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Wire & Cable

May 2014
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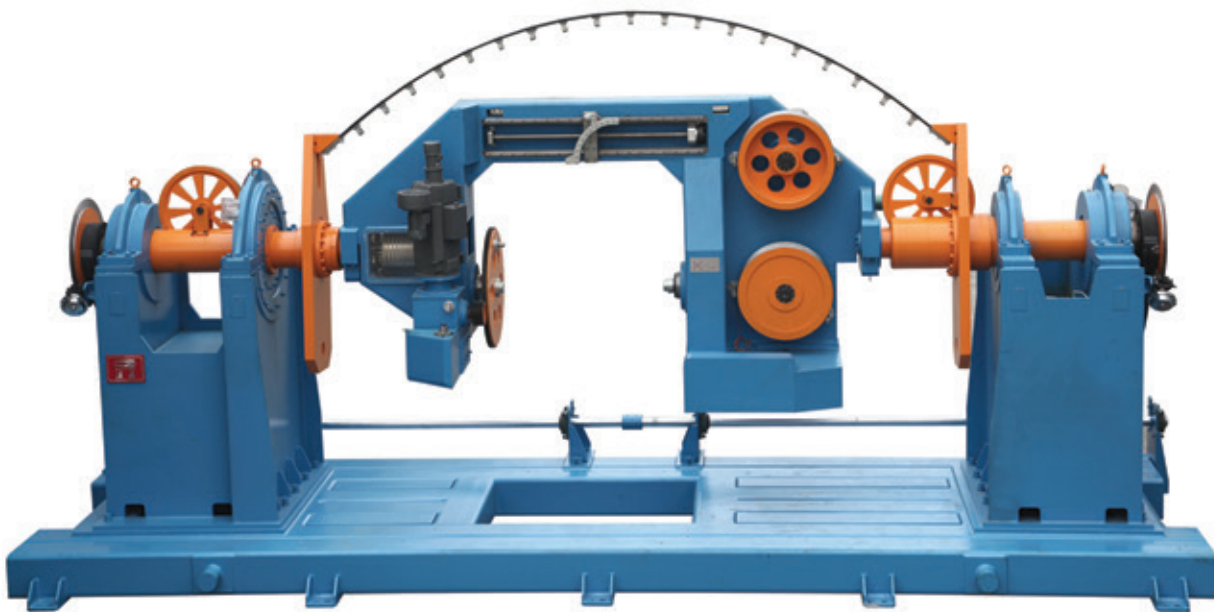


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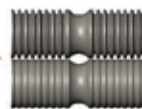
Finished product



Tight type



Rolling to dysmorphism wire



Roll device



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(Copper, aluminium
and aluminium alloy)



240mm²
Compressed
type



240mm²
Compact
type

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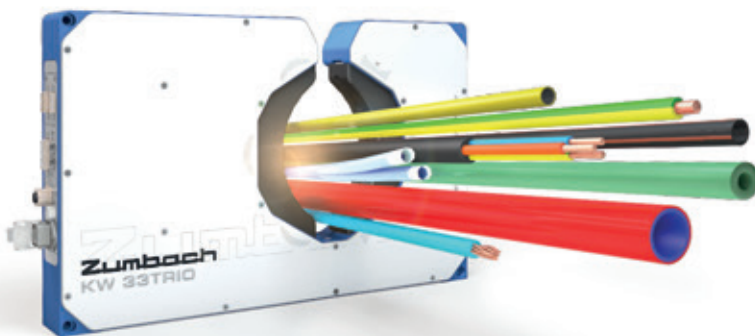
Add: Changzhou City, Jiangsu Province, China

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Copper Aluminum rod breakdown machine, LHD-450

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8



26

Next Issue

Features -

Cable production equipment
(for power, telecom and data cables)

Wire and wire ropes for construction
of buildings and suspension bridges

Getting Technical -

Low Coefficient of Friction Polyolefin FTTx
Jacket for Improving Cable Installation in Ducts



50

contents

- 8 Industry News
- 21 行业新闻

- 26 Technology News
- 34 技术与产品

- 38 India Insight
- 38 印度透视

- 40 Telecom News
- 42 通信新闻

- 43 From the Americas
- 47 来自美国的消息

- 50 Guangzhou Wire & Tube 2014
- 50 2014 广州线缆和管道展

- 59 Editorial Index
- 59 通讯目录

- 59 Advertisers Index
- 59 广告索引

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Technical Articles

- 54 Development of the cable for photovoltaic power generation systems
By Arifumi Matsumura, Masaki Nishiguchi Shigeru Kubo, Fitel Photonics Laboratory, Furukawa Electric Co Ltd, Japan

- 57 光伏发电系统适用电缆的发展
作者: 日本Furukawa电器工业株式会社古河光电子实验室阿里富米松村*、西口正树久保茂



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Image "Downtown Indianapolis in autumn" - www.bigstockphoto.com - photo: apfher - Rudri1976

The e-revolution has well and truly started in rural India

There is, undoubtedly, an optimistic undercurrent coming out of India. A \$3.3 billion broadband contract for Aksh Optifibre Ltd is aimed at connecting 250,000 communities throughout the country.

The New Delhi-based optical fibre manufacturer is expected to complete the project by September next year and lead the way for an e-revolution in rural parts of the country. (You can read the full story on page 38).

This is in addition to Hindustan Cleanenergy Ltd undertaking a major expansion plan (page 39), and the Delhi Metro becoming the country's first mass transit system to install solar panels (also page 39).

Also in this issue is news that Huawei, the largest telecommunications manufacturer in the world, is looking at ways to speed up the process of bringing 5G to Europe. This follows on from the 5G@Europe Summit in Germany recently, and you can find full details of the story on page 10.

Prysmian Group has also completed operations for the construction and execution of Southeast Asia's longest undersea cable, linking Phu Quoc Island to the national power grid in Vietnam. (See page 12 for the story).

David Bell
Editor



When and where

May 2014

6–7 May:
Wire Expo –
trade exhibition –
Indianapolis, USA
Organisers:
Wire Association
International
Fax:
+1 203 453 8384
Email: sales@wirenet.org
Web: www.wirenet.org

May 2014

14–17 May:
Lamiera –
trade exhibition –
Bologna, Italy
Organisers:
Ucimu-Systems
Fax:
+39 0226 255 894
Email:
lamiera.esp@ucimu.it
Web: www.lamiera.net

June 2014

16–18 June:
2014 China International
Metal and Metallurgy
Exhibition – trade exhibition
– Guangzhou, China
Organisers:
Julang Exhibition Co Ltd
Fax: +86 203 862 0790
Email:
meiwen@julang.com.cn
Web: www.julang.com.cn

September 2014

24–27 September:
wire China – trade
exhibition –
Shanghai, China
Organisers: SECRI
and Messe Düsseldorf
(Shanghai) Co Ltd
Fax: +86 216 169 8301
Email:
shanghai@mdc.com.cn
Web: www.wirechina.net



○ Wire descaling machine at SeAH Special Steel

SeAH Wheelabrator upgrade

SeAH Special Steel Co Ltd, a manufacturer of special steels, is upgrading its operations in Pohang, Korea, with nine wire descaling machines from Wheelabrator.

The new equipment will be delivered throughout the year and will replace existing shot blast machines from various European and Asian OEMs.

The single strand shot blast machines from Wheelabrator reliably remove scale, rust and other contaminants from the wire or rod surface before processing, and can be integrated into existing fully automated drawing lines.

Depending on production requirements, machines with three, four or six blast wheels, arranged along the longitudinal axis of the wire or rod, are available and

ensure consistent and even coverage. Guide plates focus the abrasive stream onto the wire surface, thereby boosting the descaling effect without increasing abrasive throughput. This improves the efficiency of the whole blasting process.

Wire descaling machines from Wheelabrator allow drawing speeds of up to 240m/min, matching those in modern drawing lines.

Viktor Lussi, sales director at the Wheelabrator Technology Centre Zürich (DISA Industrie AG), said: "The customer wanted to upgrade their operations to meet highest standards of quality and reliability.

"SeAH Special Steel already had several Wheelabrator machines in

operation and were very happy with its proven track-record for quality and productivity. This new order just goes to show that, when it comes to integrated production environments, investment in highly reliable equipment pays off."

Beyond wire descaling equipment, Wheelabrator also offers single or multi-strand blast machines for steel rod and wire coil, which can be adapted to suit individual customers' requirements. For example, machines can be supplied for stand-alone operations with separate handling or, as the example SeAH showed, as an integrated solution.

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Zürich – Switzerland**

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5G heading to Europe

HUAWEI is taking decisive action to make the fifth generation of wireless systems (5G) a reality for Europe.

At the 5G@Europe Summit in Munich, Germany, participants discussed how best to join forces to speed up progress towards achieving this objective.

5G is the next generation of ultra-fast wireless networks that will power the technology of tomorrow. Huawei is investing in a tremendous research and development effort to turn this investment into technological progress for Europe, thanks to an open and collaborative approach involving industry partners, consortiums, universities and leading innovation platforms around the world.

The 5G@Europe Summit provided the opportunity to discuss the challenges and opportunities involved in 5G including long-term vision and requirements, key technology drivers and innovation as well as societal benefits.

“5G will have a fundamental impact on the ICT industry and on our quality of life. Huawei is one of the driving forces in making 5G a reality,” said Dr Wen Tong, head of wireless research and head of communications technologies laboratories at Huawei 2012 LAB. “We began investing in 5G in 2009, and recently announced plans to invest an additional US\$600m for research and innovation into 5G technologies by 2018.”

Huawei will invest significant research and innovation efforts in Europe within the Horizon 2020 framework and beyond, especially at the Huawei European Research Centre (ERC).

As a member of the European research consortium METIS, Huawei ERC is at the forefront of 5G research by developing the key technology components of the 5G Wireless interface. The ERC is also one of the key contributors to the Advanced 5G Infrastructure public-private partnership programme (5GPPP) defined by the European Commission.

Huawei predicts that the first 5G networks will be ready for commercial deployment in 2020, delivering 1,000 times the capacity of current mobile networks and reaching peak data rates of over 10Gbps.

Huawei – China

Website: www.huawei.com

Market hit by weather

Operating rates at China's major copper wire and cable producers averaged 75.47 per cent in January, down 9.97 per cent from December, Shanghai Metal Market's latest survey showed.

SMM surveyed 21 copper wire and cable producers with total capacity of 1.052 million tpy in January.

Outdoor work slowed significantly in January as workers returned home for the Chinese New Year holiday and due to adverse weather conditions, depressing demand for wire and cable.

Shanghai Metals Market – China

Website: www.metal.com



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www.wire.de

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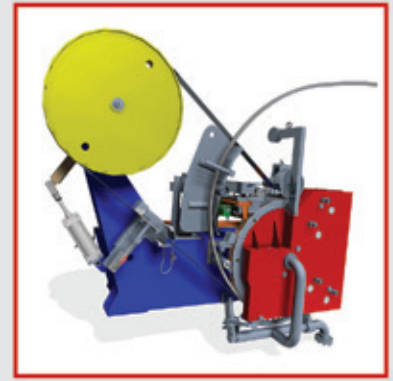




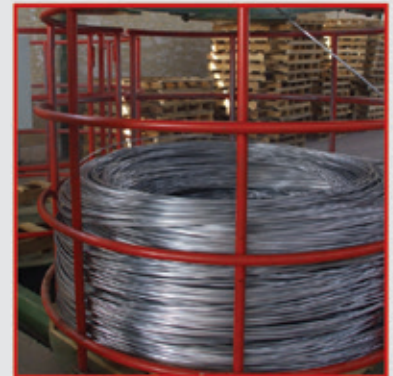
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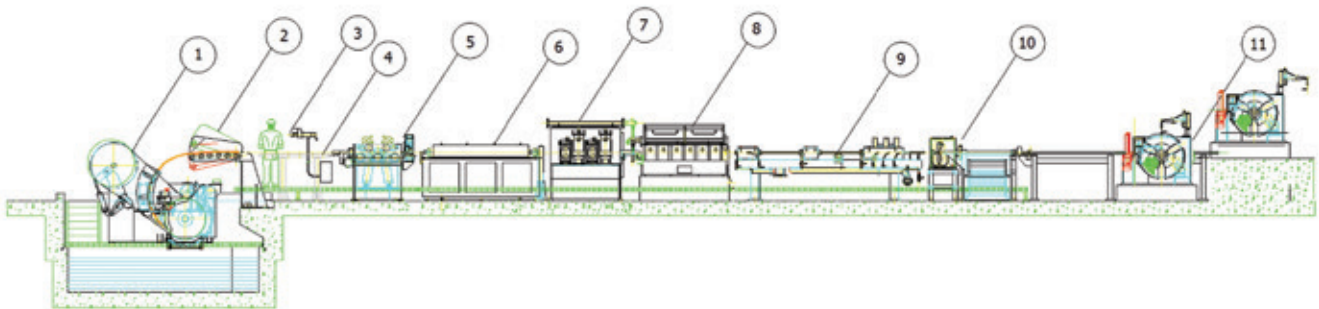
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Aluminium Rod

Desmond's new role



○ Desmond Goh

Beta LaserMike has appointed Desmond Goh as channel manager for Asia. This new appointment enhances the company's go-to-market approach to drive alignment and optimisation across all partner segments in the Southeast Asia region.

In his new role, Mr Goh will be responsible for managing and expanding sales channel operations for Beta LaserMike's portfolio of measurement and control solutions.

His key focus is on strategically driving sales and increasing revenues by identifying new opportunities and building on existing relationships with customers and channel partners.

Beta LaserMike – USA
Website: www.betalasermike.com

South-east Asia's longest undersea cable

Prysmian Group has completed operations for the construction and execution of a submarine power cable link to connect Phu Quoc Island to the national power grid in Vietnam.

Phu Quoc Island is situated 45km west of Ha Tien town, Kien Giang province in southern Vietnam.

The submarine cable link will play a major role in the province's 2020 socio-economic development plan aimed at making Phu Quoc Island into a special administrative-economic zone by the end of the decade.

The Phu Quoc link is the first submarine power cable link installed by a utility company in Vietnam, and at 56km is south-east Asia's longest undersea cable system.

The Phu Quoc cable connection comprises

three 630mm² 110kV copper, single wire armoured XLPE insulated submarine cables, installed by the Prysmian cable laying vessel 'Cable Enterprise'.

Prysmian completed the project ahead of schedule, after only two months, and just in time to begin operation on the occasion of the 2014 Lunar New Year holiday.

The inauguration ceremony for the interconnection took place on 6th February and was attended by Vietnamese prime minister, Nguyen Tan Dung; standing secretary of secretariat of the central committee of the communist party of Vietnam, Lê Hong Anh; politicians and dignitaries from the central Hanoi government; and the Italian ambassador to Vietnam.

Prysmian Group – Italy
Website: www.prysmiangroup.com

New mill for Chinese steel company

BEIMAN Special Steel Co, part of the Dongbei Special Steel Group, has concluded a contract with German company Friedrich Kocks for the delivery, assembly and commissioning of a reducing and sizing block (RSB) combined with the equipment and processes for temperature-controlled rolling (LTR).

After positive results and experiences with the operation of the three-roll RSB in the combined wire rod and bar mill at Dalian Special Steel, another company belonging to Dongbei, the group decided to expand and modernise its bar mill by implementing the three-roll RSB technology of the independent family-owned company in Hilden for reasons of trouble-free operation and quality improvement.

After having completed the modernisation, the mill will produce 504,000 t/a bars in SBQ-quality within the dimension range of 16 to 100mm diameter. The new heavy-duty 370mm reducing and sizing block will be equipped with four stand positions, and is designed for temperature controlled rolling at low temperatures. The RSB will be operated as finishing

block in the existing bar mill downstream of the two-high roughing and intermediate mill consisting of 20 stands.

The three-roll block is able to roll any finished size of the whole product range as a straight length onto the cooling bed out of a few entry cross-sections from the roughing and intermediate mill. The rolling configuration program Bamicon calculates optimum adjusting values for motor speed, rolls and guides as well as gear stages depending on the requested finished product.

The LTR process with closed-loop control and corresponding equipment for the whole mill line is also included in the order. Kocks is in charge for the process know-how as well as for engineering and hardware.

For the first time, the Kocks Microstructure Simulator (KMS) will be applied as a supplement to the LTR process. Kocks developed KMS as a new software program for the process simulation in long product mills, particularly for the three-roll technology.

It simulates the temperature development of the rolled product, calculates the quality and quantity of the micro-structural development and predicts the mechanical properties of the rolled cross-sections.

The scope of supply also includes the quick automatic stand change system, the stand and roll workshop with quick roll change; CAPAS, the computer-aided system for precise adjustment of rolls and guides in the stand; and the remote control of passes and guides of the three-roll stands in the mill line.

The total package is completed by supervision of assembly, commissioning and training of the customer's personnel.

The Kocks three-roll reducing and sizing block will enable Beiman to produce high-quality bars trouble-free and economically, which is especially requested by the continuously growing automotive industry in China; thus strengthening and expanding its own market position.

Beiman Special Steel Co Ltd – China
Website: www.dtgroup.com

The number one aim is satisfaction

CUSTOMER satisfaction is Sikora's most important aim. Not only is the technology focused on this, but also the customer service.

This service is diverse and includes the handling of support requests, commissioning of equipment, maintenance or repair and the supply of spare parts.

In addition to classical service, Sikora offers device training and is now putting a focus on a calibration service for customers. With its extended service support, customers can choose from a variety of service possibilities – no matter in which part of the world the devices are installed.

After the delivery of Sikora devices, adjustment is not necessary. Adjustment in this sense means the correction of the actual value to the nominal value in order to receive a correct display of the measuring values. All devices are free of moving

parts, so they are not subject to wear, which influences the measuring accuracy and keeps their accuracy for the entire life-time.

For the required monitoring of measuring equipment to ISO 9001, Sikora offers a calibration service for customers.



○ Sikora now offers a calibration service for customers

With this calibration, the accuracy of the measuring device is verified and documented.

Usually, customers require a calibration of their devices once a year. The benefit for customers is that they do not need to buy and maintain the calibration tools and equipment. This service can also be done at the company's headquarters in Bremen, Germany, or at specially equipped subsidiaries.

For customers with permanently installed equipment or those with time constraints, Sikora also offers an on-site calibration service, with a trained engineer visiting the customer's site.

Sikora technicians work in all parts of the world and customers are supported by a service specialist in Bremen or by one of the global offices in their native language.

Sikora AG – Germany
Website: www.sikora.net



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A new generation of lubricants

Lubricants specialist Metalube has launched the next generation of its Lubricool™ range with an all new Lubricool™ 260 – a superfine copper wire drawing lubricant.

This addition to the Lubricool™ range uses innovative chemistry that provides significantly improved lubricity. This in turn gives a much cleaner wire, resulting in reduced wire breaks.

Commenting on the new product, commercial director Douglas Hunt said: “Lubricool is already a successful range of water soluble lubricants for copper and other non-ferrous metal-drawing, rolling and annealers.

“This latest generation, Lubricool 260, outstrips any other product currently available in the market and in turn will save our customers considerable sums of money.”

Metalube specialises in wire and tube drawing lubricants as well as protective greases for overhead conductors. The headquarters are in Manchester, UK, where the site incorporates offices with warehousing, laboratories and manufacturing facilities.

Metalube Ltd – UK

Website: www.metalube.co.uk



○ Development chemist Naomi Pells with the new Lubricool 260

\$160m Kuwait order for ABB

ABB has won orders worth about \$160 million from the Kuwait Ministry of Electricity and Water (MEW) to construct substations that will help strengthen the country's power grid and support its growing infrastructure.

The orders were booked in the fourth quarter of 2013.

Kuwait has crude oil reserves in excess of 104 billion barrels, accounting for around ten per cent of global reserves, the fourth largest in the world.

As a result, the petroleum industry is the biggest contributor to the national economy, accounting for nearly half of the country's gross domestic product (GDP).

The government is making significant investments to enhance its power infrastructure in order to support a planned expansion of crude oil production from the current level of about 2.9 million barrels per day (bpd) to 4 million bpd by 2020.

These substations will reinforce the expansion of oil fields in the northern region of Rawdatain, and support Kuwait's long term vision to position it as a regional trading and business hub.

“The need to build up reliable and efficient power infrastructure in regions like the Middle East is an important growth driver for ABB,” said chief executive Ulrich Spiesshofer.

“ABB has a proven track record in Kuwait and we are pleased to continue supporting the country's growth and development, combining our global technology and engineering expertise with our strong local presence.”

The orders won by ABB are for turnkey projects in Kuwait's north Rawdatain region and include the design, supply, installation and commissioning of two 300/132 kilovolt (kV) gas-insulated switchgear (GIS) substations as well as the extension of three existing 132kV GIS substations.

Key product supplies include gas-insulated high- and medium-voltage switchgear, transformers, control and protection systems, shunt reactors and cables.

The projects are scheduled for completion by 2016.

ABB – Switzerland

Website: www.abb.com

Eurolls upgrading

When ITC Manufacturing decided to open a new manufacturing and distribution facility in Columbus, Ohio, USA, it was committed to upgrading to the most technologically advanced equipment on the open market.

The Eurolls Group is responsible for helping ITC Manufacturing for partially realising this goal by delivering state-of-the-art straightening and cutting equipment (NR220 NR231 NR300, TH630-NR300s) along with a complete rolling line (LGH-EVM) fully equipped with rolling cassettes.

Vice president of operations Faruk Gole said: “Production has improved significantly since the installation of this machinery, by improving our efficiencies and eliminating waste.”

Eurolls SpA – Italy

Website: www.eurolls.com

New multihead weighers from Bilwinco

BILWINCO is a manufacturer of advanced weighing systems for fasteners.

Since 1955 it has delivered more than 6,000 solutions worldwide to, primarily, the automotive market, construction industry and the DIY market. The company has recently introduced a series of hardware multihead weighers.

This provides a number of significant advantages:

- A smoother body without points of attachment, which reduces risk of product mix
- A compact design which reduces product damage and increases speed
- A direct weighing principle giving high accuracy through a robust and long lasting load cell system

A new advanced control with user interface through a standard PC or through a large and easy-to-use 15" touch screen, makes operation and production surveillance much easier.

This new interface also allows for remote service back-up via an Internet connection, which ensures a cost effective and efficient back-up to the Bilwinco equipment.



○ The PC interface making operation and production surveillance much easier

Bilwinco A/S – Denmark

Website: www.bilwinco.com

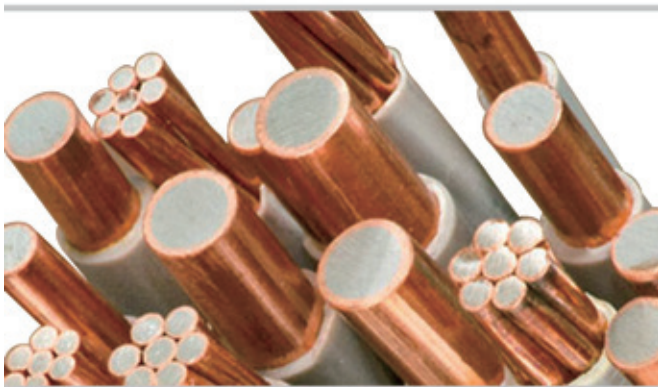


COPPER GLAD STEEL WIRE

CCS as per ASTM B452, ASTM B520, ASTM B910 and ASTM B227 etc.

Diameter : from 0.10mm to 3.00mm

Conductivity : from 15% -30% etc.



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Better service and further growth ahead in South Africa

Seacom is to invest in terrestrial backhaul and additional subsea connectivity in line with its commitment to provide customers with resilient services and promote further growth of the continent's telecoms infrastructure.

Seacom has upgraded its South African backhaul networks, linking its west and east coast cable assets through activation of multiple wavelengths between Johannesburg and Cape Town, coupled with upgrades of the network platforms that support its services to major cable

interconnection hubs in Yzterfontein and Mtunzini.

In addition, Seacom has acquired additional west coast subsea capacity to meet demand from both its transmission and IP/MPLS customers.

Officials said strong adoption of Seacom's MPLS and IP transit services had also prompted the company to upgrade its IP/MPLS network across Africa, Europe and Asia.

Seacom is in the final stages of negotiating contracts with vendors

for the rollout of an enhanced services platform, intended to keep Seacom at the forefront of African data connectivity.

"Our most recent investments will allow us to offer higher quality services to our service provider and network operator customers, so that they in turn can provide higher quality and more reliable services to their customers," said Brian Herlihy, Seacom's founder and executive director.

Seacom – Mauritius
Website: www.seacom.mu

East Africa's first utility-scale solar PV plant

WORK has begun on the construction of East Africa's first utility-scale solar PV plant.

The 8.5MW plant, which, once complete, will generate eight per cent of Rwanda's electricity, is being built on land belonging to Agahozo-Shalom youth village.

The Rwandan government's own objective is for a five-fold increase in renewable sources of power by 2017.

The solar field will feed electricity into the national grid under a 25-year power purchase agreement with the Rwanda energy, water and sanitation authority (EWSA) and is expected to be operational before the end of the year.

The \$24 million project was announced by Yosef Abramowitz, the president of Gigawatt Global Coöperatief, which arranged for its financing.

Agahozo-Shalom youth village is leasing the land, and some of the fees generated will be used to help fund the charity's ongoing activities.

The village was built to take care of orphans of the 1994 genocide against the Tutsi.

It was founded by the late Anne Heyman, who died in January following a horse riding accident.



○ The Agahozo-Shalom youth village in Rwanda. Photograph courtesy of DKC Public Relations/AP

Bid to strengthen sales

JFE Steel Corporation and JFE Bars & Shapes Corporation of Japan are planning to integrate the bar and wire rod businesses from April 2014.

At present the JFE Steel Group has two separate bar and wire rod units, one at JFE Steel and the other at JFE Bars & Shapes (an electric steelmaking business). The company claims that integration "will strengthen sales in overseas markets including Asia and North America, where increased demand is envisioned for high-quality steel, mainly for automobiles and construction machinery".

JFE Steel Corporation – Japan
Website: www.jfe-steel.co.jp

Tele-Fonika Kable snaps up SheathEx order

TELE-FONIKA Kable SA (TF Kable) is the first company in Europe to invest in BWE's SheathEx™ technology. Based in Poland, TF Kable is the largest cable company in Central and Eastern Europe delivering its products to more than 80 countries worldwide.

In 2013, the company was awarded the Special Honorary Distinction for its 500kV cable produced at the Bydgoszcz Plant. TF Kable's development and expansion programme included the purchase of the SheathEx line, which allowed the company to consolidate its position in the ranking of manufacturers specialising in the production of high voltage (HV) and extra high voltage (EHV) cables.

TF Kable is now able to extrude a 'seamless' (no weld) aluminium sheath over cable. The aluminium sheath is produced from two 12mm diameter aluminium rods. The sheath is corrugated inline (helical or annular) to improve flexibility.

Marcin Szymański, vice president high voltage systems, said: "This investment reflects consistent execution of TF Kable's strategy to expand in the EHV business. With our new SheathEx line we are able to serve our clients with a modern, reliable and economic solution for power generation and transmission systems."



○ TF Kable has invested in BWE's SheathEx™ technology

As well as this first contract in Europe, BWE has supplied a further six lines to cable companies in China. All are in full production and these cable manufacturers are now able to secure large cable contracts based on the aluminium sheath being 'seamless'.

With no weld, the cable sheath is now reliable against the ingress of moisture. By using aluminium instead of lead, the cable is much lighter, environmentally friendly and less harmful to health. An aluminium sheath has good mechanical

properties making it stronger and lighter than lead with higher conductivity.

TF Kable also has a BWE Conform™ 350 machine. This machine is used to extrude round and sector shape solid aluminium conductor (SAC) from 2 x 9.5mm diameter aluminium rods.

BWE Ltd – UK
Website: www.bwe.co.uk

TF Kable – Poland
Website: www.tfkable.com

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Tunisian contract

FIB has won a contract for the supply and commissioning of a full annealing-galvanising line, including pays-offs and take-ups, by the Tunisian steel industry company El Fouladh.

The contract was signed in January and the line will be equipped with the latest technology and developments of FIB in the field of safety, reduction of energy consumption and operating costs.

FIB sa – Belgium

Website: www.fib.be

ABB scoops award

ABB, the global power and automation technology group, has been awarded the Zayed Future Energy Prize 2014 in recognition of its efforts to drive innovation, renewable energy and energy efficiency.

“It is a great honour to have won the Zayed Future Energy Prize 2014,” said ABB chief executive Ulrich Spiesshofer.

“ABB stands for power and productivity for a better world. This prize underlines our relentless drive for innovation to create new offerings and value propositions for our clients in the renewable energy and energy efficiency fields.”

The award in the category ‘Large Corporations’ was presented by His Highness General Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the Armed Forces of the United Arab Emirates at a glittering awards ceremony in Abu Dhabi, UAE.

The Zayed Future Energy Prize was launched in 2008 to recognise and reward the very best solutions in renewable energy and sustainability.

It was named in honour of the late Sheikh Zayed bin Sultan Al Nahyan, who was a founder of the UAE, ruler of Abu Dhabi, and the UAE’s first president from 1971 until his death in 2004.

ABB – Switzerland

Website: www.abb.com



1,000km undersea link from Tripoli to Benghazi

ALCATEL-LUCENT has signed a turnkey contract with the Libyan International Telecommunication Company (LITC) to build a 1,000km undersea cable system linking the country's capital, Tripoli, to Benghazi.

The system is designed to play a critical role in the reconstruction Libya's telecom infrastructure, improving connectivity and providing communication reliability for business, public sector and consumer applications, particularly at a time when global demand for broadband services continues to grow. Based on Alcatel-Lucent's 100G technology and a cable optimised with coherent submarine fibre, the system will ultimately carry capacity in excess of 10Tbit/s per fibre pair and is expected to be completed in mid-2015.

Dr Mohmoud Aujali, chairman of LITC, said: "Broadband connectivity is a major growth opportunity for the foreseeable future, and the development of a robust telecommunication infrastructure is vital. With the help of Alcatel-Lucent, our new submarine cable system promises a significant contribution to the overall developments that are being undertaken to improve standard of living for Libyans."

Philippe Dumont, president of Alcatel-Lucent submarine networks, added: "Strengthening connection with the global digital community, Alcatel-Lucent's innovative solution will help LITC promote growth opportunities for economic, cultural and educational activities."

Alcatel-Lucent – France
Website: www.alcatel-lucent.com

Fastener exports down last year

Jiaying's fastener exports declined 6.59 per cent to \$900 million during 2013, accounting for four per cent of the city's total export value.

Europe and the USA have previously been Jiaying's main fastener markets. However, exports to these markets declined 4.5 per cent to \$390 million, representing 44 per cent of the total fastener exports (exports to the USA dropped nine per cent to \$210 million, while exports to the EU increased one per cent to \$180 million).

Exports to the emerging markets increased, with some strong growth to developed countries. Jiaying's fastener exports to Russia, Brazil, India, South Africa and ASEAN amounted to \$200 million, accounting for 22 per cent of the total fastener exports. Exports to Japan, Germany, Italy, the Netherlands, Sweden and Singapore rose 11 per cent, seven per cent, seven per cent, 12 per cent, 33 per cent and ten per cent, respectively.

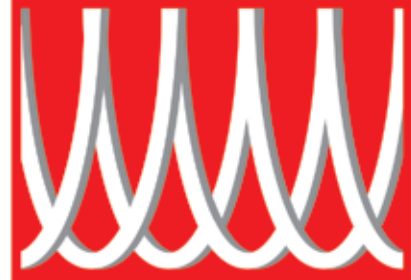
Fastener export prices varied. The average export price for steel or iron fasteners decreased four per cent to \$1,309 per ton.

The price for copper fasteners increased 11 per cent to \$11,106 per ton, and for aluminium fasteners grew five per cent to \$2,471 per ton.



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○ 世亚特殊钢公司运行线材除锈机

Wheelabrator协助韩国 机器升级

世亚特殊钢股份有限公司是领先的特殊钢制造商，最近正利用9台来自Wheelabrator的线材除锈机升级其韩国浦项工厂设备。新设备交付贯穿全年，将取代现有的抛丸机，这些机器分别由欧洲和亚洲的OEM厂商提供。

Wheelabrator制造的单链抛丸机可靠地除去氧化皮、锈和加工前线棒材表面的污染物，并且可以集成到现有的完全自动化拉丝线。

根据生产要求，机器可带有三、四、六个鼓风机轮毂，沿着线、棒材的纵向轴线布置，确保均匀一致的覆盖。导板将

磨料流集中到线材表面，从而提高除垢效果，而且不增加碾磨吞吐量。此举提高了喷射过程的效率，同时降低了磨损部件和磨料的损耗。Wheelabrator提供的线材除锈机允许的最高拉伸速度达240米/分，符合现代化拉丝线的要求。

Wheelabrator苏黎世技术中心(DISA Industrie AG)销售总监Viktor Lussi说：“客户希望提升运营，以满足质量与可靠性的最高标准。”

“在世亚，已经有好几台Wheelabrator机器在运作，我们对其运行情况非常满

意。新订单表明，当涉及到集成生产环境，投资于高度可靠的设备，不会有负众望。我们期待着继续与这样的前瞻性公司合作。”

处理线材除锈设备，Wheelabrator还为钢线材和线圈提供单股或多股送风机，机器可进行调整，适应客户的各种需求。比如，机器可以用于单机操作来分离处理，这在世亚已有例证，作为集成的解决方案。

**Wheelabrator Technology Centre
Zürich - 瑞士**
网址: www.wheelbratorgroup.com

新机器销往中国钢铁公司

北满特殊钢有限责任公司是东北特钢集团的子公司，与德国Friedrich Kocks公司签署订单合同，关于交付、安装与调试减定径机组[RSB]，连同低温轧制[LTR]设备与工艺。

由于三辊减定径机组在东北特钢集团的另一家公司大连特殊钢铁公司取得了积极的成果和经验，因此，集团决定通过

实施希尔登独立家族企业三辊减定径机组技术，来扩展和现代化棒材轧机，该技术无故障运行，并且改进产品质量。

机器提档升级后，能够生产504,000 t/a SBQ 品质棒材，直径范围16 - 100毫米。新的重型370毫米减定径机组配备有四座机架，设计用于在低温下温度控制轧制。RSB将作为现有棒材轧机的细

拉机，在二辊式粗加工下游，中轧机含有20座机架。三辊轧机能够轧制所有尺寸的加工产品，经由粗加工和中轧机，作为一个连续长度到冷却床的几个入口截面。滚动配置程序Bamicon计算电动机速度的最佳调整值，根据所需的成品进行滚轧、导向和齿轮分级。

订单还包括低温轧制工艺，带有闭环控制和整个轧机线的相应设备。Kocks负责工艺软硬件的专业指导。

Kocks Microstructure Simulator [KMS]首次作为补充，应用于低温轧制工艺。Kocks开发了KMS，作为新的软件程序在长产品轧机上进行流程模拟，特别是三辊技术。

软件模拟轧制产品的温度发展，计算微结构发展的质量与数量，以及预测轧制截面的机械性能。

供货范围还包括快速自动待机更换系统，用于支架和轧辊车间的快速换辊；CAPAS，计算机辅助系统，用于精确调整轧辊和支架上的导向装置；轧机生产线上远程控制三辊轧机的通过与导向。整个产品包还包括监管组装、调试和人员培训。

Kocks三辊减定径机组使得北满能够无故障和经济生产高质棒材，以满足中国持续增长的汽车市场的需求；因此，强化与扩大了北满的市场地位。现代化棒材轧机的试运行计划于2014年底或2015年初开始。

Beiman Special Steel Co Ltd - 中国
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强化销售

日本JFE Steel Corporation和JFE Bars & Shapes Corporation两家公司计划从2014年4月开始整合棒线材业务。目前，JFE Steel Group拥有两个独立的棒线材机组，一个在JFE Steel，另一个在JFE Bars & Shapes（电炉炼钢业务）。公司声称，“一体化将增强海外市场的销售，包括亚洲和北美，这些市场对汽车和建筑机械用钢的需求不断扩大。”

我们希望，通过整合，JFE Group将增强其超越国内外对手的竞争力。

JFE Steel Corporation - 日本
网址: www.jfe-steel.co.jp

东南亚最长的海底电缆

Prysmian集团已完成了海底电力电缆的建设，该电缆系统将富国岛和越南国家电网相连。

富国岛位于越南南部坚江省西田厦镇西45公里处。该海底电缆连接将在该省2020经济社会发展计划中发挥重要作用，该发展计划打算用十年时间将富国岛建成特别行政区。富国岛连接是越南

公用事业公司铺设的首个海底电力电缆系统，全长56公里，是东南亚最长的海底电缆系统。

富国岛电缆连接包括三个630mm² 110kV铜和单线铠装交联聚乙烯海底电缆，Prysmian电缆船Cable Enterprise负责安装。Prysmian提前完成了该项目，仅两个月后，刚好在2014农历新

年开始投入运行。实现互连的开幕典礼于2月6日举行，越南总理阮晋勇，越共中央委员会常设秘书处乐康映(音译)，中央河内政府的政治家和知名人士，以及意大利驻越南大使，出席了开幕典礼。

Prysmian Group – 意大利
网址: www.prysmiangroup.com

5G登陆欧洲

华为正在采取果断行动，让第五代无线通信系统(5G)在欧洲成为现实。

在德国慕尼黑举行的5G@欧洲峰会上，在日前召开的慕尼黑欧洲5G峰会上，来自欧洲的政策制定者、服务提供商以及技术领导者一起探讨如何合力加快实现该目标现实。

作为下一代超快无线网络，5G将驱动未来技术发展。华为目前投入了大量人力和资金用于5G研发和创新，希望通过采取开放、协作的方式，与全球行业合作伙伴、联盟、大学和领先创新平台一起通过投资实现技术进步。

5G峰会聚集了欧盟和其它地区的顶尖专家。他们利用此次机会共同探讨5G相关的挑战和机会，包括长期愿景和要求、关键技术驱动因素、创新以及带来的社会效益。


华为2012实验室无线研究和通信技术实验室主管董文博士在此次峰会上发表演讲：“5G将对ICT行业和我们生活质量产生根本性的影响。华为将推动5G成为现实。”他称：“华为自2009年开始投资5G，并决定在2018年前共投资6亿美元用于该领域的研究和创新。”

华为将在欧洲，尤其是在华为欧洲研究所投入大量资金用于5G研发和创新，支持欧盟“Horizon 2020”科研和创新计划。

作为欧洲研究联盟框架下的METIS项目的一员，华为欧洲研究所致力于研究5G无线空中接口的关键技术组件，处在5G研究的前沿。华为欧洲研究所还是欧盟委员会定义的(5GPPP)框架性项目的重要贡献者。

华为预测首批5G网络将于2020年商用，容量是现有移动网络的1000倍，最高速率达10Gbps。

Huawei – 中国
网址: www.huawei.com



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- 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

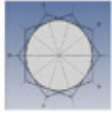
NCTM: 非接触式张力测试仪
(拉伸力、双折射原理)

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- 绝对直径: $\pm 0.2\mu\text{m}$, 400Hz
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- 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

Sikora将客户满意度视为第一标尺

客户满意是Sikora最重要的目标。公司不仅重视技术创新，而且很关注客户服务。Sikora提供多样化的服务，包括支持技术请求、设备调试、维护与维修，以及备件的供应等。

除了传统的服务，Sikora还提供设备培训，现在专注于为客户提供校准服务。凭借其延伸的服务支持，客户可以选择各种各样的服务项目 - 世界各地范围内，都提供设备安装。

Sikora设备交付后，不需要调整。调整在这个意义上是指将实际值调整为标称值，以获得测量值的正确显示。所有设备都没有可移动的部件，所以它们不受磨损，不会影响测量精度，机器的整个生命周期都能够保持精度。

要求监控的测量设备符合ISO 9001质量管理体系，Sikora为客户提供校准服务，该校准，对测量设备的精度进行验证和记录。

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Sikora技术人员工作在世界各地，客户可以得到不莱梅总部工程师的技术支

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Sikora AG - 德国
网址: www.sikora.net

市场遭受天气影响

一月份中国主要铜电线电缆生产企业平均开工率75.47%，比上年12月同比下降了9.97%，上海金属市场的最新调查显示。SMM调查了21家铜电线电缆制造商，一月份生产总量为105.2万吨。一月份户外工作显著放缓，工人们回家过农历中国年，以及天气条件恶劣，电线电缆需求不旺。

Shanghai Metals Market - 中国
网址: www.metal.com



中国·山西天祥机械有限公司 China, Shanxi Tianxiang Machinery Co., Ltd.

Our company produces GP series polished shaft rolling ring traverse drives and has a thirty-year history. It is the largest company in this area. Our products are high quality and price is competitive. Our company also produces equipments for wire and cable. Welcome to our company!



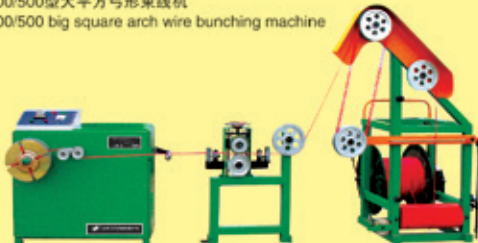
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Traverse Drives



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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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Desmond担当新角色

Beta LaserMike委任Desmond Goh作为亚洲渠道经理。新任命增强了公司推动调整和优化东南亚地区所有合作领域的市场战略。在新的工作岗位上，Goh先生负责管理和拓展Beta LaserMike测量与控制解决方案的销售渠道。他将重点挖掘新的商机和维护好现有的客户关系，从而推动销售和提高收益。



○ Beta LaserMike 新帅Desmond Goh

Beta LaserMike – 美国
网址: www.betalasermike.com

ABB获奖

ABB，全球电力与自动化技术集团，最近被授予2014扎耶德未来能源奖，表彰其努力推动创新、可再生能源和能源效率。“赢得2014扎耶德未来能源奖，这是一个巨大的荣誉，”ABB首席执行官Ulrich Spiesshofer说道。“ABB代表着能源与生产力将迈向更美好的未来。该奖项彰显我们不懈推动创新，为我们可再生能源和能效领域内的客户创造新的产品和价值。大型企业”获此殊荣，阿联酋阿布扎比王储、阿联酋武装部队副最高司令谢赫·默罕默德·本·扎耶德·阿勒纳哈扬殿下在金光闪闪的颁奖典礼上颁发了这一奖项。

扎耶德未来能源奖于2008年启动，旨在奖励和鼓励加快可再生能源和可持续发展领域的创新。该命名以纪念已故的国父谢赫·扎耶德·本·阿勒纳哈扬，他是阿联酋的领导人，阿布扎比的领袖，也是阿联酋第一位总统，在位时间自1971年到2004年。

ABB – 瑞士
网址: www.abb.com

新生代润滑剂!

润滑剂专家Metalube推出了下一代Lubricool™系列全新产品Lubricool™ 260 – 超细铜拉丝润滑剂。Lubricool™新成员使用创新化学物质，提供显著改善的润滑性。因此，线材更清洁，也减少了线材断裂。

在谈到新产品，商务总监Douglas Hunt先生说：“Lubricool已经是非常成功的水溶性润滑剂，用于铜和有色金属拉丝、轧制和退火。最新一代Lubricool 260超越了目前市场上的同类产品，为客户节约了大量成本。”

Metalube专业生产电线与管道拉伸润滑剂，以及架空电缆用保护润滑脂。公司总部在英国曼切斯特，在那里设有办公室、仓储、实验室和生产设施。

Metalube Ltd – 英国
网址: www.metalube.co.uk



○ 开发化学专家Naomi Pells和新产品Lubricool 260

提供面向未来的更好服务

Seacom投资于陆地回程与附加海底连接，为客户提供弹性服务，并促进陆地电信基础设施的进一步增长。Seacom已经升级了南非回程网络，通过激活约翰内斯堡和开普敦之间的多波长，连接其东西部沿海电缆系统，同时，为Yzterfontein和Mtunzini主要电缆互连网络枢纽提供支持服务的网络平台也进行了升级改造。SEACOM已经升级了其南非回程传输网络，通过激活约翰内斯堡和开普敦之间的多个波长的光，再加上支持其服务的Yzterfontein和Mtunzini的主要电缆互连网络平台的升级，其连接西部和东部沿海电缆资产。

此外，Seacom还收购了其它西海岸海底容量，以满足传输和IP/MPLS客户需求。公司管理层说，通过采用Seacom MPLS和IP传输服务，促使公司升级在非洲、欧洲和亚洲的IP/MPLS网络。关于强化服务平台，Seacom正在和供应商进行最后阶段的合同谈判，该平台旨在巩固Seacom引领非洲数据连接的领先地位。

“我们最近的投资使得我们能够服务供应商和网络运营商提供优质服务，同样，他们因此也能够为他们的客户提供更好品质和更可靠的服务，”Seacom创始人兼执行董事Brian Herlihy先生说。

Seacom – 毛里求斯
网址: www.seacom.mu

Eurolls提档升级

当ITC Manufacturing决定在美国俄亥俄州哥伦布市开设新的生产与分销机构时，公司就致力于在开放的市场升级设备，使其达到技术最先进。Eurolls集团为帮助ITC Manufacturing实现这一目标，负责提供先进的矫直与切割设备(NR220 NR231 NR300)、(TH630-NR300's)和完整的轧制生产线(LGH-EVM)，并完全配备辊模。运营副总裁Faruk Gole说：“机器从一开始就显著改进了生产，提高了我们的效率，避免了浪费。”

Eurolls SpA – 意大利
网址: www.eurolls.com



○ Koch's highly developed line of machines in their modular design, including modern system for visualising machine processes

Modular design machines

ERNST Koch, a manufacturer of wire drawing machines, showed its highly developed line of machines in their modular design in Düsseldorf in April.

Koch's position as a system supplier is underlined by its new corporate design. Its motto is 'wire machinery for the challenges of tomorrow', and the company is aiming at offering system solutions that overcome future market challenges.

The company's machine line consists of the KGT series multiple drawing machine, as well as modules for pre-processing wire, and a drawing coiler to take up the wire.

This system produces low carbon (0.12%C) fencing and nail wire on a compact five-block machine.

It can produce finished diameters of between 2.36 and 4.67mm at production speeds of up to 22m/s. In addition to the drawing machine, a grinding descaler and the Koch drawing winder ensure high-quality wire which is permanently reproducible in its quality.

A modular design allows users to build up the system to suit whatever requirements they might have. Koch also presented a modern system for visualising machine processes and an

intuitive user interface, one of its own new developments.

This system provides users with a comprehensive display and evaluation of all production and quality data, including a graphical indication of energy consumption and production output.

Animated error messages draw attention to faults and what might be done to rectify them. Maintenance intervals are displayed automatically.

Ernst Koch GmbH & Co KG – Germany
Website: www.koch-ihmert.de

Cutting the fibre optic connecting costs by half

Fujitsu Laboratories Ltd and Furukawa Electric Co Ltd have collaborated to develop a new multi-fibre optical connector to join and align multiple optical fibres for optical interconnects.

The conventional method of connecting optical fibres is an expensive process, requiring high-precision polishing to align the tips of the fibres.

Fujitsu Laboratories and Furukawa Electric have developed a connector that can accommodate different lengths of optical fibre and which, with a spring mechanism that obviates the need for the polishing process, will cut the costs of connecting optical fibres by half.

This new connector is said to achieve performance on a par with conventional connectors while simplifying the task of installing high-capacity optical interconnects. It is anticipated that the technology will increase data transmission speed between boards, so increasing overall server performance.

Furukawa Electric Co Ltd – Japan

Website: www.furukawa.co.jp

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High speed copper Internet

KOREA'S KT Corporation has developed technology to enable copper telephone cables to provide Internet service at speeds "never before accomplished".

The company exhibited its technology during the Mobile World Congress at the end of February.

Many old buildings still use copper telephone cables with optical cable or unshielded twisted pair (UTP) cables to provide an Internet service, but services through copper wire using VDSL (very high bit-rate DSL) are limited to 100Mbps.

KT has announced its FTTH-G solution, said to provide a two-way service of at least 200Mbps using a pair of telephone lines. KT said download speeds could be much faster than 200Mbps. For

example, download speed can be 300Mbps if the upload speed is reduced to 100Mbps.

KT's FTTH-G solution saves building owners the cost of replacing copper wires with more advanced cables, the company said, and it will run a pilot project for the technology in some older apartment buildings in Gangnam district to demonstrate the service.

"We will further enhance FTTH-G and create a technology that provides at least 300Mbps Internet speed next year," said a KT official. "We will utilise various types of wires and enable old buildings to provide Internet at gigabytes-per-second speeds."

KT Corporation – South Korea

Website: www.kt.com



○ Models show KT's FTTH-G technology at the company's booth during the Mobile World Congress in Barcelona. Photograph courtesy of KT



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Full range of drawn wires

ASAP offers a full range of drawn wires with particular attention to cords for reinforcement of electrical cables and hoses for braiding.

The products include:

- Mild steel wires with diameters ranging from 0.2 to 6mm diameter, or galvanised finish, black annealed or lacquered and laminated
- Stainless steel wire annealed and hard with diameters ranging from 0.1 to 5.5mm diameter or 304-304L and 316-316L as well as 309, 321, 430 and 316Ti
- Ultra-fine stainless steel wires with diameters ranging from 0.02 to 0.08mm diameter or AISI 304 and 316L.

ASAP Srl – Italy

Website: www.asapasap.it

Aluminium drawing with Vicafil TFH 1167

OFFERING high efficiency and economic lubricants has always been a great challenge for wire drawing lubricant manufacturers.

French company Condat answers this problem with its widely approved aluminium and aluminium alloy drawing oil, Vicafil TFH 1167, which was launched at wire 2014 in Düsseldorf, Germany, in April.

This oil-based lubricant was developed with a primary objective of providing the best performance to preserve dies and draw high quality wires, but without compromising simplicity of use and long service life.

Vicafil TFH 1167:

- uses a low viscosity base oil in order to improve cooling but reduce consumption by minimising the amount of residue on drawn wire
- includes a package of additives to limit the production of sludge, thus reducing machine maintenance and extending lubricant life.

No additives are required during the whole product life. Using Vicafil TFH 1167 affords reduced bath maintenance costs, and thanks to its properties, it suits most drawing



○ Aluminium drawing oil Vicafil TFH 1167 from Condat

operations and diameters from 0.8mm to rod break drawn. Moreover, it can be used in either immersed or sprayed type drawing machines, without damaging equipment.

Condat – France

Website: www.condat.fr

**GET THE LATEST NEWS FROM INDIA
– SEE INDIA INSIGHT ON PAGE 38**



○ One of the new furnaces from Wire Körner

New directly heated furnaces

WIRE Körner has launched a new series of directly heated patenting furnaces fitted with automatic furnace atmosphere control and burner with heat recuperation. With these new energy-saving furnaces, the company is further expanding its range of efficient and eco-friendly heat treatment plants for wire.

Based on his good experience with the furnace, a German customer has already ordered an extension to his existing unit. The first unit of this new furnace generation has been in operation for two years. Designed for a throughput of 2,000t per hour, it processes wire in diameters from 1.5 to 5.5mm. The plant expansion was commissioned in April.

By implementing a wide array of innovative features, Wire Körner has increased the efficiency of patenting furnaces for wire and achieved savings on energy consumption of some eight to ten per cent compared to conventional furnaces. The very first furnace of this new generation has already been in production for more than two years.

With an innovative sensor, Wire Körner has realised a system for controlling the furnace atmosphere. Via the furnace control system the air/combustion gas ratio is set exactly within a specified range. The high control precision and stability of the gas/air ratio makes the new furnaces superior to pre mix systems. In addition to the savings on energy, controlling the air/gas ratio keeps NOx emissions low and prevents decarburisation of the wire. The furnace

temperature is adjusted with a precision of $\pm 2^{\circ}\text{C}$.

A central recuperator installed in the waste gas duct preheats the combustion air for the high-speed burners to 200-250°C, while reducing the waste gas temperature at the stack from 600°C to 400-500°C. Already in the preheating zone Wire Körner exploits the thermal energy of the waste gas to heat up the wire entering the furnace. This reduces the energy demand for preheating.

In contrast to previously used burners, the high-speed burners employed by Wire Körner can be adjusted in several steps. This ensures that the burners consume exactly the amount of energy they need, not more.

The company has brought down heat losses via the furnace wall by optimising the layout of the wall, by insulating ceramic fibres. An additional coating ensures a long service life of the furnace wall even under conditions of high CO contents and high flow velocities. An additional, 2.5cm-thick Microtherm® insulating layer behind the refractory brick lining brings down heat losses even further.

The furnace is directly heated. The heat is transferred into the wire by convection, at flow velocities of up to 120m/s. This provides much better energy efficiency than heating by radiation.

Wire Körner GmbH – Germany
Website: www.wirekoerner.com



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New lubricants range launched

METALUBE has launched a new range of lubricants and rust preventatives for the roll forming, cutting and pressing of metallic parts. The new range comprises three product groups:

Cool-Tek™: water dilutable concentrates for lubrication during forming and cutting processes. Cool-Tek products provide optimum lubrication and cleanliness that extends roll/tool life whilst providing outstanding surface finish. The range has excellent fines handling and settling, along with outstanding corrosion protection.

Meta-Shield™: solvent-based rust preventatives that provide up to 24 months protection for bundled sections and parts. Meta-Shield products deposit a self-healing residual film, offering protection against accidental contact.

Sol-Tek™: solvent-based lubricants that evaporate after use, leaving clean, moisture-free sections and parts. This negates the need for cleaning or subsequent treatment.

Metalube's Wayne Thornhill, who developed the new range, said: "We are very excited about our new product line. These products have been tailor-made for the roll forming of ferrous and non-ferrous metals including galvanised steel.

"The Meta-Shield range of rust preventatives are designed to be used in conjunction with the Cool-Tek



○ A new range of preventatives for roll forming, cutting and processing

products. This combination offers impeccable protection on the internal bore and external surfaces of tubes and sections. Our Sol-Tek products are evaporative in nature; this eliminates water from the forming process reducing the risk of corrosion, particularly on galvanised parts."

Metalube Ltd – UK

Website: www.metalube.co.uk

Catering for a range of diameters

Violi specialises in the design and production of industrial machinery dedicated to the manufacturing of tubes and wires, typically used in the processes of drawing, winding, straightening and cutting.

The MRT series for tubes and bars is equipped with straightening groups consisting of hyperbolic pairs of rollers obliquely mounted and having an inclination opposed to each pair.

The orientation of the axes, combined with the hyperbolic geometry of the rollers allows the profile to rotate forward.

All the rollers are mounted on motorised and independent supports flowing within bushings that allow the

operator to modify the height and the angle of the system.

Acting on the vertical axis is possible to adapt the straightening machine to different diameters and to correct the line of the advancement of the profile in order to create a process of metal stressing and to get products perfectly straight.

The MRT line includes three models with different capacities: MRT5 for tubes and bars with diameters from 3 to 11mm, MRT5M for tubes and bars with diameters from 10 to 30mm, and MRT5M50 for tubes and bars with diameters from 25 to 50mm.

Violi Srl – Italy

Website: www.violinmacchine.it

Cold connections for stronger welds

MODERN welding technology has to be efficient, reliable and cost effective in order to help wire and cable manufacturers improve productivity and avoid downtime.

Although cold pressure welding is an ancient method of joining metals that dates back to the Bronze Age, it remains popular today. The process is quick, clean and easy. It creates permanent bonds without heat, flux or fillers and the electrical integrity of the join is not affected. Cold welding is equally effective on fine wire and large rod sections, and can be used to join most non-ferrous materials, as well as various alloys.

British company PWM, which celebrates its 30th year of service to the wire and cable industry in 2014, is a specialist designer, manufacturer and supplier of cold welding equipment. The company, which has been at the forefront of cold welding technology for many years, designs and builds its high-performance machines and dies in-house to exacting quality standards.

PWM cold welders are durable, reliable and accurate. They are built to last: one of PWM's first P500 models, manufactured in 1985, is still working.

The dies play a major role in the cold weld process. PWM's are individually hand-made in matched sets to ensure complete accuracy. They can be made in industry standard or custom sizes to suit round or profile wire and rod, and PWM can produce dies to weld two different sizes of material together if required.

PWM manufactures cold welders for a variety of applications, from small, hand-held manual machines suitable for joining fine wire 0.1mm diameter, to large, freestanding rod welders capable of bonding rod 30mm diameter.

All PWM machines are precision engineered to produce reliable consistent welds stronger than the parent material, helping manufacturers avoid downtime, save materials and improve productivity. Clean, quiet and easy to operate, PWM cold welders are user-friendly, enabling even untrained operatives to produce consistent high quality welds.

The company's best-selling models are



○ The P1500 electrohydraulic rod welder from PWM

the EP500 rod welder and the M101 manual cold welder, which can be used on a workbench or with a trolley.

Developed to meet industry demand for a machine to join large copper rod sections up to 12.5mm and aluminium to 15mm, the electro-pneumatic EP500 is quick and easy to use and usually requires maintenance only every three years or so.

The powerful P1500, launched in 1994, was the first machine of its kind to offer an economical method of cold welding copper rod up to 25mm diameter, and aluminium to 30mm. The P1500 is hydraulically powered and electronically controlled. Power consumption is minimal and the weld cycle is completed in minutes, with automatic de-flashing of the rod on completion.

The manually operated M101 model has been top of PWM's best-selling list since 1984. Precision engineered to produce strong reliable welds on copper wire 1mm to 3.6mm diameter and aluminium wire 1mm to 5mm, the versatile M101 is also used to weld

profiles and strips for armouring lines.

PWM also produces two powered portable cold welders. Mounted on trolleys, the air-hydraulic HP100 and HP200 models are equipped with solid steel welding heads for extra strength and stability. They provide a fast, effortless method of joining wire and strip 1mm to 6.5mm.

For smaller wire sizes, 0.1mm to 1.8mm, PWM manufactures hand-held manual machines, suitable for joining wire breaks in confined spaces, as well as larger machines that can be used on a workbench or supplied with a trolley.

Cold welding can be used to join dissimilar materials, for example aluminium to copper, and materials of different sizes.

After 30 years at the top of the cold welding industry, PWM's UK-based specialist team has a wealth of knowledge about cold welding techniques and applications to offer wire and cable manufacturers. The company's worldwide network of experienced agents, together with the UK team, provides a fast and efficient back-up service and technical support for PWM products.

To demonstrate the cold weld process, PWM has produced a series of videos showing its P1500, P1000, EP500, HP200 and M101 machines in action on its website.

Pressure Welding Machines Ltd – UK
Website: www.pwmltd.co.uk

Wire cleaning for plating quality

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

The PWC-S wire cleaning system incorporates new technology which enables normal plant water to be converted into a unique multi-action high pressure wetting/displace/flush cleaning liquid used to clean drawn wire at high-speed, providing a smooth and glossy wire finish in plating quality.

The PWC-S system effectively removes lubricant residue from the base material and is recommended for cleaning applications with wires drawn upon severe conditions.

Decalub – France

Website: www.decalub.com

The quality offensive continues

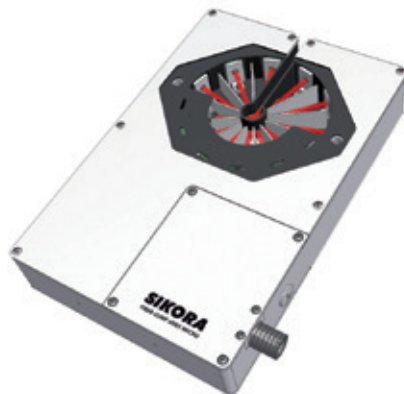
SIKORA continues its product offensive for quality assurance in drawing towers with the new fibre lump 6003 micro. This sets a quality statement in the fast growing fibre market.

The new lump detector detects faults on the fibre surface 100 per cent continuously during the drawing process at a speed of up to 3,000m/min.

This performance is achieved by the use of six measuring axes. Shadow areas are eliminated and even the smallest faults of a height from 5µm are detected.

The length of detectable faults is 50µm. In combination with a double sensor technology, punctual non-conformities are detected.

The fibre lump 6003 micro is designed for product diameters from 100 to 500µm. The device can easily be integrated into new or existing drawing towers, and can be connected to both the Sikora display and control system fibre ecocontrol or to a line computer. In addition to installation in drawing towers, the fibre lump 6003 micro is suitable for colouring lines.



○ The new fibre lump 6003 micro from Sikora

Dr Siegmur Lampe, head of research and development at Sikora, said: "The response to our fibre laser 6003 for the measurement of the diameter, position, vibration frequency, tension and the spinning of fibres, confirmed our decision to bring this additional lump detection device to the market.

"We have also received many customer inquiries regarding the detection of very short fault lengths from 50µm."

Sikora AG – Germany
Website: www.sikora.net

In control with Sitel

In Sitel Control's treatment lines, the material is first heated to a temperature between about 850 and 950°C, followed by a sharp cooling in water (hardening section) and further heating to a temperature between 450 and 700°C (tempering section).

The combination of the two operations constitutes the hardening and tempering operation: the hardened and tempered material acquires a structure with a very fine grain with a considerable increase in the limit of elasticity, flow limit and resistance to tensile stress.

For a correct thermal treatment of material, a fibre optic infrared thermometer is used, the model Fibratemp. The optical measuring head and the optical fibre can stand at ambient temperatures up to 315°C without cooling.

These thermometers have a range of temperature from 250 to 600°C and from 600 to 1,200°C, with response time of 20ms and a precision of 0.25 per cent.

Sitel Control Srl – Italy
Website: www.sitelcontrol.it

Just the tonic with better medical performance from Minnesota

Minnesota Wire, a specialist in the custom design and production of cable assemblies for medical devices, has replaced the thermoplastic vulcanisate (TPV) elastomers that are standard in such applications with new styrenic thermoplastic elastomer (TPE-S) compounds from Teknor Apex Company, citing better performance initially and after autoclaving, superior processing, and an enhanced look and feel in the end product.

The TPE-S compounds, Medalist® MD-8421, MD-8431, and MD-8451, comprise a series within Teknor Apex's Medalist product range, a diversified family of high-purity medical elastomers that also includes other TPE types, among them TPVs.

Enhanced electrical properties are another advantage of the new Medalist compounds cited by Jeff Lewison, design engineer. "We can run cables

with thinner walls, which enables them to coil better, and the improved electricals enable us to use these compounds in insulation as well as jacketing."

The white paper by Teknor Apex will provide test data comparing the three new Medalist compounds with a standard medical-grade TPV used in wire and cable. In tests measuring tensile strength and elongation, all three Medalist grades exhibited greater values for these properties prior to autoclaving and greater property retention after as many as 15 autoclave cycles.

Medalist MD-8421, MD-8431 and MD-8451 elastomers can be used for insulation, jacketing and moulded fittings and connectors. They have Shore A hardness levels of 92, 69, and 82, respectively, a flammability classification of HB (UL-94), and a

maximum continuous operating temperature rating of 105°C (UL-1581).

Besides superior performance in autoclaving, the three compounds also retain high levels of tensile strength, tensile modulus and elongation after gamma irradiation and EtO sterilisation. They are resistant to the cleaning and antimicrobial solutions commonly used in medical facilities.

The new TPEs are manufactured in an ISO-13485 facility dedicated to Medalist medical elastomers. Medalist 8421, 8431 and 8451 compounds pass ISO-10993-5 cytotoxicity testing, are RoHS- and REACH-compliant.

Minnesota Wire – USA
Website: www.mnwire.com

Teknor Apex – USA
Website: www.teknorapex.com

Braider for medium heavy and heavy cables

THE increasing demand for cables with bigger diameters for infrastructure projects, shipyard cables, offshore cables, mining cables, etc, is making greater demands for braiders suitable for bigger cable diameters and crossections.

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, payoff and takeup 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 120N.

One of the most popular 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 well-suited for multi-product, quick response producers who need flexibility. This braider can handle spools with a maximum flange diameter of 110mm with a capacity of 780cm³.

Spirka Schnellflechter GmbH – Germany
Website:
www.spirka-schnellflechter.com



○ The braiding head of the Dratex 2450

Custom-designed, top-loading oven

No. 984 is an electrically heated, 500°F (260°C) custom-designed top-loading oven from Grieve, currently used for curing connector assemblies onto long cables at the customer's facility.

Workspace dimensions measure 72" W x 8" D x 14" H. 12kW are installed in Nichrome wire elements to heat the unit, while a 600 CFM, ½ HP recirculating blower motor provides rear-to-front airflow across the workload.

This top-loading oven features 4" thick insulated walls, aluminised steel exterior, type 430 stainless steel interior, four independently hinged doors to expose the front and back of each loading station, steel plate oven floor and a workspace floor reinforced for 100 lb loading on ¼" plate.



Controls on the No. 984 ○ The No. 984 from the Grieve Corporation

include four special automatic door switches to shut off blower and heat when any door is opened, plus a digital programming temperature controller, manual reset excess temperature controller with separate contactors and recirculating blower airflow safety switch.

The Grieve Corporation – USA
Website: www.grievcorp.com

Bespoke service

Tillos Group designs, develops and manufactures steel wire and rebar mesh welding and forming machines.

The company offers wire and rebar mesh welding machines for the production of construction panels, commercial fences, security or even SS 304 (stainless steel) mesh; 3D panel production machines; 2D mesh welding lines; automatic wire and rebar cutting and shearing machines; automatic stirrup benders; mesh benders; and automatic cage welding machines.

Tillos also undertakes the design of unique equipment, upgrade and modernisation or modifications of existing equipment.

The company is now operating from its new facility, three times larger than its previous site.

This swift growth allows Tillos to considerably increase its manufacturing capabilities, enabling it to produce bespoke machinery.

Tillos Group – Greece
Website: www.dtillos.com



○ Koch高度发达系列模块化设计机器, 包括可视化机器流程现代化系统

模块化设计机器

Ernst Koch专业制造拉丝机, 在四月的杜塞尔多夫展览会上展出了其高度发达的系列模块化设计机器。

Koch作为系统供应商, 尤其注重的整体设计。公司口号“线材机械迎接明天的挑战”, 公司致力于为迎接未来市场的挑战提供系统的解决方案。

公司的机器产品包括KGT系列多拉机、预处理线材模块和收线拉伸卷取机。

该系列产品在紧凑的五档机上生产低碳(0.12% C)护栏网和钉丝。

机器能够以高达22米/秒的速度制造直径范围在2.36-4.67毫米之间的产品。

除了拉丝机, 碾磨除垢机与Koch拉伸卷绕机确保线材品质恒久如一。

模块化设计允许用户建立系统, 满足任何可能的要求。

Koch还呈现了可视化机器流程和直观用户界面的现代化系统, 这是公司自主研发的新成果之一。系统为用户提供了一个全面展示与评估所有生产与质量的数据, 包括能源消耗与产量的图形显示。

动画的错误讯息提请注意故障和如何纠正。保养间隔也会自动显示。

Ernst Koch GmbH & Co KG – 德国
网址: www.koch-ihmert.de

品种齐全的拉制线材

ASAP提供完整系列的拉制线材，公司特别注重电缆强化和软管编织。

产品包括：

- 直径0.2 - 6毫米的低碳钢线材，电镀表面，黑退火、涂漆或层压。
- 不锈钢丝退火，直径在0.1-5.5毫米之间，以及304-304L、316-316L、309、321、430和316Ti。
- 超细不锈钢丝，直径从0.02到0.08毫米，或AISI 304和316L。

ASAP Ltd - 意大利
网址: www.asapasap.it

高速铜网络



在巴塞罗那世界移动通信大会期间，模特正在展示KT公司FTTH-G技术。图片由KT提供

成本削减一半

Fujitsu Laboratories Ltd和Furukawa Electric Co Ltd两家公司合作开发新的多光纤连接器，以接合与调整多个光纤的光学互连。连接光纤的传统方法费用昂贵，需要对着光纤前端进行高精度抛光。Fujitsu Laboratories和Furukawa Electric联手开发的连接器，适用于不同长度的光纤，其弹簧机构省略了抛光过程，将连接光纤的成本减少了一半。这种新的连接器据说性能与传统的连接器相提并论，但简化了安装高容量光互连的任务。据预计，该技术将提高电路板之间的数据传输速度，从而提升服务器的整体性能。

Furukawa Electric Co Ltd - 日本
网址: www.furukawa.co.jp

韩国KT Corporation开发了一种新技术，使得铜电话缆能够以“前所未有”的速度提供互联网服务。

公司二月底在世界移动通信大会期间展出了该新技术。许多老建筑仍在使用光缆或非屏蔽双绞线(UTP)的铜电话缆提供互联网服务，但使用VDSL（甚高比特率DSL）铜线提供的服务局限在100Mbps。

KT宣布其FTTH-G解决方案，使用一对电话线提供至少200Mbps的双向服务。KT声称下载速度要比200Mbps快得多。例如，如果上传速度降至100Mbps，下载速度能够达到300Mbps。

KT公司FTTH-G解决方案利用更先进的电缆替换铜线，为楼宇业主节约了成本，公司表示，把江南区的一些老公寓楼作为该项目的试点，检验该服务。

“我们将进一步加强FTTH-G和开创新技术，明年至少提供300Mbps的上网速度，”KT管理层表示。“我们将使用各类电线，让老的建筑以千兆字节每秒的速度提供互联网服务。”

KT Corporation - 韩国
网址: www.kt.com

Vicafil TFH 1167拉丝油进行铝拉丝

提供高效经济润滑剂一直是拉丝润滑剂制造商面临的一大挑战。

法国公司Condat通过其广泛认可的铝和铝合金拉丝油Vicafil TFH 1167解决了拉丝难题，该产品已亮相于上月在2014德国杜塞尔多夫举行的线材展。

开发这种油基润滑剂的首要目的是要提供保护模具的最佳性能和最理想的拉丝品质，同时，不影响使用的便捷性和较长的使用寿命。

Vicafil TFH 1167:

- 使用低粘度的基础油，以改善冷却，通过尽量减少拉丝上的剩余量来降低消耗
- 包括一包添加剂来限制产生污泥，从而减少机器维护和延长润滑剂的使用寿命

整个产品生命期不需要任何添加剂。使用Vicafil TFH 1167，降低了池子维护成本，并且由于其属性，适合于大多数拉伸操作，直径范围从0.8毫米到拉丝棒。

此外，还可以用于浸入或喷涂式的拉丝机，不会损坏设备。

Condat - 法国
网址: www.condat.fr



Condat制造的Vicafil TFH 1167铝拉丝油



○ 用于滚轧成型、切割与冲压的新型防锈剂

Metalube推出新的润滑剂

Metalube推出一系列新的润滑剂和防锈剂，专门用于金属部件辊压成型、切割和冲压。新产品系列包括三个产品类别：

Cool-Tek™：水可稀释浓缩液用于成型和切割过程中的润滑。Cool-Tek提供最佳润滑与清洁效果，能够延长轧辊/工具的使用寿命，同时提供卓越的表面光洁度。该系列产品具有优良的细粒处理能力，以及出色的防腐保护性能。

Meta-Shield™：溶剂型防锈剂提供长达24个月保护捆绑部分与部件。Meta-Shield产品储备有自愈残留膜，为防止意外接触提供保护。

Sol-Tek™：溶剂型润滑剂使用后即蒸发，很干净，使用部分和部件都无水分残留。不需要清洗和后续处理。

Metalube公司Wayne Thornhill先生开发了该新系列产品，他说：“我们很高兴开发了新产品。这些产品都是为金属与非金属包括镀锌钢的滚轧成型量身打造的。”

“Meta-Shield系列防锈剂与Cool-Tek产品配合使用。该组合为管道与型材的内部孔与外表面提供无可挑剔的保护。Sol-Tek产品具有蒸发性质；去除了成型过程中的水分，从而降低腐蚀的风险，特别是镀锌部件。”

Metalube Ltd – 英国
网址：www.metalube.co.uk

强焊中的冷连接

现代焊接技术必须高效、可靠和成本经济，以帮助电缆制造商提高生产效率和降低停机时间。

虽然冷压焊接是连接金属的古老方法，可追溯到青铜时代，但今天依然流行。焊接过程快、干净且方便。

冷焊开创了永久性的连接，无热量、无焊剂或填料，不影响接头的电气完整性。冷焊对细金属丝和大型杆部同样有效，能够用于连接多数有色金属材料和各种合金。

英国公司PWM，到2014年为电线电缆行业服务了整整30年，是冷焊接设备的设计、制造专家。公司多年来一直位于冷焊技术的前沿，以严格的质量标准设计与制造高性能机器和模具。

PWM冷焊机耐用、可靠并且准确。机器使用寿命长：PWM一台P500型机于1985年制造，至今仍在工作。

模具在冷焊过程中发挥了重要作用。PWM是单独手工制造的配套装置，以确保完全准确。机器均可根据行业标准制造，也可根据不同的线材和棒材定制尺寸。另外，PWM还能够制造模具，同时焊接两种不同尺寸的材料。

PWM为各种应用生产冷焊机，从小型手持手动机器，用于连接直径0.1毫米的细金属丝，到大型独立的杆焊机，能够结合的杆直径达30毫米。PWM机器精密设计，焊缝可靠如一，比母材更牢固，帮助制

造商减少停机时间，节约材料，提高生产效率。PWM冷焊机干净、噪音小、易于操作，用户体验友好，甚至未受过训练的操作工能够进行一贯的高品质焊接。

公司最畅销的机型是EP500杆焊机和M101手动冷焊机，可在工作台上或用手推车使用。

PWM推出了P500杆焊机，是1985年开发的EP500型机的先导。旨在满足工业对连接大型铜杆节达12.5毫米和铝15毫米的需求，电气动EP500使用快速方便，通常每三年左右维护一次。

1994年公司推出强大的P1500，在同类产品中率先提供经济方法，冷焊铜杆直径达25毫米和铝直径达30毫米。P1500是液压动力和电子控制。功耗最小，焊接过程持续数分钟，完成前自动去除杆闪烁。PWM还提供P1500定制服务，用于焊接直径达35毫米的棒材。



○ PWM制造的P1500电动棒焊机

手动操作型M101自1984年以来名列PWM畅销产品榜首。机器设计精密，能够在直径1-3.6毫米铜线和1-5毫米直径的铝线上产生牢固可靠的焊接，多功能M101也能够用于焊接型材和铠装线的钢带。

PWM还生产两种供电便携式冷焊机。安装在推车上，空气液压HP100和HP200型机配备有实心钢焊接头，焊接更加牢固和稳定。机器为连接直径1-6.5毫米直径的线材和带材提供快速、省力的方法。

对于小尺寸线材0.1-1.8毫米，PWM制造手持式手动机器，非常适合焊接狭小空间的断线。大型机器能够用于工作台上或使用推车。

冷焊可以用来连接不同的材料，比如铝和铜，以及不同尺寸的材料。

引领冷焊行业30年，PWM英国专家团队为电线电缆制造商提供丰富的冷焊技术与应用经验。公司代理商遍布全球，加上英国团队，为PWM产品提供快速高效的支持服务与技术帮助。

为了呈现冷焊工艺，PWM制作了一系列视屏，在公司网站 (www.pwmltd.co.uk) 专门介绍P1500、P1000、EP500、HP200和M101机器的运作。

Pressure Welding Machines Ltd – 英国
网址：www.pwmltd.co.uk

持续推进质量攻势

Sikora继续推进产品质量攻势，利用新的6003微纤维块保证拉丝塔的质量。此举为快速增长的光纤市场发表了质量声明。新的块检测器能够在高达3,000米/分的拉丝速度下连续100%检测光纤的表面故障。

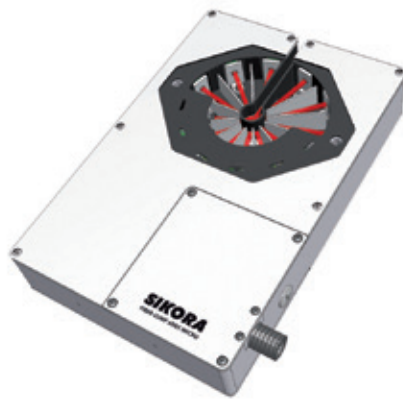
这种性能通过使用6个测量轴实现。去除阴影区域，即使从高度5μm很细微的故障都能检测到。可检测故障的长度为50μm。与双传感器技术结合，准确及时检测不合格产品。

6003微纤维块设计用于产品直径从100到500μm。该设备方便集成到新的或现有的拉丝塔，能够连接到Sikora显示与控制系统光纤Ecocontrol或者与在线电脑相连。除了安装在拉丝塔上，6003微纤维块也适合于着色线。

Sikora研发主管Siegmar Lampe博士说：“光纤激光器6003在测量直径、位置、振动频率、张力和纤维的纺丝等使用方面的积极反响，坚定了我们的信心，决定将此附加块状检测器推向市场。”

“我们也收到许多客户咨询，关于检测起始长度为50μm的短故障长度。”

Sikora AG – 德国
网址: www.sikora.net



○ Sikora提供的新型6003微纤维块检测器

Sitel精准控制温度

Sitel Control处理线首先将材料加热至约850和950°C，接着在水中急剧冷却(淬火部分)，再加热到450和700°C(回火部分)。

这两个操作就构成了淬火与回火：淬火和回火材料获得了非常细的颗粒结构，弹性范围、流动限制和抗拉应力都显著增强。对于材料的正确热处理，采用了光纤红外线温度计Fibratemp，结构极其紧凑，300毫米距离测定点为1.6毫米，并提供高效能激光瞄准系统。

光学测量头与光纤经得起高达315°C的环境温度，不需要冷却。这些温度计的测量范围为250-600°C和600-1,200°C，响应时间为20ms，精度达到0.25%。输出信号是模拟4-20 mA或数字RS485，易于和热调节系统对接。该机械装置包括可调节支撑、线材快速连接器和用于前部借给清洗的空气净化化系统。

Sitel Control Srl – 意大利
网址: www.sitelcontrol.it

新型直接加热炉

Wire Körner推出一系列新的直接加热淬火炉，炉具装有自动炉内气体控制和热调节燃烧器。有了这些新的节能炉，公司正进一步拓展其高效环保电线热处理设备。

基于丰富的火炉生产经验，一位德国客户已扩大订单。首台新一代炉具已运行了两年，设计吞吐量为每小时2,000吨，处理的钢丝直径为1.5-5.5毫米。工厂扩建，预计于2014年4月投产。

通过实施广泛的创新功能，Wire Körner提高了线材淬火炉的效率和节约了能源消耗，与传统炉相比，节约了大概8-10%。新一代炉具的最先产品已经投产两年多。

利用创新传感器，Wire Körner实现了系统控制炉内气体。通过炉具控制系统，空气/燃气比能够精准设定在特定范围内。燃气/空气比控制精度高且稳定，使得新炉优于预混合系统。除了节约能源，控制空气/燃气比保证NOx排放低，而且防止电线脱碳。炉内温度调节精度达到±2°C。

安装在废气管道中的中央流换热器预热助燃空气，高速燃烧器温度达到200-250°C，同时降低了堆栈中废气的温度，从600°C降至400-500°C。在预热区，Wire Körner利用废气热能来加热进入炉子的电线，减少了预热的能量需求。

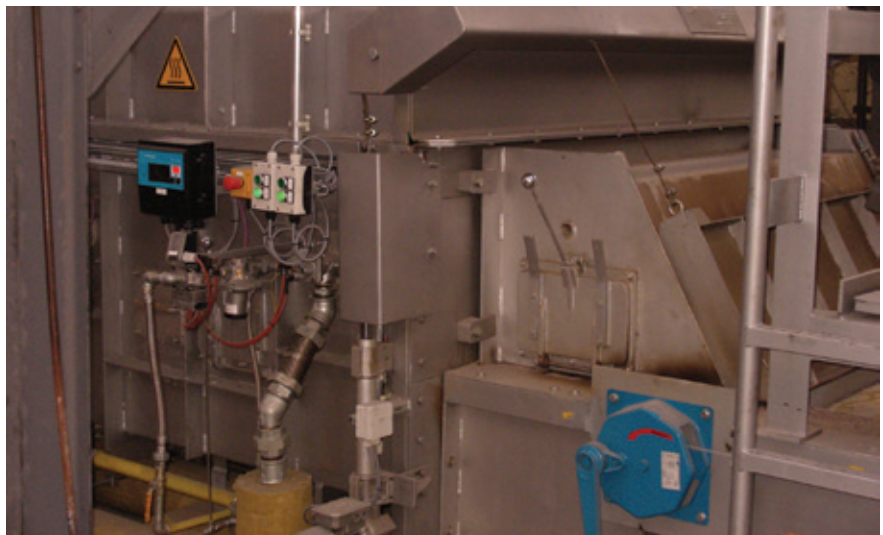
与之前使用的燃烧器不同，Wire Körner采用高速燃烧器，能够在几个步骤中进行调节。确保燃烧器精确燃烧所需的能源，避免浪费。

公司通过绝缘性陶瓷纤维，优化炉壁的布局，降低了热损耗。额外涂层，即便在高含量CO和高流速条件下，都能够确保炉壁使用寿命长。另外，耐火砖衬后面厚约2.5

厘米的Microtherm®绝缘层进一步降低了热损失。

该炉具直接加热。热量通过对流以高达120米/秒的速度传递到电线。与辐射加热相比，具有更好的能源效率。

Wire Körner GmbH – 德国
网址: www.wirekoerner.com





India Insight

\$3.3bn broadband contract

AKSH Optifibre Limited, the New Delhi-based manufacturer of optical fibre, optical fibre cables and FRP rods, has been awarded the contract for Package B of the National Optic Fibre Network (NOFN) backbone project for supplying optical fibre cables.

The project is aimed at connecting over 250,000 communities across the country and leads the charge towards empowering the heart of the nation for better e-governance, e-health services and better educational services at the grass root level in India.

The project is scheduled to be completed by September 2015 and aims to provide high-speed broadband Internet to all the 250,000 communities with speeds of up to 100 Mbps to create a model of development and sow the seeds for an e-revolution in the rural parts of the country.

The NOFN Project is being rolled out by Bharat Broadband Network Limited (BBNL), the special purpose vehicle set up under the Department Of Telecom.

BBNL has divided the project into six packages: East, West, North, South, Central and Northeast, and separate bids have been accepted for all the six zones. The total value of this project has been set at \$3.3 billion.

Mr Chetan Choudhari, managing director Aksh Optifibre Ltd, said: "Aksh has always wanted to be a part of this propitious project and NOFN is in-line with our company's

ever growing commitment of creating a better and connected world.

"This project should hopefully usher in a new wave of opportunities for the people living in rural parts of India giving them better access to governmental services, healthcare and above all education to youngsters."

Aksh Optifibre Limited – India
Website: www.akshoptifibre.com

BC Power Controls goes public with shares

The New Delhi wire and cable manufacturer BC Power Controls is making a first issue of shares to the public.

The company, which plans to list on the SME platform of BSE, will use the proceeds to meet working capital requirements and other corporate purposes.

Incorporated in 2008, BC Power has a wide product range that includes armoured cable, unarmoured cable, flexible and house wires, submersible cable, and control and instrumentation cable.

The company has a 4,000m² manufacturing plant in Rajasthan and various registered trademarks.

Wire and cable comprises 40 per cent of the entire electrical industry, which is expected to double in size over the next five years. As a result of growth in the power and infrastructure segments the industry is growing at a compound annual growth rate of 15 per cent.

Cable and wire manufacturer Tentiwal Wires recently also filed an initial public offering on the same platform.

BC Power Controls – India

Website: www.bcpowercontrols.com

More delays for fibre

India's national optic fibre network (NOFN) project is facing a further delay as BSNL, Power Grid Corporation of India, and RailTel have failed to award cable laying and trenching contracts for the first phase.

The three state-owned companies have been tasked to handle the cable laying and trenching responsibilities.

The Economic Times reported that the NOFN project is already two years behind schedule. The department of telecommunications recently informed Kapil Sibal, the telecommunications minister, that the coverage target of 100,000 gram panchayats (village government areas) by 31st March 2014 was not met as the three companies have yet to finalise the cable laying and trenching tenders.

Bharat Broadband Network (BBNL), which is responsible for the NOFN project, has complained that several reminders were sent to BSNL about the contracts. However, a BSNL director blamed BBNL for not providing key clearances for the contracts.

NOFN – India

Website: www.iii.gov.in

Cleanenergy in major expansion



○ Expansion plans from Hindustan Cleanenergy Ltd. Photograph courtesy of Hindu Business Line

Hindustan Cleanenergy Ltd, part of Hindustan Power Projects Ltd, is undertaking a major expansion plan.

The company is aiming for an installed capacity of over 500MW of solar power generation by the end of 2014, increasing to 1,000MW by 2016.

Of the 350MW installed to date about 120MW solar capacity is at overseas locations at Germany, Italy, the UK and Japan. In the expansion process now underway, about 100MW capacity is at an advanced stage of implementation and will be added shortly. Of this, around 50MW is in Gujarat and the rest in other states, including Madhya Pradesh, said Rajya Wardhan Ghei, chief executive officer of Hindustan Cleanenergy.

Hindustan Cleanenergy Ltd – India

Website: www.hinustanpowerprojects.com

Solar station power

Delhi Metro has become the country's first mass transit system to install solar power plants on the roofs of its stations. The first 500KW roof top solar power plant is under construction at Dwarka Sector 21 metro station and is expected to be functional within six months.



○ Auto rickshaws outside Dwarka Sector 21 station. Photograph courtesy of Amit Bhatt

A power purchase agreement (PPA) for the plant was signed between Delhi Metro Rail Corporation (DMRC) and the developer, a multinational firm engaged in the installation and production of solar power worldwide, in the presence of DMRC's managing director, Mangu Singh, and other officials.

DMRC will pay for the units generated by the plant while the capital investment is provided by the developer. The power produced will meet the power requirements of the station.

“After the installation of this roof top plant, Delhi Metro will also explore the possibility of installing more such plants at its stations, depots, parking lots as well as residential complexes,” said executive director of corporate communications, Anuj Dayal.

In 2011, DMRC was certified by the UN as the first metro rail and rail-based system in the world to earn carbon credits for reducing greenhouse gas emissions.

Delhi Metro – India

Website: www.delhimetrorail.com

With the broad roll-out of fourth generation mobile in China, 4G smartphone shipments confirm 'the new hot Chinese market'

According to the report "China Smartphone Market Enters 4G Era" from *IHS Technology*, China's domestic market for 4G smartphones is poised to take off this year as shipments dramatically exceed 2013 levels.

The Englewood, Colorado, USA, market research firm forecasts sales of 4G smartphones within China reaching 72.4 million units in 2014, up from 4.6m last year, with the market expected to accelerate during the second half of the year.

IHS also predicts that shipments will double in 2015 to 144.1 million units, rising to 219.8m in 2016 and 298.5m by the end of 2017.

"With support from the government and increasing clamour from the public, 4G smartphones will be the new hot market in China," Kevin Wang, director for China research at *IHS*, told Guy Daniels of British-based TelecomTV One (31st January). "Already Beijing has granted licenses for TD-LTE, China's home grown version of the 4G LTE standard, to the state's three carriers. This way, China Mobile, China Telecom and China Unicom can all launch commercial 4G services whenever they wish."

While 4G devices will generate 19 per cent of the total 371.8m market for smartphones in China this year, 3G handsets will account for the majority of sales with an estimated 290.3m units – up just one per cent from 2013.

Mr Daniels noted from the *IHS* report that the underground 'grey market' for China-made handsets is on the decline after active government intervention to stop a once-thriving trade. He wrote: "Now considered illegal by authorities, these devices should decline to 183 million units this year."

The overall Chinese smartphone market is controlled by domestic OEMs, which collectively owned 70 per cent of shipments in 2013. The top ten OEMs accounted for more than half of the total, as lesser names and white-box smartphone suppliers (most of them anonymous) are increasingly marginalised.

➤ *IHS* also said that the top-selling smartphone manufacturer in China last year was Huawei Technologies with more than 50 million units, followed by Lenovo (44m) and ZTE (40m). The new stars in 2014 are projected to be Xiaomi, OPPO, and vivo, although Lenovo now has gained some market momentum with its purchase of Motorola from Google in late January.

New Zealand phone companies contemplate a changing landscape of deserted landlines and market saturation for mobile

As reported by the Auckland-based *National Business Review*, the 2013 New Zealand census showed that 1.3 million households, or 81 per cent, had access to a fixed-line telephone, down from 88 per cent in the 2006 census. Those New Zealanders with a mobile phone rose to 79 per cent, or 1.2 million households, from 71 per cent.

To Paul Brislen, CEO of the Telecommunications Users Association of New Zealand, this provides evidence that his compatriots are in the global trend of abandoning landlines in favour of mobile phones and online communication, leaving telecommunication companies racing to find new revenue streams.

"Now people think the home phone only rings when someone is selling you something, so you are paying for something you don't use," Mr Brislen told Suze Metherell of the business journal. ("Census Data Show Telcos Losing Out to Data Users," 4th February).

The latest census disclosed 73 per cent, or 1.1 million households, with Internet access, compared to 58 per cent seven years earlier.

Mr Brislen said more New Zealanders were turning to options like naked DSL (a digital subscriber line without analogue telephone service or the associated dial tone) or line rentals which do not include a voice connection from the Internet provider.

In Mr Brislen's view, the next advance in terms of mobile technology in New Zealand will be "the Internet of Things", whereby "anything with a power cord can have a chip put in it connecting it to the Internet over wi-fi or mobile."

Elsewhere in telecom . . .

➤ According to a new report from market research company *IDC*, technology and services revenue connected to the burgeoning Internet of Things (IoT) market-place will grow at an 8.8 per cent compound annual growth rate (CAGR) over the period 2012-2017, rising from \$4.8 trillion to \$7.3 trillion. The Framingham, Massachusetts-based firm defines IoT as "a wired or wireless network connecting devices, or 'things', that is characterised by autonomous provisioning, management, and monitoring."

IDC includes in the emerging IoT sector of the global economy such categories as connected homes and autos, smart meters and utility grids, personal wellness and connected health. These classifications would appear to support the company's assertion that "IoT already impacts our everyday life down to the smallest processes."

Thus the vertical opportunity that arises from IoT is already in play. In the *IDC* view, identifying that opportunity is the first step to understanding the prospects for IT vendors in the Internet of Things market. But *IDC* senior analyst Scott Tiazkun sounded a cautionary note: "The initial strategy of businesses should be to avoid choosing IoT-based solutions that will solve only immediate concerns and lack staying power."

- Arianespace SA, the world's first commercial space transportation company, announced its 250th successful commercial launch.

An Ariane 5 rocket lifted off from the company's spaceport in French Guiana on 6th February and deployed a dual payload: the ABS-2 satellite for Bermuda-based satellite operator Asia Broadcast Satellite; and Athena-Fidus – the 50th satellite launched by Arianespace for European defence purposes.

A joint project of the Italian and French space agencies, Athena-Fidus will deliver telecommunications services to the French, Italian and Belgian armed forces, as well as to homeland security units in France and Italy. The French-Italian aerospace company Thales Alenia built the spacecraft as prime contractor to customer Telespazio.

The ABS-2 was designed and built by Space Systems/Loral (SSL), of the United States. The geosynchronous telecommunications satellite will provide ABS customers across four continents with cable broadcasting, data services, and other telecom products.

Chris Forrester reported on *advanced-television.com* (7th February) that the February launch is the first of 12 such events that Arianespace has planned for 2014.

- The release of Samsung's first Tizen smartphone, which had been planned for countries including Korea and Russia by mid-year, was again delayed. The January announcement came on the heels of one by the Japanese network NTT DoCoMo, which cancelled a planned March launch of a Tizen phone.

Andy Boxall of *Digital Trends* (22nd January) pointed out that the fledgling Tizen mobile operating system has been beaten to market by rivals Firefox OS and Jolla's Sailfish OS.

With the financial might of Samsung and Intel behind the Tizen phone, he wrote: "We had expected it to be one of the first to go on sale."

As noted by Phil Goldstein of *FierceWireless* (9th January), Samsung had positioned Tizen as one of many platform options; and analysts have consistently said the South Korean company could be using Tizen as a hedge against Google's Android – "Samsung's bread and butter for smartphones and tablets."

Samsung is the largest backer of the Tizen Association, an open-source group that was created through the merger of the former MeeGo and LiMo platforms. Other Tizen supporters include Sprint, Intel, Huawei, Orange and Vodafone.

- The British government on 26th February announced an additional \$417 million in rural broadband funding to ensure the availability of superfast Internet service to at least 95 per cent of households.

According to Mike Locke, the managing director of service provider Satellite Internet, satellite broadband – providing fast, consistent, and reliable download speeds – can be deployed immediately and cost effectively "as quickly as the dishes could be installed." (*advanced-television.com*, 28th February).

- British culture minister Maria Miller on 27th February told the *Oxford Media Convention* that a vote for Scottish independence in the referendum set for September would be a vote to sever ties with the institutions of the United Kingdom: including the BBC – "part of our crown jewels."

The Scottish government has said that in 2016 the BBC (the public service British Broadcasting Corporation) will raise \$534 million through the licence fee in Scotland, but will spend only \$292 million on services for Scottish viewers and listeners.

The Scottish National Party (SNP), which campaigns for independence, said last year that it would create a new Scottish Broadcasting Service (SBS), to be funded by the Scottish share of the licence fee.

The SNP has proposed that BBC1 and BBC2 continue to be

made available in an independent Scotland, along with such BBC radio stations and commercial TV channels as ITV, Channel 4 and Channel 5.

- True Corp, which operates a wide range of telecom services in Thailand, is in talks with Myanmar's Yatanarpon Teleport (YTP) on a joint-venture mobile phone startup in Myanmar, True's chief financial officer Noppadol Dej-Udom told *Reuters* in Bangkok on 26th February.

YTP, itself a joint venture between local private companies and state-owned Myanmar Post and Telecommunications (MPT), is an Internet service provider. A 15-year project, at an estimated cost of \$1.6 billion, is contemplated.

Myanmar is developing fast under a quasi-civilian government installed in 2011 after decades of military rule.

It had already awarded licences to Norway's Telenor and Qatar's Ooredoo for the construction of mobile networks in a country with a population of 60 million and one of the lowest mobile penetration rates in the world.

- An alliance of satellite industry associations is seeking application case studies that illustrate the contributions of the global satellite industry to business, government and human welfare.

The group is comprised of the Society of Satellite Professionals International (SSPI), the European Satellite Operators Association (ESOA), the Global VSAT Forum (GVF), and the Satellite Industry Association (SIA).

The Industry Message Summit initiative anticipates intense spectrum negotiations at the World Radiocommunications Conference 2015 (WRC-2015), scheduled for November of next year in Geneva.

Given the expected focus on C-band sharing, the group will give first consideration to case studies of applications using that frequency band, but all case studies are welcome.

随着在中国大量的第四代手机产出, 4G智能手机的出货量确认了“全新火爆的中国市场”

根据IHS技术(IHS Technology)名为“中国智能手机市场进入4G时代”的报告, 中国4G智能手机国内市场蓄势待发, 今年的出货量将大大超过2013年的水平。这家位于科罗拉多州恩格尔伍德的市的市场调查公司预测随着市场可能在下半年加速, 4G智能手机在中国的销量将从去年的460万台上升到2014年的7240万台。IHS还预测2015年智能手机的出货量将翻番, 达到1.441亿台, 到2016年将达到2.198亿台, 截至2017年底将达到2.985亿台。

“随着来自政府的支持和大众要求的不断增加, 4G智能手机将会成为中国新的火爆市场,” IHS中国研究主管凯文·王(Kevin Wang)告诉英国电讯电视一台(TelecomTV One)的盖·丹尼斯(Guy Daniels)(1月31日)。“北京早已将中国自我研发的4G LTE标准TD-LTE的执照颁发给了本国三大运营商。这样的话, 中国移动、中国电信、中国联通都能随时随地地开展4G服务。4G设备今年将会占据共计3.718亿中国智能手机19%的市场份额, 与此同时, 3G手机将会占据销售额的大部分, 数量估计为2.903亿台——与2013年相比仅上升1%。”

丹尼尔先生在IHS的报告中评论称一度火爆的中国制造手机的地下“灰色市场”在政府的积极干预下正在日渐萎缩。他写道:“如今被政府视为非法, 这些设备在今年将会缩减至1.83亿台。”中国智能手机整体市场由国内原始设备制造商(OEMs)控制, 在2013年国内制造商共同拥有70%的出货量。原始设备制造商前10名占据了全部出货量的半壁江山, 因为名气较小的和白盒测试(white-box)智能手机供应商(大部分匿名)正日益的被边缘化。

➤ IHS还宣称去年在中国销售成绩最佳的智能手机制造商是华为技术有限公司, 其生产了超过5000万台手机, 紧随其后的是联想(4400万)和中兴(4000万)。2014年的新星预计为小米、欧普和步步高, 虽然联想在一月末通过从谷歌手中买下摩托罗拉获得了一些市场优势。

新西兰电话公司察觉到固定电话日渐萎靡和手机市场饱和的景象

如位于奥克兰的《国家商业评论》所报道, 2013年新西兰统计结果显示130万户家庭, 或81%的家庭拥有固定电话, 比2006年的88%的统计结果有所下降。拥有手机的新西兰家庭上升至79%, 即120万户家庭拥有手机, 2006年拥有手机家庭为71%。

对于新西兰电信使用者协会的首席执行官保罗·布里斯林(Paul Brislen)而言, 这些数字为他的同胞们正处于放弃固定电话而钟情于手机和在线交流的全球热潮中提供了证据, 离开电信公司之间的竞争去发现新的收入来源。

“现在人们都认为家里的固定电话只有在某人想要向你推销东西的时候响起, 所以你在为你根本不使用的东西付钱,” 布里斯林先生对商业杂志的苏士·梅沙里尔说。(“统计数据显示电信公司正在失去数据用户,” 2月4日)

最新的统计数字显示73%, 即110万家庭接入互联网, 而7年前该数字为58%。布里斯林先生说, 越来越多的新西兰正选择类似纯用字用户线路(naked DSL)(无模拟电话服务或关联拨号语音的数字用户专线)或从互联网供应商处

租用不含语音连接的线路。根据布里斯林先生的观点, 新西兰移动科技行业接下来的机遇将会是“物联网”, 任何有电源线的物品都可以安上芯片通过wifi或手机连接至互联网。

电信行业其他新闻.....

➤ 根据市场调研机构国际数据公司(IDC)一份新的报告, 2012年至2017年期间, 与发展迅速的物联网相关的技术和服务的市场回报将以年复合增长率8.8%的速度增长, 从4.8万亿美元增长至7.3万亿美元。这家马塞诸塞州弗雷明翰公司将物联网定义为“用有线或无线的网络连接设备或物品, 其特点是自主配置、管理与监控。”

IDC将出现在全球经济中出现的物联网行业都囊括了进去, 类似连接家庭与汽车、智能仪表及公用电网, 个人健康及连接医护等大类。这样的分类显然将支持公司的说法, 即“物联网已经在每一个微小的细节中影响着我们的日常生活。”

因此来自物联网的纵向机遇早就开始了。在IDC眼里, 识别机遇是理解信息技术供应商在物联网发展前景第一步。但是IDC的资深分析师斯科特·提亚祖坤(Scott Tiazkun)提出预

警:“业务的首要战略应该是避免选择那些仅解决眼前问题而缺乏持久力的物联网为基础的方案”。

➤ 亚利安太空公司(Arianespace SA), 世界首家商业太空运输公司, 宣布了其第250次商业发射成功。一枚亚利安5号火箭于2月6日在该公司位于法国圭亚那的宇航中心升空并部署了双负载: 百慕大卫星运营商亚洲广播卫星(Asia Broadcast Satellite)的ABS-2卫星; 和雅典娜——费多斯号(Athena-Fidus)卫星——亚利安太空公司发射的第50颗用于欧洲防务的卫星。

意大利与法国宇航局的合作项目, 雅典娜——费多斯号微型将为法国、意大利、比利时武装部队以及法意两国的国土安全部门提供电信服务。这家法国-意大利合资的泰雷兹·阿莱那(Thales Alenia)宇航公司作为主承包商为客户空间通讯公司(Telespazio)制造了飞船。

ABS-2号卫星由美国空间系统/里拉(Space Systems/Loral (SSL))设计和制造。这个地球同步通讯卫星将为亚洲广播卫星公司遍布四大洲的客户提供有线广播、数据服务及其他电信产品。克里斯·弗雷斯特(Chris Forrester)在尖端电视网(advanced-television.com)报导称(2月7日), 这次2月的发射是亚利安公司在2014年计划的12次发射中的第一次。

➤ 三星推出的首款泰泽(Tizen)系统智能手机, 该手机曾计划在年中时在韩国和俄罗斯等国家推出, 这次又推迟了。一月的公告紧跟在日本网络公司NTT DoCoMo取消原计划3月推出的一款泰泽系统手机之后。

《数字趋势(Digital Trends)》的安迪·伯克索尔(Andy Boxall)(1月22日)指出, 初出茅庐的泰泽手机操作系统在已经被竞争对手火狐操作系统和卓兰公司(Jolla)的旗鱼(Saifish)操作系统在市场上痛殴。鉴于泰泽系统手机背后的三星公司与英特公司的财务实力, 他写道:“我们曾希望他能第一个上市销售。”

如《激情无线(FierceWireless)》菲尔·戈德斯坦(Phil Goldstein)所评论(1月9日)。三星已经将泰泽系统定位为诸多平台选项之一; 而分析师坚持认为这家韩国企业可能利用泰泽系统作为对谷歌的安卓系统的对冲——“三星为智能手机和平板电脑准备的面包和黄油。”

三星是泰泽系统协会的最大靠山, 是个开源集团有前MEEGO和LIMO平台合并而成。其他泰泽系统的支持者包括斯普林特(Sprint)、英特尔、华为、橙(Orange)与沃达丰。

Telecom

“The Gig”, a taxpayer-owned fibre optic network in the American South, is a standout in a nation woefully laggard in Internet connection speed

Chattanooga, Tennessee, has what city officials and analysts say was the first and fastest – and one of the least expensive – high-speed Internet services in the United States. For less than \$70 a month, consumers in “Gig City” enjoy an ultrahigh-speed fibre optic connection that transfers data at one gigabit per second.

“That is 50 times the average speed for homes in the rest of the country and just as rapid as service in Hong Kong, which has the fastest Internet in the world,” wrote Edward Wyatt of the *New York Times*. (“Fast Internet Is Chattanooga’s New Locomotive,” 3rd February).

The locomotive reference is a nod to the trains that sped through a gap in the Appalachian Mountains at Chattanooga during the Civil War, connecting the eastern and western parts of the Confederacy. In the 21st Century, remarked Mr Wyatt, it is the Internet that passes through the city, at lightning speed and attracting talent and capital along the way.

With a new population in Chattanooga of computer programmers, entrepreneurs, and investors, signs of growth since the fibre optic network was switched on four years ago are unmistakable. Sheldon Grizzle, founder of Company Lab, which helps start-ups to refine their ideas and bring their products to market, told Mr Wyatt, “It created a catalytic moment here.”

From the *Times*’s review of Chattanooga’s recent history it would seem an unlikely place to experience such a moment. Named America’s most-polluted city in 1969, for its largely unregulated base of heavy manufacturing, over the last two decades it cleaned its air and fashioned itself into a destination hub in eastern Tennessee. When an aggressive high-tech economic development plan and an upgrade of the power grid by the city-owned utility EPB, the former Electric Power Board, moved the city toward the one-gigabit connection, Chattanooga was ready.

Build it and they will subscribe . . .

In 2009, a \$111 million federal stimulus grant offered the opportunity to expedite construction of a long-planned fibre optic network, and EPB borrowed the remaining \$219 million of the network’s \$330 million cost.

David Wade, the chief operating officer for the power company, said it became quickly apparent that customers would be willing to pay for the one-gigabit connection offered over the network. The city thereupon became a magnet for businesses requiring faster Internet service than that available in Seattle, New York and San Francisco.

Although city officials say “the Gig” created about 1,000 jobs in Chattanooga in the last three years, the US Department of Labor reported a net loss of 3,000 jobs in the

city over that period, mainly in government, construction and finance. While it cannot be proved statistically how much the superfast network has contributed to economic activity, the Chattanooga system is at the leading edge of a push for ever-faster Internet and telecommunications infrastructure in a country that badly lags much of the world in the speed and costs of connectivity.

Lafayette, Louisiana, and Bristol, Virginia, which have built their own gigabit networks, are among the American cities experimenting with municipally owned fibre optic networks that offer the fastest Internet connections.

Google is building privately owned fibre systems in Kansas City, Kansas; Kansas City, Missouri; and Austin, Texas, and the company recently bought a dormant fibre network in Provo, Utah.

🌐 In Mr Wyatt’s view, the thrust comes in the nick of time. He wrote: “Telecommunications specialists say that if the United States does not keep its networks advancing with those in the rest of the world, innovation, business, education, and a host of other pursuits could suffer.”

Labour

Volkswagen of America did not resist unionisation of its Chattanooga factory – but its satisfied workers did

The city of Chattanooga attracted another kind of attention in February when, in what amounted to a referendum on the UAW (formerly United Automobile Workers of America), employees of Volkswagen’s plant there rejected union representation by a 712-626 margin. The defeat, which came despite VW’s neutrality on the issue, casts doubt on whether the UAW can hope to penetrate any foreign-owned assembly plant in the South, where organised labour has been traditionally regarded with suspicion. The president of the UAW has said that it must organise plants owned by German and Asian automakers if it is going to survive.

Of about 1,500 Volkswagen workers eligible to vote, 89 per cent cast ballots after a preliminary period of intensive media attention and political arm-twisting. As reported by *Detroit Free Press* business writer Brent Snavely, one leader of the Tennessee state senate had threatened to block any incentives for future Volkswagen investment in Chattanooga if the union were voted in. (“VW Workers in Tennessee Reject UAW in Devastating Defeat for Union,” 15th February).

“We think,” said Gary Casteel, the UAW regional director who led the unsuccessful campaign, “it was unfortunate that there was outside influence.”

Another disappointed commentator, President Barack Obama, was rather more forceful: Tennessee’s governor and one of its senators, he said, “are more concerned about German shareholders than American workers.”

Volkswagen did not oppose the UAW at least in part because of the union’s openness to the creation of a

From the Americas

German-style works council, a committee of managers and workers who together develop factory policies. The company, which has unions and works councils at virtually all of its 105 other plants worldwide, views such councils as critical for improving morale and cooperation and increasing productivity.

But US law requires that, for a company to form a works council, its employees must be represented by a union. And in the end the UAW failed to commend itself to a majority of the workers at Volkswagen Chattanooga.

One of those who voted for UAW representation told Mr Snavely that having a seat on a Volkswagen global works council would have given the workers a stronger voice on where future models are produced. The company wants to launch a new midsize SUV for sale in the US by 2016. The most likely assembly plants for it are Chattanooga and Puebla, Mexico.

The pro-union sentiment faltered at the ballot box. A worker who voted against the UAW at Chattanooga shared his reasoning with Mr Snavely: Volkswagen is, he said, the best employer he has ever worked for.

Of related interest . . .

🌐 A paper published in the *Quarterly Journal of Economics* (Harvard University), showing that firms in North America discriminate against people who have been out of work for more than eight months, has had an influence on President Obama.

Invited to convene at the White House three days after the 28th January “State of the Union” address, the CEOs of more than 300 companies, including Apple Inc and Ford Motor Co, pledged to examine and revamp their hiring practices.

The study, Duration Dependence and Labor Market Conditions, written by two economics professors at Canadian universities and an American assistant professor, found that firms were nearly twice as likely to offer interviews to applicants who had been out of work for one month than those who had not drawn a paycheque for eight months. In 28 of the 50 states of the US, a third or more of job seekers have been out of work for six months or longer.

“The sheer magnitude of that difference surprised us,” said co-author Matthew Notowidigdo of the University of Chicago.

Automotive

Have Americans soured on car ownership? Experts concur on a downward trend but not on how it should be interpreted

“Here’s a scary thought for auto makers celebrating the return of the auto boom,” wrote James R Healey of *USATODAY*: “It’s already over.”

Mr Healey cited an analysis for the University of Michigan’s Transportation Research Institute suggesting that motorisation in the US – per person, per driver, and per household – peaked in the last decade. According to “Households Without a Light-duty Vehicle” (car, SUV, or standard pickup), Americans now have fewer such vehicles, drive each of them less, and consume less fuel than in the past. (“Is America’s Love Affair with Cars Officially Over?,” 22nd January).

The author of the study, Michael Sivak of the university’s Sustainable Worldwide Transportation unit, offers these observations on motor-vehicle density and use in the United States:

- 🌐 In six of the 30 largest US cities, more than 30 per cent of households do not have a vehicle
- 🌐 From 2007 to 2012, there was an increase in the proportion of households without a vehicle in 21 of those 30 cities
- 🌐 In 2012, 9.2 per cent of US households were without a vehicle, compared to 8.7 per cent in 2007

While other analysts confirm the slump in vehicle ownership, some see it more as an example of fallout from the Great Recession than as a shift to an anti-car mind set.

According to Karl Brauer, senior analyst with the used car evaluator Kelley Blue Book (Irvine, California), to cut costs people are making do with fewer vehicles. But, he said, “Population growth means total car sales will start to rise even if registrations per household drop.”

Recent slippage in the number of vehicles on the road does appear to indicate that younger Americans – more open to car-sharing or getting around by bicycle – are less covetous of cars than their parents were. And it is a fact that the big cities in which most Americans live offer public transportation that trims the need for individual vehicle ownership.

But Lacey Plache, chief economist at Edmunds.com, a pricing service for new and used cars, said her data indicates that, once jobs are easier to get, the 18-to-34 age group will push the average ownership numbers back up. “The number of vehicles on the road will continue to grow,” Ms Plache told *USATODAY*.

🌐 According to analysts and industry groups, the average age of a vehicle plying the roads of the US today is about 11 years. For his part, Mr Healey observed that, at least for a while, new vehicle sales will grow simply because people who babied old vehicles through the recession are now are dumping them for new ones.

Right-to-repair legislation in Massachusetts prompts automakers in the US to release their grip on proprietary information

American motorists will no longer be prevented from engaging the services of independent repair shops on

grounds that only the automaker's official dealership is authorised to correct any problems. Almost every domestic automaker has agreed to start making available to outside mechanics nearly all the information available to shops run by their own franchisees.

A memorandum of understanding, made public in December by two associations that represent automakers and two that represent independent repair shops, ends an impasse of more than a decade in Congress and in state legislatures. Christopher Jensen of the *New York Times* summarised the agreement:

"In addition to unlocking the access to computer codes and diagnostic information vital to the complex mechanical and electronic systems of modern cars, automakers also agreed that, starting with the model year 2018, they would standardise diagnostic tools to work on all vehicles, not just those from one maker." ("Carmakers to Share Repair Data," 31st January).

Information on security systems and in the category of trade secrets will continue to be withheld. But now all but a few boutique car companies are to provide non-dealership shops with access, on "fair and reasonable terms," to the same diagnostic and repair information furnished to their dealers. Models back to 2002 are included, enabling owners whose vehicles are out of warranty to use outside repair shops.

In exchange for the automakers' pledge, the aftermarket groups agreed to stop financing and promoting right-to-repair legislation. Mr Jensen observed that a factor in the declaration of peace was the right-to-repair law passed late last year in Massachusetts, which strongly motivated the automakers. If other states were to follow suit they would soon be compelled to contend with "a legislative quilt" of mismatched regulations.

"This effectively announces a stand-down," Daniel Gage, a spokesman for the Washington-based Alliance of Automobile Manufacturers, told the *Times*.

The 12 members of AAM are BMW Group, Chrysler Group LLC, Ford Motor Co, General Motors Co, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America, and Volvo Cars North America.

There was some cautious early praise for the agreement from consumer advocates – and more than a little scepticism. "[It] has the potential to improve competition in the marketplace," said Ami Gadhia, senior policy counsel for Consumers Union. "But time will tell if it will work as advertised."

The air lanes

A Norwegian airline formulates an ambitious flight plan: Ireland, the US, Asia

Norwegian Air International, whose Norwegian Air Shuttle specialises in low-cost flights within Europe and hopes

to export its pared-down model to the US and Asia, has approval from the Irish Aviation Authority to move its long-haul operations to Ireland. Also from Dublin, NAI received its air-operating licence from the Commission for Aviation Regulation and in February filed it with the US Transportation Department. If the application for a foreign air carrier permit is granted, it will enable NAI to operate its Boeing 787 Dreamliners between any point in the European Union and the United States.

In addition to the shift from Norway to Ireland, the Norwegian carrier is hiring flight attendants in the US and basing some pilots and crew in Bangkok, thus clearly laying the groundwork for a broader reach. The projected expansion is seen as a test of the "Open Skies" agreement between the European Union and the US, introduced in two steps in 2008 and 2010.

Critics assert that NAI is seeking to take advantage of the liberalising intentions of that pact even though Norway is not a member of the European Union. The airline's plans have angered American carriers, pilots, and labour groups who see in it an attempt to recruit cheaper labour and undercut competition.

"Complex is not a good word here for what they are trying to do," Lee Moak, president of the Air Line Pilots Association, told the *New York Times* (6th February). "I'd say it's convoluted."

According to *Aviation Week & Space Technology*, the most substantive effect of Open Skies, to date, has been the opening up of London's Heathrow Airport when the legacy Bermuda II agreement was superseded by new rules. Occasional attempts to establish flights from remote bases have been failures, all, and quickly abandoned. The sole European airline now operating from an EU member state other than its home country is a British Airways offshoot – in fact named Open Skies – that operates two Paris-New York round trips daily.

"Only a fraction of [NAI's] capacity will touch Oslo, its original home base," noted *Aviation Week* (22nd February). "Instead, the airline's 787s might soon be flying from Barcelona to New York, much as it is already operating to the US from Copenhagen, Denmark, and Stockholm."

In brief . . .

Boeing Co of the US said that its deliveries to the Chinese market hit a record high of 143 planes last year, up 60 per cent from 2012, and that it expects to match that total in 2014. As reported by Tu Lei in the *Global Times* (Beijing) on 22nd January, according to Marc Allen, president of Boeing China, 28 per cent of the Boeing 737s made in the US last year went to China.

Boeing in March 2013 delivered its 1,000th airplane to China, the second market after the US to reach that threshold. In June, the Chicago-based company delivered its first 787 to China Southern Airlines, followed by the delivery of a 737-800 to Xiamen Airlines in November: the 100th plane in that airline's all-Boeing fleet.

Boeing said that it has supplied more than half of the jet planes in operation in China.

Economics

The US economy is seen to show 'surprising strength'

According to an account released 19th February by the US Federal Reserve, at its last meeting officials were surprised by the strength of the US economy.

Resurgence in consumer spending, the main engine of domestic economic growth, was given as the reason for their growing optimism.

While noting that households remained cautious, the minutes of the Federal Open Market Committee cited factors likely to underpin the gains in household spending, including higher house prices and growing confidence in the sustainability of the economic expansion.

Despite recent disappointing job growth, the new Fed chairwoman, Janet L Yellen, offered her own generally optimistic assessment of the nation's economic prospects.

Ms Yellen acknowledged the concerns of investors about recent turmoil in developing countries, but said it posed no "substantial risk" to the global recovery.

The Fed expects growth in the American economy this year of between 2.8 per cent and 3.2 per cent.

The 225-year old US Postal Service considers reaching for an unlikely life preserver: a Bitcoin

One of a very few government-enforced monopolies in the nation, the United States Postal Service is an important element of the general economy, accounting for up to seven per cent of GDP (gross domestic product).

But the service inaugurated in 1775 under Benjamin Franklin, its first postmaster general, and which in the 21st Century delivers more mail to more addresses over a larger geographical area than any other post in the world, is in trouble.

Its difficulties have been candidly acknowledged by the USPS which in fact has made significant progress in overcoming them. For fiscal year 2013 the service posted a projected operating loss of \$2 billion, following losses of \$2.4 billion in 2012 and \$2.7 billion in 2011. The improving trend is largely attributable to continuing efforts to increase revenue and reduce costs.

But the USPS lost \$354 million in the quarter ended 31st December. Not sparing itself in its analysis of seven straight years of losses, the service cited "the persistent decline of higher-margin first-class mail, stifling legal mandates, and [our] inflexible business and governance

models." Now, researchers for the inspector general's office (OIG) of the agency are making the case that the USPS can further help itself by pairing up with Bitcoin, a five-year-old network for issuing and moving money across the Internet.

The OIG staff is urging that the service expand into financial services that may include turning local post offices into brokers for the virtual currency.

Legitimising a phantom?

Bitcoin was introduced around 2008 by a programmer or group of programmers who have never been positively identified. While Bitcoin.org in mid-January published an estimated market value for the currency of about \$10.6 billion, there is no central issuing authority and only a public ledger to verify encrypted transactions.

"The Post Office might help address two major shortcomings that virtual currencies have today: lack of trust and lack of access," Paola Piscioneri, a director of international research at the OIG, said in an interview with *Bloomberg News* in Washington (7th February). "Today, when you transact with a virtual currency you don't know who is on the other side."

Becoming a Bitcoin intermediary would mean that the Postal Service would have to take a business model that dates back to the 1770s and integrate it with a proto-currency that exists only on spreadsheets on the Internet.

The question then becomes, would enough of its customers – accustomed to using post offices to buy money orders and stamps and send packages – switch over to trading in Bitcoins to justify the experiment?

Joseph Corbett, the service's chief financial officer, told *Bloomberg* that the USPS is biding its time, waiting to see if the volatile Bitcoin market becomes more stable. Also, he said, "Lack of transparency in that market is something that is bothersome."

While the institution whose sole overhaul was in 1970 ponders whether or not to become a Bitcoin intermediary, it seems questionable how well the smoke-and-mirrors aspect of a virtual currency would go over with the founding father. It was Ben Franklin who cautioned, in his *Poor Richard's Almanac*, "Never buy a pig in a poke."

However, the matter of postal service losses is of some urgency. As pointed out in October of last year by James Gattuso, who handles regulatory and telecommunications issues for the Heritage Foundation, the status quo is not sustainable.

The conservative think tank pointed out that the market for traditional mail has been shrinking rapidly, as Americans have fled "snail mail" for electronic alternatives. First-class mail volume plummeted 30 per cent since 2007, and it is projected to drop as much as another 40 per cent over the next seven years.

Dorothy Fabian
Features Editor

电讯行业

美国南部纳税人拥有的光纤网络“全球信息网格(Gig)”，是网络连接速度远远落后国家的一项杰作

田纳西州查特努加市(Chattanooga)，拥有城市官员与分析家所称的第一个也是最快的——同时还是价格最为低廉的——美国高速网络服务。每月花费不到70美元，在“全球信息网格城市”的用户就可享受极速光纤连接，该连接每秒可传输千兆比特(gigabit)的数据。

“比美国其他家庭的平均网速快50倍，速度可与全球网速最快的城市香港想媲美，”《纽约时报》的爱德华·怀亚特(Edward Wyatt)写道。“查特努加的新火车头：高速互联网，”2月3日。

引用火车头的比喻是向内战期间穿越阿巴拉契亚山脉(Appalachian Mountains)鸿沟抵达查特努加的火车致敬，这列火车将南部邦联的东西部连接在了一起。到了21世纪，怀亚特先生评论道：这次是互联网以迅雷不及掩耳的速度穿越了城市，吸引着沿途的人才与资金。

随着计算机编程人员、企业家及投资者等新群体在查特努加的出现，自四年前光纤网络上马而出现的繁荣的迹象变得显而易见。公司实验室(Company Lab)的创建人谢尔登·格里兹尔(Sheldon Grizzle)，曾帮助创建并精炼了他们的理念还将他们的产品带入市场，他告诉怀亚特先生“它在此创造了一个催化反应的时刻。”

《时报》回顾了查特努加近期的历史，发现它是个不太可能体验这种时刻的地方。在1969年被称为全美污染最严重的城市，因为其拥有大量不受监管的重工业基地，在过去的20多年里查特努加净化了它的空气，并将自己塑造成田纳西东部的目的地枢纽。当一个积极的高科技经济发展规划和一个由前身为电力董事会(Electric Power Board)的市属公共设施EPB所升级的电力网，将城市推向了千兆比特的连接，对此查特努加早已做好准备。

造好它，接着他们就会认购.....

在2009年，一笔1.11亿美元的联邦激励性捐赠提供了建立长期规划光纤网络的机遇，该价值3.3亿美元的网络其余的2.19亿美元由EPB通过借款筹集。戴维德·韦德(David Wade)，该电力公司的首席运营官称很快就有迹象表明客户愿意为网上提供的一千兆比特的连接买单。于是城市随即成为吸引那些对网速拥有更高要求的西雅图、纽约、旧金山企业的磁石。

虽然城市官员称“全球信息网格”过去三年里在查特努加创造了大约1,000个工作岗位，美国劳工部报告称该市在相应期间内净减少3,000个工作岗位，主要集中在政府、基建和金融领域。虽然不能在统计学上证明超高速网络对经济行为有多少贡献，查特努加系统是在一个互联网速度与成本严重落后于世界的国家中站在了推动越来越快的互联网和电讯基础建设的前沿。

路易斯安娜州的拉法耶特(Lafayette)，和弗吉尼亚州的布里斯托已经建造了自己的千兆比特网络，它们是诸多试行市政拥有的光纤网以提供最高速互联网连接的城市之一。谷歌(Google)正在堪萨斯州的堪萨斯城、密苏里州的堪萨斯城和得克萨斯州的奥斯汀(Austin)建立自己的光纤系统，此外谷歌最近还在犹他州的普罗沃(Provo)收购了一条暂停使用的光纤网络。

根据怀亚特先生的观点，推进的时机恰到好处。他写道：“电讯专家称如果美国跟不上其他国家网络现代化的步伐，创新、商业、教育及其他诸多方面的追求可能落空。”

劳动力

大众美国并不抵制查特努加工厂的工会化——但是其心满意的员工却相反

查特努加市在2月份吸引了另一种目光，相当于另一次UAW(汽车联合工会)(前身为美国汽车工人联合会)的投票，大众工厂的雇员以712票对626票否决了工会代表。

尽管大众公司对此事件表示中立，但工会这次被击败仍然引发了UAW是否有希望渗透入南方任何外资拥有的装配厂的疑问，在南方被组织起来的劳工一直遭到质疑。UAW总裁已宣布如果要生存必须将德国和亚洲拥有的工厂组织起来。

大约1,500大众员工有资格投票，在最初的一番强烈的媒体关注和政治角力之后，89%工人投出了选票。如《底特律自由新闻报》商业作家布伦特·斯纳费列(Brent Snively)所报道，田纳西州参议院的一位领导威胁如果工会被投票选出，他将阻止对将来大众公司在查特努加所有投资的奖励。

“我们认为，”UAW区域主席盖瑞·卡斯特尔(Gary Casteel)，他领导了这次失败的行动，“很不幸的是有外界影响。”另一个失望的评论员，布莱克·奥巴马总统，则更为强硬，他说：田纳西的州长和某个参议员，“更关爱德国股东的而非美国工人。”

至少在某种程度上来说大众并未反对UAW，因为德式风格劳资委员会的特点就是对工会开放，即管理人员与工人的坐在一起讨论工厂政策。该公司在全球范围内其他105家工厂几乎都有工会和劳资委员会，并视劳资委员会为提高士气与合作及增加生产力的关键。

但是美国法律要求：一家公司要成立劳资委员会，其雇员必须由工会代表。而最终UAW未能使自己为大众查特努加的广大员工所喜爱。

某个投票给UAW代表的员工告诉斯纳费列先生称在大众全球劳资委员会上占有一席之地将给予员工在未来的车型生产上更强大的声音。公司希望发起一款新的中型SUV(运动型多功能车)能于2016年在美国销售。查特努加和墨西哥的普埃布拉(Puebla)最有可能成为组装厂。

支持工会的情绪在投票箱前动摇了。一个在查特努加投票给反对UAW的工人对斯纳费列先生述说了他的理由：大众公司是他所有工作过的雇主中最好的。

相关利益.....

《经济学季刊》(哈佛大学)上发表的一篇论文显示，北美的企业歧视曾经超过八个月未能参加工作的人，该论文甚至影响了奥巴马总统。1月28日“国情咨文”演讲三天之后，超过包括苹果公司和福特汽车公司在内的300家公司的首席执行官应邀在白宫参加会议，承诺检查和改进他们的雇佣办法。

这篇名为《持续时间依赖和劳动市场条件(Duration Dependence and Labor Market Conditions)》的研究报告由两位加拿大大学的教授及一位美国助理教授共同撰写，研究发现企业向失业一个月的人提供面试的机会概率要向8个月未曾领薪水的人的概率高两倍。在美国50个州中的28个州中三分之一或以上的求职者已经失业六个月或更长时间。

共同作者，芝加哥大学的马修·诺特威迪戈多称：“这么庞大的差异让我们感到吃惊”。

汽车行业新闻

美国人已经不愿拥有汽车了吗?专家认同向下的趋势但不认同如何进行干预

“汽车制造商庆祝汽车繁荣发展的回归是一种可怕的想法,”《今日美国》的詹姆斯·R·希利写道,“繁荣早就结束了。”希利先生评论了密西根大学交通运输研究学院的分析报告称美国的用车比率——每个人、每个司机、及每个家庭——于过去十年达到了顶峰。根据“无轻型汽车(轿车、SUV或标准皮卡)的家庭”,如今美国人拥有上述车辆的越来越少,驾驶上述车辆的也越来越少,相比过去连汽油消费也减少了。(“美国对轿车的热爱正式终结了?”,1月22日)研究报告的作者,该大学的可持续全球运输单位的迈克尔·西瓦克(Michael Sivak)提供了下列美国机动车密度和使用的观察。

- ④ 在美国最大的三十个城市中的六个城市里,超过30%的家庭没有汽车
- ④ 自2007年至2012年,最大的30个城市中21个城市的无汽车家庭的比例在增加
- ④ 2012年,9.2%的美国家庭没有汽车,而2007年这一数字为8.7%。

当其他分析师确认车辆自有率大幅下滑时,某些人将其视为大衰退余波的一个例子而非一种反对车辆思维模式的转变。根据二手车评估《凯利蓝皮书(Kelley Blue Book)》(加利福尼亚州尔湾市)的资深分析师卡尔·布鲁尔(Karl Brauer)的观点,为了节约成本人们减少使用汽车。但是,他说:“人口增长意味着汽车销售总额将开始攀升,即便每户家庭的汽车登记数下降。”最近公路上汽车数量的下滑的确显示了年轻一代的美国人——更乐于共用汽车或骑车四处走动——相比他们的父母对汽车没那么渴望。同时另一个事实是大部分美国人生活的大城市都提供共同交通工具以减少个人拥有汽车的需求。但是,新车与二手车估价服务网站Edmunds.com的首席经济学家莱西·普拉茨(Lacey Platche)称数据显示一旦就业压力轻松,18到34岁的群体将会将平均拥有汽车的数量拉回至高点。“公路上行驶的汽车数量将会继续增加。”普拉茨女士告诉《今日美国》。

- ④ 根据分析家及行业团体的观点,现今在美国公路上行驶的平均使用年限为11年。至于希利先生而言,据其观察到至少汽车销售将会直接增长一段时间,因为人们在衰退时期对旧车爱惜有加而现在则喜新厌旧了。

马塞诸塞州的恰当修民法案(Right-to-repair legislation)促使美国汽车制造商在专有信息上释放暗号

美国的驾车人将不会再因为只有经过汽车制造商授权的官方经销商才能更正问题而无法从独立的修车店订购服务。几乎每一个国内汽车制造商均同意开始向外部机构提供与自己加盟商几乎相同的信息。由两个代表汽车制造商的协会和两个代表独立维修店的协会达成的谅解备忘录于12月公诸于众,结束了十多年来国会与各州议会的僵局。《纽约时报》的克里斯多夫·延森(Christopher Jensen)将该协议总结如下:“解除除登录计算机的密码以及现代汽车复杂的接卸和电子系统至关重要的争端信息外,汽车制造商还同意,开始于2018年车型年份,他们将标准化运用于汽车的诊断工具,而非只适用于一家制造商。(“汽车制造商分享修理数据,”1月31日)。安全系统信息和商业秘密类别的信息将继续保密。但是除部分高端汽车公司外现在所有汽车公司都基于“公平与合理的条件”提供非经销商的访问与公司提供给经销商相同的诊断和修复信息。2002年车型也包括其中,使

得授权已经过期的车主可在外部汽车修理店进行诊断与维修。作为与汽车制造商保证的交换,售后团体同意停止为恰当修民法案募资和推进。延森现身观察道和平宣言达成的一项因素为去年在马塞诸塞州一项恰当修民法案获得通过,该法案对汽车制造商形成强烈的激励。如果其它州也紧随其后效仿他们很快将不得不应对一张规则不匹配“司法大网”。

美国汽车制造商联盟的发言人丹尼尔·盖奇(Daniel Gage)告诉《时报》“这宣布了一次有效暂停,”。美国汽车制造商联盟的12个成员分别为宝马集团(BMW Group)、克莱斯勒集团有限公司(Chrysler Group LLC)、福特汽车公司(Ford Motor Co)、通用汽车公司(General Motors Co)、捷豹路虎(Jaguar Land Rover)、马自达(Mazda)、美国梅赛德斯-奔驰(Mercedes-Benz USA)、三菱汽车(Mitsubishi Motors)、保时捷(Porsche)、丰田(Toyota)、美国大众集团(Volkswagen Group of America)、和北美沃尔沃轿车(Volvo Cars North America)。

- ④ 有些来自消费者保护团体对协议的谨慎的赞扬——多于此的一点怀疑。“[它]有潜力在市场中改善竞争”,消费者联盟的资深政策顾问艾米·嘎德西亚(Ami Gadhia)称,“但是,时间会告诉我们是否它和广告中说的一样好。”

航空公司新闻

某挪威航空公司雄心勃勃的航班规划:爱尔兰、美国、亚洲

挪威国际航空(Norwegian Air International),其挪威航空班车(Norwegian Air Shuttle)专门在欧洲从事低价航班,现希望将其削价模式带到美国和亚洲,该公司已经获得爱尔兰航空管理局(Irish Aviation Authority)将其长途运营迁至爱尔兰的批准。同样来自爱尔兰,挪威国际航空获得航空监管委员会(Commission for Aviation Regulation)航空运营许可证并在二月在美国交通部存档。如果外国航空公司的申请获批,将使得挪威国际航空公司可在欧盟和美国的任何地方运营它的波音787梦幻飞机了。

除了从挪威迁至爱尔兰外,这家挪威运营商还在美国雇佣了航空人员并立足于曼谷招募了不少飞行员和机组人员,此举显然是为扩大范围而奠定基础。该计划的扩张被视为欧盟与美国之间“开放天空(Open Skies)”协议的试点,该协议于2008年和2010年分两步被引入。批评者声称挪威国际航空公司正寻求利用该条约的自由化意向,尽管挪威不是欧盟成员。该公司的计划激怒了美国航空公司、飞行员和劳工团体,他们认为这是企图招募更廉价的劳动力及减少竞争。“对于他们想要在这里做的事,复杂这个词已经不足以形容了,”美国飞行员协会(Air Line Pilots Association)的主席李·莫克(Lee Moak)对《纽约时报》(2月6日)说,“我称其为错综复杂(convoluted)。”

- ④ 根据《航空技术周刊(Aviation Week & Space Technology)》的观点,迄今为止,“开放天空”协议最有实质性的效果是当遗留的百慕大II协议被新规则所替代时,伦敦休斯罗机场的启用。所有几次试图建立来自远程基地的航班的努力均告失败,且很快被遗弃。唯一一家不在本国而在欧盟成员国运营的欧洲航空公司是英国航空公司的分支——事实上名为开放天空——运作着两条巴黎-纽约的每日往返航线。“只有一部分[挪威国际航空公司]的服务还能触及其原来的大本营奥斯陆,”《航空周刊(Aviation Week),2月22日》评论称,“取而代之的是该航空公司的787将很快从巴塞罗那飞至纽约,就像它已经开始从丹麦哥本哈根和斯德哥尔摩到美国的营运一样。”

专栏编辑: Dorothy Fabian



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Development of the cable for photovoltaic power generation systems

By Arifumi Matsumura, Masaki Nishiguchi Shigeru Kubo, Fitel Photonics Laboratory, Furukawa Electric Co Ltd, Japan

Abstract

Furukawa has developed a cable for photovoltaic power generation systems, which meets the requirements of the TÜV 2Pfg1169/2007 standard^[1] and the JCS4517 standard^[2].

A cable for photovoltaic power generation systems, which meets the requirements of these standards, requires that insulating materials and sheath materials be made of halogen-free materials.

In addition to that, the cable requires vertical incombustibility, high-temperature heat resistance, low-temperature characteristics, and acid resistance.

Furthermore, a temperature index is required to be more than 120°C, because temperatures in the working environment range from -40°C to +90°C. A temperature at which an aging residue percentage reaches 50 per cent after 20,000 hours is required to be higher than 120°C. In particular, excellent heat-deterioration characteristics are required.

At this time, cross-linked polyethylene was used as an insulator of the cable; highly incombustible cross-linked polyolefin was used as sheath materials. As a result, this made it possible to meet the requirements of the above-mentioned standards.

In addition, it was confirmed that there is no problem in putting this cable to practical use in terms of peeling characteristics and bleed characteristics.

Furthermore, it is possible to manufacture this cable without using special bridging equipment such as electron-beam irradiation machines.

This cable is very advantageous in terms of costs and response to mass production.

1 Introduction

In recent years, while there has been a growing interest in environmental problems all over the world, power generation activities by using renewable energy such as wind power generation, photovoltaic power generation and biomass power generation have become very active.

For photovoltaic power generation, power generation facilities on the scale of more than 1 megawatt, called 'mega solar', have rapidly begun to become widespread.

In the future, demand for the cables to be used in these power generation facilities is expected to increase.

At present, unique standards are used in each region to ensure the reliability of electric wires used for these power generation facilities.

In Europe, there are the TÜV 2Pfg1169 standards while the UL4703 standards^[3] are available in North America.

In recent years, the JCS4517 standards have been established in Japan on the basis of the TÜV 2Pfg1169 standards. Unique standards were established in each region, and there is an increasing demand for compatible cables that meet all standards.

On the other hand, the development of less expensive cables is called for greater proliferation. At present, demand for low-cost cables is much higher than demand for integrated cables.

Against the background of the above-mentioned circumstances, Furukawa has developed a cable that meets the requirements of the TÜV standards and the JCS standards.

2 A Newly Developed Cable for Photovoltaic Power Generation

There is a hot-set property as one of the mainly required properties of a cable for photovoltaic power generation, which corresponds to the TÜV standards and the JCS standards. In an incombustible halogen-free electric wire of polyolefin, electron beams are usually irradiated to satisfy the standard of hot-set properties.

However, in a future mega solar facility, the capacity of an electric current will become larger. Namely, the size of a cable is expected to become larger. There is a limit to the response by electron-beam irradiation.

In addition, as far as a small size of a low electric current is concerned, the cost of irradiation equipment itself is high, and non-electron beam bridging is called for.

Test	Required	Developed wire
INSULATION		
Hot-set test at 200° for 15 min		
Under load of 20N/cm ² (%)	100>	30
After unloading (%)	25>	3
JACKET		
Hot-set test at 200° for 15 min		
Under load of 20N/cm ² (%)	<100	29
After unloading (%)	<25	4

○ **Table 1:** Hot-set test

Test	Required	Developed wire
INSULATION		
	>120	121.2
JACKET		
	>120	121.9

○ **Table 2:** Thermal endurance properties

Test	Required	Developed wire
CABLE		
Vertical flame spread resistance Length from top of cable to point of ending carbonisation (mm)	>50	370
Length from top of cable to point of starting carbonisation (mm)	<540	510

○ **Table 3:** Single vertical combustion test

Therefore, this cable meets the standard of hot-set properties in the bridging method that did not perform electron beam irradiation in polyolefin materials.

The main physical properties of a newly developed cable for photovoltaic power generation are introduced below.

3 Test Method

3.1 Hot-set Test

A hot-set test was performed in conformance to the IEC60811-2-1 standards. An insulating tube-shaped piece and a sheath tube-shaped piece were cut out from a cable. The test pieces were hung at 20°C in an oven. A load of 20 N/cm² was applied to the test pieces.

An elongation percentage was measured 15 minutes later. After that, the load was removed. After the temperature of the oven was restored, the test pieces were removed and cooled down to room temperature. An elongation percentage was measured again.

Test results are judged as acceptable if an elongation percentage under load is lower than 100 per cent and if an elongation percentage after the removal of load is 25 per cent.

3.2 Heat Deterioration Properties

An insulating tube-shaped piece and a sheath tube-shaped piece were cut out from a cable. The time when an elongation residue percentage had reached 50 per cent at each deterioration temperature of 180°C, 158°C and 136°C was verified. Judging from the Arrhenius curves of these three standards, the temperature at which an elongation residue percentage after 20,000 hours of deterioration had reached 50 per cent was verified. Test results are judged as acceptable if the above-mentioned temperature is higher than 120°C.

3.3 Single Vertical Combustion Test

A single vertical combustion test was performed in conformance to the IEC60332-1-2 standards. A 60mm sample was burned with a specified burner so that the lower part of the sample was ignited for 60 seconds. After the flame was detached, the sample was left unattended until the flame was extinguished by itself. After the extinguishing was completed, the upper edge of a carbonised length was measured from the upper part of the sample, and the lower edge of a carbonised length was measured from the upper part of the sample.

Each carbonised length is judged as acceptable if it is longer than 50mm or shorter than 540mm, respectively.

4 Test Results

4.1 Hot-set Test

The results of the hot-set test are shown in *Table 1*. Judging from the table, it was verified that this cable has excellent high temperature heat resistance without the use of electron beam irradiation.

4.2 Heat Deterioration Properties

Table 2 shows a temperature at which an elongation residue percentage reaches 50 per cent after 20,000 hours of deterioration as determined by Arrhenius curves. Judging from the table, it was verified that this cable has excellent heat deterioration properties.

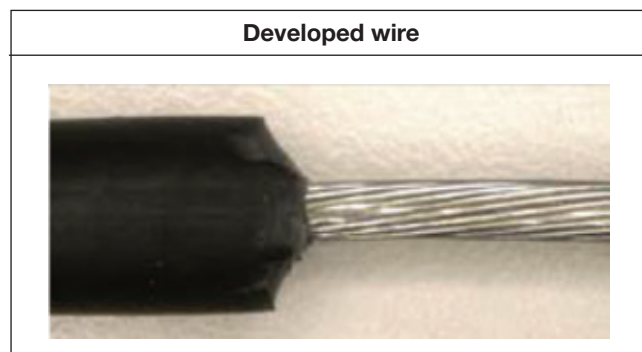
4.3 Single Vertical Combustion Test

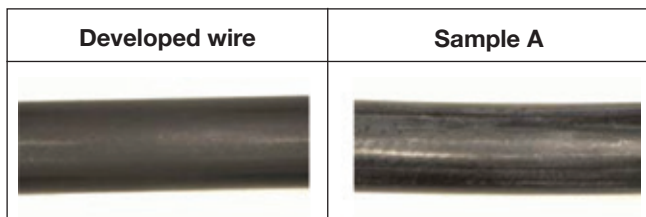
The results of the single vertical combustion test are shown in *Table 3*. Judging from the table, it was verified that this cable has excellent incombustibility because the spread of fire did not occur in the upward and downward directions.

4.4 Other Characteristics

Other characteristics of the newly developed cable are introduced on the next page.

○ **Figure 1:** End strip workability





○ **Figure 2:** Bleed characteristics

Test	Required	Developed wire
INSULATION		
Mechanical properties Before aging		
Tensile strength (MPa)	6.5<	20.4
Elongation (%)	125<	357
After aging (aged at 150° for 240 hours)		
Tensile strength (per cent of unaged values)	70<	104
Elongation (per cent of unaged values)	70<	92
JACKET		
Mechanical properties Before aging		
Tensile strength (MPa)	8.0<	14.8
Elongation (%)	125<	22.4
After aging (aged at 150° for 240 hours)		
Tensile strength (per cent of unaged values)	70<	114
Elongation (per cent of unaged values)	70<	86
Resistance against acid solution		
Tensile strength (per cent of unaged values)	70~130	114
Elongation	100<	217
Resistance against alkaline solution		
Tensile strength (per cent of unaged values)	70~130	115
Elongation	>100	217
CABLE		
Bending test at -40°C	No cracks	No cracks
Impact test at -40°C	No cracks	No cracks

○ **Table 4:** Primary properties of developed cable

Figure 1 shows the results of evaluating the end-strip workability of this cable. These results represent the observations of processed portions after stripping insulators by using a general insulation stripper.

This newly developed product is structured of two layers: insulation and sheath. Any moustache-shaped burrs were almost not observed even after the two layers were processed at the same time.

It was verified that these two layers had been stripped without problems.

In addition, the results of evaluating the bleed characteristics of this cable are shown in Figure 2. These results represent the observations of the surface of an electric wire that was observed a half-year after a cable was manufactured.

Since this cable requires a very high level of heat deterioration properties, the addition of very many antioxidants is needed, and there are concerns about the occurrence of bleed. When a bleed occurs, there are concerns about the transition of the bleed to the connections. It was verified that as for Sample A (conventional polyolefin materials), anti-oxidants were bleeding at an ordinary temperature. On the other hand, it was verified that any bleed had not been found in this newly developed product.

4.5 General Characteristics Compatible with TÜV and JCS Standards

Table 4 shows the results of evaluating a part of any other general, physical properties of this cable, which conform to the TÜV and JCS standards. There are concerns about the cold resistance and acid resistance of a flame-retardant cable for which polyolefin is used.

However, cracks did not occur even when a test was performed at a temperature of -40°C. An acid resistant test revealed excellent results. In addition, other tests revealed satisfactory results. This halogen-free cable for photo-voltaic power generation is excellent in conforming to the TÜV and JCS standards.

5 Conclusions

At this time, Furukawa has succeeded in developing a cable which has excellent high-temperature heat resistance, heat deterioration properties and incombustibility, and which conforms to the TÜV standards and the JCS standards, without using an electron-beam bridging machine.

In the future, this product will be introduced to each manufacturer through PR activities, deploying this technology and promoting non-electron beam irradiation in the field of electron-beam irradiation.

The paper is courtesy of the 61st IWCS International Cable and Connectivity Symposium, Providence, Rhode Island, USA, November 2012.

6 References

- [1] TÜV 2Pfg1169/2007 Standard
- [2] JCS4517
- [3] UL4703 standards

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光伏发电系统适用电缆的发展

作者：日本Furukawa电器工业株式会社古河光电子实验室阿里富米松村、西口正树久保茂

摘要

Furukawa推出了一种适用于光伏发电系统的新型电缆，这种电缆符合TÜV 2Pfg1169/2007标准^①和JCS4517标准^②的要求。光伏发电系统电缆若要满足这些要求，其绝缘材料和护套材料必须由无卤材料制成。此外，两项标准对电缆的垂直耐燃性、高温耐热性、低温特性和耐酸性均有很高的要求。另外，由于工作环境中的温度为-40摄氏度至90摄氏度，温度指数需达到120摄氏度以上。为了满足工作20,000小时以后老化的残留物百分比达到百分之五十的要求，温度必须高于120摄氏度。优异的耐热退化特性是尤为必要的。这一次，电缆的绝缘材料由交联聚乙烯制成；高度不燃性交联聚烯烃被用作护套材料。这样，电缆就有可能满足上述提到的标准。此外，我们确信，从剥离特性和渗色特性角度考虑，将这种电缆投入实际使用没有问题。再者，可以不使用特殊桥接设备（如电子射线照射机）生产这种电缆。这种电缆在成本和批量生产应用方面很有优势。

1 介绍

近几年，随着全世界范围内对环境问题的日益关注，使用可再生能源(如风力发电、光伏发电和生物质)发电活动日益活跃。光伏发电系统方面，规模在1兆瓦以上的发电设备(又称为“百万太阳能”)开始迅速普及。我们预期今后对这些发电设备可用电缆的需求将会增长。目前，为了保障这些发电设备使用的电线的可靠性，各个地区均使用独一无二的标准。欧洲用的是TÜV 2Pfg1169标准，而北美使用的是UL4703标准^③。近些年，日本在TÜV 2Pfg1169标准的基础上制订了JCS4517标准。由于每个地区使用各自的标准，因而对符合所有标准的兼容电缆的需求日益增长。另一方面，开发更低成本电缆的呼声也越来越高。目前，对低成本电缆的需求比对集成电缆的需求要迫切得多。顺应上述环境背景，Furukawa推出了一种同时满足TÜV标准和JCS标准的电缆。

2 适用于光伏发电系统的一种新型电缆

光伏发电系统使用的电缆的主要性能要求之一是热设定属性，这种电缆同时符合TÜV标准和JCS标准。用聚烯烃制成的不易燃烧无卤电线中，通常用电子束照射来满足热设定属性。然而将来，在百万太阳能设备中，电流的容量将越来越大。换句话说，电缆的尺寸有可能变得越来越大，电缆对电子束照射的反应将达到上限。除此之外，就小尺寸的低电流电缆而言，辐照设备本身成本较高，故而产生了对非电子束桥接的需求。而这种电缆便采用了桥接方式，无需对聚烯烃材料实施电子束照射就能满足热设定属性。光伏发电系统的这种新型电缆的主要物理特性介绍如下。

3 测试方法

3.1 热设定测试

我们依据IEC60811-2-1标准执行热设定测试。首先从电缆上分别截下一段绝缘管形件和一段鞘管形件，然后将测试件悬挂在温度为20度的烤炉中，并对测试件施加20牛/平方厘米的载荷。15分钟后测量伸长率。之后卸去负载。待烤炉内的温度恢复以后，取出测试件并将其在室温下冷却。再次测量伸

测试	要求	新型电缆
绝缘层		
热设定测试(200摄氏度时保持15分钟)		
负荷为20牛/平方厘米	100>	30
卸除负载以后(%)	25>	3
护套		
热设定测试(200摄氏度时保持15分钟)		
负荷为20牛/平方厘米	<100	29
卸除负载以后(%)	<25	4

○ 表1: 热设定测试

测试	要求	新型电缆
绝缘层		
	>120	121.2
护套		
	>120	121.9

○ 表2: 耐热性能

测试	要求	新型电缆
电缆		
垂直火焰蔓延抗性		
从电缆顶部到碳化结束点的长度(毫米)	>50	370
从电缆顶部到碳化开始点的长度(毫米)	<540	510

○ 表3: 单一垂直燃烧试验

长率。如果加上负载以后的伸长率低于百分之百，且卸去负载以后的伸长率为百分之二十五，测试结果就被认为是可接受的。

3.2 热老化性能

从电缆上分别截下一段绝缘管形件和一段鞘管形件。分别将退化温度设定为180°C、158°C和136°C，每种温度下伸长残留率达到50%的时间应该不相同。根据这三种标准的阿累尼乌斯曲线判断，经过20,000小时的退化以后，伸长残留率达到50%的温度也是不同的。如果上述温度高于120摄氏度，便认为结果是可接受的。

3.3 单一垂直燃烧试验

执行单一垂直燃烧试验依据的是IEC60332-1-2标准。用指定的燃烧器靠近一段60毫米的试样，并在试样较低的一端持续



图1: 一端剥离可操作性

燃烧60秒。火焰燃起以后，将试样放在一边，待火焰自行熄灭。火焰完全熄灭以后，先从试样上端测量碳化部分的靠上边缘，再从试样上端测量碳化部分的靠下边缘。如果碳化长度分别大于50毫米或小于540毫米，则认为结果是可接受的。

4 测试结果

4.1 热设定测试

热设定测试的结果参见表1。从这张表判断，可以证实，在没有使用电子束照射的情况下，这种电缆表现出极好的高温耐热性。

4.2 热老化性能

表2展示了由阿累尼乌斯曲线推算的20,000小时退化以后伸长残余率达到50%时的温度。从该表判断，这种电缆拥有极佳的热退化性能得到了证实。

4.3 单一垂直燃烧试验

单一垂直燃烧试验的结果参见表3。从该表看，这种电缆的耐燃性极好，因为火势向上和向下方向蔓延的情形都没有发生。

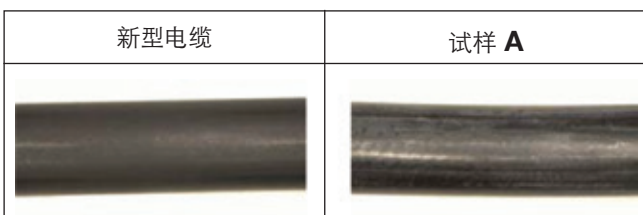
4.4 其他特性

这种新型电缆的其他特性介绍如下。图1展示了这种电缆的一端剥离可操作性的评价结果。这些结果代表使用普通绝缘层剥皮器剥开绝缘体以后处理部分的观察情况。这种新产品由两层构成：绝缘和护套。同时处理了这两层以后，几乎没有观察到任何小胡子状的毛刺。说明绝缘和护套层不难剥离。此外，图2展示了对这种电缆的渗色属性的评价结果。这些结果是通过观察电线表面得来的，被观察电缆距离生产日期已逾半年。由于这种电缆要求高度的热老化性能，必须添加大量的抗氧化剂，因而渗色的可能性令人担忧。一旦发生渗色，我们担心它会向电线传导。结果证明，对A试样（传统聚烯烃材料）来讲，即使在常温下抗氧化剂也会渗色。而这种新产品却没有发现任何渗色现象。

4.5 符合TÜV和JCS标准的一般特性

表4展示了这种电缆的任意其他一般的、物理性能的评价结果，结果符合TÜV和JCS标准。对使用聚烯烃制作的电缆，抗低温能力和阻燃电缆的耐酸性值得担忧。然而，即使在零下40度的温度下测试，这种电缆也没有出现裂缝。耐酸性测试

图2: 渗色特征



测试	要求	新型电缆
绝缘层		
机械特性 老化之前 拉伸强度 (MPa) 伸长率 (%)	6.5< 125<	20.4 357
老化之后 (150摄氏度条件下老化240小时) 拉伸强度 (未老化值的百分比) 伸长率 (未老化值的百分比)	70< 70<	104 92
护套		
机械特性 老化之前 拉伸强度 (MPa) 伸长率 (%)	8.0< 125<	14.8 22.4
老化之后 拉伸强度 (未老化值的百分比) 伸长率 (未老化值的百分比)	70< 70<	114 86
酸性溶液耐性 拉伸强度 (未老化值的百分比) 伸长率	70~130 100<	114 217
碱性溶液耐性 拉伸强度 (未老化值的百分比) 伸长率	70~130 >100	115 217
电缆		
40摄氏度下的弯折试验	没有裂缝	没有裂缝
40摄氏度下的冲击试验	没有裂缝	没有裂缝

表4: 新型电缆的主要性能

的结果也非常乐观。另外，其他测试结果也令人满意。这种光伏发电系统适用的无卤电缆与TÜV和JCS标准高度契合。

5 结论

这一次，Furukawa成功地发明了一种不但拥有极佳高温耐热性、热老化性和耐燃性，又符合TÜV和JCS标准、无须使用电子束桥接机的电缆。以后将通过宣传把这种产品介绍给每一位生产商，推广这种技术，并促进非电子束照射在电子束照射领域的应用。

6 参考文献

- [1] TÜV 2Pfg1169/2007 Standard
- [2] JCS4517
- [3] UL4703 standards

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ASAP Srl.....	28, 35	Hindustan Cleanenergy Ltd.....	39	Sikora AG	13, 24, 32, 37
BC Power Controls	39	Huawei.....	10, 23	Sitel Control Srl	32, 37
Beiman Special Steel Co Ltd ..	12, 22	JFE Steel Corporation.....	16, 22	Spirka Schnellflecher GmbH.....	33
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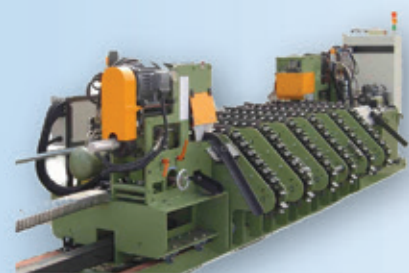
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