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# Wire & Cable

September 2014  
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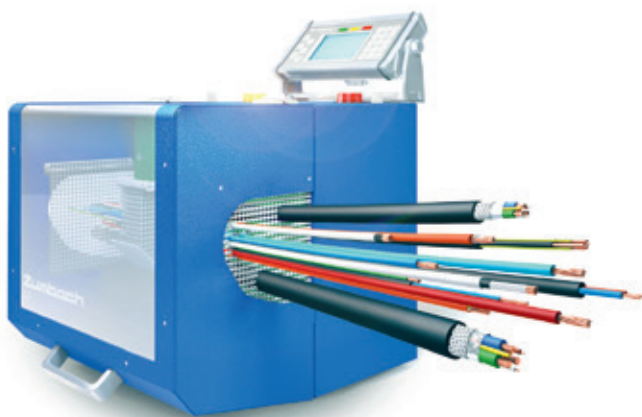


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Booth # W1F21

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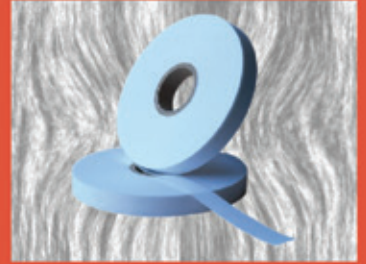
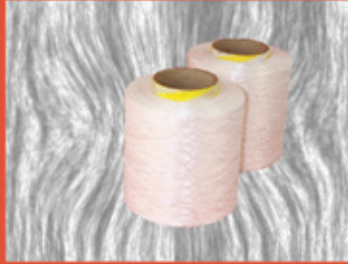


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**Non-conductive waterblocking tape**

**Semi-conductive tape**

**Waterblocking yarn**

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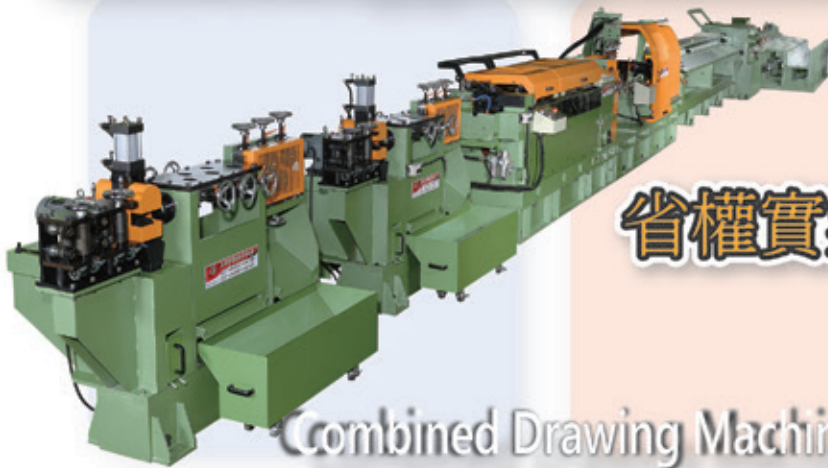
FAX: 86-24-89315999

P.C.: 110149

Http://www.jinggong-tapes.com

E-mail: jgtapes@jinggong-tapes.com sales@jinggong-tapes.com

# Cold Draw Bar Equipment (Ferrous and Non Ferrous)

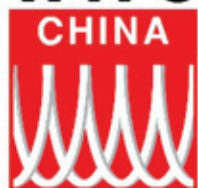


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**SHENG CHYEAN**

Combined Drawing Machine

wire



THE 11th ALL CHINA - INTERNATIONAL WIRE & CABLE INDUSTRY TRADE FAIR  
第六屆中國國際線纜及材料技術展覽會

24.-27.09.2014

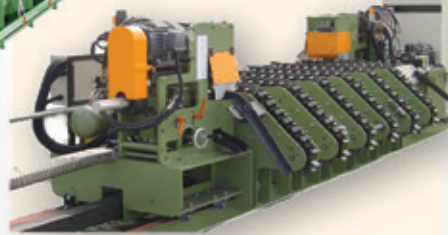
Shanghai New International Expo Centre  
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Peeling Machine



Chain Draw Bench



Chamfering Machine

## 主要產品 Production Line

- 複合式伸棒機
- Combined drawing machine
- 吊料/連線倒角機
- Off line /In line chamfering machine
- 圓棒削皮機
- Round bar peeling machine
- 圓棒/異型棒矯直機
- Round bar/  
Irregular bar straightening machine
- 壓延機
- Flat roll mill machine
- 鏈式拉拔機
- Chain draw bench
- 雙砂輪無芯研磨機
- Double wheel grinding machine



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Two Roller  
Straightening Machine



8



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wire India 2014



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**Getting Technical -**

Improved coilability and corrosion resistance of critical spring applications with Bezinal® XC and Bezinal® XP coated wire

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# China and India looming large on the exhibition horizon

Thoughts inevitably are turning to the last two major exhibitions of the year in the wire and cable calendar – wire China and Wire and Cable India.

In this issue of *Wire & Cable ASIA* we take a look at some of the exhibitors heading to the Shanghai New International Expo Center from 24<sup>th</sup> to 27<sup>th</sup> September for the sixth staging of wire China. Feel free to stop by our stand at W1C43 and collect your free copy of the magazine. Our coverage starts on page 76.

The November issue will also feature exhibitors at Wire & Cable India from 28<sup>th</sup> to 30<sup>th</sup> October. Make a note to catch up with the latest from those companies heading to Mumbai.

In this issue there is news of the first year's successful trading in India for UK-based lubricants specialist Metalube. The company is also expanding its operations in China with a new office in Shanghai. The full story is on page 10.

There is also a prediction from Sarawak Cable group of strong local demand for power cables, conductors and transmission lines during the remainder of this year and into next. You can read all about it on page 16.

David Bell  
Editor



## When and where

### October 2014

21-25 October:  
**EuroBLECH** –  
trade exhibition –  
Hanover, Germany  
**Organisers:**  
Mack Brooks  
Exhibitions Ltd  
**Fax:**  
+44 1727 814 401  
**Email:** info@euroblech.com  
**Web:** www.euroblech.com

### October 2014

28-30 October:  
**wire India** –  
trade exhibition –  
Mumbai, India  
**Organisers:** Messe  
Düsseldorf India  
**Fax:**  
+91 112 697 1746  
**Email:**  
info@md-india.com  
**Web:** www.md-india.com

### November 2014

9-12 November:  
**IWCS** –  
technical symposium –  
Rhode Island, USA  
**Organisers:**  
IWCS  
**Tel:**  
+1 732 389 0991  
**Email:**  
phudak@iwcs.org  
**Web:** www.iwcs.org

### January 2015

10-13 January:  
**Wire & Cable Arabia** –  
trade exhibition –  
Dubai, UAE  
**Organisers:** Al Fajer  
**Fax:**  
+971 4340 3608  
**Email:**  
jeen@alfajer.net  
**Web:**  
www.wirecablearabia.com



○ Visitors to this year's Wire and Cable Guangzhou

# Guangzhou's 'delight'

ORGANISERS and exhibitors were delighted with the response from this year's Wire & Cable Guangzhou in China, which showcased the latest in cable and wire, machinery and equipment, and materials and accessories.

Organised by Guangzhou Guangya Messe Frankfurt and Guangzhou BoYou Exhibition Service Co Ltd, the fair was held from 9<sup>th</sup> to 12<sup>th</sup> June at the China Import and Export Fair Complex in Guangzhou, China. The fair welcomed 18,821 visitors from 25 countries and regions and covered 20,000m<sup>2</sup> of space across two halls.

Mr Emeka Hu, general manager of Guangzhou Guangya Messe Frankfurt, said: "The joint management and organisation of the 2014 Wire & Cable Guangzhou was successful. Utilising our internationally recognised professionalism in fair management and organisation, we set out to elevate this well-regarded domestic show into a comprehensive international event. Overall, I am pleased with the results, and I believe the show's international footprint will continue to grow for years to come."

Mr Liu Gan, general manager, Guangzhou BoYou Exhibition Service

Co Ltd, added: "The cooperation with Messe Frankfurt and their concurrent events Guangzhou International Lighting Exhibition and Guangzhou Electrical Building Technology has been beneficial. The synergy with Messe Frankfurt's lighting and building fair has proven to be noteworthy, as some of the exhibitors and visitors from the neighbouring fair were also potential buyers at the Wire & Cable Guangzhou. Our cooperation with Messe Frankfurt has been fruitful and I believe the growth prospects for this event are infinite."

Both new and returning exhibitors to Wire & Cable Guangzhou saw the exhibition as an effective platform for business expansion on the national and international level.

For returning machinery supplier Dongguan Gemwell Electrical Equipment Co Ltd, the fair provided a fantastic opportunity to capitalise on the growing manufacturing markets across the world.

Mr Xia De Feng, general manager, said: "This year, we have recorded an increasing number of electric wire makers, our target clientele, who came to our booth to source wire and cable production machinery. Additionally, we

have also noticed improvements in the show's visitor profile as a portion of our potential clients were from India, Russia and Southeast Asia. Having established a stronger international client base, we aim to export two-thirds of our products to overseas markets in the near future."

During the four-day event, visitors were impressed by the prominent brands presented and the diversity of products and technology displayed in the fair.

A range of concurrent events also added to the show's success, covering the most relevant issues within the wire and cable sector. Some of the industry's most influential experts and scholars were invited to share their views on market trends and the latest industry news. Additionally, the product presentation allowed various companies to promote their innovative products as well as industry developments.

The next edition of Wire & Cable Guangzhou is scheduled to take place from 9<sup>th</sup> to 12<sup>th</sup> June 2015, once again at the China Import and Export Fair Complex in Guangzhou.

**Wire and Cable Guangzhou – China Website:** [www.wire-cable-china.com](http://www.wire-cable-china.com)

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Business Development SIKORA AG



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**WIRE & CABLE**  
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## Price increase

Korean steelmaker POSCO Specialty Steel has increased its domestic sales prices for austenitic grades of wire rod and bar in order to offset higher nickel prices. The increase for May orders represents the second consecutive month of price increases. Prices for ferritic grade wire rods and bars remain unchanged.

## Zambia cable deal

LS Cable has supplied \$5 million worth of gap conductor cable to the state-run power generator Zambia Electricity Supply Corporation (Zesco). The cables will be used to replace old wires near Lusaka, and are said to deliver twice the power of standard power lines without needing changes to transmission towers or generators.

Five companies in the world have developed a similar conductor, but LS Cable is the only domestic producer.

# Nippon Steel's wire production boost

Construction has begun on a factory in China to produce cold heading wire. Nippon Steel & Sumitomo Metal Corp has announced that the facility will have an annual capacity of 42,000 tons when it becomes operational in June 2015.

The plant will be equipped with pickling, wire drawing and heat treatment facilities.

The plant, located in the Suzhou Wuzhong economic and technological development zone, will be run by Nippon Steel Bar & CH Wire Co (NBC China), a company established by Nippon Steel & Sumitomo Metal and its partners, Matsubishi Metal Industry Co, Miyazaki Seiko Co, Sanyu Co, Toyota Tsusho Corp, Metal One Corp, and



○ A model of Nippon Steel & Sumitomo Metal Corp's new plant. Photograph courtesy of Nippon Steel and Sumitomo Metal Corp

Nippon Steel & Sumikin Bussan Corp.

The original NBC China was set up in 2006, and its current fully operational plant has a capacity of 7,000 tons per year. The new NBC China was formed to increase production

and sales of cold heading wire, used primarily in the manufacture of bolts and bearings for the automotive industry.

**Nippon Steel & Sumitomo Metal Corp – Japan**  
Website: [www.nssmc.com](http://www.nssmc.com)

## First year India success and new Shanghai office

METALUBE Pvt Ltd, the company's Indian operations, has recently completed its first full year of trading and reported excellent progress. During this period the company has developed sales with many key accounts within the cable, enamelled wire and conductor industries in India.

Not a company to stand still, the business is launching several new products into the Indian market during 2014 including a range of corrosion preventatives and industrial maintenance lubricants.

Amit Gupte, general manager in India, is predicting further strong growth and said: "We have very challenging targets and ambitions for 2014/15, and are confident that we can achieve these."

"The range, quality of products and after sales support provided by Metalube is being experienced and appreciated by our customers, making us a brand you can trust."



○ Some of the China team members in the new office, from left, Gavin Gu, business unit manager, wire drawing; Sharon Xu, operations manager; Li Shen, accountant; and Maurice Ngai, general manager, Asia Pacific

Metalube specialises in wire and tube drawing lubricants, working with wire, cabling and tubing manufacturers across the world.

The headquarters are in Manchester, UK, where the site incorporates offices with warehousing, laboratories and manufacturing facilities.

The company has also moved into new, larger offices in Shanghai, China. A leading exporter, it now has four offices in the Asia Pacific region – Shanghai and Dongguan, in China, Hong Kong and Kuala Lumpur, Malaysia.

**Metalube Ltd – UK**  
Website: [www.metalube.co.uk](http://www.metalube.co.uk)



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## New Tecnovo wire drawing lubricants: wired for Quality and the Environment



Tecnovo presents a new series of wire drawing lubricants which combine demands for high quality and performance with indispensable sustainability criteria: composed of natural raw materials and from renewable sources they have a low environmental impact and maintain full respect for nature and humans.

These innovative products confirm Tecnovo's standing as a leading research player and an essential partner for manufacturers in the industry.

**Excellent results in absolute safety.**

### **TECNOLINE ST/13**

This new salt for wire drawing preparation is **100% free from borax** and from boron derivatives. Thanks to an exclusive formulation it interacts with the wire drawing lubricant and gives improved lubrication on the surface of wire and wire rod compared to normal products.

### **TECNOLUBRE FM 913 - 915**

These innovative sodium based wire drawing lubricants are **100% free from borax, boron derivatives and from nitrites**. They drastically reduce dust in the working environment, cut consumption and eliminate product waste.

### **TECNOLUBRE FM 195**

This calcium based lubricant is **100% free from titanium dioxide**. As demonstrated by rigorous tests conducted by leading companies, this substance causes serious difficulties with subsequent wire treatments including pickling, annealing, coating and wet wire drawing and it exerts a severe abrasive action on capstan coatings. Titanium dioxide is also under observation for suspected danger to humans.

### **Linea SINTEK FL**

Emulsifiable oils for wet wire drawing made from natural products and renewable sources. This product line is **already a high quality international leader**, subject to constant improvement and with a broad range of products for different wire drawing applications.



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## €80m Qatar contract for Prysmian

PRYSMIAN Group has been awarded a major new order for approximately €80m for power transmission system expansion projects by Kahramaa, the Qatar General Electricity and Water Corporation.

The contract comprises engineering, procurement, construction, installation and commissioning services for extra high voltage underground cable systems for a total of 173km of 220kV cable and related network components, as part of the stage 2 of Phase XI of the Qatar Power Transmission System Expansion project aimed at strengthening the main transmission networks and at securing power supplies to the industrial and residential sectors.

The upgrade also includes replacement of an overhead line with an underground cable system. The project will be implemented by the group's established offices in Qatar, using production from Gron (France) and Livorno (Italy).

Installation of the first circuits will start in 2014 and the scheduled completion date is during 2016.

In addition to providing further confirmation of the validity of the group's know-how and technologies for application in underground power transmission, this new project also underlines Prysmian's leadership role in a strategic region like the Middle East, where the group can rely on a number of projects completed or currently ongoing, including the

first-ever submarine power transmission link serving Doha, the GCC Saudi-Bahrain submarine interconnection and the 400kV power transmission system for Transco connecting the Bahia and Saadiyat Grid Stations in Abu Dhabi.

The group has also been awarded a contract for the interconnection of the Zakum offshore oil field in Abu Dhabi.

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

### Optic fibre deal from BSNL

Vedanta group company Sterlite Technologies Ltd has won contracts from Bharat Sanchar Nigam to supply optic fibre cables for a communications network for India's armed forces. Sterlite is among the chief suppliers for the 60,000km optic fibre network that will be at the heart of the defence ministry's future telecom backbone. The armed forces will migrate all their communication needs to this alternate optic fibre network.

**Bharat Sanchar Nigam – India**

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



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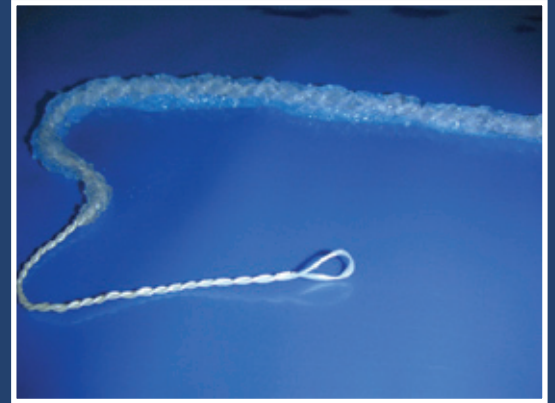


# CENTRAN TAPES & YARNS

Centran industrial is a leading global supplier of excellent raw materials for cable and wire industry. We are one of the biggest manufacturer of **water-blocking tape** , **Water-Blocking yarn** & **Polyester yarn** , **flame retardant** & **Marking tape** etc. in china.

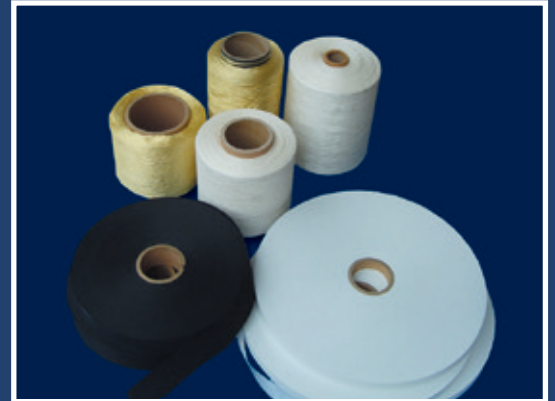
## 1. Non-conductive Water-blocking tape

- Double-side non-conductive water-blocking tape CZSD
- Single-side non-conductive water-blocking tape CDZD
- PET laminated non-conductive water-blocking tape CDZDF
- Reinforced non-conductive water-blocking tape CHDZD



## 2. Semi-conductive Water-blocking tape

- Double-side semi-conductive water-blocking tape CBZSD
- Single-side semi-conductive water-blocking tape CBDZD
- Semi-conductive laminated water-blocking foam tape CBHSD
- Single-side semi-conductive water-blocking woven tape CBDWD
- Reinforced semi-conductive water-blocking tape CHBSD
- Marine water-blocking tape CMBZD



## 3. Binding, Bedding, Barrier & Separating tape

- Non-woven tape CWB
- Reinforced Non-woven tape CHWB
- High strength Woven tape CHB
- Semi-conductive nylon tape CBNLD
- Semi-conductive non-woven tape CBZD
- Semi-conductive woven toteron tape CBHD
- Flame-retardant tape CFR

## 4. Yarns

- Water-blocking yarn CZS
- High tension polyester yarn HZT
- Water-blocking E-glass Roving yarn BSW
- E-Glass Roving yarn BSR



## 5. MARKING TAPE

MT-20

Chengdu Centran industrial Co., Ltd  
Chengdu Centran IMP.&EXP Trading Co., Ltd  
Wuxi Centran cable material Co., Ltd

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Chengdu Hi-Tech district, 610041, Sichuan, P.R.China  
Tel: 0086-28- 85322171, 85322172  
Fax: 0086-028 -85322175  
E-mail: market@china-centran.com  
Http:// www. China-centran.com

## New committee to boost innovation

NEXANS has established a new scientific committee to boost innovation – one of its primary goals – and further differentiate its cable products and technologies. The committee started work in the first quarter of this year.

The scientific committee is responsible for holding discussions on research areas to both identify new technology that will create value for Nexans' customers and to integrate these innovations rapidly into new and existing products.

The committee consists of eight members and is chaired by Jean-Maxime Saugrain, Nexans' corporate vice president technical. Its secretary general is Gerard Bacquet, Nexans' global scientific director. Two renowned academic experts have agreed to join the committee:

Prof Jacques Lewiner: President of RTE's scientific council, honorary director of the Paris School of

Industrial Physics and Chemistry (ESPCI), president of the ESPCI Georges Charpak Endowment Fund, and member of the French Academy of Technologies.

Prof Jean-Pierre Chevalier: Member of the industrial materials chair at the Paris National Academy of Arts and Trade (CNAM), and former member of OECD Nuclear Energy Agency.

Four Nexans representatives also comprise the committee, along with Francis Debladis and Thomas Hähner, heads of the two largest Nexans Research Centres; Francis Krähenbühl, country manager Nexans Switzerland; and Pierre Kayoun, vice president sales and marketing high voltage business group, will contribute their knowledge of Nexans' markets.

"The creation of this scientific committee is a major milestone in our programme for boosting innovation, a performance driver for Nexans.

Nexans already demonstrates on daily basis that it innovates to meet our customers' needs, and this committee will help us better prepare future innovations," said Jean-Maxime Saugrain.

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

## New Russian representative

The Gauder Group has appointed Igor Barinov as its new Russian representative. Mr Barinov is the exclusive representative for Pourtier, Setic and Daloo rotating machines, as well as C2S services and Bow Technology spare parts, in Russia and the CIS countries. He has a long and successful experience in the cable machinery industry.

**Gauder Group – France**  
**Website:** [www.gaudergroup.com](http://www.gaudergroup.com)



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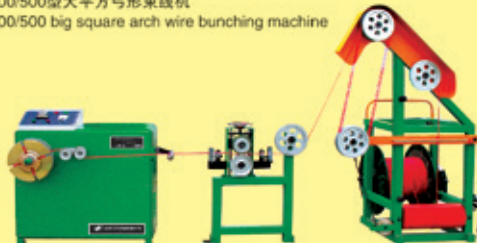
GP系列光杆穿线器  
GP Series Polished  
Shaft Rolling Ring  
Traverse Drives



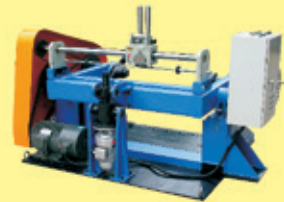
JSF400/500型大平方形束线机  
JSF400/500 big square arch wire bunching machine



CQK550/700/850型主动放线成圈系统  
CQK550/700/850 active pay-off/coiling systems



GS II 系列工字轮收线机  
GS II series H-shaped wheel take-up machine



GZC320高速自动电缆成圈机组  
GZC320 high-speed automatic wire coiling set



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Fax: +86-359-7650288 Website: [www.pxq.cn](http://www.pxq.cn) E-mail: [bjx7650158@163.com](mailto:bjx7650158@163.com) [wurongwen-444@163.com](mailto:wurongwen-444@163.com)



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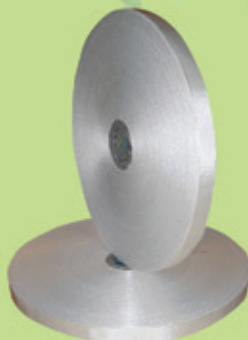
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## Cable demand in Malaysia

SARAWAK Cable Bhd group managing director and chief executive officer Toh Chee Ching is predicting strong local demand for power cables, conductors and transmission lines.

He said the government is increasingly focused on the development of rural areas in Malaysia, particularly in Sarawak under its government transformation programme (GTP).

“Coupled with the development of heavy industries under the Sarawak corridor of renewal energy (SCORE), there is an urgent need to enhance the electricity generation and power distribution capacity in the state to facilitate infrastructural and industrial development in the years ahead.

“This will translate into a continuous and strong demand for power cables and conductors, steel products and transmission lines.”

The spokesman confirmed that Sarawak Cable began implementation of a 500kV backbone transmission line project in Sarawak in November 2013, and expects the project to enhance the group’s profitability in financial years 2014 and 2015.

The group, he added, has strategised its business activities into three main business segments, namely, manufacturing and supply, transmission line construction and renewal energy.

**Sarawak Cable Bhd – Malaysia**  
**Website:** [www.sarawakcable.com](http://www.sarawakcable.com)

## Philippines wind contract

Gamesa has been awarded a contract by Alternergy to construct, supply and install the necessary infrastructure for the 54MW Pililla wind farm, located on the Philippine island of Luzón.

Gamesa will partner with the local Philippine consortium CASA for civil and electrical works for the facility, which is planned for completion during 2015.

The contract strengthens Gamesa’s presence in Asia, where it is already active as a technology provider and wind farm developer in China, India, Japan, Sri Lanka, Vietnam, Taiwan and South Korea.

By March 2014 the company had installed a total of 5,016MW of its turbines in Asia and is maintaining a further 1,900MW.

**Gamesa – Spain**  
**Website:** [www.gamesacorp.com](http://www.gamesacorp.com)



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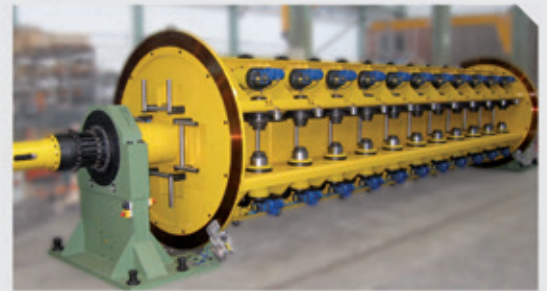
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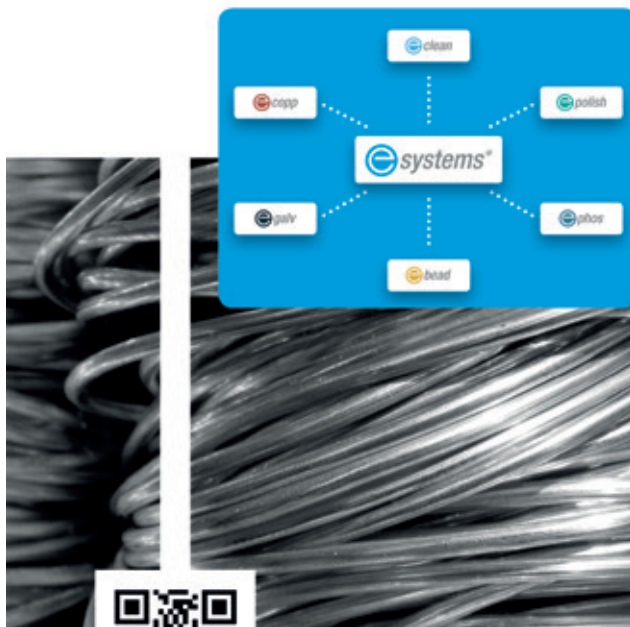
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**STAKU**  
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○ State-of-the-art shape wire drawing machine from Deyang Jiechuang

## New non-ferrous metal shape wire drawing machine

FOR some years, Deyang Jiechuang Wire & Cable Machinery Co Ltd (JCDOFAMA) has focused on research and development of drawing machines to meet every kind of wire requirement for its customers.

It has now developed a new state-of-the-art shape wire drawing machine, which can process both alloy copper and aluminium rod into round wire, trapezoid and Z-type wire (equivalent size Ø0.8-6mm).

Featuring a continuous non-slip drawing section with individual drives, the motor can be AC, servo or high torque. The machine is highly automatic with few operations where labour is involved, and the company has sold more than ten machines worldwide this year alone.

**Deyang Jiechuang Wire and Cable Machinery Co Ltd – China**

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

## Second-hand specialists

GER SA, Belgium, a second-hand machinery specialist with worldwide activities, recently sold several complete production lines for PC wire and PC strands to customers in South America and Eastern Europe.

The lines comprised heavy-duty rod breakdown machines, indenting units, low relaxation equipment, induction furnaces, coiling and coil handling machinery.

A total of 21 40ft open-top containers were loaded and shipped out to the customers.

**GER SA – Belgium**

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

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## Spring into IST conference

SPRING makers and suppliers head to Warwickshire, UK, for the Institute of Spring Technology's 2014 Conference at the Woodland Grange Conference Centre, Leamington Spa, in September.

The two-day conference highlights the advancements in spring making and processes, allowing industry professionals to improve efficiencies, reduce waste and introduce new technologies to improve competitiveness.

The conference, which concludes with a golf tournament on the final day, is open to both IST members and non-members.

In addition to the outstanding conference programme with a number of guest speakers, there is a tabletop exhibition on Wednesday 10<sup>th</sup> September in the afternoon to allow attendees the opportunity to meet with industry suppliers in an informal and relaxed environment.

An informative keynote speaker is scheduled for Wednesday morning. A golf tournament is planned for Thursday afternoon. Conference registration includes overnight accommodation, breakfast on Thursday morning, lunch on Wednesday and Thursday, evening dinner on Wednesday, tabletop exhibition plus use of the venue's gym, sauna and steam room facilities.

The conference includes technical presentations that cover the full spectrum of spring making; tabletop exhibition; the chance to speak with some of the top technical professionals in the industry; excellent industry social and networking opportunities; and the golf tournament on the final afternoon.

Further details are available from the Institute of Spring Technology on +44 114 276 0771 or via the website at [www.ist.org.uk](http://www.ist.org.uk)

**Institute of Spring Technology – UK**  
**Website:** [www.ist.org.uk](http://www.ist.org.uk)

## New marketing chief

Teknor Apex Company has appointed Sharon Martin as corporate marketing communications manager.

Ms Martin is in charge of advertising, public relations, trade show coordination, marketing collateral and digital marketing for all Teknor Apex business units worldwide.

These include vinyl, thermoplastic elastomers, nylon, custom compounding, colour concentrate, and chemicals divisions and a garden hose business that is a nationwide brand in the US.

She holds a BA degree with a concentration in corporate communications from James Madison University, Harrisonburg, Virginia.

**Teknor Apex Company – USA**  
**Website:** [www.teknorapex.com](http://www.teknorapex.com)



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**At wire China 2014, a Vertical Taping Machine with Vertical Oven will be presented. We would appreciate welcoming you to our booth no. W1D44.**



Lukas is a global supplier of machinery for the wire and cable industry. As a leader in technology, Lukas is known for its high quality and high precision products. Both standard machinery and customized solutions are provided.

Beside Pay-off, Take-up, Rewinding lines, drawing machines, etc, the main focus is on taping and spinning lines. These Taping lines are available in horizontal or vertical version. They are suitable for a lot of different types of tapes and fibers, such as: PTFE, Polyimide, Mica, Polyester, Fleece, Laminated Tapes, Metal Tapes, Paper, etc. The high speed and the high precision is enabled by a closed loop tape tension control and a very precise speed synchronization between the capstan (or caterpillar) and the taping heads.

Depending on the application, a line can be equipped with a cooling unit for the taping area, devices for quality control or an inline sintering oven.

The photo on the right shows a vertical taping and sintering line for aircraft cables. It consists of Pay-off, 2-Head-Taping-unit with air condition, Capstan, Infrared Sintering Oven and Take-up. (Drawing Machine: photo bottom right, Horizontal Spinning Line: photo above)

Especially the vertical oven is a very space saving solution. By using special IR- heaters the power consumption is reduced to a minimum. These very fast reacting heaters allow adjusting the heating power according to the line speed.

Lukas is able to provide Taping Lines for wire dimensions from round wire with diameter 0.15mm up to rectangular wire with cross section 100mm<sup>2</sup>.

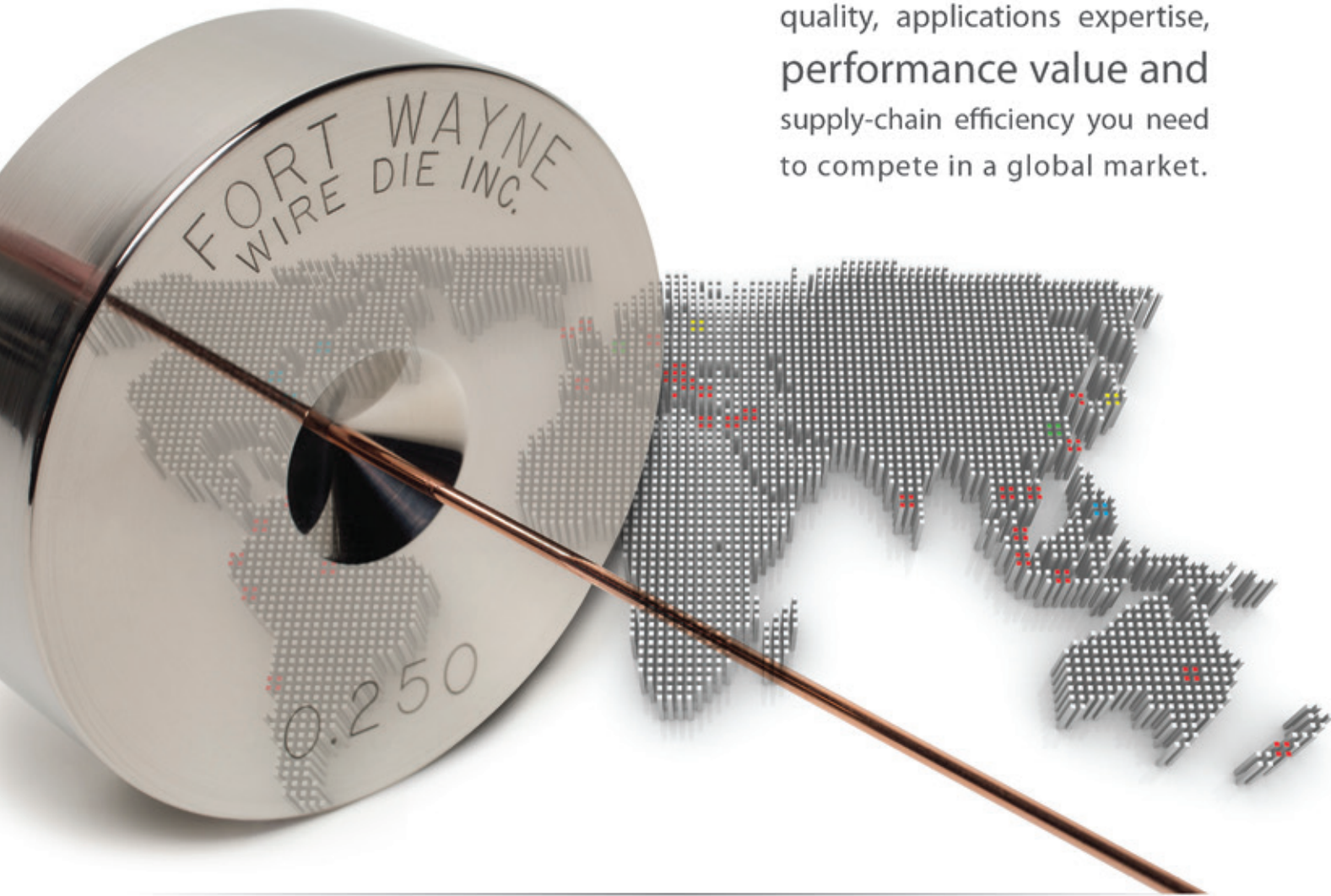
Possible application fields are aerospace cables, high frequency cables, fire resistance cables, wires for generator, motor, transformer and railway applications, etc.

**[www.lukas-anlagenbau.de](http://www.lukas-anlagenbau.de)**

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## New cold rolling line



○ A unit sold at the show to a North African client

AT wire 2014 in Düsseldorf, Eurolls displayed a three-draft version of its new cold rolling line NLGH, with the new 'black box' installed and the CL25CB33 cassette.

The line is very flexible in design allowing a choice of the number of blocks (one-two-three) depending on the wire size range to be produced, and having no fixed reduction imposed between each step.

Standard wire production range is 3.4mm diameter to 12mm, at a maximum speed of 18m/sec, but different configurations are possible in order to satisfy clients' specific needs.

The horizontal configuration of the blocks allows easier accessibility to the unit both in set up and operation, and a clearer and cleaner working environment.

A stress relieving unit can be added to the last draft, increasing in this way the elongation of the material, and a TeleAssistance System can be installed in the electrical cabinet, giving the possibility, through an existing phone line connection, of a link with webcam and microphone between the line and Eurolls' service department, for immediate understanding and intervention.

**Eurolls SpA – Italy**  
Website: [www.eurolls.com](http://www.eurolls.com)

*Advertorial on behalf of Yidong Industry Company*

## Factory for sale or to rent

Because of further expansion, Yidong Industry Company is looking to expand into new premises, and has a factory for sale or to rent in the industrial zone in Jingshan town, Shanghai, China.

The property, with a capacity of 22,000m<sup>2</sup> over three floors and including modern workshops, is situated on the north of the highway.

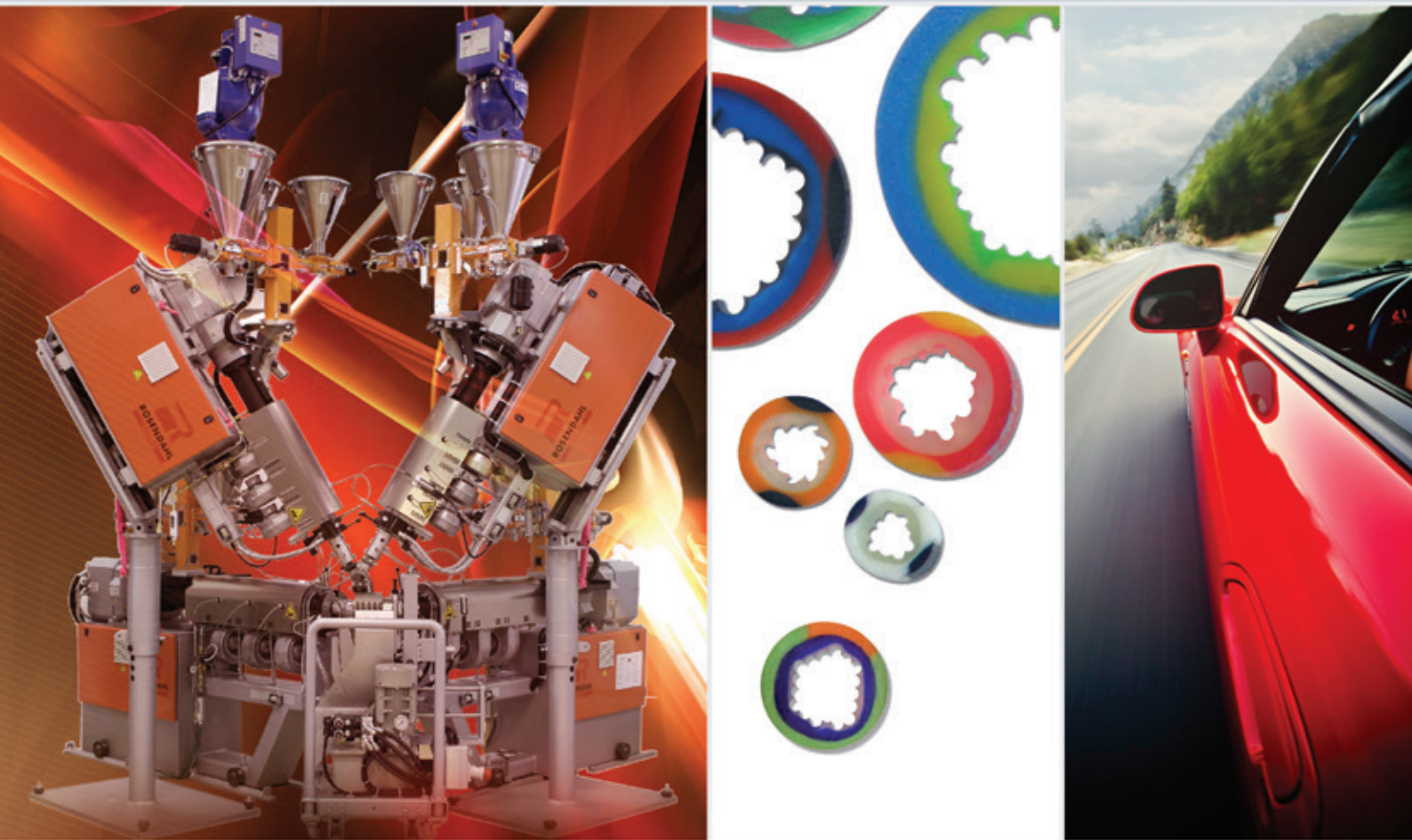
The company made a total investment in the site of 60 million RMB when it was built in 2013.

Further details are available from Mr Zhang on [suli856@163.com](mailto:suli856@163.com)

**Yidong Industry Company – China**



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## An impressive past and a very bright future

FROM a new company in 1990 to one that employs 9,000 people and is the second largest stainless steel long producer in the world, the growth of Viraj Profiles is as impressive as its plans for the future.

In 1991 the first melting shop started operations, although the production of stainless steel began four years later. The year 2000 saw the addition of a profiling division, from which 99 per cent of products were exported.

The wire division was established in 2001, and the addition of a second smelting shop increased the aggregate melting capacity to 18,000 tons per month. Viraj also joined the Federation of Indian Export Organisations.

A fastener and wire rod division followed in 2006 and four years later managing director Mrs Renu Kochhar received an MSLA (Madhavrao Scindia Leadership Award).



○ *Managing director Mrs Renu Kochhar*

further expansion is at the forefront of the company's strategy, especially in the North American market.

The company's training complements the cultivation of industrial skills with valuable personal development opportunities, whilst also integrating numerous means of environmental consideration into its leading manufacturing facilities.

It is also highly active in corporate social responsibility with many programmes in place to uplift community education, healthcare, infrastructural development and overcome gender discrimination.

It employs several incentives, including granting scholarships and providing writing materials to educational institutions, arranging for e-classes in the nearby schools.

Viraj's commitment to enhancing Indian education has led to the realisation of Viraj Shri Ram Centennial School, an institution that operates to internationally acclaimed standards.

Further to this, the company has also developed drives such as adult literacy programmes and infrastructural development to rural, remote and poverty-stricken communities.

Healthcare is also high on the company's agenda – Viraj is actively participating in the development of a medical facility in Tarapur in Maharashtra.

Looking ahead, the recent implementation of Viraj's fully automatic section rolling mill – the first industrial-scale facility of its kind in India – demonstrates a firm commitment to the future.

Increasing capacity has been further enhanced by Viraj's newly implemented rolling mill, which has a capacity of 180,000 tons per annum.

"It is the most significant such investment made in the entire global stainless steel sector in the last five years," Mrs Kochhar said.

**Viraj Profiles Limited – India**  
**Website:** [www.viraj.com](http://www.viraj.com)

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The company now produces 180,000 tons of bright bars a year, in addition to 50,000 tons of wire. Around 18,000 tons of flanges, complemented by 60,000 tons of fasteners and 78,000 tons of stainless steel profiles are made each year, as well as 300,000 tons of stainless steel wire rods.

Viraj's sites incorporate the latest technology to generate the broad range of stainless steel solutions.

2012 saw the inauguration of a new production unit in Viraj's wires division, whilst a fully automatic rolling mill commenced operations this year.

Viraj continuously introduces new technologies to its fabrication plant, having recently installed three high power induction furnaces from ABP Induction Systems in Germany – the first of their kind in the industry.

Viraj's stainless steel products see applications in boilers, pressure vessels, shipbuilding, oil pipelines, petrochemical facilities, construction projects and surgical instruments, among others. It also functions as one of the world's largest stainless steel flange manufacturers.

The company emphasises a zero-defect approach to quality control, employing a specialist team of quality control analysts who safeguard every single element of the production process. It is fully ISO 9001 certified, with equipment in place that allows all products to be tested for external and internal defects.

Viraj's export footprint factors in Europe, Asia, Africa, the Middle East, Australia and the Americas – although

## Plans for Singapore link

GLOBAL Cloud Xchange (GCX), formerly Reliance Globalcom and a part of Anil Ambani-led Reliance Communications Ltd (RCom), has announced plans to invest \$200 million in a subsea India Cloud Xchange (ICX) cable infrastructure.

The objective is to bypass the current outage-prone terrestrial routes between Mumbai and Chennai, and provide a direct subsea route between Mumbai and Singapore.

“With Singapore as a regional hub and gateway for multi-national companies doing business across India and emerging markets, the ICX cable will complement our GCX global network infrastructure for direct connectivity to major business centres in Asia, the Middle East, North America and Europe,” said Bill Barney, CEO at GCX.

Using 100G technology, the ICX cable will be a four-fibre pair system with an

initial design capacity per fibre pair at 80 x 100G. This new segment will deliver termination into the Middle East, Europe and to the US east coast through interconnection with GCX’s Falcon, Hawk and FA-1 systems.

“The new ICX fibre system, which runs approximately 5,060km between Mumbai and Singapore, will also have a branch landing in Thiruvananthapuram and/or Chennai.

“This will support creation of a next generation IP and cloud environment held together with a single AS number and connecting into Tier III+ data centre facilities on the ground,” said Wilfred Kwan, COO GCX.

Submarine cable vendors and additional partners for the ICX subsea cable are being finalised.

**Global Cloud Xchange – India Website:**  
[www.relianceglobalcom.com](http://www.relianceglobalcom.com)

## New general manager

RSCC Wire & Cable LLC has named Christopher Venice as vice president, general manager, RSCC Wire & Cable, Down Hole Metal Clad segment, reporting to Steve Bonnell, president of RSCC Wire & Cable.

Mr Venice is responsible for the Down Hole Metal Clad business, which manufactures the Perma-TECT™ lines of specialised downhole instrument cables, utilised globally in the oil and gas industry.

He succeeds Graeme Young, who was recently named vice president, market development EMEA (Europe, Middle East and Africa) for Marmon Engineered Wire and Cable and will be returning to Scotland in his new role reporting to Dennis Chalk.

**RSCC Wire & Cable LLC – USA Website:**  
[www.rsccnuclearcable.com](http://www.rsccnuclearcable.com)

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## Diverse range for industry

FOR nearly 35 years, Kinrei of America has been the lead distributor, sales agent and service representative for Kinrei Machinery Co Ltd of Japan, exporter to the USA, Mexico and Canada of quality cabling machinery.

Kinrei's diverse product catalogue includes machines for ultra-thin wire, unilay and concentric, litz, automotive, medical, twinning and cabling in tubular, single or double twist.

The company is committed to providing its customers with the highest quality products and industry leading value-added services. It also supplies complete pay-off systems, including take-ups and rewinders, to complement its twinners and bunchers for whatever type of reels or applications customers may require. Kinrei has in-house capabilities to supply single and multi-head configurations for bunching, stranding, extrusion and fibre optic applications.

Product lines include:

- Kinrei – twisting equipment including bunchers, stranders, cablers and support equipment
- Watson spare parts/service – complete support of drawings, parts/service for Watson, New England Butt, Edmunds and Wire Machinery Equipment twisting equipment
- Donnelly Reels – steel and high-quality ABS plastic reels. Plastic reels are manufactured by Sudhir Enterprise of India. Steel reels are manufactured in India and China
- Kopilowitz Engineering, Ltd – pay-offs, take-ups and accessories
- Candor Sweden AB – supplier of plating equipment and processes for inline wire and strip surface treatment

**Kinrei of America – USA**  
**Website:** [www.kinreiusa.com](http://www.kinreiusa.com)

## Europacable publication

The 'Introduction to medium and low voltage cables in distribution networks as support of smart grids' is the latest publication from Europacable.

The paper is published in response to the increasing debate on the need to upgrade Europe's distribution networks into what are often referred to as "smart grids", and is available now from the Europacable website.

The paper seeks to provide an authoritative source of information about medium voltage and low voltage underground cables and overhead lines deployed in distribution networks.

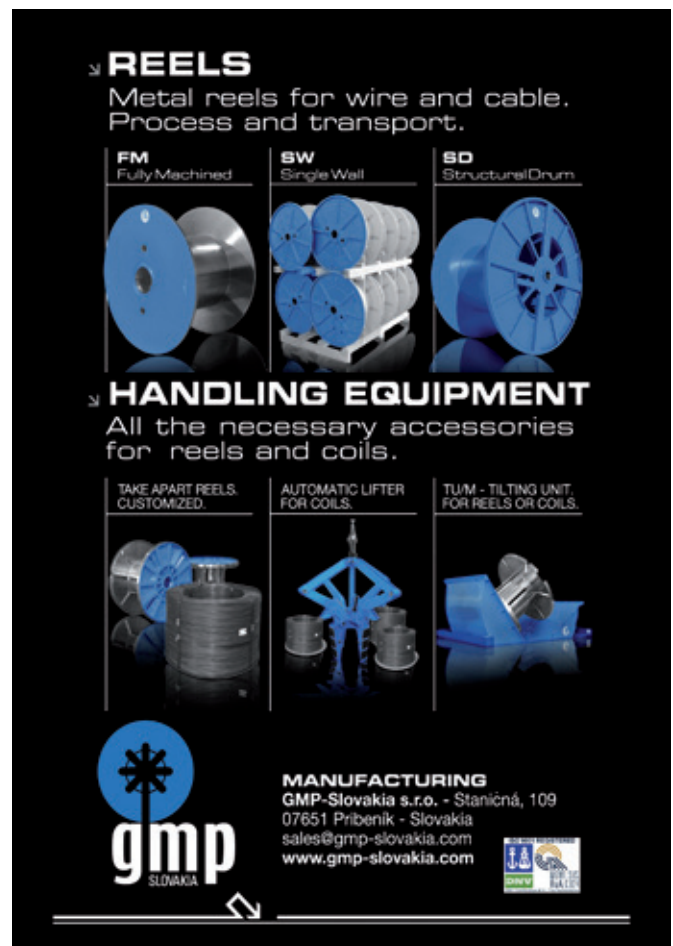
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**Website:** [www.europacable.com](http://www.europacable.com)



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## 65 years of service from Eder

FOR more than 65 years, Eder Engineering has offered efficient semi-automatic and fully automatic machines for both reconditioning and the production of ultrahard precision drawing die tools made from tungsten carbide, natural diamond and synthetic PCD.

This is in addition to precision die tools and technical assistance for all advanced Eder equipment for the up-to-date processing of die tools.

Eder has been continuously active in China since 1978 and will again be taking part in wire China from 24<sup>th</sup> to 27<sup>th</sup> September on stand W1C36.

Some highlights of processing dies will include the ETC-1/HF, tungsten carbide die grinding and polishing equipment. This has a large work range from 0.1 to 20mm diameter.

Particularly suitable for refurbishing of PCD on multiwire drawing machines is

the ultrasonic USP twin, with two workstations which have been developed to work in a range between 0.05 to 8mm diameter. This can be operated by one person while at the same time doubling output.

Also on display will be the HGM-21 for sizing and polishing the cylindrical bearing of a mid to large quantity of ND/PCD dies. This is an efficient and versatile wire-type calibration machine with a large work range of between 0.05mm and 10mm diameter.

Eder will be joined on the Austrian pavilion by the AWCMA/VOEDKM association, Ebner Industrieofenbau (W1D45), Pengg (W1D49), MAG (W1C30), Mali (W1D51), Medek & Schörner (W1C32), Rosendahl Nextrom (W1D43), Voestalpine Austria Draht (W1D47) and WKO/Austria Advantage (W1C34).

**Eder Engineering GmbH – Austria**  
**Website:** [www.eder-eng.com](http://www.eder-eng.com)



○ The USP twin which Eder will present in China



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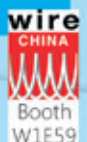
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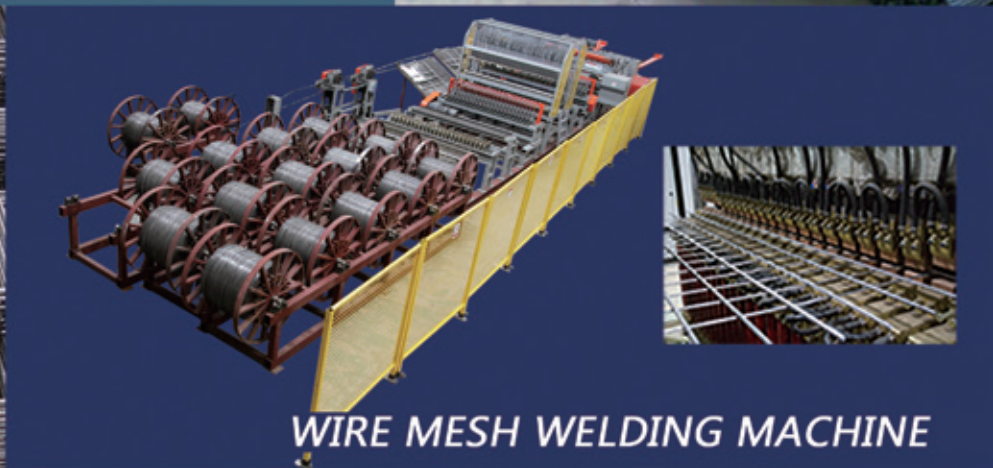
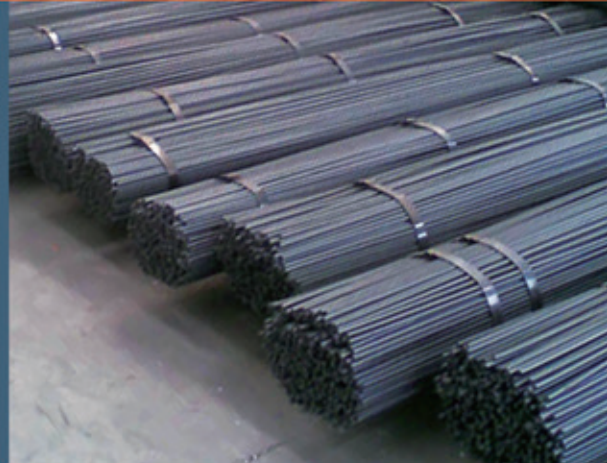




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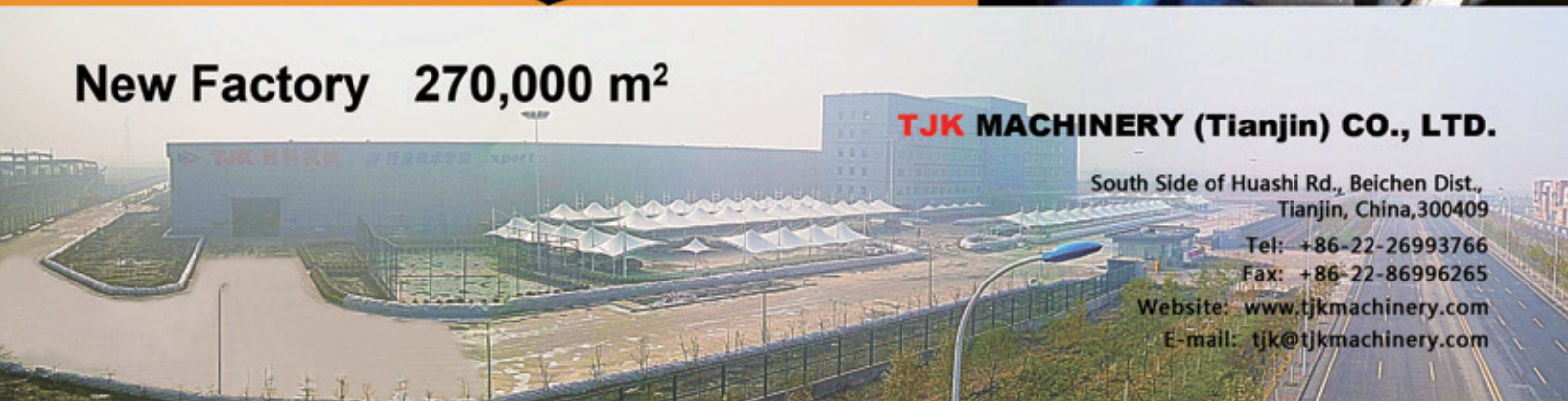


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## DuPont doPower

DuPont has inaugurated its largest solar installation. The 4.5 MW plant at DuPont's Cernay facility features 18,400 crystalline silicon solar panels over 15 acres, and is one of 13 solar facilities worldwide on DuPont land.

The solar panels, manufactured by Jinko Solar, feature advanced DuPont materials designed to improve the power output, durability and return on investment for solar energy systems.

The Cernay installation was connected to the grid in March 2014 and is expected to produce 5,000,000kWh of electricity each year. The project was developed by Hanau Energies, a French project developer and investor in solar installations, and was built in the record time of two months.

"We are extremely proud to partner with a global player like DuPont on this project in France," said Jean-Luc Westphal, president, Hanau Energies. "The solar park in Cernay is a perfect illustration for how advanced and reliable technology and best practices in installation, operations and maintenance can be put into practice."

Martin Viro, country leader, DuPont France, said: "We are pleased to see this project realised in France, leveraging our advanced materials to ensure a well-performing, long-term source of electricity as we strive to meet the growing global energy demand more sustainably."

DuPont – USA

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

## Asian cable extension

NTT Communications Corporation (NTT Com) will extend the Asia Submarine-cable Express (ASE) to Cambodia to provide reliable, 15Tbps capacity communication infrastructure for the increasing number of multinational companies operating in the Mekong region.

The extension is based on an agreement that NTT Com has reached with Chuan Wei (Cambodia) Co Ltd. Under the agreement, NTT Com will lay Cambodia's first submarine optical fibre cable.

The ASE will connect Cambodia and other countries in the greater Mekong sub-region with major locations in Asia,

including Singapore, Hong Kong and Japan. In addition, the company is expanding its number of ASE connection points and Nexcenter global data centres in Southeast Asia to provide network, data centre and cloud services in end-to-end solutions.

The 7,800km ASE submarine cable is routed away from the Bashi Channel and the south coast of Taiwan, both areas that frequently experience earthquakes and typhoons, and will take the shortest route of any submarine cable connecting Japan to Hong Kong and Singapore.

NTT Communications Corporation – Japan

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

## Thailand imposes anti-dumping duties

Thailand's ministry of commerce has announced its decision to impose final anti-dumping duties of between 5.17 and 33.98 per cent on alloy-added high carbon wire rods imported from China. The duties became effective from 17<sup>th</sup> May and will be in force for five years.

A duty rate of 5.17 per cent will be imposed on products from Zhangjiagang Shajing Steel Co and Zhangjiagang Hongxing High Wire, exported through trading company Jiangsu Shagang International Trade Co. Duties of 10.38 per cent will be imposed on products from Qingdao Iron and Steel Co.

Duty of 5.78 per cent will be imposed on products from Benxi Beiyong Iron and Steel Group, exported from its affiliate Benxi Beiyong Iron and Steel Group Import and Export Corporation.

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## Messe Düsseldorf cheques in to help industry

THE wire 2014 and Tube 2014 trade shows are not only a forum where new manufacturing technologies are on display but also encourage the technology transfer between research and industry.

Messe Düsseldorf, organisers of both trade shows, supports research institutes which are busy in this field and therefore a source of innovative ideas.

In May, Friedrich-Georg Kehrer, director wire/Tube Düsseldorf, handed over a cheque for €10,000 to Prof Dr-Ing Rudolf Kawalla, director of the Institute of Metal Forming at the Freiberg University of Mining and Technology.

The handover took place during an official ceremony on the occasion of re-opening the institute building after extensive renovation works. The donation will be used for the further development of bar, strip and rod forming processes with emphasis on energy and materials efficiency.

The Institute of Metal Forming, whose origins go back to 1928, focuses on steel materials and light metals, especially magnesium, the characterisation of materials, the numerical simulation of forming



○ From left, Friedrich-Georg Kehrer (director wire/Tube Düsseldorf), Prof Dr-Ing Rudolf Kawalla (director of the Institute of Metal Forming at the Freiberg University of Mining and Technology), Dr Andreas Handschuh (chancellor of the Freiberg University of Mining and Technology), Prof Dr Sabine von Schorlemer (Saxon minister of state for science and arts), Prof Silvia Rogler (vice rector for education, Freiberg University of Mining and Technology), Johann Gierl (manager department IV, Saxon state ministry of finance) and Bernd-Erwin Schramm (the mayor of the town of Freiberg in Saxony) at the presentation

processes, and forming plant engineering, and organises the MEFORM conferences on materials production and processing technologies. The next MEFORM will take place from 25<sup>th</sup> to 27<sup>th</sup> March 2015.

**Messe Düsseldorf GmbH – Germany**  
Website: [www.wire.de](http://www.wire.de)

**Institute of Metal Forming at the Freiberg University of Mining and Technology – Germany**  
Website: [www.imf.tu-freiberg.de](http://www.imf.tu-freiberg.de)

## New edition of ‘Copper Busbars: Guidance for Design and Installation’

The Copper Development Association first published the popular ‘Copper Busbars: Guidance for Design and Installation’ in 1936, and now a new edition adds significant content on busbar profiles and simplified formulae for busbar configurations.

It will be of particular benefit to design engineers of electrical distribution systems seeking to design efficient, economic and reliable busbar systems.

A total of 108 pages in length and available for free download, Copper Busbars is divided into six chapters. The introductory chapter focuses on materials for busbars, detailing the properties of a conductor material that are essential to achieve a long and reliable service life at the lowest lifetime cost. It reviews conductor materials for busbars and concludes that the required combination of properties is a very good match for copper.

The book includes a completely revised chapter on current-carrying capacity.

The book also features a brand new chapter on profiles. This content was added because busbar profiles are

seeing increasing use in distribution panels and switchboards, but the design considerations for this application are significantly different from long vertical and horizontal busbars. It is a growing market since busbar profiles offer distinct advantages, such as material savings, lower assembly time, lower complexity and reduced scrap.

Other chapters cover lifecycle costing, short-circuit effects and jointing techniques for busbars. An annex provides valuable information on busbar coatings, focusing on the reasons for coating them, methods of coating, inspection and maintenance.

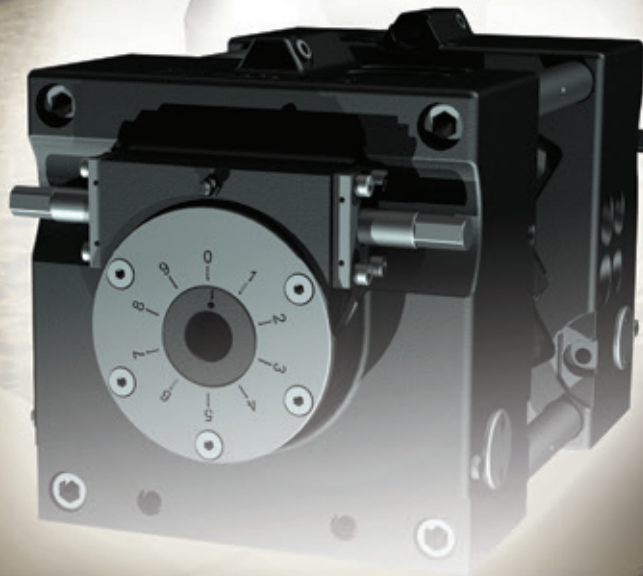
Busbars are used within electrical installations for distributing power from a supply point to a number of output circuits. They may be used in a variety of configurations ranging from vertical risers – carrying current to each floor of a multi-storey building – to bars used entirely within a distribution panel or within an industrial process.

To download the new version, visit <http://www.leonardo-energy.org/good-practice-guide/busbar-book-continuing-tradition-1936>



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## 65-day China trip is a logistics success

POSSIBLY one of the most spectacular heavy component transports began on the premises of Siempelkamp Maschinen- und Anlagenbau in Krefeld, Germany, in May.

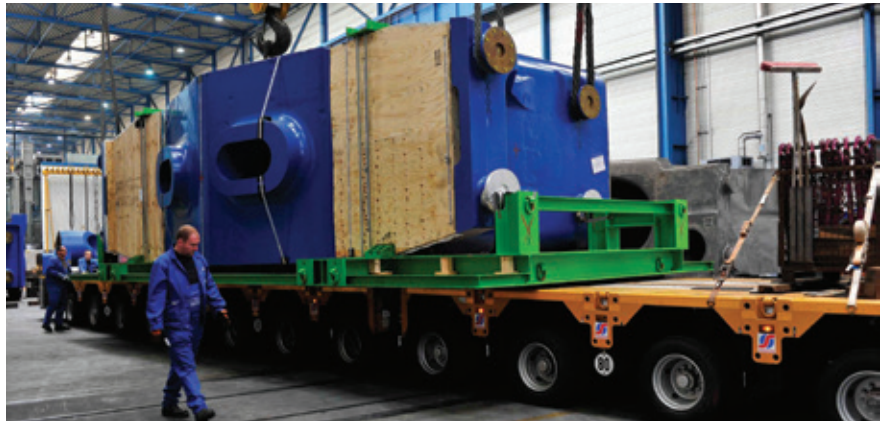
The components for a closed-die forging press which, with a press force of 50,000 tonnes, is the largest press built to date in Germany, and the components of a smaller 12,500t press, started on the journey to China.

As part of the first partial delivery, 25 parts with weights between 89t and 287t left the Siempelkamp premises to be transported to the port of Longkou, China, in 65 days.

In December 2012 the Chinese Nanshan Group commissioned Siempelkamp with the design, construction and installation of a 50,000t closed-die forging press. A few weeks later, the company received another order, this time for a 12,500t closed-die forging press.

Both presses are the heart of a newly designed forging mill which will manufacture forged parts made of aluminium and titanium alloys for the Chinese aircraft industry. Siempelkamp supplies both presses from a single source including the design, the casting and the machining of the parts all the way to their installation and start-up at the customer's site.

The 50,000t press for Nanshan is the largest press ever built by Siempelkamp, as well as in Germany. Not only are the pressing forces of both presses gigantic, the larger press features dimensions that are immense, including a lower press beam with a



○ The lower press beam weighs 287 tonnes

weight of 287t and a movable beam with an 11m long centrepiece. Such figures put great challenges on the transport of the parts.

The first lot of 25 heavy parts with weights between 89 and 287t is now on its way to China. This transport includes the foundation beams, the upper and bottom press beam, the vertical frame components, the bottom tables as well as the movable beam. Two additional transport units with a similar volume will follow so that a total of 20,000t of cargo in 150 containers will be transported from Krefeld to the customer's construction site in China.

All components with a weight above 200t are initially positioned by a self-propelled modular transporter in such a way that the loading of the actual transporter and the transport out of Siempelkamp's production facility becomes possible.

Each component is loaded individually onto a heavy goods transporter. The

towing and push-back vehicles, each powered by 680 horsepower, together weigh 70t. On top of that is the trailer (50t) and the press component part (maximum 287t), adding up to a maximum total weight of 400t. For comparison, an empty A380 type 800 weighs 275t.

From the Siempelkamp premises in Krefeld all press parts are transported to the container terminal in the port of Krefeld-Uerdingen. From there the parts are loaded via a 400t crawler crane onto three different inland going vessels. In Antwerp, the cargo was reloaded onto a seagoing vessel. To do so, onboard cranes were used. Parts from sub-suppliers and press component parts already delivered to the sea port were then loaded for the journey to the port of Longkou, China.

Once they arrive they have to be loaded onto heavy goods transporters and transported to the customer's premises 20km from the port. The parts will have to be stored here, according to their order of installation, until they are needed.

Altogether three lots of similar sizes will be shipped in the following months. Additionally, approximately 150 sea containers with press supplies, tools and assembly equipment will be shipped. The transport expenses amount to approximately €3.5m. Both closed-die forging presses are expected to start operation in early summer of 2015.

**Siempelkamp Maschinen- und Anlagenbau GmbH & Co KG – Germany**  
Website: [www.siempelkamp.com](http://www.siempelkamp.com)



○ The towing and push-back vehicles together weigh 70 tonnes. On top of that, the trailer (50t) and the press component part (maximum 287t) add up to a total weight of more than 400 tonnes



○ 来宾参观今年的广州国际线缆展

## 广州国际线缆展反响热烈

组织者和参展商都非常满意中国广州国际线缆展所取得的积极而热烈的反响。展会展出了最新的电线电缆、机械设备和材料配件等。由广州光亚法兰克福展览有限公司和广州博优会展服务有限公司联合主办，展会于6月9日-12日在广州进出口商品交易会展馆举行，吸引了来自25个国家和地区的18,821参观者，两大展厅的面积超过20,000平米。

广州光亚法兰克福展览有限公司总经理Emeka Hu说：“合作管理与组织的2014广州国际线缆展取得了圆满成功。通过充分利用我们被国际社会广泛认可的展会组织与管理的专业性，我们着力将广受关注的国内展会打造成了国际性的综合盛会。总的来说，我很满意取得的成果，我相信，在未来几年，展会的国际业务将继续增长。”

广州博优会展服务有限公司总经理刘干(音译)先生补充说：“与法兰克福展览公司以及他们的同期活动广州国际照明展览会和广州国际建筑电气技术展览会的合作是非常有益的。与法兰克福展览公司的照明与建筑盛会的协同作用也倍受关注，这是因为来自关联展会的参展商和参观者也可能是广州国际线缆展的潜在买家。我们与法兰克福展览公司的合作富有成果，我相信发展前景是无限的。”

广州国际线缆展的新、老参展商共同见证了该展览是拓展国内外业务的有效平台。

展会的回头客，机械供应商东莞钰威电工设备有限公司，展会为其提供了一个利用世界各地不断增长的制造业市场的绝佳机会。总经理夏德峰(音译)先生说：“今年，我们登记了越来越多的电线制造商，他们是我们的目标客户，来到我们的展台前寻找电线电缆生产机械。此外，我们也注意到，展会的参观者分布也有改进，因为我们一部分潜在客户来自印度、俄罗斯和东南亚。我们已建立了强大的国际客户群，接下来致力于将三分之二的产品推向海外市场。”

东莞日新传导科技股份有限公司是一家电线电缆制造商，为各个行业包括照明灯具、医疗设备和可再生能源提供线缆产品。公司代表白雪(音译)女士说：“同期展会之间的协同效应，邻近的照明展推进更多的目标参观者成为我们潜在的客户。我们不仅能够扩大客户基础，而且为各种业务应用创造了新机遇。总体而言，我们对展会取得的成果非常满意。”

东莞市新杰电工机械有限公司是长期参展商，专业开发和制造电线电缆设备。销售经理周友亮(音译)说：“我们自2009年参展以来，法兰克福展览公司和博优合作管理与组织的努力结果是积极的，他们提高了展会的整体服务水平，为参展商和参观者创造了一个更专业、更系统的平台。另外，我们注意到，更广阔的国际买家中，有相当一部分人对我们的机械有着浓厚的兴趣，并已安排参观我们的工厂。”

展会为期四天，参观者对所呈现的著名品牌和展示的产品与技术留下了深刻的印象。东莞致伸电子及电讯产品有限公司电缆厂务部主管工程师刘峰(音译)先生每年都会来参观和寻找专业设备和原材料。他说：“这样的展览会是综合性的平台，既提供电线电缆相关产品，也具有最新的市场信息。每年我都能物色到新的供应商和业务合作伙伴。明年我一定还会参加。”来自南非的Eurolux (Pty) Ltd 公司质量控制经理 Patrick Stuckie先生说：“这是我第一次参观电线电缆展。我公司专业从事照明应用，并慢慢转移到电线行业。因此，我参加展会为公司新业务寻找卷取机。展会上的机器品种繁多，我已经与五家公司建立了潜在的业务联系，他们生产我需要的机械。此外，我真的很喜欢这样的创新，三个展览包括照明、建筑和线缆同时举行。对于我来说，展会很有益，即使明年不和其它展会同期举行，我仍然会来。”

同期举行的展会增强了展会的成功，涵盖了电线电缆行业最相关的信息。一些业界最具影响力的专家和学者应邀分享他们对市场趋势和最新行业新闻的看法。另外，产品呈现允许不同的公司宣传其创新产品和行业发展成果。下一届广州国际线缆展预计于2015年6月9日-12日再次在中国进出口商品交易会展馆举行。

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## PTFE Coaxial taping machine

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RBJ-Z型主动放带绕包机 ( 立式 , 卧式 )

is the special equipment for producing communication cable, control cable, aircraft cable etc. This machine is specially suitable for small-tension, easily-stretching tape material, and it has the function of displaying tension change through the tension sensor.



*10% up of speed for the braiding machine*

*GSB-1A: 165r.p.m.*

*GSB-2: 110r.p.m.*

Please contact us for more details about our machines:

- GSB series high speed braider  
GSB 系列高速编织机
- GSB-Z series heavy braider  
GSB-Z 系列重型编织机
- WGSB series horizontal heavy braider  
WGSB 系列重型卧式编织机
- LRBJ series vertical taping machine  
LRBJ 系列立式绕包机
- WRBJ series horizontal taping machine line  
WRBJ 系列卧式绕包机生产线
- Extruding line  
挤出机生产线
- Pay-off and take-up  
各类收放线架



上海南洋电工器材有限公司  
SHANGHAI NANYANG ELECTRICAL EQUIPMENT CO., LTD.

Address : No.110, Luda Road, Pudong New Area, Shanghai, China

Tel : 0086-21-33896307, 0086-21-33896308 Fax : 0086-21-33896305

E-mail : sales@shanghai-nanyang.com sales@shanghai-nanyang.sina.net

Contact person : Stephen Chen

## 新的有色金属成形拉丝机

多年以来，德阳杰创线缆机械有限责任公司(JCDOFAMA)致力于研究开发拉丝机，以满足客户对线材的特定要求。公司最近开发了最先进的成形拉丝机，能够将铜合金和铝棒加工成圆形丝、梯形和Z型线(类似直径范围2.8-6毫米)。

连续防滑拉伸部分具有独立驱动器，电机可以是交流、伺服或高扭矩。该机器自动化程度高，很少需要人工操作，公司今年已向全球售出超过10台机器。

**Deyang Jiechuang Wire and Cable Machinery Co Ltd - 中国**  
网址: [www.jcdofama.com](http://www.jcdofama.com)



○ 德阳杰创制造的最先进的成形拉丝机

## Prysmian获价值8千万欧元卡塔尔合同

Prysmian Group最近获得价值约8千万欧元的大宗订单，负责卡塔尔通用电力和自来水总公司Kahramaa输电系统的扩建项目。

合同包括超高压地下电缆系统的设计、采购、建设、安装和调试服务。超高压电缆系统包含总长173千米的220千伏电缆和相关网络组件，这也是卡塔尔输电系统扩张项目第六期第二阶段的部分项目。

卡塔尔输电系统扩张项目旨在加强主要传输网络，并为工业和民用确保电力供应。

升级工作包括用一条地下电缆替换一条架空线路。项目将由Prysmian Group在卡塔尔的办事处实施，利用法国和意大利工程生产的产品。首批电路敷设将于今年开始，并计划于2016年完工。

“新合同体现了Kahramaa对Prysmian能力的完全信任，能够满足卡塔尔和该战略地区日益增长的电网发展需求，” Prysmian Group中东总经理Antonio Chiantore说道。

“在卡塔尔，我们已经为Kahramaa输电网的其它部分供应和敷设了其它设施，我们很荣幸能参与设施这一新项目。”

新项目除了进一步确认了集团在地下电应用上的专业知识和技术，也强调了Prysmian在中东这样的战略地区的领导地位，在中东，集团拥有很多项目已完工或正在进行中，包括服务于首都多哈的首条海底输电连接、海湾合作委员会(GCC)沙特-巴林岛海底互连、菲律宾国家电网的400kV输电系统连接阿布扎比的电站。

最近，集团又获得位于阿布扎比的扎库姆海上油田实现互连的合同。

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

## 线材生产升温

中国工厂已开始建设，主要生产冷镦线材。

Nippon Steel & Sumitomo Metal Corp宣布，该工厂年产能达42,000吨，预计2015年6月投产。工厂将配备酸洗、拉丝和热处理设备。



○ Nippon Steel & Sumitomo Metal Corp新工厂的模型。照片由Nippon Steel and Sumitomo Metal Corp提供

工厂位于苏州吴江经济技术开发区，Nippon Steel Bar & CH Wire Co (NBC中国)负责运营，NBC中国公司由Nippon Steel & Sumitomo Metal和其合作伙伴Mitsubishi Metal Industry Co、Miyazaki Seiko Co、Sanyu Co、Toyota Tsusho Corp、Metal One Corp以及Nippon Steel & Sumikin Bussan Corp共同创建。

原NBC中国公司成立于2006年，目前全面运作的工厂年产能7,000吨。新成立的NBC中国公司将加大生产和销售冷镦丝，主要用于汽车工业制造螺栓和轴承。

**Nippon Steel & Sumitomo Metal Corp - 日本**  
网址: [www.nssmc.com](http://www.nssmc.com)

## 马来西亚电缆需求

Sarawak Cable Bhd集团总经理兼首席执行官Toh Chee Ching预测，电力电缆、导线和输电线将迎来强劲的本地需求。他说，根据政府转型计划(GTP)，政府越来越重视马来西亚农村地区的发展，特别是在沙捞越。

“再加上重工业在沙捞越再生能源走廊(SCORE)的发展，因此，目前迫切需要加强供电和配电能力，以促进基础设施和产业在未来几年的发展。

“这将转化为对电力电缆和导线、钢铁制品和传输线的持续强劲需求。”

发言人证实，Sarawak Cable于2013年11月在沙捞越开始实施500kV骨干输电线项目，预计该项目将提高集团2014和2015财年的盈利能力。他补充说，集团进行了战略性探讨，将业务活动分为三个主要部分，即制造与供应，输电线路建设和再生能源。

**Sarawak Cable Bhd - 马来西亚**  
网址: [www.sarawakcable.com](http://www.sarawakcable.com)

## 委员会致力于促进创新

Nexans成立了新的科学委员会，促进创新 - 主要目标之一 - 并进一步区分电缆的产品与技术。委员会于今年第一季度开始运作。

科学委员会负责研究领域议题的讨论，并确定能给Nexans客户创造价值的新技术和将这些创新技术迅速应用到新的或现有的产品中。

该委员会由八名成员组成，Nexans公司技术副总裁Jean-Maxime Saugrain担任主持。秘书长是Nexans全球科学总监Gerard Bacquet。两位著名学术专家已同意加入委员会：Jacques Lewiner教授，他担任RTE科学委员会主席，工业物理与化学巴黎学院(ESPCI)名誉院长，ESPCI乔治·夏帕克捐赠基金的总裁，也是法国技术院院士。Jean-Pierre Chevalier教授，他在巴黎国家艺术与贸易科学院(CNAM)担任工业材料主席成员，也是OECD经合组织核能机构的前成员。

四位Nexans代表也是委员会成员，他们分别是Nexans最大研究中心的两位负责人Francis Debladis和Thomas Hähner，以及Nexans驻瑞士经理Francis Krähenbühl和高压事业部营销副总裁Pierre Kayoun，他们将致力于研究分析和分享Nexans的市场情况。

“该科学委员会的创建是我们推动创新计划史上树立的一个重要里程碑，是Nexans性能的驱动器。Nexans已经表明，公司力争每天都有创新，以满足客户的需求，委员会将助推我们在未来孜孜不倦地创新，” Jean-Maxime Saugrain声称。

**Nexans - 法国**  
网址: [www.nexans.com](http://www.nexans.com)

## 新的俄罗斯代表

Gauder Group已委任Igor Barinov作为新的俄罗斯代表，以加强集团的市场存在。Barinov先生是Pourtier、Setic、Daloo旋转机器以及C2S服务和Bow Technology部件在俄罗斯和独联体国家的独家代理。他在电缆机械行业拥有长期的成功经验，今后将和旋转机器在俄罗斯和独联体国家的销售经理Philippe Letout密切协作。

**Gauder Group - 法国**  
网址: [www.gaudergroup.com](http://www.gaudergroup.com)

## 菲律宾风能合同

Gamesa获得Alternergy订单，负责建设、供应与安装54MW Pililla风电场的必要基础设施，该风电场位于菲律宾岛屿Luzón。Gamesa将与菲律宾当地财团CASA合作建设工业与民用电力工程设施，计划于2015年完工。合同强化了Gamesa在亚洲的存在，在中国、印度、日本、斯里兰卡、越南、中国台湾和韩国Gamesa一直是非常活跃的技术供应商和风电场开发商。到2014年3月，公司在亚洲安装了共计5,016兆瓦涡轮机，预计后续将安装1,900MW。

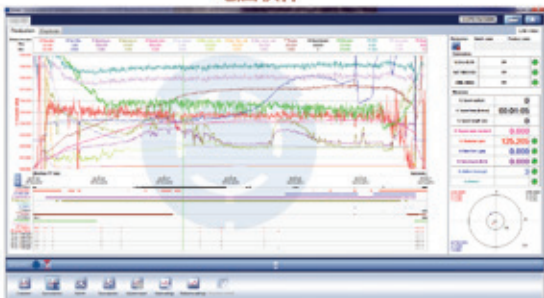
**Gamesa - 西班牙**

网址: [www.gamesacorp.com](http://www.gamesacorp.com)



### 光纤 测量仪器

在线数据采集、显示、记录、报告  
电脑软件





**LIS-Glass: 激光干涉测径仪**

- 外径可重复性:  $\pm 0.005\mu\text{m}$ , 50kHz
- 外径不确定性:  $\pm 0.15\mu\text{m}$
- 缺陷检测 75kHz, 事件记录
- 超微汽线检测,  $0.3\mu\text{m}$ , 400Hz
- 光纤位置:  $\pm 2\text{mm}$  区间  $\pm 0.1\text{mm}$ , 1kHz
- 搓动频率测试
- 光纤不圆度测试

**NCTM: 非接触式张力测试仪**  
(拉伸力、双折射原理)

- 0-400  $\pm 1$ 克, 1kHz
- 测量区间: 4mm直径
- $\pm 1$  gr 室内环境 10-40°C

**CM5: 5向涂层检测仪**

- 绝对直径:  $\pm 0.2\mu\text{m}$ , 400Hz
- XY位置  $\pm 0.1\text{mm}$  1kHz
- 5向鼓包及凹凸:  $\pm 2\mu\text{m}$ , 3.6MHz 采样
- 涂层偏心: 30Hz
- 内部缺陷: 800kHz (汽线、气泡、内含物、杂质等)

**其他:**

AIR (汽线探测)  
LDS-T (激光衍射测径仪, 用于透明圆柱体测试)



**www.CERSA-MCI.com**

## 新的上海办事处



○ 新办事处中国团队的一些成员, 左起, 拉丝业务部经理 Gavin Gu, 运营经理 Sharon Xu, 会计 Li Shen, 会计师兼亚太地区总经理 Maurice Ngai

润滑剂创新者和制造商Metalube继续推进其全球扩张计划, 最近新搬到中国上海办事处。作为主要出口商, 公司目前在亚太地区拥有四个办事处 - 中国的上海和东莞, 香港和马来西亚吉隆坡。

亚太地区总经理 Maurice Ngai 说: “这是很积极的举措, Metalube了解其产品出口到这些国家, 必须设立真正和实际存在的重要性。投资肯定是卓有成效的。我们见证了重要快速发展地区的同比增长, 就今年这一年, 我们期望销售再增长40%。”

Maurice Ngai补充说: “我们的拉丝润滑剂非常出色, 得到了当地的认可, 我们计划来年在这些地区推出一系列新产品。我们的客户很放心, 因为我们的行业专家向其传授专业知识, 这些专家讲本土语言, 随时为客户提供服务, 确保无缝对接。”

**Metalube Ltd - 英国**  
网址: [www.metalube.co.uk](http://www.metalube.co.uk)

## 为行业提供多元化的产品系列

近35年来, 美国Kinrei一直是日本Kinrei机械公司的领先分销商、销售代理和服务代表。优质的电缆机械出口到美国、墨西哥和加拿大。

Kinrei系列机器用于制造超细电线、单一节距和同心线、绞合电缆、汽车和医疗用线、管状双股成缆以及单独与双股扭绞电缆等。Kinrei致力于为客户提供最优质的产品和业界领先的增值服务。另外, 公司还提供完整的放线系统, 包括收线机和复绕机, 并不断完善其双股成

缆机和打捆机, 满足任何类型的卷筒应用。Kinrei拥有内部能力, 能够提供单、多头配置, 用于聚束、扭绞、挤压和光纤应用。

产品系列包括:

- Kinrei - 扭绞设备, 包括打捆机、绞线机、成缆机和辅助设备。
- Watson spare parts/service - 完全支持拉伸, 部件与服务适用于Watson、New England Butt、Edmunds和线材机械扭绞设备

- Donnelly Reel - 选自钢和高品质ABS塑料卷轴。塑料卷轴由印度Sudhir Enterprise生产。钢卷轴在印度和中国制造
- Kopilowitz Engineering, Ltd - 放线机、收线机及配件
- Candor Sweden AB - 供应电镀设备, 内嵌金属丝加工, 以及带材表面处理

**Kinrei of America - 美国**  
网址: [www.kinreiusa.com](http://www.kinreiusa.com)

## 新加坡链接计划

Global Cloud Xchange (GCX)的前身是Reliance Globalcom, 也是Anil Ambani-led Reliance Communications Ltd (RCom)的成员之一, 最近宣布计划投资2亿美元, 用于印度 Cloud Xchange (ICX) 海缆基础设施。

我们的目标是绕过孟买和钦奈之间目前故障频发的地面路线, 在孟买和新加坡之间提供直接的海底线路。

“新加坡是跨国公司在印度和新兴市场开展业务的地区枢纽和门户, ICX电缆将进一步补充GCX全球网络基础设施, 用于直接连接亚洲、中东、北美和欧洲的主要商业中心, ” GCX 首席执行官 Bill Barney 声称。采用100G技术, ICX 电缆将成为四组光纤对系统, 初始设计

容量每光纤对80 x 100G。新电缆通过GCX已有的Falcon、Hawk和FA-1海底电缆系统互联, 最终连接到中东、欧洲和美国东海岸。

“新的ICX光纤系统, 贯穿孟买和新加坡, 全长约5,060千米, 在特里凡得琅或钦奈设立一个分支着陆点。这将有助于建立新一代IP和云环境, 连同单独AS号, 连接到Tier III+地上数据中心设备, ” GCX首席运营官Wilfred Kwan表示。

ICX海底电缆的海缆供应商和其他合作人已经选定。

**Global Cloud Xchange - 印度**  
网址: [www.relianceglobalcom.com](http://www.relianceglobalcom.com)

## 泰国征收反倾销税

泰国商业部日前宣布, 决定就对从中国进口的合金高碳线材征收5.17 - 33.98%的最终反倾销税。自5月17日开始生效, 有效期5年。张家港沙景钢铁有限公司和张家港红星公司通过江苏沙钢国际贸易公司出口产品, 征收反倾销税率5.17%。青岛钢铁公司征收的反倾销税率10.38%。本溪北营钢铁集团反倾销税率为5.78%, 本溪北营钢铁集团通过其子公司本溪北营钢铁集团进出口公司出口。涉案产品包括线材0.76% - 0.92%碳含量, 直径小于14毫米, 涵盖的HS编码为7213.9190.021、7213.9190.022、7213.9190.030、7213.9190.031、7213.9190.090、7227.9000.014和7227.9000.090。



## 物流历经65天，货物圆满运达

今年五月，位于德国 Krefeld 的 Siempelkamp Maschinen- und Anlagenbau 公司启动了一次壮观的重型组件运输旅程。

组件用于闭模锻造压力机，压力机重 50,000吨(t)，是德国迄今为止制造的最大压力机，另一较小压力机(12,500吨)的组件开始了运往中国的旅程。

作为首批交付的货物，25个部件的重量从89吨到287吨不等，离开 Siempelkamp后，预计65天后运抵中国港口龙口。

2012年12月，中国南山集团委托 Siempelkamp设计、制造和安装50,000吨闭模锻造压力机。几个星期后，该公司收到了另一订单，这次是12,500吨闭模锻造压力机。

两台压力机拥有全新设计，是锻造厂的核心所在，用于为中国的航空工业生产铝和钛合金锻造件。

Siempelkamp负责供应两台压力机，从设计、铸造和零部件加工，一直到在客户工厂安装与启动。

销往南山集团的50,000吨压力机是 Siempelkamp有史以来制造的最大型机，在德国也绝无仅有。不仅是两台压力机的压力巨大，较大型压机的维度也相当大，包含有重287吨的下部压梁和11

米长核心的活动梁。这些数字无疑给部件运输带来了巨大挑战。

第一批25个重型组件重量在89吨到287吨之间不等，现已在运往中国的路上。此次运输包括基础梁、上部和底部压力梁、垂直框架组件以及活动梁。

随后将安排另外两批次运输，重量都和第一次相当，150个集装箱，合计重约20,000吨，将从Krefeld出发，抵达中国客户工厂。

重量在200吨以上的部件开始要通过自行式模块化转运体定位，实际转运体的加载和Siempelkamp生产设施的运输已成为可能。

每个组件都单独装载到重型货物转运体上。牵引和回推车辆，搭载680马力 - 加在一起总重70吨。重要的是拖车(50吨)和压力机组件(最重287吨)，加起来的总重量为400吨。相比之下，一个空的A380型800仅重275吨。

“各个组件的尺寸和高权重给我们带来很大挑战，需要一个长期的规划阶段。我们和合作伙伴以及客户达成的最后期限必须得到保证，” Siempelkamp物流经理Ronald Hammerbeck表示。

从Siempelkamp所在地Krefeld，所有压力机组件都被运送到克雷菲尔-乌丁根港口的集装箱码头。

在那里，部件由400吨的履带式起重机装载到三个不同的内陆轮船。在安特卫普，货物被重新装载到海轮。

在此过程中，使用的是车载起重机。二级供应商的部件和运送到海港口的压力机组件再进行装载启程，目的地中国龙口港口。

这些组件一旦到达，将被装载到重型货物运输装置，运送到客户目的地，距离港口大约20公里。部件将存储在那里，根据安装顺序，直到轮到它们被安装。

接下来的几个月，将有三批类似规模的出货量。此外，大约150个海运集装箱装有压力机用品、工具和安装设备。运输费用总计350万欧元。压力机的安装预计于7月开始，两个闭模锻压机预计于2015年初夏投入运营。

**Siempelkamp Maschinen- und Anlagenbau GmbH & Co KG - 德国**  
网址: [www.siempelkamp.com](http://www.siempelkamp.com)

## 展示新型冷轧线

2014杜塞尔多夫线材展上，Eurolls展示了新的三次拉伸冷轧生产线NLGH，安装有新的“黑匣子”和CL25CB33暗盒。

该生产线在设计上非常灵活，根据要生产的线材尺寸范围选择拉丝卷筒的数量(一、二或三个)，各个步骤之间没有固定的减少。标准线生产范围从直径3.4毫米到12毫米，最大生产速度18米/秒，不同的配置也可以实现，以满足客户的具体需求。

○ 展会现场出售一台设备给北非客商



拉丝卷筒的水平配置模式，更易于接触设置和运作中的组件，并且工作环境更加清洁。压力缓和装置可添加到最后的拉伸，这种方式能够提高材料的伸长率，甚至TeleAssistance系统业可以安装在电气柜上，通过现有的电话线连接，利用网络摄像头和传声器，为生产线和Eurolls服务部门之间的连接提供了可能，便于及时了解和干预。

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○ *SX0620 – a safer and flexible solution for offshore and shipboard cables*

# Safer, flexible solution for offshore and shipboard cables

AEI Compounds Limited, UK, a supplier of polymer compounds for the international wire and cable industry, has launched its newly developed silane crosslinkable, oil resistant, halogen-free flame retardant (HFFR) compound.

SX0620 is a highly flexible, low smoke and fume sheathing compound for use in offshore, shipboard, industrial and railway cabling systems.

It has been developed to meet the

requirements of IEC 92-359 SHF2 and EN50264 EM104, ship and railway standards, and answers a need for safe, low-smoke and fume cable sheathing material.

In demanding environments such as those in shipboard and offshore (OPG) marine installations, its zero halogen content and fire retardant properties contribute to crew and passenger safety.

Paired with SX0612 or SX559

insulated conductors, SX0620 sheathed cables meet the highest fire retardant and oil resistance performance requirements while exhibiting rubber like flexibility and excellent cable surface finish.

SX0620 is also suitable for use in heavy industrial applications and hostile environments where abrasion resistance is required.

**AEI Compounds Ltd – UK**  
**Website:** [www.aeicompounds.com](http://www.aeicompounds.com)

## Stranding machine for the manufacture of AC and DC offshore energy cables

THE requirement for very long offshore power cables having a diameter of up to 350mm led to the development and market availability of systems designed to meet the demands of modern production.

During this development process, in addition to the conventional stranding of three-phase AC cables on cage-type stranding machines with back-twist, the principle of the vertical stranding machine, which had been used for many years in various areas of cable and rope production, pushed its way back to the forefront of consideration.

This principle makes possible the particularly cost effective and efficient manufacture of AC power cable. In a second subsequent process, the stranded energy cable cores are armoured with one or two layers of steel wire armour and provided with additional optic elements, tapes, yarn and bitumen.

SKET Verseilmaschinenbau and its partners have been among those companies meeting the requirements of the market in this way for over ten years.

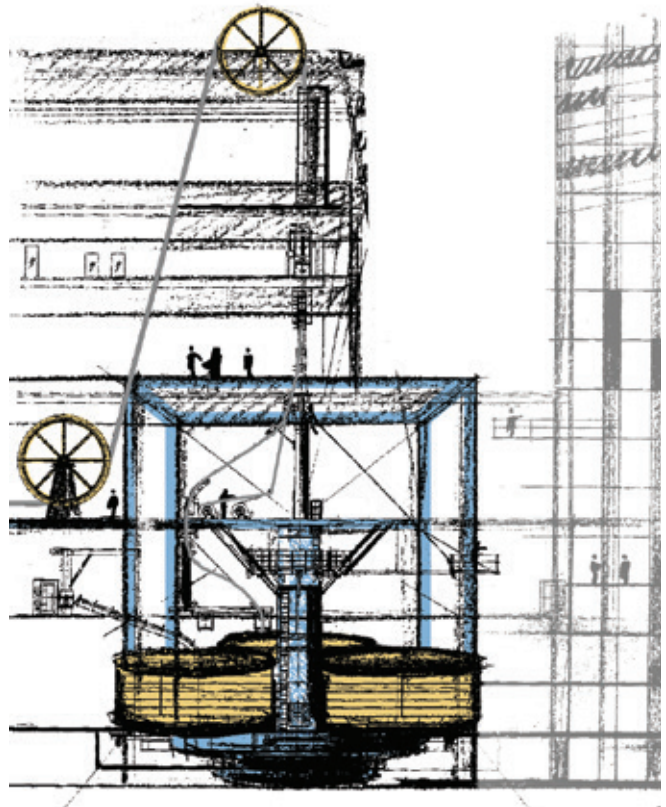
At the end of 2013 two further vertical stranding machines were supplied to customers in Europe and Asia. Since then, the machine installed in the European cable works has successfully completed trials and has produced its first cable contracts for the offshore power cable market.

The machine supplied to a leading Japanese customer has already successfully produced its first test and acceptance cables and is just about to go into production.

SKET presented its latest development at the wire 2014 international trade fair in April, in Düsseldorf, Germany. The company exhibited a model of a vertical stranding machine, attracting great interest.

Many visitors from both domestic and foreign markets used their visit to the stand to inform themselves concerning the advantages of and the applications for vertical stranding machines.

These machines are customised to the particular



○ SKET MVD type vertical laying-up machine for making submarine cables with a maximum diameter of 300mm

requirements of the individual customer. The next machines for customers in Asia are already in the planning stages.

In production at SKET during the fourth quarter of this year is a two-cage type stranding machine which is additionally designed to apply over 200 armouring wires together with several optic elements to AC or DC offshore power cables.

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

## Optimising costs with the launch of new tester

DSE Test Solutions, a global provider of instruments for curing measurement in the production of enamelled/magnet wire, has added a new tangent delta tester to its expansive product portfolio.

In the development of the new TD3 tangent delta tester, DSE has focused on reducing the number of mechanical parts with the aim of optimising costs as well as reducing the need for spare parts.

Adapting the dynamic direct heating technology from the top model TD5, it has become possible to achieve a level of repeatability of the measurements not currently available anywhere in the market at this price level for tangent delta testers.

“Intensive use of the latest 3D technology in prototyping has not only reduced the end price, but has also proven to be a great tool for testing and development of new ideas and, last but

not least, 3D technology has allowed us to integrate mechanical parts more extensively than ever before,” said product manager Poul Knudsen.

Visually, the compact instrument is an example of Danish quality and sharp industrial design. The instrument measures wire samples up to 350°C and handles both round and flat wire.

**DSE Test Solutions A/S – Denmark**  
Website: [www.dse.dk](http://www.dse.dk)

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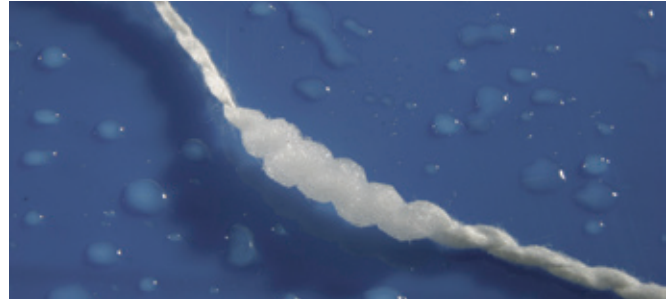
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## Cabletas – optimum protection from water penetration



○ Swellable yarn

CABLES that are being used externally and without jointing, eg telecoms, power, etc, require some element of water blocking. There are two main methods available – longitudinal and radial water blocking.

Longitudinal is the most common option and uses petrogel to protect the cables. This adheres to the cable components to close off all possible leakage areas along its length. However, problems have occurred when using this method, eg application can be messy and containment can be difficult. Technical Absorbents Ltd (TAL) has an alternative solution – Cabletas.

The Super Absorbent Fibre (SAF) manufacturer provides high levels of innovation and product development expertise to the global cable market with its Cabletas range of SAF and SAF-containing converted materials.

SAF can be converted into spun yarns and non-woven tapes that provide optimum protection for internal and external cable applications. This dry active system prevents water passage along the cable from a joint or point of sheath damage.

The highly effective protection is achieved by a SAF-containing water-swellable yarn or tape being incorporated into the cable during manufacture. If a cable is then damaged and starts to take on water, the yarn and/or tape will rapidly absorb the liquid at the point of entry and swell to form a gel – blocking any further water ingress.

Any damage is then minimal, fully contained and easy to locate and repair. Application is suitable for many different cable types including telecoms, medium and high voltage, industrial and underwater. Without water-blocking technology, the results of water ingress can be costly and very problematic.

SAF yarns and tapes have sufficient strength to withstand the stresses of the cable-making process, have high gel viscosity, are resistant to cable-operating conditions for the lifetime of the cable, and provide long-term stability at extreme temperatures.

**Technical Absorbents Ltd – UK**  
**Website:** [www.techabsorbents.com](http://www.techabsorbents.com)

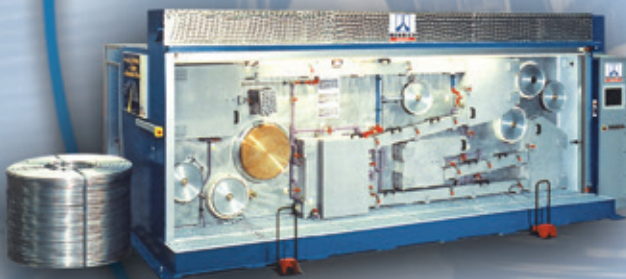


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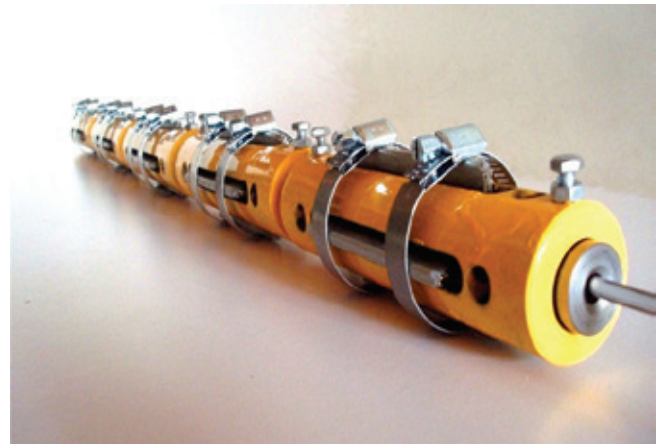
## Green cleaning provides extra-clean wire in-line

THE BH-S is a green dry cleaning process of great potential used in-line in the most demanding applications, allowing the highest cleaning speed with all steel wires (including 0.90%C), mechanically descaled or acid cleaned, bare or pre-coated, drawn with calcium and sodium lubricants. Applications include wire cleaning from lubricant residue, or other contaminants, prior to galvanising, metallic coatings, Al or Cu cladding, heat treatment, etc, and wire rod cleaning prior to drawing.

Development of the BH-S wire dry cleaning system provides the ultimate combination of simplicity and effectiveness, replacing the most costly operations in wire cleaning processes, including replacement of acid, ultrasonic and other wet chemicals, generating substantial cost savings, environmental benefits and improvement in productivity of clean H/C and L/C wires.

The BH-S system is particularly recommended for cleaning applications in which a conventional process is inappropriate, especially with wires drawn upon severe conditions resulting in increased heat and burned lubricant tightly bound to the wire surface and embedded in micro-cavities.

Basically, the BH-S is a smooth and sensitive multi-layer micro-shaving/abrading that finely impact wire surface



○ Wire cleaning by BH-S system

separating lubricant residue from base material, evacuating away dispersed contaminants by moving wire, exiting the unit extra clean of white-metal appearance at extreme speed, operating at virtually zero energy consumption.

**Decalub – France**

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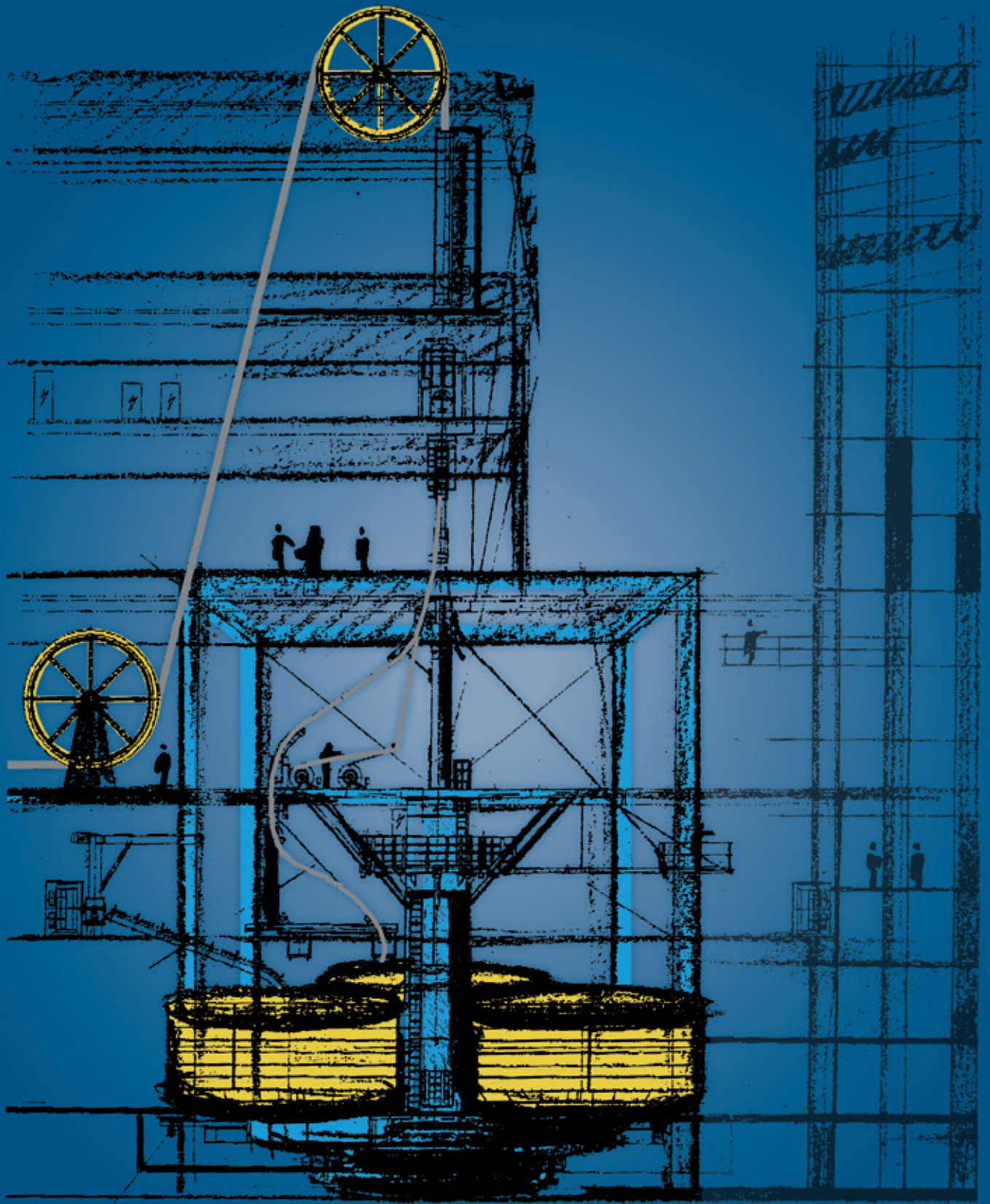


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# SKET MVD Type Vertical Laying-up Machine

for making submarine cables with  
a maximum diameter of 300 mm





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## 100 per cent quality assurance at production

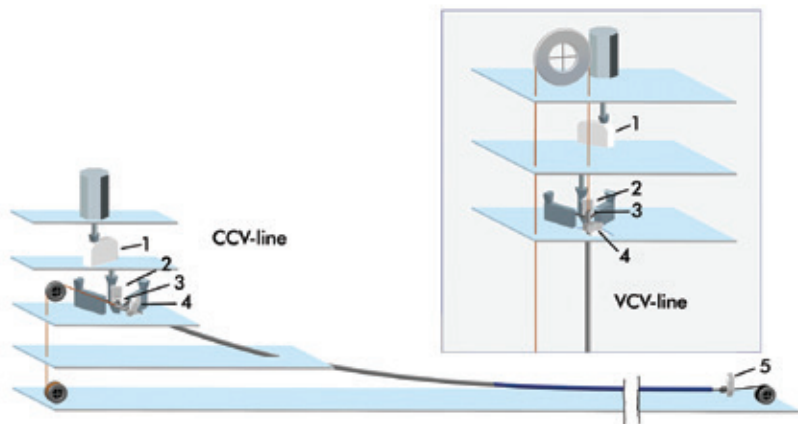
SIKORA offers a complete product portfolio of inspection and sorting as well as measuring and control technology for online quality assurance of energy cables.

1. The purity of XLPE pellets as they are used for the insulation of medium, high and extra-high voltages cables as well as for on- and offshore cables is a decisive characteristic for the quality of the end product. Damages caused by breakdowns due to contaminated material can easily run into the millions. Therefore, the production of highly clean material as well as the continuous detection and sorting out of contaminated pellets before they get into the extrusion process is of essential importance.

With the purity scanner, Sikora provides a system for 100 per cent online inspection and automatic sorting of PE pellets. The purity scanner intelligently combines X-ray technology with an optical system. This allows the detection of metallic and organic impurities of 2mil (50µm) in the pellet itself and on its surface to 100 per cent.

Contaminated pellets are detected and sorted out in order to ensure that they do not get into the extrusion process. The application of both technologies is unique, and is exceeding previous solutions on the market. Due to the specially developed X-ray technology, the purity scanner is the first system that inspects transparent and coloured (eg black) pellets as well as semi-conductive XLPE material for impurities and sorts them out automatically.

2. In a CV-line, for example, a CSS 2 (cleanliness scanning system) is installed for real time monitoring and detection of impurities of the polymer melt. The flow channel between main extruder and the crosshead is equipped with sight glasses and an optical CCD colour camera system, which inspects the insulation material. The CSS 2 detects contaminants down to a size of 20µm and distinguishes between metallic contaminants, scorches and ambers of selected sizes. It provides information as to when the production may start after bleed-off, respectively as to when it is necessary to stop production, because of an extensive number of detected contaminants.



○ CV- and VCV-line with Sikora inspection and sorting as well as measuring and control technology for reliable quality assurance during production of energy cables

3. Sikora's product range for energy cables also includes the Ultratemp 6000 which measures the temperature of the PE melt during extrusion on a non-contact basis between the extruder screw and the crosshead. Besides temperature determination, the Ultratemp 6000 detects inhomogeneities in the melt. Early cross-linking after screens which may lead to ambers or scorches in the material can be avoided by this reliable ultrasonic temperature measurement. The device optimises the output of a planned production time.

4. The X-ray measuring system X-Ray 8000 NXT is installed in the moving part of the telescopic tube directly after the crosshead for precise measurement of the wall thickness of all three layers (concentricity, diameter and ovality) directly after the triple crosshead. Measuring values for centring and control are therefore

available immediately after starting up the line. The system is used in catenary and vertical lines.

5. While the X-Ray 8000 NXT provides information for a fast centring and direct control, the X-Ray 8700 NXT supplies precise quality data of the final product. The X-Ray 8700 NXT measures the diameter, wall thickness and eccentricity and is suitable for all cable types with solid, stranded or Milliken conductor and with single, double or triple layer insulation. With the use of the X-Ray 8000 NXT at the beginning of the line for collection of the hot measuring values and the X-Ray 8700 NXT at the end of the line for measuring the cold values, three shrinking values are analysed for every insulation layer of the cable. Consequently, an optimum process is assured.

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

## Threading with little effort

Cosmos North America Inc's innovative split-thread air wipe AWM 71 features effortless threading, extended life service, low air consumption and knot passage. A tension spring and the surrounding air pressure keep the air wipe closed during wiping but it will open readily to pass knots. A performance data sheet registers the air consumption at delivery, and the wear-bearing components carry a two-year warranty.

Cosmos offers four wiping cylinders of bore diameters 2, 3, 4 and 5mm for wiping at optimum efficiency of wire diameters 1.4, 2.4, 3.4 and 4.4mm. Wiping wires with diameters less than the optimum diameter will reduce efficiency but will not have any adverse consequences on the wire.

**Cosmos North America Inc – USA**

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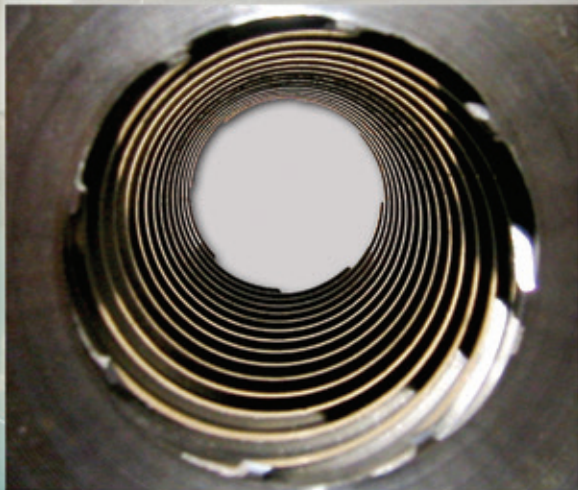
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## Flexibility from Herzog with new HS-F 3000

WITH the new milling machine HS-F 3000, Herzog Maschinenfabrik has launched an automatic sample processing machine which automatically deburrs the samples after milling.

Another new feature is the tool changing system, which gives the machine high flexibility when it comes to processing samples of different materials. The machine makes a major contribution to cost cutting in the sample lab as processing times are short and operation is fully automatic throughout the entire processing cycle.

Herzog's HS-F 3000 3-axis milling machine comes with an entirely new design for use in automated laboratories. With process sequences optimised, the machine can mill one sample in about 30 seconds. It is therefore able to achieve throughput rates of up to 800 samples per day.

The machine has been designed to handle a wide and varied range of samples of materials occurring in the steel industry, from soft metals through to the hardest pig iron. The extremely sturdy spindle, which is supported in five bearings, ensures that even the hardest of materials can be processed with high precision and reproducibility. The HS-F 3000 machine can process oval, square, round and double thickness samples.

The entire process cycle from feeding of the sample – by a robot or a human operator – via milling and deburring through

to the removal of the samples takes place automatically. Milling chips are collected in a container and may be used for spectral analysis.

The automatic tool changing system, which has a magazine for up to six different tools, guarantees highly flexible sample processing. The control system selects the optimal milling cutter for the specific properties of each sample and places it into the spindle. Thus, the machine operates autonomously without any human intervention over long periods of time, even if samples of different materials need to be processed.

The integrated Simatic S7 PLC controller guarantees error-free processing of the most varied of samples. Up to 18 parameter-defined programs can be stored. Consequently, the samples are always milled with optimal cutting speeds and material removal rates. The control system also monitors the service times of the individual tools, indicating necessary tool changes and other due maintenance work on the touch panel.

Herzog placed particular emphasis on the versatility of possible mechanical connections and the flexibility of software interfaces. As a result, the machine seamlessly integrates into Herzog's robot-based and linear automation systems.

**Herzog Maschinenfabrik GmbH & Co KG – Germany**  
**Website:** [www.herzog-maschinenfabrik.de](http://www.herzog-maschinenfabrik.de)



### Optimum protection from water ingress 来自进水的最佳保护

Our Super Absorbent Fibre technology can be converted into yarns and tapes that provide the optimum moisture penetration barrier. They're totally effective in almost every internal and external cable application. This unique, dry active system completely prevents water passage along the cable from a joint or point of sheath damage. The highly effective protection is easily achieved when the super absorbent yarn or tape is seamlessly integrated into the cable during the manufacturing process.

Technical Absorbents can supply its super absorbent technology in both fibre and converted yarn and tape formats.

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## RB 450: Rod breakdown machine for maximum flexibility

For over 70 years SAMP has been one of the leading companies in the development and production of efficient and reliable manufacturing solutions which really meet your needs, like the new RB 450 rod breakdown machine for copper, aluminum and relative alloys, for round and shaped wire.

Equipped with the latest Siemens TIA Technology with Sinamics drives and Simotion controller, the RB 450 is a modular multi-motor machine which ensures an outstanding quality of the final product, extremely low noise emission and an improved energy-efficiency by 15% if compared to the state-of-the-art technology.

Contact us today or visit our website to find out more about SAMP wire and cable manufacturing solutions: [www.sampsistemi.com](http://www.sampsistemi.com)

## Servo-controlled stamping and forming machine

WITH the RM-NC Bihler presents an entirely new generation of stamping and forming machines.

The completely servo-controlled machine is perfectly designed for the economical production of stamping and forming parts as well as wire parts in all lot sizes. The RM-NC shows its benefits especially for small and medium lot sizes and for a large number of different product versions.

Very short, 100 per cent reproducible set-up and changeover operations are its key strengths.

These are ensured by modern servo technology in combination with the intuitive control technology of the Bihler VariControl VC 1.

For instance, the slide units can be aligned in radial and linear direction simply by pressing a button on the integrated slide positioning unit. Rapid tool change systems help to further reduce set-up times.

The RM-NC is impressive also in terms of productivity. Up to 300 manufactured parts per minute speaks for itself. Costs for new tools are reduced considerably by the small number of components



○ Servo-controlled stamping and forming machine RM-NC with slide positioning unit for fully automatic adjustment of the slide units in radial and linear direction. Photograph copyright of Otto Bihler Maschinenfabrik GmbH & Co KG

while existing tools in the RM series can easily be integrated.

The servo-controlled machine is able to

replace several mechanical machines and allows users a much higher creation of value.

Compared to conventional stamping and forming machines, an output increased by up to 200 per cent can be achieved, lot sizes can be processed in half the time and changeover times reduced by a factor of nine.

Particularly time-intensive tasks such as adjusting the material feed, positioning the slide units and adjusting the movements of the forming punch are now completed in a matter of minutes on the VC 1 machine and process control system.

The servo-controlled processing units guarantee a consistently high product quality. All processing units are freely programmable over the whole working range. Working stroke, lower dead centre, adjustment of the stroke position and the motion profile can be selected freely.

Forming movements can be executed with constant transmission of force.

**Otto Bihler Maschinenfabrik GmbH & Co KG – Germany**  
Website: [www.bihler.de](http://www.bihler.de)

## Major attraction for Eurolls

The new RT600 Eurolls straightening and cutting line for electrodes, capable of producing welding electrode sticks at 10m/sec, was one of the major attractions at Eurolls' stand at wire 2014 in Düsseldorf.

The full line, which includes a seven step drawing line, allows productivity to be increased by placing Eurolls CL25C33 cold rolling micro cassettes instead of dies, and is designed to process low carbon or stainless steel wire rod diameter 5.5mm, draw it down to the final product diameters (2, 2.5, 3.25, 4, 4.8 and 5mm), then clean the wire, straighten it and cut it in the two main product lengths (350 and 450mm).



○ New RT600 straightening and cutting line for electrodes

The main characteristic and advantage of this equipment is the capacity to achieve high production speeds, maintaining the surface finish and accuracy in stick diameter and length, requested for this type of material – basic requirements to guarantee smooth operation in the successive steps of the process.

**Eurolls SpA – Italy**

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

## Spectrum's Sienna 900 online at VW plant

VOLKSWAGEN AG is the launch customer for Spectrum Technologies' Sienna™ 900 laser magnet wire stripping system. The patented technology has been selected by VW for integration into its new stator production line in Kassel, Germany.

The highly automated state-of-the-art production line has been designed and developed for Volkswagen by Aumann GmbH, a specialist in industrial automation and coil winding systems. In light of Volkswagen's requirements for the highest quality technology for each stage of the line, Aumann approached Spectrum to supply the enamel stripping system for the magnet wire coils used in the stators for the gear box for the automotive manufacturer's latest range of electric engines.

The Sienna 900 was delivered and installed at Volkswagen's Kassel manufacturing plant in March where Aumann continues to undertake the final commissioning of the overall



○ Spectrum Technologies' Sienna 900 laser magnetic wire pulling system was chosen by Volkswagen AG

system. Volkswagen had also previously ordered and taken delivery of a Sienna 800 Duo laser wire stripping system to support development of its electric motor and the ramp-up of the new production line.

Sienna 900 is a new modular laser system that employs Spectrum's

innovative, patented laser magnet wire stripping (MWS) technology for the rapid and clean removal of hard enamel insulations from magnet wire used in wound electrical components.

Sienna 900 is designed for integration into bespoke production lines for medium- to high-volume manufacturing applications; the system provides a safe, reliable and easy-to-use industrial package.

Spectrum's MWS technology can process a wide range of materials and wire shapes and sizes, enabling high-speed, accurate and selective stripping of enamel insulation from the magnet wire. It also removes the oxide layer leaving the conductor surface ready for electrical bonding without the need for further cleaning but does not cause work hardening.

**Spectrum Technologies – UK**

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

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Other main product 其他產品  
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Tinning dies 鍍錫線模  
Nipple for plastic coating of wire 押出內模  
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Others 其他用途鑽石模具

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# EUROLLS



WIRE CHINA 2014  
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## CONSTRUCTION WIRE



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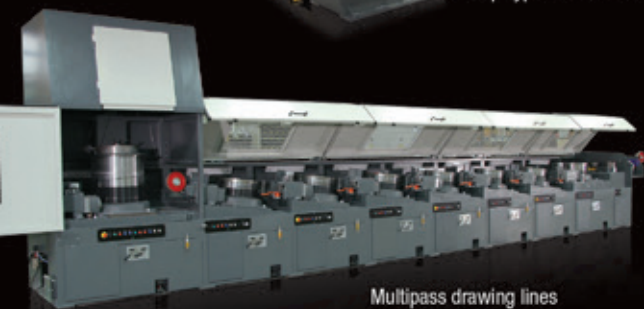
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## SAP certification for Advaris

ADVARIS Informationssysteme has recently received from SAP the certification "SAP Certified – Integration with SAP Applications" for its solution Advaris MES 4.0.

By awarding this certification, SAP confirms that the solution is integrable into the application SAP supply chain management (SAP SCM) 5.1. For the system developer from Bruchsal, Germany, this certificate represents a significant milestone in the integration of the Advaris cable manufacturing execution system (MES) with SAP software.

Length-based manufacturers can integrate Advaris cable as a sector-specific detailed planning tool in SAP SCM.

Commenting on the 'bridge' that Advaris has now succeeded in building to the SAP software, CEO Dr Manfred Moser said: "Users who in addition to our detailed planning tool also use the

comprehensive functions of Advaris for production control and production data recording, can realise a complete latest generation MES system in the SAP environment."

Advaris cable performs fully automatic loading of the manufacturing orders from the SAP system and then synchronises changes that occur.

The program also takes into account the availability of materials in detailed planning. In order to do this, the MES downloads the material stocks from the SAP system and keeps them updated.

The target criteria for detailed planning are adherence to deadlines for production orders, and minimising the set-up time of the machines.

By optimising the workflow sequences, Advaris software cuts to a minimum the number and duration of idle times per machine.

For detailed planning, Advaris offers a simulation environment in which the system draws up a machine allocation plan as a proposal for the production planner, who can then make changes manually and test out planning alternatives.

The program then fixes the planner's manual changes and integrates them into the automatic detailed planning. Once this detailed planning has been approved by the production planner, the planning result is uploaded into SAP SCM.

Changes in order data in the SAP application, such as target dates and target quantities, are available online in Advaris MES. This enables users to react speedily, even to changes which occur at short notice.

**Advaris Informationssysteme GmbH  
– Germany  
Website: [www.advaris.de](http://www.advaris.de)**



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## How to draw efficiently shaped aluminium wires for HTLS conductors

BECAUSE of increasing electricity demand in many countries, overhead transmission lines are reaching transmission capacity limit and capacity problems of electricity networks are growing.

These difficulties can be resolved by upgrading the lines with High Temperature Low Sag (HTLS) conductors which provide many opportunities for the design of conductors and transmission lines with optimum properties.

ACSS/TW conductors drawing: The ACSS/TW HTLS conductors consist of trapezoidal-shaped fully annealed aluminium wires (TW), which are concentrically stranded and compacted around a steel support core. These conductors have almost double the current carrying capacity compared to conventional ACSR-conductors with a similar tensile strength and can operate continuously at temperatures of up to 250°C.

Maschinenfabrik Niehoff has developed the equipment for the production of the trapezoidal-shaped aluminium wires. An ideal manufacturing line is the electronically controlled MSM 85 type rod breakdown machine combined with an



○ Electronically controlled MSM 85 type rod breakdown machine with integrated RA 501 continuous annealer

RA 501 continuous resistance annealer specially designed for the inline annealing of aluminium and aluminium alloys wires.

The MSM rod breakdown technology: Niehoff's MSM rod breakdown technology has been successfully operating in the international wire industry since its market introduction in 1998.

The electronically controlled MSM machines, which have seen continuous development since their initial launch, are equipped with the latest controls and drive technology offering users a vast range of benefits in terms of process technology.

The controls allow wire drawing with minimal slip, resulting in high quality wire surfaces and a long operational life of the drawing tools.

It is also possible to work with different

wire elongations for each draft according to the wires' material, properties and shapes. Homogeneous wire annealing is guaranteed from zero to full speed operation. Energy savings of more than 20 per cent can be achieved with MSM machines in comparison with rod breakdown machines with conventional drives.

Additional features include an optimised wire path, an enhanced wire cooling and lubrication system and a reduced consumption of oil and drawing lubricant.

The machines were developed to draw wires made of copper or aluminium, and their respective alloys, as well as other special materials like superconductor wires to a finish diameter from 1mm to 4.5mm.

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

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## Flange detection system proven in the industry

MANY companies producing material to be wound are familiar with this situation: Although spools of the same dimensions are used, their individual dimensions are not exactly identical.

Minimal size deviations lead to an uneven winding pattern or even tangling. The result: Increased manual adjustment work – a cost item you could do without. What are the options for manufacturers to solve these problems?

The ideal solution would be an autonomous monitoring system so the operator can be sure the material is wound evenly from start to end. When searching for such a reliable monitoring and control system, you may find the FA II flange detecting system manufactured by Joachim Uhing GmbH & Co KG, headquartered in Mielkendorf near Kiel, Germany.

The first generation flange scanning system for rolling ring drives, launched in 2004, convinced by its automated correction of reversal points for the most diversified wound material – wire, cable or rope. The second generation of this successful product, the non-contact FA II with integrated laser sensor launched in 2012, comes with a fully automatic correction of reversal points.

The permissible height deviation is stored in the software of this intelligent system developed for application with pneumatically reversible rolling ring drives. A laser sensor mounted on the traversing system scans the spool flange.

Between the flanges, this sensor continuously measures the distance to the wound material and compares the result with the maximum height tolerance of the wound material set before. The reference distance for the maximum height tolerance is measured each time the middle is passed and stored for the duration of one reversal cycle.

The flange scanning system measures the current distance layer by layer and compares it with the reference distance. The sensor triggers the reversal as soon as the permissible height deviation is exceeded. In this way, the system ensures that material cannot pile up at the flanges.



○ The FA II flange detecting system

The FA II also identifies the width of the loaded spool and whether the used flange is straight or deviates from the 90° angle. The flange scanning system adapts to the new position, width and spool type – conical or biconical – if a spool of a different width is used after a spool change.

This gives rise to the question: Can such a product offer added value beyond convenience and cost reductions? “Yes,” added Jörg Wadehn, Uhing’s managing technical director. “The FA II is a construction kit

system, comprising standardised industrial components from renowned manufacturers.”

The autonomous FA II system can be operated without connection to a machine controller. It can also be operated in a moving winder. In this case, the sensor is installed in a fixed position and detects the moving flange.

**Joachim Uhing GmbH & Co KG – Germany**  
**Website:** [www.uhing.com](http://www.uhing.com)

## New products launched

Sylvin Technologies Inc showcased its flexible vinyl compounds that satisfy the demands of medical and other highly regulated applications, including FDA and CPSIA, Medical, NSF, toys, household appliances, and food handling equipment at the MD&M East trade show in June in New York, USA.

Product features included the 2990 Clear Series which specifically utilises FDA sanctioned ingredients and is suitable for clear flexible tubing such as catheters and fluid management systems. Sylvin 29168-70 and 2970-60 satisfy the requirements of USP Class VI and are suitable for tubing and other

medical device applications. Sylvin 2942-75 compound is NSF-51 approved for food equipment applications.

Sylvin also exhibited its 32 series bio-based compounds which are phthalate-free and environmentally focused. These compounds offer the same performance advantages of general purpose flexible vinyl compounds. The distinct value is for applications that specify materials that offer a lower carbon footprint and are more eco-derived than traditional oil-based materials.

**Sylvin Technologies Inc – USA**  
**Website:** [www.sylvin.com](http://www.sylvin.com)



○ SX0620 – AEI 提供的安全柔性解决方案

# SX0620为海上和船用 电缆提供更安全灵 活的解决方案

英国公司AEI Compounds Limited UK专门为电线电缆行业提供高分子化合物，最近推出新研发的硅烷交联耐油无卤阻燃化合物(HFFR)。

SX0620系高柔性低烟低雾护套化合物，适用于海上、船上、工业和铁路电缆系统。SX0620符合IEC 92-359 SHF2和EN50264 EM104要求，满足船舶与铁路

标准，是一种安全可靠、低烟低雾的电缆护套材料。

在苛刻的环境中，比如船上、海上(OPG)船舶设施，其零卤素含量和阻燃性能有利于船员和乘客的安全。

若与SX0612和SX559绝缘导线搭配，SX0620护套电缆满足防火阻燃

和耐油性的最高要求，同时具有类似橡胶的弹性和优良的电缆表面光洁度。SX0620也适合于重型工业应用和需要高度抗磨损的恶劣环境。目前，NEK606碳氮化海泥性化合物正在开发中。

**AEI Compounds Ltd – 英国**  
网址: [www.aeicompounds.com](http://www.aeicompounds.com)

## 能源电缆生产, 100%质量保证

Sikora为能源电缆在线质量保证提供完整的产品服务, 包括检测与整理, 测量与控制技术。

1. 交联聚乙烯粒料的纯度, 该材料用于中、高和超高压电缆, 以及陆地与海上电缆, 对最终产品的质量起着决定性的作用。由于污染物导致的故障损害累计达数百万起。因此, 生产高洁净材料, 并且在进入挤出工艺前, 连续检测和清理受污染的颗粒, 就显得至关重要。

连同纯度扫描仪, Sikora提供一个无与伦比的系统, 能够100%在线检测和自动分拣PE粒料。纯度扫描仪巧妙地结合X射线技术和光学系统。这使得金属、颗粒本身存在的2mil (50µm) 有机杂质, 以及颗粒表面的细微杂质都能够100%被检测。

被污染的球粒被检测和筛选, 确保它们不进入挤压过程。这两种技术的应用非常独特, 超越了市场上已有的解决方案。鉴于专门开发的X射线技术, 纯度扫描仪成为首个用来检测透明和有色(比如黑色)颗粒, 以及半导电交联聚乙烯绝缘杂质, 并将其自动分拣出来的系统。

2. 在CV线中, 例如, 安装CSS 2(清洁扫描系统)来实时监测聚合物熔体的杂质。主挤出机和十字头之间的流动通道装配有视镜和光学CCD彩色摄像机系统, 用于检测绝缘材料。CSS 2能够检测到20µm的杂质, 并对金属污染物、烧焦物和一定大小的琥珀进行辨别。CSS 2提供一系列信息, 包括泄放后什么时候投产, 以及检测到大量污染物, 什么时候必须停产。

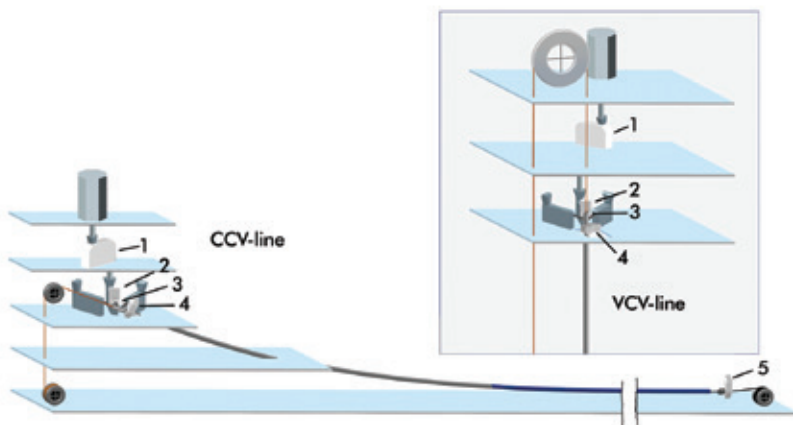
3. 在能源电缆领域, Sikora产品系列包括Ultratemp 6000, 挤压过程中, 在挤出机螺杆和十字头之间, 非接触式测量PE熔体的温度。除了温度的确定, Ultratemp 6000还检测熔体的不均匀性。早期的交联会导致琥珀或烧焦物掺杂在材料中, 而这种可靠的超声波温度测量就可以避免这种情况。该设备优化了生产计划时间内的产能。

4. X射线测量系统X-Ray 8000 NXT直接安装在十字头后面的伸缩管可动部位, 用于精确测量三重十字头后面所有三层(同心度, 直径和椭圆度)壁厚。生产线启动后, 定心与控制测量值即时生效。系统用于悬链和垂直线。

5. X-Ray 8000 NXT提供关于快速定心和直接控制的信息, X-Ray 8700 NXT提供最终产品的精确质量数据。X-Ray 8700 NXT测量直径、壁厚和偏心率, 适合于所有类型的电缆, 比如实心、绞合或Milliken导线, 单层、双层或三层绝缘。在生产线的开头, 使用X-Ray 8000 NXT收集热测量值, X-Ray 8700 NXT在生产线的末尾测量冷值, 三缩值是对电缆每个绝缘层的分析。因此, 最佳的生产工艺得到了保证。

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

○ CV- 和 VCV- 生产线具有Sikora检测、分类、测量和控制技术, 用于可靠保证能源电缆生产的质量



## DSE推出新的测试仪

DSE Test Solutions是漆包与电磁线生产领域固化测量仪的全球供应商, 最近公司广泛的产品系列又添新成员介损测试仪。

在研发新的TD3介损测试仪的过程中, DSE非常重视减少机械部件的数量, 目的在于优化成本和减少备件。

采用了顶级TD5型仪器的动态直接加热技术, 因此, 能够实现测量的可重复性, 目前市场上还没有任何一种测量设备的性价比能跟Tangent介损测量仪相媲美。

“集约利用最新的3D技术原型, 不仅降低了终端价格, 而且还被证明是测试领域思路突破的一个伟大工具, 最后但同样重要的是, 3D技术让我们能够比以往任何时候更广泛地集成机械部件,” 产品经理Poul Knudsen说道。

从外观上看, 小巧的仪器是丹麦著名品质和尖锐工业设计的光辉典范。仪器测量线材试样至350°C, 能够处理圆形线和扁线。所有功能都与新的Windows软件平台兼容。

DSE Test Solutions A/S – 丹麦  
网址: [www.dse.dk](http://www.dse.dk)

## 新气刮简化了攻丝工艺

Cosmos North America Inc公司推出创新分割线气刮AWM 71, 特征如下:

- 轻松穿线
- 延长使用寿命
- 低耗气量
- 结通过

在擦拭过程中, 拉簧和周围空气压力保持气刮封闭, 但结通过时, 易于打开。性能数据表记录交付时的耗气量, 耐磨轴承组件保质期两年。

Cosmos提供四种擦缸, 孔径分别为2、3、4和5毫米, 以线径为1.4、2.4、3.4和4.4毫米的最佳效率擦拭。擦丝直径小于最佳直径会降低效率, 但不会对线材带来任何不良后果。

Cosmos North America Inc – 美国  
网址: [www.cosmos-na.com](http://www.cosmos-na.com)

## 绞线机用于制造交流和直流海上能源电缆

市场对直径达350毫米，有相当长度的海上电力电缆的需求，助推了相关设备的研究开发，以满足现代生产的需求。

在开发过程中，除了在带有退扭的笼式绞线机上传统绞合三相交流电缆外，立式绞线机的原理在电缆和钢丝绳生产的各个方面也已沿用了许多年，因此，将其推动到了最前沿的思考模式。

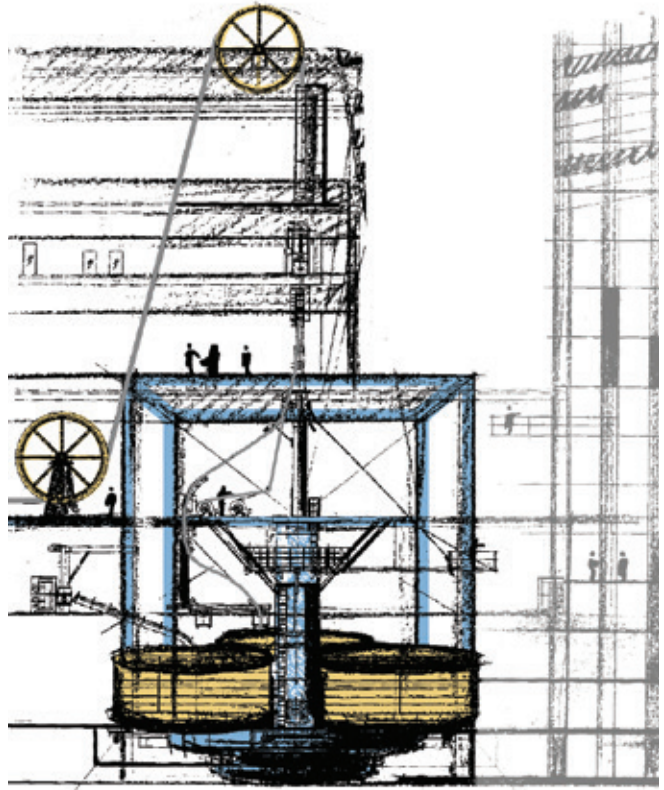
该原理有可能实现成本效益和高效生产交流电力电缆。在接下来的第二工艺中，绞合能源电缆芯用一层或两层钢丝铠装进行包层，并具有附加光学元件、带、纱和沥青。

SKET Verseilmaschinenbau及其合作伙伴十多年来一直以这种方式，努力满足市场的需求，在业界有口皆碑。2013年底，另外两台垂直绞线机分别供应给欧洲和亚洲的客户。从那时起，安装在欧洲电缆工厂的机器已成功完成了试运行，并产生了第一个离岸电力电缆市场的电缆合同。提供给日本客户的机器已成功生产出了第一批测试与验收电缆，即将投入正式生产。

SKET公司在2014年德国杜塞尔多夫国际贸易博览会上呈现了最新开发成果。公司向来宾展示的立式绞线机模型，反响强烈。国内外诸多的参观者来到其展台前咨询立式绞线机的优势和应用情况。这些机器可根据客户的要求量身定制。接下来销往亚洲的机器已处于规划阶段。

今年第四季度，SKET将生产两笼式绞线机，机器设计独特，将200多个铠装线连同几个光学元件应用于生产交流或直流海上电力电缆。

SKET Verseilmaschinenbau GmbH – 德国  
网址: [www.sketvmb.de](http://www.sketvmb.de)



○ SKET MVD型立式卧置机用于制造最大直径为300mm的海底电缆

## Herzog机器更具灵活性

Herzog Maschinenfabrik新推出铣削机HS-F 3000，该自动进样加工机碾磨后自动去除样品毛刺。另一新功能是换刀系统，当加工不同材料的样品时，给予机器更高的灵活性。由于加工时间缩短了，而且整个加工周期都是完全自动化操作，因此，机器大大削减了样品实验室的成本。

Herzog公司的HS-F 3000 3轴铣削机拥有全新的设计，适合于自动化实验室。本机的主要特点是样品碾磨后自动去毛刺。由于加工流程优化了，机器在30秒内就能碾磨一个样品，一天能够实现高达800个样品的吞吐率。

机器设计用来处理钢铁行业广泛而多样的样品，从软金属到最坚硬的生铁材料。极其坚固的主轴支撑在五个轴承上，保证最坚硬的材料都可以高精度和再现性进行处理。

HS-F 3000机器能够加工椭圆形、方形、圆形和双倍厚度的样品。整个加工流程包括：从进样 - 由机器人或人为操作 - 经过碾磨和去毛刺到自动化去除样品。铣削片收集在容器中，用于频谱分析。

自动换刀系统拥有多达六个不同的工具，能够高度灵活地处理样品。控制系统针对每个样品的特定属性选择最佳铣刀，并将其放置到主轴上。因此，机器能够独立运行，即使加工不同材质的样品也不需要长时间人工干预。

集成Simatic S7 PLC控制器保证无差错处理多样化的样品。能够保存多达18个参数定义程序，因此，样品总是以最佳的切割速度和最理想的材料去除速率进行碾磨。控制系统还监测各个工具的服务时间，显示必要的工具更换和触摸面板上的相关维护工作。在设计HS-F 3000样品铣削机时，Herzog特别关注机器连接的多样性和软件接口的灵活性。本机可与Herzog机器人和线性自动化系统无缝对接。

正如所有其它Herzog机器一样，HS-F 3000也相当坚固，能够保证高加工品质和促进投资回报。HS-F 3000是密封的，且噪音绝缘。

Herzog Maschinenfabrik GmbH & Co KG – 德国  
网址: [www.herzog-maschinenfabrik.de](http://www.herzog-maschinenfabrik.de)

## Sylvin新产品上市

MD&M East 贸易展于今年六月在美国纽约举行，展览期间，Sylvin Technologies Inc向来宾展示了其柔性乙烯基化合物，以满足医疗和其他高度管制领域的应用，诸如FDA与CPSIA、医疗、NSF、玩具和家用电器，以及食品加工设备等。

产品系列包括2990 Clear，该系列产品专门采用了FDA批准的成分，适用于清晰软管，诸如导管和液体管理系统。Sylvin 29168-70和2970-60满足USP Class VI的要求，适合于管道和其他医疗设备应用。Sylvin 2942-75化合物NSF-51被批准用于食品加工设备。

Sylvin还展示了32系列生物基化合物，不含有邻苯二甲酸，非常环保。这些化合物具有与普通乙烯基化合物相同的性能优势。独特价值在于在应用过程中，通过特定的材料，实现较低的碳排放，并且比传统的油基材料更加环保。

Sylvin Technologies Inc – 美国  
网址: [www.sylvin.com](http://www.sylvin.com)

## Eurolls呈现新亮点



○ 用于生产电极RT600的新型矫直切割生产线

Eurolls新的矫直切割生产线适用于电极RT600，能够以10米/秒的速度生产焊接电极棒，这是2014杜塞尔多夫线材展上Eurolls展台的最大亮点。

该生产线包括七步拉丝线，运用Eurolls冷轧微型暗盒CL25C33替代模具，显著提高了生产力，生产线设计用于处理直径5.5毫米的低碳或不锈钢线材，拉伸的最终产品直径为2、2.5、3.25、4、4.8和5毫米，接着进行清洁，矫直切割成两个主要产品长度(350和450毫米)。

该设备的主要特点和优势包括保证高速生产的同时保持表面光洁度，并且能够保证棒直径和长度的精确性，这是对这类材料的要求，也是连续加工过程中保证平稳运行的基本要求。

Eurolls SpA – 意大利  
网址: [www.eurolls.com](http://www.eurolls.com)

## SAP认证

Advaris Informationssysteme解决方案Advaris MES 4.0最近获得了“SAP认证 - 与SAP应用集成”。通过授予此认证，SAP确认该解决方案可整合到SAP供应链管理应用(SAP SCM)5.1。由于系统开发商来自德国布鲁赫萨尔，该证书具有重要的里程碑意义，标志着Advaris电缆制造执行系统和SAP软件的集成进入了一个新阶段。

基于长度的制造商，可以将Advaris电缆系统整合成SAP SCM具体应用的详细规划工具。关于“桥梁”，Advaris现已成功开发了SAP软件，首席执行官Manfred Moser博士说：“如果用户除了使用我们详细的规划工具之外，还使用了Advaris综合功能来进行生产控制和记录生产数据，那么在SAP环境下能够实现一个完整的新一代MES系统。”

Advaris cable完全自动化装载来自SAP系统的生产订单，然后同步更新所发生的变化。程序也考虑详尽计划中的材料实用性。为了做到这一点，MES从SAP系统中下载材料库，并不断更新。详细规划的准则是要遵循生产订单的最后期限，并尽量减少机器的调试时间。通过优化工作流程，Advaris软件将每台机器闲置的次数和持续的时间降至最低。

如需详细的规划，Advaris提供模拟环境，系统绘制一个机器分配计划，供生产计划员参考，计划员可以手动进行修改和测试计划方案。程序接着修复计划员的手动更改，将之整合到自动详细的计划中。一旦该详细方案被负责生产的计划员认可，规划结果就上传到SAP SCM。

如果在SAP应用程序中改变订单数据，比如目标日期和目标数量，Advaris MES在线提供相应操作。这使得用户能够迅速作出反应，即使在短时间内做出的改变也能够应对。Moser博士补充说：“Advaris MES实时记录机器状态和生产过程中的所有状况，因此为详细的规划提供了理想的事实依据，以确保作出反应的时效性和对实际情况掌握的真实性。”

Advaris Informationssysteme GmbH – 德国  
网址: [www.advaris.de](http://www.advaris.de)

# 大众公司启用Spectrum Sienna 900系统

大众汽车公司为客户推出Spectrum Technologies Sienna™ 900激光磁剥线系统。该专利技术被大众公司选定，将其与德国卡塞尔工厂的新定子生产线整合。

该最新高度自动化生产线由德国奥曼公司设计开发，奥曼公司是工业自动化和线圈卷绕系统领域内的专家。

鉴于大众公司对生产线每个阶段的技术要求较高，奥曼应用光谱技术为磁线圈生产漆包剥离系统，磁线圈用于汽车制造商最新系列的电机齿轮箱定子。

Sienna 900已于今年三月交付，安装在大众卡塞尔生产工厂，奥曼公司将继续承担整个系统的最终调试。在此之前，大众还订购了Sienna 800 Duo激光剥线系统，用于支持开发新的电机和提升新生产线。

Sienna 900是新的模块化激光系统，采用了光谱创新专利激光电磁线剥离技术

(MWS)，能够快速清洁和除去电磁线上的硬质漆包绝缘物，这些电磁线一般用于缠绕的电气元件，比如发电机、电动机和变压器。

Sienna 900设计独特，可集成到定制生产线，适合于中到大批量生产。系统提供安



全、可靠和便捷的工业封装，以满足客户的个性化应用和吞吐量需求。

Spectrum MWS技术能够处理广泛系列的材料和各种形状与尺寸的电线，从而高速、精确和有选择性地剥离电磁线上的漆包绝缘，同时，还能够去除氧化层，导体表面随时可进行电连接，不需要再进行清洁，也不会导致加工硬化。还有一个好处就是，不需要消耗材料。

Spectrum Technologies首席执行官Peter Dickinson博士说：“我们感到非常高兴，大众公司选择我们的新系统Sienna 800和900作为前沿应用。我们的创新激光漆包线剥离技术和这些系统的整合，为完整系列的生产应用，包括小规模 and 大批量生产，以及在线加工缠绕电磁线元件，提供各种解决方案。”

Spectrum Technologies – 英国  
网址: [www.spectrumtech.com](http://www.spectrumtech.com)



## 伺服控制冲压成型机RM-NC

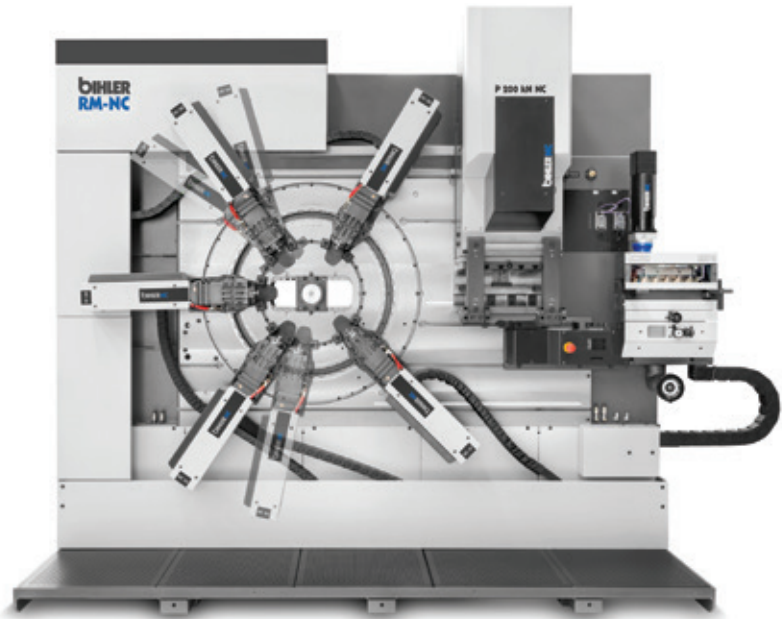
EuroBLECH欧洲板材展期间，RM-NC Bihler展出了新一代冲压成型机。该完全伺服控制机器专门设计用于经济生产冲压成型零件和线材部件。RM-NC优势在于特别适合于中小型批量生产，满足客户对大量不同产品型号的需求。短暂快速，100%可重复设置和转换操作是其主要优势。这些优势归功于现代伺服技术与Bihler VariControl VC 1直观控制技术的融合。例如，只需按一下集成滑动定位装置上的按钮，滑动部件就能够在径向和线性方向上对准。快速换刀系统有助于进一步降低设置时间。RM-NC允许用户迅速地回应客户需求，并及时调整以客户需求为导向。

RM-NC在生产力方面的表现也非常出色。每分钟能够制造多达300个零件。由于机器部件少，大大降低了新工具的成本。RM系列现有工具很容易集成和优化到RM-NC上。另外，伺服控制机器能够取代一些机械设备，使得用户能够创造更高的价值。与传统冲压成型机相比，产量提高了200%，批量加工时间减少了一半，转换时间缩短为原来的1/9。特别是时间密集型任务，比如调节送料，定位滑动装置和调整成型冲头的动作，现在只需几分钟，都可以在VC 1机器和过程控制系统上完成。伺服控制处理设备保证产品一贯的高质量。所有的加工设备在整个加工范围内都可以自由编程。工作行程、下止点、冲程位置的调整和运动曲线都可以自由选

择。最大作用力可以在任何时候和任何行程位置上实现。成型动作通过力恒传输执行。结果：带与线材材料在每个站以最佳速度加工。为了保证加工安全性，所有装置都有一个集成冷却与润滑系统。其它功能包括，基于软件的集成过载保护，以及用

于过程相关温度效应补偿的绝对测量系统。

**Otto Bihler Maschinenfabrik GmbH & Co KG – 德国**  
网址: [www.bihler.de](http://www.bihler.de)



○ 伺服控制冲压成型机RM-NC带有滑动定位装置，在径向和线性方向上全自动调节滑动部件。照片版权归Otto Bihler Maschinenfabrik GmbH & Co KG公司所有

## Cabletas – 水渗透的最佳保护

在外部环境中使用的无焊接电缆，比如电信、电力电缆等，需要一些阻水元素。目前主要有两种方法 - 纵向阻水与根本阻水。

纵向是最常用的方法，使用石油凝胶保护电缆。凝胶粘附电缆组件，沿其长度关闭所有可能泄露的区域。然而，这种方法也时有问题发生，例如，应用程序可能混乱，遏制会很困难。Technical Absorbents Ltd (TAL)拥有替代解决方案 - Cabletas。

高吸水性纤维(SAF)制造商为全球电缆市场提供极高水平的创新与产品开发专长，包括Cabletas系列SAF和含有SAF的转换材料。SAF可以转换成纱线和无纺布带，为内外部电缆应用提供最佳保护。这种干活性系统阻止水通过电缆上的关节或护套损坏点。

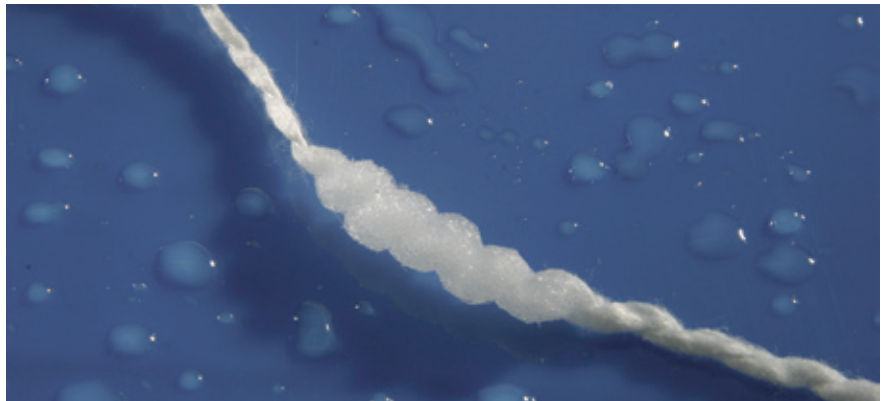
含有SAF的水溶胀性纱或带掺入到电缆制造过程中，以实现高效保护。如果电缆被损坏后注水，纱和/或带将迅速吸收节点点的液体，膨胀形成凝胶 - 阻止进一步进水。

因此，任何损坏都显得微不足道，完全可以遏制，并且容易找到节点和修复。

应用适合于多种类型的电缆，包括电信、中高压、工业和水下电缆等。

如果没有阻水技术，水侵入的损失会很严重，也会带来很多麻烦。

○ 可膨胀纱



SAF线和带具有足够的强度，能够承受电缆制造过程中的应力，高粘度凝胶，也能应对整个电缆使用周期的工作环境，在极端温度下具有长期稳定性。

**Technical Absorbents Ltd – 英国**  
网址: [www.techabsorbents.com](http://www.techabsorbents.com)

# India Insight

## \$69m deal for two transmission lines

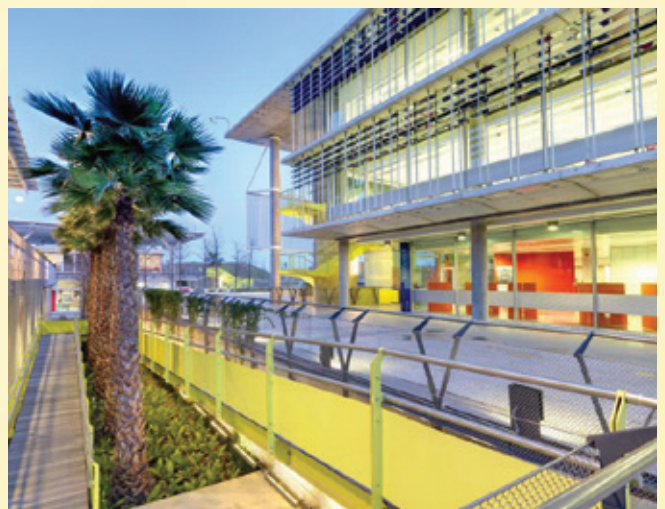
ABENGOA has been awarded its first concessions project for two electricity transmission lines in India, as well as operating and maintaining 134km of lines in India for a 25-year period.

The project is worth a total of \$69 million. Construction is expected to begin at the end of 2014, with an estimated completion time of 38 months from the awarding of the project.

The first concession is a 400kV line covering 113.7km, of which 4.4km is underground, connecting Dahej with the city of Vadodara.

The second line will have a 220kV capacity and be 20.62km long, running between the district of Bhestan and the city of Navsari. Both lines are located in the state of Gujarat and will provide energy to the Vadodara and Navsari districts.

Abengoa has carried out numerous projects in India and was recently awarded a contract for a 400km 800kV high voltage line. The company has constructed more than 25,000km of lines around the world over the last ten years.



○ Abengoa's headquarters in Calle Energia Solar in Seville, Spain. Photograph courtesy of Abengoa

**Abengoa SA – Spain**  
**Website:** [www.abengoa.com](http://www.abengoa.com)

## OPGW proposal

The Meghalaya department of telecom has proposed the formation of an inter-ministerial panel to expedite work on the laying of optical fibre along the Shillong-Tura electric power line.



○ The Meghalaya government is considering OPGW along its high-tension electric power line

The Meghalaya government is considering laying optical fibre ground wire (OPGW) along its 208km-long Shillong-Tura high tension electric power line to improve telecom connectivity in the north-east region.

The department of telecom wrote to the ministry of development of the north eastern region, requesting that a committee be formed with the department of telecom, government of Meghalaya and ministry of development of north eastern region to expedite the project.

The Meghalaya government has also requested that financial support for the project be available from the ministry of development of north eastern region.

The Meghalaya government asserts that the benefits of using OPGW will encompass the entire state, as well as other regions of the north east.

**Meghalaya – India**

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

## Solar boost for India

Tata Power Solar has commissioned a 50MW solar photovoltaic project for NTPC (formerly known as National Thermal Power Corporation Limited) in India. The commissioning is part of the company's plan to expand its renewable energy portfolio to 1,000MW by 2017.

Located in Rajgarh, Madhya Pradesh, the 50MW project is believed to be the largest Indian solar project to use indigenously-built solar modules, and will offset approximately 73,000 tonnes of CO<sub>2</sub> in its first year.

NTPC director (technical) Jha said the utility's solar power generation capacity has reached 95MW with the commissioning of the Rajgarh solar project. "We, at NTPC, are increasing our focus on renewables, in particular solar energy," Jha added.

Tata Power Solar CEO Ajay Goel said: "This project bears testimony to Tata Power Solar's 25-year strong lineage and the ability to bring together our strengths in manufacturing world class solar modules and EPC (engineering, procurement and construction) capabilities."

**Tata Power Solar – India**

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

## Wiring acquisition

India's auto component maker, Motherson Sumi Systems (MSSL) has announced its acquisition of the US-based Stoneridge Inc wiring harness business for \$65.7 million.

Stoneridge has annual revenues of approximately \$300m with six manufacturing facilities spread across Portland, Indiana, in the USA, and Chihuahua, Saltillo and Monclova in Mexico, as well as an engineering and administrative centre located in Warren, Ohio, USA.

The deal, structured by way of asset purchase, is subject to completion of regulatory approvals and is expected to be completed by the third quarter of 2014.

**Motherson Sumi Systems – India**

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

## Hydro power takes a dive

Low rainfall in India is restricting the country's hydro power output, down by a fifth from a year ago and part of a downward trend.

On 20<sup>th</sup> July, the load dispatch system received 418 million units of hydro power, almost 20 per cent less compared with the 515 million units generated on 20<sup>th</sup> July 2013.

Experts attribute the downtrend to the weak progress of monsoon rains in those regions of India that usually generate up to 44,000MW of hydro power. However, the loss of output could have been wider if hydroelectric projects on snow-fed rivers had not received more water as a result of the severe summer.

"At this point of time, snow-fed rivers enabled hydro power projects to maintain their normal generation, as temperature melted glaciers to fuel the plants," said the Himachal Pradesh energy development agency CEO, Bhanu Pratap Singh.

In western India, where hydro power plants are dependent on rain-fed rivers and irrigation projects, power generation dipped to only 10 million units on 20<sup>th</sup> July, compared with 68 million units on the same day in 2013.

**Himachal Pradesh Energy Development Agency – India**

**Website:** <http://himurja.nic.in>

## Market research report: Europe will be 'in the driver's seat' for telecom capital expenditures this year

Published twice annually by Infonetics Research (Campbell, California, USA), the 'Global Telecom and Datacom Market Trends and Drivers' report provides analysis of global and regional telecom market trends and conditions. Excerpts from the June 2014 instalment include the following:

- The International Monetary Fund (IMF) anticipates that the world economy will expand 3.6 per cent in 2014 (+0.06 per cent from 2013) amid recoveries in Britain and Germany and slowing growth in Japan, Russia, Brazil and South Africa
- Mobile service revenue remains the main telecom/datacom growth engine worldwide, led by the unabated rise of mobile broadband
- To avoid falling into the role of pipe provider, many service providers are deploying or weighing new architectural options such as caching/content delivery networks, distributed BRAS/BNG, next-gen central offices, distributed mini data centres, and video optimisation
- Software-defined networks (SDNs) and network functions virtualisation (NFV) have the attention of nearly all service providers, who are on the long road to widespread deployments
- Big data is becoming more manageable. Operators are leveraging subscriber and network intelligence to support marketing and loyalty strategies, churn management, and automation/optimisation of networks using SDN and NFV
- The cloud, mobility, BYOD and virtualisation are the top trends driving enterprise networking and communication technology spending, with North America leading the way

Stéphane Téral, principal analyst for mobile infrastructure and carrier economics at Infonetics, said that the market research firm expects a slowdown in this year's capital expenditures in the Americas; but that, for a change, Europe "will be in the telecom capex driver's seat."

"We're forecasting global carrier capex to rise four per cent, with EMEA as the growth engine despite unabated low-single-digit revenue declines all across Europe," wrote Mr Téral. "After waiting for so many years to upgrade their networks, Europe's 'Big 5' – Deutsche Telekom, Orange, Telecom Italia, Telefónica and Vodafone – have decided it's time to take the plunge."

Matthias Machowinski, a co-author of the report released at midyear, said that economic expansion in mature economies and falling unemployment in Europe are "driving stronger growth in enterprise telecom and datacom expenditures." The Infonetics directing analyst for enterprise networks also said that the researchers expect the network infrastructure segment to be the main beneficiary of this year's growing investments, followed by security.

## 'Pushing the envelope' on 5G, Sweden's Ericsson strives to position itself as a leader in next-generation technology

In late June, at its lab in Kista, Sweden, the telecom infrastructure vendor Ericsson demonstrated what it calls its pre-standard 5G network technology. Watched by senior management from Japan's NTT DoCoMo and South Korea's SK Telecom, Ericsson showed live,

over-the-air 5G running at speeds of 5Gb/s in a performance that anticipated commercialisation by some six years. Availability of 5G – still in the early stages of being defined, let alone standardised – is not expected until 2020.

Asked by Richard Handford of *Mobile World Live* (2<sup>nd</sup> July) whether there was not a risk of exaggerating what 5G can achieve, Ericsson's CTO Ulf Ewaldsson acknowledged the possibility. "There always is, I think, if we go back through all the Gs apart from the first one," was his response.

"This hype of new Gs that came with digital and 2G, then broadband with 3G, and real, true broadband access with 4G – I think there has been a risk of exaggerating what the technologies can do."

But Mr Ewaldsson said that his company, which perceived a need "to push the envelope strongly," will be able to deliver on expectations with speeds exceeding those on fixed networks. Hence the invitation to the operators to witness the lab demonstration.

- For its part, Ericsson's Chinese rival Huawei announced its election to the board of the 5G Infrastructure Association in Europe during the General Assembly held in Bologna on 26<sup>th</sup> June. Huawei, which has said it intends to position itself as a European vendor, will be represented on the board by David Soldani of the company's European research centre.

The 5G Infrastructure Association represents the private portion of the 5G Infrastructure Public-Private Partnership, (5G PPP) between the European ICT industry and the European Commission. The \$1.9 billion project, jointly funded by the public and private partners, is aimed at accelerating and structuring 5G research and development as Europe seeks to gain an advantage in next-generation wireless technologies.

## The inclusion of Microsoft bolsters a Qualcomm-based initiative to set standards for the Internet of Things

Microsoft, of the USA, has joined the AllSeen Alliance, an open-source project founded on Qualcomm technology and aimed at standardising interconnections in the Internet of Things: essentially smart devices working together. As noted by Phil Goldstein of *FierceWireless* (2<sup>nd</sup> July), the software giant's participation in the group adds heft to a membership which had been largely dominated by consumer electronics and home appliance makers.

Leaders of the 51-member group include Haier (Chinese), LG Electronics (South Korean), and Panasonic and Sharp (both Japanese). The addition of Microsoft could ensure that future Windows devices interact with other connected gadgets by means of AllSeen Alliance specifications.

“Microsoft believes that the Internet of Things is not a futuristic notion but is here today in the devices, sensors and cloud infrastructure all around us,” Kevin Dallas, the general manager of Microsoft’s Operating Systems Group, said in a statement.

Mr Goldstein traced the development of the group to December 2013, and Qualcomm’s award of the code for its AllJoyn framework to the Linux Foundation. In turn, Linux created the AllSeen Alliance to use AllJoyn in the creation of a software standard for IoT connections. The goal is to allow devices to discover and interact with nearby products regardless of their underlying proprietary technology or communications protocols. The group also includes automotive companies, IoT cloud providers, enterprise technology companies, startups, chipset manufacturers, service providers, software developers, and retailers.

➤ The AllSeen Alliance is not alone in promoting standards for the Internet of Things. The ZigBee and Z-Wave wireless protocols are being pushed by their respective backers as standards for IoT. Meanwhile, chipmakers that compete with Qualcomm hoped to launch a rival standards consortium this summer, an unnamed industry source familiar with the plans told *Reuters*.

Further, AT&T, Cisco Systems, General Electric, IBM and Intel recently formed the all-US Industrial Internet Consortium to create standards.

## Telefónica urges a major role for mobile in facilitating the full participation of disabled people in the connected world

According to the World Health Organization (WHO), a billion of

the world’s people – roughly one in seven – have some form of disability. Of these, 360 million are hearing-impaired; 285 million, vision-impaired; and 13 million, physically impaired. For most of these people, Guy Daniels of *TelecomTV* noted, accessing services and using products can range from difficult to impossible in a society increasingly reliant on connected technologies.

Asserting a “very real danger that we are creating a new digital divide,” Mr Daniels reviewed an initiative announced by Telefónica in February at the Mobile World Congress in Barcelona.

The Spanish telecom giant issued a call to operators, device manufacturers, and applications and content providers to work together with governments, NGOs, and communities of the disabled to accelerate digital inclusion. (“Telefónica Urges the ICT Sector to Create a ‘Culture Of Accessibility,’” 30<sup>th</sup> May)

Spearheading the effort, Telefónica commissioned research to investigate issues of accessibility and analyse the extent to which the “untapped billion” have access to telecom technologies.

An initial report, having observed that one billion happens to be the estimated number of active smartphones in use today, concluded that accessibility to the modern mobile world is often very restricted for people with disabilities.

The author of the report, Chris Lewis, told Mr Daniels: “Many of the services that are taken for granted when reaching for the latest mobile devices are simply not available to people with disabilities on account of their lack of touch, motor skills, cognitive capacity, hearing or sight.”

The report recommends that websites, applications and content be so designed and labelled as to ease navigation through the software; also that the interlinking of peripherals, smartphones, tablets, laptops and televisions be made more straightforward.

Mr Daniels of *TelecomTV* urged a broader sphere of interest in these special connectivity needs. Citing the research firm Gartner as source, he said that the disabled population

and their immediate friends and family have an annual disposable income of over \$8 trillion. “That’s not a market that digital companies want to ignore,” he wrote. “So it should no longer be regarded as ‘niche’ and the sole preserve of specialist ‘assistive technology’ firms.”

➤ Mr Lewis, the Telefónica researcher, believes that an “accessibility revolution” in the disabled community would also hold benefits for the other 85 per cent of the population. Better-annotated applications, content and websites are easier for anyone to navigate. With better speech input and text-to-speech output, drivers would be less likely to pick up their mobiles while behind the wheel.

He told Mr Daniels: “Innovations from apps developers, service providers and device manufacturers all play their role in enhancing the accessible world.”

## Elsewhere in telecom . . .

➤ According to the Global Net Index published by Ookla, in May of this year New Zealand was first among 107 countries in mobile download speeds; and Vodafone service was fastest, averaging downloads of just over 28.5 Mbps.

This means Vodafone New Zealand customers could download content more than three times faster than the global mobile download average of 8.0 Mbps.

Ookla (Kalispell, Montana, USA) performs broadband testing and web-based network diagnostics. Its index is based on millions of current cellular test results collected from both iOS and Android platforms.

The value is the rolling mean speed in Mbps over the previous 30 days. Only tests taken within 300 miles of the server are eligible for inclusion in the index.

Vodafone New Zealand had been in the top position four times in the five months prior to May. The company brought 4G to New Zealand and has said that its 4G network reaches 58 per cent of the country’s population.

## 市场调研报告称：欧洲将在今年电信资本消费中占主导地位

英飞耐研究公司 (Infonetics Research) (加利福尼亚坎贝拉) 每年出版两次的《全球电信和数据通讯市场趋势及驱动力》报告提供全球及地区电信市场环境和趋势的分析。2014年6月期刊的摘录如下：

- 国际货币基金组织 (IMF) 预测2014年全球经济将增长3.6% (与2013年相比增加了0.06%)，其中英国与德国将复苏，而日本、俄罗斯、巴西及南非增长将放缓。
- 移动服务收入仍旧是全球范围内电信/数据通讯增长的主要驱动力，移动宽带增长盛不衰的增长起了带头作用。
- 为避免沦为渠道供应商的角色，诸多服务供应商正部署或重新考虑的架构选项，诸如缓存/内容交付、分布式宽带接入服务/宽带网关 (BRAS/BNG)、次世代中央办公室、分布式微型数据中心、及视频优化。
- 软件定义网络 (SDNs) 及网络功能虚拟化 (NFV) 得到了几乎所有服务供应商的关注，这些供应商正在广泛部署的慢慢长路之上。
- 大数据正变得越来越易管理。运营商利用用户和网络智能来为营销和忠诚度战略、客户流失管理、及使用SDN及NFV的网络的自动化/优化提供支持。
- 云、迁移率、自带移动设备 (BYOD) 及虚拟化是推动企业网络及通讯技术支出的流行趋势，北美在此领先一步。

英飞耐研究公司的移动基建及运营商领域首席分析师史蒂芬·特罗 (Stéphane Téral) 称，该市场调研机构预计今年美洲的资本支出将放缓；但是与以往不同的是，欧洲“将会在电信开支中占主导地位。”“我们预计随着欧洲、中东及非洲地区 (EMEA) 成为增长的驱动力，尽管全欧洲长期以来低至个位数的收入增长有所减少，全球运营商资本支出仍将增加4%。”特罗先生写道。“在历经多年等待其网络升级之后，欧洲的‘5巨头’——德国电信、橙 (Orange)、意大利电信集团，西班牙电信及沃达丰——已决定是时候采取决定性的措施了。”该年中发布报告的共同作者马提亚·马楚温斯基 (Matthias Machowinski) 称，欧洲的成熟经济体经济扩张和失业率的下降正“驱动企业在电信和数据通讯方面的支出增长。”英飞耐研究公司为企业网络指导分析师亦称该研究预期网络基建行业将成为今年投资增长的主要受益者，其次是安全行业。

## 在5G技术上“突破极限”，瑞典爱立信致力于将自己定位为下一代技术的领导者

在六月末，电信基础设施供应商爱立信在其位于西斯塔的实验室中展示了其标准5G网络技术。由来自日本日本电话公司 (NTT DoCoMo) 和韩国SK电信的高级管理人员见证，爱立信在一次展出中现场演示以5Gb/秒的速度运行的5G技术，该技术预计在未来6年左右的时间实现商业化。可用的5G——仍旧在被定义的早期阶段，更不用说标准化了——预计不会在2020年前实现。《移动世界直播 (Mobile World Live)》(7月2日) 的理查德·汉福德 (Richard Handford) 询问，5G所能达速度是否有一定程度夸大的风险，爱立信的首席技术官乌尔夫·瓦德森 (Ulf Ewaldsson) 承认有这种可能。“我认为，这种情况总是存在的，如果我们回顾一下除第一代之外的所有无线技术，”他回答称。“新一代技术的大肆宣传伴随着数字通讯和2G而来，接着是宽带和3G，然后是真正的宽带接入4G——我认为这是夸大了技术能做到的风险。”但是瓦德森先生说，他的公司认为“突破极限”的需求将能兑现在速度上超过固定网络的期望。因此邀请运营商见证实验室的演示。

## 包括微软在内支持基于高通发起的为物联网设立标准

美国微软公司已经加入了AllSeen联盟 (AllSeen Alliance)，该开源项目由高通公司 (Qualcomm technology) 创立，旨在将物联网的互联标准化：对于智能设备共同运作必不可少。如《激情无线》(7月2日) 的菲尔·戈德斯坦 (Phil Goldstein) 评论，该软件巨头参与其中将增加成员的力量，该联盟会员很大程度上由家用电子产品及家用电器制造商主导。该51个成员的组织领导包括海尔 (中国)，乐金电子 (LG Electronics) (韩国)，及松下公司和夏普 (均为日本)。微软的加入能够确保未来视窗 (Windows) 设备与其他连接工具能够通过物联网联盟规范进行交流。

“微软相信物联网并非未来主义概念，而是当前我们身边所有的设备、传感器和云构架，”微软运营系统集团的总经理凯文·达拉斯 (Kevin Dallas) 在声明中说。戈德斯坦先生跟踪了该集团的发展直至2013年12月，且高通将其AllJoyn构架的代码授权给Linux基金会。作为回报，Linux允许AllSeen联盟在为物联网连接创造软件标准时使用AllJoyn。目的是允许设备发现并与相邻的产品交互作用而不考虑其潜在的专有

技术或通讯协议。该集团还包括汽车公司、物联网云供应商、企业科技公司、创业公司、芯片制造商、服务供应商、软件开发商及零售商。

- AllSeen联盟在促进物联网标准化中并非一个人在战斗。无线个域网 ZigBee和Z-Wave协议已经被其相关的支持者推动作为IOT的标准。与此同时，一位该行业的内情人士告诉路透社：与高通公司竞争的芯片制造商希望今年夏天发起一个敌对的标准联盟。此外，美国电话电报公司 (AT&T)，思科系统，通用电气，IBM和英特尔最近成立了全美工业网络联盟来创建标准。

## 西班牙电信呼吁移动设备在协助残疾人完全参与到互联世界中承担主要角色

根据世界卫生组织 (WHO) 的观点，地球上十亿人口——差不多七分之一——患有某种形式的残疾。其中3.6亿人为听力障碍；2.85亿人为视觉障碍；1,300万人为肢体受损。电信电视公司 (Telecom Tv) 的盖伊·丹尼斯 (Guy Daniels) 评论称，在一个对链接技术越来越依赖的社会中，对于这部分人中的大多数而言接入服务和产品的难度等级从困难到不可能。声称“我们正在创造一条新的数字鸿沟，这是一个非常真实的危险”的丹尼斯先生回顾一项由西班牙电信于2月在巴塞罗那全球移动通信大会发表的生命。该西班牙电信巨头号召运营商、设备制造商及应用和内容供应商与政府、非政府组织及残疾人社区合作以加快信息共融。(“西班牙电信敦促信息与通讯技术领域创建一个“文化可访问性，”5月30日)

一往直前，西班牙电信委托研究已调查可访问性的问题并分析“尚未开发的十亿人”在何种程度上能获得电信技术。一份初步报告已经观察到十亿恰巧是目前使用活跃智能手机的估计人数，得出结论即现代的移动世界通常对身患残疾的人限制诸多。该报告的作者克里斯·路易斯 (Chris Lewis) 告诉丹尼斯先生：“很多服务在提供给最新的移动设备时理所当然的忽略了残疾人，不考虑他们缺乏触摸、运作技能、认知能力，听力或视力。该报告建议网站、应用及内容被专门设计并标识以使得通过软件易于操作；同理，连接外围设备，智能手机、平板电脑、手提电脑及电视也应更为简便。电信电视公司 (TelecomTV) 的丹尼斯先生呼吁在这些特殊的连接需求中需要关注更广的领域。引用研究机构高德纳公司 (Gartner) 的观点，丹尼斯先生称残疾人群和他们身边的朋友和家人拥有每年超过8万亿美元的可支配收入。“这是一个数码公司不可忽略的市场，”他写道“因此，不应再被视为是‘小众’市场和专业‘助残科技’机构的自留地。”

## The Panama Canal Expansion

### Trade-dependent port cities along the US Pacific Coast brace for a future of big cargo ships and an improved route to the Atlantic

“As construction crews 5,000 miles away are working to widen the Panama Canal to allow much larger ships to sail straight to the East Coast, this historic port city and others along the West Coast are doing everything they can to avoid becoming superfluous.”

Dionne Searcey of the *New York Times* was reporting from Tacoma, Washington, a port whose officials know that that by the time the “new” Panama Canal opens in 2016, plying the oceans will be a fleet of cargo ships so big they will not be able to squeeze through even the wider channel.

Determined to retain their rich import business, Tacoma, Seattle and other West Coast ports are spending billions to be ready to accommodate the ships and keep themselves competitive in the rivalry for foreign trade. (“West Coast Ports Scramble to Keep Big Cargo Vessels,” 27<sup>th</sup> June)

Standing among the jagged rebar and broken concrete of a \$22 million renovation to shore up the port’s Pier 3, the senior project manager for the Port of Tacoma, Trevor Thornsley, told the *Times*: “The ships continue to get bigger, the cranes need to get bigger, and the docks need to be able to handle them.”

Ms Searcey wrote that the work going forward in Tacoma, which “likes to call itself the most trade-dependent city in the nation,” is among dozens of projects under way across the US in response to major changes in the world of container imports from Asia.

“Everybody in the supply chain from the manufacturer to the end consumer – that entire supply chain is changing,” Tay Yoshitani, chief executive of the Port of Seattle, told her. “The port industry is trying to make adjustments.”

Seattle had already spent \$1.2 billion through 2012 to upgrade its port facilities, and an additional outlay of \$5 million to upgrade Terminal 5 has been approved.

Traditionally, America’s West Coast ports are the gateway to the rest of the country for the growing supply of goods from China and Hong Kong. The ports in Tacoma, Seattle and – in California – Oakland, Los Angeles, Long Beach, and elsewhere, offer much shorter sailing times than Gulf Coast and East Coast ports. But for shippers of some goods, Ms Searcey observed, “the web of logistics, including trucks and railroads,” is less expensive if they go through the Panama Canal.

While the widened Panama Canal will allow an all-water route for big ships to the East Coast, the project – originally slated for completion this year – has been plagued with construction delays. And in June the authorities had yet to announce toll charges for passing ships. In the end, Ms Searcey pointed out, it might be too expensive for some ships to use.

It is also possible, she wrote, that railroads moving goods from West Coast ports could lower their fees to make it more economical for ships to avoid the Panama Canal route.

John Martin, who works as an economic consultant for several ports, told her: “The uncertainty as to what’s going to happen with rates is huge.”

Other concerns for the American port cities originate farther from home. Ocean routes could shift as Asian manufacturing continues to move from China to countries to the south, like Singapore and Vietnam, which are closer by sea to US East Coast ports through the Suez Canal than to West Coast ports across the Pacific.

⊕ A new competitive threat has emerged 500 miles north of the US border with Canada. Tacoma and Seattle are losing market share to the Port of Prince Rupert in British Columbia: just six years old and already doing brisk business with goods headed for the Midwest United States, noted Ms Searcey.

“For trade with China, Prince Rupert’s appeal is proximity,” she wrote. It requires two to three fewer days at sea from China than the US Pacific ports. And analysts told the *Times* that Canadian railroads are offering bargain rates to ship goods from Prince Rupert to cities in the US Midwest. Moreover, cargo carriers debarking in Canada can avoid taxes imposed by Washington.

⊕ In the spirit of the common enterprise – unity and strength in the face of competition from Canada and elsewhere – Tacoma and Seattle have forged a new alliance. This year, for the first time, the two ports obtained permission from the Federal Maritime Commission to share information on operations and rates. They are coordinating lobbying tactics as well as construction projects to prevent duplication of effort, officials said, and are researching other ways to cooperate.

“In the past 60 years we’ve truly been cutthroat,” Stephanie Bowman, a commissioner for the Port of Seattle, told the *Times*’s Dionne Searcey. “[But now] we’ve been able to work together and put aside our historical competition.”

## Energy

⊕ According to the Michigan Public Service Commission, the cost of producing wind energy in the state was down from more than \$100 a megawatt hour in 2009 to as little as \$50 per MWh in 2012, making it about half as expensive than originally projected by utility companies.

Wind is now the primary source of new renewable energy in Michigan, home to some 120 companies that supply wind components and employ 4,000 people.

A state law that requires 10 per cent of electricity produced to come from renewable sources by the end

of 2015 has helped promote the construction of wind farms. Since the law was passed in 2008, utilities have invested more than \$2.2 billion in renewable technology, including building hundreds of wind turbines.

The Public Service Commission said on 27<sup>th</sup> June that there are now more than 20 wind farms, either operational or in development, in Michigan.

- ☛ The last major obstacle to General Electric's \$13.5 billion acquisition of the energy assets of Alstom fell on 22<sup>nd</sup> June, when the French government said it would take a 20 per cent stake in the remaining portion of the French industrial conglomerate.

When the state holding company, the Agence des Participations de l'État, made its surprise move, Alstom's board accepted GE's offer for the energy business.

The deal that Alstom and GE tentatively reached in late April had been stopped by opposition from the government, which regards Alstom as a French national asset. Some concern was expressed about critical nuclear technology coming under foreign control.

Now Paris has won at least a symbolic victory by keeping a large portion of Alstom as a French company. And General Electric (Fairfield, Connecticut), having made a few concessions, obtained what it was seeking: a unit which makes power generation equipment and the electrical grid to deliver energy to customers.

## Metals

- ☛ Drawing inspiration from the structure of bones and bamboo, researchers at North Carolina State University have found that by gradually changing the internal structure of metals they can produce stronger, tougher materials that can be customised for a wide variety of applications including automobile parts.

Yuntian Zhu, a professor of materials science and engineering at the college and co-author of two papers on the new work, explained that the small grains at the surface of metals make it harder but less ductile.

Professor Zhu told *R&D Magazine* (2<sup>nd</sup> July) that by gradually increasing the size of the grains further down in the material the research team was able to enhance both ductility and strength.

"We call this a 'gradient structure,' and you can use this technique to customise a metal's characteristics," said Xiaolei Wu, a professor of materials science at the Institute of Mechanics of the Chinese Academy of Sciences, and co-author.

Professors Wu and Zhu tested the gradient structure concept in a variety of metals, including copper, iron, nickel, and stainless and interstitial-free (IF) steel. They said that the technique improved the metal's properties in all of them.

- ☛ A survey of executives in Canadian and US metals and mining companies found that investment in digital technology by their firms has increased and will continue to rise.

Nine out of ten of the executives surveyed in February by the global management consultancy Accenture said the way they do business will be markedly influenced by a strategy incorporating digital technology. Companies that do not embrace digital will lose their competitive position and may face extinction, according to 88 per cent of respondents.

One-quarter of the North American mining executives surveyed said their digital investment in the previous three years had doubled or more.

Over the next three years 33 per cent will significantly increase their digital investment, 63 per cent will increase that spending modestly, and 5 per cent will stay at current spending levels. No companies surveyed are planning to cut back on digital investment to 2017.

Looking ahead five years, the mining executives expect digital to improve company productivity (73 per cent), reorganise operations (65 per cent), and optimise the supply chain (58 per cent). Accenture (Dublin, Ireland) conducted the online survey of executives at 40 medium-to-large metals and mining companies.

## Automotive

### Fiat Chrysler, late to the party in India, will try to establish itself there by selling Jeeps

"Gaining a foothold in India is important for Jeep because [India] is an emerging market and Jeep is trying to be a global brand. Meanwhile Ford, Hyundai, Honda, Maruti Suzuki and Toyota are far ahead there."

After supplying this context for the declared intention of Fiat Chrysler Automobiles (FCA) to begin selling Jeeps in India before the end of 2015, *Detroit Free Press* business writer Brent Snively noted that India can be a difficult place for new competitors. On the previous day, 25<sup>th</sup> June, reports had surfaced that Germany's Volkswagen may restructure operations in India for its Skoda brand, which accounted for less than one per cent of India's auto sales.

Fiat Chrysler's approach to India has been tentative as well as tardy. Mike Manley, who heads the auto maker's international operations as well as the Jeep unit, shared FCA's reasons for its mid-2013 decision to postpone an Indian launch of Jeep: currency fluctuations, and unreadiness.

But, he told Mr Snively at Chrysler's proving grounds in Chelsea, Michigan, the company has put uncertainty behind it and is now intent on introducing the Jeep to Indian car buyers. ("Jeep to Compete in India's Emerging Market in 2015," 26<sup>th</sup> June)



Jeep Grand Cherokee and Wrangler will be the first FCA products offered in India. The company is looking for 15 to 20 dealers in India's major cities as it puts together a dealer network.

Eventually, FCA wants to produce Jeeps in India. The company is in a joint venture with Tata Motors near Pune, and Mr Manley said there is enough excess production capacity at the factory there to begin building some Jeeps.

"If you are going to be successful with Jeep you are going to have to localise vehicle production in India," he told Mr Snavelly.

🌐 Jeep sold 731,565 SUVs globally in 2013, and Mr Manley said it is on track to sell more than a million this year. But the Jeep chief, while confident, is also realistic about India's intensely competitive marketplace.

"In recent years a huge number of global original equipment manufacturers have increased their production," Mr Manley told the *Free Press*. "We see pricing as being very difficult."

🌐 Doing well by doing good? Tesla invites rival electric car makers to make free of its technology.

Tesla Motors (Palo Alto, California) said on 12<sup>th</sup> June that it was lifting the lid on its trade secrets in an attempt by CEO Elon Musk to bring down costs in the electric car industry and open business opportunities. Tesla, which has enjoyed considerable success with its luxury electric vehicles, pledged itself not to initiate any patent lawsuits against competitors.

Mr Musk has repeatedly asserted that his primary goal of more widespread electric car usage is more important to him than Tesla's ultimate success.

But the creation of a larger market for electric cars would also probably have the incidental effect of dropping the cost of his company's charging-station infrastructure.

Industry experts have tied Tesla's long-term future to the manufacture of a low-priced, mass-market model, and Mr Musk has promised an electric car costing less than \$35,000 within the next three years. Because meeting that target would require a sharp reduction in battery costs, Tesla will build a larger-scale battery operation.

Initial capacity of the plant is to be 500,000 batteries a year – far in excess of Tesla's current needs. Presumably other electric car makers, using technology from Tesla, might choose to supply their battery needs from that source.

Tesla has worked with other car makers in the past, helping them develop electric cars, and has supplied batteries to Japan's Toyota and Daimler, the German owner of Mercedes-Benz. Both are shareholders in Mr Musk's company.

## Elsewhere in automotive . . .

🌐 Daimler and Renault-Nissan on 27<sup>th</sup> June announced a joint venture to produce a new generation of compact

Mercedes and Infiniti cars in Mexico. The car makers said they would invest about \$1.4 billion to build a plant in Aguascalientes, about 300 miles north of Mexico City, where Nissan already has a major production operation.

The vehicles produced by the 50-50 partnership are to carry different brand names but share many components.

The project reflects a trend for car companies to share the costs of developing and producing new models while maintaining separate brand identities. Mercedes and Renault-Nissan, the French-Japanese alliance, already make four-cylinder engines together at a factory in Decherd, Tennessee.

But the chief executives of the two companies made it plain that there are no plans for a merger. In Stuttgart, the home of Daimler, memories endure of the company's disastrous acquisition in 1998 of the US car maker Chrysler and the decade of disintegration that ensued.

## Manufacturing

### China is giving way to Mexico as American companies in greater numbers relocate their labour-intensive factory operations

"When you have the wages in China doubling every few years, it changes the whole calculus."

Christopher Wilson, an economics scholar at the Mexico Institute of the Woodrow Wilson International Center for Scholars in Washington, had cited the main reason why Mexico has become the most competitive place to manufacture goods for the North American market. It has also, in his view, become the most cost-competitive place anywhere in the world for some types of manufacturing.

In an interview last spring with Damien Cave, a Mexico City-based correspondent for the *New York Times*, Mr Wilson took note of a reversal that until recently was scarcely conceivable.

With labour costs rising rapidly in China, American manufacturers of all sizes are looking south to Mexico with what economists see as an eagerness reminiscent of the early years of the North American Free Trade Agreement in the 1990s. ("As Ties With China Unravel, US Companies Head to Mexico," 31<sup>st</sup> May)

Wrote Mr Cave: "From border cities like Tijuana to the central plains where new factories are filling farmland, Mexican workers are increasingly in demand."

According to the International Monetary Fund, Foreign direct investment in Mexico hit a record \$35 billion in 2013. American trade with Mexico grew by nearly 30 per cent since 2010, to \$507 billion annually.

Over the past few years, manufactured goods from Mexico have claimed a larger share of the American import market

# From the Americas

– reaching a high of about 14 per cent – while China’s share has declined.

In addition to the US companies cutting back in China and heading to Mexico, Mr Cave noted, many manufacturers – including well-known names like Caterpillar, Chrysler, and Stanley Black & Decker – are expanding there.

With their billions of investment dollars they are helping to drive the economic integration that US President Barack Obama and Mexican President Enrique Peña Nieto have both said is vital to growth.



○ Mexican president Enrique Peña Nieto



○ United States president Barack Obama

While in some cases a move to Mexico is associated with job losses in the United States, economists consulted by the *Times* said that the American economy benefits more from outsourcing manufacturing to Mexico than to China.

According to the National Bureau of Economic Research, a private research group, roughly 40 per cent of the parts found in Mexican imports came originally from the United States, compared with only four per cent for Chinese imports.

Such comparisons appear to have blunted some of the scorn that greeted American companies moving production to Mexico in the 1990s, observed Mr Cave. Even so, it would be a mistake to believe that nothing is lost in the shift of a manufacturing base.

Scott Stanley, a senior vice president at North American Production Sharing, one of the largest firms to help American companies set up production facilities in Mexico, told the *Times*: “There are a lot of examples of clients who were in Mexico, went to China and now want to come back, and most of them have given up their expertise in manufacturing.”

☎ To draw more US companies to Mexico now – executives, officials and experts say – the adjoining nations will need to become better neighbours, more focused on sharing labour and moving product. Mr Wilson at the Mexico Institute called particularly for “globally literate workforces in both countries.”

At a very basic level, he told the *Times*, that means teaching more Spanish in the US and more English in Mexico. Other, more immediate, improvements he considers necessary include shorter wait times at border crossings and, in Mexico, better roads and lower-cost electricity.

☎ Mr Cave summed up on a cautionary note: “After all, as the rise of China showed once before, there is no guarantee that Mexican and American manufacturing will stay attractive for long.”

## The US economy

### ‘Ticking along at a good clip’ at midyear – but with plenty of room for improvement

According to *Bloomberg BusinessWeek* economics editor Peter Coy, nearly seven years after the last recession began the US economy was “ticking along at a good clip” at the midpoint of 2014. If proof were needed, the ADP Research Institute reported that private employers added 281,000 jobs in June, exceeding the most optimistic forecast of economists surveyed by *Bloomberg*. (“Jobs Growth Adds More Sunshine to US Economic Performance,” 2<sup>nd</sup> July)

The Bureau of Labor Statistics had recently provided additional encouragement. May of this year was the first month which saw employment in the US climb above where it was when the recession began in December 2007. June results would extend the trend.

“The labour market appears to be firing on all cylinders and is finally self-sustaining,” wrote two PNC Financial Services economists in a note to clients.

No one would argue that all is well. Long-term unemployment remains high and many new jobs pay below-average wages. Productivity growth is weak, furnishing one reason for the strong job figures: companies need to hire more labour to get the job done. And consumer spending adjusted for inflation fell in both April and May.

“The economy is not growing quickly enough to use up the excess capacity that has accumulated since the crises began several years ago,” Steven Ricchiuto, chief economist of Mizuho Securities USA, told *Bloomberg*.

☎ Still, Mr Coy noted, the US economy was certainly looking stronger than one might have supposed from the 25<sup>th</sup> June government report that GDP (gross domestic product) fell at an annual rate of 2.9 per cent in the first three months of 2014.

A week later, economists were estimating that the economy in fact grew at a three per cent annual rate in the quarter – a remarkable reversal.

In other good news on 2<sup>nd</sup> July, capital goods shipments came in above expectations. And the research firm Autodata reported that May had been the best month in US light-vehicle sales since July 2006. Even General Motors, whose reputation has been badly damaged by record recalls, experienced a sales rise.

**Dorothy Fabian**  
Features Editor

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## 巴拿马运河拓宽

### 美国太平洋海岸沿线贸易依赖型城市为未来的大型货运船和到大西洋改进路线做准备

“5,000英里外的施工队伍正在施工拓展巴拿马运河以使得更大的船能直接行驶到东海岸，这个历史悠久的港口城市和其他西海岸沿线的港口城市正尽一切所能免遭遗弃。”

《纽约时报》的迪翁·谢尔希 (Dionne Searcey) 从华盛顿塔科马发回报道说，该港口的官员都知道在2016年“新”巴拿马运河开放前，在海上航行的货船体积如此巨大，即便运河再宽也无法挤入。决心要留住他们入帐丰厚的进口业务，塔科马、西雅图和其他西海岸港口花费数十亿美元以为适应船舶，并在对手林立的海外贸易中保持自身竞争力做准备。（“西海岸港口争相挽留大型货轮，”6月27日）

花费2,200万美元整修以加固该港口的3号码头，站在锯齿林立的钢筋和破碎的水泥块之间，塔科马港的高级项目经理，特雷弗·瑟翁雷 (Trevor Thornsley)，告诉《时报》“船一直在变大，起重机也需要变大，而码头也需要有能力承载他们。”谢尔希女士写道，塔科马在努力前进，这个“喜欢称自己为整个国家中最依赖贸易的城市，”是遍布全美应对从亚洲进口集装箱的世界发生重大变化的数十个在建项目之一。

“供应链的各个环节从生产到最终消费者——整个供应链正在发生改变，”西雅图港的首席执行官泰·吉谷 (Tay Yoshitani) 告诉她。“港口行业正准备作出调整。”

2012全年西雅图已经花费12亿美元升级其港口设备，此外，额外花费500万美元以升级5号终端已经获准。通常，美国西海岸的港口是日益增长的来自中国和香港货源驶往美国其他地区的大门。塔科马、西雅图——在加利福尼亚——奥克兰，洛杉矶，长滩及其它地方的港口，提供比墨西哥湾地区和东海岸港口少许多的航运时间。但是对某些货物的运货商而言，谢尔希女士观察到，“物流网，包括卡车和铁路，”如果他们通过巴拿马运河将更便宜。

在拓宽运河将使得到东海岸的大船能有一条全水路航线的同时，该项目——原本定于今年完成——已经饱受工期延误的困扰。而且直至6月，当局尚未公布过往船只的通行费。最后，谢尔希女士指出，对于某些船只而言，使用该航线费用可能太高了。

还有种可能，她写道，铁路从西海岸运输货物可能降低他们的费用，使之相对船运而言更经济以避开巴拿马运河路线。在多个港口担任经济顾问的约翰·马丁 (John Martin)，告诉她：“由于费用庞大大会发生什么尚不确定。”

对于美国港口城市的其他问题源于离开本土较远。海运路线可能由于亚洲制造业不断从中国向南迁移至诸如新加坡、越南而改变，上述国家对美国东海岸港口而言，通过苏伊士运河的海上距离要比通过太平洋的西海岸港口近很多。

一个新的竞争威胁已经出现在美国与加拿大交界北部500英里处。塔科马和西雅图正在被不列颠哥伦比亚的鲁伯特王子港夺取市场份额：仅仅六年就随着发往美国中西部地区的货物变得生意兴隆，谢尔希女士评论道。“对于与中国的贸易，鲁伯特王子港的吸引力是距离近，”她写道。海运从中国到鲁伯特王子港比到美国的太平洋口港时间上节省了2至3天。同时，分析师告诉《时报》加拿大铁路为货物从鲁伯特王子港运输到美国中西部提供便宜的费率。此外，在加拿大卸货的货轮能避免华盛顿征税。

本着共同事业的精神——团结和强大面对来自加拿大和其他地方的竞争——塔科马和西雅图已经达成一个新的联盟。今年是第一次这两个港口获得联邦海事委员会的准许在运营和

费率上共享信息。他们正协调游说策略以及基建项目防止重复劳动，官员说，还在研究其他合作方式。

“在过去的六十年里我们的确曾同室操戈，”西雅图港的一位理事史蒂芬妮·鲍曼 (Stephanie Bowman) 告诉《时报》的迪翁·谢尔希。“[但是现在]我们已经能把以往的竞争放在一边共同合作了。”

## 能源行业新闻

根据密西根公共服务委员会的观点，该州风能产生的成本从2009年的超过100美元每兆瓦时 (megawatt hour) 下降到2012年的差不多50美元每兆瓦时，使得其成本仅为公用事业公司最初预计的一半。风能目前是密西根州新型可再生能源的首要来源，该州是120家提供风要素的公司的总部所在地且拥有4,000名雇员。

州法律要求在2015年年末之前10%的电能产出元资源可再生资源，该法律促进了风电场的建设。由于该法律于2008年通过，公用事业部门已经投资超过22亿美元在可再生能源科技，包括正在建造的数百个发电机组。公共服务委员会6月27日称目前密西根有超过20个风电场，其中包括已在运营的和正待开发的。

通用电气135亿美元收购阿尔斯通资产的最后障碍在6月22日清除了，当天，法国政府宣布其将在该法国工业集团剩余部分中占据20%。当该国有控股公司，国家所有权机构 (Agence des Participations de l'État)，作出了出人意料的举动，阿尔斯通的董事会接受了通用电气的对能源业务的要约。这笔阿尔斯通与通用电气之间在4月下旬进行的试探性的交易因政府的反对而停止，政府认为阿尔斯通是法国国家资产。有些人表示了至关重要的核技术由外国人控制的担心。现在巴黎至少已经赢得了象征性的胜利，保留了阿尔斯通作为法国公司大部分的份额。通用电气 (康奈迪克州费尔菲尔德) 已作出一些让步，得到了其所寻觅的：一家制造发电设备的企业以及传输电力给客户的电网。

## 金属材料行业新闻

从骨骼和竹子的结构中汲取灵感，北卡罗莱纳州立大学的研究人员发现通过逐渐改变金属的内部结构可以生产出更硬更强的材料，使其能为包括汽车零部件在内的各种不同的应用所定制。朱云天 (Yuntian Zhu)，该大学材料学和工程学教授，也是两篇新课题论文的共同作者，解释说金属表面的小颗粒使其更坚硬但是缺乏延展性。他告诉《研究与发展杂志 (R&D Magazine)》(7月2日) 通过更深入材料内部逐渐增加颗粒的尺寸使得研究团队能够同时增加材料的延展性和强度。“我们称其为‘结构梯度，’你能使用这项技术来定制材料的特性，”吴晓雷 (Xiaolei Wu) 说，他是中国科学院力学研究所材料学教授，也是共同作者。吴教授和朱教授在不同的金属上测试了结构梯度，其中包括铜、铁、镍及不锈钢和无间隙 (IF) 钢。他们称该技术改善了上述所有材料的金属性质。

一项对加拿大和美国金属及矿业公司高管的调查发现他们对数字科技的投资已经增加并将持续攀升。90%的高管接受了全球管理咨询机构埃森哲咨询公司 (Accenture) 在2月所作的调查，该公司称高管们做业务的方式将显然受到与数字科技相结合的战略影响。根据88%的受访者的观点：不接受数字技术的公司将会失去他们的竞争地位并可能面临终结。四分之一的北美矿业公司高管调查时称他们的数字投资在过去三年已经翻番甚至更多。在未来的3年33%将大幅提高他们的对数字技术的投资，63%将会适当增加开销，5%将会保持在目前的消费水平。调查中没有公司计划2017年之前削减数字技术投资。展望未来的5年，矿业公司高管预期数

字技术改善公司的生产力(73%)，对运营进行重组(65%)，以及优化供应链(58%)。埃森哲咨询公司(爱尔兰都柏林)对40家从中等规模到大的金属及矿业公司的高管进行网上调查。

## 汽车行业新闻

### 菲亚特-克莱斯勒，印度市场的后发者，将尝试以销售吉普品牌在当地确立自身地位

“在印度获得立足点对于吉普品牌而言非常重要，因为[印度]是一个新兴市场而吉普正试图成为一个全球品牌。与此同时，福特、现代、本田、马鲁蒂铃木以及丰田已在当地遥遥领先。”

在这篇宣布菲亚特-克莱斯勒(FCA)意图在2015年年底之前开始在印度销售吉普的消息的后面，《底特律自由新闻报》商务作家布兰特·斯纳弗列(Brent Snively)评论称印度对于新的竞争参与者来说将会是“硬骨头”。前一天即6月25日，报导已经明确德国大众公司将其在印度的斯柯达品牌调整运营结构，该品牌占印度汽车销售量不到1%。菲亚特-克莱斯勒进入印度一直是试探性的也是迟缓的。麦克·曼利(Mike Manley)，该汽车制造商国际运营部负责人同时也领导者吉普品牌，分享了菲亚特-克莱斯勒汽车公司在2013年中期推迟在印度发行吉普的原因：货币波动，以及准备不足。

但是，他在位于密西根州切尔西的克莱斯勒试验场告诉斯纳弗列先生，公司已经将不确定性放在一边且如今意图将吉普引荐给印度汽车买家。“吉普将在2015年进入印度新兴市场，”6月26日吉普大切诺基和牧马人将成为FCA第一个在印度提供的产品。公司正在印度的主要城市寻找15-20个经销商，尤其构成一个经销商网络。

最终，FCA想要在印度生产吉普。该公司正与塔塔汽车公司在普纳成立合资企业，同时曼利先生说工厂有足够多余的生产能力以开始建造部分吉普。“如果你要与吉普一起走向成功，你就必须在印度将生产本土化，”他告诉斯纳弗列先生。

2013年吉普在全球范围内销售了731,565多功能轿车，曼利先生说今年正步入销售量超过100万的轨道上。但是这位吉普总裁，自信满满的同时，也要面对印度市场竞争激烈的现实。“最近几年数量巨大的全球原始设备制造上已经增加了他们的产量，”曼利先生告诉《自由新闻报》“我们明白定价正变得非常困难。”

行善以尽善尽美?特斯拉邀请竞争对手电子汽车制造商以免费提供技术。特斯拉汽车公司(Tesla Motors)(加利福尼亚州帕洛阿尔多市)称6月12日，在其首席执行官伊隆·马斯克(Elon Musk)意图下其将揭开自身的商业秘密以降低电动车行业的成本并开放商业机会。特斯拉，凭借其豪华型电动车获得相当大的成功，承诺其将不会提出专利诉讼以打击竞争对手。马斯克先生反复声明其首要目标为更大范围的拓展电动汽车的应用对他而言比特斯拉最终的成功更重要。但是创造一个电动车的巨大市场将同样可能带来降低他公司的充电站基建成本的额外效果。行业专家已经将特斯拉的长期未来与生产低价、大量销售的车型相结合，同时马斯克先生已经许诺在未来三年内将生产一款成本低于3.5万美元的电动车。因为满足这个目标需大幅降低电池成本，特斯拉将会建造一个大规模的电池企业。该工厂初步的生产能力为每年500,000电池——远超特斯拉目前所需。可能是其他使用来源于特斯拉技术的电子汽车制造商在为其电池需求选择供应商时会选择该渠道。特斯拉过去曾与其他汽车制造商合作，帮助他们开发电动车，并为日本丰田汽车和德国梅斯莱斯-奔驰的所有者戴勒姆公司提供电池。两家公司都是马斯克先生的公司股东。

## 制造业新闻

### 由于越来越多的美国公司将其劳动密集型工厂搬迁，中国正让位于墨西哥

“当每隔几年你在中国的工资就得就翻一番的时候，它改变了整个的系统。”

克里斯多夫·威尔逊(Christopher Wilson)，位于华盛顿的伍德罗·威尔逊国际学者中心墨西哥研究所的经济学家，评论了墨西哥成为北美生产货品最具竞争力的地方的主要原因。在其观点中，墨西哥也成为这世界上对于某类制造业而言是最具成本竞争力的地方。去年春天，接受《纽约时报》墨西哥城通讯记者戴米恩·凯夫(Damien Cave)的采访中，威尔逊先生说明了一项迄今为止不可想象的逆转。随着中国劳动成本的迅速提高，美国各个规模的制造商正将目光转向南方的墨西哥，以及经济学家视为对上世纪90年代的《北美自由贸易协定》早期热切怀念。“随着与中国纽带的解散，美国公司前往墨西哥，”5月31日

凯夫先生写道：“从诸如提华纳这样的边境城市到新工厂所在的中部平原充斥着农田，对墨西哥工人的需求正不断的增长。”根据国际货币基金组织，对墨西哥的海外直接投资在2013年达到了350亿美元的记录。美国与墨西哥的贸易自2010年以来增长了30%，达到了每年5070亿美元。在过去的数年里，来自墨西哥的制成品已经占据了美国进口市场很大的份额——达到了14%的高点——与此同时中国比重有所下降。

除美国公司从中国撤回并迁往墨西哥之外，凯夫先生注意到，很多制造商——包括众所周知的品牌，诸如卡特彼勒(Caterpillar)、克莱斯勒及史丹利百德(Stanley Black & Decker)——都在墨西哥扩张。凭借他们数以十亿计的投资，他们正在帮助推动经济一体化，美国总统奥巴马和墨西哥总统恩里克·佩尼亚·涅托(Enrique Peña Nieto)均声明经济一体化是增长至关重要的因素。

尽管某些情况下迁移至墨西哥意味着美国工作岗位的丢失，《时报》咨询的经济学家称美国经济从生产外包给墨西哥中所得利益比外包给中国大很多。根据美国经济研究所，某民营研究集团的观点，从墨西哥进口的零部件中大约40%源自于美国，相比之下从中国进口的零部件中该比例仅为4%。

凯夫先生注意到，上述的比较显然减轻了一部分对美国在上世纪90年代中将生产迁移至墨西哥的冷嘲热讽。即便如此，认为迁移生产基地将没有任何损失的想法是错误的。

斯科特·斯坦利(Scott Stanley)，北美生产共享公司(North American Production Sharing)的高级副总裁，该公司是帮助美国公司在墨西哥建立生产厂房的最大机构，他告诉《时报》：“客户中有很多这样的例子，曾在墨西哥后来去了中国，现在又想回来，他们中的大部分已经放弃了在制造业的专长。”

目前为了吸引更多的美国公司到墨西哥——高管、官员和专家们说——相邻的国家将需要变成更好的邻居，更专注于分享劳动力和移动产品。墨西哥研究所的威尔逊先生特别要求“两个国家中全球受过教育的劳动力。”在非常基础的水平上，他告诉《时报》，这意味着在美国教授更多的西班牙语同时在墨西哥教授更多的英语。另外，他认为更为紧要的，务须改善的事项包括缩短跨境的等待时间，以及在墨西哥，更多的道路和价格更为低廉的电力。

凯夫先生总结了警示事项：“毕竟，中国之前展示了崛起，因此不能保证墨西哥和美国的制造业将长时间保持吸引力。”

专栏编辑: Dorothy Fabian

# 2014 中国线材展

## wire China 2014

6<sup>th</sup> International Wire and Cable Trade Fair for China



**SHANGHAI'S New International Expo Centre is the venue for one of the year's most eagerly anticipated exhibitions – wire China.**

**wire China is a launching board for companies wishing to invest in both the industry and the region. So it is no surprise that this remains one of the most eagerly anticipated exhibitions in the calendar, with more than 33,000 visitors expected to attend from 24<sup>th</sup> to 27<sup>th</sup> September.**

**Organised jointly by Messe Düsseldorf (Shanghai) Co Ltd and Shanghai Electric Cable Research Institute, wire China will host over 1,300 exhibitors during the four-day show. You can read about some of the exhibitors on the following pages.**

**Opening hours:**

**24<sup>th</sup>-26<sup>th</sup> Sept: 9.00am – 4.30pm**

**27<sup>th</sup> Sept: 9.00am – 4.00pm**

**Admission's free for business/trade visitors once registered**

**For enquiries: Tel: +86 216 169 8300**

**Fax: +86 216 169 8301**

**Email: [wire@mds.cn](mailto:wire@mds.cn)**



**AEI Compounds Ltd**  
Stand ..... W1C49

AEI Compounds has expanded its high-performance range of low smoke and fume, zero halogen, crosslinkable compounds intended for use in oil and gas, marine and railway applications. The company's expertise in Sioplas technology has helped in the development of SX-0620 silane crosslinked LSFOH compound, which is a rubber-like, highly flexible, oil-resistant compound solution and has been manufactured to meet strict regulatory performance requirements of cables made to IEC 60092-359 SHF2 and EN50264 EM104.

The compound can now be specified by cable manufacturers operating within the OGP, marine and rail industries to produce tougher and more durable oil resistance cable sheathing needed in harsh, exposed offshore environments. Sioplas technology has also been used to develop SX-0650, an easy process LSFOH compound, which meets the latest requirements of EN50618 and TÜV 2 Pfg 1169/08.2007 for PV solar applications.

To meet UL® PV solar cable standards, AEI Compounds parent company Saco Polymers has launched Pexidan® V/T-2UV, which is a silane crosslinked, RoHS-compliant flame-retardant compound system, UL bulletinised to meet UL4703. Insulation made with this system may be marked SUNRES or 'SR' in all colours and in all sizes per UL44. This product is also CSA listed for RW90, RWU90, RPV90, RPVU90 and CIC, 'SR' and -40°C rated.

For the building wire and conduit cable markets, AEI Compounds has launched SX-0612S, which is a silane crosslinked, easy process and high output insulation material complying with BS7211 and BS EN 50525-3-41:2011. SX-0612S processes at high production speeds, is highly resistant to pre-cure in extruders, and is ambient curable.

**AEI Compounds Ltd – UK**  
Website: [www.aeicompounds.co.uk](http://www.aeicompounds.co.uk)

**AIM Inc**  
Stand ..... W1F04

AIM will be presenting the AFC Compact 3D Bender. The AFC 6 has been growing in popularity due to the small investment, versatility, small footprint and low-cost maintenance.



○ The AFC Compact 3D Bender

The AFC Compact enables smaller companies to bring in automation and larger ones to offset current capacity.

A standard one-year warranty, slip ring technology, DXF/XYZ importation, animation simulator and ease of programming are a few of the features of the AFC Series machines. In addition, robotics, external chamfering and other ancillary devices can be integrated.

Upgraded and updated 2D and 3D CNC wire bending solutions, single and double bending head machines with Fanuc robotics integration and complete automated systems all form part of the bender.

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

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

**AlphaGary**  
Stand ..... W1F08

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

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

- Garathane™ thermoplastic urethane flame retardant blends and alloys. AlphaGary offers colour concentrates to support all of its compound types, both custom-matched and to standards such as Munsell and RAL.

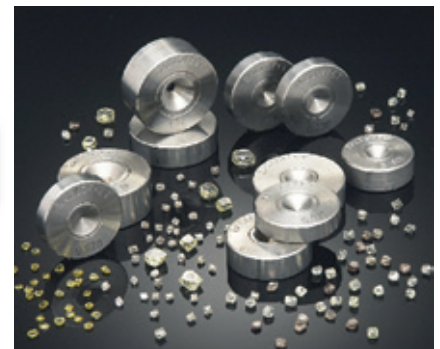
AlphaGary, a Mexichem company, specialises in advanced fire safety and environmental compliance and is committed to providing its customers with material compound solutions to meet the various cable performance requirements in different regions of the world.

It delivers support to help its customers choose the most appropriate materials for speciality cable designs. Its ISO 9001-registered facilities are in the USA, UK, Mexico and Colombia, while the sales team in Asia is operated through IMCD Plastics (Shanghai) Co Ltd.

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

**Baloffet**  
Stand ..... TBA

Headquartered in France, Baloffet has been manufacturing dies since 1870 and has three subsidiary companies in the USA, UK and Germany, as well as a worldwide network of agents. The company has maintained all its die production in Europe.



○ Dies from Baloffet

The company produces natural diamond dies from 6µ to 3mm, synthetic mono-crystalline dies from 6µ to 1mm, poly-crystalline (PCD) dies from 50µ to 30mm, compacting, stranding and special shaped dies, enamelling guides, extrusion tooling (guides and dies), special tooling with diamond inserts and repolishing machines and equipment.

Baloffet also offers repolishing, training of operators and technicians in its own training centre and





# 面对全新的挑战, BETA LaserMike 2014 最新产品介绍

» 创造更多的收益,  
您准备好了吗

高速/四轴外径扫描仪

AccuScan 6012

700MHz数据电缆  
离线测试

DCM SCS-700

三轴凹凸缺陷扫描仪  
(最大15mm/40mm)

LN3015/  
LN3040

数据电缆绞线  
节距在线检测

LayScan

## 从过程控制检测到自动化质量测试

- **AccuScan 6012 外径/椭圆度检测设备**—最大测试范围为12mm的四轴外径仪,以每根轴每秒扫描2400次提供了超乎寻常的扫描速率以及对产品更高范围的覆盖,减小外径检测盲区,可以有效帮助在高速的过程生产中快速发现产品外径的变化。同时,它可以在高线速的生产过程中检测凹凸缺陷。在通讯方面,AccuScan可以非常便捷的与PC或PLC及其他控制设备相连。
- **DCM SCS-700 网络/数据电缆测试系统**—操作简单,功能强悍,可兼顾高低频测试,适用于Cat5e/6/6a电缆的离线测试,易于上手,为您节约更宝贵的测试时间。最高频率可达700Mhz,最低可至100Hz。SCS700可以再3分钟内完成4对绞线的自动测试,之后强大的软件系统完成准确的测试分析以及数据报告。
- **LN3015/LN3040 凹凸缺陷仪**—为需要达到更高质量控制的您打造的全新三轴凹凸缺陷仪。适用于线速度最大每分钟3000米,测量范围至0.02mm到40mm。LN3015/LN3040操作便捷,可自定义编程实现定制化的测量标准。
- **LayScan 节距检测系统**—在成缆,对绞的过程控制中,提供稳定精确的节距检测。在高线速过程生产中,对节距最大到25.4mm的绞线提供精确到0.025mm的精确度。另外,易用的控制软件可提供实时监控,在线显示以及数据报告等功能。通过快速傅里叶变换的方式可以极有效的监控节距的变化趋势,为您提供更好的质量管控。

## BETA LaserMike

使用收益:

- » 改善产品质量
- » 增加生产效率
- » 提高生产可靠性
- » 降低制造成本

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BETA LaserMike



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TECHNOLOGIES

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**Asia**

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Fax: +86 21 6113 3616



# wire China 2014

<<< showroom or at the customer's plant, and control and technical report of customers' dies.

**Baloffet – France**  
Website: [www.baloffetdie.com](http://www.baloffetdie.com)

### Besel Basim Stand ..... W1B49

Besel Basim has been producing and converting flexible materials for technical applications since 1975.



○ The Besel Basim plant in Istanbul, Turkey

The company makes high quality insulating films to match its customers' specifications, based on the materials of ALU, CU, PET, PP, PE, etc, water blocking, semi-conductive and

conductive films, other tapes and foils for the cable industry. The company is ISO9001 certified.

**Besel Basim San ve Tic Ltd Sti – Turkey**  
Website: [www.beselfoil.com](http://www.beselfoil.com)

### Beta LaserMike Stand ..... W1C53

Beta LaserMike will debut several new offerings for in-process dimensional monitoring and control and automated quality cable testing at this year's wire China.

The company's new lineup includes:

Ultra-Fast AccuScan 5000 series diameter gauges. These dual-axis gauges perform high-speed diameter and ovality measurements at 2,400 scans per second per axis and are claimed to provide the highest single-scan accuracy in the industry. The improvements in the single-scan calibration algorithm ensure each scan is highly accurate and reliable. The high-speed tolerance checking option permits the early and precise detection of lumps and necks to eliminate costly

product waste. The STAC (stranded, twisted, armoured and corrugated) logic software option provides accurate maximum/minimum OD or enveloped readings at a higher rate, allowing for faster process control of complex cable constructions. AccuScan gauges effectively measure transparent, translucent and opaque products up to 80mm in diameter. All gauges offer highly flexible communications including RS-232, Ethernet/IP, Ethernet TCP/IP, DeviceNet, Profibus, Profinet, CANOpen, analogue and digital.

LN3040 3-Axis lump and neck detector. The new LN3040 quickly and reliably spots product flaws before they become costly production problems. Fast-sensing and processing technology instantly detects sudden changes in the product diameter to effectively catch the smallest of flaws. The LN3040 measures product diameters up to 40mm and detects flaw height down to 0.05mm at line speeds up to 3,000m/min. It is designed with a user-friendly operator interface, accepts a range of inputs, and provides highly flexible communications such as RS-232, Ethernet/IP, DeviceNet, Profibus and Profinet.

# ultimat

## WIRE FORMING & WELDING MACHINES

AUTOMATIC • STRAIGHTENING • FORMING • WELDING

See us at  
Wire China  
2014



wire CHINA logo  
Stand W1B30

- 2 axis wire forming and welding machines, suitable for POP Displays, Shelving, Household goods and many more
- Automatic Lines for the production of shelving and air filter frames direct from coil
- High Quality Burr-Free welds in mild and stainless steel
- Medium frequency and TIG welding options available
- Square Clean-cut wire ends
- Suited for prototypes to low or high volume production runs
- Versions available for strip or profiled wire
- Automatic Unloading of finished parts
- Secondary Bend Head for tight bends & loops
- Unrivalled service support
- 2 year parts warranty

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Tel: +44 (0) 1403 710043 Fax: +44 (0) 1403 588084 Email: [sales@ultimat.com](mailto:sales@ultimat.com) [www.ultimat.com](http://www.ultimat.com)



○ The new LN3040 3-Axis lump and neck detector

Excess Fiber Length (EFL) measurement system. The latest EFL measurement system enables manufacturers to efficiently, accurately and reliably produce loose tube fibre and fibre ribbon cable. It does this by effectively controlling the excess fibre length to make sure the fibre-to-jacket ratio of product meets exact production specifications. This eliminates time-consuming and costly techniques such as cutting cable, and exposing and cleaning cable fibres to measure product and calculate the

excess fibre length-to-jacket ratio. The EFL measurement system integrates Beta LaserMike's LaserSpeed® length and speed gauges and EFLTrak™ software. DCM bench-top LAN/data cable testing systems. In addition, Beta LaserMike will introduce its new DCM SCS-700 and ES-2G automated testing systems for four-pair LAN/data cables. These systems enable cable makers to test more cable, faster, with higher quality results. The DCM SCS-700 tests Cat 5e/6/6a cables to 700 MHz and offers a low-frequency option to test cables down to 100 Hz. Dual-frequency testing can be performed with a single connection to significantly reduce set-up and testing time.

The DCM ES-2G tests Cat 5/6/6a/7/7a/8 cables to 2.2 GHz. A new technology eliminates the effect of jacket removal on reflection measurements, such as input impedance and return loss. Both the DCM SCS-700 and ES-2G systems are engineered with an automated four-pair switching platform, enabling a cable test in less than three minutes. Both systems include easy-to-use testing software with complete test management and reporting capabilities.

Application specialists will also be available to discuss the following measurement and control solutions for wire and cable: LayScan lay length measurement system; LaserSpeed length and speed gauge; high-frequency spark tester and pre-heater systems; LN Series lump and neckdown detectors; BenchMike table-top cut sample measurement system; DataPro process controller and data management system; SRL Pro on-line structural return loss (SRL) prediction and analysis system; and DCM cable testing systems, bench-top and fully integrated, for LAN/data, telecom, coaxial and aerospace/defence cables.

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

**Blachford Stand .....W1F12**

Blachford has been supplying the global wire drawing industry since the 1950s with cost effective, well-researched and innovative wire drawing lubricant programmes, tailored to the exacting technical specifications of its customers. >>>

See you at:

**wire CHINA**  
 CHINA INTERNATIONAL WIRE & CABLE TRADE FAIR  
 2014.9.24-27  
 W1E16

Esteves Group wire die products and services are maximizing productivity and quality in wire manufacturing applications every day.

The traditional "one-profile fits all" wire die is not up to the challenge of today's competitive market. Learn more at [www.estevesgroup.com](http://www.estevesgroup.com)

**ESTEVES GROUP**  
 THE GLOBAL WIRE DIE COMPANY



# wire China 2014

<<< The company is known for its continuous research of new technologies that aid in the production of wire. It is recognised within the wire industry as an organisation that researches, innovates and works with wire producers to provide technical solutions that create value.

One of Blachford's core competencies is developing lubricant products and programmes that precisely match its customers' technical process requirements. Its in-field engineers and experienced research and development team work closely with customers to fully understand each application's technical requirements to design

○ *Blachford – supplying the global wire industry since the 1950s*



products that meet the customer's goals. The company is dedicated in its commitment to ISO9001-approved product quality. Dr John Blachford, its owner, is well known throughout the chemical industry for his promotion of Responsible Care® and the necessity for his companies to act as responsible corporate citizens. The team is committed to working with its customers to ensure optimum product performance and to use its products in a responsible way.

**Blachford Corp – USA**  
**Website:** [www.blachford.com](http://www.blachford.com)

### CM Caballé Stand ..... W1A50

With over 70 years of experience in the design and manufacture of rotating machinery for the production of power and telecommunication cables as well as steel ropes, the Spanish company CM Caballé provides the cable industry with a wide array of stranding, twinning, bunching and cabling machinery. The firm is constantly developing new, high quality equipment to meet the ever-changing needs

of the wire and cable industry. The company's portfolio includes the following equipment for:

- Power cables: double twist stranders, rigid stranders, drum twisters, single twist stranders, bow skip stranders, tubular stranders, planetary stranders and SZ stranders
- Telecom and LAN cables: double twist pairing-quadding machines, single twist cabling lines, group twinners, drum twisters, shielding-jelly filling-sheathing lines and SZ stranders
- Steel ropes: double twist stranders, tubular stranders, planetary stranders and bow skip stranders
- Ancillary equipment: pay-offs, take-ups, capstans, caterpillars, taping machines and binders

Caballé will display new developments, highlighting the following products:

- Upgraded rigid stranders and drum twisters for HV energy cables (Milliken conductors, overhead conductors with trapezoidal wires)
- Complete range of double twist stranders to manufacture compacted conductors of Cu and Al up to 400mm<sup>2</sup>



## A RELIABLE SOURCE FOR WIRE AND CABLE MACHINES



Drum Twister Laying up Machine

### Our manufacturing range also includes:

- Wire Drawing Machines
- Rigid & Planetary Stranders
- Drum Twister for Power & Telecom Cables
- Core Laying up Machines
- Strip/Wire/Tape Armouring Machines
- Cotton/PVC/Paper/Copper/Steel Taping Heads
- 90/120/200 mm Sheathing Line.
- Cable Rewinding Machines.

# MPI MACHINES LTD.

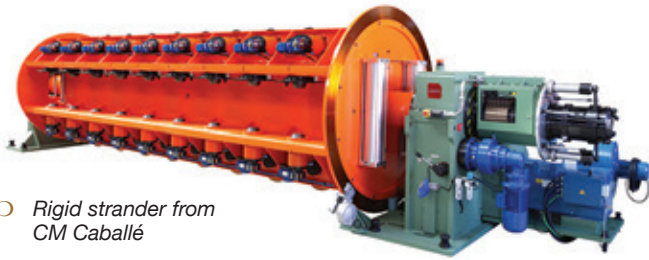
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IKALP

# wire China 2014



○ Rigid strander from CM Caballé

- Complete range of stranders and closers for steel ropes
- Latest improvements in the existing stranders for all types of cable

**CM Caballé SA – Spain**

**Website:** [www.cmcaballe.es](http://www.cmcaballe.es)

## Candor Sweden Stand .....W1B56

Candor was founded in 1946 and specialises in cleaning and plating plants for wire and the supply of chemicals for various applications.

Know-how in chemical processes and its advanced equipment for cleaning and plating of wire makes Candor an ideal choice.



○ Copperjet high speed copper coating plant

The company supplies both single and multi-strand systems for ferrous and non-ferrous materials and all plants are tailor made.

Candor will display the Copperjet plant, a newly developed copper coating plant for welding wires at high wire speeds with the best possible quality. A modular design makes it possible to satisfy a wide range of applications according to customer request.

The company also offers ultrasonic and electrolytic degreasing and pickling plants; Candojet HW – patented hot water cleaning units; and electrolytic plating plants for wires such as tinning, coppering, nickel plating, silver plating and galvanising for all sorts of wire materials.

**Candor Sweden AB – Sweden**

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

## Cimteq

Stand .....W1F38

Cimteq, the company behind CableBuilder, will be joined on its stand by Yufei Du. Born in Shanghai, and with Mandarin Chinese as his native language, he will enable Cimteq to communicate fluently with visitors to the stand. In addition, Mr Du is an engineer and highly knowledgeable when it comes to the CableBuilder software. Upon completing a diploma in electrical and electronic engineering in Singapore, he went on to study the subject at degree level at the University of Sheffield, one of the top ten engineering universities in the UK, graduating with honours in 2013.

>>>



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○ Yufei Du

He then joined Cimteq at its UK headquarters where he became fully trained in implementing and offering support services for CableBuilder. In the past year has successfully implemented CableBuilder into a number of organisations across Europe.

He is perfectly positioned to assist Cimteq in its commitment to enter the Chinese market and offer the innovative benefits of CableBuilder to cable manufacturing organisations throughout China. The ever-growing pressure on companies to operate more productively and supply quality products in the most efficient manner

can be fully met by the implementation of CableBuilder.

The software system has a proven track record of enabling companies to save money by reducing wastage and scrap, designing and producing more efficiently and professionally, avoiding costly mistakes and streamlining operating procedures. The benefits speak for themselves, demonstrated by the fact that four out of the top seven global cable manufacturing companies use CableBuilder.

**Cimteq Ltd – UK**  
**Website:** www.cimteq.com

**Condat Stand ..... W1B46**

Condat will present its latest developments in surface technologies for metal forming and its extensive range of lubricants for wire drawing and cold rolling including:

- Vicafil®: a comprehensive range of wire drawing powders, wet lubricants, pastes, neat oils and greases
- Steelskin® advanced lubricants for special wire drawing applications



○ Condat helps reduce production and processing costs whilst protecting the environment and people

- Galvasmooth® smoke-free charcoals for high zinc weight galvanised wires

Also on display will be two innovative products:

Vicafil TS 7300 AD: New performance booster for borax coating. Based on water soluble mineral salts, Vicafil TS 7300 AD is simply added to the borax solution. It improves standard borax coatings, providing a better coat weight control. In case of high moisture it helps keep the coating even and adherent with no need to process the coils again. >>>



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Please visit our representative, Wenling Enterprises Co. Ltd. at Booth W4B69 (台客) and W4E72 (德聚) at the 6th All China International Wire & Cable Industry Trade Fair, September 24-27, 2014, Shanghai New International Expo Center (SNIEC).

Or contact them at:  
 Wenling Enterprises Company  
 China Tel.: 138-1288-7321  
 Taiwan Tel.: 0972-07-4561  
 E-mail: jeffwenling@gmail.com

**Gem Gravure Co., Inc.**  
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# wire China 2014

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<<<

Vicafil Sumac 5: New dry drawing lubricant – sodium soap based. This has been designed for wire drawing at very high speed. It offers the ability to work at higher temperature/speed whilst providing a high lubricating stability. It is suitable for stainless steel and high carbon spring wire, bead wire and steel cord applications.

Condat – France

Website: [www.condat.fr](http://www.condat.fr)

Contrôle Mesure Systèmes

Stand ..... W1B34

Contrôle Mesure Systèmes (CMS) has designed, developed and manufactured for more than 25 years a complete NDT range of products in eddy current and ultrasonic testing methods which comprise high performance instruments and systems, probes and transducers, accessories, and complete turnkey machines with its associated mechanics.

Main equipment manufactured by CMS is:

RotoETscan eddy current rotating heads for tubes and bars diameter ranging from 1 to 220mm, for surface, subsurface and punctual flaws detection.



RotoUTscan ultrasonic rotating heads for tube inspection, welded or not, in stainless steel, titanium, zirconium, or carbon steel (diameter range 6 to 250mm) for longitudinal and transversal defect detection, thickness measurement, OD – ID and ovalisation.

○ RotoETscan eddy current rotating head

Ultrasonic and eddy current rotating heads (RotoUTscan and RotoETscan) can be combined with other CMS equipments (magnetising units, rotating systems and support coils). They can be installed together in a strong control bench including centring devices. Supervision software named Probus (to collect information provided by NDT equipment) allows the display of combined signals (UT/ET) and creates inspection reports that can be used as control evidence for quality services and customers. Data stored can be recalled for analysing and quality treatment.

All the systems meet quality standards such as API, ASTM and DIN and can be used on-line and off-line.

Contrôle Mesure Systèmes – France

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

Esteves Group

Stand ..... W1E16

Esteves Group is a manufacturer of high precision wire drawing and cabling dies, and extrusion tooling for the wire and cable industry.

The company's main vision is to understand customer goals and expectations in order to provide products and services that completely meet customer requirements.



# wire China 2014



Esteves Group has six manufacturing plants strategically located in Asia, Europe and North and South America.

In China it will display a wide range of products including newly developed diamond coated dies, high precision extrusion tools, shaped drawing dies and many other products that meet its customers' high requirements.

**Esteves Group – Brazil**  
**Website:** [www.estevesgroup.com](http://www.estevesgroup.com)

**Eurolls**  
**Stand ..... W1G18**

Eurolls SpA has registered a very good year, doubling in 2013 the previous year's results. The main part of this success has come from the construction wire market, with sales and installation of equipment in North and South America, and the Middle and Far East, to name the biggest projects.

Two main divisions of Eurolls – the wire and tube divisions – will be present at the show. The wire division specialises in engineering and manufacturing

efficient and high- production equipment and cassettes for the low-medium-high carbon steel, stainless steel and welding wire steel market, which can be divided into two main wire sectors:

Construction wire, which includes reinforcement production using cold rolling and/or stretching lines (high resistance/high ductility reinforcement) all using Eurolls cold rolling cassettes and rolls, horizontal and vertical spoolers (manual or fully automatic), a complete range of straightening and cutting lines, high speed lattice girder machines for prefabrication industry and steel fibre production lines.

Industrial wire, which includes dry drawing/rolling lines using Eurolls micro cassettes to ensure even higher efficiency and productivity levels, new technologically advanced series compact wet drawing lines, dead blocks, coil cleaning and coil spooling systems, a full range of equipment for production of welding wire from stick electrodes to CO<sub>2</sub>/flux core welding wires including TIG straightening and cutting lines with end embossing, efficient LRPC wire and high speed

LRPC strand production lines, double twist stranders plus a complete series of machines for manufacture of chains (high resistance), gabions, mesh netting, fencing, nail making, barbed wire, etc.

**Eurolls SpA – Italy**  
**Website:** [www.eurolls.com](http://www.eurolls.com)

**Fiber-Line**  
**Stand ..... W1B58**

Fiber-Line utilises its processing and coating technology expertise to add performance to high performance fibres like aramid (Kevlar®), PBO, polyester, fibreglass and carbon. The fibres provide greater differentiation and productivity improvements, enabling thinner, stronger and lighter products.

The company offers an extensive line of strength members, ripcords, binders, fillers, FRP, FRP upjacketing, extruded products and performance-enhancing coatings. Showcased at this show will be a new line of strength members, SyntheticWire™ for ropes, cords and cables. >>>

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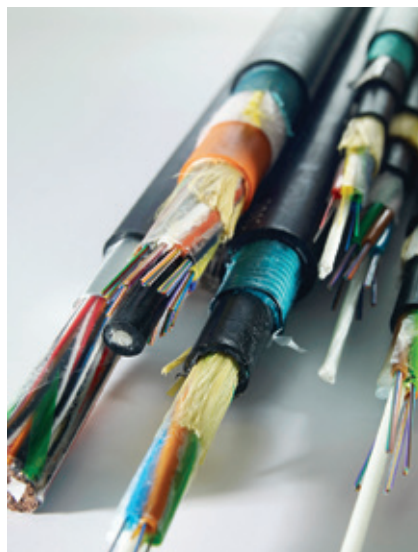
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<<<<

These products create a more stable cable that lasts longer and has a reduced failure rate.

Visitors to the stand will be able to:

- See a slideshow that introduces the company and its products, and share customer testimonials
- Compare the many benefits of high performance synthetic fibres vs steel
- Browse the latest literature including a new, updated technical report that outlines the benefits of dry cable design and the use of Swellcoat® continuous filament yarns for water-blocking loose tube fibre optic cables
- Meet with knowledgeable engineers and business managers about specific opportunities
- See samples of finished products and examples of finished cables that contain the company's material
- Learn more about its new Asia facility as it expands its global footprint to support sales in China, South East Asia, India and Australia



○ Adding high performance fibres

Recognising the global trend to replace metal with plastics, Fibre-Line is focused on leveraging the use of high performance fibres for differentiated product design, increased manufacturing flexibility, and improved product performance.

**Fiber-Line – USA**  
Website: [www.fiber-line.com](http://www.fiber-line.com)

**Gauder Group Stand .....W1E26**

Pourtier, Setic and Daloo – members of the Gauder Group – will be presenting a comprehensive range of equipment and services.

The Pourtier brand enlarged its offers with large equipment required for the production of submarine and umbilical cables. Its heavy-duty stranders and cablers are made in Europe for the production of all types of high voltage and extra-high voltage power cable, from overhead to insulated, AC type (using high quality Milliken conductor) or DC type (using large round compacted conductor or trapezoidal wires).



○ Planetary strander from Pourtier

Setic provides high-speed double twist bunchers/stranders for the automotive industry as well as complete solutions to produce high quality LAN, special and control cables with enhanced performance (in one or two steps according to product mix). The machines are made in France, although some of them are also manufactured by the Gauder Group China division with the same quality standards, for direct supply to the Asian market.



○ Bunchers from Setic

For cable producers wanting simple and reliable solutions for the production of power and communication cables, Daloo is well placed, proposing complete stranding lines and accessories whose design is based on European experience and the manufacturing is done in China following Gauder Group quality criteria.

'C2S', the Cable Services & Systems division, whose turnover has been rising by 350 per cent for ten years, takes care of all brand wire and cable production lines, worldwide.

**Gauder Group – France**  
Website: [www.gaudergroup.com](http://www.gaudergroup.com)

**Lukas Anlagenbau Stand ..... W1D44**

Lukas is a global supplier of machinery for the wire and cable industry. >>>>

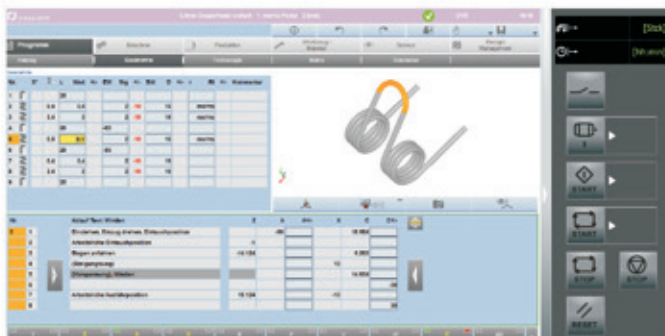
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Its vertical taping line with vertical sintering oven is suitable for many different types of tapes and fibres, such as PTFE, polyimide, mica, polyester, fleece, laminated tapes, metal tapes and paper. The high speed and the precision is enabled by a closed loop tape tension control and a very precise speed synchronisation between the capstan (or caterpillar) and the taping heads.



○ Vertical taping line from Lukas

Depending on the application, the line may be equipped with a cooling unit for the taping area, devices for quality control or an inline sintering oven.

**Lukas Anlagenbau GmbH – Germany**  
Website: www.lukas-anlagenbau.de

### Maillefer Extrusion Stand ..... W1F24

Maillefer's new market concept with three production solution levels launched this spring has been well received by the global market. There is a match for each market situation – with solutions in low-end as well as high-end categories in almost 20 applications.

The new concept improves possibilities to serve wire, cable, pipe and tube manufacturers with different capacity needs and investment budgets.

The production solution levels are /Enter, //Extend and ///Explore, and they vary in capacity, cost, automation, flexibility, product range and space and maintenance requirements. The widest services in the industry are available as an option for all levels.

/Enter is a compact quality solution for more sustainable production. It is suitable for those searching for an affordable investment that is easy to start and maintain in different production environments.

//Extend is a lean and proven production solution for changing market needs. Its good upgradability and versatile product range guarantee a technical fit for the future.

///Explore is the premier route in the levels in demanding deliveries with the lowest total cost of ownership. It is a high output solution.

Launched at the show will be the new aviation cable production line, as well as the High and Extra High Voltage Roundness Value Package.



○ The DHR 130 from Maillefer

The dual layer rubber crosshead DHR 130, high voltage triple layer crosshead THX 70 150HV LR and the telecom triple layer crosshead ECH 4/6 TL will all be on display.

**Maillefer Extrusion OY – Finland**  
Website: www.maillefer.net

### Medek & Schörner Stand ..... W1C32

Medek & Schörner produces cable marking machines and optical fibre processing lines, and covers virtually the entire spectrum of machines for marking cables and coding optical fibres, in particular in the power, telecom and data cables industries. On display in China will be cable marking machines, optical fibre coating systems and optical fibre processing systems.

Cable marking machines include:

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

>>>

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

Optical fibre coating systems, including top speed optical fibre processing systems, include:

- Optical fibre colour coding up to 3,000m/min
- Ring marking of optical fibres at speeds up to 1,150m/min
- Tight buffering up to 1,300m/min
- Fibre ribbon production with excellent ribbon planarity and for speeds up to 1,000m/min
- Production of compact fibre units

Copper wire insulation with UV varnishes (enamel wire), and the manufacture of dimension-sensitive precision micro flexible flat cables (FFC) using UV resins will also be exhibited.

**Medek & Schörner GmbH – Austria**  
**Website:** [www.medek.at](http://www.medek.at)

**Maschinenfabrik Niehoff**  
**Stand ..... W1F43**

Maschinenfabrik Niehoff and Niehoff Machinery Changzhou Co Ltd (NMC), its Chinese subsidiary, will display an MMH 101 + RM 161 type multi-wire drawing machine, a D 630.5 type high speed double twist bunching machine and an SV 400 D type double spooler.

The MMH 101 + RM 161 type multi-wire drawing line is designed for the simultaneous drawing of eight or 16 copper wires to a minimum final diameter of 0.5, 0.08mm with inline annealing and can work with a maximum speed of 36m/s. More than 1,100 MMH units are working worldwide.

MMH multiwire drawing machines are designed for copper and aluminium wires. The wires drawn on MMH machines exceed the most demanding specifications and processing requirements in view of electrical conductivity, surface quality and mechanical properties and can be processed to multi-wire bundles with outstanding characteristics.

The SV 400 D type double spooler for insulated wires is designed for the non-stop production of NPS packages (Niehoff Package System) and when installed behind an extrusion line is capable of spooling automotive primary cable at a speed of up to



○ The SV 400 D type double spooler from Niehoff

1,200m/min. The spooler can process cables with a cross-section of 0.22 to 6mm<sup>2</sup> and a outer diameter of 1 to 5mm (including insulation) and is capable of accommodating all NPS 400 multi-way spools with a traverse width of 100 to 400mm.

The D 630.5 double twist bunching machine built by NMC under Niehoff licence is adapted to specific requirements of the Chinese market. The machine is designed for strands with a cross section of 0.09 to 6mm<sup>2</sup> and accommodates spools with a maximum flange diameter of 630mm. It is equipped with AC drive technology and Niehoff's ECO-Bow.

A co-exhibitor at the stand will be H Folke Sandelin AB (HFSAB), a specialist in lead extrusion and cable stripping equipment from Sweden, with the latest generation of the CRRS (Cable Repair and Recovery System).

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

**OEG GmbH**  
**Stand ..... W1F50**

The DM 1 is a newly developed optical gauge for diameter and roundness of wire drawing dies, enamelling dies and wires. The gauge combines two measuring functions in one device. The main measuring functions are the inside diameter and the roundness of the bore of drawing and enamelling dies. The second function is optional and can measure the outside diameter of wires.

The DM 1 is based on an optical measuring principle. The data acquisition and evaluation takes place by an image processing system, which guarantees highly accurate and reproducible measurements. The average measuring time for one die is about 15 seconds. During that time the smallest bore diameter is found automatically and software controlled by a special autofocus procedure. Additionally the roundness of the bore is evaluated and can be displayed in a diagram on the monitor and in the measuring protocol printout. >>>

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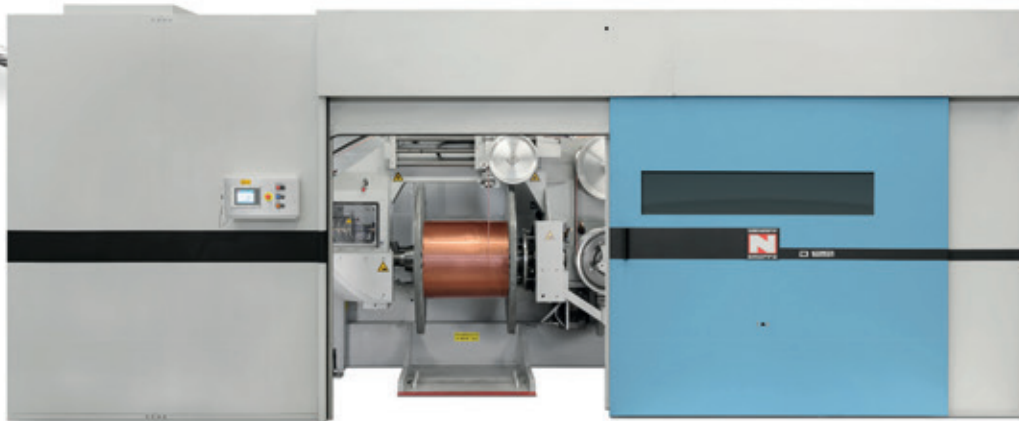
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**Our capstan power opens a new range of possibilities. Sector-shaped conductors with a cross section of up to 120 mm<sup>2</sup>!**



Today's global markets are highly demanding and dynamic: When it comes to demands and products, there are both continuous and fast changes of pace within the realm of aluminium and copper wire production. While ensuring that these high expectations are met, there is a need for flexible machines that are highly adaptable to an ever changing production environment.

For maximum flexibility during production, NIEHOFF offers the D 1251 double twist bunching machine – with a capstan pulling force of 12,000 N. This high pulling force allows high-speed processing of strands with cross sections up to 95 mm<sup>2</sup> for copper and up to 120 mm<sup>2</sup> for aluminium – either bundled or as sectors. Such capability is unique in this class of machines. Additionally, the variance in the machine's vibration behavior has been reduced to an absolute minimum. The D 1251 is designed with a highly flexible concept, which can be optimally adapted to your needs.

NIEHOFF combines outstanding expertise along your entire value chain with our proximity to customers and reliable service for the entire lifecycle of your investment. It is just this combination that makes the difference, so you can concentrate on what is most important to you: Your crucial competitive advantage.

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coating and drying at infeed-speed up to 4m/s.  
extensive control and monitoring panel for a safe production process.

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Web: [www.roeslau-draht.com](http://www.roeslau-draht.com)

# wire China 2014

<<<



○ The DM 1 from OEG

The image processing system provides the advantage of a live-image of the specimen always being displayed on the computer monitor. Any dust particles or contaminations, which distort the measuring result, can be recognised immediately.

The software offers several operator levels. Each level is adapted to special tasks in the drawing die management.

The measuring results can be either printed directly as protocol or exported to other applications in different ways. The software was developed to be used in connection with usual touch-screen displays.

For the measurement of wire diameters a special adapter is available, which can be used in connection with the drawing die adapter. Therefore, the change between both measuring functions is very easy.

The measuring range for inside and outside diameter is currently from 25µm to 10mm. Smaller or larger diameters can be measured on enquiry with special optics.

The DM 1 provides high measuring accuracy and short measuring times. Because of the additional wire measuring function, a second gauge for this application is not necessary.

**OEG GmbH – Germany**  
Website: [www.oegmbh.com](http://www.oegmbh.com)

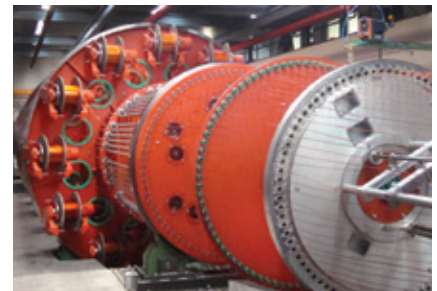
**Queins and Stolberger KMB**  
Stand ..... W1F58

Queins Machines GmbH will be attending with its sister company, Stolberger KMB Maschinenfabrik GmbH. On the joint booth there will be large pictures of the machines on display, as well as a movie showing them in operation.

Since the 1970s Queins has supplied machinery to customers in the cable, rope and umbilical industry worldwide, while Stolberger has been in operation since the 1950s.

Besides the standard machines for the production of cables and ropes, Queins and Stolberger also supply huge production lines for special industries like the offshore or transformer industry.

Both companies offer a wide range of modern rigid, planetary, skip-type and tubular stranders, machines for the production of off-shore and umbilical cables, continuously transposed conductors (CTC) as well as disc- and caterpillar-capstans, taping machines and all types of pay-offs and take-ups.



○ Planetary strander from Queins

Queins also offers reconditioning and modernisation of cable-making machines according to the customer specification, new production and quality requirements.

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

**Stolberger KMB Maschinenfabrik GmbH – Germany**  
Website: [www.stolberger.com](http://www.stolberger.com)

**RAD-CON Inc**  
Stand ..... W1G06

RAD-CON designs and manufactures Bell-type furnaces for spheroidise annealing of wire rod for the production of cold-heading quality wires (CHQ). Many of the largest fastener manufacturers use RAD-CON equipment.

>>>





DEAR CUSTOMER, it is your interest to examine CAREFULLY this page.

It is known that the final price of the enameled wire depends on:  
same costs for all producers and variable costs

SAME COSTS FOR ALL PRODUCERS OF ENAMELED WIRE:  
Rod LME cost  
driving power cost,  
cost for processing up to 2,5mm diameter  
enamel cost

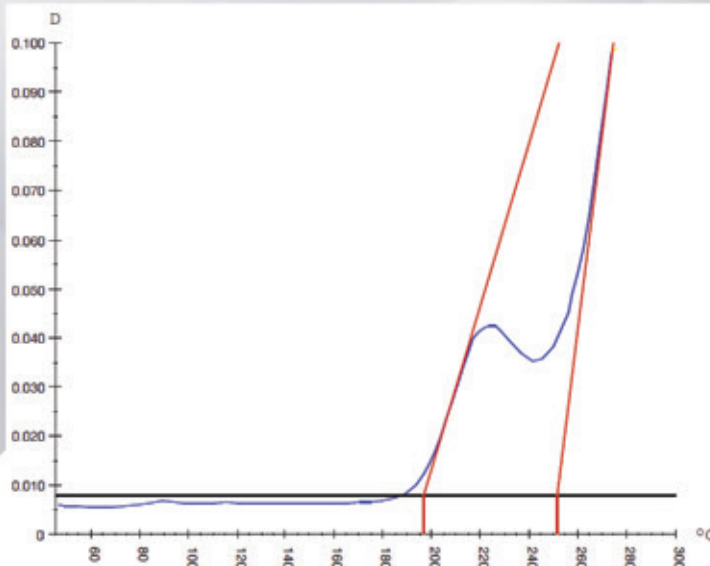
VARIABLES COSTS ARE:  
production speed  
thermal energy cost  
incidence of overheads.

Hourly incidence of overheads  
per year/7.200 hours per year = A

Costs in Italy:  
1 kW electricity €=0,12    1 m3 natural gas €=0,35

### TANGENT DELTA temperature curve

Wire No: 6151  
Sample ID: V=700 m/1'  
TgD temp: 197,0 / 251,7 °C



Wire No: 6151 (AA006151.TDS)

Test date: 2014-04-01

Time: 10:28

Operator: SICME ITALIMP  
Sample ID: V=700m/1'  
Dimension: 0.28 GR.1  
Machine: PEI - IVA 19960 MG36  
TgD min:  
TgD max:  
TgD temp: 197,0 / 251,7 °C  
Temp. grad: 71,1 °C/min.  
Frequency: 1000 Hz  
Unit ID: Unit1  
Elongation: 26%  
Spring back: 26%

HOW MUCH IS THE COST TO PRODUCE 1.000 KG OF COPPER,  
GR. 2, Ø 0,20mm WITH 1 LINE

MARKET PERFORMANCE		SICME ITALIAIMPIANTI	
Data fast enamelling machine L=8,4m		Data enamelling machine S. Compact L=5,8m	
165	VxD	225	
13,8 KG	Hourly production	18,9 KG	
1,2 kW	Heating consumption for 1KG	0,12 m <sup>3</sup> (methane)	
1.200 kW	Heating consumption for 1.000KG	120 m <sup>3</sup> (methane)	
72 hours	Time to produce 1.000KG	53 hours	
A x 72	Incidence of overheads	A x 53	
Kw 1.200 x 0,12 = € 144		M <sup>3</sup> 120 x 0,35 = € 42	

€ 144 - € 42 = additional gain €\* 102

HOW MUCH IS THE COST TO PRODUCE 1.000 KG OF ALUMINIUM,  
GR.1, Ø0,28mm WITH 1 LINE

MARKET PERFORMANCE		SICME ITALIAIMPIANTI	
Data fast enamelling machine L=8,4m		Data enamelling machine S.Compact L=5,8m	
126	VxD	200	
5 KG	Hourly production	8 KG	
2,5 kW	Heating consumption for 1KG	0,16 m <sup>3</sup> (methane)	
2.500 kW	Heating consumption for 1.000KG	160 m <sup>3</sup> (methane)	
200 hours	Time to produce 1.000KG	125 hours	
A x 200	Incidence of overheads	A x 125	
Kw 2.500 x 0,12 = € 300		M <sup>3</sup> 160 x 0,35 = € 56	

€ 300 - € 56 = additional gain €\* 244

\*Excluding the incidence of overheads to produce 1.000 KG

**JUMP INTO THE FUTURE  
WITH  
"SUPERCOMPACT"**



○ Bell-type furnace from RAD-CON

<<< Headquartered in the USA and operating globally with more than 75 per cent of turnover outside the USA, RAD-CON specialises in one type of Bell-type furnace, one type of process annealing, and has very specific knowledge in spheroidising while producing a clean surface that is free of decarburisation.

RAD-CON supplies capital equipment and software, along with related services, to manufacturers in need of a high-quality batch annealing process that is part of their manufacturing of hot and cold reduced strip and wire metal coils.

**RAD-CON Inc – USA**  
**Website:** www.rad-con.com

**Rosendahl Nextrom**  
**Stand ..... W1D43**

Rosendahl Nextrom will be displaying its manufacturing solutions for optical fibre and cable production.

Expert in extrusion, corrugation, optical fibre and SZ-stranding, the company supplies high-tech process technology along with customer service in a long-term partnership. Manufacturing solutions for the production of power cables, automotive wires, LAN cables, coaxial cables, extrusion crossheads, preforms, fibre draw towers, fibre UV-coating and fibre optic cables are available from one source.



○ The OFC 20 – 200mm furnace

On display will be the latest advancements and technology highlights, including new developments in high speeds, low voltage, medical wire through micro coax, VAD OVD preform technology, high performance draw technology and proof test and solutions for speciality fibre production.

**Rosendahl Nextrom GmbH – Austria**  
**Website:** www.rosendahlnextrom.com

**Sikora**  
**Stand ..... W1F62**

Sikora will be presenting a broad product range of innovations as well as proven technology for quality control and cost saving in wire and cable production.

Purity scanner: 100 per cent pellet inspection. This will be the highlight on the stand. It is a system for the online inspection and sorting of plastic pellets used for the insulation of medium-, high- and extra-high voltage cables, but also other applications such as in the medical industry. Contaminated pellets are detected and sorted out, assuring that only pure pellets get into the extrusion process.



○ One of Sikora's highlights at wire China, the Purity Scanner

The pellet inspection allows the detection of organic and metallic contamination inside the pellet as well as on the pellet surface, using a special combination of X-ray technology and an optical system. The smallest detectable particle size is 50 µm at a flow rate of up to 2,000kg/h.

Preheater 6000 TC: Conductor pre-heating with temperature measurement and control. This represents the optimum solution for the controlled preheating of conductors and sets the basis for the production of a broad cable type array at highest quality. The system inductively heats up the conductor to the nominal value. An infrared camera measures the wire temperature at the outlet of the Preheater wheel.

A control module supervises and controls the power setting of the device with high accuracy, assuring that the conductor temperature always has the specified temperature. The Preheater 6000 TC is available in three power classes (10, 20 and 30kW) for preheating temperatures of up to 150°C (optionally 250°C), for a product diameter from 0.32 to 2.8mm.

Fiber Series 6000: Quality control of optical fibres in the drawing tower. >>>

**XINJIFANG REELS**

YANGZHOU XINJIFANG MACHINERY TECHNOLOGY CO.,LTD.  
 CONTACT PERSON: VIVIAN  
 TEL: +86 514 87387999  
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TRAFCO is also experienced in supplying SECOND HAND cable plants and in refurbishing Your machineries, grant its functionality and productivity according to all international standards and safety regulations.

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TRAFCO's highly experienced engineers and technicians are specialized in the cable manufacturing and can deliver a know how and engineering knowledge for all kind of cable production, personnel training, technical and economical feasibility studies, complete turnkey factories.



Shanghai, 24-27 September 2014

**WIRE & CABLE**  
INDIA 2014

Mumbai, 28-30 October 2014



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mail: [info@trafcomachinery.com](mailto:info@trafcomachinery.com)

web site: [www.trafcomachinery.com](http://www.trafcomachinery.com)



<<< The Fiber Laser 6003 measures the diameter of uncoated and coated fibres. Depending on its point of installation, it provides information on the position, vibration frequency, tension and spinning. The measuring principle ensures an accuracy of  $\pm 0.05 \mu\text{m}$ . For the detection of airlines Sikora offers the Fiber Laser 6003 Airline. In addition, the gauge heads provide information on concentricity and temperature of the optical fibre.

The newly developed Fiber Lump 6003 Micro detects lumps and neckdowns on the optical fibre surface to 100 per cent. This is the result of the integration of six measuring axes. Shadow areas are eliminated and even the smallest faults from  $5 \mu\text{m}$  height and  $50 \mu\text{m}$  length are reliably detected.

Laser Series 2000 and 6000: High-speed diameter measurement and lump detection. In addition to the diameter gauges of the Laser Series 2000, Sikora offers the top-line Laser Series 6000.

These diameter-measuring devices are specifically designed for sophisticated customer requirements that exceed the classic demands in the wire and cable industry. The gauges fulfil all needs regarding highest accuracy, a variety of interface connection options and reliability for quality control during wire and cable production. The high accuracy also allows the detection of lumps and neckdowns. Three gauges are available for different product diameters from 0.2 to 78mm.

Sikora will also show the Centerview 8000e, which measures eccentricity, diameter and ovality of coaxial cables, LAN cables and automotive and installation cables. The company will exhibit the 2- or 3-axis lump detectors Lump 2000 XY/T.

For online quality control and optimisation of the material usage for increased productivity during extrusion, there is the X-Ray 6000 for single-layered cables and the X-Ray 6000 Pro for multi-layered products. The X-Ray 6000 series allows continuous measurement of the diameter, wall thickness, eccentricity and ovality in wire and cable production lines. In combination with the processor system Ecocontrol 600, 1000 or 6000, an automatic control of the line is possible.

For quality control during the production of MV, HV and EHV cables

in CCV-, VCV- and MDCV-lines Sikora will showcase the X-Ray 8000 NXT, used for precise measurement of the wall thickness of all three layers (concentricity, diameter and ovality). Measuring values for centring and control are therefore available immediately after starting up the line.

**Sikora AG – Germany**  
**Website:** www.sikora.net

**Spectrum Technologies**  
**Stand ..... W1G20**

Spectrum Technologies is launching the Nova 1000, a high performance UV laser system for integration into wire and cable production lines to meet manufacturers' needs for in-line laser coding of difficult-to-mark insulations.

Nova 1000 is a high speed, in-line UV laser marking unit designed specifically for wire and cable manufacturers for printing proprietary identification codes onto wire and cable insulations during manufacture. The first system has already been delivered to a US customer in June this year.

The system is suitable for integration into new or existing production lines and contains a precision wire guiding system that enables the wire to run in either direction.

Nova 1000 may be integrated in-line for marking during wire and cable production or may be integrated with a suitable pay-off and take-up system for marking wire and cable off-line.

The Spectrum-designed proprietary Nova software allows the programming of marking zones, including a succession of numbers, letters and symbols to create a repetitive mark along the length of the wire or cable. Software options allow the system to lay down incremental length markings, as well as the ability to mark True-type fonts, logos and images.

The throughput speed of the unit is dictated by the line it is integrated with but can typically mark wires at speeds up to 105 metres per minute or 350 feet per minute, depending on the font size and type chosen. Encoder wheels ensure accurate mark spacing.

UV laser is the accepted international standard for wire marking within the aerospace industry enabling permanent, high quality marking of a wide range of high performance, 'non-stick'

fluoropolymer wires as well as multi-core jacketed cable and some coaxial cables.

**Spectrum Technologies plc – UK**  
**Website:** www.spectrumtech.com

**Spirka Schnellflechter**  
**Stand ..... W1F39**

The increasing demand for cables with larger diameters for infrastructure projects, shipyard cables, offshore cables and mining cables is also making greater demands for braiders suitable for bigger cable diameters and cross sections.

Spirka Schnellflechter offers a comprehensive product portfolio of 24, 32 and 36 carrier braiding machines in vertical and horizontal applications, as well as for combination machines like taping units, payoffs and take-ups for reels up to 2,500mm flange diameter.

These braiding machines have an application range for cables up to 65mm and steel and copper wires up to 0.4mm diameter, and are also suitable for high tensile steel wires and thread tension up to 120 N.

One of best selling machines is the medium-heavy braider type Dratex 2450 for cables up to 45mm diameter and copper and steel wires up to 0.4mm diameter. The Dratex 2450 is suited for high-speed production in short and medium run lengths. It also provides the flexibility to move easily from wire applications to textile applications for both cables and hoses.

Its smaller space-saving footprint makes it suited to multi-product, quick response producers who need >>>

○ Braiding head of Dratex 2450






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With the expansion of electricity networks, people all over the world use electricity to bring more light into their lives as well as increased joy, comfort and security.

Power cables that have been produced, using TROESTER systems, for high-quality, medium-voltage (MV), high-voltage (HV) and extremely-high-voltage (EHV) cables offer cable manufacturers significant cost benefits in production as well as TROESTER's outstanding level of quality. This ensures that energy consumers around the world can enjoy the highest level of supply security. [www.troester.de](http://www.troester.de)



Innovative VCV Line from TROESTER for the production of HV and EHV Cables with excellent core tolerances and long and stable production runs.



Visit us:  
Booth No. W1E28

Visit us also at WIRE & CABLE INDIA 2014  
October 28-30, 2014, Mumbai/India

**TROESTER**

EXCELLENCE IN EXTRUSION.



<<< flexibility. The braider can handle spools with a maximum flange diameter of 110mm and with a capacity of 780cm<sup>3</sup>.

Spirka Schnellflechter offers for combination with Dratex 2450 numerous payoffs as well as winding lines for these diameters of wires, eg the winder W 8-910 in combination with tailor-made driven payoffs.

**Spirka Schnellflechter GmbH – Germany**  
**Website:**  
[www.spirka-schnellflechter.com](http://www.spirka-schnellflechter.com)

**Teknor Apex Stand ..... W1C23**

Two of the new developments to be highlighted by Teknor Apex are:

- Low temperature compounds for electric vehicle (EV) charger cables. The latest in a growing portfolio of Flexalloy<sup>®</sup> insulation and jacketing materials for EV applications is Flexalloy 9612-75, a 75 Shore

A jacket compound that exhibits a low-temperature brittleness value of <-60°C, is capable of complying with the -40°C cold impact test requirement specified in CSA standards, and also complies with the UL-62 oil resistance requirement.

All of the Flexalloy products for EV charger cable are abrasion resistant, resilient, and tough at very low temperatures, yet cost-effective for large-volume production. The durability and elasticity of Flexalloy PVC elastomers make them high-performance alternatives to standard PVC compounds while being less expensive than premium materials like thermoplastic polyurethane.

- Low temperature compound for wind turbine and industrial uses. Flexalloy 9614-73 PVC elastomer is a 73 Shore A jacket compound that withstands frigid outdoor and rugged industrial conditions while providing excellent flexibility and flame performance.

The product is UV-stabilised and exhibits a brittle point of -65°C or below. It provides flexibility, tensile strength and oil resistance and is designed to pass CSA's FT4 vertical flame test. The property profile of Flexalloy 9614-73

compares well with those of other soft, high-flexibility thermoplastic elastomers used for similar applications. It provides cold temperature endurance similar to that of thermoplastic polyurethane.

Teknor Apex supplies the wire and cable industry with RoHS- and REACH-compliant, UL-recognised Apex<sup>®</sup> flexible and semi-rigid PVC, Fireguard<sup>®</sup> plenum compounds, Flexalloy<sup>®</sup> UHMW-PVC elastomers, Halguard<sup>®</sup> low smoke halogen-free FR compounds, and Vidux<sup>®</sup> and Polydux<sup>®</sup> conductive compounds.

**Teknor Apex Company – USA**  
**Website:** [www.teknorapex.com](http://www.teknorapex.com)

**Traxit International Stand ..... W1G38**

Traxit International provides the wire drawing industry with a complete range of lubricants to suit all types of wire for all applications. From simple beginnings in 1881 in Schwelm, Germany, Traxit has grown to operate from its manufacturing bases in Germany, China and USA.

Its lubricants are sold throughout the world with its own companies, agents or representatives present in over 150 countries.

With extensive research and development facilities all its technicians are devoted exclusively to improving products and processes for wire production.

For all drawing applications, totally boron-free products are available that meet EC health and safety regulations and are backed up with ISO 9001 and OSHAS 18001.

Due to the worldwide price volatility of all raw materials and general costs, Traxit is continuously developing lubricants to reduce total production costs (€/to wire). This advantage of higher productivity helps customers produce material in a cheaper way.

Currently Traxit is developing new products for:

- drawing mechanical descaled wire at very high speed and clean finish (LC and HC)
- drawing stainless steel wire with low and high amount of residues
- coating stainless steel wire with reduced humidity pick up

**Traxit International – Germany**  
**Website:** [www.traxit.de](http://www.traxit.de)

**Troester Group Stand ..... W1E28**

Troester is a supplier of machines and complete lines for the cable manufacturing and rubber processing industry, comprising CV lines for XLPE and rubber cables, silane lines, sheathing and insulation lines, as well as the complete range of downstream equipment like winders, caterpillars, capstans and accumulators.



○ A warm welcome awaits at the Troester stand

In China the company is represented by its subsidiary Troester Machinery Shanghai (TMS), which is responsible for the sales, after sales service and production for the domestic market.

- It will be presenting:
- CCV and VCV lines for MV, HV and EHV cables up to 1,000kV
  - Rubber CV and CCV lines up to 35kV
  - CV technology for production of HV cables on CCV lines
  - Production equipment for submarine cables

X-Compound, a new company of the group, is specialised in the planning and construction of complete systems for the compounding of plastics with the process steps conveying, melting, dispersing, mixing and degassing, and will be on the same stand.

It also offers kneader technology for the continuous compounding of HFFR (LSOH), PVC, XLPE, semi-conductive materials and EPR/EPDM.

**Troester GmbH & Co KG – Germany**  
**Website:** [www.troester.de](http://www.troester.de)

**Ultimate Automation Stand ..... W1B30**

Staff from Ultimate Automation, UK, will be available to discuss its ultimate range of two axis wire forming and welding machines, and its range of ring forming and welding machines.



# SURPRIS INGLY INGENIOUS

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## AUSTRIAN PAVILIONS

### Wire China, Shanghai 2014

24. - 27. September 2014

Shanghai New International Expo Centre  
Hall W1, C34

W1D45 | Ebner  
[www.ebner.cc](http://www.ebner.cc)  
W1C36 | Eder Engineering  
[www.eder-eng.com](http://www.eder-eng.com)  
W1C30 | MAG  
[www.mag.at](http://www.mag.at)  
W1D51 | Mali  
[www.mali.at](http://www.mali.at)  
W1C32 | Medek & Schörner  
[www.medek.at](http://www.medek.at)  
W1D49 | Pengg Austria  
[www.wire-pengg.com](http://www.wire-pengg.com)  
W1D43 | Rosendahl Nextrom  
[www.rosendahlnextrom.com](http://www.rosendahlnextrom.com)  
W1C36 | VÖDKM / AWCMA  
[www.awcma.com](http://www.awcma.com)  
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E [shanghai@advantageaustria.org](mailto:shanghai@advantageaustria.org)  
W [www.advantageaustria.org/cn](http://www.advantageaustria.org/cn)

### Wire & Cable India, Mumbai 2014

28. - 30. October 2014

Bombay Convention & Exhibition Centre  
Hall 1, Mumbai

Andritz  
[www.andritz.com](http://www.andritz.com)  
Ebner  
[www.ebner.cc](http://www.ebner.cc)  
Eder Engineering  
[www.eder-eng.com](http://www.eder-eng.com)  
MAG  
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Medek & Schörner  
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Rosendahl Nextrom  
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VÖDKM, AWCMA  
[www.awcma.com](http://www.awcma.com)

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W [www.advantageaustria.org/in](http://www.advantageaustria.org/in)



# wire China 2014



○ The UWM from Ultimate Automation

<<< The ultimat range of wire forming and welding machines is used for the manufacture of wire products such as refrigerator/cooker shelves, point of sale displays, store fittings, air filter frames, automotive products and more.

The ultimat umw series of two axis wire forming and welding machines feature a robust, modern, modular design and user-friendly Windows-based software. Comprising six standard models for processing wire ranging from 2 to 16mm, all ultimat models use a closed die forming and cutting system, which produces high-quality bends with square, burr-free cuts.

The versatile design negates the need for special tooling to produce high-quality parts and components. Options include versions for use with flat strip or profiled wire, press and chamfering solutions, and secondary bend heads for intricate forms with a tilting table to accommodate large components or for forming spirals.

Ultimate Automation also manufactures special-purpose machines to suit customers' specific requirements, such as the ucw crosswire welding machines for the automatic welding of crosswire into rectangular frames used by manufacturers of air filter frames and refrigerator shelving.

**Ultimate Automation Ltd – UK**  
**Website:** www.ultimat.com

## WAFIOS AG Stand ..... W1F45

The reliable spring and wire forming system has been on the market for years and sets standards when it comes to performance and variety of parts. The new tool technology and Easyway control software make for more productivity and high operating

convenience. With the multi-e cut installed in the FUL 56 compression spring coiler, WAFIOS presents for the first time a development to an international audience which enables the individual adjustment of the cutting ellipse to different production requirements.

The FUL line features high production output and machine availability as well as quality standards that enable zero-defect production.

In the wire bending area, WAFIOS uses this important Asian industrial fair for presenting a novelty. The CNC coiling and bending machine BM 60 closes the gap in the operating range up to 13mm between the BM 50 and BM 90 machines.



○ WAFIOS BM 60

The BM 61L and the BMU 6 will replace two machines from the current machinery range. This machine line features an extremely stable and process-safe overall system, high operating convenience and a highly flexible machine concept. Typical fields of application for bent parts in the spring steel area are torsions bars for the automotive industry.

**WAFIOS AG – Germany**  
**Website:** www.wafios.com

## Zumbach Electronic Stand ..... W1F21

Zumbach will display a wide range of measuring and control solutions for process monitoring, quality control and cost-effect production.

Products on display will include:

- Sensors:
- New DC and high frequency AC spark tester generation with local BAE 2 SP control and display unit that accurately maintains test voltage under any conditions, including highest capacitive loads
  - New, advanced KW TRIO fault detectors with local BAE 2 KW control and display unit

- New 1, 2 and 3 axis diameter gauges for any cable and wire and any budget. Besides the complete line of ODAC® laser diameter gauges, new models will have special beam geometry, fault detection function and high scan rate
- MSD diameter and ovality gauges with 'multi-source device technology'
- The advanced ODEX® concentricity and diameter gauge for wire extrusion. Fully non-contact, based on magnetic and laser technology
- New ultrasonic wall thickness and eccentricity scanners of the Umac® RZ series with quick and easy adaptation to cable diameters and space-saving integration
- Unique Profilemaster® profile and shape measurement systems using light section principle and machine vision



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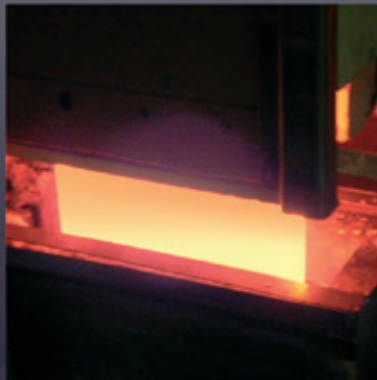


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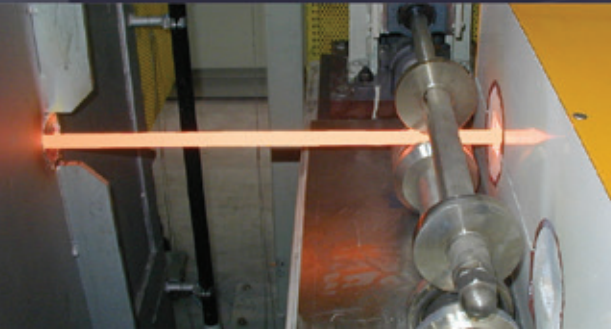
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# The effects of heat treatment on the properties of extension springs

By Mark Hayes, Technical Advisor to the Institute of Spring Technology, Sheffield, UK

## Abstract

In a programme of work undertaken in 2013, prompted by numerous questions asked by spring manufacturers, carbon and stainless steel spring wires were made into extension springs. These springs were measured and load tested to evaluate their initial tension and elastic limit. The results point to the need to revise EN 13906-2.

## 1 Background

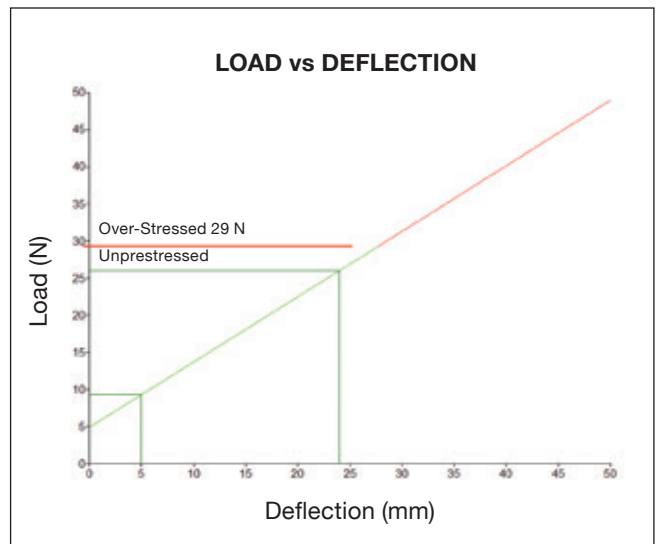
Spring manufacturers are aware that the stress relief heat treatment carried out on extension springs in manufacture has the following effects:

- the outside diameter, and hence spring rate, changes
- the initial tension, wound in during coiling, is reduced
- some may also know that the elastic limit increases

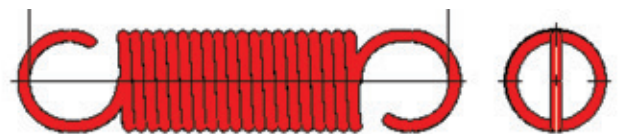
According to EN 13906-2 the maximum (uncorrected) design stress for extension springs is 45 per cent  $R_m$ . That is to say, you may load the body of an extension spring up to an applied stress of 45 per cent of the wire tensile strength and no plastic deformation will occur. This assumes that the springs were stress relieved after coiling. It is the author's contention that this definition of the elastic limit is often too high.

This investigation is designed to study the elastic limit, and how it is affected by the heat treatment temperature. At the same time, the opportunity was taken to investigate the effect of heat treat temperature on the outside diameter, initial tension and spring rate. Most extension springs have a theoretical load/deflection characteristic like that of the test springs studied in this investigation in *Figure 1*. The assumption is that when an extension spring is loaded beyond its elastic limit (29N in *Figure 1*), all the plastic deformation is in the body of the spring, manifest as a reduction in the initial tension.

Most extension springs have hooks that are made to the same nominal outside diameter as the spring body, and this applies to the springs made for this investigation, which are shown in *Figure 2*.



○ Figure 1: Load/deflection characteristic



○ Figure 2: Test springs

The assumption of all international extension spring design standards is that the hooks are perfectly rigid and do not deflect elastically or plastically up to their maximum design stress.

This assumption is incorrect, but for extension springs with more than 20 body coils the error incurred by ignoring hook deflection is genuinely quite small.

The overwhelming majority of extension springs are either made from drawn carbon steel (sometimes with a Zn or Zn/Al coating) to EN 10270-1 or drawn stainless steel to EN 10270-3, grade 1.4310 or 302 type. Hence these are the two materials studied here.

Identifier: Advanex  
 Part Number: Investigation springs

**Spring type: round wire extension**  
 Designed to: EN 13906-2: 2001  
 Tolerance standard: DIN 2097: 1973

**Material**  
 EN 10270-1 Drawn  
 Youngs Mod (E) 206000 N/mm<sup>2</sup>  
 Rigidity Mod (G) 81500 N/mm<sup>2</sup>  
 Density .00000785 kg/mm<sup>3</sup>  
 Unprestress: 0-45 %

End type Crossover loop  
 Loop selection Equal to body dia.  
 Loop outside diameter 6.03 mm

**Design parameters**  
 Wire diameter 0.710 mm  
 Outside diameter 6.03 mm  
 Total coils 19.50  
 Spring rate 0.880 N/mm (Calculated)  
 Initial tension 4.92 N  
 Free length 25.00 mm

**Stress data**

	Lower Tensile	% tensile	Operating positions	
			1	2
SL	NO DATA			
SM	2070	9 U	17 U	48 O
DM	2070	9 U	17 U	48 O
SH	2330	8 U	15 U	42 U
DH	2330	8 U	15 U	42 U
Specified	2465	8 U	14 U	40 U

**Operating data**

	Operating positions	
	1	2
Length (mm)	30.00	48.95
Load (N)	9.32	26.00
Deflection (mm)	5.00	23.95
Body stress (N/mm <sup>2</sup> )	353	985
Loop stress (N/mm <sup>2</sup> )	807.07	2252.3
Load tol grade 1 (N)	0.891	1.05
Load tol grade 2 (N)	1.41	1.67
Load tol grade 3 (N)	2.26	2.66

**Calculated data**

Estimated free length:	23.78	mm
Initial tension stress:	186.33	N/mm <sup>2</sup>
Body length:	14.55	mm
Body length (max):	14.76	mm
Stress factor:	1.19	
Spring index:	7.50	
Inside diameter:	4.61	mm
Mean coil diameter:	5.32	mm
Loop inside diameter:	4.61	mm
Wire length:	361.06	mm
Weight/100:	0.112	kg
Natural freq:	27958	RPM
Available deflection (SL):	N/A	mm
Available deflection (SM):	22.35	mm
Available deflection (DM):	22.35	mm
Available deflection (SH):	25.86	mm
Available deflection (DH):	25.86	mm

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○ **Figure 3:** Nominal design of the carbon steel spring assuming springs had been heat-treated

## 2 Springs

The springs for this investigation were supplied, courtesy of Advanex<sup>(2)</sup> in Nottingham, UK. They were coiled on an automatic machine that formed both hooks, and soon after coiling the author collected the springs so as to undertake the heat treatment under carefully controlled conditions without excessive delay after coiling.

The springs were made from 0.71mm wire, and they had a nominal outside diameter of 6.03mm, 19.5 coils, a relatively large amount of initial tension, and English or crossover end hooks. The tensile strength of the carbon steel was 2465MPa and that of the stainless was 1981MPa. The design of the carbon steel springs, as represented in SCP<sup>(3)</sup>, and using EN13906-2 as the design method is shown as *Figure 3*.

## 3 Heat treatment

The springs were subject to heat treatment (LTHT) in an oven, courtesy of IST<sup>(4)</sup>, that could be set and maintained to within ±5°C, and the total heat treatment time was always 20 minutes. A thermocouple placed among the springs showed that they attained the oven set temperature within two minutes of placement within the oven. Batches of 20 springs were heat-treated – carbon steel at 150, 200, 250, 300 and 350°C, and the stainless steel at 200, 250, 300, 350, 400 and 450°C.

## 4 Load testing

The springs were load tested according to the following regime, courtesy of IST<sup>(4)</sup>. The free length of the springs was measured on the load tester (actually the length at a load of 0.1N), and then the load at 30mm was measured.

It was checked that loading to 30mm had no effect on the free length and then the springs were load tested at progressively longer lengths, each time going back to check that the free length had not been significantly altered, and then re-measuring the load at 30mm. Testing was continued until the loss of load at 30mm was at least two per cent.

A typical set of results is shown in *Table 1*.

Two to five springs were tested at each heat treatment temperature, and the results were averaged. The results are summarised in *Table 2* for the carbon steel.

It is immediately clear that LTHT is enormously beneficial to extension spring performance and so it is right that the world's design standards always assume that LTHT has been carried out after coiling. Further examination of these results shows that as the outside diameter became smaller at higher LTHT temperatures, the spring rate became larger as expected, but the spring rate is always lower than theory would predict see (*Figure 3*) because theory ignores the elastic deflection of the hooks.

However, the theoretical rate for a spring with an outside diameter of 6.13mm would be 0.834N/mm, and with an outside diameter of 6.03mm would be 0.882N/mm. This suggests that the spring rate results are approximately consistent with the spring dimensional changes during LTHT.

Load / N @	Load/ N @ 30mm	Free Length /mm	Loss of load /N @ 30mm
9.15@ 30mm	9.15	25.005	0
17.61@ 40mm	9.13	25.010	0.02
21.81@ 45mm	9.12	25.020	0.03
24.33@ 48mm	9.10	25.020	0.05
26.00@ 50mm	9.07	25.020	0.08
27.63@ 52mm	9.02	25.020	0.13
29.23@ 54mm	8.91	25.030	0.24
30.80@ 56mm	8.72	25.030	0.43

○ **Table 1:** Example result for a carbon steel spring heat treated at 250°C

LTHT / °C	Initial Tension N	% Rm	Load at which 0.1N loss	% Rm	Load at which 0.2N loss	% Rm	Spring Rate N/mm	Outside Diameter mm
-	9.15	14.2	17.6	27.3	19.6	30.4	0.810	6.13
150	6.77	10.5	24.3	37.7	26.5	41.1	0.840	6.10
200	6.16	9.5	26.8	41.5	28.8	44.6	0.850	6.06
250	5.12	7.9	26.6	41.2	28.6	44.3	0.850	6.03
300	3.72	5.8	25.0	38.7	27.2	42.1	0.856	6.03
350	2.16	3.3	24.0	37.2	26.0	40.3	0.881	6.03

○ **Table 2:** Results for the carbon steel springs

LTHT / °C	Initial Tension N	% Rm	Load at which 0.1N loss	% Rm	Load at which 0.2N loss	% Rm	Spring Rate N/mm	Outside Diameter mm
-	5.78	11.3	12.7	24.7	14.5	28.2	0.740	6.12
200	5.30	10.3	15.4	30.0	17.4	33.9	0.750	6.12
250	4.90	9.5	16.3	31.7	18.2	35.4	0.760	6.13
300	4.65	9.1	16.6	32.3	19.2	37.4	0.767	6.12
350	4.35	8.5	16.6	32.3	19.0	37.0	0.770	6.13
400	4.00	7.8	15.6	30.3	18.5	36.0	0.765	6.14
450	2.85	5.5	5.3	29.8	18.2	35.4	0.770	6.14

○ **Table 3:** Results for the 302 stainless steel springs

Not only does theory ignore the elastic deflection of hooks, it also ignores the plastic deformation that occurs before the elastic limit of the body coils is reached.

If the elastic limit of body coils is defined at a loss of 0.1N, then part of this loss is due to the plastic deformation of the end hook.

Indeed the results show in *Table 1* that when 0.1N is lost, the free length has increased by 0.015mm, which equates to more than ten per cent of this load loss.

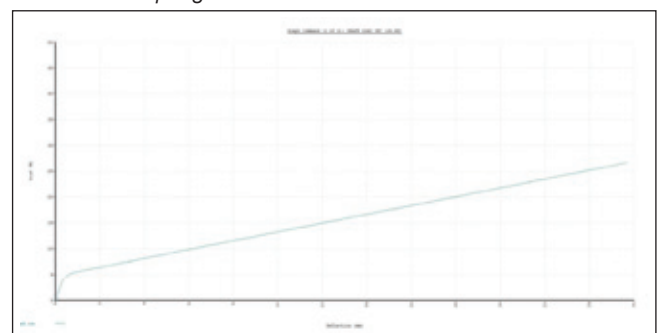
The actual load/deflection graph to the load at which there is a 0.1N loss is shown as *Figure 4*.

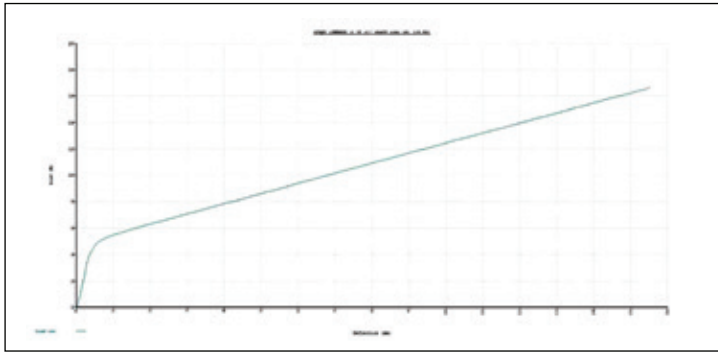
The stainless steel springs were processed in a similar manner to the carbon steel except that they lost load at much smaller deflections.

The results are shown in *Table 3*.

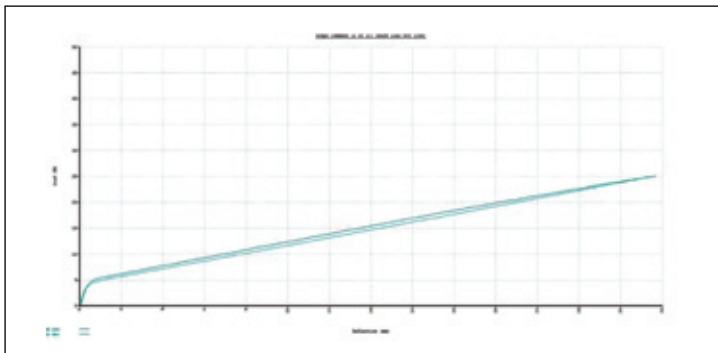
The spring rate increased slightly as the LTHT temperature was increased despite the outside diameter increasing. This is because the torsional modulus, G, increases with the heat treatment temperature, as shown in the European Standard for stainless steel spring wire, EN 10270-3.

○ **Figure 4:** Load/Deflection characteristic of a carbon steel extension spring heat treated at 250°C

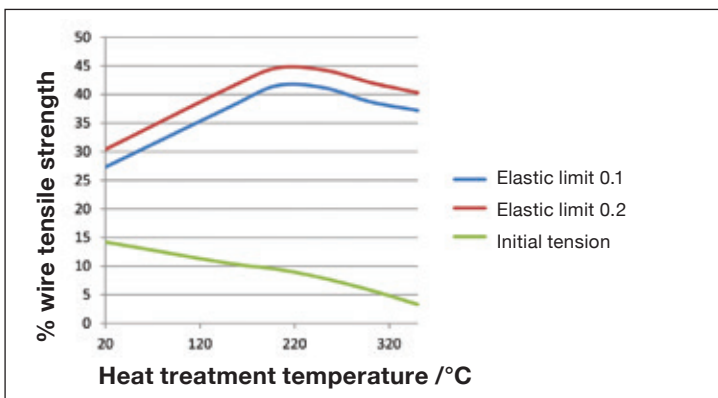




○ **Figure 5:** Load/Deflection characteristic of a stainless steel spring loaded to its elastic limit of 16.6N or 640MPa, equivalent to 32.3 per cent of the wire tensile strength

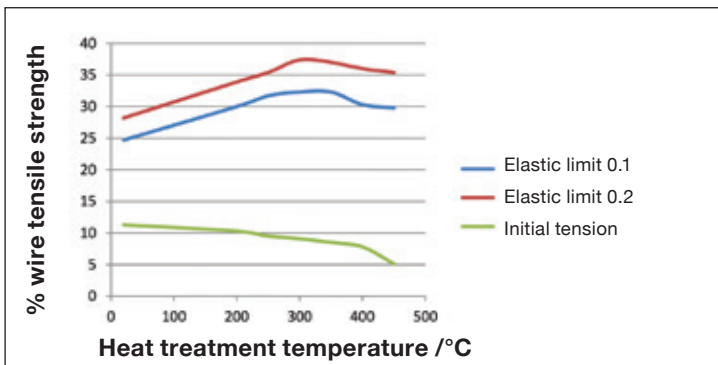


○ **Figure 6:** Load/Deflection characteristics in the loading and unloading direction for the same spring as in Figure 5. It had been loaded to 25N, which equates to 48 per cent of the wire tensile strength – it had lost more than 1.2N on first application of load, which was manifest as a loss of initial tension mostly, but there was also a small permanent elongation of the hooks



○ **Figure 7:** Effect of temperature on initial tension and elastic limit of carbon steel extension springs

○ **Figure 8:** Effect of temperature on initial tension and elastic limit of stainless steel extension springs



Load/deflection graphs for a stainless steel spring, heat treated at 350°C, loaded until it had lost 0.1N is shown in Figure 5, and the same spring until it had lost 1.2N in Figure 6.

## 5 Conclusion

It is reasonable to define the elastic limit of extension springs as the deflection at which more load is lost than the calculated repeatability of load tests, which in this case was 0.1N.

Hence the elastic limit of carbon steel extension springs, heat treated at between 200 and 250°C, would be 41 per cent of Rm. If the elastic limit allows for a loss of load of 0.2N in 28N, then the elastic limit would be approximately 44 per cent of Rm. Both these values are below 45 per cent, which is the value given in EN 13906-2.

The effect of heat treatment temperature on the initial tension and elastic limit is shown in Figure 7.

The elastic limit of stainless steel extension springs is much lower than for carbon steel. A limit of 32 per cent of Rm would be recommended for high precision springs and 37 per cent for commercial quality springs.

Furthermore, an LTHT temperature after coiling of 300-350°C would be recommended to retain initial tension, and to simultaneously maximise elastic limit, shown in Figure 8.

Paper courtesy of the 2013 CabWire Conference, Milan, Italy, 4<sup>th</sup> and 5<sup>th</sup> November 2013.

## 6 References

- [1] Spring expert [www.springexpert.co.uk](http://www.springexpert.co.uk)
- [2] Advanex [www.advanex.co.uk](http://www.advanex.co.uk)
- [3] Spring calculator professional design software supplied by IST [www.springcalculator.com](http://www.springcalculator.com)
- [4] Institute of Spring Technology [www.ist.org.uk](http://www.ist.org.uk)

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# 热处理对拉伸弹簧性能的影响

作者：英国谢菲尔德弹簧技术研究院技术顾问Mark Hayes

## 摘要

在弹簧生产商的诸多问题推动下，2013年实施的一项工作将碳钢和不锈钢弹簧线制成了拉伸弹簧，并对这些弹簧进行了测量和负重测试，以评估它们的初始张力和弹性极限。结果指向修订EN 13906 - 2的必要性。

## 1 背景

弹簧生产商知道生产过程中对拉伸弹簧实施应力消除热处理有以下效应：

- 外径改变，由此弹簧劲度系数改变
- 初始张力，盘绕时的卷曲能力降低
- 一些人可能也知道弹性限度将增加

根据EN 13906-2，拉伸弹簧的最大(未修正的)设计应力为45% Rm。也就是说，你可以给拉伸弹簧增加负荷，直到外力作用达到钢丝抗拉强度的45%，都不会发生塑性变形。这假定弹簧在卷绕后进行了应力消除。作者的观点是弹性限度的这种定义常常过高。本研究的设计目的是探讨弹性限度，以及热处理温度怎样对它产生影响。同时，借此机会研究热处理温度对外直径、初始张力和弹簧劲度系数的影响。大部分拉伸弹簧就像本调研图1中研究的测试弹簧一样，都有理论载荷/变形特性。我们假设，当拉伸弹簧载荷超过它的弹性限度(图1中为29牛)时，所有塑性变形发生在弹簧主体内部，表现为比初始张力缩小。大部分拉伸弹簧有钩子，钩子被制作成与弹簧主体拥有同样的标称外直径，这也适用于本研究所制作的弹簧，参见图2。所有国际拉伸弹簧设计标准的假定是钩子完全刚性，不会发生弹性挠曲或达到它们最大设计张力的塑性挠曲。这一假定是不正确的，但是对于主体线圈超过20转的拉伸弹簧来说，忽略钩子挠曲引起的误差实际上非常小。绝大多数拉伸弹簧要么依据EN 10270-1由碳素钢拉伸制成(有时采用镀锌或锌/铝涂层)，要么依据EN 10270-3由不锈钢拉拔而成，等级1.4310或302型。因此本文研究了这两种材料。

## 2 弹簧

本研究所用的弹簧经由英国诺丁汉迈进(2)公司提供。弹簧和钩子经自动机器卷绕同时形成，卷好后作者很快拿到弹簧，以便卷绕后不迟延地在仔细控制的条件下进行热处理。弹簧由0.71毫米钢丝制成，标称外直径为6.03毫米，19.5圈，初始张力相对较大，英式或交叉末端钩子。碳素钢的抗拉强度为2465兆帕，而不锈钢的抗拉强度为1981兆帕。碳素钢弹簧的设计以SCP(3)为代表，采用EN13906-2作为设计方法，见图3。

## 3 热处理

弹簧被置于IST(4)提供的烤箱中进行热处理，烤箱的温度可以设定并保持在 $\pm 5^{\circ}\text{C}$ 以内，热处理总时长通常为20分钟。放置在弹簧中间的热电偶显示，它们被放入烤箱两分钟之内就达到了与烤箱设定温度同样的温度。一共有20支弹簧经过热处

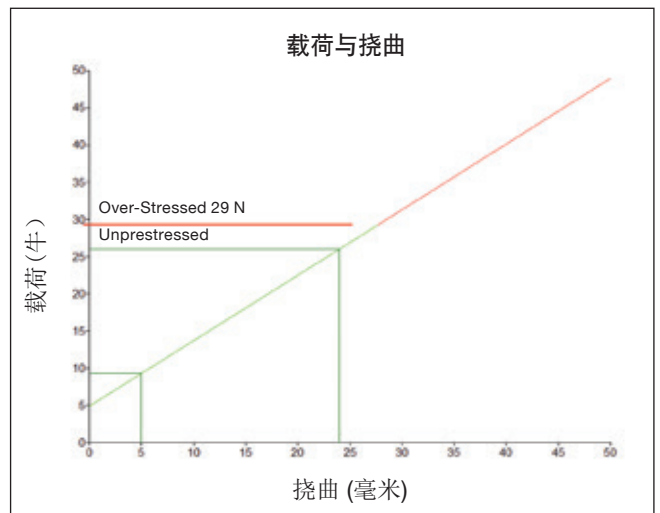


图1: 载荷/挠曲特性

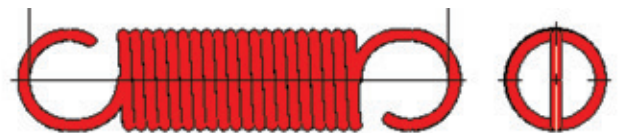


图2: 测试弹簧

理——碳素钢的处理温度在150、200、250、300和350 $^{\circ}\text{C}$ ，不锈钢的处理温度在200、250、300、350、400和450 $^{\circ}\text{C}$

## 4 载荷测试

我们采用了IST(4)提供的下列方法对弹簧进行载荷测试。我们用载荷测试仪测量了弹簧的自由长度(实际上是载荷为0.1牛时的长度)，然后测量了30毫米时的载荷。经查看，30毫米时的负荷对自由长度没有影响；然后通过逐步加大长度对弹簧进行了载荷测试，每次还原时检测自由长度没有显著变化，然后重新测量30毫米时的负荷。测试一直进行到30毫米时载荷减损至少2%以上。典型的一组结果参见表1。每个热处理温度下测试2到5支弹簧，结果取平均值。碳素钢的结果汇总见表2。

很明显，热处理对于拉伸弹簧的性能大有裨益，因此国际设计标准总是假定卷绕后进行了热处理是正确的。对这些结果的进一步考察表明，热处理温度越高，外直径越小，正如预期的，弹簧劲度系数越大，但是由于理论忽视了钩子的弹性挠曲，弹簧劲度系数常常比理论预测值更低(见图3)。然而，外直径为6.13毫米的弹簧的理论劲度系数是0.834牛/毫米，外直径为6.03毫米的弹簧的理论劲度系数是0.882牛/毫米。这表明弹簧劲度系数结果与热处理中弹簧直径变化几乎一致。理论不仅忽视了钩子的弹性挠曲，也忽视了主体线圈达到弹性限度之前发生的塑性变形。如果将主体线圈的弹性限度定

标识符: 迈进  
零件编号: 研究弹簧

弹簧类型: 圆线拉伸  
设计依据: EN 13906-2: 2001  
公差标准: DIN 2097: 1973

**材料**

EN 10270-1 拉丝  
杨氏模量 (E) 206000 牛/平方毫米  
刚性模量 (G) 81500 牛/平方毫米  
密度 .00000785 千克/立方毫米  
无预应力: 0-45 %

末端类型 交叉钩  
钩子选择 与主体直径相等  
钩子外径 6.03 毫米

**设计参数**

钢丝直径 0.710 毫米  
外径 6.03 毫米  
总圈数 19.50  
弹簧劲度系数 0.880 牛/毫米(Calculated)  
初始张力 4.92 牛  
自由长度 25.00 毫米

**应力数据**

	较低的抗拉强度	操作位置		
		IT	1	2
SL	无数据			
SM	2070	9 U	17 U	48 O
DM	2070	9 U	17 U	48 O
SH	2330	8 U	15 U	42 U
DH	2330	8 U	15 U	42 U
Specified	2465	8 U	14 U	40 U

**操作数据**

	操作位置	
	1	2
长度 (毫米)	30.00	48.95
载荷 (牛)	9.32	26.00
挠曲 (毫米)	5.00	23.95
主体应力 (牛/平方毫米)	353	985
钩子应力 (牛/平方毫米)	807.07	2252.3
负载公差等级 1 (牛)	0.891	1.05
负载公差等级 2 (牛)	1.41	1.67
负载公差等级 3 (牛)	2.26	2.66

**操作数据**

预计自由长度:	23.78	毫米
初始拉张应力:	186.33	牛/平方毫米
主体长度:	14.55	毫米
主体长度(最大值):	14.76	毫米
应力系数:	1.19	
弹簧指数:	7.50	
内径:	4.61	毫米
平均线圈直径:	5.32	毫米
钩子内径:	4.61	毫米
钢丝长度:	361.06	毫米
重量/100:	0.112	千克
自然频率:	27958	RPM
适用挠度 (SL):	N/A	毫米
适用挠度 (SM):	22.35	毫米
适用挠度 (DM):	22.35	毫米
适用挠度 (SH):	25.86	毫米
适用挠度 (DH):	25.86	毫米

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图3: 碳素钢弹簧的标称设计(假设弹簧经过热处理)

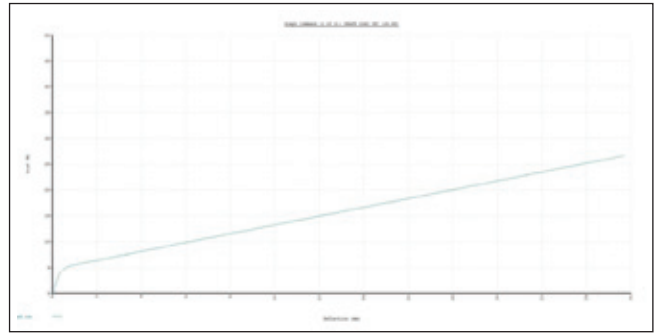


图4: 经250°C热处理的碳素钢拉伸弹簧的载荷/挠曲特性

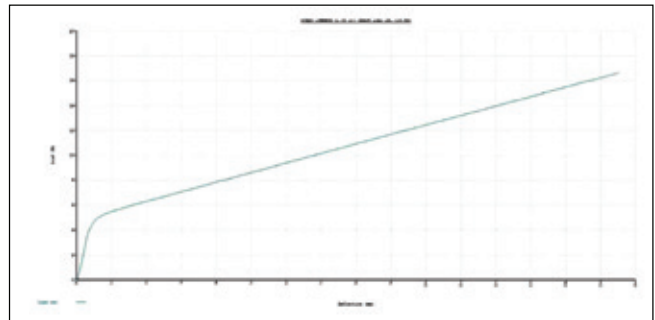


图5: 载荷达到16.6牛或640兆帕弹性限度的不锈钢弹簧的载荷/挠曲特性，等同于钢丝抗拉强度的32.3%

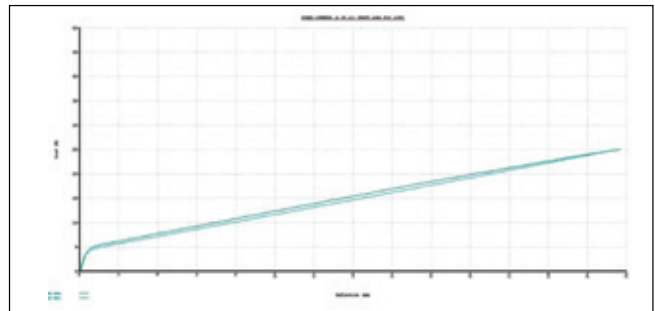


图6: 与图5相同的弹簧在加载和卸载方向的载荷/挠曲特性。它曾经承重达到25牛，相当于钢丝抗拉强度的48%——首次载荷应用损失超过1.2牛，大部分表现为初始张力损失，但也有一小部分钩子永久性延长的缘故

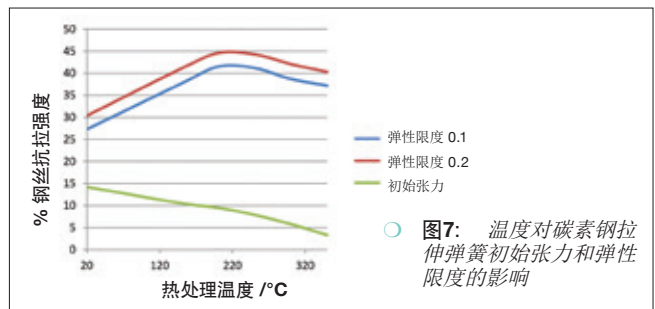


图7: 温度对碳素钢拉伸弹簧初始张力和弹性限度的影响

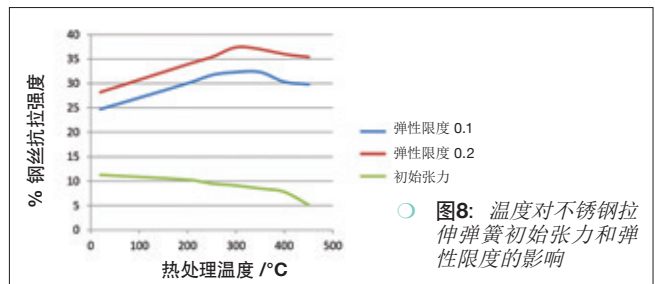


图8: 温度对不锈钢拉伸弹簧初始张力和弹性限度的影响

载荷/牛@	载荷/牛@30毫米	自由长度/毫米	载荷损失/牛@30毫米
9.15@30毫米	9.15	25.005	0
17.61@40毫米	9.13	25.010	0.02
21.81@45毫米	9.12	25.020	0.03
24.33@48毫米	9.10	25.020	0.05
26.00@50毫米	9.07	25.020	0.08
27.63@52毫米	9.02	25.020	0.13
29.23@54毫米	8.91	25.030	0.24
30.80@56毫米	8.72	25.030	0.43

表1: 250°C热处理后碳素钢弹簧的示例结果

LTHT / °C	初始张力 N	% Rm	0.1N牛损失的载荷	% Rm	0.2N牛损失的载荷	% Rm	弹簧劲度系数 牛/毫米	外直径毫米
-	9.15	14.2	17.6	27.3	19.6	30.4	0.810	6.13
150	6.77	10.5	24.3	37.7	26.5	41.1	0.840	6.10
200	6.16	9.5	26.8	41.5	28.8	44.6	0.850	6.06
250	5.12	7.9	26.6	41.2	28.6	44.3	0.850	6.03
300	3.72	5.8	25.0	38.7	27.2	42.1	0.856	6.03
350	2.16	3.3	24.0	37.2	26.0	40.3	0.881	6.03

表2: 碳素钢弹簧结果

LTHT / °C	初始张力 N	% Rm	0.1N牛损失的载荷	% Rm	0.2N牛损失的载荷	% Rm	弹簧劲度系数 牛/毫米	外直径毫米
-	5.78	11.3	12.7	24.7	14.5	28.2	0.740	6.12
200	5.30	10.3	15.4	30.0	17.4	33.9	0.750	6.12
250	4.90	9.5	16.3	31.7	18.2	35.4	0.760	6.13
300	4.65	9.1	16.6	32.3	19.2	37.4	0.767	6.12
350	4.35	8.5	16.6	32.3	19.0	37.0	0.770	6.13
400	4.00	7.8	15.6	30.3	18.5	36.0	0.765	6.14
450	2.85	5.5	5.3	29.8	18.2	35.4	0.770	6.14

表3: 302不锈钢弹簧结果

义为0.1牛的减损,那么减损的一部分原因便是末端钩子的塑性变形。事实上,表1的结果表明,当减损为0.1牛时,自由长度增加0.015毫米,等同于此载荷损失的10%以上。产生0.1牛损失的载荷的实际载荷/挠曲图见图4。对不锈钢弹簧与碳素钢弹簧采用类似的处理方法,但它们发生载荷损失的挠曲要小得多。结果展示见表3。热处理温度增加时,尽管外直径增加,弹簧劲度系数只是略微增加。这是因为扭曲模量G随着热处理温度上升而增大,正如不锈钢弹簧线材《欧洲标准》EN 10270-3所示。热处理温度为350°C时,不锈钢弹簧增加载荷直至发生0.1牛损失的载荷/挠曲图参见图5,图6是同样的弹簧增加载荷直至发生1.2牛损失的示意图。

## 5 结论

将拉伸弹簧的弹性限度定义为比载荷测试计算的可重复性损失更多载荷的挠度是合理的,本案例中为0.1牛。由此,热处理温度为200至250°C,碳素钢拉伸弹簧的弹性限度为41% Rm。如果弹性限度允许28牛发生0.2牛的载荷损失,弹性限度将接近44% Rm。这两个值都低于EN 13906-2定义的值:45%。热处理对初始张力和弹性限度的作用见图7。不

锈钢拉伸弹簧的弹性限度比碳素钢弹簧要低得多。高精密弹簧的建议限度为32% Rm,商业品质弹簧的建议限度为37% Rm。此外,为了保持初始张力,同时最大化弹性限度,卷绕后热处理温度建议为300-350°C,参见图8。

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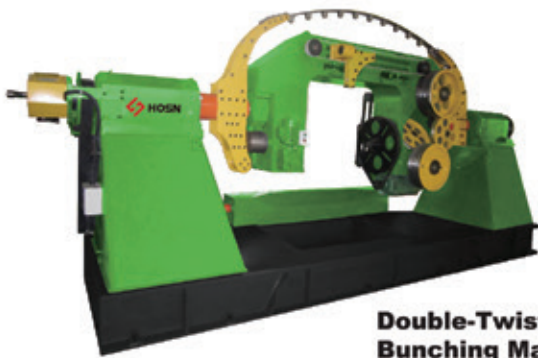


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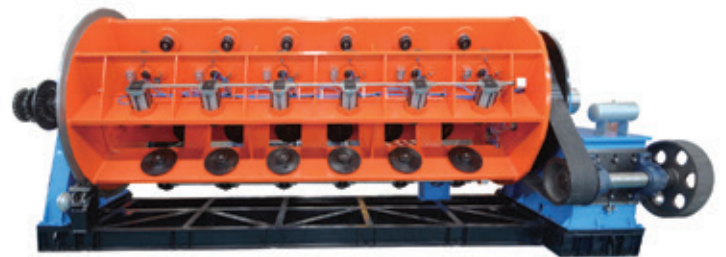


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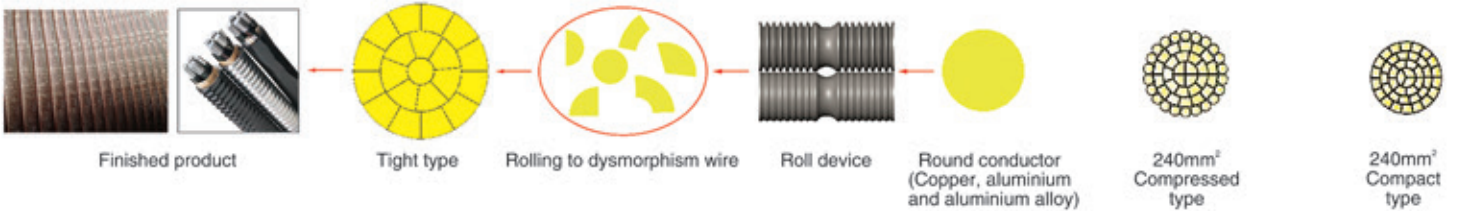
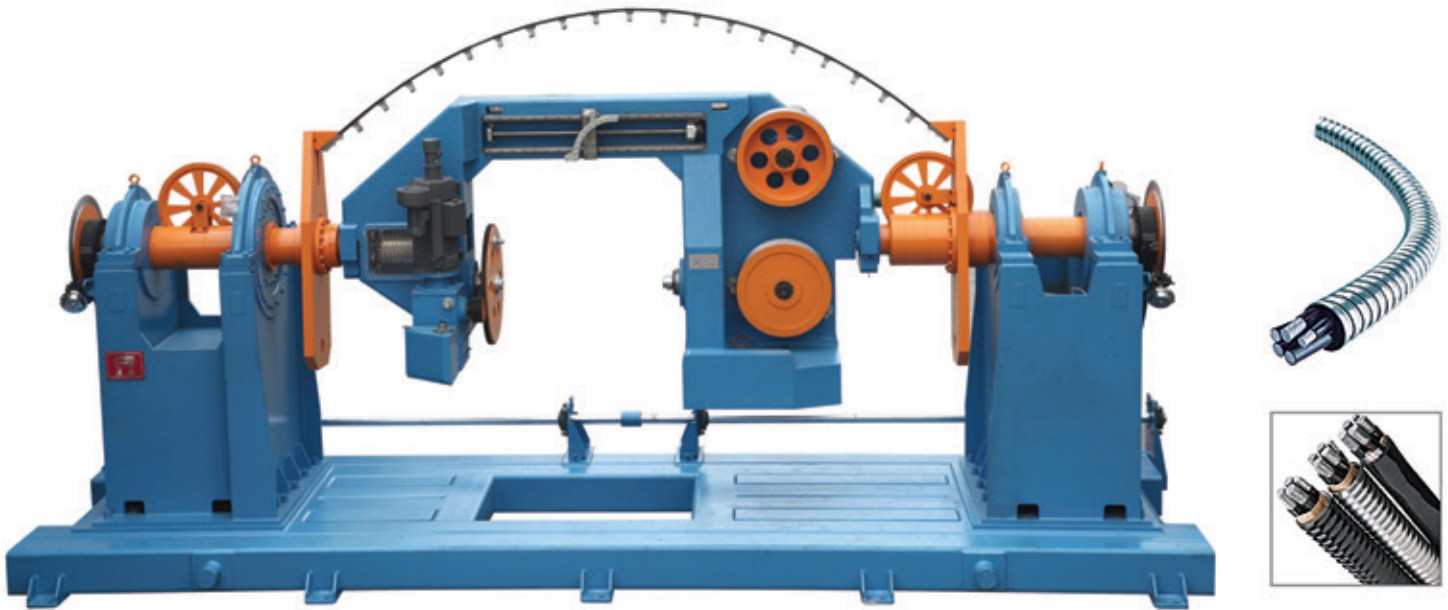
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