France**

**Website:** [www.agir-technologies.com](http://www.agir-technologies.com)



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## In-house for cost effectiveness and flexibility

Die Quip believes that making wire dies in-house is the most cost effective, flexible and quality driven option for a wire mill.

The company is proud of its legacy of helping mills achieve this goal by building die finishing machines strong enough for reworking used dies with speed and accuracy.

The success of a die shop's quality directly affects the wire mill's productivity which is why Die Quip builds its machines on rigid steel platforms to easily cut dies to meeting points, which controls bearing lengths.

By using this system the bearing lengths are controlled mathematically so the results are consistent, repeatable and easily managed by operators.

The angle setting gauges enable clients to consistently produce accurate die angles better than 90 per cent of industry standards. Die Quip has standalone machines for finishing dies, or to keep up with maximum efficiency for larger production it can build work cells of two or more machines to eliminate downtime from size changeovers.

Its approach to a modern die shop brings large benefits to the whole production process by implementing a workflow system that sets procedures and incorporates training to maximise each machine's capabilities. This allows dies to last longer in production, allowing more wire to be made.

**Die Quip – USA**

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



○ The MGF-200 die saver from Die Quip

## Proper dies and lubricants

The selection of proper dies and lubricants are two of the most important and essential requirements for wire drawing applications.



This not only affects the quality, but also helps in reducing the cost of drawing by increasing die life and reducing lubricant consumption.

Kay Pee Dies, established in 1968, produces tungsten carbide dies for wire, bar, tube drawing, cold heading, extrusion and special applications.

The company serves customers from India, Southeast Asia, Nepal, the Middle East and Africa.

Since 2008 it has worked as an exclusive distributor for Pan Chemicals SpA, Italy, for distribution and sale of its wire drawing lubricants.

**Kay Pee Dies – India**

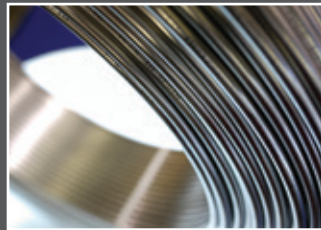
**Website:** [www.kaypeedies.com](http://www.kaypeedies.com)

○ The range of dies on offer from Kay Pee Dies

# wire 2016



## Review



[www.wire.de](http://www.wire.de)

## Major deals done at a bustling wire 2016!

'Really powerful and highly energised wire 2016' – a comment from one of the exhibitors – summed up wire 2016. The exhibition could easily be described as a benchmark show as both quality *and* quantity came together to make it a bustling week for wire and cable professionals from around the world who descended on Düsseldorf – the German city long synonymous with wire and cable.

A shade under 70,000 visitors pounded the floors of the halls over the five days and if those numbers weren't impressive enough, the quality of the visitors left a number of companies wishing that the week would not end.

Comments like the 'best ever', 'a must' and 'by far the best show we attend' were commonplace at the 30<sup>th</sup> anniversary of the industry's largest exhibition.

"The fact that as many exhibitors as ever nailed 'their colours to the mast' in Düsseldorf proves that the wire, cable and tube industries loyally stand by their leading trade fairs wire and Tube in Düsseldorf, even in tough economic times," beamed Joachim Schäfer, managing director at organisers Messe Dusseldorf GmbH.

And that it was set against global economic upheaval, a worldwide steel crisis, new climate regulations spanning the globe, and a classic industry on its journey into the new Industry 4.0 digital age is testament to the planning and organisation not only of the organisers, but the exhibiting companies and visitors alike.

A total net exhibition area of 110,900m<sup>2</sup> was occupied across 16 exhibition halls – a new record value posted in Düsseldorf's long success story of wire and Tube.



○ Joachim Schäfer, managing director of Messe Düsseldorf

Fitting as well on this, the 30<sup>th</sup> anniversary.





join the best  
**Tube**  
Düsseldorf  
halls/  
Hallen  
1-7

join the  
**wire**<sup>®</sup>  
Düsseldorf  
halls/  
Hallen  
9-12  
15-17

Messe  
Düsseldorf

il 2016



“Major deals are made in Düsseldorf; wire and Tube serve as the global communication and business platform for industry heavyweights, SMEs and international associations alike,” said Friedrich-Georg Kehrer, global portfolio director for metals and flow technologies. A combined total of about 69,500 trade visitors from more than 130 countries attended the two events.

wire Düsseldorf can look back on a 30-year success story. It premiered in 1986 with 488 exhibitors from 23 countries. Even 30 years ago, when approximately 21,000 trade visitors attended the first wire in Düsseldorf, some 45 per cent of trade fair guests already hailed from abroad.

High internationality and professional competence once again distinguished the visitors at the exhibition stands in 2016. Exhibitors were delighted with the customer contacts and deals they made.

“Lots of traffic again at our stand at wire, which once again underscored the event’s aspiration as the world’s leading trade fair,” said a thrilled Dr Christoph Müller-Mederer, sales and marketing director of **WAFIOS AG Reutlingen**.

“A very international, highly competent audience from Europe and North America. Particularly pleasing was the high number of concrete projects,” he added. “The great response to the introduction of smartfactory 4.0 products, services and ideas is WAFIOS’s answer to the Industry 4.0 challenge.”

With 1,337 exhibitors from 53 countries on a net exhibition area of 59,700 square metres, wire showcased wire manufacturing and finishing machinery, process engineering tools and auxiliary materials as well as materials, special wires and cables. Also presented were innovations from measurement, control and test engineering as well as other specialised areas.

wire – the international trade fair for wire and cable – featured the segments wire, cable and fibre optic machinery, and wire and cable products and trade in Halls 9 to 13, 16 and 17. Innovations in forming technology were on display in Hall 15. Hall 16 was home to mesh welding machinery and spring making technology.

“We’d like to congratulate Messe Düsseldorf GmbH on the occasion of

the 30<sup>th</sup> anniversary of wire Düsseldorf and wish them all the best for another 30 successful years,” said Stefan Szkudlapski, spokesman and networking manager of **netzwerkdraht**, an association of small and medium-sized wire companies from South Westphalia, Germany.

“It was another well-executed event, and the expectations of our members were fully met.” The South Westphalian wire experts are planning another group stand for wire 2018 in Düsseldorf.

As is tradition, companies from Italy, Belgium, France, Spain, Austria, the Netherlands, Switzerland, Turkey, the UK, Sweden and Germany were strongly represented again.

Sizable overseas contingents hailed from the USA, South Korea, Taiwan, India, Japan and China.

The majority of visitors were from Germany, Italy, Turkey, France, Poland and the Netherlands, with the share of international trade fair guests staying very high at 65 per cent, with about a third travelling from overseas.

German and international trade fair visitors at each of the two trade fairs handed out top marks for what was offered at both events.

Some 75 per cent of trade fair visitors were executives with decision-making authority.



○ Friedrich-Georg Kehrer, global portfolio director for metals and flow technologies at Messe Düsseldorf

Altogether, the willingness to invest at the two leading industry events – wire and Tube – continued to increase. What’s more, 60 per cent of trade fair visitors said they had found new suppliers.

**Shanghai HOSN** demonstrated its confidence and strength with the launch of new machinery and a presentation on its stand on the opening morning of the exhibition, with invited special guests and members of the trade media.



○ Special guests at the Shanghai HOSN stand on the opening morning of the show

Representatives of the guests made speeches and listened as the company outlined its plans for its globalisation strategy during 2016. Such was the importance of the show for the company, a number of new contracts were signed during the exhibition and a high number of positive orders of intent were discussed, including conversations involving more than 40 new customers.



With one eye firmly on the future, **Rosendahl Nextrom** branded the show as “a really powerful and highly energised wire 2016.”

“Industry 4.0 – ‘Smart Factory’ as we like to call it – is becoming reality and opening new doors both for us as suppliers and for you as manufacturers. It is an industrial revolution which eases information management,” the company said.

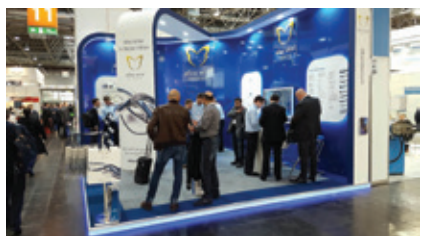
“The main benefit is concerned with predictive maintenance, backtracking of processes and online monitoring. We at Rosendahl Nextrom take this revolution seriously and are proud that we could present the opportunities with our technology.”



○ The Rosendahl Nextrom team at this year's wire trade fair

Managers at UK manufacturer of round, flat, shaped profile and electrical resistance wire **Alloy Wire International** hailed the exhibition as “the best yet.”

The company saw more than 250 serious enquiries during the five-day show, with interest for its extending range of exotic nickel alloys coming from all corners of the globe, including Australia, Japan, the USA and Europe, in the automotive, aerospace, defence, medical and nuclear sectors, with oil and gas the only sector showing small signs of depression.



○ Visitors quickly arrived at the Alloy Wire stand in Hall 11

Mark Venables, managing director, said: “wire 2016 was definitely the biggest and the best yet in terms of getting so many quality suppliers, customers and agents together in one venue. This is our premier show of the year and this is reflected in the level of investment we have put into creating a high profile presence and the fact we

have many of our international agents here to build relationships and talk to visitors.”

He continued: “Enquiries came from all over the world and having a vast array of our colleagues on hand was great to help interpret and translate conversations. The exchange of thoughts and ideas flowed freely and I'm sure will lead to orders.”

Like many other companies, Alloy Wire – which is celebrating its 70<sup>th</sup> anniversary this year – used the show to launch its new technical brochure and its largest ever range of exotic nickel alloys, which offer high corrosion resistance properties and high temperature performance.

Over 50 different alloys – including the recently added Nitronic 50<sup>®</sup> (0.025 to 5.5mm) and Super Duplex (0.025 to 6.5mm) – were on display at the Brierley Hill firm's new stand, which caused a lot of interest.

Another business launching a new product was UK company **Cimteq** and its partner, **InnoVites** from the Netherlands. The latest joint venture – CableSuite – has been described as a cable manufacturer's dream, providing a single comprehensive set of tools in one place.

CableSuite is a complete and fully integrated enterprise software solution that supports all business functions of cable manufacturers and distributors, combining CableBuilder, CablePlan, CableERP and CableMES. CableSuite enables a cable manufacturer or distributor to significantly optimise and accelerate its business processes.

As anticipated the interest in the product was extensive and the exhibition was considered to be an extremely successful showcase by both Cimteq and InnoVites.

Steve Mepsted, managing director of **PWM Ltd**, said: “We enjoyed an excellent show with steady visitor traffic to the stand from Monday through to Thursday; Friday was quieter. Visitor quality was also really good with more visitors from India and Scandinavia than in previous years.

“Our innovative ST40 air/hydraulic cold welder specifically designed for joining strip and tape was a big attraction, and we are now testing



○ PWM seemed to have little trouble in attracting visitors to its stand

materials for customers interested in this new machine. Our large, energy-efficient P1500 and EP500 welders proved popular with visitors looking for a cost-effective way of welding non-ferrous rod, including aluminium to copper, up to 30mm (1.181") diameter. All in all, a very positive show.”

French lubricant manufacturer **Condat** was delighted with the response at its stand. Communications manager Nathalie Vidal said: “Whereas Messe Düsseldorf has announced a three per cent decrease in visitors this year, Condat's booth has experienced great recognition and increased its leads. We have welcomed visitors from 60 countries.

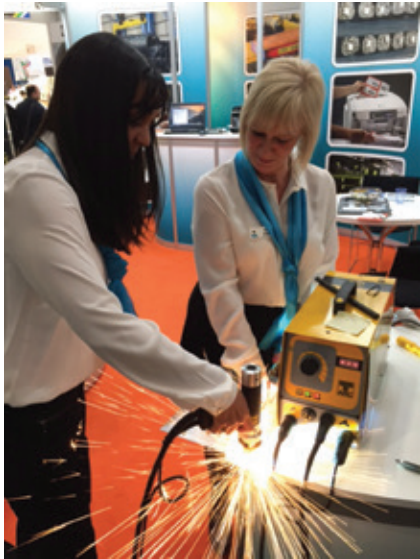
“There was a great interest in Condat's new offers for lubricants dedicated to electrical wire and cable and HSE-friendly solutions. This was also a good occasion to communicate on Condat's new image and dynamic: simple, modern and efficient.”



○ Visitors gather at Condat's stand. The French lubricant manufacturer praised the show, with an increase in leads

The ability to identify and track products is becoming essential to the smooth trading of steel across the globe, and many visitors showed interest in Sheffield, UK-based **IML's** high performance labels and tags.





○ Jenni Murray, left, and Sue Elwis of IML try their hands at stud welding at the exhibition

The company, which described the show as an “excellent return on investment” received more than 150 enquiries and leads relating to a broad range of products, including its durable rip-proof tags, Thermo-tag (600) high temperature tags and its complete in-house label printing systems.

Sales director Neil Dunn said: “Tube and wire is by far the best exhibition we attend across the sectors we currently work within, the quality of leads was top level and the decision makers were there to make improvements to the operational side of their business. It was a long week for the staff involved but the initial results are very encouraging.”

**AIM** – which received about 20 per cent more enquiries than two years ago, 40 per cent of which were new customers – presented the patented Synchro CNC wire bending machine.



○ An increase in enquiries and new customers on the AIM stand

The hybrid forming technology provides the user with the competitiveness needed in today’s ever-changing marketplace. The AIM Synchro line has the ability to form tube off coil and make complex 2D and 3D profiles.

Large, generating arcs and hard bends are made easy, with three different cutting techniques depending on the complexity of the profile, chamfering, external saw cut and traditional tube cutters. Each configuration is modular and can be integrated in the field with relative ease.

**Heinze & Streng** described the show as “a must,” having received a large number of enquiries following five days of “interesting conversations” which have led to an increase in prospective business.

The company also described its “complete satisfaction” over the show.



○ Bringing a little art to the proceedings on the Heinze & Streng stand

**Woywod Kunststoffmaschinen** introduced its new “easy-to-operate” PDC-control, as well as the IPC based touchscreen control for mixing stations, and a major subject for many clients was the incorporation of existing equipment into new and more precise mixing station systems.

The company also used the opportunity to strengthen already



○ Woywod’s impressive stand at wire 2016

close contacts with clients from India, Southeast Asia, America and Europe.

“Competence that Counts” was **Maillefer**’s core theme for this year, reflecting on its proven experience in cable manufacturing processes and extrusion technology. The company is not only an equipment supplier but also a customer-oriented process expert with more than 100 years driving its customer-driven research and development.



○ Maillefer raise a glass to wire 2016

It also introduced at the show several new innovations, including the Round Value Package Premium for high and extra high voltage cable production. In addition to improved cable roundness and increased productivity, it leads to significant insulation material savings.



○ Sales and marketing executive Linda Li, right, on the EuroWire and Wire & Cable ASIA stand with assistant Flavia Loreto

wire and Tube 2018 is being held 16<sup>th</sup> to 20<sup>th</sup> April 2018. Further details are available at [www.wire.de](http://www.wire.de) or [www.tube.de](http://www.tube.de)



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# Optical Wrap Defect Inspection for Cable

By Craig Girdwood and Andrew McCloskey, Taymer International

## Abstract

The optical wrap defect inspection system significantly improves the quality control of wrapped cable. The surface and wrapping structure of the cable is continuously monitored by a machine vision system at production line speed.

The wrap surface can be viewed live and/or recorded for 100 per cent of the cable length. Surface and wrapping defects are identified, and images of the defects are recorded together with position information.

Wrapping information including wrapping angle and overlap percentage can be monitored for changes. This technology improves the quality of the cable produced and prevents defective products from reaching the customer.

## 1 Introduction

A critical quality issue created during the production of wrapped cable is surface defects and wrapping defects. Potential surface defects include scratches or holes, and potential wrapping defects include uneven wrapping, incorrect wrapping angle, tape peeling and tape tears. These defects are not only a cosmetic problem, but they can lead to the core being exposed to the surroundings, resulting in short circuits and failure of equipment.

By identifying and detecting these defects during the production process, immediate corrective action can be performed and defective sections of product can be repaired or discarded. Utilising the constant and immediate feedback from the machine, operators and process engineers are able to pinpoint the root cause of the defects.

The wrap defect inspection system utilises one or more high-speed cameras capturing real-time images of wrapped cable surfaces. The wrap inspector software is able to accurately measure wrapping distance and angle, as well as determine both the type and size of a wide range of surface defects and wrapping defects.

Surface and wrapping defects as small as 0.1mm can be detected and an alarm triggered. When a defect is detected a digital image is enhanced, magnified and displayed on a remote monitor, enabling the operator to verify the defects.

This allows operators to determine the type of defect, to identify false positives (eg, a water droplet), or even detect surface blemishes (eg, surface discolouring, scratches).

The wrapping angle and distance measurements for the entire cable are saved to a database along with a record of any surface or wrapping defect information.

The defect information includes defect type, size and location on the cable in metres or feet. This allows defects to be isolated quickly by operators after production is completed.

The wrap inspector system is able to be easily integrated into existing production lines and performs well for various types of wrapped cables and convoluted armouring. The wrap inspector system makes sure that any problems are discovered prior to any defective products being sent to customers.

The lifetime of the lights can be over 50,000 hours of usage and they are the only consumable part.

## 2 Current Defect Detection Technique Limitations

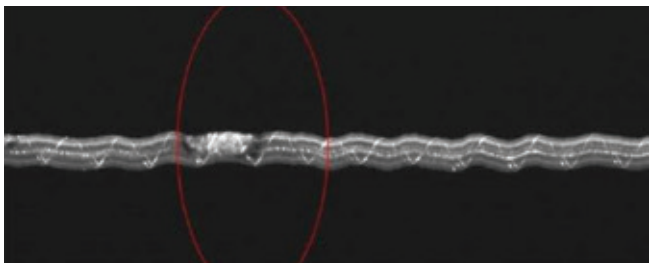
### 2.1 Laser Diameter Gauges

A laser diameter gauge is used to detect bulges and neck-downs. The machine uses a laser and shadow technology to measure the diameter of the cable. The diameter measurement is extremely accurate and can be used to classify bulges or neck-downs.

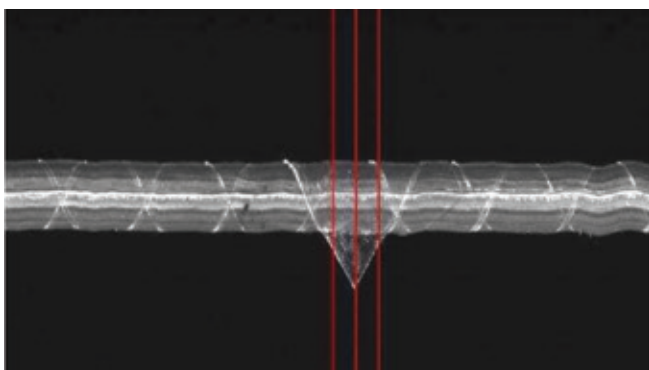
However, there is no way to truly know if the defect detected is an actual defect. For example, a dust particle or water droplet on the cable would increase the diameter measurement, resulting in a false positive.



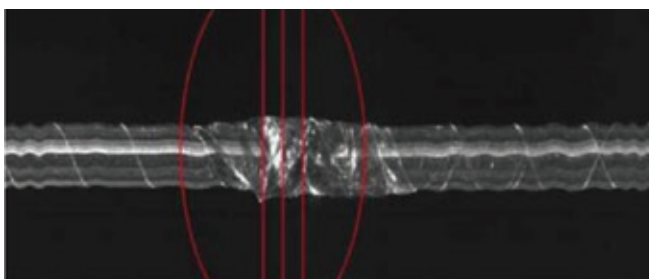
○ **Figure 1:** *Uneven wrapping*



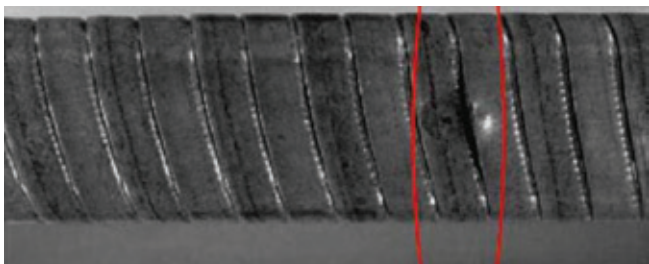
○ **Figure 2:** *Surface blemishes*



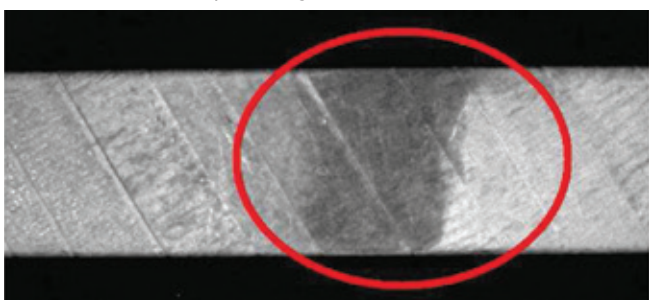
○ **Figure 3:** *Tape peeling*



○ **Figure 4:** *Tape wrinkle*



○ **Figure 5:** *Armour puckering*



○ **Figure 6:** *Discolouration*

## 2.2 Spark Tester

A spark tester is equipment that can be used to detect pinhole-type defects. The machine creates a spark when there is a pinhole that exposes the core of the cable – conductive metal. However, if a pinhole does not expose the core, the spark is not created. But the pinhole that is not a through hole is still a defect since over time the pinhole could expand and expose the core of the cable. Also, for products without a core (pipe, hose, tubing) or products without a conducting core (fibre optic cable), spark testers are not applicable.

## 2.3 Vision Systems

Prior configurations of surface defect detection systems were unable to identify and measure convolutions of the product. These systems were limited to ignoring the convolutions to identify significant defects such as pinholes or significant bulges or shape changes. The wrap inspection system has been improved with additional image processing software and alternative camera configurations that identifies the wrapped cable profile and can measure parameters and detect variations in the wrapping that are considered defects.

## 3 Machine Vision Inspection System

### 3.1 Optical Mechanical Design

The wrap defect inspection system consists of one or more high resolution cameras and adequate lighting to capture images of cable moving at speeds more than 1,200 feet (400 metres) per minute. Using multiple cameras, 360-degree coverage of the cable surface can be achieved. The system produces high quality images at these speeds with a very high frame rate. The frame rate is synchronised with an encoder and speed algorithm. The lighting varies depending on the application.

The factors in consideration are the reflectivity of the material, surface profile, colour, line speed and camera type.

To ensure consistency in the images, the setup features an enclosure to prevent ambient lighting, outside particles, etc from affecting the results. Vibration of the cable is minimised by cable guides, preventing images from being out of focus.

An advanced algorithm is used to process the images for cable wrap inspection. A typical algorithm is capable of detecting surface and wrapping defects such as scratches, holes, uneven wrapping, incorrect wrapping angle, tape peeling and tape tears. The algorithm requires analysis of the pixels of the image and grouping them for further interpretation. If a defect is detected, an alarm will notify the operator and an error report is saved to the on-going data log. The defect will also show up on the display for operators to clarify.

### 3.2 Improving Quality Assurance

*Suitable for any type of products:* Since the surface defect detection system with accurate diameter measurement uses machine vision, it can be used to inspect the surface for many types of wrapped products or convoluted profiles.

It is the most thorough method of detecting wrapping and surface flaws available and the advanced algorithm can help classify the type of defects accordingly.



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*Reduced defects:* The system can provide the operator with a view of current surface images as well as both the most recent defects with defect dimensions and the current cable diameter.

This continuous stream of real-time information – especially failure data – allows the operator to isolate the causes of wrap imperfections. Identifying when and how a defect occurs will allow the technical staff to learn the root cause of defects and reduce their occurrence.

*Quality assurance:* The system will continuously monitor the wrapping of the cable for both overlap distance and wrapping angle, and the measurements can be recorded for later analysis. Images of wrapping and surface defects are captured and saved to a hard disk for use in quality reports.

The wrap inspector system's display makes it easy for engineering and production supervisors to examine potential defects without having to see the defect on the actual cable itself.

Defect images are saved together with location information allowing operators to quickly find and eliminate defects before they reach customers or fail in the field.

### **3.3 Limitations**

There are a few limitations to the wrap defect inspection system:

- Sometimes significantly different wrapping types will require adjustment to the optical setup or software changes
- Since the camera is looking at the surface, water droplets/grease/dust particles will be detected as defects by the system. Generally, this can be fixed with a well-placed air wipe. Alternatively, the system sensitivity can be decreased, which may result in some of the smaller defects passing through the filter

### **3.4 Test Results**

The wrap defect inspection system is a modified version of the surface inspection system that is used in numerous production lines around the world to detect surface defects on wire and cable. Some sample images of defects and wrap measurements can be seen in *Figures 1 to 6*.

## **4 Conclusions**

With a wrap defect inspection system, imperfections in the wrapped cable surface will be detected and the cable will be wrapped correctly to show overlap distance and angle.

The system provides several benefits:

- Suitable for any type of wrapped wire/cable and convoluted armouring
- Ensure the customer will not get defective products, improving customer relationship and confidence
- Reduce rework and eliminate cable waste resulting in material cost and labour cost
- Assist in internal improvement to production process to reduce defects
- Ensure cable overlap

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# 针对电缆的光学包层缺陷检测

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## 摘要

光学包层检测系统可显著改善绕扎电缆的质量管理。机器可视化系统可在生产线速度下持续监视电缆表面和包层结构。可实时显示和(或)记录100%电缆线上的表面。由此可确定电缆的表面缺陷和包层缺陷,并将缺陷图像和位置信息记录下来。包括包角和重叠百分比在内的缠绕信息变化均在监视状态下。这一技术优化了电缆的产品质量,并防止将缺陷产品销售给客户。

## 1 简介

在绕扎电缆的生产过程中最主要的质量问题来自于表面缺陷和包层缺陷。可能产生的表面缺陷问题包括划痕或坑洞,包层缺陷问题则包括包裹不均、包角有误、胶皮剥离和胶皮撕裂。这些缺陷不仅仅是美观上的问题,而会将电缆的核心暴露在外环境中,从而导致短路或设备故障。通过在生产过程中识别并检测这些缺陷问题,可及时采取修正措施,用以修复或废弃产品的缺陷部分。操作者和生产流程工程师通过机器持续反馈的即时信息可找出导致产品缺陷的根本原因。

包层缺陷检测系统采用一个或数个高速照相机,用以捕捉绕扎电缆表面的实时图像。包层检测软件可精准测量包裹长度和角度,以及辨别多种表面缺陷和包层缺陷的种类和大小。小到0.1毫米的表面和包层缺陷也可被检测出并触发警报。当检测到缺陷时,一个放大增强的数字影像会呈现在远程监控器上,操作者可借此辨别缺陷问题。这一技术使操作者能够确定缺陷类型和鉴定误报信息(即小水滴),甚至能够找出缺陷表面的瑕疵(即表面褪色或刮擦)。

整条电缆的包角和距离测量信息都会连同所有表面或包层缺陷信息一起保存在数据库中。这些缺陷信息包括缺陷类型、缺陷大小和位置,测量单位为米或英尺。操作者可由此在完成生产后迅速将缺陷部位隔离开来。该包层检测系统易于与现有的生产线兼容,适用于多种绕扎电缆和旋绕式电缆包层。这一包层检测系统能在次品被销售给客户前确保检测出所有的缺陷问题。

系统中光学仪器的使用寿命超过50,000小时使用时长,而且是该系统中唯一的耗材。

## 2 当前缺陷检测技术的局限性

### 2.1 激光直径测量仪器

激光直径测量仪器用于检测凸起和颈缩问题。该仪器采用激光造影技术测量电缆的直径。该直径测量方法的测量结果非常准确,可用于辨别凸起和颈缩问题。

然而,该方法无法确切分辨检测到的缺陷是否为真的缺陷。例如,电缆上的微尘或水滴都会增加直径的测量数值,从而引发误报。

### 2.2 火花试验器

火花试验器可用于检测孔状缺陷。在外层出现孔状缺陷而露出电缆核心的金属导体时,该仪器会触发火花。但是如果外层的孔状缺陷未能使金属导体暴露在环境中时,该试验器将不会触发火花。在这样的情况下,虽然该孔状缺陷并未贯穿整个外层表皮,但依然为缺陷产品,一段时间后,这一孔状缺陷会扩大范围并将电缆核心暴露在环境中。同时,对于诸如没有内部核心(例如,管道,水管和油管)和不具有内部导体的产品(光纤电缆),火花试验器并不适用。

### 2.3 可视化系统

早先的表面缺陷检测系统配置无法辨别和测量产品的卷曲程度。此类系统的局限性在于未将卷曲度纳入测量范围从而辨别严重的缺陷问题,诸如小孔或是明显凸起或形变。通过采用附加的图像处理软件和另外的照相机配置优化该包层检测系统,可用于分辨绕扎电缆的轮廓并测量参数,从而通过检测包裹过程中的变量发现可能的缺陷问题。

## 3 机器可视化检测系统

### 3.1 光学机械设计

该包层缺陷检测系统装配有一个或多个高分辨率的照相机以及充分的照明装置用以在每分钟1,200英尺(400米)的电缆运行速度下捕捉图像。

通过采用数台照相机,可实现对电缆表面的360度覆盖。该系统可在高帧频的条件下拍摄高质量的图像。照明装置可依据不同的使用需求进行调节。需要考虑的因素包括材料的反射率、表面轮廓、颜色、线速和照相机类型。

为保证图像的一致性,系统配备有外壳用以阻挡环境照明或外界微粒等可能影响测量结果的因素。电缆引导管会尽量降低电缆的振动用以确保照相机的清楚对焦。

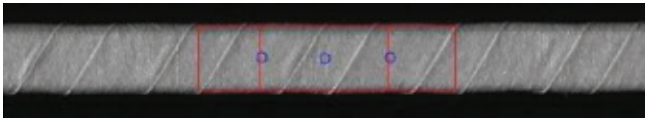
一项高级算法被用于处理电缆包层检测中捕捉到的图像。典型算法可检测电缆的表面缺陷和包层缺陷,例如划痕、坑洞、包裹不均、包角有误、胶皮剥离和胶皮撕裂。

该运算需要分析图像的像素点并组合他们做进一步的解读。一旦检测出缺陷,将触发警报通知操作者,同时这份错误报告将被保存到运行的数据记录中。这一缺陷也会被呈现在操作者的显示屏上用以进一步确认。

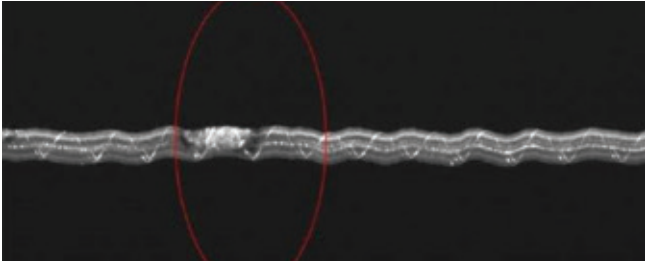
### 3.2 提高品质保证

适用于任何类型的产品:由于表面缺陷检测系统配备机器可视化装置可精准测量直径数值,该系统可被用于多种绕扎产

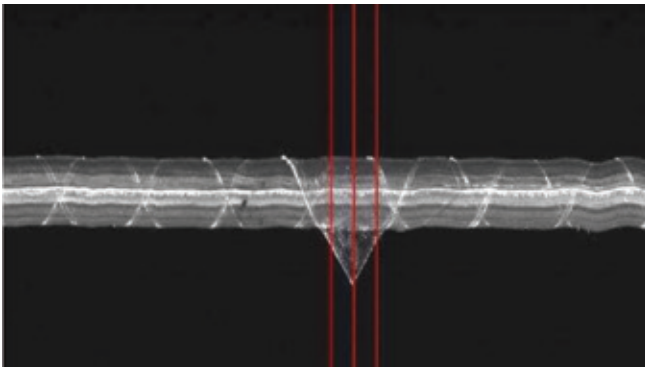




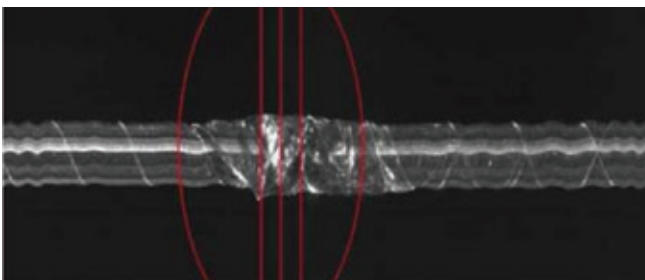
○ 图1: 绕包不均匀



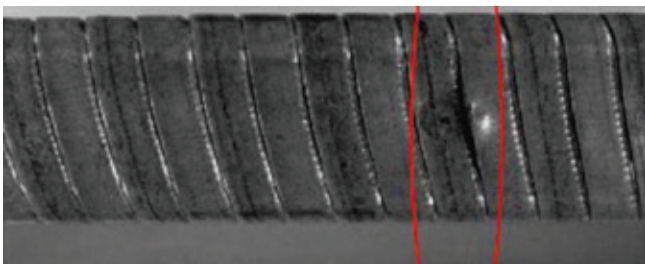
○ 图2: 划痕



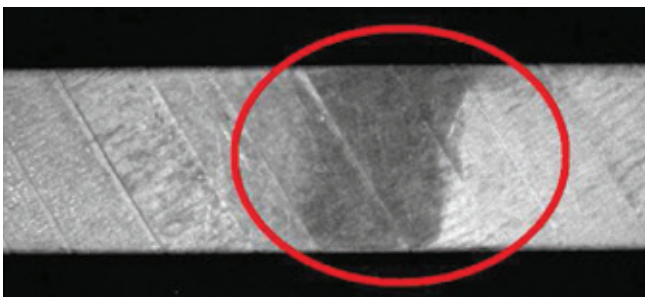
○ 图3: 包带剥离



○ 图4: 包带皱褶



○ 图5: 铝装起皱



○ 图6: 退色

品或旋绕式部件的表面检测。在现有的包层和表面缺陷检测方法中，该系统的检测手段最为周密，同时先进的运算方法也可协助分辨相应的缺陷类型。

**减少缺陷：**该系统可向操作者提供当前的表面图像，以及最近的缺陷报告(包括缺陷规模)和当前的电缆直径。这些持续的实时信息——特别是故障数据，使操作者能够将导致包层缺陷的部分隔离开。技术人员通过明确缺陷发生的时间和原因，可以探知这些缺陷的根本成因并从而降低缺陷的发生频率。

**质量保证：**该系统可持续监控电缆的包裹流程，包括重合距离和包角在内的测量数据也将被记录下来以便做进一步的分析。系统捕捉到的包层和表面缺陷图像将被保存在硬盘中用于质量报告。包层检测系统的显示器能利于工程和产品主管校验可能的缺陷问题，无需到现场实际检查发生问题的电缆。缺陷图像将和其位置信息一同被保存下来，以便操作者能快速查找和消除缺陷，防止其销售给客户或在使用中发生故障。

### 3.3 局限性

包层缺陷检测系统也包含有一些局限性

- 在一些情况下，检测具有显著差别的不同包层类型需要对光学设置进行调节或者更换软件。
- 由于照相机对于电缆表面进行观测，一些水滴、油脂或微尘会被系统认定为缺陷。通常情况下，这一问题可以通过在适当位置安装空气擦进行解决，或者可以降低系统的灵敏度，但是这样会使一些小缺陷躲过系统的检测。

### 3.4 测试结果

包层缺陷检测系统是表面检测系统的改良版本，适用于全球众多的电线和电缆生产线以检测表面缺陷。下列图一至图六是其中一些缺陷和包层测量的范例图像。

## 4 结论

通过包层缺陷检测系统，可检测出绕扎电缆表面的缺陷，同时该系统也可显示重叠距离和包角，用以确保电缆可获得准确外层包裹。该系统具有以下优点：

- 适用于任何类型的绕扎电线电缆和旋绕式包层
- 确保客户不会收到瑕疵品，从而增强客户关系和信任度
- 降低返工率并排除因电缆报废而浪费的材料成本和人力成本
- 有助于生产流程的内部优化从而降低缺陷发生频率
- 确保电缆准确重叠

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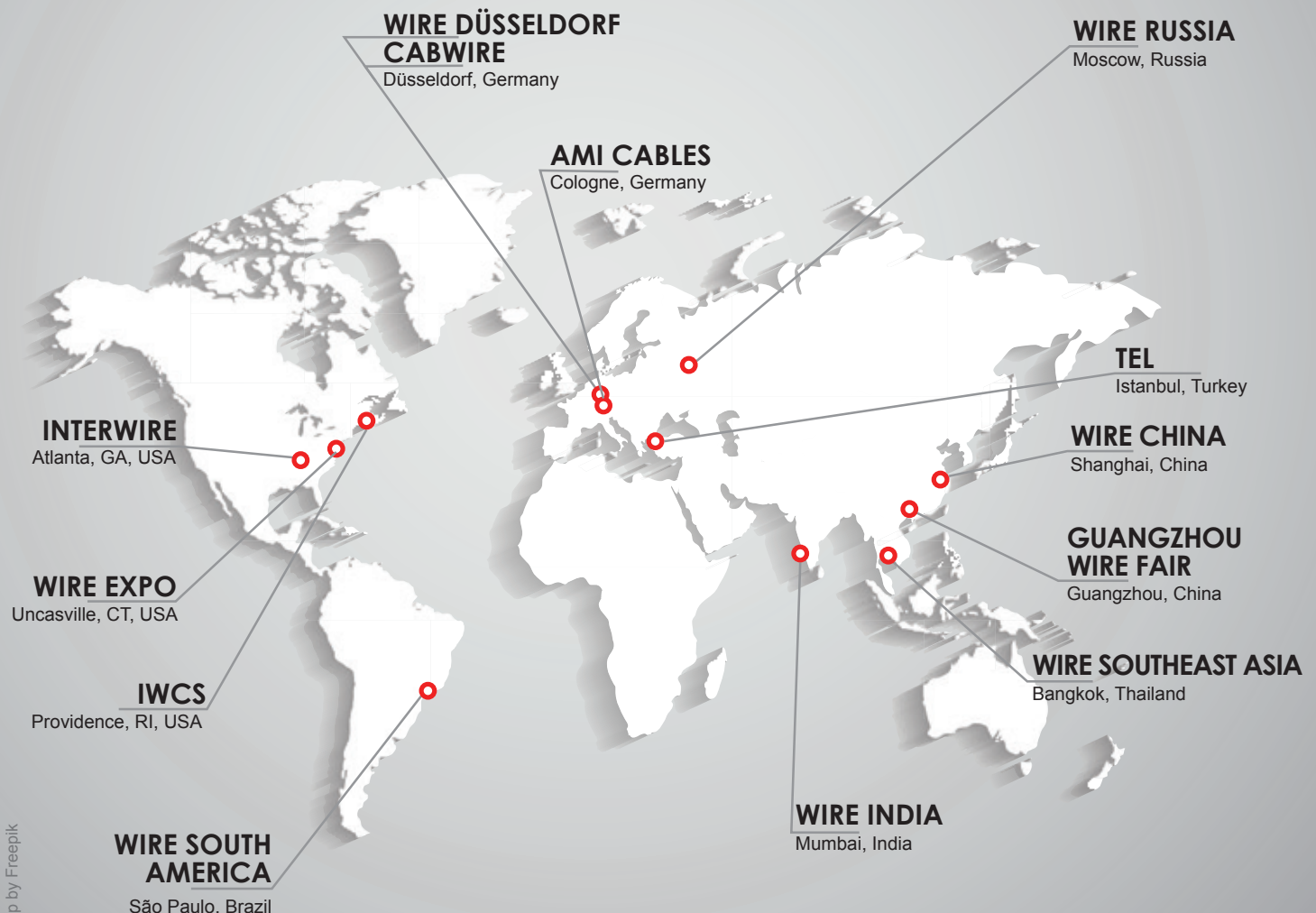
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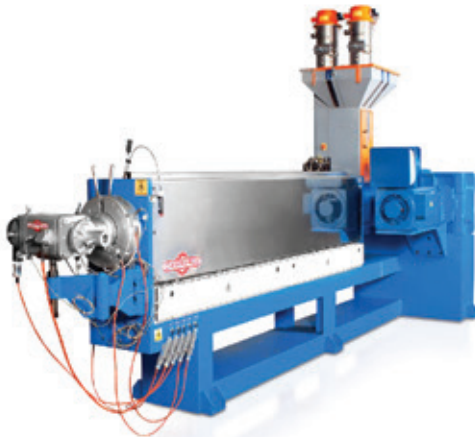
Aluminum CCR line is used to produce aluminum or aluminum alloy rod in 9.5mm diameter from aluminum ingot. Users can choose magnetic stirrer, induction heater, filter or quenching section if it is used to produce aluminum alloy rod.



# Bringing together the best extrusion & welding technology



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