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March 2013

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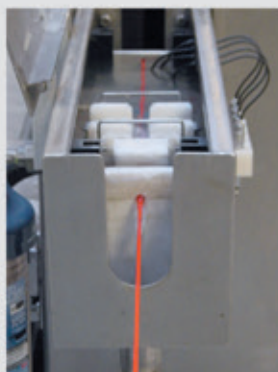
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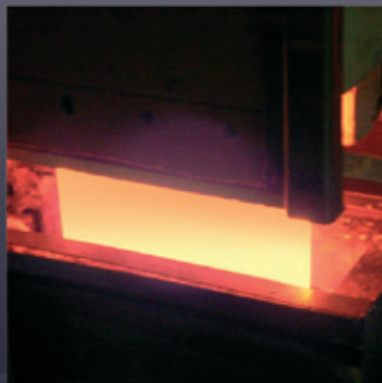
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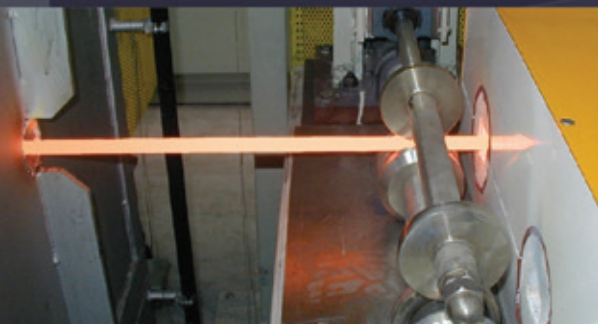
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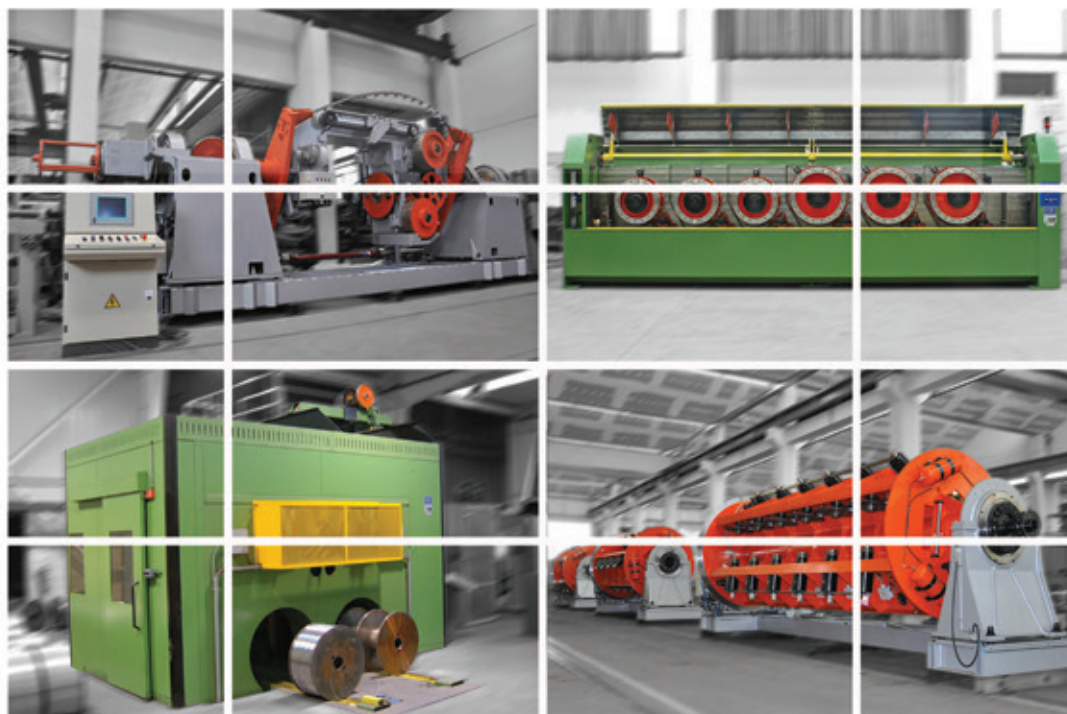
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## Technical Articles

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韦恩 卡赫马尔  
(Wayne Kachmar)

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- What's new in wire & cable machinery: wire production & cable making machinery
- wire Russia 2013

### Getting Technical

Foam fluoropolymer solutions and processing for insulating high performance cables  
By Gary G Thuot and Robert T Young, of DuPont Chemicals and Fluoroproducts, Wilmington, Delaware, USA

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# The future must be about quality

A recent two-day summit on wire and cable products came with a stark warning over quality from the deputy chief of the General Administration of Quality Supervision, Inspection and Quarantine.

Wei Chuanzhong was speaking after it was revealed that the administration found that of 1,762 batches of electrical wire and cable products randomly selected from ten provinces, 208 batches were substandard.

“Some of the wire and cable products now still fail to reach quality standards, which may endanger people’s health and public safety,” he said.

He highlighted the potential damage: “Electrical fires account for about 80 per cent of severe fire hazards in China every year, and over half of such fires were triggered by the use of substandard electrical wire and cable products.”

That is a frightening amount when it is considered that China is believed to be the world’s largest wire and cable manufacturer, with more than 7,800 wire and cable companies in the country exporting just three per cent each year.

You can read the full story on page 11 of this issue of Wire & Cable ASIA.

Also in the headlines in China was the news that the country’s wind farms were expected to produce over 100 billion kWh of energy during 2012.

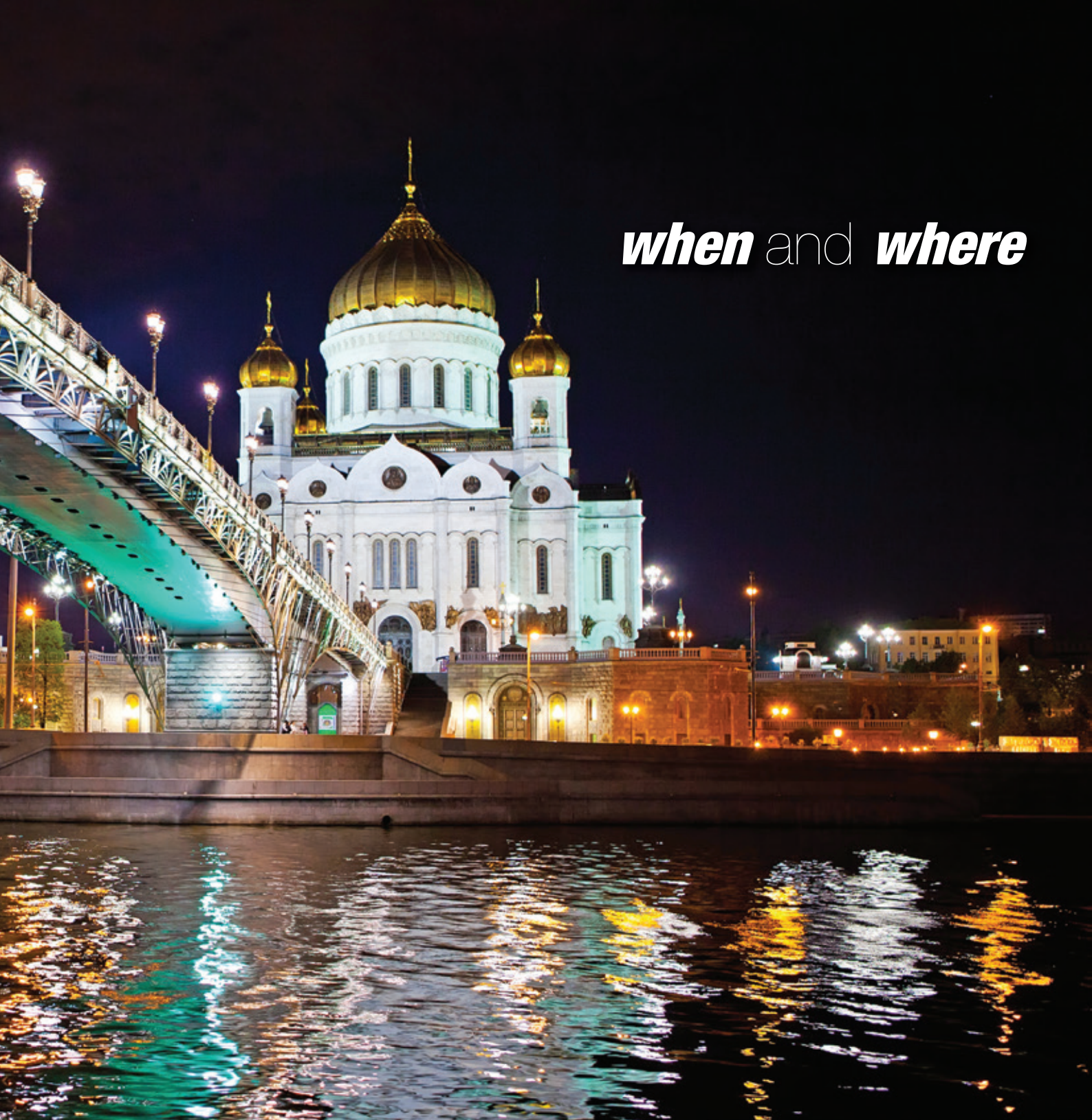
The figure signifies a ‘huge growth potential and room for market expansion,’ said Liu Qi, vice director of the national energy administration at the China Windpower Conference in Beijing.

You can read the whole story on page 14.

David Bell  
Editor







# *when and where*

'Bridge and Cathedral of Christ the Saviour over the Moscow river, Russia' www.bigstockphoto Photographer – Alexey Ochkin

## June 2013

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

**Organisers:**

Messe Düsseldorf GmbH

**Fax:** +49 211 4560 7740

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

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

## September 2013

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

**Organisers:** Messe

Düsseldorf Asia Pte Ltd

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

**Website:**

www.wire-southeastasia.com

## September 2013

16–21 Sept: **EMO Hanover** – trade exhibition –  
Hanover, Germany

**Organisers:**

VDW on behalf of CECIMO

**Fax:** +49 69 756081 74

**Email:** emo@vdw.de

**Website:**

www.emo-hanover.de

## October 2013

1–3 Oct: **wire South America** – trade  
exhibition – São Paulo

**Organisers:**

Messe Düsseldorf/Grupo Cipa

**Fax:** +49 211 456 0668

**Email:** infoservice@

messe-duesseldorf.de

**Website:** www.wiresa.com.br



○ One of the reels leaving the Hartlepool factory

## Seven-mile Brunei contract for JDR

JDR has won a contract with Swiber Offshore Construction Pte Ltd for the deployment of ten custom designed umbilicals totalling 13km, to be used at water depths of up to 32m in the Brunei Shell Petroleum Champion Field.

Paul Gahm, VP sales and marketing at JDR, said: "This contract win is the latest in a long-term relationship with Brunei Shell Petroleum, following two previous umbilical contracts for the Champion field complex.

"It confirms JDR's position as the

preferred umbilical vendor for the Asia Pacific region and is testament to the investment we have made over the last two years in our state-of-the-art umbilical plant in Hartlepool, UK."

He continued: "Our highly experienced operating team will now execute this project, which is due for load-out in mid-2013.

"We will provide on-going support through our AIM Services, which enables us to provide 24/7 aftermarket, installation and maintenance through our global network of highly

experienced and fully certified technicians."

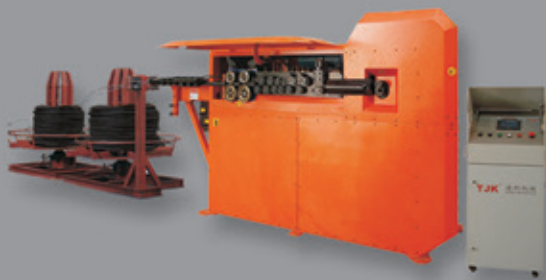
Mr Joseph Chen, VP Swiber Brunei: "JDR was the only umbilical provider that was prepared to meet the tight deadlines to roll out this project in order to maximise our return from the Champion Field.

"We're delighted with JDR for agreeing to work with us on this complex project with tight delivery deadlines."

**JDR – UK**

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

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STIRRUP BENDER **WG-12B-2**



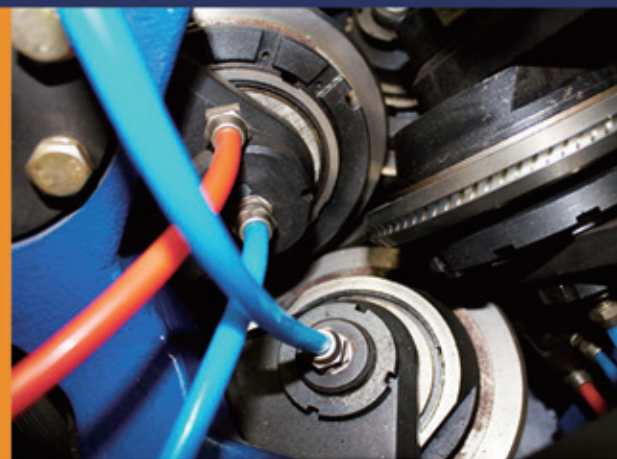
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# Chinese wire and cable industry worth \$176bn urged to improve quality

QUALITY authorities are urging Chinese wire and cable companies to promote advanced technologies to improve quality, not just expand capacity. China is believed to be the world's largest wire and cable manufacturer.

According to the General



bigstockphoto.com - Natalia Kuzmina

Administration of Quality Supervision, Inspection and Quarantine, the industry's output was worth over \$176 billion in 2011.

"But some wire and cable products now still fail to reach quality standards, which may endanger people's health and public safety," said Wei Chuanzhong, deputy chief of the administration, during a recent two-day summit on wire and cable products.

"Electric fires account for about 80 per cent of severe fire hazards in China every year and over half of such fires were triggered by the use of substandard electrical wire and cable products," he explained.

A quality inspection, conducted by the administration, found that of

1,762 batches of electrical wire and cable products randomly selected from ten provinces, 208 batches were substandard.

"There is great potential for the industry in China, but producers need to realise that technology improvements and high quality are the future of the industry," said Yang Xueshan, vice-minister of industry and information technology.

China has over 7,800 wire and cable companies, with exports accounting for only around three per cent of the country's total production, Wei said.

According to the administration, wire and cable products used in areas such as aerospace and nuclear power sectors are mostly imported.

## Done deal

Oman Cables has signed a deal to supply electrical cables to all of Samsung's engineering, procurement and construction (EPC) projects worldwide.

The contract between the two companies was signed at the Sultanate of Oman Embassy in Seoul, South Korea.

Oman Cables Industry described the deal as "a landmark achievement for OCI to be associated with a global company like Samsung."

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## Saudi Arabia's high power link

CESI Middle East has signed an agreement with the Saudi Electricity Company (SEC) for assistance in relation to the implementation of an 800km high voltage direct current (HVDC) power transportation interconnector between Riyadh and Mecca, covering the central and western regions in the Kingdom of Saudi Arabia.

The link will not only increase the power generation capacity of local distribution networks, which frequently experience power disturbances, power failures and outages, but also provide a reliable back-up energy supply in the event of such emergencies.

A power carrying capacity of 3,000MW will result in increased energy reserve margins for SEC to fulfil high-energy demands with greater reliability. High-energy demands have increased in the Kingdom due to the establishment of large-scale industrial manufacturing plants.

HVDC systems experience less electricity loss over long-distance transmission, and are considered to be more reliable than the more commonly used alternative current systems.

**CESI Middle East – Dubai**

**Website:** [www.cesi.it](http://www.cesi.it)

## AfDB to finance electricity highway

The African Development Bank has agreed to finance a multinational electricity highway between Ethiopia and Kenya that will transfer power from hydroelectric facilities.

The US\$115 million loan, granted to the government of Kenya, will fund the construction of around 1,068km of high-voltage direct current (HVDC) 500kV transmission line and associated AC/DC converter stations at substations in Ethiopia and Kenya.

The HVDC line will have a power transfer capacity of up to 2,000MW and will be commissioned in November 2017.

Gabriel Negatu, AfDB's East Africa regional director, said: "[The] Energy Super Highway...will facilitate energy trading within the East Africa region.

"It is also the first step to enabling affordable energy from the region to be traded through the East Africa Power Pool, as far north as Egypt and as far south as SADC [Southern African Development Community] countries, by connecting with the Southern Africa Power Pool."

AfDB says the demand for electricity in East Africa has risen steadily, relative to supply, leading to occasional severe power shortages. Other projects currently being considered for development in Ethiopia include the 6,800MW Grand Ethiopian Renaissance Dam.

The integration of the power systems of the Eastern Africa Power Pool will enable the development of Ethiopia's large hydropower resources to enable export and address power shortages throughout the region.

Power Pools are cooperatives, working to establish a reliable power grid for the region and a common market for electricity.

**African Development Bank – Tunisia**

**Website:** [www.afdb.org](http://www.afdb.org)



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**25 – 28 June 2013**

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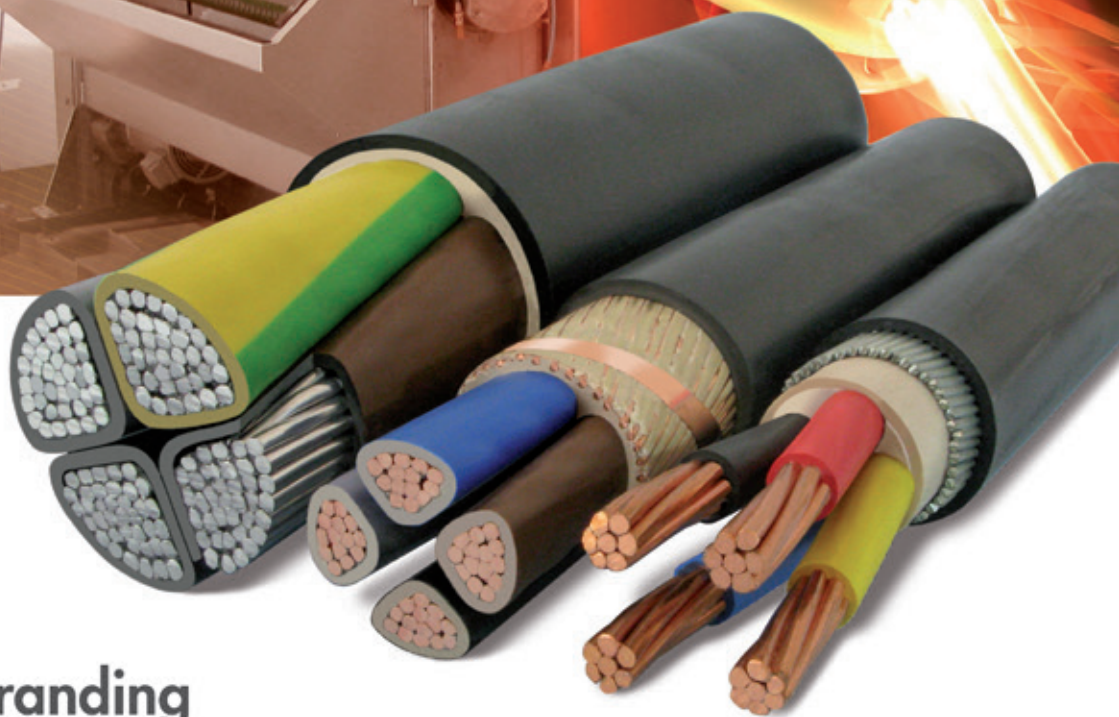
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# All powered up, but nowhere to go . . .

CHINA'S wind farms were expected to generate over 100 billion kWh of energy by the end of 2012, vice director of the national energy administration Liu Qi, told the China Windpower conference in Beijing in November.

Wind power continues to have "a huge growth potential and room for market expansion," he added, warning that there is a need to address the phenomenon of abandoning wind in some regions, and curtailment by grid operators.

"The rapid development of wind power is facing challenges in adapting to and integrating with the current electricity system.

"In certain areas with grid curtailment, the traditional energy system, management system and policies cannot fully meet the requirements of new energy development such as wind power," Liu explained.

Under China's renewable energy law,

all wind power produced is required to be consumed by grid operators.

In reality, however, more than 20 per cent is wasted in some areas, with grid companies claiming they do not have sufficient capacity to absorb more wind power.

China will work to strengthen the electric power system and improve policies to support the industry, said

Liu: "It will also promote the full acquisition of wind energy produced in the country."

China surpassed the US last year to become the country with the most installed wind power capacity at 62.5GW, but there has long been a significant gap between the number of installed wind farms and the projects actually connected to the electricity grid.

## Tongling orders Contirod® plant

The Tongling Nonferrous Metals Group from Anhui Province, China, has ordered a complete Contirod casting and rolling plant for the production of copper wire rod.

The high-performance line, from SMS Meer, can produce 225,000 tons of copper wire rod per year from cathodes, and is intended to further strengthen Tongling's position in the copper business.

The Contirod line is designed for a capacity of 35 tons per hour, and will be one of the largest integrated copper casting and rolling plants in China.

The line comprises a gas control system on the SMS shaft furnace for melting copper cathodes and a modular Hazelett twin-belt caster. The casting cross-section is 90mm x 70mm, followed by the rolling line with a 12-stand rolling mill.

The enormous reduction in the cross-sectional area from the cast ingot to the wire rod creates a very fine-grained material microstructure.

"The modern and energy-efficient technology such as the gas control system and the variable-frequency drives make the plant one of the most cost-effective of its kind," claims Thomas Schatz, project manager at SMS Meer. Commissioning of the line is expected in autumn 2013.

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

## Kuwait aims for 15% 'green' electricity

Kuwait is aiming to source 15 per cent of its electricity from renewable energy sources by 2030.

The country is currently on target for one per cent of its electricity from solar and wind energy by 2015, according to the Emir of Kuwait, Sabah al-Ahmad Al-Jaber Al-Sabah.

Kuwait relies heavily on oil for power generation, but according to the International Renewable Agency (IRENA), the country has approximately 70MW of installed renewable energy capacity.

Of this capacity, PV accounts for 10MW and concentrated solar power accounts for 50MW. The remaining 10MW is accounted for by wind.

Several Middle Eastern countries have begun to move towards renewables.

Qatar recently announced that it will obtain 16 per cent of its electricity from solar by 2018, and Saudi Arabia recently disclosed that its long-term goal is to be powered entirely by renewable energy.

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## Hu An Cable lands RMB105.6 million worth of contracts

HU An Cable Holdings Ltd, one of the top 10 wire and cable manufacturers in China, has won RMB105.6 million worth of contracts from China's top-five power generation company, China Power Investment Corporation.

These new contracts, signed under the group's wholly-owned subsidiary, Wuxi Hu An Wire And Cable Co Ltd, comprise the delivery of various power cables to 25 wind, solar and

hydroelectric power plants across China, such as the 20MWp grid-connected photovoltaic power plant in Shanshan, Xinjiang and the 30<sup>th</sup> wind farm project in Changling, Jilin.

Commenting on the contract wins, Mr Dai Zhixiang, executive chairman and CEO of Hu An Cable, said: "Our high success rate of bids once again proves our technology advantages, quality assurance and brand recognition among our customers.

We expect to benefit from the Chinese government's continuous and reinforced commitment to renewable energy."

The Chinese central government planned to spend RMB170 billion in FY2012 to promote energy conservation, emission reductions and renewable energy in its latest statement by the Ministry of Finance.

China is the world's biggest emitter of carbon dioxide (CO<sub>2</sub>) and is reported by the International Energy Agency (IEA) to have reached its highest ever-recorded level in CO<sub>2</sub> emissions in 2011.

China targets to cut its greenhouse gas emissions by 40-45% in 2020 compared to levels in 2003, and aims to boost its use of renewable energy to 15% of overall energy consumption.

**Hu An Cable – China**  
**Website:** [www.chinahuanacable.com](http://www.chinahuanacable.com)

### CMI to supply cold rolling mill to Tezcan

CMI FPE Ltd, one of CMI Industry's Indian subsidiaries, has entered into a new agreement with Tezcan Galvaniz AS, Turkey, for the design, manufacture and supply of a 6 Hi reversing cold rolling mill.

This is the second 6 Hi mill of CMI FPE in Turkey.

The mill has a total capacity of 350,000 tons per year. It is suitable for 1,350mm wide coils and 1,400mpm process speed.

The mill will be equipped with Level2 automation and automatic flatness control system and will be commissioned within 17 months.

Jean Gourp, managing director of CMI FPE Ltd: "This second contract for 6 Hi mill in Turkey establishes the acceptance by the Turkish market of the reliability and quality of cold rolled steel CMI FPE mills can offer.

"This is also the beginning of an excellent business relationship between CMI & Tezcan."

**CMI FPE – Belgium**  
**Website:** [www.cmigroupe.com](http://www.cmigroupe.com)

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## Thailand and Japanese companies are joining forces

USHA Siam Steel Industries Ltd has formed a 50:50 joint venture with TESAC Wire Rope, a Japanese company, to produce wire ropes in Thailand. The new company will be called TESAC Usha Wire Rope Company. The venture will have an annual

capacity of 12,000 tonnes of steel wire rope for elevator and crane applications, aiming to meet the growing demand of Japanese elevator makers in the ASEAN region.

A new plant, at a cost of \$17 million, is to be developed adjacent to Usha Siam's existing plant in the Pathum Thani's Navanakorn industrial estate in Thailand.

The plant will become operational during 2014. Usha Siam, located in Bangkok, was established in 1980 and has an annual production of about 36,000 tonnes of wire rope, auto cables, strands and wires.

The venture with Usha Siam will be TESAC's first manufacturing base outside Japan. The companies have already been working together for over a decade.

**Usha Siam Steel Industries Ltd – Thailand**  
Website: [www.ushasiam.com](http://www.ushasiam.com)

### Joint venture

Jiangsu Province-based steel producer Xingcheng Special Steel Works Co signed a framework agreement with Taiwan-based wire and cable producer Walsin Lihwa for the construction of a stainless steel wire rod rolling and processing project.

The joint venture, which will be built in Jiangyin, is expected to have an annual output capacity of 120,000 tonnes of stainless wire rod.

### Distribution partner for Brand-Rex

Brand-Rex has appointed Intec Systems & Solutions as a distribution partner for Sri Lanka. The company will offer the full range of Brand-Rex copper and optical cabling systems in the region.

Regional manager at Brand-Rex, Andrew Gomez, said: "Brand-Rex has placed technology, innovation and customer service at the heart of its business strategy in recent years and we believe that this new relationship will allow us to thrive in the Sri Lankan market."

Mr Gomez added that with this new appointment, Brand-Rex will now be able to offer a service in Sri Lanka that he believes to be unmatched in the industry.

Brand-Rex is a global operation, designing, developing and manufacturing high performance copper and fibre cabling systems for communications and extreme environment applications.

**Brand-Rex Ltd – UK** Website: [www.brand-rex.co.uk](http://www.brand-rex.co.uk)



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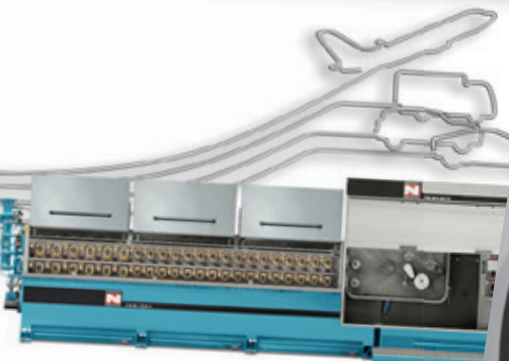
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# Portugal to Nigeria marine maintenance renewed

ALCATEL-LUCENT and Main One Cable Company Ltd, have renewed their marine maintenance contract for Main One's 7,000km submarine cable system connecting Portugal to Nigeria. Delivering high-speed bandwidth of 1.92Tbit/s, the cable gives access to global information, data and markets in Western Africa.

As a member of the Atlantic Private Maintenance Agreement (APMA), Main One will continue to manage and maintain the network. Under the service level agreement, Alcatel-Lucent will make available its maintenance vessels, as well as specialist personnel for cable repairs.

"To ensure the optimal network availability for continuity and quality of communications that our customers demand, we rely on world class technical support including state-of-the-art cable ships capable of delivering rapid response repair services in any weather condition," said Bernard Logan, Main One chief commercial officer.



Contract is renewed between Alcatel-Lucent and Main One Cable Company

Philippe Dumont, head of Alcatel-Lucent's submarine network activity, said: "Combined with the recent redistribution of our maintenance vessels in the Atlantic, our Cape Verde-based cable ship will offer the shortest possible mobilisation time for any repair operations off West Africa."

Alcatel-Lucent currently maintains over 300,000km of critical submarine cable infrastructure worldwide.

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

## Faulty line resulted in power loss

The Transmission Company of Nigeria (TCN) reported that a faulty 330kV power line, together with ongoing work on its gas facility by Chevron Nigeria, have resulted in the loss of 3,716MW of generated power.

The loss was responsible for a nationwide power supply cut at the end of November, according to a statement by Dave Ifabiyi, TCN's public affairs assistant general manager, adding that TCN engineers had worked hard to rectify the problem and had restored the power supply within the day.

The statement continued: "The Transmission Company of Nigeria sincerely regrets the inconvenience caused by the power outage and reassures all electricity consumers of its determination to continue to strengthen the transmission grid for the nation's socio-economic growth."

**Transmission Company of Nigeria – Nigeria**  
**Website:** www.tcng.com

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# North Americans takes group stand for wire Russia

WIRE Russia takes place from 25<sup>th</sup> to 28<sup>th</sup> June this year at the ZAO Expocentr in Moscow.

A special feature at the event will be the North American group stand, organised by Messe Düsseldorf North America and supported by the Wire and Cable Industry Suppliers Association (WCISA).

This group stand provides a cost-effective means for companies to

enter into or to expand their business in the Russian marketplace. Exhibit space on the stand can be reserved now by contacting Messe Düsseldorf North America.

The Russian market has been very strong and continues to provide business opportunities for international companies producing, processing or trading wires and cables.

In addition to the North American group

stand, exhibitors from Austria, China, France, Germany and Italy will be represented within official country pavilions. Overall, over 200 exhibitors from more than 30 nations will take part.

The event will again be jointly organised by Messe Düsseldorf and its subsidiary Messe Düsseldorf Moscow – with the support of leading Russian and international industry associations: All Russian Cable Scientific Research and Development Institute (VNIICP), the International Wire & Machinery Association (IWMA), the International Wire and Cable Exhibitors Association (IWCEA), the German Wire and Cable Machine Manufacturers Association (VDKM), the Austrian Wire and Cable Machinery Manufacturers Association (VDKM-AWCMA), the International Wire and Cable Exhibitors Association-France (IWCEA-France) as well as the Italian Wire Machinery Manufacturers Association (ACIMAF) and the Wire and Cable Industry Suppliers Association (WCISA).

**Messe Düsseldorf – Germany**  
**Website:**  
[www.messe-duesseldorf.com](http://www.messe-duesseldorf.com)



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## Cable upgrade in record time

Mitsubishi Electric Corporation has completed work on the India-Middle East-Western Europe (IMEWE) cable network.

The installation of submarine line terminal equipment in eight countries has upgraded the submarine cable network with 40Gbps dense wavelength division multiplexing (DWDM) technology.

The IMEWE cable system was commissioned in 2010 as a 10Gbps DWDM system, linking India to Europe via the Middle East.

The system, of around 12,090km with 10 terminal stations, is owned by a consortium of leading telecom carriers in India, Pakistan, UAE, Saudi Arabia, Egypt, Lebanon, Italy and France.

The cable system comprises three optical fibre cable pairs with two fibre pairs on an express path, as well as a terrestrial link connecting the cities of Alexandria and Suez in Egypt.

Network demand in these areas is expected to grow rapidly in line with economic development in India and the Middle East, hence the deployment of 40Gbps technology.

Mitsubishi Electric has incorporated forward error correction and high-speed coherent technologies to terminal equipment, boosting transmission capacity.

**Mitsubishi Electric Corporation – Japan**  
**Website:** [www.mitsubishielectric.com](http://www.mitsubishielectric.com)

## Savings and energy initiative in Pakistan

AN on-grid solar power generation system of 178kW, installed at Pakistan Engineering Council (PEC), is said to have set a precedent as a role model for defining procedures and strategy at national level for on-grid solar power generation.

The project is the first of its kind in the country, with

excess electricity delivered to the national grid under a Feed-In-Tariff regime.

PEC's spokesperson, Mahmood Rehmani, said: "We took many initiatives in terms of energy efficiency within PEC.

"An energy audit was made of the main building of PEC; heavy lighting fixtures were

replaced and LEDs and energy efficient lights were installed to achieve lighting efficiency. Full use is being made of daylight by fitting clear glass partitions and windows. The lighting load was reduced from 46kW to only 5kW through this initiative, which saved enough electricity to light 50 houses."

Under the project, PEC is installing 500w to 5kW standalone solar power systems at various engineering universities, commercial areas and religious places. The aim of the project is to spread awareness and popularise renewable sources of energy.

For the purpose, an exhibition and awareness campaign will also be launched throughout the country during the implementation phase.

**Pakistan Engineering Council – Pakistan**  
Website: pec.org.pk

## Rebar move

AMEinfo reports that Conares Metal Supply has extended its facility in Jebel Ali free zone area (Jafza) to manufacture 40mm reinforcing steel bars.

Bharat Bhatia, CEO and MD, said: "We are pleased to announce the production of 40mm rebar at our facility in Jafza."

Conares operates a pipe plant and galvanising line, producing black and galvanised pipes.

## Hydroelectricity for Cameroon

The renewable energy developer Joule Africa has signed a project development agreement (PDA) with the Government of Cameroon for the construction of a hydroelectric project on the Katsina Ala river, in northwest Cameroon.

The plant will have a potential installed capacity to generate 850MW, with the first stage having 450MW. The Cameroon government, Joule Africa and technical hydro-engineering consultancy Lahmeyer International are to conduct a full feasibility study on the project.

**Joule Africa – Sierra Leone** Website: www.jouleafrica.com



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Shanghai Electric Cable Research Institute, China



## Gambia hosts submarine cable launch

IN December, Gambia hosted the launch of the Africa Coast to Europe (ACE) submarine cable to transform and advance telecommunication to high-speed broadband fibre optic technology.

“The ACE consortium, which is led by France Telecom-Orange, is made up of 16 members from Africa and Europe. The Gambia was chosen to host the launching after many competitions. We have a grant from World Bank that has facilitated for our membership,” said Mr Lamin Camara, deputy permanent secretary at the ministry of information and communications infrastructure.

Deputy PS Camara disclosed a contribution of US\$25 million towards

the project. He said 51 per cent of the contribution was through the private sector with 49 per cent paid by the government.

He explained that the government has paid the amount through a grant from the World Bank.

“We were getting our source at SONATEL [Société Nationale des Télécommunications du Senegal] in Senegal but with the launching of the ACE submarine cable system, we will get it directly from the main source because we have the ownership,” explained Mr Malang A Bass, director of international operations at Gambia Telecommunications Company.

## Telecommunications for Equatorial Guinea

The Government of Equatorial Guinea will expand its broadband connectivity by participating in the implementation of the international Africa Coast to Europe Project (ACE), a fibre optic cable connecting 21 countries, from South Africa to France.

Equatorial Guinea’s economic capital, Bata, will be a key connection point. The ministry of transportation, technology, postal services and telecommunications will oversee the implementation of the control centre for the cable at Telecommunication Infrastructures Manager of Equatorial Guinea (GITGE), the country’s first telecommunications infrastructure company. The cable is expected to be operational by 6<sup>th</sup> December 2013.

“Equatorial Guinea is working to expand its broadband connectivity,” said Carmelo Martin Modu, secretary of state for technology and telecommunications.

“We believe that through our participation in the ACE project, we will continue to reduce the digital divide that exists in our country and improve our communications’ quality and reach.”

## Fibre progress for Afghanistan

The Afghan ministry of telecommunication and information has announced that a fibre optic network is to be launched in seven central and north-eastern provinces of Afghanistan.

The project, initiated by China’s Zhongxing Telecommunication Equipment Corporation (ZTE) in 2007, was previously delayed by security issues in some areas.

The first phase of the project has already been completed, and the ministry of telecommunication has now signed contracts with ZTE and two Afghan companies for the second phase, which is expected to cost around \$23.3 million. Work has already commenced.

**Zhongxing Telecommunication Equipment Corporation – China**  
Website: www.zte.com.cn



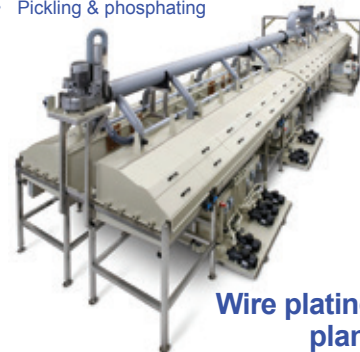
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JDR营销副总裁Paul Gahm先生说：“新合同建立在我们与文莱壳牌石油公司长期合作关系的基础之上，在此之前，我们已赢得了两项为冠军油田铺设地面缆线及管道的合同，进一步巩固了JDR在亚太地区作为

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Paul Gahm先生补充说：“我们拥有经验丰富的运营团队，能够执行这样的项目，预计在2013年年中交付使用。此外，我们还将通过AIM服务，持续提供支持。全球范围内强大的技术团队，能够提供7天24小时的售后、安装和维护服务。”

Swiber Brunei副总裁Joseph Chen先生说：“JDR是唯一一家地面管缆供应商，能够在最短的时间内圆满完成该项目，这样我们可尽可能最大限度地获得冠军油田的回报。我们感到非常高兴，JDR能够在严格的交付期限内，承接这一复杂的项目。”

**JDR - 英国**  
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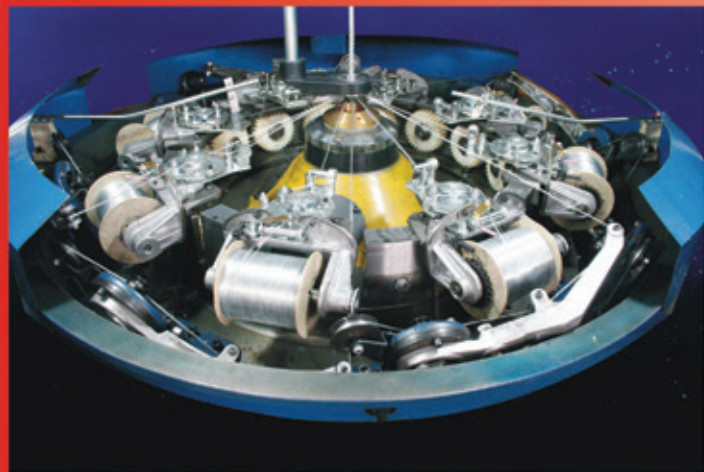
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“但是，部分电线电缆产品仍无法达到质量标准，这可能会危及人们的健康和公共安全，”副主任魏传忠(音译)最近在为期两天的电线电缆产品峰会上说。“在中国，每年由于电导致的火灾占严重火灾的80%左右，而一半以上的此类火灾往往都是因为使用了不合格的电线电缆产品造成的，”他解释说。

当局进行了一次质量检查，发现从10个省随机抽取的1,762批次电线电缆产品中，208批次不合格。

“该行业在中国有很大的潜力，但生产商需要认识到，技术改进和高品质是行业的未来，”工业和信息化部部长杨学山(音译)说。

中国有超过7,800家电线电缆企业，出口只占全国总产的3%，魏副主任说。根据质检局的消息称，应用于诸如航空航天和核电等领域的电线电缆产品大多依赖进口。

### 铜陵订购 Contirod® 生产线

安徽省铜陵有色金属集团订购了一条完整的Contirod连铸连轧生产线，用于生产铜线材。来自SMS Meer的高性能生产线，年产阴极铜线材22.5万吨，旨在进一步增强铜陵在铜行业的领先地位。

Contirod生产线每小时生产能力达35吨，成为中国最大的综合性铜连铸连轧设备之一。生产线包括气体控制系统和模块化Hazelett双带式连铸机，气体控制系统在SMS炉体之上，用于熔解铜阴极。铸造横截面积为90毫米 x 70毫米，紧随其后是12机座轧机轧制线。从铸锭到线材横截面积的大幅减少，导致极细的材料显微结构。

“现代化的高效节能技术，比如气体控制系统和变频驱动器，使得该生产线在业界最具成本效益，”SMS Meer项目经理Thomas Schatz先生说。预计于2013年秋季，生产线将进行调试。

**SMS Meer GmbH – 德国**  
网址: [www.sms-meer.com](http://www.sms-meer.com)

## 沙特阿拉伯实现高功率链接

中东CESI与沙特电力公司(SEC)签署了一项协议，为其800公里高压直流(HVDC)电力传输联网系统的实施提供援助，该系统连接雅得与麦加，覆盖沙特阿拉伯中西部地区。

该链接不但增加了频遭电源干扰、电源故障和停机等因素影响的当地分销网络的发电能力，而且在紧急情况下能够提供可靠的能源供给。

3,000兆瓦的功率承载能力使得SEC能源储备量大增，从而更加可靠地满足高能源的需求。沙特建立了大型工业生产工厂，对高能源的需求因此增大。

HVDC系统在长距离传输过程中经历更少的电力损耗，因此，比常用的交流系统更可靠。

**CESI Middle East – 迪拜**

网址: [www.cesi.it](http://www.cesi.it)

## 非洲发展银行资助电力公路

非洲发展银行同意资助连接埃塞俄比亚与肯尼亚之间的跨国电力公路，该公路利用水电设施传输电力。

价值1.15亿美元的贷款，届时将通过肯尼亚政府，用于支持兴建大约1,068公里的高压直流(HVDC) 500kV传输线路，以及位于埃塞俄比亚和肯尼亚的变电分站联合交流/直流换流站的建立。高压直流线的电力传输能力达2,000MW，预计将于2017年11月投入运营。

非洲发展银行东非地区经理Gabriel Negatu说：“该能源超速公路为东亚地区的能源贸易提供了方便。也是我们通过东非电力联营从地区经济能源贸易迈出的第一步，北部远达埃及，南部到达SADC(南部非洲发展共同体)，与南非电力联营紧密相连。”

非洲发展银行宣称，东非对电力的需求呈稳步上升的态势，较之供应，会导致严重的间歇性电力短缺。目前，埃塞俄比亚正在考虑中的发展项目包括6,800MW的埃塞俄比亚复兴大坝(Grand Ethiopian Renaissance Dam)。

“东非电力联合体的整合为埃塞俄比亚大型水电资源带来了发展机遇，促进了地区出口，解决了电荒。”

电力联合体之间通力合作，致力于建立可靠的地区电网和共同的电力市场。

**African Development Bank – 突尼斯**

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

## 分销合作伙伴

Brand-Rex已委任Intec Systems & Solutions作为其在斯里兰卡的分销合作伙伴。公司将为该地区提供完整系列的Brand-Rex铜及光纤成缆系统。Brand-Rex地区经理Andrew Gomez说：“我很高兴地宣布，任命Intec Systems & Solutions成为我们的分销合作伙伴之一。”

“Brand-Rex近年来已经将技术、创新、客户服务作为其业务战略的核心，我们相信，这一新的合作关系将促进我们在斯里兰卡市场的蓬勃发展。”

Gomez补充说，新的任命意味着Brand-Rex将能够为斯里兰卡提供业界无与伦比的服务。Intec Systems & Solutions总经理Janaka Somananda说：“我们很高兴任命，并期待着一个成功的合作关系。我们致力于保证为客户提供领先的产品和系统，以超过他们的需求。新的委任将确保我们继续实施。”

Brand-Rex是一个全球性的机构，为通信和极端环境应用设计、开发与生产高性能铜与光纤成缆系统。

**Brand-Rex Ltd – 英国**

网址: [www.brand-rex.co.uk](http://www.brand-rex.co.uk)

## 阿富汗光纤网络 进展顺利

阿富汗电信和信息部日前宣布，将在阿富汗中部和东北部的7个省份建立光纤网络。该项目于2007年由中兴电信设备公司(ZTE)开始兴建，之前由于一些地区的安全问题而延迟。项目的第一阶段已经完成，电信部与中兴(ZTE)签订了合同。两家阿富汗公司负责项目的第二阶段，预计耗资约2,330万美元。

**Zhongxing Telecommunication  
Equipment Corporation – 中国**  
网址: [www.zte.com.cn](http://www.zte.com.cn)

## 沪安电缆获得价值人民币1.056亿的合同

沪安电缆集团有限公司，在中国电线电缆制造商中排名前十位，最近赢得了中国第五大发电公司中国电力投资集团公司价值人民币1.056亿的订单合同。这些新合同，以集团的全资子公司无锡沪安电线电缆有限公司的名义签署，包括为中国各地25家风力、太阳能和水力发电厂提供各种电力电缆，比如新疆鄯善的20MWp电网连接光伏电站，以及在吉林长岭的第三十个风电场项目。

谈到赢得这些合同，沪安电缆董事长兼行政总裁戴志翔(音译)先生说：“公司竞标的高成功率再次证明了我们的技术优势、质量保证和客户对品牌的认知度。我们期望继续受益于中国政府对可再生能源持续强化的承诺。”

财政部最新声明，中国中央政府在2012财年斥资1,700亿人民币，用于促进节能减排和可再生能源。中国是世界上二氧化碳(CO<sub>2</sub>)排放量最大的国家，根据国际能源机构(IEA)报道，2011年二氧化碳排放量达到了有史以来的最高水平。中国致力于削减温室气体排放量，较2003年，到2020年要减少40-45%，旨在促进利用可再生能源占总体能源消耗的15%。

**Hu An Cable – 中国**

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

## CMI供应给Tezcan 冷轧机

CMI FPE Ltd, 作为CMI Industry在印度的一家子公司，最近与土耳其公司Tezcan Galvaniz AS签署了新的协议，为其设计、生产与供应6辊逆向冷轧机。这是CMI FPE销往土耳其的第二台6辊冷轧机。该机器年产能达35万吨，适合生产宽1350毫米的线圈，加工速度达1400米/分。轧机配备有Level2自动化和自动平直度控制系统，并将于17个月内投产。CMI FPE Ltd. 公司总经理Jean Gourp先生说：“6辊冷轧机在土耳其赢得第二份合同，这说明CMI FPE冷轧机的可靠性和高品质得到了当地市场的认可。这也是CMI和Tezcan建立良好业务关系的开始。”

**CMI FPE – 比利时**  
网址: [www.cmigroupe.com](http://www.cmigroupe.com)

## 海底维护更新

阿尔卡特-朗讯和Main One电缆有限公司最近更新了海底维护合同，关于Main One连接西班牙与尼日利亚的7,000公里海底电缆系统。该电缆提供高速带宽1.92Tbit/s，可以访问全球信息、数据和西非市场。

作为大西洋私人维护协议(APMA)的成员，Main One将继续管理和维护网络。根据服务等级协议，阿尔卡特-朗讯将提供维护船只和维修电缆的专业人员。

“为了保证最佳的网络连续性和通信质量，我们拥有世界一流的技术支持，包括最先进的缆船，能够在任何天气条件下，快速响应客户的维修需求，” Main One首席商务官Bernard Logan说。

阿尔卡特-朗讯海底网络活动负责人Philippe Dumont说：“Cape Verde-based缆船结合最近在大西洋新分配的维修船只，能够在最短的可能时间内为西非提供任何维修服务。”

阿尔卡特-朗讯目前在全球范围内维护了超过30万公里的重要海底电缆基础设施。

**Alcatel-Lucent – 法国**  
网址: [www.alcatel-lucent.com](http://www.alcatel-lucent.com)

○ 阿尔卡特 - 朗讯和Main One电缆公司续订合同

## 钢丝绳合资企业

Usha Siam Steel Industries Ltd新成立了50:50的合资公司，与日本公司TESAC Wire Rope共同在泰国生产钢丝绳。新公司称为TESAC Usha Wire Rope Company。新合资公司年产12,000吨钢丝绳，用于电梯和起重机，旨在满足日本电缆制造商在东盟地区不断增长的需求。新工厂耗资1,700万美元，毗邻Usha Siam在泰国工业区巴吞他尼的Navanakorn工厂。

工厂将在2014年投入运营。Usha Siam位于曼谷，于1980年建立，年生产能力大约36,000吨钢丝绳、汽车电缆和股线。新成立的合资公司与Usha Siam将成为TESAC在日本以外的第一个生产基地。两家公司已有十余年的合作历史。

**Usha Siam Steel Industries Ltd – 泰国**  
网址: [www.ushasiam.com](http://www.ushasiam.com)



## 喀麦隆水电项目

可再生能源开发商Joule Africa与喀麦隆政府签署了一项项目开发协议(PDA)，负责建设喀麦隆西北部卡齐纳州阿拉河的一个水电项目。建成后的水电站可望产生850MW的潜在装机容量，第一阶段为450MW。喀麦隆政府，Joule Africa，以及水利水电工程技术顾问Lahmeyer International，将对项目进行全面的可行性研究。

Joule Africa总裁和首席营运官Mark Green先生说：“该研究将历时12个月，之后我们将协同喀麦隆政府，开始对法律和金融程序作出结论，继而着手施工。诸如此类的基础设施项目需要历经多年的发展，必须考虑可能影响进展的所有因素。”

Joule Africa – 塞拉利昂  
网址: www.jouleafrica.com

## 赤道几内亚发展电信业

赤道几内亚政府将扩展其宽带连接，参与实施国际化非洲海岸到欧洲的项目(ACE)，一条光纤电缆连接21个国家，从南非到法国。赤道几内亚的经济首都巴塔，将是关键的连接点。运输、技术、邮政服务和电信等各部门负责监督执行控制中心，电缆设在赤道几内亚电信基础设施的管理公司(GITGE)，这是该国首个电信基础设施公司。电缆线路可望在2013年12月6日投入运营。

“赤道几内亚正努力扩展其宽带连接，”技术与电信部国务卿Carmelo Martin Modu先生说。“我们相信，通过我们在ASE项目中的积极参与，将继续缩小存在于我们国家的数字鸿沟，并且继续改进通信质量和有效距离。”

## 故障线路导致功率损耗

据尼日利亚输电公司(TCN)报道，330千伏的故障电源线，与尼日利亚雪佛龙公司的天然气设施共同运作，导致3,716兆瓦的电力损耗。TCN公共事务助理总经理Dave Ifabiyi说，损失造成11月底全国范围内的断电，TCN工程师奋力解决问题，以最快的速度恢复了供电。声明补充道：“尼日利亚输电公司对停电带来的不便深表歉意，并向所有的电力消费者承诺，将决心继续加强输电网建设，为国家的社会发展提供保障。”

Transmission Company of Nigeria  
- 尼日利亚  
网址: www.tcnng.com

## 电缆升级速度刷新纪录

三菱电机公司最近完成了在印度-中东-西欧(IMEWE)的电缆网络项目。

利用40Gbps密集波分复用(DWDM)技术，在八个国家和地区安装了海底线路终端设备，成功完成了海底电缆网络的升级。

IMEWE电缆系统于2010年投入使用，作为10Gbps DWDM系统，经过中东连接印度与欧洲。该系统长约12,090公里，共计10个终端站，由印度、巴基斯坦、阿联酋、沙特阿拉伯、埃及、黎巴嫩、意大利和法国八个国家组成的领先电信运营商团体共同拥有。

该电缆系统包括三个光缆对，其中两个光纤对在明确的路径上，另外还包括连接埃及城市亚历山大和苏伊士的一个地面连接。

印度和中东地区经济的发展，刺激了这些领域网络的需求，预计将迎来迅速增长，因此采用了40Gbps技术。三菱电机结合前向纠错和高速相干技术，将其应用到终端设备，提高传输容量。

Mitsubishi Electric Corporation – 日本  
网址: www.mitsubishielectric.com

## 关于节约和开发能源的倡议

并网太阳能发电系统178kW，安装在巴基斯坦工程委员会(PEC)，据说作为一个角色模范，为国家级并网太阳能发电的程序和策略设定了一个先例。该项目在全国同类中率先，多余电力在馈入关税制度下，交付给国家电网。

PEC发言人Mahmood Rehmani说：“我们采取了很多措施来提高PEC的能源效率。”

“能源审计由PEC的主体建筑组成；重型照明灯具被更换，安装LED和节能灯来实现照明效率。通过安装透明玻璃隔断和窗户，从而充分利用日光。通过该举措，照明负载从46kW减少到5kW，节约了足够的电来照明50间房屋。”

根据该计划，PEC正在各个工程大学、商业区和宗教场所，安装500w到5kW的独立太阳能发电系统。项目的宗旨是在巴基斯坦宣传和推广可再生能源。鉴于该目的，一系列的展览和宣传活动将在实施阶段在全国各地推出。

Pakistan Engineering Council – 巴基斯坦  
网址: pec.org.pk

## 北美组团参加俄罗斯展

俄罗斯线材展将于今年6月25-28日在莫斯科ZAO Expocentr展览中心举行。北美组团参展成为此次展览的一大亮点，展会由北美杜塞尔多夫组办，电线电缆工业供应商协会(WCISA)提供支持。

对企业来说，团体展台是他们进入或拓展俄罗斯市场最经济有效的方式。展位目前仍可联系北美杜塞尔多夫进行保留。俄罗斯市场历来强大，将继续为国际电线电缆生产企业或贸易公司提供商业机会。除了北美参展团，另外还有来自奥地利、中国、法国、德国和意大利的官方国家展团也将出席这一展会。总而言之，来自全球30多个国家的200多家参展商参加该展会。

本次展会将再次由杜塞尔多夫和其子公司莫斯科杜塞尔多夫联合举办。另外，俄罗斯和国际行业协会给予大力支持：俄罗斯所有的电缆科学研究与发展研究院(VNIIPK)，国际线材机械协会(IWMA)，国际电线电缆参展商协会(IWCEA)，德国电线电缆机械制造商协会(VDKM)，奥地利电线电缆机械制造商协会(VDKM-AWCMA)，国际电线电缆参展商协会-法国(IWCEA-France)，以及意大利线材机械制造商协会(ACIMAF)和电线电缆工业供应商协会(WCISA)。

Messe Düsseldorf – 德国  
网址: www.messe-duesseldorf.com



○ Vapormatt's Profelis wire cleaning unit

## Dedication to key sector is paying off for Vapormatt

THE success of Vapormatt's wet blast surface preparation technology in the wire industry is demonstrated by a growing number of installations and, now, the appointment of a sales engineer dedicated to this key sector of manufacturing.

The high levels of process consistency that can be achieved with wet blasting have been proven by Vapormatt in a long list of applications.

These include cleaning, degreasing and descaling as well as etching and satin polishing – across a large number of wire cable and strip products.

Newly appointed sales engineer David Clements mentions manufacturers of rotary extrusions, carding wire, power cables, bandsaw blades, fibre optic

cables and high carbon steel wire as being among those gaining from Vapormatt technology.

“As one of the world's leading wet blasting companies, Vapormatt is constantly developing its in-line processing applications for wire manufacturers, not least because wet blasting offers clear-cut advantages over mechanical and chemical methods of wire cleaning, both of which can present performance and environmental issues,” he said.

As an example of the company's commitment to application focus, Mr Clements draws attention to the Vapormatt Profelis.

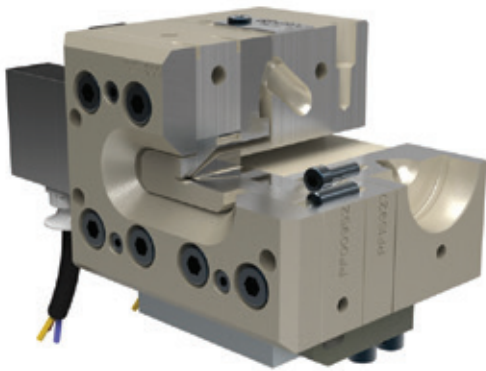
The design can handle wire and cable products of varying geometries and

material, while avoiding the use of harsh chemicals and potential contamination risks experienced with alternative methods.

Fully self-contained, the Profelis comprises two adjacent units that provide a combination of wet blast, spray rinses and drying, to produce high quality results that meet both cosmetic and performance objectives.

“This is an exciting time to join the company and I look forward to building on its success to date, and helping to fulfil Vapormatt's aim of becoming the wire industry's choice whenever in-line wire cleaning is required,” added Mr Clements.

**Vapormatt Ltd – UK**  
**Website:** [www.vapormatt.com](http://www.vapormatt.com)



## China is seduced by the new Erocarb crossheads

EROCARB has created an enviable reputation for its crosshead over the last 30 years.

But the new generation of crossheads for flat ribbon cables shows that it is still improving its products, with Chinese operators selecting the new generation after working on it for just a few hours.

The advantages are clear: reduced dimension and weight, easy dismantling, simple feeding and still compatible to the previous tooling.

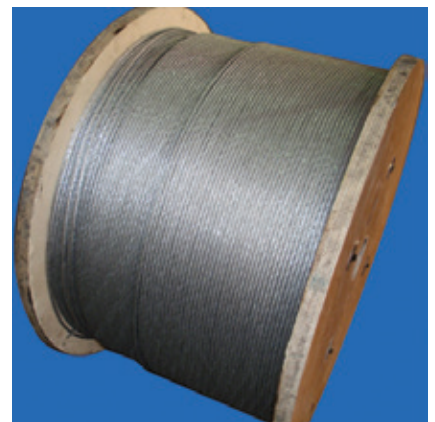
○ The new generation of crosshead from Erocarb

Starting from a nominal width of 20mm up to 150mm in five sizes, the standard family is ideally suited for PVC, but even HFFR can be run on these crossheads.

The connection to the crosshead is perpendicular to the extrusion line and the adaptor thread has been kept from the original ones.

**Erocarb SA – Switzerland**  
**Website:** www.erocarb.ch

## What a reputation!



○ Core wire – used in the reinforcement of aluminium

Anbao manufactures and supplies ASCR core wire, stay wire and guy wire according to ASTM and EN standards. The applications are for mechanical reinforcement in the manufacture of aluminium conductor steel reinforced (ACSR) cable and conductor.

ACSR core wire is used in reinforcement of aluminium conductors used in the distribution and transmission of electricity. ISO9001 certified, Anbao serves a reputable number of companies worldwide.

**Anbao (Qinhuangdao) Wire & Mesh Co Ltd – China**  
**Website:** www.anbao.com

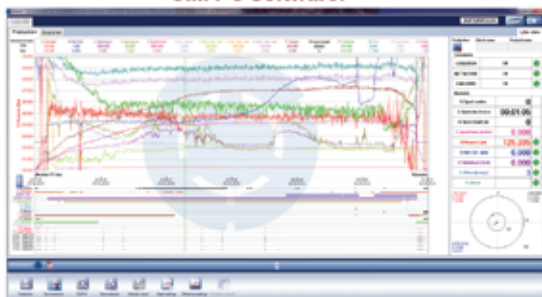


Measure & Control Instruments

## OPTICAL FIBRES Measurement Instruments

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CIM PC software:



- LIS-Glass: Laser Interferometric Sensor**
- Diameter repeatability:  $\pm 0.005\mu\text{m}$  at 50kHz
  - Diameter uncertainty:  $\pm 0.15\mu\text{m}$
  - Defect detection 76kHz, event recording
  - Ultra fine air line detection,  $0.3\mu\text{m}$ , 400Hz
  - Fibre position:  $\pm 2\text{mm}$  range  $\pm 0.1\text{mm}$ , 1kHz
  - Spinning frequency profile
  - Fibre no circularity measurement

- NCTM: Non Contact Tension Measurement**  
 (Drawing force Birefringence principle)
- 0-400 grams  $\pm 1\text{gram}$ , 1kHz
  - Measurement field: 4mm  $\varnothing$
  - $\pm 1\text{ gr}$  within 10-40°C ambient

- CM5: Coating Monitor 5 axes**
- Absolute diameter:  $\pm 0.2\mu\text{m}$ , 400Hz
  - XY Positions  $\pm 0.1\text{mm}$  1kHz
  - 5 axes Lump & Neck:  $\pm 2\mu\text{m}$ , 3.6MHz sampling
  - Coating asymmetry: 30Hz
  - Internal defect detection: 800kHz (Airlines, bubbles, inclusions, delaminations...)

- Others:** AIR (AIRline detector)  
 LDS-T (Laser Diffraction Sensor for transparent product)

[www.CERSA-MCI.com](http://www.CERSA-MCI.com)



## Greener and more reliable rod welders from PWM

PRECISION engineered to produce strong, reliable permanent welds on non-ferrous materials, PWM cold pressure welders offer manufacturers a fast, economical method of joining large rod sections up to 30mm (1.181") diameter.

Quicker, cleaner, and 'greener' than electrical butt-welding, the cold weld process creates a reliable permanent weld stronger than the parent material without sacrificing electrical integrity.

PWM's range of rod welders includes the P1500, P1000 and EP500 models. Designed and built in PWM's own UK workshops, these robust, heavy-duty machines are energy efficient, low maintenance and easy to operate.

The EP500 electro/pneumatic cold welder is one of PWM's best-selling machines. Dependable and easy to operate, it will weld copper rod 5mm to 12.5mm (0.197" to 0.492") and aluminium rod 5mm to 15mm (0.197" to 0.590").

The compact hydraulic P1000 machine, for copper rod 6mm to 16mm (0.236" to 0.630") and aluminium rod 6mm to 20mm (0.236" to 0.790"), is equipped with quick release dies and an easily adjustable die setting mechanism.

PWM's top of the range model, the P1500 electro-hydraulic rod welder, will weld copper rod from 15mm (0.590") up to 25mm (0.984");



○ The P1000 hydraulic rod welder from PWM

aluminium up to 30mm (1.181"). Power consumption is limited to the hydraulic pump motor, making the P1500 very economical to operate.

No set up time is required and the weld cycle takes about four to five minutes, with the weld flash removed automatically on completion.

Video demonstrations of the EP500, P1000 and P1500 are available at [www.pwmltd.co.uk](http://www.pwmltd.co.uk)

Most non-ferrous materials, as well as

various alloys can be welded. As a specialist manufacturer of cold welding equipment for nearly 30 years, PWM is always happy to provide advice on cold weld techniques and applications.

The company's worldwide network of experienced agents, together with the UK-based team, offer a prompt and efficient service to the international wire and cable industry.

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



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# DO4000: Made to measure for power distribution cable integrity

IMPROVED testing of power distribution equipment during the installation of cables is provided by the Cropico DO4000 range of high performance, digital milliohm meters now available from Seaward.

The portable and rugged instrument features a number of advanced features to test and measure accurately the integrity of switchgear cable joints and other distribution equipment to ensure they are fully maintained and function correctly.

These include forward and reverse current measurement with auto averaging, true current zero, long scale length and a selectable measurement range from 40mW to 4kW with respective resolutions between 10mW and 1W.

Within the range, model 4001 also includes temperature compensation, with preset coefficients for copper and aluminium plus user settable coefficients for other materials. Temperature measurement over the range -50 to +800°C is also available.



○ The Cropico DO4000 from Seaward

Protection up to 415V rms is provided at the measurement terminals and push button operation is achieved easily by clearly marked function controls. Direct reading measured values are displayed on a four-digit LCD display.

Over range and low battery indication is also provided and warning LEDs illuminate when an open circuit lead condition is detected.

The 4000 series can be supplied with long leads to allow for accurate measurement of large blades, and a rechargeable battery option includes a battery pack, docking station and charger.

**Seaward Group - UK**  
Website: www.seaward.co.uk

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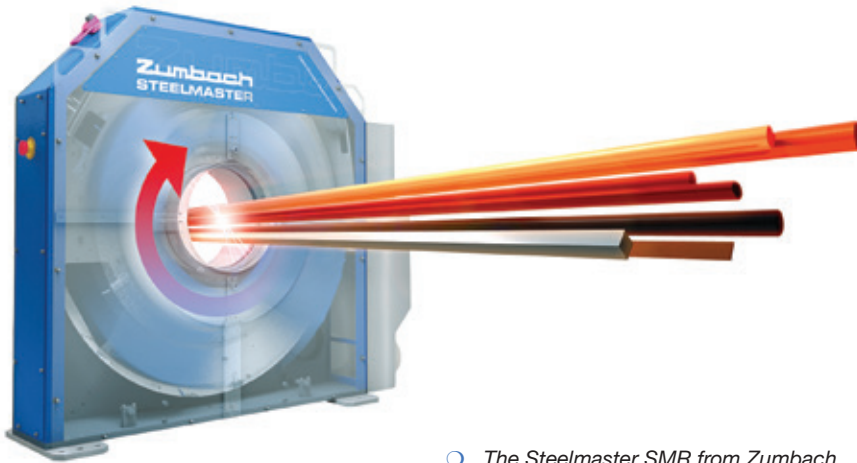


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○ The Steelmaster SMR from Zumbach

## 100 per cent quality inspection

ZUMBACH Electronics has developed a rotation-based laser scanning process that maps round and polygonal shapes up to 6,000 times per second – a first for the industry.

To make production processes as efficient as possible, modern in-line measurement devices are required not only to measure parameters such as diameter, ovality, width and height at very high speed, but also to instantly detect shape deviations and rolling errors.

Some suppliers claim that in steel production, mechanical solutions are more than adequate for these purposes. But not all manufacturers in the industry agree. Zumbach has been an innovation leader on the market since 1957, and its experience has shown that it pays to continually develop new technologies and solutions that deliver more precise measurements and thus contribute to higher productivity.

These very standards were applied to the Swiss manufacturer's latest product series, the Steelmaster SMR. Steelmaster units have been used in steel production for many years as a tried-and-tested solution to improve the monitoring of hot rolling and cold processes.

Until now, dimensional measurement and error detection have always been carried out by static or oscillating devices, depending on the application. These devices can measure with great accuracy the outer dimensions and diagonals of both round and non-round products such as squares, hexagons and flat products, regardless of twist and angle of twist.

But until recently the level of precision achievable in manufacturing processes involving high rolling speeds and short

lengths left much to be desired. The new Steelmaster SMR product generation comes with sophisticated technology in the shape of an innovative and much faster rotational measurement system.

With its superior performance, Steelmaster SMR opens up a whole new range of applications. The system is based on up to three fully synchronised high-tech laser measuring heads of the ODAC® series, which use an innovative rotational principle to measure outer dimensions, diagonals, diameters and cross-sections with 360° coverage.

Each ODAC® laser measuring head rotates at a speed of 100 rpm and maps the scanned products up to 2,000 times per second to create a precise product profile. In this way up to 600 profiles can be generated every minute. This allows manufacturers to significantly reduce scrap while maintaining stricter tolerances of ½ and ¼ DIN.

There are no longer any restrictions as to the shapes the system can cope with. The Steelmaster SMR models can handle any asymmetrical, polygonal and irregular shapes made of steel and metal up to a diameter of approximately 135mm and temperatures of up to 12,000°C.

The rotary movement isn't the only technical refinement, because there is also the unique, non-contact transmission of power and signals within the measurement unit.

The Steelmaster SMR software is very flexible, allowing data statistics, numerical and graphical displays, logs and so on to be freely configured in line with requirements and working practice in the production environment.

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

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## Two new portable non-destructive testing instruments from Keighley

EXPANDING its non-destructive testing (NDT) techniques and complementing its existing array of advanced instruments, Keighley Laboratories has invested in a portable conductivity meter and a pocket measuring instrument.

The meter measures the electrical conductivity of non-ferrous metals employing the eddy current method, and the pocket instrument is used for convenient and fast coating thickness measurement, using magnetic induction and eddy current technologies.

Both measuring techniques are applicable to the aerospace, automotive, petrochemical, engineering, heat treatment and other fields and complement the specialist NDT services Keighley Laboratories already offers to industry clients.

Through its technical services division, Keighley Labs covers many of the mainstream NDT methods, notably magnetic particle crack detection, dye penetrant testing, ultrasonic flaw detection, magnetic permeability, positive material identification, residual magnetism and ferrite determination, as well as radiography on a sub-contract basis.

Its NDT technicians are qualified to at least PCN Level 2 in several disciplines and are able to define and implement tests that detect and analyse material flaws that might otherwise give rise to critical component failure or quality control issues, either working in the laboratory or at the customer site. Many methods are covered by the company's UKAS accreditation, for testing at customer premises.

The electrical conductivity of a metal depends on various factors, such as chemical composition, the stress state of its microstructure and mechanical properties, so can be used for sorting metals and checking proper heat treatment, as well as identifying how well a metal conducts electrical current for anodising and other processes.

The company's new instrument will measure the electrical conductivity of non-ferrous metals, such as aluminium alloys, copper and even stainless steels, using the eddy current method in accordance with DIN EN 2004-1 and ASTM E 1004 standards and

determining conductivity of materials under paint or synthetic coatings up to 500µm thick.

Employed both in-house and for external clients, it will enable the company to monitor the hardness and strength of heat treated materials like aluminium alloys and inspect for any heat damage.

The same instrument will also be used for scrap metal sorting at customer sites, determining the purity of non-ferrous metals and verifying the homogeneity of alloys, as well as for the inspection of finished goods. It will even detect counterfeit coins.

The other NDT technique, for measuring the precise thickness of such applied coatings as paint, powder coatings, plastics and plated finishes, is equally important for ensuring compliance with thickness specifications, preventing defective coatings and subsequent corrosion, maintaining product quality and controlling production costs.

The company's newly-acquired pocket instrument will provide for non-destructive measurement of the total thickness of coatings up to 2,000µm thick, applied to ferrous and non-ferrous materials.

It will automatically recognise the underlying material, such as steel or aluminium, and select the appropriate one of two test methods, which are eddy current and magnetic induction in accordance with ISO 2178, ASTM D7091 and ISO 2300 standards.

With an on-board memory for up to 1,000 readings, it will allow Keighley technicians to measure paint, lacquer or plastic coatings on a whole range of metals, anodised coatings on aluminium components, electroplated zinc, chromium and copper finishes, and sputtered thin-film deposition.

As with all advanced NDT techniques, a considerable degree of operator skill and experience is required to apply these test methods properly, obtain the maximum amount of information, then interpret the results and provide feedback for the client.

**Keighley Laboratories - UK**  
Website: www.keighleylabs.co.uk

## Premiere of the Wire-Temp 6000

WITH the new temperature measurement, precision with Sikora's Wire-Temp 6000 reaches levels never seen before at the heating of a conductor with a conductor preheating.

The name says it all: The Wire-Temp 6000 continuously measures and controls contact-free the temperature of the conductor at the output of the Preheater 6000 with a permanent precise actual value of the conductor temperature for all conductor cross-sections, at all line speeds.

Thus, the Wire-Temp 6000 raises the benchmark for conductor preheaters to a completely new level. During production there are numerous influences on the accuracy of the conductor temperature.

Examples are the ambient temperature, the initial temperature of the conductor and, in particular, the development of the temperature of the so called 'short-circuit wheel' within the first 10 to 20 minutes after starting the production or after an interruption of the production.

The new Wire-Temp 6000 considers these factors and determines the conductor temperature independently from cross-section, material and surface structure of the conductor.

The Wire-Temp 6000 is optionally



○ The Preheater 6000 is now available with a temperature measurement and control

integrated in the proven preheater system Preheater 6000 and can easily be retrofitted in existing devices. In addition, it is available as an independent system without the Preheater 6000.

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

## Die drool elimination

Excess of material at the output of a die during an extrusion process, also called die drool, can significantly reduce the production speed of a cable.

A clear comprehension of the phenomenon for any kind of polymer is not yet available. Nevertheless there is some help to reduce the impact of such default: PTFE-coating.

Erocarb has recently introduced a new 3-layer coating for extrusion tools with great success. In order to save the concentricity, the mounting surfaces remain blanked hardened steel. The only surfaces in contact with the polymer will be coated.

As die drool appears on inside and outside surface of the extrudate, Erocarb recommends the coating of both tip and die.

Erocarb coating is applicable on hardened steel but not on carbide.

**Erocarb – Switzerland**      **Website:** [www.erocarb.ch](http://www.erocarb.ch)

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## Heads in comparison

DIAMETER gauge devices are an essential part of the Sikora product portfolio. These measuring devices deliver a brilliant performance with precise diameter measurement and with reliable lump detection. The Sikora App shows measuring results, trends, statistics or video signals of the Laser on the iPhone\* or other smartphones.

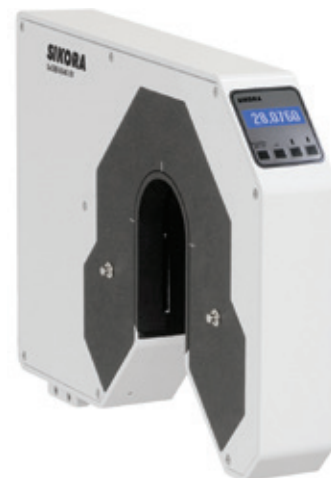
The Laser Series 6000 performs at an extremely high measuring rate of 2,500 measurements per second, each one with a high single value precision by default. With a dedicated accuracy of 0.2 micrometre and a repeat accuracy of 0.1 micrometre the diameter of tubes and hoses is continuously measured online.

A wide size range of gauge heads covers a diameter range from 50µm to 500mm. Three gauge head models of Laser 6000 Series are available for product diameters from 0.2mm to 78mm and combine a large number of features which help to simplify your daily production routine.

The high measuring rate of the diameter measuring devices progressively and effectively enables the detection of lumps and neck-downs on the product surface. This reduces the cost of investment and increases space on the line, since only one gauge head need be installed.

The LCD display and operator panel are directly integrated into the gauge head providing easier operation and process control. The operator can see the diameter results on the display at a glance. Simultaneously, the panel shows the diameter rated value and the control module can be activated. The control module automatically adjusts the diameter to nominal value via control of the line speed or extruder rpm.

The physical aperture of the gauge head is twice as big as



○ Laser 6040 XY with integrated display and control panel

the product range, permitting easy and safe feed-through of the product. A special feature is the pivoting head design. The gauge head can be temporarily swung out of the production line path if required. The bottom of the unit is open, so water or dirt fall through rather than contaminating the measuring field. The feeding of the connection cables is protected, directly in the gauge head stand.

In keeping with the multimedia generation, the Laser Series 6000 offers an optional Wi-Fi interface. Sikora provides its own special app for displaying measuring results, trends, statistics or video signals directly on compatible smartphones.

The app also offers the possibility to calibrate the gauge head according to ISO 9000. Correct operation can be proved by comparing test probe measurements against its calibration values which are scanned in via QR code, then the measured results are saved in a log-file which may be transferred via Wi-Fi to the quality management department.

\* iPhone is a trademark of Apple Inc, registered in the US and other countries. App Store is a service mark of Apple Inc

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



○ Vapormatt公司的Profelis, 电缆清洗组件

# 加强电缆行业 表层处理

随着订单的不断增长，Vapormatt公司近期向生产这一关键部门委派销售工程师的做法，说明了湿式喷沙表面处理工艺在电缆行业取得了成功。

湿式喷沙高水准的工艺一致性，在Vapormatt公司的多个应用中得到证明。这些应用包括在大量的电线电缆和带钢类产品中所使用的清洗、除油和除锈，以及蚀刻和锻面抛光。

新任命的销售经理David Clements表示，那些设计到旋转挤压、梳理电线、电

力电缆、带锯刀片、光纤电缆和高碳钢线的制造商正获益于Vapormatt技术。他说：“Vapormatt作为世界领先的湿式喷沙公司之一，为电缆生产商持续开发在线处理应用，不仅仅因为湿式喷沙技术具有明显的优势，取代了电线清洗上的机械和化学方法，具有高效环保的特点。”

正如公司对应用焦点的承诺，Clements先生提醒大家关注Vapormatt Profelis设备。该项设计可处理多种几何形状和材料的电线电缆产品，有效避免替代方法中使用危害较大的化学制品和潜在的污染风险。

充分自容式的Profelis含有两个相邻的可提供湿式喷沙，喷冲洗和干燥功能的单元，可生产出同时达到表面光洁、性能优异两个目标的高质量产品。

“我在一个激动人心的时刻加入该公司，期望着在它现有的成就上添砖加瓦，并努力实现Vapormatt公司成为电缆行业在线清洗的首选这一目标” Clements先生补充道。

**Vapormatt Ltd – 英国**  
网址: [www.vapormatt.com](http://www.vapormatt.com)

## 隆重推出Wire-Temp 6000



能够进行温度测量和控制的  
Preheater 6000 现在可投入使用

Sikora公司的Wire-Temp 6000具有温度测量的新功能，在导体传热和导体预热方面达到了前所未有的精度。它的命名就说明了一切：以预热器6000的输出为前提，在最大生产线运行速度下，Wire-Temp 6000持续测量并控制导体的非接触温度，导体所有横截面温度都为恒定精确的实际值。

因而，Wire-Temp 6000将导体预热器提升到一个全新水平。生成过程中，大量的因素可以影响导体温度的精确性，例如环境温度，导体的初始温度以及最重要的就是生产开始或者生产中中断后10-20分钟内所谓的“短路轮”温度的增加。

Wire-Temp 6000考虑了这些因素，独立地决定导体温度而不受导体横截面、材料和表面结构的影响。

Wire-Temp 6000 可整合进成熟的Preheater 6000系统，并可翻新现有设备。另外，在没有Preheater 6000的情况下，亦可独立运作。

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

## 中国公司被新十字机头征服

Erocarb公司在过去的30年内，因它的十字头而负有盛名。但新一代扁平电缆的十字头显示了它正在不断地改进它的产品，中国操作员使用它几个小时之后就选择了新一代产品。



Erocarb公司新一代十字头

它的优势很明显：尺寸和重量的减小，易于拆解，简单的馈入并且和前述工具的兼容。从微量宽度的20毫米直到高达150毫米，分为五种型号，标准套件和PVC完美适合，甚至HFFR都可以在这些十字头上运行。十字头的连接部分处于挤压线的垂直线上，适配器线程和初始线程是分离的。

Erocarb SA – 瑞士  
网址: [www.erocarb.ch](http://www.erocarb.ch)

## DO4000: 专用的配电电缆完整性检测工具

电缆安装过程中，配电装置的改进测试由具有高性能范围、数值毫米精度并已从Seaward 购得的Cropico DO4000提供。

此便携式且坚固的装置，在对切换装置电缆接口和其他配电设备完整性的测试和测量方面，有很多先进功能，有助于设备完好的保养以及正常工作。

这些设备含有前向和反向电流测量功能，具有自动均流，实际电流零点，大刻度长度，以及一个从40毫欧到4千欧测量范围的备用测量设备。分辨率从10微欧到1欧一一对应。

在该范围内，模型4001还包括温度补偿功能，以及预设铜铝比例系数和用户可自行选择材料的比例系数。即使溢出了-50 到 +800度的范围，温度测量仍可进行。

测量终端可在电压有效值高达415伏的情况也可对自身提供保护。功能控制键的清晰标示使得按钮操作简单易懂。四位有效数字的测量值可直接从显示器上读出。

开环导线被检测到，测量范围和低电量通过LEDs显示。4000系列提供的长导线，可对大型叶片的精确测量。可选择安装一个充电电池，包括电池、基座和充电器。



Cropico DO4000,  
产自Seaward公司

Seaward Group – 英国  
网址: [www.seaward.co.uk](http://www.seaward.co.uk)

## 两种新型便携式无损检测仪器

为了完善其大量先进设备，Keighley实验室最近研发了一个便携式电导率测试仪，推出无损检测技术。该技术采用涡流法可测量有色金属的电导率。使用磁感应和涡流技术的袖珍设备，亦可方便快速地测量涂层厚度。这两种方法都可应用于航空航天、汽车、石化、工程、热处理和其它领域，完善了Keighley实验室市场上给业界客户的无损检测专业服务。

Keighley实验室的技术服务部，涵盖了许多主流的无损检测方法，尤其是磁粉探伤、染料渗透测试、超声波探伤、磁导率、正极材料辨识、剩磁法和铁素体测定法。除此以外，该公司还供应合同基础上的造影法。该公司的无损检测技术在多个学科至少达到PCN二级标准。

鉴于某些材料缺陷可引起关键组件失效或者操控问题，该技术可对材料缺陷的侦测和分析实验进行定义和完善。这些操作，在Keighley实验室或客户指定地点都可进行。公司UKAS认证体系中已包含客户指定场所的多种测试方法。

Keighley Laboratories – 英国  
网址: [www.keighleylabs.co.uk](http://www.keighleylabs.co.uk)



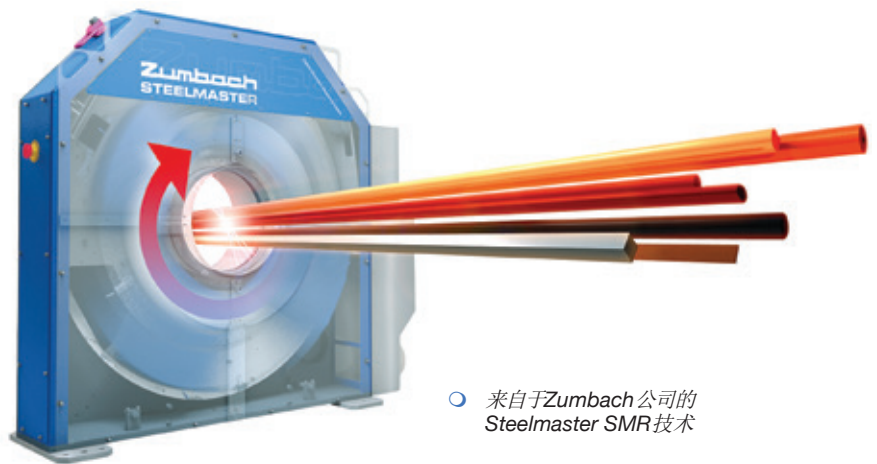
# 100%质量检测

ZUMBACH电子公司提出了一种基于旋转的激光扫描程序，它可以绘制圆形和多边形且每秒高达6,000次，为业界第一。为了使生产过程尽可能的高效，不仅仅要求现代生产线上的测量仪器能够在高速条件下测量诸如直径、椭圆、宽度和高度等参数，还要能够瞬间测量形状偏差和轧制错误。

一些供应商宣称，在钢铁生产中，机械加工对于这些目的来说是绰绰有余的，但并不是所有的制造商都同意该观点。Zumbach公司从1957年以来，在市场上一直都是创新的领导者，累积的经验验证其坚持不懈所创造出带来的更高测量精度新技术和解决手段，具有更高的生产效率。正是这些工业标准被应用到瑞典制造商最新的产品系列中，Steelmater SMR标准，Steelmater套件作为一种用来改进热轧和冷轧过程的监测，已试用且测试过的解决方案已被业界使用多年。

直到现在，取决于应用的不同，人们经常采用静态或者震荡仪器等方式用来进行尺寸测量和错误检测。这些设备以很高的精度来测量圆形产品的外部尺寸以及非圆形产品，诸如扭曲或者扭转角的正方形、六角形和扁平型产品的对角线长度等等。最近，涉及到高速轧制和小尺寸的生产过程中可达到的精度水平依然需要长足的进步。Steelmater SMR的新一代产品，在外形创新和更加高速旋转测量系统方面具有先进的技术。

Steelmater SMR以其卓越的性能，开创了一个全新的应用领域。该系统以三个完全同步的高科技ODAC®系列测量头为基



来自于Zumbach公司的 Steelmater SMR技术

础，ODAC®系列测量头使用了创新的旋转原理以360°覆盖面来测量产品的外部尺寸，对角长度、直径和横截面。

每一个ODAC®激光测量头以100转/分钟的速度旋转，以高达每秒钟2,000次的扫描来绘制产品用以创建一个精准的产品轮廓。以这种方式，每分钟可以生成高达600副轮廓图。这也使得大幅度降低制造商的报废率的同时采用更高的 1/2 和 1/4 DIN公差标准。对系统再也不会再有外形限制，Steelmater SMR可以处理直径高达接近135毫米、温度高达12,000度的非对称，多边形和不规则外形的钢铁制品。

旋转运动不是唯一的技术改进，因为还有独特的，非接触的计量单位内的能量和信号的传输。Steelmater SMR软件非常灵活，允许数据统计，数值和图形显示，日志以及按不同需求和生产环境下工作练习来进行自由配置。Zumbach为不规则几何或者非对称外形开发了EPM（增强外形管理，专利申请中）系统。

特别是，它能够捕捉和计算在某些轧制工序或者随后的剥离/研磨作业中突变产生的多边形。

对于任何外形，它不仅能以高精度来测量最小、最大和平均半径，还能真正全面的测量ISO/TS 12181-1定义的偏差RONT。

另一个可选模块是FPS，尤其适合三辊块，它可以准确的计算与那些可以通过人工三点微米级螺钉确定的直径值相对应的值（如果两次读数都和室温相关）。FPS模块还可以计算对初始轧制设置十分关键的“触摸”和“距离”的直径。软件包中的回归分析功能使得扭曲和扭转角不再影响测量结果。这就意味着能取得低报废率和严格遵守公差标准的效果。这项技术的运行，不受产品位置、振动、材料温度和光强等条件限制。

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

## PWM公司品质可靠的杆材焊机

PWM公司的冷压焊机，以其精密加工以及在有色金属上得到坚固，永久可靠的焊点，给生产商提供一个快速、经济的方法可将直径高达30毫米的圆杆焊接在一起。

相比于电气对焊更加迅捷、更加清洁以及更加绿色，冷焊工艺焊接是永久可靠，且相比与没有牺牲其父级材料电气完整性的工艺来说，此焊接更加坚固。

PWM公司的杆焊机有P1500，P1000和EP500等型号。这些设备设计制造于PWM公司英国本土的工厂。这些坚固的重型机械具有高效节能、维护成本低以及操作简单等特点。

EP500电动/气动冷焊机是PWM公司最畅销的产品之一，设计坚固、操作简单，可焊接直径为5-12.5毫米的铜杆和5-15毫米的铝杆。

结构紧凑的液压式P1000机器，可焊接直径为6-16毫米的铜杆和6-20毫米的铝

杆，配备了快速释放模具和简易可调模具设置机制。PWM公司的顶级设备，P1500型号电-液驱动杆焊机可以焊接直径从15毫米-25毫米的铜杆，最大直径为30毫米的铝杆，耗电量受限于液压泵电机，使得P1500型号非常经济。无需准备，一个焊接周期消耗4-5分钟，一旦完成焊接闪光会自动移除。EP500，P1000和P1500的视频录像可登陆[www.pwmltd.co.uk](http://www.pwmltd.co.uk)



P1000液压式杆材焊机，源自PWM公司

大部分有色金属来和许多合金都可以进行焊接。作为一个从事冷焊设备近30年的生产商，PWM公司一直乐意在冷焊技术和应用方面提供建议。该公司遍布世界的经验丰富的代理人网络和英国国内的团队一起为国

际电线和电缆工业提供迅捷而高效的服务。

PWM Ltd – 英国  
网址: [www.pwmltd.co.uk](http://www.pwmltd.co.uk)

# India

# Insight

## India is securing its power grid

IN the wake of last year's electrical blackout that affected about 670 million people, state-owned Power Grid Corporation of India Ltd is implementing several new smart grid pilot projects.

A project being implemented in India's northern region will protect the grid and provide more energy security. The initiative involves the deployment of a wide area measurement system – a platform that provides complete monitoring, protection and control of the power grid.

Integral to the new platform is a phasor measurement unit (PMU), or synchrophasor; a device that measures voltages and currents at multiple, diverse points on the grid to provide the real-time status of power quality.

Similar pilot projects in other regions are also in various phases of production. In addition, Scindia has stated that a similar project covering all states and the Inter State Transmission System network is awaiting regulatory approval by the Central Electricity Regulatory Commission (CERC).

To upgrade distribution, Power Grid has started work on a smart grid pilot project previously approved for Puducherry in the southern region.

An MOU was signed with the Government of Puducherry in March 2012. Power Grid says 63 organisations are involved in executing the project.

Power Grid Corporation – India  
Website: [www.powergridindia.com](http://www.powergridindia.com)

## Dynamic Reliance

Reliance Communications, India's fully integrated telecommunications service provider, and Alcatel-Lucent have announced a first-of-its-kind, end-to-end network managed services contract aimed at delivering superior customer experience in Eastern and Southern India up to 2020.

The contract, which extends RCOM's existing relationship with Alcatel-Lucent to over \$1bn, will deliver world-class, seamless voice and data communications services to RCOM customers.

This is India's first fully integrated strategic agreement and one of just a few globally to meet the fast evolving customer demand for communications applications and services in one of the world's most dynamic telecom markets.

Alcatel-Lucent will enhance Reliance Communication's operations, and synergise hitherto independent wireless and wireline teams to form a single network management organisation.

This optimised integration of resources will help Reliance Communications to strengthen its focus on growing its business, with top-of-the-line services to customers.

Alcatel-Lucent will also drive a standardisation of the tools, processes and best practices that are applied across RCOM's businesses.

**Reliance Communications – India**

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

## Solar power takes off

Cochin International Airport is set to become the first airport in India to use solar power for running its utility grid system.

A Kolkata-based solar module manufacturing company, Vikram Solar, will install a 100kW solar power facility.

Giving details of the system, a senior company official said Vikram Solar will design, install and commission the solar photovoltaic power system.

"The panels will generate DC electric power, which unlike the general practice, [will] not be fed directly into the utility grid," Gyanesh Chaudhary, director of the company said.

He explained that inverters will convert the direct current output from the solar array into a grid-compliant AC voltage for lighting in the terminal building. Energy production is estimated to be 148MWh per year, with a capacity of 100 kilowatts-peak (kWp).

Terming the initiative of Cochin Airport Authority as an "excellent opportunity and a path-breaking vision" to encourage use of green energy for critical service utilities at the airport, Shaibal Ghosh, the company's president, said:

"It would open the doors for all other airports and utility

services for use of sustainable 'Clean and Green Power' and help support to re-energise the environment."

**Vikram Solar – India**

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

## Rope investment

Bharat Wire Ropes (BWR) is to invest in a new plant at Chalisgaon, Maharashtra, to expand its total manufacturing capacity to 76,000 tonnes.

The wire rope manufacturer's capacity currently stands at 10,000 tonnes per year. Work on the project will be completed in June 2014.

"The Chalisgaon project will be state-of-the-art, with integrated pickling, patenting galvanising, wire drawing, stranding and closing – all under one roof," said promoter and managing director ML Mittal.

"The machinery will be imported from Germany, Italy and Spain. Half of the production will be exported across the globe and the remaining will be sold in Indian markets," he added.

Established in 1986 in Mumbai as a specialist wire manufacturing company, BWR now makes strands, wire ropes and slings for use in general engineering industries, fishing, elevators, cranes, material handling, onshore/offshore oil exploration, ports, shipping and mining, as well as supplying railways, navy, air force and other government and semi-government organisations, and exporting. Its portfolio covers a diameter range from 6mm to 125mm.

**Bharat Wire Ropes – India**

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

## Industry bodies call for equal power

Industry and trade associations from different parts of Tamil Nadu met during December to discuss the issue of equitable distribution of power.

According to R Palaniswami, honorary secretary, Indian chamber of commerce and industry, Coimbatore, while Chennai division had its power cut for two hours a day, in the rest of the state power cuts extended to between 14 and 16 hours per day.

Though repeated representations have been made to the chief minister, the electricity minister, and to the chairman of Tangedco, (Tamil Nadu Generation and Distribution Corporation) the situation had not improved, but was "deteriorating day by day". He said some industries were facing threat of closure as a result.

Mr Palaniswami said that, with a view to discussing the issue of equitable distribution of power, a meeting of various industry and trade associations from all over the state was to be held in Coimbatore last December.

## Is the Internet a telecommunications service? The US says not, and rejects its inclusion in an otherwise technical ITU document

The World Conference on International Telecommunications 2012 treaty revision conference ended 14<sup>th</sup> December with a plurality of International Telecommunication Union member countries agreeing to sign off in its final document.

Of the 193 member states of the specialised United Nations agency, 155 were represented at the two-week conference in Dubai; 144 countries, all current in their dues to the organisation, were eligible to vote; 89 approved the final document.

Among the countries opposing revisions to the International Telecommunication Regulations (ITRs) are the United States, the United Kingdom, Canada, Australia, Denmark, the Czech Republic and Sweden. Other countries that expressed initial reservation about the revisions include Japan, India, and all other European nations that sent delegates, including Germany, France and Poland.

On the other side, support for the proposed revisions was strong among African, Arab and Latin American countries. Russia, which originated many of the revisions opposed by the United States, signed the final document, as did China.

So much for the attendance and voting statistics. What are the revisions that prompted the East-West and North-South divides within an organisation whose narrowly defined mission is “strengthening emergency communications for disaster prevention and mitigation, especially in less developed regions”?

The main bone of contention was the Internet, the US having consistently maintained that it should not be mentioned in the proposed treaty revision, which considers such technical matters as international telephone connectivity. The US view is that Internet inclusion could lead to curbs on free speech and replace the bottom-up form of Internet oversight with a government-led model.

Accordingly, the American delegation withheld its assent to an expansion of ITR scope from “recognised operating agencies” to “operating agencies,” a broader term that the US State Department takes to include Internet service providers.

Before rejecting the proposed treaty, the United States had won several critical victories in the negotiations. For example, proposals to require Internet companies to pay telecommunications companies for traffic on their networks, sought by some African and Asian nations and by European phone companies, were removed.

### The ‘open Internet’ under threat?

The adamant American opposition to any conflation of telecom and Internet was reflected in a 14<sup>th</sup> December statement by the Internet Society (Reston, Virginia) that a host of delegations in Dubai had “made it very clear that Internet issues did not belong in the ITRs and that they would not support a treaty that is inconsistent with the

multi-stakeholder model of Internet governance.” Terry Kramer, who headed the American delegation, said that in their refusal to sign the treaty the United States and its supporters had headed off a significant threat to the “open Internet.”

As noted by Eric Pfanner of the *New York Times*, the “messy end” to the proceedings highlighted intractable differences of opinion over the ever-growing importance of digital communications networks as tools

for personal communications, global commerce, political proselytisation, and even unconventional warfare. (“US Rejects Telecommunications Treaty,” 13<sup>th</sup> December).

But the Internet apparently trumps every other issue. Hamadou Touré, the secretary general of the ITU, told Mr Pfanner, “The word ‘Internet’ was repeated throughout this conference and I believe this is simply a recognition of the current reality. The two worlds of telecommunications and Internet are inextricably linked.”

① While no provisions on the Internet appear in the treaty text, the non-binding appendix to the final document does call on the ITU “to play an active and constructive role in the development of broadband and the multi-stakeholder model of the Internet.”

On his departure from Dubai the leader of the American contingent discounted any direct impact from a revised treaty. He did not, Mr Kramer told reporters, “see a lot of near-term or intermediate-term risks here, because it’s not a legally binding document.”

② Additional perspective on the final document to come out of the World Conference on International Telecommunications 2012 was supplied by the European Commission.

The EC noted in a 14<sup>th</sup> December statement that signatory countries account for only a small proportion of global telecom traffic.

The revisions to the ITU regulations are not set to go into effect until 2015.

### A need for HetNets to handle data traffic is seen boosting annual shipments of small cells to 5 million by 2017

According to a report from the London-based research firm ARC-chart, rising data traffic and the need for carriers to deploy heterogeneous network (HetNet) architecture to handle the load will lead to 5 million

annual shipments of small cells by 2017. The report, which looks at the wider mobile data traffic market, also forecasts 1.4 million macrocell shipments in 2017.

Vendors and chipset makers including Ericsson, Alcatel-Lucent, Nokia Siemens Networks, and Qualcomm have been talking up HetNets as a means of helping carriers to expand capacity in their mobile networks without relying on traditional base-station deployments. Small cells are a key part of that equation.

Phil Goldstein of FierceWireless (3<sup>rd</sup> December) pointed out that ARCchart's outlook for small cell shipments "is remarkable considering that the firm forecast just 261,000 annual small shipments for 2012."

ARCchart predicts a continuing trend for carriers to deploy small cells as a dense network capable of adding capacity to high-traffic areas.

## High-speed broadband access to the Internet tops 72 per cent in Europe

According to figures released 18<sup>th</sup> December by Eurostat, the statistical office of the European Union, more than three-quarters of households across the 27 nations of the EU had Internet access in 2012, compared to just under 50 per cent in 2006. The growth in broadband access has been even more striking, with fully 72 per cent of Europeans now able to avail themselves of a high-speed connection to the Internet, against just 30 per cent with such access six years ago.

The highest levels of broadband access were seen in the northern member-states of the EU, with Sweden (87 per cent), Denmark (85 per cent), the Netherlands (83 per cent), Germany (82 per cent), and the UK (80 per cent) showing the greatest penetration. But even in Italy and Greece, countries harder-hit by economic crisis, more than half of all households had a broadband connection.

Use of social media was found by Eurostat to be highest in Portugal, where fully 75 per cent of Internet users post messages to Twitter, Facebook, and similar services.

Comparable online activity was lower among users in Germany (42 per cent) and France (40 per cent), and lowest in the Czech Republic (35 per cent).

Eurostat also identified the tiny Baltic countries as Europe's leaders in reading newspapers online. Some 90 per cent of Internet users in Estonia, Latvia and Lithuania access Internet news sites. In France, only 38 per cent of respondents said they read news online.

Eurostat published its findings in advance of a policy speech by Europe's Commissioner for Digital Agenda Neelie Kroes. Among the topics she was expected to address are further broadband growth and possible changes to EU copyright law.

### Elsewhere in telecom . . .

Ⓒ Volvo Car Group on 17<sup>th</sup> December announced that it will use Ericsson's Connected Vehicle Cloud to allow drivers and passengers in its cars to access services available in the cloud. The network vendor, also Swedish, said users will be able to connect with applications for information, navigation and entertainment from a screen in the car.

Volvo is Ericsson's first customer for the Connected Vehicle Cloud platform. The carmaker said it plans to partner with Internet radio providers, city governments, highway authorities, toll-road operators and others.

Ⓒ Seeking to extend its global dominance in personal computers to mobile phones and tablets, China's second-largest vendor of smartphones started in November to sell them in Russia. Lenovo Group Ltd is offering its S880 and P700i models in Russia, its fifth overseas market for the devices, spokesman Chris Millward said in a 28<sup>th</sup> November telephone interview with *Bloomberg News*.

In the four months to that point, Lenovo – which introduced its first touch-screen handset in China in 2010 – expanded its sales to India, Indonesia, Vietnam and the Philippines. The company's mobile Internet and digital home unit, which makes smartphones, more than doubled revenue to

\$1.31 billion in the first half of last year. Total sales for the period rose 11 per cent to \$8.67 billion.

Ⓒ Just a day after having scored a victory in the US with over the maker of iPhones, Korea's Samsung Electronics on 18<sup>th</sup> December said it was dropping lawsuits aimed at banning the sale of Apple Inc products in Europe. Over the previous 18 months the world's two leading smartphone makers had been locked in patent disputes in at least ten countries. Apple began the lawsuit series when it accused Samsung of copying its best-selling iPhone and iPad.

On 17<sup>th</sup> December a judge rejected Apple's request for a ban on the sale of Samsung Electronics smartphones in the United States. While the Korean company did not say that it would altogether abandon its quest for compensation at law, it announced that it was dropping its effort to stop the sale of Apple products in Britain, France, Germany, Italy and the Netherlands.

Ⓒ China Telecom Corp announced that it has introduced pre-paid card products that allow third generation, or 3G, network users to buy the ability to transmit specific amounts of data. The carrier is the first Chinese telecom operator to offer wireless network traffic products to customers.

China Telecom said in a statement that, compared with older-type telecom contract plans, prepaid data cards are convenient to purchase, flexible in use, and targeted toward specific amounts of data demand.

As reported by Shen Jingting in *China Daily* (12<sup>th</sup> December), China Telecom offers 3G network data cards for 60 megabytes (MB), 150MB, and 300MB of data. The price for a 60MB card is 10 yuan (\$1.60).

"Data traffic management is a very important task for telecom carriers, especially when they enter the mobile Internet age," Le Huihua, senior product manager of China Telecom's operation management division, told *China Daily*.

## 互联网是否可以定义为电信服务?美国认为不是,同时也拒绝参与国际电信联盟 (ITU) 另一项技术性文案

12月4日, 2012年国际电信会议落幕, 在该会议上, 多数国际电信联盟的成员国就条约修订问题签署了最终文案。在这个联合国特殊机构的193个成员国中, 有155个成员国出席了这个为期两周、在迪拜召开的会议; 144个当前向该机构缴纳会费的成员国拥有投票权; 89个成员国为最终文案投了赞成票。

对于修改国际电信条例 (ITRs) 提出反对意见的成员国包括: 美国、英国、加拿大、澳大利亚、丹麦、捷克共和国和瑞典。其他对修改意见最初持保留意见的成员国包括日本和印度, 同时包括德国、法国和波兰在内的其他欧洲国家都派遣了代表。另一方面, 非洲、阿拉伯和拉丁美洲国家则强烈支持该修订方案。

大多数修改意见由俄罗斯提出, 但都遭到了美国的反对, 和中国一样, 俄罗斯最后还是签署了最终文案。此次会议的出席率和投票统计数如此之高, 那么究竟是什么修订方案会使同一机构中东西方和南北面的分歧如此之大呢? 该机构的使命可狭义定义为“加强防灾减灾的紧急联络, 特别是在发展较落后的地区。”

争论的焦点在于互联网——美国一贯主张互联网不应列入拟定的条约修订中, 原因在于该条约将互联网这一技术项目视为国际电话连接方式。而美国则认为将互联网加入到通信条约中将会限制言论自由, 并导致由政府主导的互联网监管制度——这一由下而上的模式被取代。就将国际电信条例 (ITR) 的范围从“经认可的运营机构”扩大到“运营机构”方面, 美国代表团保留了赞成意见, 美国国务院据此可以将互联网服务供应商囊括到这一范围中。

在驳回这一条约修订方案之前, 美国已经在谈判中获得多项胜利。例如, 一些非洲和亚洲国家以及欧洲电话公司所主张的、关于要求互联网公司向通信公司支付流量费的提案遭到了驳回。

### “开放互联网”受到威胁?

12月14日, 互联网协会 (弗吉尼亚州雷斯顿) 发表的声明显示了美国对于合并电信和互联网的强烈反对意见, 迪拜的多数代表团都赞成“互联网问题不应归类到国际电信条例中, 同时他们也不支持与多利益互联网监管模式背道而驰的条例。”

美国代表团团长Terry Kramer称他们拒绝签署该条例, 同时美国及其支持者已经阻止了“开放互联网”的巨大威胁。

纽约时报 (New York Times) 的Eric Pfanner指出, 这一进程的“草草收场”表明了作为个人通信、全球商业、政治变革以及非常规战争工具的数字通信网络, 对于其日益增长的重要性不同意见间的棘手差异。(“美国反对电信条例”, 12月13日)

但是互联网明显战胜了这些问题。国际电信联盟的秘书长Hamadoun Touré告诉Pfanner先生: “‘互联网’这一词在会议上不断地被提出, 我相信这是对当前事实的认可。通信业和互联网这两个领域是密不可分的。”

尽管在条例文本中未有关于互联网的相关规定, 但是最终文案中不具约束力的附录则呼吁国际电信联盟“要在互联网宽带和多利益模

式发展方面发挥积极和建设性的作用。”

在美国代表团团长离开迪拜时, 他没有谈及修改条例后的直接影响。Kramer先生对记者这样说道: “由于该条例不是一个合法并具有约束力的文案, 因此近期或中期会引发一系列的风险。”

欧洲委员会就2012年国际电信会议所达成的最终文案提出了一个附加的观点。欧洲委员会在12月14日的声明中指出, 签约国仅负责小部分的全球电信传输。

直至2015年, 国际电信联盟的修订案才会生效。

### 因处理数据流量而对HetNets产生的需求似乎将使小型基站的年装运量急速增长, 到2017年估计将达到500万

根据驻英国的调查公司ARCchart的一份报告显示, 数据流量上升以及各运营商希望发展异构网络 (HetNet) 架构用以处理负载的需求, 将使小型基站的年装运量到2017年为止达到500万。这份聚焦在更大范围的移动数据流量市场的报告中, 也预计了到2017

年为止, 蜂窝式基站的装运量将达到140万。

包括爱立信公司 (Ericsson)、阿尔卡特朗讯 (Alcatel-Lucent)、诺基亚西门子通信公司 (Nokia Siemens Networks) 和高通公司 (Qualcomm) 在内的供应商和芯片制造商赞成HetNets不失为一个帮助运营商扩展移动网络容量的方法, 同时此方法也无需借助传统的基站配置。小型基站是该综合建设中的关键部分。

FierceWireless的Phil Goldstein (12月3日) 指出, ARCchart对于小型基站装运量的预期“是值得注意的, 原因在于该公司对于2012年小型基站的年装运量的预计数仅为26.1万。”

ARCchart预测运营商将继续通过发展小型基站用以增加高流量区域的密集网络容量。

### 欧洲高速宽带互联网连接达到72%

根据欧盟统计局 (Eurostat), 即欧盟的统计办公室于12月18日发布的数据显示, 2012年欧洲27个国家有75%以上的家庭拥有互联网连接, 而2006年这一数值低于50%。宽带连接的发展速度也十分惊人, 目前72%的欧洲公民都拥有了高速互联网连接, 而6年前这一比例仅为30%。

最高水平的宽带连接在欧洲北部成员国中已随处可见: 瑞典 (87%)、丹麦 (85%)、荷兰 (83%)、德国 (82%) 和英国 (80%) 的宽带连接都已经深入了千家万户。

即使是在意大利和希腊这样遭受经济危机的国家, 50%以上的家庭也拥有了宽带连接。

欧盟统计局的数据显示葡萄牙的社交媒体使用比例最高, 约有75%的互联网用户将信息上传至推特网 (Twitter)、脸谱网 (Facebook) 以及其他类似的服务平台。相比较而言, 德国 (42%) 和法国 (40%) 用户的在线活动比例较低, 捷克共和国的比例最低 (35%)。

欧盟统计局同样将波罗的海地区的小型国家视为欧洲在线阅读报纸的领导者。在爱沙尼亚、拉脱维亚和立陶宛, 约90%的互联网用户会登录新闻网站。在法国, 只有38%的受访者表示会在线阅读新闻。

在数字议程的欧洲专员Neelie Kroes发表政策演说之后, 欧盟统计局发表了其调查报告。她希望发布的论题还包括宽带的后续发展以及欧盟专利权法案可能的更改。

## Automotive

### The Wanxiang America subsidiary of a large Chinese auto parts maker has big plans for a Massachusetts battery company

Wanxiang Group, a manufacturing conglomerate based in Hangzhou, was highest bidder in an auction for assets of auto battery maker A123 Systems, which filed for bankruptcy in October after chronic losses and a damaging battery recall. The deal would expand Wanxiang's share of the global market for lithium-ion batteries used in such plug-in electric hybrids as the Fisker Karma (base price: \$102,000), an early "green car" whose production in the US was halted last year by the A123 bankruptcy. According to A123 (Waltham, Massachusetts), Wanxiang has agreed to pay \$256 million to acquire its automotive and commercial operations, including three factories in the United States. Wanxiang would also take control of A123's fledgling operations in China, including its interest in a joint battery venture with Shanghai Automotive, the country's biggest carmaker.

Bill Vlasic, the Detroit bureau chief for the *New York Times*, noted that the sale excludes A123's business with the US government and its military contracts. That portion of the company is to be sold to Navitas Systems, a small energy company based in Illinois, for \$2.2 million. A123's chief executive, David Vieau, told the *Times* that spinning off the government-related business to an American buyer was meant to quell concerns about transferring sensitive military technology to China. ("Chinese Firm Wins Bid for Auto Battery Maker," 9<sup>th</sup> December). From the start, Mr Vlasic wrote, some members of Congress had opposed Wanxiang's efforts to buy A123, which had received a \$249 million federal grant to spur domestic manufacturing of batteries and was a centrepiece of the Obama administration's \$2 billion programme to stimulate the electric-car industry in the United States. The deal for A123 requires the approval of a US bankruptcy judge; but also of the Committee on Foreign Investment in the United States, a broad-based group led by the Treasury Department that reviews foreign takeovers of American companies.

Mr Vlasic recalled that Wanxiang began its aggressive pursuit of A123 earlier in the year, when the Chinese company offered emergency loans to keep the failing battery maker afloat. Wanxiang outbid three other companies in the auction conducted for the bankruptcy court, one of which, Johnson Controls, based in Wisconsin, had tried to buy A123 as it was entering bankruptcy.

❖ Pin Ni, the president of Wanxiang's wholly owned and fast-growing subsidiary Wanxiang America, said the deal would accelerate its growth in the American automotive and alternative-fuel industries. The privately owned company – which moved into its Chicago-area headquarters in Elgin, Illinois, in 2001 – owns several auto parts firms and other companies and employs 3,000 American workers.

Mr Ni expressed confidence that Wanxiang was the best owner for A123, which he said would need considerable

investment to meet production commitments for auto-makers like Fisker Automotive (Anaheim, California) and General Motors. He told the *Times*: "We think adding A123 to our portfolio of businesses strongly aligns with our strategy for automotive and clean-tech industries in the US [and] we are committed to making the long-term investments necessary for A123 to be successful."

❖ The A123 news is the latest in a series of announcements of sales of North American manufacturing and energy companies to Chinese firms both privately held and state-owned. In the previous week, the Canadian government cleared a \$15 billion takeover of Nexen, the energy giant, by the state-owned China National Offshore Oil Corporation, or CNOOC.

## Telecom

### The perceived threat that will not go away: a United Nations takeover of the Internet

"In calendar year 2012, the search giant Google has spent more on Washington DC lobbyists than in any previous year, and watchdog site OpenSecrets.org lists the company as a top contributor to 118 Congressional members, on both sides of the aisle. Judging by the vote, the approach seems to be working." Reporting from San Francisco in the Register, the British-based online tech publication, Neil McAllister was referring to the unanimous 5<sup>th</sup> December vote of the US House of Representatives in favour of a resolution to keep the Internet "free from government control."

The move, clearly aimed at those attending the United Nations World Conference on International Telecommunications (WCIT) in Dubai, was an extraordinary display of legislative bipartisanship: 397 in favour of the resolution, none opposed. With a new information and communications treaty on the WCIT agenda, the US Senate had already passed its own version of the House resolution, also in a unanimous vote, in September. ("Entire US Congress Votes Against ITU Control of Internet," 5<sup>th</sup> December).

While wryly observing that this mightily united front was marshalled against "a thing nobody has proposed," Mr McAllister took note as well of broader-based concern that the UN's International Telecommunications Union (ITU) might be planning to use the WCIT to stage a power grab for governance of the Internet. In November, the European Parliament approved a resolution similar to that of the US House. For its part in the campaign to forestall the ITU, Google launched a website seeking supporters of a "free and open Net." The site, picturing a schoolgirl seated at her computer and facing a brick wall topped by barbed wire, warns that an unchecked ITU could require services like YouTube, Facebook and Skype to pay new tolls in order to reach people across borders.

Google's worry that the ITU could limit access to information – particularly in emerging markets – might be entirely sincere.



But fee-based Internet usage is also fairly transparently a pocketbook issue. An earlier Register article (21<sup>st</sup> November) suggested that Google fears any “plan to make it pay for stuff.” Mr McAllister noted that, as far back as June of last year, the ITU had been at pains to deny any threat of an Internet takeover by the UN. In response to the European resolution, ITU representative Richard Hall blogged: “No proposals exist to give more power to ITU as an institution, which does not have any regulatory authority over any networks whatsoever.” But, according to the Register: “Those assurances have seemingly done little to calm those who see sinister motives in the ITU’s proposals, including such organisations as [the environmental group] Greenpeace and the International Trade Union Confederation. And, of course, Google.

## The ten-digit phone number may be on its way out, but reports of its imminent demise are probably premature

Did AT&T’s 7<sup>th</sup> November announcement that it wants to get out of the old-school telephone business and transition to an all-Internet Protocol (IP) network bring us to a watershed moment in telecommunications? Stacey Higginbotham of *GigaOM* thinks so. But, “for the millions out there who can’t tell circuit-switched voice from voice over the Internet (VoIP),” she suggested that a bigger issue is what the

transition will mean for telephone numbers. (“In a World of Facetime and Kik, What Happens to the Phone Number?,” 1<sup>st</sup> December).

Theoretically, phone numbers would not be needed in an all-IP world in which everyone has the equivalent of a personal URL. But this single-method contact requires smarter services or parameters on the back end than are currently available from traditional telecoms that still see the service they provide as voice, data, or video. Accordingly, while the looming end of the circuit-switched network has revived talk of the fate of the 10-digit number, Ms Higginbotham believes that it is here to stay at least for another decade. She has inquired into how “digits will transition to the digital” over that period.

According to Tom Steffans of iNetwork, the wholesale division of *Bandwidth.com*, (Raleigh, North Carolina), the phone number is slated for “upcycling” for use in new ways. The sixth-largest US telecom on the basis of the number of its telephone numbers, *Bandwidth.com* provides the IP platforms for such clients as Pinger, Google Voice, and Twilio. Some of its products are phone number-based, with iNetwork offering customers an API (application programming interface) and taking care of the legal and mechanical logistics of finding and managing the numbers. The clients utilise those numbers not for voice calls but, in the case of Pinger, for an over-the-top-texting service; or Google, which uses a phone number to deliver a voice service of its own. Or, wrote Ms Higginbotham, “for companies like Marchex and Flexicalls so they can pop a phone number on a website and use it for [customer] lead generation.”

❖ “It’s no longer Amy calling Jim, it’s two 13-year-olds texting each other or Jim calling Skype,” Mr Steffans told *GigaOM* (San Francisco), which provides analysis on new technologies and startups. “It’s advertisers putting numbers on the Web where the lifespan may be only two days. The dynamic, and who uses and consumes a number, has dramatically changed. But none of the old rules have changed.” As the rules change the question then becomes whether the traditional telephone providers are ready to offer services like those available from *Bandwidth.com*. Ms Higginbotham noted that, in the digital world coming into being, providing access is not the service: access is the platform on which the service is built. She wrote: “In an all-IP world the baseline is IP and a provider can sell that at bare-bones pricing or build up value by creating services on top of it. *Bandwidth.com* competes with some of its clients in a fashion, and that’s fine with it. Will AT&T, Sprint or Verizon be able to keep up? Do they want to?”

## Manufacturing

### A wire products company in failing health saves itself with higher-tech wares – very much higher

“What makes that all the more notable: It’s a manufacturer. In Baltimore.”



That is the steady growth of a small business – Marlin Steel Wire Products – which only six years ago was facing closure. The company is located in a state and city which both have suffered devastating losses. Nearly half of Maryland’s manufacturing jobs vanished over the past three decades; in Baltimore, the drop was 80 per cent. Yet, as reported by Jamie Smith Hopkins in the *Baltimore Sun*, Marlin Steel Wire Products has bucked the tide, with conspicuous success. The firm has 35 employees, up from 20 five years ago. Its revenues of \$4.4 million in 2011 were up 33 per cent from 2008, enough to place it at No 4,112 on the Inc Magazine list of the 5,000 fastest-growing privately owned companies in the United States. The owner, Drew Greenblatt, was hoping for revenue of \$5.5 to \$6 million for 2012; and, in Ms Hopkins’s view, this was not an implausible expectation. (“Fast-Growing Local Manufacturer? Yes, It Is Possible,” 30<sup>th</sup> November).

When Mr Greenblatt bought the company, in 1998, it employed 18 people and made wire baskets for bagel shops, then proliferating across the country. Having moved it from Brooklyn, New York, to Baltimore, he was overtaken by events. Chinese factories started selling bagel baskets for less than Marlin could purchase its steel, let alone manufacture its product. Mr Greenblatt told the *Sun*: “We were haemorrhaging cash.” Then Marlin Steel Wire Products changed course. About four years into its Baltimore phase, a Boeing engineer approached the company with a request for a basket that would hold an airplane part. It would command a much higher price than bagel baskets fetched. According to Mr Greenblatt, the solution to his problems came to him in a mantra-like flash: “quality engineered quick.”

Ms Hopkins brought the Marlin story up to date. Taking a company with measuring tools no more high-tech than tape measures – “where plus-or-minus one bagel was a perfectly acceptable variation in basket size” – Mr Greenblatt now sells to customers needing accuracy down to one-4,000<sup>th</sup> inch. These days, reported the *Sun*, the company employs mechanical engineers and skilled craftsmen, and has more than \$3.5 million in robotics.

- ❖ The upward course of Marlin Steel Wire has produced better-paying jobs for its people. When the company was purchased 14 years ago, its workers earned minimum wage with no health benefits. Now, with five per cent of the corporate labour budget going to worker education, annual pay on the factory floor – excluding the degreed engineers – ranges from \$30,000 to \$80,000. And everyone is eligible for health insurance. In addition to a highly skilled workforce and cutting-edge automation, Drew Greenblatt credits Marlin Steel’s good fortune to a drive to sell far beyond US borders. The company has customers in 36 countries, including China, and its owner claims to relish competition. In 2011 he testified in Congress in support of the US-Korea Free Trade Agreement that would do away with tariffs that add to his costs of selling to his South Korean customers.
- ❖ Ms Hopkins noted that free-trade deals are always contentious, as are some of the Maryland-specific changes suggested by Mr Greenblatt. But his attitude resonates with the Manufacturers’ Alliance of Maryland, which lobbies for the sector and has seen a blurring of the distinction between small and big manufacturers

over the past decade or two. “It’s global competition,” the trade group’s president, Gene Burner, told the *Sun*, with the Internet making it easier for “the little guys” to sell to South Korea and for South Korea to sell to those companies’ customers. “Whether you’re big or whether you’re small, it’s still global.”

## Its image in need of burnishing, Apple says it will be bringing at least some production back to the US from Asia

“The Mac is coming back to America, but it’s unclear whether Apple’s decision to manufacture one line of computers at home is a serious shift in corporate strategy or a much-needed PR adjustment.” In fact, *Politico* seemed quite clear about its own views on 6<sup>th</sup> December news that Apple Inc would again manufacture computers in the United States. The Washington-centred political journalism site summarised the “growing rap sheet” on the consumer electronics giant whose chief executive, Timothy D Cook, said that, beginning in 2013, the company “will do one of [its] existing Mac lines” in the United States:

The Justice Department says Apple tried to fix e-book prices; the company depends on cheap Chinese labour to turn big profits; and Apple, like many global firms, is holding billions in cash overseas. Apple has even taken a hit in the stock market: a few months ago, it peaked at over \$700 per share but opened [6<sup>th</sup> December] under \$550 per share – a drop of more than 20 per cent. (“‘Made in USA’ Polishes Apple’s Image,” 6<sup>th</sup> December).

Apple, the biggest company in the world by market value, moved most of its manufacturing to Asia in the late 1990s. Ever since, the action has prompted resentment as an injustice to American workers and taxpayers. In an October debate on the campaign trail, President Barack Obama and his rival Mitt Romney clashed over the question of why the iPhone and iPad are not made in America. Mr Obama has repeatedly raised the point-of-production issue with Apple. At one meeting, according to *Politico*, he pressed Steve Jobs, the since-deceased Apple co-founder and visionary chief executive, on the subject of what it would take for Apple to resume production in the US. Mr Jobs said that the work would not be coming back.

- ❖ Now, Mr Jobs’s successor has said that Apple will spend \$100 million to engage contract manufacturers in the US this year. The company provided no details, including which line of its Mac computer will be made in the US and what that might mean for American workers. Jared Bernstein, a former economic adviser to the White House and now a senior fellow at the Center on Budget and Policy Priorities, offered a recommendation: “Let’s not pop the champagne corks just yet.”

### Technology

- ❖ Whether or not Apple Inc manages to convince a dubious American public of its purity of intention in returning “home”, the company can report success on another front.



- ❖ For its new iMac computers, Apple is employing a process that welds the front and back aluminium parts of the product to create an extra-thin unit. The method, known as friction-stir welding, softens but does not melt or distort the materials being joined.

Friction-stir welding, which uses heat and pressure to join metals and alloys, was invented by the Welding Institute in the United Kingdom in 1991. Since then, the US Office of Naval Research (ONR) has invested heavily in modelling, tools, and specifications for the process. ONR researchers have employed the process to fuse everything from steel and aluminium to nickel and bronze. Dr Thomas Killion, director of transition at ONR, told *R&D Magazine* (7<sup>th</sup> December): “The importance of our continued investment in this area has paid off in advances in this technology, which is being used by a variety of industries today.”

In addition to applications in the aerospace, automotive, and railway industries, friction-stir welding — with its clean precision and leeway for unconventional welds — has the potential to open new avenues in ship design. For the Navy, it could provide an affordable, efficient way to create ship hulls from stronger and lighter materials, such as titanium, that are also resistant to corrosion.

## Global trends

### A newly energy-independent US can look forward to a bright future – but as the No 2 economy behind China

Every four years, following the presidential election, the US National Intelligence Council (NIC) publishes a report intended to aid policymakers worldwide in their long-term planning on key issues of global importance. The forward-looking document draws on expertise from outside government on factors such as globalisation, demography and the environment. The latest instalment, *Global Trends 2030: Alternative Worlds*, was released in December.

As noted by Thom Shanker of the *International Herald Tribune*, this product of four years of intelligence-gathering and analysis “presents grounds for optimism and pessimism in nearly equal measure.” Most notably, it sees the US ceding to China the position of No 1 economic power, but expects America to remain an indispensable world leader, benefiting from its domestic oil and natural gas supplies and new technologies to tap them. (“US Forecast as No 2 Economy, but Energy Independent,” 10<sup>th</sup> December).

The NIC, which reports to the director of national intelligence and has responsibilities for long-term strategic analysis, sees the US as perhaps even becoming a net exporter of fuel. *Global Trends 2030* also looks for a decline in economic strength for countries reliant on oil for revenues. (The full report is available free at [www.dni.gov](http://www.dni.gov) via PDF as well as for most content platforms and e-readers).

Other important demographic trends anticipated by the NIC are aging populations in Europe, Japan, South Korea and Taiwan, which could slow their economies further.

The report warns that Russia will join these counterparts in the “slow relative declines” of their economies. China, it says, “will probably have the largest economy, surpassing that of the United States a few years before 2030.”

In general, the NIC foresees, the health of the global economy “increasingly will be linked to how well the developing world does – more so than the traditional West.” According to the report, in addition to China the developing nations that will become especially important to the global economy include Brazil, Colombia, India, Indonesia, Nigeria, South Africa and Turkey.

- ❖ Mr Shanker noted one remarkable development anticipated by the NIC: spreading affluence, leading to a larger, better-educated global middle class that has wider access to communications technologies like the Internet and smartphones.

“The growth of the global middle class constitutes a tectonic shift,” the study says, adding that billions of people will gain new individual power as they climb out of poverty. “For the first time, a majority of the world’s population will not be impoverished, and the middle classes will be the most important social and economic sector in the vast majority of countries around the world.”

### Global mortality study

Another new report, summarised in the British health publication *Lancet* (13<sup>th</sup> December), makes an interesting companion piece to *Global Trends 2030*. Published 13<sup>th</sup> December, *Global Burden of Disease Study 2010*, from a health research organisation financed by the Bill and Melinda Gates Foundation at the University of Washington, examined global mortality patterns over the past 20 years. Health experts from more than 300 institutions contributed to the report, which measured disease and mortality for populations in more than 180 countries.

A dramatic shift was identified: infant mortality declined by more than half between 1990 and 2010; and malnutrition – the No 1 risk factor in 1990 for death and years of life lost – has fallen to eighth place. But, while developing countries made big strides (the average age at death in Brazil and Paraguay, for example, rose to 63 in 2010, up from 28 in 1970), the United States stagnated.

Between 1990 and 2010, American women registered the smallest gains in life expectancy of women in all other high-income countries. The two years of life they gained were fewer than in Cyprus, where women gained 2.3 years, and in Canada, where women gained 2.4 years. The slow increase dropped American women to 36<sup>th</sup> place in the report’s global ranking of life expectancy, down from No 22 in 1990.

Also on 13<sup>th</sup> December the World Health Organization issued a statement saying that, while some of the estimates in the *Global Burden* report are similar to those reached by United Nations agencies, others differ substantially. WHO cautioned that all comprehensive estimates of global mortality must rely heavily on statistical modelling because only 34 countries – representing about 15 per cent of the world’s population – produce quality cause-of-death data.

**Dorothy Fabian – Features Editor**

## 汽车业

## 中国大型汽车零部件生产商万向集团的美国子公司制订了在马萨诸塞州成立一家电池企业的宏伟计划

万向集团是一家总部位于杭州的制造业集团，当汽车电池制造商——A123系统公司经历了长期亏损和一次致命性的电池召回事件以后终于10月份提交破产申请时，万向集团在A123系统公司的资产拍卖中叫价最高。

随着早期“绿色汽车”菲斯克噶（基准价格：102,000美元）受A123系统公司破产影响而停止在美生产，这笔交易可能会扩大万向在全球插电式混合动力汽车用锂电池市场中的份额。

据A123系统公司（马萨诸塞州沃尔瑟姆市）称，万向已经同意支付2.56亿美元收购A123的汽车和商业业务，包括在美国的三家工厂。万向也可能会控制A123刚刚起步的中国业务，包括与中国最大的汽车制造商——上海汽车集团股份有限公司创办的合资电池公司的股份。

《纽约时报》底特律分部负责人比尔·弗拉希茨（Bill Vlasic）注意到，上述交易不包括A123系统公司与美国政府及其军队的交易合同。该公司的这部分业务将以220万美元的价格出售给一家总部位于伊利诺伊州的小型能源公司Navitas系统公司。

A123的首席执行官David Vieau告诉时报记者，将政府相关的业务出售给一家美国买主，旨在平抚我公把敏感军事技术转让给中国的担忧。（《中国企业竞得汽车电池生产商》，12月9日）。

弗拉希茨先生写道，从一开始，部分国会议员就反对万向收购A123系统公司，后者已经得到了2.49亿美元刺激国内电池生产的联邦拨款，是奥巴马政府刺激美国电动汽车业20亿美元计划的核心。收购A123系统公司的交易不仅需获得美国破产法官的批准，而且要获得美国外国投资委员会（一个由财政部领导的分布广泛的、审查美国公司涉外收购的组织）的批准。

弗拉希茨先生回忆说，万向集团本年年初便积极寻求收购A123系统公司，当时这家中国企业向A123系统公司提供紧急贷款以维持失败的A123系统公司勉强运转。

在破产法院举行的拍卖中，万向出价高于其他三家公司，这三家公司的其中之一是总部位于威斯康星州的江森自控有限公司，曾在A123尚未进入破产程序时就试图收购它。

❖ 快速成长的万向集团全资子公司——万向美国公司的董事长倪频（Pin Ni）说，这笔交易将加速万向在美国汽车和替代燃料产业的增长。这家私人企业——于2001年搬进其位于芝加哥伊利诺伊州埃尔金总部——拥有若干家汽车零部件企业和其他公司，以及3,000名美国雇员。

倪先生信心满满地说，A123需要一笔数量可观的投资才能满足像菲斯克噶汽车（位于加利福尼亚州阿纳海姆）和通用汽车这些汽车制造商的生产需求，因此万向才是A123的最佳买主。

他告诉时报记者：“我们认为将A123纳入我们的经营版图与我们在美国的汽车和清洁技术产业的战略高度契合[并且]为了为了保证A123的成功，我们打算进行必要的长期投资。”

❖ A123被收购的消息是一连串中国私营和国有企业收购北美制造业和能源企业的交易消息中最新的一条。上周，加拿大政府批准了中国国有企业——中国海洋石油总公司（CNOOC）150亿美元收购耐克森（Nexen）公司的交易。

## 电讯业

## 不会消失的威胁：联合国接管互联网

“在2012日历年，搜索巨头谷歌（Google）公司在游说华盛顿政府方面比以前年度花费了更多的工夫，看门狗网站OpenSecrets.org将谷歌列为对118个参众两议院的国会议员贡献最大的公司之一。从选票上判断，这种方法看起来见效了。”

总部在英国的在线技术出版物Register的记者尼尔·麦卡利斯特（Neil McAllister）从旧金山发来的报道称，12月5日，美国众议院一致投票支持保持互联网“免受政府控制”的决定。

此举显然是针对那些参加在迪拜举行的联合国世界国际电信大会（WCIT）的参会人员，堪称是立法方面两党合作的非凡展示：397人支持该决议，无一人反对。

随着WCIT议程上信息和通讯新条约的达成，美国参议院已经于9月份自行拟定和通过了一份众议院决议版本，也是一致投票通过。（《美国国会全体成员投票反对国际电信联盟（ITU）操控互联网》，12月5日）。

麦卡利斯特先生虽然调侃地说这一高度统一的战线是为“一件没有人反对的事情”而组织的，但他也同时注意到，人们对联合国的国际电信联盟（ITU）很可能正在筹划利用联合国世界国际电信大会（WCIT）上演一出互联网治理的夺权戏的更广泛关注。十一月，欧洲议会批准了一项与美国众议院的决议类似的决定。

为了发挥其阻止国际电信联盟行动中的作用，谷歌发布了一个网站寻求“自由和开放网络”的支持者。该网站上挂着这样一幅图片：一个女学生坐在她的电脑旁，面对着一堵被带刺铁丝网缠绕的砖墙，警告她未被阻止的国际电信联盟能够要求像YouTube, Facebook, and Skype等网站为提供跨国服务支付新的费用项目。

谷歌对国际电信联盟可能会限制访问信息的担忧——尤其是在新兴市场上——可能是完全真实的。但是免费使用互联网也是一个相当明显的“钱袋子问题”。Register上一篇更早的文章（11月21日）称谷歌惧怕任何“让它支付费用的计划。”

麦卡利斯特先生注意到，早在去年六月份，国际电信联盟就一直在煞费苦心地向任何联合国的互联网并购案。作为对欧盟决议的回应，国际电信联盟的代理人理查德·霍尔（Richard Hall）在博客中写道：“无论如何国际电信联盟对任何网络没有任何监管权限，也没有哪项提案能够授予其更大的权力。”

但是，据Register的报道：“这些保证似乎对安抚那些视国际电信联盟提案为动机不纯的人们没有起到什么作用，包括[环境组织]绿色和平组织（Greenpeace）和国际工会联合会（the International Trade Union Confederation）在内。”

当然，也包括谷歌公司在内。

## 十位数字电话可能将被淘汰，但关于它将立即消亡的报道可能还为时过早

美国电话电报公司（AT&T）11月7日欲退出传统电话业务，转向纯互联网协议（IP）网络的公告是否将我们带入了一个电讯业的转折点？GigaOM的编辑Stacey Higginbotham这样认为。但是，“对于数以百万计的不能区分电路交换而来的语音和来自互联网的话音（VoIP）的外行人来说，”她认为该转型将会对电话号码产生什么样的影响是一个更重要的议题。（《在Facetime和Kik的世界里，电话号码发生了什么变化？》12月1日）。



理论上，在一个纯互联网协议（IP）的世界里，每个人都有一个等同的个人网址（URL），将不再需要电话号码。但是这种单一接触方式比从现有的被认为仅传递声音、数据或视频的传统电信渠道获得的服务或参数需要后台更智能的服务或参数。

相应的，隐约可见的电路交换网络终端又激起了有关十位数字号码的讨论，Higginbotham女士相信，它仍然会存在至少十年。她已经研究了这段时期内“数字如何向数字化转变”的问题。

据Bandwidth.com（位于北卡罗莱纳州罗利）的批发部门iNetwork的编辑汤姆·史蒂芬森（Tom Steffans）的报道，电话号码被预定为“可回收的”，可以有許多新的用途。

Bandwidth.com作为美国电讯业第六大公司，在其提供的电话号码的数字基础上，为Pinger, Google Voice, 和Twilio这类客户提供互联网协议（IP）平台。它们的部分产品是以电话号码为基础的，由iNetwork向顾客提供一个应用程序界面（API），并负责寻找和管理这些数字的法律和机械物流。

客户充分利用这些数字并不是为了语音通话，而是另有他用。以Pinger为例，它们利用这些数字提供超高级简讯服务；而谷歌公司则利用电话号码提供它独有的语音服务。或者，Higginbotham女士写道，“像Marche和Flexicalls这样的公司可以让他们的电话号码在网站上弹出来，用于引导[顾客]产生。”

❖ “不再是Amy呼叫Jim，而是两个13岁的孩子相互发短信或Jim呼叫Skype，”史蒂芬森先生告诉GigaOM（位于旧金山，提供新技术和新创业公司的分析）。“广告主把数字贴在网站上，其寿命可能只有两天。数字的活力，以及由谁使用和消耗数字都已经完全改变了。但是所有原有的规则并没有改变。”

随着规则改变，问题就变成了传统的电话提供商是否已经准备好了提供与Bandwidth.com提供的类似的服务。Higginbotham女士写道，在正在形成的数字化世界里，提供访问不是服务：访问只是提供服务的平台。

她写道：“在一个纯互联网协议（IP）的世界里，基准是IP，提供商可以以基准价格出售IP或者在其上创造服务从而构建价值。Bandwidth.com可以勉强与它的一些客户竞争，还算说得过去。那么AT&T, Sprint, 或者Verizon有能力紧跟吗？他们愿意这样做吗？”

## 制造业

### 科技含量更高的产品（高出许多）挽救了艰难求生的线材生产企业

“什么使得它如此著名：它是一家制造企业。位于巴尔的摩。”

这是一家稳步成长的小型企业——马林钢丝产品——6年前它还面临关停的困境。这家公司坐落于一个受到致命损失的州和市。过去三十年间，马里兰州将近一半的制造业消失了；在巴尔的摩，这个数字是80%。

但是，正如《巴尔的摩太阳报》的记者杰米·史密斯·霍普金斯（Jamie Smith Hopkins）所说，马林钢丝产品逆流而上，取得了卓越的功绩。该公司创办于25年前，有35位雇员。其2011年收入为440万美元，与2008年相比上涨了33%，足以使其在Inc杂志评选的美国增长最快的5000家私营企业榜上排在第4,112位。它的企业主德鲁·格林布拉特（Drew Greenblatt）期望其2012年收入达到550—600万美元，霍普金斯女士认为，这一目标并不是奢望。（《快速增长的本土企业？是的，完全有可能》，11月30日）。

当1998年格林布拉特先生买下这家公司时，只有18个雇员，为面包圈店制作铁丝篮，然后扩张到全国范围。因情势变迁，他从纽约布鲁克林搬到了巴尔的摩。中国企业开始以比马林收购钢铁更低的价格出售面包圈篮，更不用说生产产品了。格林布拉特先生对《巴尔的摩太阳报》记者说：“我们资金大出血了。”

然后马林钢丝产品转变了路径。来到巴尔的摩的第四个年头，一个波音飞机的工程师找到这家公司，询问能否制造一款能够盛放一种飞机零件的篮子。马林可以比面包圈篮子索要高得多的价格。据格林布拉特先生说，这个问题的解决方案就像一个符咒般闪过他的脑海：“以质量求生存。”

霍普金斯女士讲述了马林最新的故事。以前公司技术含量最高的测量工具也就是卷尺——“在篮子规格方面，增加或者减少一个面包圈完全在可接受的变化范围内”——而格林布拉特先生现在出售给顾客的篮子可以精确到四分之一英寸。《巴尔的摩太阳报》称，近日，该公司雇佣了机械工程师和熟练技工，在机器人身上投资了350万美元。

❖ 马林钢丝这种向上发展的路径为它的员工带来了更好的薪资待遇。当14年前公司刚被买下之时，它的员工挣的是最低工资，还没有健康福利。现在，企业用工预算的5%用在了职工教育和工厂车间的年薪——除了学位工程师——在30,000到80,000美元的范围内。每个人都可以享受健康保险。

除了高度熟练的劳动力和尖端的自动化，德鲁·格林布拉特将马林的好运归结于跨越美国国界进行销售的驱动力上。该公司的客户遍及包括中国在内的36个国家，它的企业主称自己很享受竞争。由于美国与韩国之间的关税加大了马林向韩国客户销售的成本，2011年他在国会作证支持消除两国之间关税的美国—韩国自由贸易协定。

❖ 霍普金斯女士注意到，人们对自由贸易协定总是有争议的，格林布拉特先生提出的一些马里兰州特定修改建议也同样充满争议。但是他的态度与马里兰州厂商联盟产生了共鸣。在过去一二十年间，马里兰州厂商联盟游说这一地区的制造商，并发现大企业和小企业之间的区别已经渐渐模糊了。

“这是全球的竞争，”该贸易团体的主席Gene Burner告诉太阳报记者，互联网使得“小家伙们”也能更容易地向韩国出售产品，韩国也能向那些企业的客户销售产品。“无论你是大是小，竞争都是全球性的。”

### 苹果公司称其企业形象需要提升，可能会至少把一部分生产从亚洲撤回美国

“苹果电脑将回归美国，但还不清楚苹果决定在美国生产一款电脑是公司战略的真正转变还是一种应急的公关调整。”

事实上，Politico 12月6日的消息显示，它似乎很确定苹果公司将重新在美国生产电脑的观点。苹果公司首席执行官蒂姆·库克（Timothy D Cook）说，自2013年起，苹果公司将在美国生产“它现有的几款电脑之一”，这家以华盛顿为中心的政治新闻网站如是总结对这一消费电子巨头“不断延长的批评列表”：

美国司法部称苹果公司试图固定电子书价格；该公司依靠中国廉价劳动力赚取巨额收益；如同许多跨国公司一样，苹果公司在海外持有数十亿美元的现金。苹果公司甚至对股市造成了冲击：数月之前，苹果公司的股价高达700美元/股，但是[12月6日]开盘价跌到了550美元/股以下——跌幅超过20%。（“美国制造刷新苹果形象，”12月6日）。

苹果公司，世界上市场价值最高的公司，在20世纪90年代末期将大部分生产制造搬到了亚洲。自那以后，此举加剧了美国工人和纳税人因不公平产生的怨恨。在10月的竞选造势辩论中，美国总

统奥巴马和他的对手米特·罗姆尼在为什么iPhone和iPad不在美国生产这个问题上发生了冲突。

奥巴马先生多次向苹果公司提及产量问题。根据Politico的报道，在一次会议上，他就怎样才能使苹果公司恢复在美国的生产向史蒂夫·乔布斯（已故苹果联合创始人和富有远见的首席执行官）施压。乔布斯先生说苹果不可能再回到美国生产。

❖ 如今，乔布斯先生的继任者称苹果公司今年将耗资1亿美元恢复在美国生产的订单生产。该公司没有透露包括哪款苹果电脑将在美国生产以及这对美国工人来说意味着什么在内的细节。

前白宫经济顾问、现预算和政策优先中心高级研究员贾里德·伯恩斯坦 (Jared Bernstein) 提出了一个建议：“我们现在拔出香槟瓶塞庆祝还为时过早。”

## 科技

❖ 无论苹果公司是否能想办法说服半信半疑的美国民众它的意图是纯洁的，该公司可以在另一个领域宣告成功。苹果在其最新的iMac电脑上采用了一种新工艺，即将产品正反两面的铝部件焊缝在一起，创造一个超薄元件。这种被称为摩擦搅拌焊接的方法软化，但不会熔化或扭曲被接合的材料。

摩擦搅拌焊接方法使用热能和高压将金属和合金结合在一起，由英国焊接研究所于1991年发明。那以后，海军研究办公室 (ONR) 已经投入巨资研究该工艺使用的模型、工具和规格。海军研究办公室的研究员们已经把这种工艺用于融合从钢和铝到镍和青铜在内的一切金属。

海军研究办公室过渡时期董事托马斯·基利昂博士 (Dr Thomas Killion) 告诉《R&D杂志》(12月7日)。“我们在这个领域持续投资的重要性从这项技术的进步中得到了回报，如今它被用在各种各样的工业中。”

除了应用于航空航天、汽车和铁路工业中，摩擦搅拌焊接——由于其高度精确及非常规焊接的灵活性——有可能在船舶设计中开辟新的道路。对海军来说，它可以提供一种可负担的、高效的途径，可以将强度更高、更轻薄的材料（如钛，其抗腐蚀性也很好）制成船体。

## 全球趋势

一个依靠能源独立的新美国可以期待一个光明的未来——但是只能作为继中国之后的第二大经济体

每四年，总统大选之后，美国国家情报委员会 (NIC) 都会发布一份报告，旨在帮助全世界的政策制订者制订关系全球的关键问题的长期计划。

这份前瞻性文章集合了研究全球化、人口与环境等问题的政府以外的专家团队的工作。最新的一期《全球趋势2030：可能的世界》，在十二月发布。

正如《国际先驱论坛报》(the International Herald Tribune) 记者 Thom Shanker 所说，这份历经四年情报收集和分析得出的产品“提供了几乎同等程度的乐观和悲观的理由。”最为引人注意的是，它认为美国将向中国让出世界第一经济强国的位置，但是受

益于美国可供利用的国内石油和天然气储备和新技术，它预期美国角将保持不可缺少的全球领导者的地位。（《预计美国成为第二大经济体，但能源独立》，12月10日）

美国国家情报委员会向国家情报总监汇报，并对长期战略分析负责。该委员会认为美国甚至可能成为一个燃料的净出口国。

《全球趋势2030》也认为，依靠石油获得收入的国家经济实力会下降。（完整报告的PDF版本由www.dni.gov及大部分内容平台和电子阅读器免费提供）。

美国国家情报委员会预测的其他重要人口发展趋势为欧洲、日本、韩国和台湾的人口老龄化，这将进一步拖累这些经济体的经济发展。报告提醒俄罗斯将加入这些同伴，进入经济“放缓和相对下滑”的阶段。报告称中国“将可能在2030年前几年超越美国，成为最大的经济体。”

总之，美国国家情报委员会预测，全球经济健康“将越来越多地系于发展中国家的健康发展——更甚于传统西方国家。”根据这份报告，除了中国之外，包括巴西、哥伦比亚、印度、印度尼西亚、尼日利亚、南非和土耳其在内的发展中国家对全球经济将变得尤为重要。

❖ Shanker先生注意到，美国国家情报委员会预测的一个显著的发展是：财富的扩散将导致一个更庞大的、受过良好教育的全球中产阶级，他们能够更广泛地接触因特网和智能手机这类通信技术。

“全球中产阶层的成长构成了结构性的转变，”研究指出，数十亿的人将走出贫困，获得新的个人权利。“这是第一次，占世界人口大多数的人群不会陷入贫困，在全世界绝大部分国家中，中产阶级将成为最重要的社会和经济阶层。”

## 全球死亡率研究

英国的医疗出版物《柳叶刀 (Lancet)》(12月13日) 发表的另外一份最新报告，堪称是《全球趋势2030》一个有趣的姊妹篇；《全球疾病负担研究2010》由华盛顿大学比尔和梅林达·盖茨基金会赞助的一个健康研究组织于12月13日发表，该报告研究了过去20年的全球死亡模式，衡量了超过180个国家和地区人口的发病率和死亡率，来自300个机构的健康专家为这份报告做出了贡献。

这份报告发现了一个戏剧性的变化：在1990年和2010年间，婴儿死亡率下降了一半以上；营养不良——1990年的头号危险因素，可在数年内致人死亡——已经降到了第八位。

但是，发展中国家大踏步前进（例如，巴西和巴拉圭的平均死亡年龄从1970年的28岁上升到2010年的63岁）的同时，美国却陷入停滞状态。

在1990年和2010年间，与其他高收入国家相比，报告中记录的美国妇女的寿命延长得最少，仅为两年，少于塞浦路斯的（妇女平均寿命延长了2.3年），也低于加拿大的（其妇女寿命延长了2.4年）。由于寿命增长缓慢，美国妇女已经在报告中全球寿命排行榜中排到了第36位，低于1990年的第22位。

也是在12月13日，世界卫生组织 (WHO) 发表了一篇声明称，虽然《全球负担》报告的部分估测与联合国机构估计的类似，但其他的却有很大出入。

世界卫生组织提醒说，关于全球死亡率的综合估计必然严重依赖数据模型，因为只有34个国家——代表着全球15%的人口——能提供可靠的死亡原因数据。

Dorothy Fabian——专栏编辑

# Test methods for cables incorporating reduced bend radius fibres

By Wayne Kachmar, ADC Telecommunications, USA

## Abstract

This article will attempt to compare mechanical performance parameters of waveguide cables with optical performance of both conventional fibres and reduced bend radius fibres. The coordination of mechanical and optical test data can point to more appropriate test criteria for cables with reduced bend radius fibres. This will ensure a more robust characterisation criterion appropriate to this new class of fibre.

## Introduction

The advent of both single mode and multi-mode bend insensitive fibres has brought into question whether existing cable test plans accurately characterise a cable design to provide expected lifetimes.

Presently, most published test plans rely on delta attenuation values at discrete wavelengths as pass/fail criteria for various mechanical criteria. With the introduction and use of new reduced bend radius fibre types, less robust cable designs can now pass such standardised cable tests.

This result can lead to possible substandard cable designs that can generate future failures in the field. Long-term stresses may be placed on the optical waveguides and not be reflected in the delta attenuation measurement protocols currently prescribed by standardised tests such as Telcordia GR-409 and GR-20.

## Fibre improvements

Telcordia GR-409 is the current standard of specifications for indoor fibre cables, while Telcordia GR-20 provides technical reference for outdoor cables.

Some companies, such as Verizon, have more sophisticated versions that reference GR-20 and GR-409, but also add additional qualifications. Together, this specification documentation dictates the mechanical performance standards agreed upon by the customer and manufacturer. More recently, however, fibre improvements, particularly in reduced bend radius fibres, are challenging the industry to revisit the test standards for fibre.

With the increased performance features of reduced bend radius fibres versus conventional fibres, existing standards may no longer be a “one size fits all” measurement.

Several optical fibre manufacturers developed conventional optical fibres in the 1970s. Over the years, there have been few significant improvements outside of coating developments to improve the fibre’s inherent ability to withstand mechanical forces on its environment. But aside from innovations during the draw process, improving the overall empirical tensile properties of optical waveguides, improvements to optical fibre designs have been relatively minor until about five years ago. At that time, several concepts emerged to improve on other fibre characteristics, such as physical strength and bending characteristics. This was the introduction of reduced bend radius fibres.

Reduced bend radius fibres include several viable technologies.

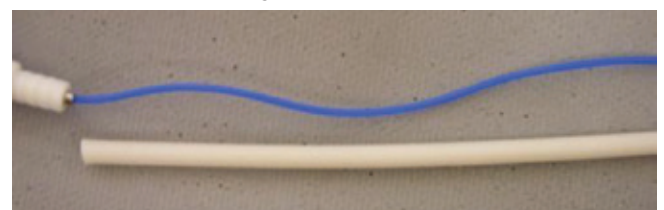
○ **Figure 1:** Fibre with <1% shrinkage



○ **Figure 2:** Fibre with >4.5% shrinkage



○ **Figure 3:** <5% shrinkage cable connector interface



They include ‘trench-assisted’ varieties, ‘voids-assisted’ fibre, photonic-crystal or ‘holey fibres’, and several other types and technology combinations. When compared with conventional fibre, each of these new innovations has improved the characteristics and mechanical performance of today’s optical fibre.

However, during the same time frame, the existing test regimes have remained basically unchanged, continuing to rely on attenuation change based on physical, mechanical and environmental testing.

Attenuation continues to be the preferred methodology for determining a fibre’s performance. However, testing reduced bend radius fibres using the same methods for conventional single mode and multi-mode fibre does not take into consideration the unique properties of these new fibres. With that in mind, let’s look at how attenuation is induced in conventional fibres and reduced bend radius fibres.

## Macrobends and Microbends

So what exactly changed with the introduction of reduced bend radius fibres? The most obvious improvement was the fibre’s ability to bend more tightly, that is, its bend sensitivity was reduced. These fibres can be bent to a 10, 7.5 or even 5mm radius with no noticeable increase in attenuation or damage to the glass in a long-term environment.

○ **Figure 4:** FOTP-33 Long Gauge Tensile Test Fixture



○ **Figure 5:** Optical Fibre Strain Gauge Measurement System

Resistance to macrobend and microbend loss was also significantly increased. In fibre optic transmissions, a macrobend refers to a large visible bend in the optical fibre that can cause extrinsic attenuation, a reduction of optical power in the glass.

Microbends are defined as nearly invisible imperfections in the optical fibre, usually created during the manufacturing process. These tiny imperfections can also cause a reduction in optical power, or increased attenuation.

However, microbends may also occur from the stress compression of the plastics placed on the glass due to polymer shrinkage on the fibre.

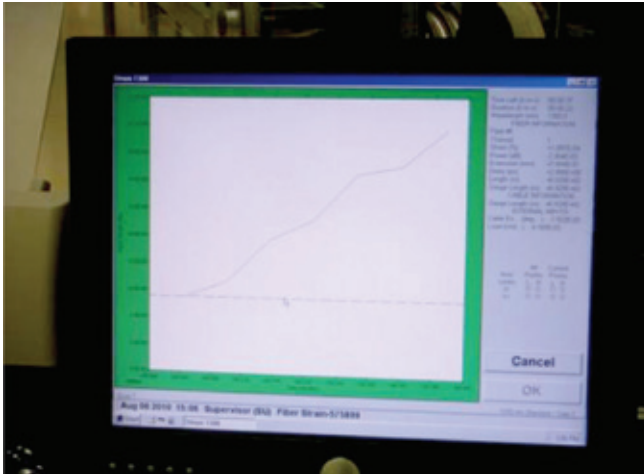
In conventional fibre, attenuation increases indicate when a microbend has occurred in the fibre. However, in a reduced bend radius fibre, attenuation changes are typically minimal and the same microbend may not be discovered until an extreme failure in the performance of the cable. Therefore, the failure is going to occur over time as the cable is handled, installed or ages.

Modern aging techniques used for testing, such as extreme heat exposure, may not exhibit a failure on today’s new reduced bend radius fibres.

## Insufficient test methods

The existing test methods for conventional optical fibre are based on mechanical testing and attenuation changes, but they do not specify the cable design being tested.

Therefore, if a reduced bend radius fibre is undergoing the same tests, its minimal sensitivity to microbending may allow it to pass the test while a microbend could still cause the fibre to stress over time. That means some cable designs could still be created with inherent



○ **Figure 6:** Fibre Strain vs. Tensile Loading

failures in design, yet they could pass existing testing standards based solely on what is contained in GR-409 for tight-buffered fibres.

In loose-tube outdoor fibre cables, covered by the GR-20 standard, there are a number of tests that may determine whether the fibres are under some stress or strain. Currently, the only requirement for strain testing is contained in TIA-455-33B section FOTP-33a. This covers tensile testing for these cables using a component for measuring fibre strain.

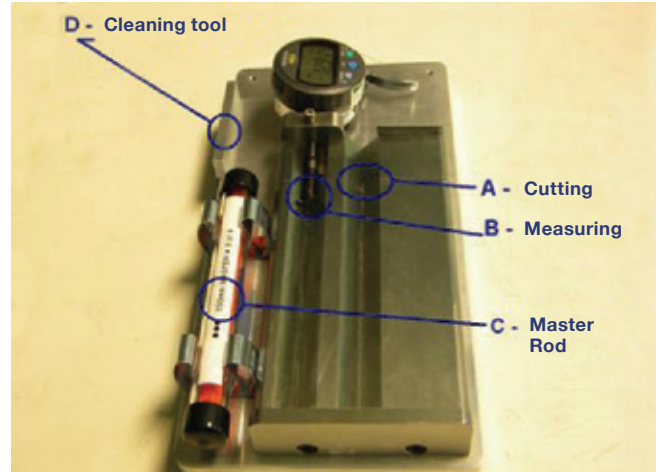
The question becomes whether less than five per cent shrinkage, as stated in this specification, is still an acceptable standard or benchmark. It could be too broad a measurement based on the fact that new bend insensitive fibres will not show the same sensitivity. If any flaw or defect in the fibre could possibly be missed by current testing standards, yet could have a significant impact in deployed fibres over time, then new criteria such as fibre strain should be added to current test methods, specifications and standards.

What might work in bulk cable may not work in cable connector interfaces, and what may pass testing today might not work over the expected life of the fibre. The existing aging cycle was developed using high temperature only to detect changes in the jacket and buffering compounds, such as hardening, cracking or shrinkage over the aging process.

Today, it may be wise to consider whether those compounds will fail or not when testing is based on different parameters. One such area is thermal coefficient of linear expansion. This is the rate of expansion and contraction of a material over a given temperature profile. The rate of polymer change is typically an order of magnitude compared to glass.

For example, if continuous shrinkage occurs beyond the normal shrinkage tests and is identified by increased attenuation, how do you detect it in reduced bend radius fibres where no or minimal increased attenuation is detected? The answer is that you would not – until perhaps the fibre reaches a pivot point where it is no longer a viable long-term communications medium.

In the loose-tube cable environment, the opposite can potentially occur. That is, there could be too much excess



○ **Figure 7:** High Precision Shrinkage Gauge

fibre length and the fibre would bunch up – not due to shrinkage, but because an attenuation increase was not detected in the reduced bend radius fibre.

The individual tube is not tested for shrinkage separately but may be coiled for several metres in a transition housing and not have the design of the overall cable to control shrinkage in the individual loose tube.

The bottom line is that since attenuation resistance is increased in reduced bend radius fibres, microbends and other stresses on the fibre may not be detectable with today's testing standards for conventional fibre. These existing standards should be carefully reviewed and appropriate criteria added to specifically include the unique characteristics of reduced bend radius fibres.

## New testing considerations

There is a need for the addition of several new test criteria to GR-409 and GR-20 in light of the unique characteristics of reduced bend radius fibre types. For example, a means of measuring fibre strain should be added to existing test criteria. Strain or stress should be measurable on both indoor and outdoor fibre cables during tensile FOTP-33b, aging and other mechanical testing processes where this type of testing is not currently conducted.

This may be difficult without introducing a new family of qualification tests for fibre strain, but the new reduced bend radius fibres demand it.

A second consideration for changing testing methods may be to measure delta excess fibre length, in loose tube type cables, before and after ageing, and also in individual tubes. For instance, attenuation and excess length could be measured before ageing and temperature cycling processes, and then again following these processes. They would then be compared to established pass/fail criteria.

Current specifications do not require this type of testing, nor do they require testing in a loose configuration. All testing is currently done on spools or coils. In a loose-tube configuration in a coil, you can have a great deal more excess length and relaxed length than in a straight line. Attenuation increases would be less evident without the ability to measure excess length as a mechanical test.



It is worth noting that new measurements should include the very long wavelength of 1,625nm. These new measurements would propose additional qualifications for that wavelength where the microbend edge moves in as the fibre is strained.

Although this is a requirement of some customers in their own standards, it is not part of the existing generic fibre standards.

Cable shrinkage testing needs to move to a higher level of repeatability and gauges for this purpose have been designed. The range of testing and the effect of fibre extrusion from the cable core need to be determined as well. This is only a secondary effect of GR 326 the test standard for cable connectors and cable assemblies.

## Conclusions

The introduction of reduced bend radius fibres, and their emerging popularity in fibre-to-the-premise (FTTP) architectures, is cause for concern when it comes to the current GR-409, GR-20, GR 326 and other specification standards written for conventional fibres. New tests should be proposed to accurately define their unique characteristics to better ensure long-term reliability.

A cable design that takes advantage of the tighter bend radius fibre would most certainly show much higher attenuation using conventional single mode fibre. In other words, a reduced bend radius fibre would survive very well in an environment where conventional fibre would not.

The cable to connector interface may create new aging models where cable shrinkage can lead to unacceptable fibre bend radii at the cable/connector interface.

The results of which will only show up after loose cable assemblies are aged and then moved. This alone indicates the need for a set of revised test standards and requirements for reduced bend radius types of fibre.

Cable designs tested to GR-409 or GR-20 are requirements for GR 326 testing. The need exists to use fibre strain and cable shrinkage as well as fibre extrusion from cables after aging as a more complete precursor to GR 326 testing.

Also with increased environmental operating ranges of cables becoming the norm, thermal co-efficient of linear expansion values need to be incorporated into specification performance precursor requirements.

This paper proposes to update existing standards, particularly the GR-409 specifications for required tolerance for shrinkage and fibre strain. Otherwise, it is possible for sub-par cable designs to pass existing standards as they are written and be deployed in the field.

It should be recognised that conventional fibre and reduced bend radius fibre exhibit different properties and characteristics, and test criteria should be written to address the requirements of both. Therefore, the proposal is to consider adding more focused test criteria to existing standards specifications. This in effect creating a new class of GGR-409 and GGR-20 qualifications specifically identifying the fibres used and qualified in any specific cable designs.

Re-purposing the current standards with new reduced bend radius fibres in mind will enable service providers to take full advantage of the unique characteristics these fibres bring to the table, particularly in today's FTTP deployments.

## Acknowledgments

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# 使用弯曲半径缩小式光纤的光缆的测试方法

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## 摘要

此文尝试将波导电缆的机械性能参数与传统光纤和弯曲半径缩小式光纤的光学性能进行比较。将机械和光学测试数据进行协调可以为具有弯曲半径缩小式光纤成分的光缆找到一套更合适的测试标准。这也可以确保建立一套适合于这类新式光纤的更可靠的定性标准。

## 介绍

随着单模和多模弯曲不敏感光纤的出现，使用现有光缆测试方法来归纳某种光缆的特性进而预测其使用寿命的准确性产生极大疑问。目前，大多数已发表的测试方法都是用离散波长的增量衰减值作为各种机械标准合格/不合格的标准。随着新式弯曲半径缩小式光纤的出现和使用，某些设计不太健全的光缆也可以通过这种标准化的测试。

这样可能导致未来光缆设计标准降低从而在应用中产生故障。光学波导上可能承受的长期压力负担在标准测试法，如Telcordia GR-409和GR-20里规定的增量衰减测量协议里却没有体现出来。

## 光纤的改进

Telcordia GR-409 是室内光纤光缆的现行规范标准，而Telcordia GR-20 为室外光缆提供技术参考。有些公司如Verizon参考GR-20和GR-409标准自行发展出一些更详细的版本，同时也加了些额外的限制。

这些规范文件指明了客户和生产商一致同意的机械性能标准。然而最近一段时间，光纤技术的进步，特别是弯曲半径缩小式光纤的出现，正在挑战业界对光纤的测试标准进行重新审视。性能特性显著提高的弯曲半径缩小式光纤与传统光纤的同时存在使现有的“一刀切”的标准不再合适。

一些光纤生产商在70年代研制开发出传统光纤。多年来，除了因涂层技术发展而使光纤经受外部机械冲击力的自身能力得以提高，在其他方面并无显著进展。直到五年前，除了在图纸上的创新，其他方面如提高光波导的实际整体张力特性和光纤设计方面都没有太大进展。也在那时，出现了一些提高光纤其他方面特性的新设想，如提高光纤物理强度和弯曲特性。这时出现了弯曲半径缩小式光纤。

弯曲半径缩小式光纤包含几项可行技术。如沟槽式变量，空隙式纤维，光子晶体或多孔式纤维，及其他一些品种和技术的综合。在与传统光纤的比较中，所有这些创新技术都提高了现代光纤产品的特性和机械性能。

但是，在这段时间内，现有的测试方法却基本没有发生任何变化，而是仍然参照物理，机械和环境测试的衰减。衰减

值测试仍是决定一种光纤性能的首选方法。然而，用来测试传统单模和多模光纤的这种方法，没有考虑新式弯曲半径缩小式光纤独特特性。考虑到这一点，接下来就让我们来看一看传统光纤和弯曲半径缩小式光纤的衰减值都是如何产生的。

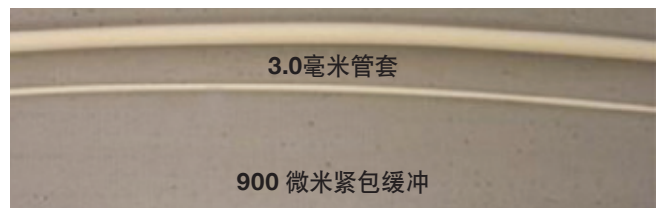
## 宏弯和微弯

弯曲半径缩小式光纤的出现到底带来了什么变化呢？最明显的进步是光纤可以弯曲的更紧密，也就是说弯曲敏感度下降。这些光纤可以弯成10、7.5甚至5毫米半径并且没有明显衰减。在长期固定环境中也不会对玻璃产生损坏。对宏弯和微弯的损耗抵抗力也有显著提高。

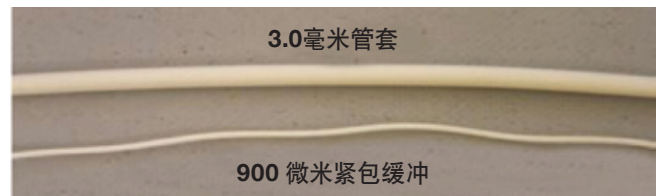
在光纤传输中，宏弯是指光纤非常明显的弯曲，这可能导致外部衰减，也就是玻璃中的光功率减小。微弯是指那些几乎难以察觉的缺陷，通常是在生产过程中产生的。这些细小的缺陷也会引起光功率减小，或衰减增大。微弯也有可能是由于用力摁压玻璃上的塑料而使纤维中的聚合物收缩引起。

在传统光纤中，衰减增大说明光纤中有微弯。然而在弯曲半径缩小式光纤中，衰减变化通常非常小，同样的微弯可能直到电缆发生严重性能故障时才会被发现。因此，问题会随着

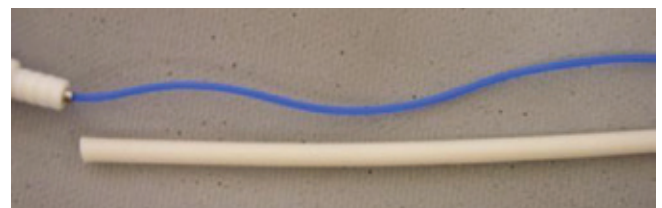
○ 图1: 收缩度小于百分之1的光纤



○ 图2: 收缩度大于百分之4.5的光纤



○ 图3: 收缩度小于百分之5的光纤连接器接口



电缆的交接，安装和老化而慢慢的发生。测试中使用的现代加速老化技术，如暴露在极端高温下，可能也无法让这种新式弯曲半径缩小式光纤出现故障。

## 测试方法不足

现有的用于测试传统光纤的方法是建立在机械测试和衰减变化基础上，并没有指明适用的特定电缆类型。因此，如果将此测试用于弯曲半径缩小式光纤上，此类光纤对于微弯极小的敏感性可能也可以使光纤通过测试，但是长期来说，微弯会使光纤承受太大压力。这样一来，有些带有设计缺陷的电缆也可以通过现有这种为紧套式光纤而制定的GR-409测试标准。

GR-20是检测室外松套电缆的标准，有些测试可以检测出光纤是否承受压力或变形。目前，变形度测试的唯一要求可以在TIA-455-33B的FOTP-33a部分找到。里面也包括对安装了光纤变形度测量部件的电缆的张力测试。

这样问题就在于是否依然可以用这个规范标准里提到的收缩小于5%作为可接受标准或参照基数。由于新型弯曲不敏感式光纤的敏感度完全不同，这个数据标准可能有点太大了。如果现行的检测标准无法检测出所有的瑕疵和缺陷，长远来看可能会对已经投入使用的光纤产生无法估量的影响。所以在现行测试方法，规范和标准里应加入光纤变形度等新的测试标准。

在大捆电缆上可用的光纤不一定在电缆连接器接口上可以用，可以通过今天的测试不一定代表光纤会有预期的使用寿命。

○ 图4: FOTP-33 长量张力测试装置



○ 图5: 光纤变形度测试系统

命。现有的老化循环是根据监测高温下护套及缓冲物质的变化发展起来的。这些变化包括老化过程中的硬化，开裂和收缩。现在，我们应该考虑如果在测试中使用不同的参数，这些物质能否依然通过测试。有一种参数叫线性热膨胀系数，这是一种材料根据温度的变化而膨胀和收缩的速度。聚合物的变化速度通常比玻璃快一个数量级。

例如，如果在收缩测试中出现异常的持续性收缩并且确认衰减增大，那在通常无法检测出或只能检测出最小衰减增值的弯曲半径缩小式光纤中该如何监测出这种异常呢？答案是没有办法，直到光纤达到一个临界点而无法再作为长期可行的通信媒介。

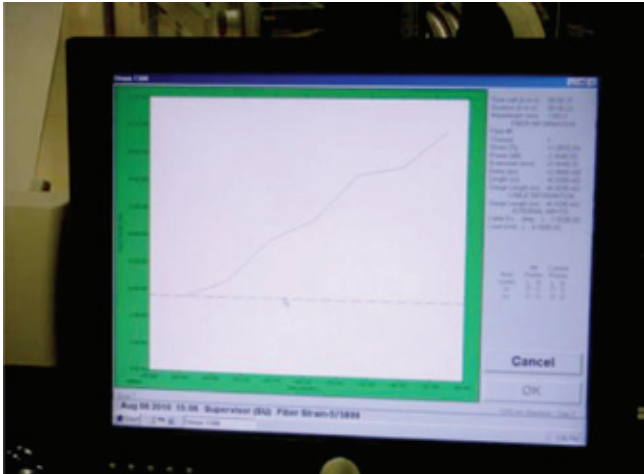
在松套电缆上可能会发生相反的情况。光纤可能因长度过量而互相交叠，这不是因为收缩引起的，而是由于弯曲半径缩小式光纤没有检测出的衰减增大引起的。每个管套不会进行单独的收缩测试，这些管套在临时存储时互相缠绕好几米，整体电缆没有控制每个单独管套收缩性的功能。

说到底，由于弯曲半径缩小式光纤的抗衰减能力增强，用现今测试传统光纤的方法可能无法完全测出这种新式光纤上的微弯和其他问题。这些现有的标准应该得到仔细审查，补充合适的新标准，特别是针对弯曲半径缩小式光纤独有特性的标准。

## 新测试方法的考虑因素

针对弯曲半径缩小式光纤的独有特性，现在非常有必要在GR-409和GR-20里加上一些新的测试标准。例如，现有测试标准里必须加上测量变形度的方法。在给室内和室外光纤电缆做FOTP-33b张力测试，老化和其他机械测试过程中应加上现在没有的变形或压力测试。

这在一整套的光纤变形度的资格性测试出现前可能会有困难，但是，新型的弯曲半径缩小式光纤需要这种新的测试标准。



○ 图6: 光纤变形与张力负载

另外，新的测试方法可以考虑测量松套电缆老化前后光纤多余长度的增量，也可以在每个单独的套管里进行这种测量。比如在老化和温度循环过程开始之前测量一下衰减和长度过量值，过程结束后再测一下这两个值。

两项比较可以得出合格/不合格的标准。现行的规范不需要这种类型的测试，也不需要松散的配置上进行测试。所有测试都是在光纤绕成盘状和卷状时进行。盘状松套光纤的多余长度值和宽松长度值要比直线型松套光纤大得多。

值得一提的是新的测试方法必须包括1,625纳米的超长波长。新测试方法将针对这个建立额外的合格条件，在这个波长时正好微弯边缘向内移动而光纤开始变形。有些客户在他们自己的标准里包括了这个要求，但这并不是现有光纤通用标准的一部分。

为了实现电缆收缩测试的最终目的，其重复性和测量能力都必须提高到新层次。测试范围和电缆芯线对光纤的挤压作用效果也要得到确定。这还仅仅是电缆连接器和电缆装配组件测试标准GR326的次生效应。

## 结论

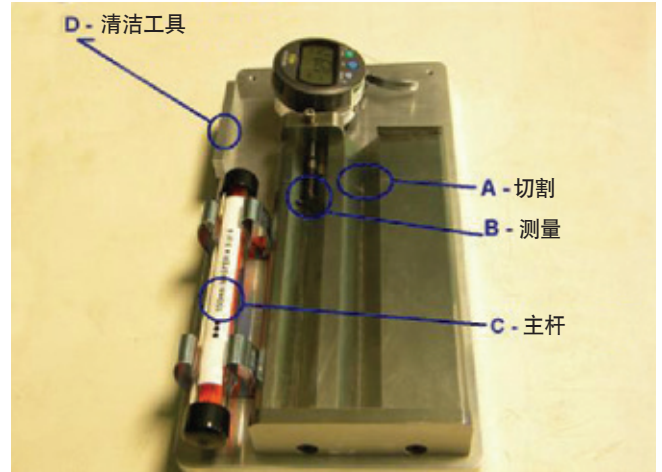
弯曲半径缩小式光纤的出现和正逐渐流行的光纤到户的建筑 设计，使那些为传统光纤准备的GR-409, GR-20, GR326及其他规范标准得到关注。为了更好确保光纤的长期稳定性，必须找到一种能准确体现这种光线独特特性的新测试方法。

使用较小弯曲半径光纤的光缆，肯定比使用传统单模光纤的光缆显示的衰减要小的多。换句话说，弯曲半径缩小式光纤可以在传统光纤无法适应的环境下生存。光缆到连接器接口的连接或许可以成为新的老化信号，因为光缆的收缩可能导致光缆至连接器处的光纤弯曲半径不合格。

这个现象在松散的光缆装配组件老化和移位后才会显现出来。仅这些就表明需要为弯曲半径缩小式光纤制定新的测试标准和要求。

光缆在GR326测试之前都被要求先进行GR-409或GR-20测试。光纤变形度和光缆收缩度以及老化后光缆对光纤的挤压程度组成一套更完整的GR326测试向导。另外随着更多可以在不同环境中运行的光缆变的常见，要将线性热膨胀系数作为性能规范的前提要求之一。

这篇文章建议对现行标准进行更新，特别是GR-409规范中对于收缩和光纤变形的耐力要求。否则，某些拙劣的光缆设计也可以通过现行标准并被广泛应用。必须承认传统光纤和



○ 图7: 高精度收缩度测量仪

弯曲半径缩小式展现出的不同特性和特征，测试标准必须符合这两种光纤的不同要求。因此，提议考虑在现有标准规范中增加一些更有针对性的测试标准。这样实际上产生了新的GGR-409和GGR-20标准来帮助确定某个特定光缆设计中可以使用的光纤。根据新式弯曲半径缩小式光纤来重新定义现有标准，这样服务商可以充分利用这种光纤的独特特性，使之在今日光纤到户的应用中大显身手。

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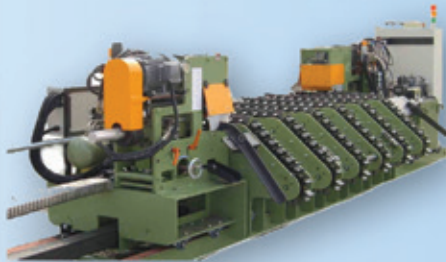
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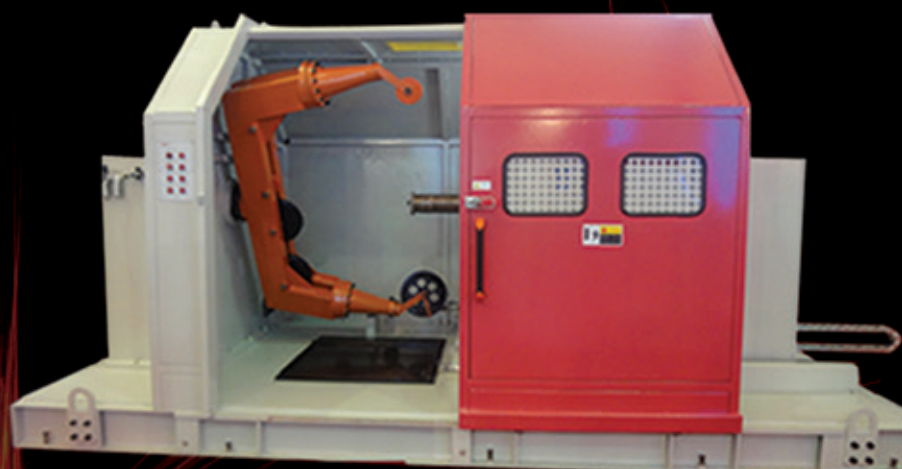


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