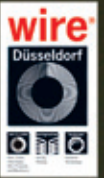


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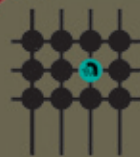
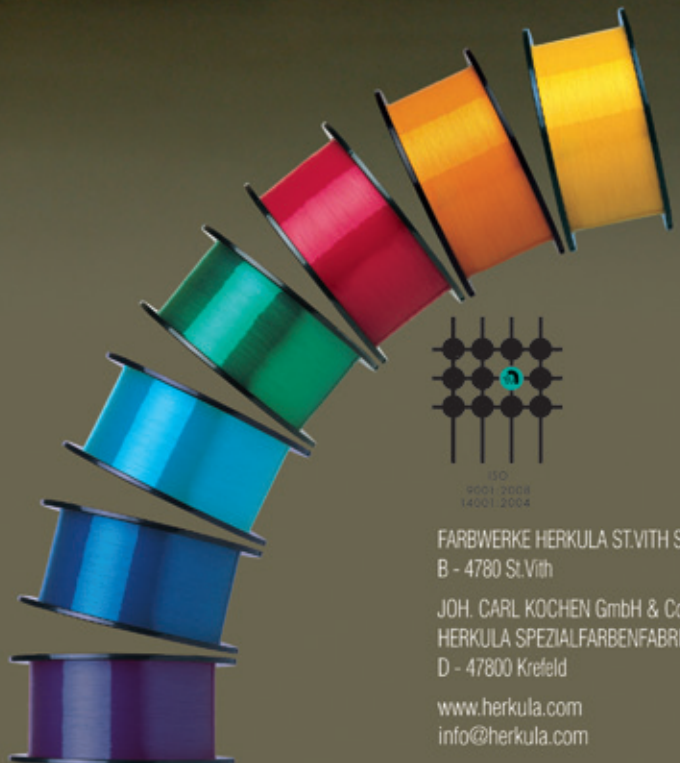
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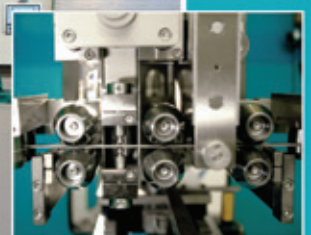
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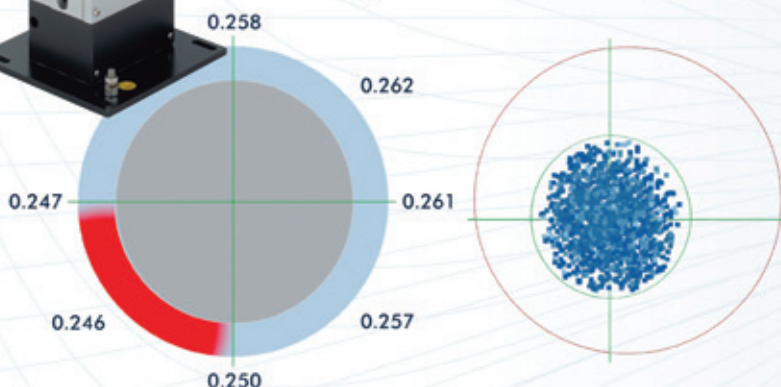
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Fortunes on the up worldwide

Firstly it would be remiss of me not to wish you all a happy and prosperous new year.

I would also like to take this opportunity to introduce you to a new section in Wire & Cable ASIA catering solely for Indian companies, their news and technology.

India forms an enormous part of the global economy and rapid advances over the past years have seen the country become an important player in many markets, wire and cable among them.

In the May issue we will also be taking a more in-depth look at the industry in India and, of course, this will be added to by the staging of Wire & Cable India 2012 Exhibition in October in Mumbai, which we will be attending.

The most noticeable thing in this issue is the optimism flooding throughout, not just India, but the industry as a whole.

Stories are of companies making major investments, winning large scale contracts, company buy-outs and turning in profits larger than before the recession took a hold on the global economies.

This can also be said in Wire & Cable ASIA's sister publications, *EuroWire* and *wiredInUSA*, and other trade journals. It is a steady constant across the board that fortunes in the wire and cable industry are most definitely on the up.

This will, no doubt, be in evidence in a couple of months' time when wire 2012 gets underway in Düsseldorf. There is a preview section on this on pages 58 and 59, and this will be followed in our March issue with a complete profile of the most important event in the wire and cable calendar.



David Bell
Editor

when and where



wire Düsseldorf 2010 Photographer – Rory McBride

March 2012

26–30: **wire Düsseldorf** – trade exhibition – Düsseldorf, Germany

Organisers:

Messe Düsseldorf

Fax: +49 211 45 60668

Email:

wire@messe-duesseldorf.de

Website: www.wire.de

May 2012

22–23: **Wire Expo** – trade exhibition – Dallas, USA

Organisers:

Wire Association

International

Fax: +1 203 453 8384

Email: info@wirenet.org

Website: www.wirenet.org

June 2012

19–21: **Guangzhou Wire & Tube** – trade exhibition – Guangzhou, China

Organisers:

Julang Exhibition Co Ltd

Fax: +86 203 862 0790

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meiwen@julang.com.cn

Website: www.julang.com.cn

September 2012

25–28: **wire/Tube China** – trade exhibition – Shanghai, China

Organisers:

Messe Düsseldorf China Ltd

Fax: +86 216 169 8301

Email:

www.shanghai@mdc.com.cn

Website: www.mdc.com.cn



▲ A closing cage type MKVS 8x2700 taken in Sket's works during final assembly

€11m deal for Sket

SKET Verseilmaschinenbau GmbH has received an order from Bridon International Ltd for the manufacture and supply of stranding machinery for the production of "high-performance-ropes" having a total value in excess of €11 million.

This new equipment will be installed at Bridon's new site in Newcastle-upon-Tyne.

There is already a long standing relationship between the two companies stretching back for over a decade when Sket delivered a tubular stranding machine type SRW 1+45x660 to Bridon in Willington Quay in 2000.

An SRW 1+26x610 from the same machine range followed in 2004. Also in 2004, a 40 bobbin tubular stranding machine type SRW 40x22" was supplied to Bridon's factory in the USA.

In 2007, Bridon in Gelsenkirchen in Germany took delivery of what was at

the time the largest take-up in the world, having a capacity of 370 tonnes, as well as two 200 tonne take-ups.

In addition to supplying Bridon with these new machines, Sket has further supplied various separate machine assemblies and has renovated and upgraded a number of existing machines.

Planning related to this new equipment involved close collaboration between the two contracting companies.

All design details related to the most important machine assemblies were agreed in advance before they were put into production.

In this way it was possible to take all of the customer's specific requirements into account along with all technical matters related to the future operation of the machines.

As the manufacture of the order

progresses, Bridon will carry out related audits on site in Magdeburg and on the premises of selected sub-contractors.

Bridon's order covers the supply of:

- A tubular stranding machine type SRW 680 having a bobbin diameter of 680mm for the manufacture of steel wire strand above 40mm
- A tandem cage stranding machine type MKVS having an advanced configuration for the closing of steel wire ropes having a diameter of up to 250mm

The strand capacities of the pay-off bobbins are up to 38 tonnes each. The maximum weight of rope produced will be in excess of 600 tonnes.

Sket Verseilmaschinenbau GmbH – Germany
Fax: +49 391 405 5815
Email: info@sketvmb.de
Website: www.sketvmb.de

Koreans developing new markets

LS Cable & System has won new contracts for important power projects in Kazakhstan and Paraguay, furthering the company's entry into the new markets of the CIS (Commonwealth of Independent States) and South America.

LS Cable & System announced on 12th October that the company had won power cable supply contracts worth \$24 million from Samruk Energy, a state-operated power company of Kazakhstan, and \$9.1 million from ANDE (Administracion Nacional de Electricidad) of Paraguay.

The Kazakhstani project is designed to resolve power deficiencies caused by expansive urban and industrial development in Almaty, the capital city.

LS Cable & System will provide products such as 127km of 220kV level extra high-voltage transmission cables and joints, and technical consultation until August.

In addition, 140km of optical ground wire (OPGW) and 1,100km of 220kV level gap conductors will be supplied, together with installation support by year end to San Lorenzo and Guarambare for national backbone power and communication network implementation in Paraguay.

LS Cable & System started vigorous overseas market entries from the early 1990s and now has around 100 operation sites in 24 countries. The company is implementing projects in China, Asia, the Middle East, Russia, the US and Europe.

Being the first cable company in Korea to win a contract for a project in the CIS and South America will give LS Cable & System an advantage in terms of market entry into these areas of high growth potential.

LS Cable & System – Korea Email: info@lscns.com
Website: www.lscns.com

New 1,500MW power plant

AMEinfo reports that Abu Dhabi Water and Electricity Authority (Adwea) is to unveil plans to build a 1,500-megawatt power plant.

Electricity demand in Abu Dhabi is growing at 12 per cent a year, while water use is likely to rise at an annual rate of five per cent, said Adwea director general, Abdullah Saif Al Nuaimi. The facility will also produce 100 million gallons of water, he said.

Abu Dhabi Water and Electricity Authority – Abu Dhabi
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Website: www.adwea.ae

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High speed broadband online via fibre optics

PACKET One Networks (Malaysia) Sdn Bhd (P1) plans to offer its customers high speed broadband (HSBB) services via fibre optics in the first quarter of 2012.

The move follows the signing of a partnership between P1 and Telekom Malaysia Bhd (TM) to accelerate the delivery of HSBB services.

At a press conference, P1's chief executive officer Michael Lai said the company expected the HSBB services roll-out to "contribute positively to the bottom line."

He added: "There will be a higher revenue per user (RPU) as the HSBB is

a high demand market segment." Mr Lai said P1 will leverage on TM's HSBB network in rolling out its services.

The could include Internet Protocol Television (IPTV), video-on-demand and other rich multimedia services.

Under the agreement, TM's group chief executive officer Datuk Seri Zamzamzairani Mohd Isa said TM will be providing the HSBB access and transmission services to P1.

He said the partnership reiterated TM's commitment to boost the HSBB eco-system locally by getting service providers to come on board and roll-out their differentiated value-added

services directly to consumers.

"TM's partnership with P1 not only reflects TM's intent to work with the industry but further strengthen our position as a neutral wholesale service provider," Zamzamzairani said.

TM has already rolled out the HSBB service to over 1.044 million premises in 77 exchange areas nationwide. It is on track to meet the targeted 1.3 million premises passed by end of the year.

Packet One Networks – Malaysia
Email: info@p1.com.my
Website: www.p1.com.my

Polymer compounding plant is a step nearer

Saudi International Petrochemical Company (Sipchem) and Hanwha Chemical Corporation have announced that their affiliate, Gulf Advanced Cable Insulation Company, has awarded the engineering design, procurement and construction (LSTK) contract for its wire and cable polymers compounding plant to POSCO Engineering Co, South Korea.

The new plant will produce power cable insulation materials at Sipchem's site in Jubail Industrial City, and is part of Sipchem's third phase expansion downstream programme.

Gulf Advanced Cable Insulation Company will be owned 50% by Sipchem and 50% by Hanwha Chemical of

South Korea, and is expected to commence operation in the third quarter of 2013. The major feedstock for the plant will be sourced from the International Polymers Company, a Sipchem affiliate.

Eng Abdulrahman A Al-Saif, Sipchem's president of project and services, declared that the award of the contract is an important step in Sipchem's expansion and development programme, affirming the capabilities of the company's management and its continued endeavours to acquire the best possible technical and financial offers for this project. He also added that the power cables insulation materials have a wide usage in the region.

Hanwha Chemical stated that this step is one of the important milestones of the project which would create great synergy with Hanwha's existing wire and cable compounding business and also represents Hanwha's strong commitment to the Middle East region as an essential part of its globalisation process.

Saudi International Petrochemical Company – Saudi Arabia
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Broadband free trial on offer in Oman

AMEinfo reports that Nawras, a communications provider in Oman, is offering a free trial of high speed broadband to around 200 customers living in Al Mabailah North.

For a three-month period, customers will be invited to experience the benefits of Fibre-To-The-Home (FTTH) with download speeds of between 10 Mbps and 100 Mbps, completely free of charge.

This pilot project marks the beginning of this new service. Nawras will be working with Haya Water Company and the Telecommunications Regulatory Authority to implement the fibre optic technology needed to provide high speed broadband.

"Obtaining customer feedback is always of great importance to our caring company," said Said Al Shanfari, Nawras' strategic business

development manager - FTTX project manager.

"The launch of new products and services incorporates comments and experiences gathered during the planning stages to ensure that final offerings reflect real customer needs."

Nawras - Oman
Email: info@nawras.om
Website: www.nawras.om

Anixter heads into Saudi Arabia

ANIXTER International Inc has established a strategic partnership in the Kingdom of Saudi Arabia with Mohawarean Trading Company (MTC), a subsidiary of Mohawarean International Group (MIG), through the formation of a new business entity, Anixter Saudi Arabia Limited. Anixter has the majority holding in the joint venture.

Commenting on this new venture, Anixter's president and CEO, Bob Eck, said: "One of our key strategies is to expand the markets we serve, and we believe the Kingdom of Saudi Arabia presents a significant opportunity for Anixter and its business partners given the Kingdom's investments in infrastructure, strong economy, and strategic economic and geographic position in the Middle East markets that Anixter serves."

MIG's group president and CEO, Mr Mohammed Al Othman, added: "The

formation of Anixter Saudi Arabia Limited as a joint venture with Mohawarean Trading Company is an exciting new development for our group.

"The combination of Anixter's unmatched capabilities and strong brand as a leading global distributor of products, coupled with Mohawarean Trading Company's established presence and knowledge of the marketplace in the Kingdom, provides an exciting formula to develop Anixter's position in the Saudi marketplace for the long term."

This is Anixter's latest and most significant commitment to the Middle East market and follows previously successful investments in the United Arab Emirates, Oman and Qatar.

Anixter International - USA
Email: info@anixter.com
Website: www.anixter.com

China copper trading

The website of the Chinese General Administration of Customs reports that the country undertook robust commodity purchases in September as traders took advantage of falling prices.

Chinese copper imports hit a 16-month high in September after increasing almost 12 per cent from a month earlier to 380,526 metric tons as domestic stockpiles were reduced by almost half since March. Copper imports have now shown gains for the fourth month in a row.

Marketwatch reports Royal Bank of Canada analysts in Hong Kong saw "solid" China demand for the two commodities "boosted by significant price falls over the month." Prices fell 24 per cent in September, but have climbed from the 14-month low hit in early October.

Strikes and output cuts at the world's largest copper producer Freeport McMoran's South American and Indonesian operations should provide a lower limit to prices in the near term.

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Internet: www.SKETVMB.de

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APWCC to sell its stake in joint venture

ASIA Pacific Wire & Cable (APWCC), which specialises in wires and cable manufacturing, has agreed to sell its 51 percent stake in its joint venture (JV) with fibre optic manufacturer Shandong Pacific Fibre Optic (SPFO) under certain agreed stipulations.

APWCC has decided to sell off its stake in the JV to a group of investors in an all-cash deal.

The sale would be completed in the event of completion of buyer's verification of the sale details and procurement of local government clearances, which APWCC believes will take between 30 and 60 days.

Subsequent to the completion of the above pre-requisites, APWCC will be

relieved of its commitments in relation to the joint venture with SPFO inclusive of any lease bonds.

APWCC's board has sought this move to retain focus in its core wire and cable business, also believing that over-supply inhibits the opportunity of sustainable development of its core wire and cable business.

The fibre optic cable business is controlled by a few major firms covering over 80% of the market in China.

Given such a scenario in the market, APWCC was unable to allocate its resources in the fibre optic domain owing to this saturation of the market by a few players. Also the access to raw materials by SPFO at competitive

prices, plus the consolidation plan of the fibre optic industry by the Chinese government, have been contributory factors.

Asia Pacific Wire & Cable – Singapore
Email: info@apwcc.com
Website: www.apwcc.com

New Dubai office

Modular Wiring Systems, a subsidiary of electrical cable manufacturer Tratos Ltd, has opened its first overseas office, in Dubai's Jebel Ali Free Zone (Jafza).

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Website: www.modularwiring.com

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THE 13th GUANGZHOU INTERNATIONAL METAL WIRE, BAR, STEEL ROPE & PROCESSING EQUIPMENT EXHIBITION

Show time: 19 - 21 June, 2012

Venue: China Import and Export Fair Pazhou Complex

www.gangsiexpo.com

In the past twelve years, the exhibition successfully played its role in industry trade boost. It has attracted 200,000 professional purchasers, been attended by over 30 countries business departments, and been issued by more than 300 medias. "The 13th Guangzhou International Metal Wire, Bar, Steel Rope & Processing Equipment Exhibition" will be held at Pazhou Complex-the largest exhibition center in Asia.

Take a panoramic view around the world, this exhibition will play an important role & bring great business opportunities again.

Hope vendors & visitors could catch this great opportunity to win a good year.



Scope of exhibiting

1. Steel smelting skill and technology, aluminum, copper manufacturer, stainless steel manufacturer.
2. Strip and steel band ,type and H-type steel, bar and alloy steel , special steel, kinds of mould steel;
3. Wire rod, stainless steel wire rod, spring wire rod , screw wire rod and other steel wire ;
4. Steel wire: wire and steel materials, cable, optical cable steel wire, tyre bead wire, lightning proof wire, iron wire, galvanized steel wire, Steel-Cored Aluminum Strand wire, wire for spring, brush wire, spoke wire, section wire, metallic clothing wire, etc.
5. Wire cable: hoisting cable (elevator, mine, cable car), stayed wire (tow, transportation by driving), fixed wire (dock, location of electric pole), strength wire (bridge, ropeway), hoisting wire (hoisting, bridge, ropeway), exclusive steel cable; prestressed stranded wire, prestressed steel wire, prestressed steel bar, building wire, wirework; wire manufacture and accurately machined machine, wire draw bench, wire-rewinding machine, winding, observation and control, testing.
6. Steel mesh (steel plate mesh , mesh reinforcement welding, delivery mesh, punching mesh ,railing-protection mesh and steel mesh moulding equipment;
7. Board cutting equipment (crosscut , slitting machine), bending and punching equipment; plate hot rolling, cold rolling, cold bending, rolled forming equipment;
8. Bar and wire rod mill ,bar rolling automation measure and technology; drawing machine, wire draw bench ,roller, metallurgic bearing, coupling, gear box and processing equipments;
9. Machinery for metal processing, testing machine for metal materials, metal circular saw machine, beveller, abrading and polishing equipment, metallurgic saw piece and sorts of cutting tool;
10. Cooling fluid and oil for metal processing, lubricating materials , anti-rust materials , surface treatment raw material and equipment; detector of defects ,metallurgic packing machine, winding equipment, weighting apparatus, metal mark-printing machine;
11. Set of welding apparatus , welding material , testing apparatus of welding line;
12. Metallurgic automation apparatus, metallurgic transportation equipment,

Advertisement

The official journal is perfectly printed with A4 art papers (210mm×285 mm) and distributed to exhibitors and visitors. Enterprises are welcomed to make advertisement in our journal or by other ways. The details see as follows:

Cover: USD1200	Admission ticket:USD2500/10000pcs	Inside front cover/inside back cover: USD5000
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Exhibition charges

Brand Hall (minimum area of 36sqms): 380 USD/sqm raw space rent + 5 USD/sqm construction management fees
 Overseas Exhibitors Standard Booth: USD3800/booth (9sqms)
 Included Basic Fittings: booth boarding, fascia board with company name, one table, two chairs, carpet , garbage can , two daylight lamps ,air condition
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1. Advertising in the related authoritative magazines in Germany, USA, UK, South Korea, India, Russia, Japan etc.
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3. 300,000 free visiting tickets to target customers by our expanding department.
4. Leaflets about the exhibition which will be distributed by local professional associations (academies), commercial section of foreign embassies in China and relevant international organizations in China.
5. Leaflets about relevant exhibitions at home and abroad.



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Uganda's fibre Internet backbone

UGANDA has inaugurated the second phase of an Internet backbone infrastructure stretching 1,380km (855 miles) and bringing the total amount of fibre optics laid in the country so far to 1,548km.

The second phase of the project comes more than four years after the first phase of the US\$106 million National Data Transmission Backbone Infrastructure (NBI) and the Electronic Government Infrastructure (EGI) initiative. The second phase has linked Uganda to neighbours Kenya in the east and South Sudan to the north.

The Chinese government sourced and recommended Huawei Technologies to carry out the project. The Uganda NBI is part of an East Africa-wide terrestrial fibre-optic cable, which will, when complete, cover 15,600km linking the five countries of Uganda, Kenya, Tanzania, Rwanda and Burundi.

In the final phase, which begins in January, 307km of fibre will be laid from the Uganda capital, Kampala, to the Rwanda border to complete a link from the Kenyan port town of Mombasa.

James Saka, the executive director of the National Information Technology Authority Uganda (NITA-U), said the 24-core, 2.5GB cable, with potential for upgrade to 10GB, will provide high-speed Internet bandwidth to support IT-enabled services such as business process outsourcing (BPO).

It will also enhance efficiency and effectiveness of service delivery to the citizens of Uganda through electronic transactions such as e-taxation, e-health and e-learning.

Huawei Technologies – China
Email: info@huawei.com
Website: www.huawei.com

ACE fibre-optic cable lands in Sierra Leone

The Africa Coast to Europe (ACE) submarine cable arrived in Sierra Leone in early October, an event hailed by President Ernest Koroma as opening the country to the world, with the promise of providing job opportunities and reducing the cost of communications when it becomes operational before the end of 2012.

Launched by France Telecom as part of a consortium with telecom operators in participating countries, the 17,000km ACE cable will run from France to South Africa, connecting 23 countries either directly or indirectly, and will provide a significant boost in broadband access.

At the landing ceremony, Shadi Al-Gerjawi, CEO of Sierra Leone's largest mobile operator, Africell, said the cable would provide more than 40 times the bandwidth currently serving the close to six million people in the country. Until now, Sierra Leone has relied on highly expensive satellite bandwidth for Internet connections.

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PolyOne buys 'unique specialty' ColorMatrix

POLYONE Corporation, a global provider of specialised polymer materials, services and solutions, is buying ColorMatrix Group, Inc, an innovator in liquid colourants, additives and fluoropolymers.

"I am extremely pleased to announce we've reached an agreement to acquire ColorMatrix, an exceptional and unique specialty company," said Stephen D Newlin, chairman, president and chief executive officer, PolyOne Corporation.

"Much like our acquisition of GLS in 2008, ColorMatrix is a game-changer for PolyOne. With the addition of ColorMatrix, more than 50 per cent of PolyOne's operating income will now be derived from our specialty businesses, compared to only two per cent in 2005," he added.

ColorMatrix is a leading manufacturer of performance-enhancing specialty additives, liquid colourant and dosing technologies that serve diverse niche markets, such as rigid beverage and food packaging, performance moulding and fibre.

The company's leadership position in technology is evidenced by an IP portfolio of 162 patents and 107 pending applications worldwide. Its solutions in packaging, in particular, offer customers exceptional performance attributes such as increased product shelf life, taste

preservation and improved recyclability.

Additionally, ColorMatrix is a global provider of colourant for fluoropolymers and provides speciality additives that support fluoropolymers' unique high-performance properties such as lubricity, high-level heat insulation, static dissipation and x-ray opaqueness.

Through its April 2011 acquisition of Gayson, ColorMatrix expanded its portfolio to include short turnaround, custom colour dispersions used in silicone processing for a broad range of medical, consumer and automotive applications.

Under the leadership of CEO John Gelp and a strong management team, ColorMatrix achieved sales and EBITDA of approximately \$196.8 million and \$43.6 million respectively for the 12 months ended 30th June, 2011.

"Since 2002, ColorMatrix has organically increased EBITDA at an annualised growth rate of 16 percent, and our purchase price of \$486 million recognises the earnings and growth potential of this specialty business," said Mr Newlin.

"We believe we can accelerate this growth by leveraging our global scale and through additional investment in commercial resources, just as we've done with GLS."

"Not only will the acquisition of ColorMatrix accelerate our specialisation strategy, it also expands our geographic presence in Asia and Brazil and creates an entry point into Russia," said Robert M Patterson, executive vice president and chief financial officer.

Approximately 70 per cent of ColorMatrix's revenues are outside North America.

PolyOne intends to finance the purchase price of \$486 million, which includes transaction tax benefits of \$10 million, with a combination of cash on hand and the addition of approximately \$300 million of long term debt.

The acquisition is being made on a cash-free, debt-free basis, and the purchase price is subject to a customary working capital adjustment and other closing conditions.

"Net of interest expense on the long term debt, and the incremental investments in commercial resources, we expect ColorMatrix to be modestly accretive to earnings in 2012 (\$0.02-\$0.03 per share) and to add approximately \$0.10-\$0.12 per share in 2013," added Mr Patterson.

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New finance chief

LIHUA International Inc, a Chinese developer, designer, and manufacturer of low cost, high quality alternatives to pure copper products, has appointed Ms Daphne Yan Huang as chief financial officer.

Ms Huang had served as Lihua's executive vice president of corporate finance and director of investor relations since October 2009 and succeeds Mr Yang "Roy" Yu, who has been appointed as the company's executive vice president of finance.

"We are extremely pleased that Daphne has agreed to assume the position of CFO, and that Roy will remain an integral part of our finance team," said Mr Jianhua Zhu, chairman and CEO of Lihua.

"Since joining Lihua after the listing of our common stock on NASDAQ, Daphne has made substantial contributions to our strategic direction and has served as the face of our company to the investment community. Given her extensive background in accounting and finance, and experience with leading global financial institutions, we are confident that Daphne will thrive in this new role."

Lihua International Inc – China

Fax: +86 511 863 120 40

Email: info@lihuaintl.com **Website:** www.lihuaintl.com

Awarded for leadership



▲ Marc Hubert, Borealis vice president of wire and cable, accepts the award from Gary Jeffery, partner, director of operations UK, Frost & Sullivan

Borealis was recently awarded the Frost & Sullivan 2011 Europe product leadership award in the high voltage direct current (HVDC) cable insulation market.

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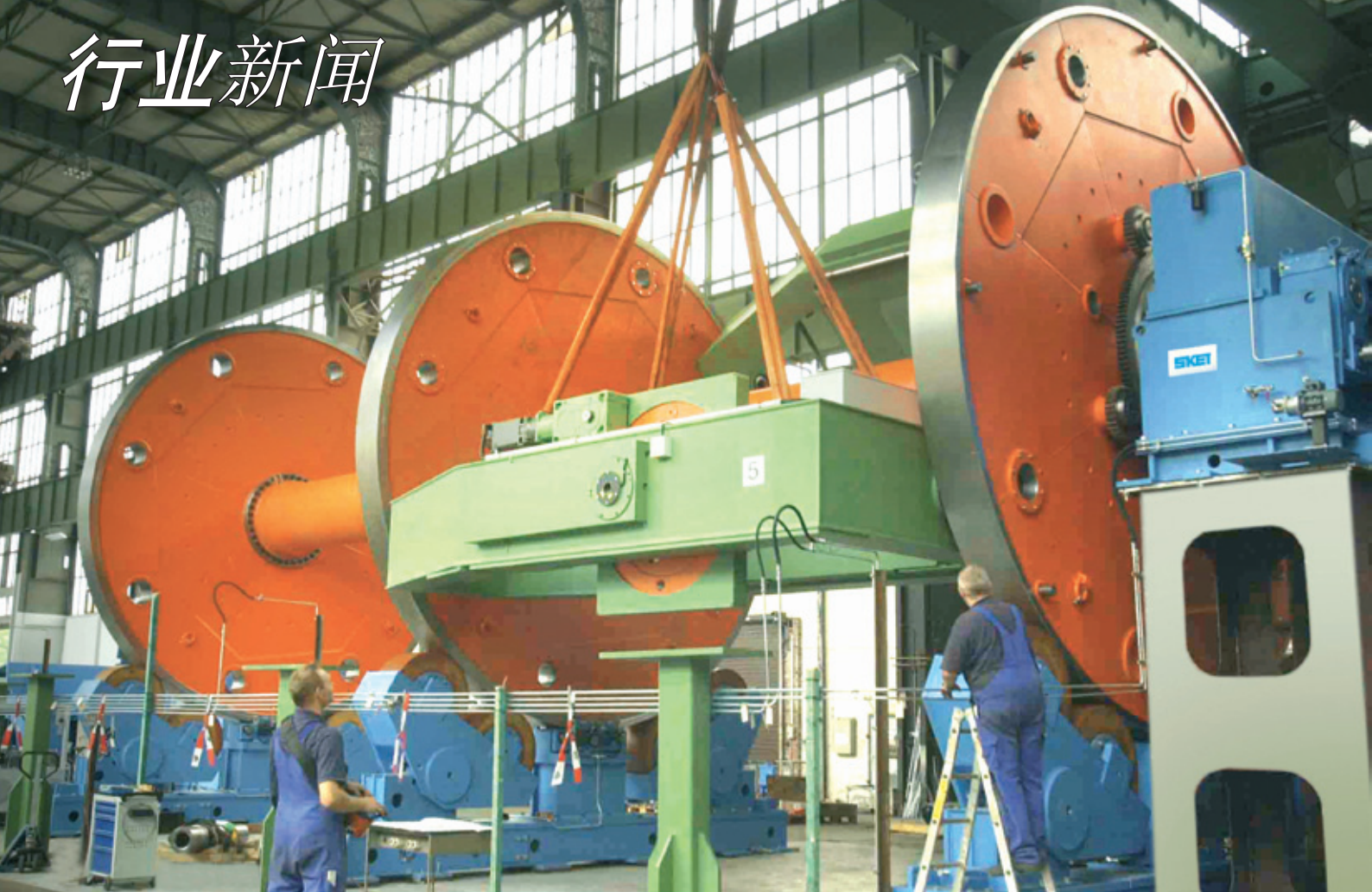
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实力不断壮大

Sket Verseilmaschinenbau GmbH接到来自Bridon International Ltd公司的订单，为其提供生产高性能绳索的绞线机，订单总价值超过110万欧元。

该新设备将于明年安装在Bridon的新生产基地Newcastle-upon-Tyne。

这两家公司之间的业务关系由来已久，早在十多年前，也就是2000年在威灵顿码头Sket就向Bridon 提供了SRW 1+45x660型管式绞线机。

2004年同一机械系列SRW 1+26x610型机又销往Bridon。同年，Bridon美国工厂又购进一台SRW 40x22“型40线轴管式绞线机。

2007年，Bridon在德国盖尔森基兴布顿购买了当时世界上最大的收线机，产能达到370吨，以及两台200吨的收线机。

除了这些新机器以外，Sket还向Bridon提供各种单独的机器组件，并帮助改造和升级诸多现有机器。

与该新设备相关的计划包括两家合约公司之间的亲密合作。

机器关键组件的所有设计细节在投产之前都事先约定好。

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- SRW 680型管式绞线机，线轴直径680毫米，用于生产40毫米以上的绞线。
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Sket Verseilmaschinenbau GmbH
- 德国
传真: +49 391 405 5815
电子邮件: info@sketvmb.de
网址: www.sketvmb.de

阿布扎比建立 1,500兆瓦发 电厂

AMEinfo报道，阿布扎比水电局(Adwea)计划建造一个1,500-兆瓦的发电厂。

阿布扎比的电力需求每年以12%递增，而水的年增长率可能达到5%，Adwea总干事Abdullah Saif Al Nuaimi说。

该设施也将生产1000万加仑的水，他说。

Abu Dhabi Water and Electricity Authority - 阿布扎比
传真: +971 026 943 192
电子邮件: info@adwea.ae
网址: www.adwea.ae



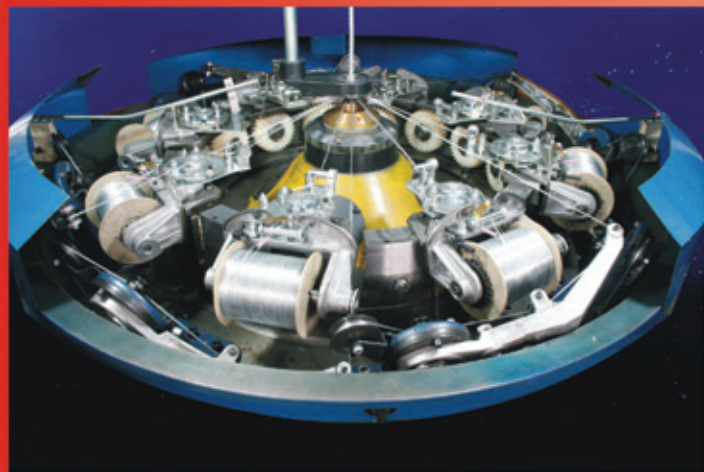
NYDG

上海南洋电工器材有限公司主要从事于电线电缆机械的设计和制造，现主要产品为编织机，绕包机，印字机。其中，编织机按编织线径由小到大分为：轻型、标准型、重型。



GSB-1Q型

GSB-1Q型16锭高速编织机是目前我公司的最新产品。该机型适用于编织极细丝，应用行业包括微型电脑，移动通讯设施，航天航空及军事领域等。该机型的主要技术指标达到国内领先水平，接近国际先进水平，每分钟转速范围0~120米，无极调速；由交流伺服系统控制牵引。编织节距可在2~60mm范围内以精度0.1mm无级任意选择；可编织0.03~0.05mm的极细铜丝；恒张力收放线机构确保编织过程中的张力均衡；机器工作噪音 ≤ 75 分贝。



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PolyOne收购“独特”的ColorMatrix

PolyOne公司是专业聚合物材料、服务和解决方案的全球供应商，目前正收购ColorMatrix集团公司，ColorMatrix是液体着色剂、添加剂和含氟聚合物的创新者。

“我非常高兴地宣布，我们已经达成了协议，关于收购ColorMatrix这一独特专业的公司，”PolyOne公司董事长、主席兼首席执行官Stephen D Newlin说。

“正如我们在2008年收购了GLS一样，ColorMatrix是PolyOne的游戏改变者。随着ColorMatrix的加入，PolyOne公司超过50%的营业收入将源于我们特有的业务，而在2005年只有2%。”他补充说。

ColorMatrix是性能强化特殊添加剂、液体着色剂和配料技术的领导者，服务于不同市场，比如严格的饮料和食品包装，性能成型和纤维等。

公司在技术方面的领导地位表现在其拥有162项专利和107项世界未决应用。值得一提的是公司的包装解决方案，为客户提供

卓越的性能属性，比如延长产品保质期，口感保鲜和改善可回收。

此外，ColorMatrix是含氟着色剂的全球供应商，提供专有的添加剂支持含氟聚合物独有的高性能属性，比如润滑性、高层次的隔热、静电消散和x射线不透明。通过在2011年4月收购了Gayson，ColorMatrix扩大了投资，包括短期周转，其硅加工自定义色彩分散剂，广泛应用于医疗、消费电子和汽车应用。

在首席执行官John Gelp和强大的管理团队领导下，截至2011年6月30日前的12个月，ColorMatrix分别取得了1.968亿美元的销售和4360万美元的EBITDA。

“自2002年以来，ColorMatrix就有计划地以年增长率16%的速度提高EBITDA，我们4.86亿美金的收购价格也认可该特色业务的收益和增长潜力，”Newlin先生说。

“我们相信，通过利用全球市场的规模和在商业资源方面的投资，能够加速这一增长，就像我们收购GLS的举措一样。”

“收购ColorMatrix不仅可以加速我们专业化战略的步伐，而且能够扩大我们在亚洲和巴西的地理存在，并且创造一个切入点进入俄罗斯，”执行副总裁和首席财政官Robert M Patterson先生说。ColorMatrix约70%的收入来自北美以外地区。

PolyOne拟以4.86亿美元的收购价格，其中包括1000万美元的交易税，以及到手的现金和大约3亿美元的长期贷款。

收购行为以无现金和无贷款为基础，收购价格基于一贯的运行资金调整和其他成交条件。

“由于长期贷款的净利息支出和商业资源的增量投资，我们期望ColorMatrix在2012年适度增值收益(0.02-0.03美元每股)，到2013年每股增加约0.10-0.12美金，”Patterson先生补充说。

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HSBB在马来西亚

Packet One Networks (马来西亚) Sdn Bhd (P1)计划在2012年第一季度通过光纤为客户提供高速宽带(HSBB)服务。此举是因为P1和马来西亚电讯公司(TM)签署了合作关系条约，以加速高速宽带服务的交付。

在新闻发布会上，P1首席执行官Michael Lai说，公司期望高速宽带服务的推出“积极贡献于底线，”并补充道：“由于高速宽带的市场需求大，将会有有一个较高的人均收益。”

Lai说，P1将根据TM的高速宽带推出其服务，包括互联网协议电视(IPTV)，视频点播和其它丰富的多媒体服务。

根据协议，TM集团首席执行官Datuk Seri Zamzamairani Mohd Isa说，TM将为P1提供高速宽带接入和传输服务。他说合作伙伴关系重申了TM致力于推动本地高速宽带生态系统，让服务供应商为其客户推出差异化的增值服务。

“TM与P1的伙伴关系不仅反映了TM与同行合作的倾向，而且进一步强化了我们作为中立的规模服务供应商的地位，”Zamzamairani说。

TM在全国77个交换区为104.4万处所提供了高速宽带服务。预计到明年底将满足130万处所的使用要求。

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新迪拜办事处

Modular Wiring Systems是电缆制造商Tratos Ltd的子公司，在迪拜的Jebel Ali免税区(Jafza)开设了第一家海外办事处。

位于Jafza的Modular Wiring Systems新办事处配备的人员对Modular Wiring Systems系列产品和服务训练有素经验丰富，使得公司能够向阿联酋及以外的地区发展。在英国，公司提供相同精确水准的专业服务，从设计支持、系统供给到售后服务，目前可以服务于整个中东地区。

随着整个阿联酋地区建设工程的增多，包括许多大型的体育场馆和为2022年卡塔尔世界杯准备的建筑物，Modular Wiring Systems的即插即用电力和照明配电系统是理想的选择。

这些预制场外建筑易于快速安装。它们使用了不同用途的电缆，包括公司的Firesafe系列防火阻燃电缆。Modular Wiring Systems在为大型体育馆包括温布利大球场设计和供应配电系统'方面有着相当广泛的经验。

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高分子复合设备更近一步

沙特国际石化公司 (Sipchem) 和 Hanwha Chemical Corporation 联合宣布他们的分支机构 Gulf Advanced Cable Insulation Company 获得工程设计、采购和施工 (LSTK) 合同, 为韩国 POSCO Engineering Co 提供电线电缆聚合物复合设备。

该新设备在位于朱拜勒工业城的 Sipchem 基地用于生产电力电缆绝缘材料, 也是 Sipchem 第三阶段扩建下游工程的一部分。Sipchem 和韩国 Hanwha Chemical 各持有 Gulf Advanced Cable

Insulation Company 公司 50% 的股份, 可望在 2013 年第三季度投入运营。工厂的主要原料将来自国际聚合物公司 - Sipchem 的分公司。

Sipchem 项目和服务部总裁 Eng Abdulrahman A Al-Saif 宣称, 合同的取得是 Sipchem 扩张和发展计划项目迈出的重要一步, 充分肯定了公司的管理能力, 并继续努力争取获得最佳技术和经济成果。

他还补充说, 电力电缆绝缘材料在该地区应用广泛。

Hanwha Chemical 表示, 这一步是项目的重要里程碑, 与 Hanwha 现有的电线电缆复合业务造成巨大的协同作用, 同时也代表 Hanwha 在中东地区坚定的承诺, 作为其全球化进程重要的组成部分。

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ACE 光缆落户塞拉利昂

非洲海岸到欧洲 (ACE) 海底电缆 10 月初到达塞拉利昂, Ernest Koroma 总统表示非常欢迎, 因为此举意味着国家向世界开放, 带来大量的就业机会, 降低通信成本, 2012 年底前将投入运行。由法国电信发起, 作为参与国电信运营商合作关系的一部分, 长达 17,000 千米

的 ACE 电缆将从法国铺设到南非, 直接或间接连接 23 个国家, 显著提升宽带接入。

在登陆仪式上, 塞拉利昂最大的移动运营商 Africel 首席执行官 Shadi Al-Gerjawi 说, 电缆将提供 40 倍以上的带宽, 服务于

该国约 600 万用户。到目前为止, 塞拉利昂互联网连接还仍然依靠昂贵的卫星带宽。

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上海申辰线缆设备有限公司

Shanghai Shenchen Wire & Cable Equipment Co., Ltd

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Shanghai Shenchen Wire & Cable Equipment Co., Ltd (SCH) is located in the city of Shanghai in China, we are a world wide leader in the manufacture of cold welding machinery. Our products are sold internationally including Germany, Brazil, Britain, Russia, Turkey, India, Indonesia, Malaysia, Thailand, Vietnam, Japan, Korea, Egypt and the USA. Our customer service and products are provided to the highest standards. Our products are approved by Safenet Limited and have conferred the CE certificate.

Our products can weld Copper (Cu) wire from Ø0.06 - Ø25mm, Aluminum (AL) wire from Ø0.08 - Ø35mm; and flat strips maximum width 33 mm, minimum thickness 0.45mm.

Website: <http://www.sch.chinacable.com.cn>
 E-mail: schsc8@yahoo.com.cn
jasonzhong@vnet.citiz.net

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Y15-B


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AC107


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AC2013


AC158


AC1510


AC2515







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Anixter进军沙特阿拉伯

Anixter International Inc在沙特阿拉伯王国与Mohawarean International Group (MIG)的子公司Mohawarean Trading Company (MTC)公司建立了战略合作伙伴关系，成立新的业务实体Anixter Saudi Arabia Limited公司。Anixter持有合资公司的大部分股份。

谈到这个新的合资公司，Anixter总裁兼首席执行官Bob Eck先生说：“我们的主要

战略之一是拓展服务的市场，我们相信沙特阿拉伯王国为Anixter和其业务伙伴提供了重要的机遇，比如沙特王国在基础设施方面的大力投资，强大的经济实力，在中东市场的战略经济和地理地位。”

MIG集团总裁和首席执行官Mohammed Al Othman补充说：“与Mohawarean Trading Company一起成立Anixter Saudi Arabia Limited合资公司对于我们

集团来说是鼓舞人心的新发展。Anixter无与伦比的产能和作为全球领先产品分销商的强大品牌效应，再加上Mohawarean Trading Company在沙特王国的声誉形象和对市场的了解，如此完美的组合为我们提供了一个令人兴奋的准则，那就是长期发展Anixter在沙特市场的地位。”

这是Anixter对中东市场最新最重要的承诺，在此之前，已成功在阿拉伯联合酋长国、阿曼和卡塔尔成功投资。

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任命新财务总监

Lihua国际公司是中国低成本、高品质纯铜替代品的开发、设计和制造商，最近任命Daphne Yan Huang女士为新的首席财务官。黄女士自2009年10月以来担任Lihua公司财务部执行副总裁和投资者关系总监，在此之前，Yang “Roy” Yu先生担任公司财务部执行副总裁。“我们非常高兴，Daphne能够接任CFO的职位，Roy仍然是公司财务团队的成员。”Lihua公司董事长兼首席执行官朱建华(音)先生说。“自从公司在纳斯达克上市

之后，Daphne加入Lihua公司，在战略方向方面做出了重大贡献，在投资界代表了公司形象。鉴于她在会计和财务领域的广泛背景，以及与世界领先的金融机构打交道的经验，我们相信Daphne一定CFO岗位上发挥出色。”

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乌干达光纤互联网中框网络

乌干达已经开始建设第二阶段互联网中框网络基础设施，绵延1,380千米(855英里)，到目前为止该国的光纤总铺设长度达1,548千米。项目的第二阶段是继四年多后第一阶段价值1.06亿美元国家数据传输中框网基础设施(NBI)和电子政府的基础设施(EGI)项目完成后开始的。第二阶段乌干达将连接邻国肯尼亚东部和南苏丹北部。中国政府推荐华为公司开展该项目。乌干达NBI是东非陆地光缆的一部分，完成后，将覆盖15,600千米，连接乌干达、肯尼亚、坦桑尼亚、卢旺达和布隆迪五个国家。在最后阶段，1月开工，307

千米的光纤将从乌干达首都坎帕拉铺设，到达卢旺达边界，完成从肯尼亚港口城市蒙巴萨的连接。乌干达国家信息技术管理局(NITA-U)主任James Saka说，24-芯，2.5GB电缆，有潜力升级到10GB，将提供高速互联网宽带，支持IT服务，比如业务流程外包(BPO)。网络也将提高乌干达人民办事的效率和有效性，通过电子交易，如电子税务，电子医疗和电子学习。

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开拓新市场

LS Cable & System赢得了哈萨克斯坦和巴拉圭重要电力项目的新合同，推进了公司渗透到独联体(独立国家联合体)和南非新市场的进程。LS Cable & System宣布，公司于10月12日分别赢得了来自哈萨克斯坦国有电力公司Samruk Energy价值2400万美元的电力电缆供应合同，以及乌拉圭ANDE(Administracion Nacional de Electricidad)价值910万美元的合同。哈萨克斯坦项目旨在解决首都阿拉木图因城市化膨胀和工业发展导致的电源不足。LS Cable & System将提供长127千米的220千伏超高压传输电缆和接头，直到明年8月前提供技术咨询。此外，公司还将为乌拉圭Lorenzo和Guarambare

国家中枢电力和通信网络提供140千米长的光学地线(OPGW)和1,100千米长的220千伏水平差距导线，以及年底前提供安装支持。LS Cable & System在20世纪90年代初就轰轰烈烈进军海外市场，目前在24个国家拥有大约100多个办公场所。公司正在中国、亚洲、中东、俄罗斯、美国和欧洲实施项目。作为韩国首家电缆公司赢得了独联体和南非市场的订单，今后LS Cable & System进入这些高增长潜力市场将更具优势。

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荣获产品领导奖



○ Borealis电线电缆副总裁Marc Hubert接受来自合作伙伴、英国运营总监Gary Jeffery颁发的Frost & Sullivan奖

Borealis公司最近在高压直流(HVDC)电缆绝缘市场荣获Frost & Sullivan 2011年欧洲产品领导奖。

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阿曼提供宽带免费试用

AMEinfo报道，阿曼通信服务供应商Nawras正为居住在Al Mabailah北部约200名客户提供高速宽带免费试用。为期三个月，客户将被邀请体验光纤到户(FTTH)的优势，下载速度在10 Mbps到100 Mbps之间，完全免费。该试点项目标志着新服务的开始。Nawras将与哈亚自来水公司和电信管理局合作，实施高速宽带所需的光纤技术。“获取客户反馈始终倍受公司重视，”Nawras战略业务发展经理、FTTX项目经理Al Shanfari说。“推出的新产品和服务整合了规划阶段收集的意见和经验，确保最终产品反映了真正的客户需求。”

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APWCC出售其在合资企业的股份

Asia Pacific Wire & Cable (APWCC)公司专业从事电线电缆生产,已同意出售其在合资公司51%的股份,该合资公司(JV)是与光纤制造商山东太平洋光纤(SPFO)在达成某种规定下创建的。

APWCC决定以现金方式出售其股份给一些投资者。整个销售过程包括买方核查销售细节和当地政府审核批准,APWCC预计将历时30至60天。

上述先决条件完成后,APWCC将解除与SPFO合资企业相关的任何约定或义务,包括任何租赁债券。

APWCC董事会决定把重心放在电线电缆业务上,并且认为供给过多抑制其核心电线电缆可持续性发展的机会。

光缆业务由几个大公司控制,占整个中国市场份额的80%。

由于市场饱和,并且由几家操纵,鉴于这样的市场情况下,APWCC在光纤领域无法分配其资源。另外,SPFO能够以有竞争力的价格获得原材料,加上中国政府的光纤行业整合计划,这些因素都促成了这一决定。

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中国市场铜交易状况

中国海关总署网站报道,中国九月由于铜价下跌,商人们大肆进行采购。中国九月份铜进口量创下16个月以来的新高,在1个月前就增加近12%,达到380,526公吨,国内库存减少至大约三月以来的一

半。铜进口量已经显示为连续第四个月上涨。Marketwatch报道说,加拿大皇家银行在香港的分析师认为,中国对这两种商品的“坚实”需求助推价格上涨,虚高的价格不久将下跌。果然价格在九月下降

了24%,连续14个月来价格一直走低,但十月初有所攀升。世界上最大的铜生产商南美Freeport McMoran的罢工和减产,以及印尼军事动荡,应该在短期内限制价格的进一步走低。

Wire & Cable ASIA 线缆

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- 992 From the New Guinea
- 996 From the Indonesia

Wire & Cable ASIA – January/February 2012

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India

Insight

US\$1.4bn loss to the cable pirates

India will account for US\$1.4 billion out of a loss of over US\$2.1 billion that the Asia Pacific region is estimated to witness in 2011 due to cable piracy, according to CASBAA.

Terming piracy as a major concern for the Asia Pacific region, Cable and Satellite Broadcasting Association of Asia (CASBAA) said a lack of market transparency and tolerance for illegal connections to cable systems has resulted in big losses in many countries of the region.

In a report, CASBAA noted that piracy remains a major concern for channels and operators in the region with signal theft estimated to be more than US\$2.1 billion at the end of 2011.

“India alone will have revenue losses of US\$1.4 billion as a result of piracy by the end of 2011,” it said.

CASBAA is the association for digital multichannel television, content, platforms, advertising and video delivery across Asia.

It promotes growth of pay TV and video content through industry information, networking exchanges and events while promoting global best practices.

CASBAA – India
Email: india@casbaa.com
Website: www.casbaa.com

InnoVites lands CCI contract

Cable Corporation of India (CCI) has selected InnoVites for Cable® and CableBuilder® to be implemented in its operations.

InnoVites BV, a software development company, has offices in India and Holland.

During interactive sessions with all levels of the CCI management the InnoVites team demonstrated the added value of its integrated business solution for the cable industry.

The close match with the cable industry processes set the InnoVites offering apart from the competition and this convinced CCI management that InnoVites is its partner of choice.

Mr Rohan Khatau, business development manager at CCI, said: "To support our strategy we need an IT system that supports our business for today and tomorrow.

"That's why we looked for a ready-made solution that understands our business and enables us to improve the efficiency of our processes. The InnoVites team understands the issues in the cable industry and has standard solutions available for it."

Albert Groothedde, CEO for InnoVites, added: "We are very happy to serve CCI as our customer. The agreement with CCI is another confirmation of the market leadership of InnoVites in India.

"From our office in Hyderabad we serve the wire and cable industry in India and abroad."

InnoVites BV – Netherlands

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Strong growth for leaders Subex

Subex Ltd, a leading global provider of business support systems (BSS) for communications service providers, has recorded strong growth and profitability in its continuing product business (business optimisation or RMS).

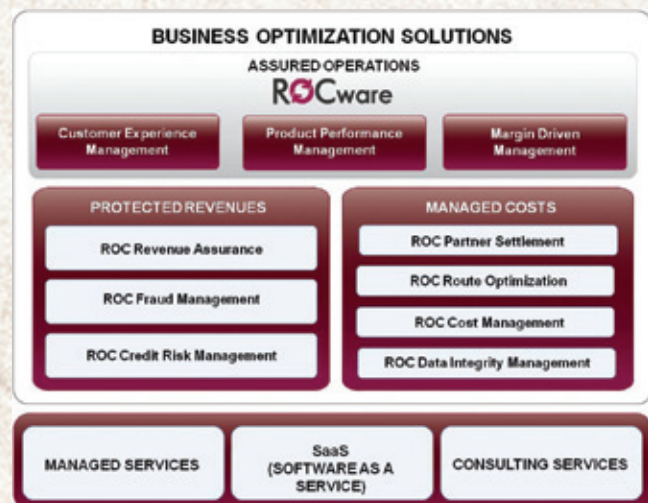
Revenue for this period has grown 26 per cent year on year. Consequent to the sale of its activation products, the company will put more emphasis into business optimisation or RMS. This segment, the area in which the company traditionally operates, is the fastest growing segment in telecom BSS space.

The product revenue for the company stood at Rs 1177.65m (US\$25.18m) contributing to 91.37 per cent of the

consolidated revenue. The company posted a product EBITDA of Rs 381.66m (US\$8.16m) ie 32.41 per cent, while the EBITDA for continuing product business was Rs 451.81m (US\$9.66m), ie 41.7 per cent.

The company was declared a market leader in business optimisation for the fourth consecutive year by renowned analyst firm Analysys Mason.

Business optimisation includes fraud, revenue assurance, analytics, cost management and credit risk management, which together constitutes the core business of the company.



Commenting on the business, Subash Menon, founder chairman, managing director and CEO, said: "The results for this quarter are extremely promising, as expected. We sold off our activation business this quarter and have renewed our focus on our core business.

"There is increasing uptake for our industry-changing revenue operations centre (ROC™) and managed services offering and the non-linearity in the business continues to help us."

He added: "With the sale of the activation products which were a drag on our core business, the real growth and profitability in the latter will be obvious in the coming quarters.

"The strong EBITDA of around 40 per cent in this business will lead to significant cash generation in the future and increase our ability to invest for growth."

Subex Ltd – India

Email: info@subexworld.com

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Power line from Tanzania to Zanzibar

India-based Kalpataru Power Transmission has secured a contract for the construction of a 132kv electricity

transmission line from Tanzania mainland to Zanzibar.

The US\$9m project is a part of a five-year US\$698.1m grant extended to Tanzania by the US-based Millennium Challenge Corp (MCC).

Under the project, the company will construct the overhead transmission line from Ubungo substation to Tegeta and Ras Kiromoni on the shores of the Indian Ocean off the Tanzania Mainland.

The line will be undersea to Ras Fumba in Zanzibar and is transmitted overhead to Mtoni substation in Zanzibar.

Japan-based Viscas will be responsible for the construction of a submarine cable to connect the two overhead lines of the project, scheduled to be complete in August 2012, reports theafrican.com.

It is expected to boost Zanzibar's power output and help meet growing demand by adding to the country's dilapidated 40MW power transmission infrastructure.

MCA-T chief executive officer Bernard Mchomvu said the 100MW second Zanzibar inter-connector project will support the existing 45MW transmission system to the island.

Kalpataru Power Transmission – India

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Increase in aluminium cable production

Noval Jamalullail, chairman of the Indonesian Cable Manufacturers Association (Apkabel), has said that aluminium cable production will increase by 20 per cent from 150,000 metric tonnes to 180,000 tonnes in 2012.



He said the first part of the government's ambitious 10,000 megawatt power plant programme, which was started in 2006, had contributed to the increase.

"The programme is a big project and it needs to be completed by the end of this year; then we aim to boost the aluminium cable production," Mr Noval said, after a mini-seminar on the next wire and Tube Düsseldorf.

The second part of the power plant programme will begin in 2012. He added that factory expansion was a part of the plan to increase production.

At this moment, there are 38 factories that produce aluminium cable. "However, expansion does not mean that we build new factories. It only means that we add the required equipment that the factories do not yet have," Mr Noval added.

Apkabel data shows that annual cable production is 500,000 tons, consisting of power cable at 310,000 tons;

telecommunication cable, 130,000 tons; special cable, 50,000 tons; and enamelled wire, 10,000 tons.

Indonesian Cable Manufacturers Association – Indonesia

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MP power crisis

Amid a severe power crisis in Madhya Pradesh the state's power generating company is working hard to increase capacity, not only to meet the growing demands but to save the ruling Bharatiya Janata Party (BJP) from a possible backlash during the 2013 assembly polls.

Against a peak demand of between 7500MW and 8000MW, the state generates 2932.5MW from thermal power plants, 915MW from hydro power sources and purchases power from other states.

"We will start generation from two units of 250MW each from the Satpuda thermal power plant, Sarni and also 1200MW from the Singaji thermal power plant (Phase-I) in 2012-13 to enhance power generation in the state," Madhya Pradesh Power Generating Company Limited (MPPGCL) chairman and chief managing director, K M Sajjani said.

In addition, a new 660MW unit is to replace an existing five 62.5MW units in Sarni. The proposal and the feasibility report to set up this unit has been sent to the Project Review Committee of the state government, which is expected to give its approval shortly.

Madhya Pradesh Power Generating Company Limited – India

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Wind out of the SAIL as profits fall 50 per cent

India's largest steel producer, Steel Authority of India Ltd (SAIL), has reported a 54.6% year-on-year decline in net profit at Rs 495 crore for the quarter ended September against Rs 1,090 crore last year, as high input costs and a strong dollar hit profit.

A stronger dollar resulted in a notional loss of Rs 509 crore during the quarter.

The company, however, remained bullish on increased demand and stable steel prices looking forward, despite a gloomy global scenario.

"There is definitely going to be a rise in demand in the second half (of this fiscal year)," said CS Verma, chairman, SAIL. "Steel prices have globally come down. They have been relatively stable in India. I don't foresee a further dip in steel prices."

Total income also rose 3% year-on-year at Rs 11,470 crore

during the quarter compared to Rs 11,123 crore last year.

The steel maker plans to spend just under Rs 14,700 in the current fiscal year on capacity expansion projects as part of a programme to swell total capacity at its five integrated plants to 21.4 million tonnes by March 2013.

The impact of higher costs was partially offset by higher sales volumes, and an increase in net sales realisation to Rs 36,230 per tonne during the July-September quarter against Rs 31,320 a year-ago, Verma said.

Elaborating on the steel maker's joint venture with South Korean major POSCO, Verma said talks with the Korean company were "positive" but refused to give any time frame for signing the agreement.

"We are having a dialogue on a very, very positive note." The two firms plan to set up a plant to produce three million tonnes a year of auto-grade steel, but they are yet to agree on the shareholding pattern in the Rs 16,000-crore joint venture.

Steel Authority of India Ltd – India

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Family deal to keep the network connected?

In a move that may bring the two Ambani brothers closer, Mukesh Ambani-led Reliance Industries Ltd is in talks to hire the infrastructure of younger sibling Anil's firm RCom for its telecom foray.

According to sources in the know, Anil Ambani-led RCom will be providing all infrastructure towers, fibre, backhaul as well as its national and international long distance facilities to RIL's high-speed broadband services.

RCom has 50,000 towers, 2.77km optical fibre network and over one million retails outlets (including company-owned, franchisee and distributors).

According to market reports, Reliance Industries (RIL) is initially looking at about 30,000 towers. If this deal goes through, it will positively impact valuation of RCom's tower arm, for which the company is in talks with PE firms to sell the majority stake of 95%.

According to sources, RCom might also provide wholesale

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voice services to RIL and the latter will bundle this with its broadband or 4G data offerings.

Reliance Industries Ltd – India

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Policy unveiling a month later than expected

The National Telecom Policy-2011 will be unveiled this month (January), Telecom Minister Kapil Sibal has said.

The policy was expected to be unveiled by December last year, but delays in receiving recommendations caused the delay.

"Industry wants some more time to respond, we will give them time. All that will happen is finalisation of the policy will happen in January instead of December," Mr Sibal said in New Delhi.

He added that Telecom Regulatory Authority of India's recommendations on the National Telecom Policy have just come in and the Department of Telecommunication is looking into the same.

"The TRAI recommendations have just come, we will consider them," added Mr Sibal.

He added said the media is confusing between TRAI's recommendations and the Telecom Policy.

"People must understand the difference between policy and TRAI's recommendation. The TRAI recommendations deal with the nitty-gritty of mergers and acquisition and all the other specific issues which never go in to policy," he added.

Multi-million investment for its own cables

India's Tata Power Company – the country's largest private power distributor – plans to invest around Rs 1,000 crore (US\$217m) over the next three years to lay its own cable network in Mumbai.

TPC executive director Sankaranarayanan Padmanabhan said the company uses the wire networks of BEST and Reliance Infrastructure to distribute electricity in the city and suburbs, respectively.

Prior to a Supreme Court order, the company was not allowed to provide a parallel network, but now it can roll out its own network.

Tata Power Company – India

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In France, mobile virtual network operators flourish by concentrating on the neglected niche and low-end markets

London-based Business Monitor International (BMI) is an independent provider of data and analysis covering 175 countries and 22 industry sectors. The most recent of its quarterly telecommunications updates, published 18th October, analysed the French market for fixed-line, mobile telephony and broadband services. According to "Research and Markets: France Telecommunications Report Q4 2011," data from the principal operators and the national regulator show that, despite saturation, the French mobile market continues to show robust growth, and the fixed and broadband market is expanding steadily. Meanwhile, the rate of decline in traditional voice telephony services accelerated slightly. BMI expected the French market to be serving 66.67 million subscribers by the end of 2011, rising to 72.80 million in 2015.

Again BMI identified the mobile virtual network operators (MVNOs) as the engine for top-line growth in mobile in France. While the country's network operators focus on upgrading existing 2G and 3G subscribers to mobile broadband – and into multiplay converged services packages – the MVNOs enjoy continued success by addressing the niche and low-cost markets increasingly ignored by their network rivals. Growth in broadband voice and cable telephony services in France has served to slow the rate of decline for voice connection as a whole. But a slump in traditional line usage caused BMI to adjust downwards an earlier five-year growth forecast. BMI now expects that, by 2015, there will be 16.72 million traditional voice lines in service in France, a penetration rate of 26.2 per cent.

Ⓢ The auction by France of 800MHz and 2.6GHz spectrum that can be used to offer 4G services using LTE-based networks is under way. Fourteen parcels of 800MHz spectrum were to be offered; and these, according to BMI, "will be hotly contested." The French government reportedly hopes to raise as much as \$3.4 billion from the spectrum sale.

The Commissioner for Digital Agenda warns that Europe must lose no time in moving ahead on radio spectrum policy

"Next-generation fixed solutions are not the whole story. We also need wireless infrastructure for the 90 per cent of European households with access to a mobile; for the one-third of Europeans who can use their mobiles to access the Internet; and as a competitive complement to fibre broadband access, particularly for those who live in more isolated areas."

The speaker was Neelie Kroes, the European Commission vice president responsible for Digital Agenda e-Communications, who in October was in Warsaw for a conference on the development of the electronics communications market in the European Union. Ms Kroes left no doubt in the minds of her listeners of her conviction that Europe cannot afford to

postpone action on a Radio Spectrum Policy Programme common to the bloc. Two consultations had been initiated by Ms Kroes – on nondiscrimination and on access prices. But, as noted by Julian Clover of broadbandtvnews.com (20th October), concern has been expressed in the industry over the use of public funds "aimed at gapfill and boosting investment."

Manuel Kohnstamm, the president of Cable Europe, assured Mr Clover of the eurozone trade association's support for subsidised greenfield development – "provided that cable gets its fair share." But, he said, if public funds were to be invested in areas where nascent players (new entrants) are already setting up shop, or have new investment in the planning stage, that use of taxpayer money "could be hugely distorting." The EC is proposing to set aside \$12.7 billion for what has been described as the "connecting Europe facility." In Warsaw, Ms Kroes called for action within days. Whether or not that was in the cards, the issue

is now very much to the fore. As construed by the EC Information Society ("Radio Spectrum: a Vital Resource in a Wireless World"), the spectrum underpins one of Europe's most dynamic sectors. As well as telecommunications, wireless technologies serve areas as diverse as transport, security, and environmental protection. "But the spectrum is a finite resource," warns the EC. "Its allocation requires effective and efficient coordination at the European and global level."

Ⓢ For still more on spectrum-related matters, Moody's Investors Service sees an absence of competition for licenses for next-generation spectrum as benefiting European telecoms by keeping auction prices at affordable levels for most of them. As reported by Michael Carroll of Telecom Asia (5th October), the credit rating agency believes that the majority of companies will pay an average \$1.99 billion each for 4G licenses in the region's major markets. Carlos Winzer, a senior vice president of the Moody's corporate finance division, predicted that incumbent carriers' debt-funding levels will fall well below five per cent of their existing gross debt and that the financing method "on its own, should not affect the companies' current ratings."

Mr Carroll noted that Moody's retains its confidence despite recent auctions in Europe that yielded more than expected. In France, a first-round sale of 2.6GHz spectrum netted the country \$1.24 billion – roughly 33% above the reserve price – while a sale in Italy raised \$5.25 billion – some \$1.13 billion higher than expected. However, because Moody's treats the investments as one-off items rather than as capital expenses, ratings are unlikely to be affected in most cases.

Elsewhere in telecom . . .

Ⓢ The widespread outage of BlackBerry services in October affected customers in Europe, the Middle East and Africa, but its impact on Latin America was much less severe. Adriano Lino, the Latin America marketing intelligence manager for the Canadian smartphone maker Research in Motion (RIM), told *Business News*

Americas that the interruption affected approximately 30%-40% of BlackBerry customers in that region. He said that customers of Entel Chile and the Telecom Italia units TIM Brasil and Personal Argentina were hit hardest because those companies have their services connected directly to the network operations centre (NOC) in Slough, England. Services dependent on NOCs in the US were out for only a few hours on 12th October.

The outage – resulting from a shift of the system onto a backup switch after the failure of a core switch – and the ensuing major backlog of messages infuriated users across the globe. On 19th October, RIM announced that it was offering a selection of premium apps worth more than \$100 to every subscriber who suffered a service disruption. In the face of a barrage of criticism on social networks, the Ontario-based company was able to look on the bright side. Mr Lino told Patrick Nixon of *Business News Americas* (19th October), “I even believe it is a good opportunity for RIM because we can showcase some of [our] applications.”

- ⑦ “We’ve played very low-key but now we are ready,” Robin Lee, chairman of Axin Ltd, told *CommsDay Australasia*. Together with partner Huawei Marine Networks, headquartered in Tianjin, the Chinese-backed consortium plans to construct a \$100 million Australia-New Zealand subsea communications cable to connect Sydney and Auckland. Work on the 1,400-mile trans-Tasman link was to have begun before the new year. Time to completion was estimated at 20 months. Axin, formed in 2010, is a market representative of China Communications Service, itself a 51%-owned subsidiary of China Telecom. *CommsDay’s* Petroc Wilton wrote (19th September) that the proposed cable would offer New Zealand firms a link to Sydney in addition to the existing Southern Cross cable and the planned Pacific Fibre cable – “and from there outward via links like PPC-1 or the Australia-Japan cable.”
- ⑧ A report in the *Economic Times* (Mumbai) indicated that Verizon Business – the \$17.3 billion unit

of the US telecom major Verizon Communications – is considering introducing its enterprise services in India as part of a broader corporate investment strategy for the country. In the absence of legacy platforms and strict regulation, Verizon apparently sees opportunity in mobile services in India. In New Delhi for meetings with customers and potential clients, Verizon Business president Robert A Toohey told the EC (19th October) that the company’s perception of local demand had influenced its thinking. Said Mr Toohey: “We talked about how [we might] do things here first instead of in Asia, Europe, or Japan.”

- ⑨ Samsung is believed to have beaten Apple, of the US, in smartphone shipments in the third quarter of 2011. As reported by Dylan Bushell-Embling on *telecomasia.net* (October 21st), a *Wall Street Journal* source supplied the information that the South Korean vendor shipped over 20 million smartphones during the quarter that ended 30th September. That total, if substantiated, comfortably outstrips the 17.1 million smartphone sales rung up by Apple in its own September quarter. Finland’s Nokia, in third place, said it sold 16.8 million smartphones in the quarter.

In the *Inquirer*, the London-based technology newsletter, Lawrence Latif observed that, while Samsung might have shipped more smartphones than Apple, it has a large portfolio of products. He wrote: “Apple, on the other hand, managed to reach its 17.1 million devices sold with just the iPhone 3GS and the iPhone 4, [and] making a lot more cash in the process.” Even so, Samsung’s recent smartphone advances are very striking. According to Strategy Analytics, in the second quarter of last year the Korean electronics giant displaced Nokia as the world’s No 2 in smartphones. The global research and consulting firm had placed Samsung’s year-earlier smartphone sales, for 2Q10, at just 3 million.

- ⑩ The International Telecommunications Union in Geneva announced that agreement had been reached on the key standards for ultra-high definition television (UHDTV), setting

the stage for serious investment in the technology by European manufacturers and broadcasters. UHDTV sets will have a screen resolution of 33 million pixels (7,680 by 4,320), for 16 times greater refinement than in high-definition (HDTV) sets. The BBC plans to show the opening ceremony of the 2012 Olympics in ultra-high definition on three giant screens in London, Glasgow and Bradford.

- ⑪ Research commissioned by a number of leading Internet content providers – including the BBC and Yahoo! – has found that products such as theirs do not cause network bottlenecks, as claimed by some Internet service providers (ISPs). The new research, published 5th October by London-based Plum Consulting, rejects the assertion that telecom providers’ costs are ballooning because of data growth. Instead, it suggests that online content and applications providers drive the demand for broadband connectivity which yielded fixed and mobile broadband revenues of approximately \$207 billion in Europe in 2010.

As reviewed by Joseph O’Halloran of RapidTVNews, the Plum report states that, without the content providers’ considerable investment in innovative consumer services to stimulate the uptake of high-speed broadband, telecoms would have experienced a rapid decline in revenues. Taking a strong stand in favour of an Open Internet, the report warns that investment in next-generation broadband would not necessarily increase, and could decrease, if content and applications providers are required to pay for access to consumers.

- ⑫ Pakistan Telecommunications Co Ltd (PTCL) announced a net profit of \$16.2 million for the first quarter (to 30th September) of its current fiscal year, showing growth of seven per cent over the previous year. Revenue was reported at \$167 million. In the quarter, PTCL launched Pakistan’s first-ever 3G enabled tablet with built-in EVO wireless broadband. Powered by the Google Android Froyo 2.2 operating system, “3G EVO Tab” supports Wi-Fi for customers in over a hundred Pakistani cities. PTCL commands close to a 90 per cent share of the national market.

在法国, 移动虚拟网络运营商通过集中于被忽视的利基和低端市场蓬勃发展起来

总部位于伦敦的国际商业观察(BMI)是一家覆盖175个国家, 以22个行业为服务对象的独立数据分析报告提供商。BMI于10月18日发布的最新电信业季度更新分析了法国固定电话、移动电话和宽带服务市场的现状。

根据《研究与市场: 法国电信业2011年第四季度报告》: 主要运营商和国家监管机构的数据显示, 虽然法国移动通信市场已处于饱和状态, 但仍表现出强劲的增长势头, 固话和宽带市场也在稳步扩张。同时, 传统语音通话服务的衰退速度略有加快。国际商业观察预计到2011年底, 法国市场将为6667万用户提供服务, 2015年这一数字将上升至7280万。

同时, 国际商业观察认为移动虚拟网络运营商(MVNOs)是法国移动通讯行业高速增长的引擎。当该国的网络运营商还在专注于为现有的2G和3G用户更新移动宽带和提供多重融合服务组合之时, 移动虚拟网络运营商(MVNOs)已经通过定位于越来越不被他们的网络竞争对手重视的利基和低成本市场而一再获得成功。法国宽带语音和有线电话服务的增长已经起到了减缓整个语音连接行业衰退速度的作用。但是, 传统电话使用率的大幅度下跌促使国际商业观察对较早的五年增长预测作了向下调整。国际商业观察现在预期, 到2015年为止, 法国在用的传统语音电话将有1672万部, 渗透率达26.2%。

① 在法国, 频率在800MHZ至2.6GHZ之间频谱的拍卖正在进行中。这些频谱采用基于LTE的网络, 可用于提供4G服务。14组800MHZ的频谱将被拍卖。根据国际商业观察的报道, 这些频谱“将引发一场激烈的竞争。”据说法国政府希望从本次频谱拍卖中筹集到多达34亿美元。

数字议程专员告诫说欧洲必须抓紧时间推进无线电频谱政策的制定

“下一代固话的解决方案并不能解决所有问题。我们也需要为拥有移动电话的90%的欧洲家庭、为三分之一能用他们的手机访问互联网的欧洲人提供无线网络基础设施; 同时无线网也可作为光纤宽带接入的一种竞争性的补充, 尤其对生活在更偏远地区的人们来说。”

这段话是负责电子通讯数字议程的欧盟委员会副主席Neelie Kroes十月份在华沙一个关于欧盟电子通信市场发展的会议上的讲话内容。Kroes女士向她的听众灌输了一种不容置疑的信念, 即欧洲制订整个欧盟通用的无线电频谱政策纲领已经刻不容缓。

Kroes女士已经发起了两次磋商——一次是关于非歧视, 另一次关于接入价格。但是, 来自broadbandtvnews.com(10月20日)的Julian Clover注意到, 业界已经表达了对使用公共基金“以填补和促进投资”的关注。欧洲有线电视的总裁Manuel Kohnstamm向Clover先生保证, 欧元区贸易协会将支持受资助的绿地投资的发展——“只要电缆能获得其公平的市场份额,” 但是, 他说, 如果要把公共基金投资到新兴的竞争者(新进入者)已经开设店铺或者正在规划新增投资的领域, 这种使用纳税人钱的方式“可能是巨大的扭曲。”

欧盟正在计划为名为“欧洲互联设施”的项目预留127亿美元。在华沙, Kroes女士呼吁在数日内即采取行动。无论是否能够最终实现, 这个议题现在已经得到了高度的重视。正如欧盟信息社会(《无线电频谱: 无线世界的重要资源》)谈论到的, 频谱为欧洲最有活力的部门之一打下了基础, 而且电子通讯、无线技术可服务于运输、安全和环境保护等诸多领域。“但是, 频谱是一种有限的资源,” 欧盟提醒到, “它的分配需要欧洲和全球范围迅速而有效的合作。”

② 关于更多频谱相关的话题, 穆迪投资者服务公司认为由于对下一代频谱许可证缺乏竞争, 将使得竞拍价格维持在欧洲电信大多数公司可以接受的水平上, 因此对他们有利。正如亚洲电信Michael Carroll(10月5日)报道, 信用评级机构认为大多数公司将为该地区主要市场的4G许可证支付的平均价格为19.9亿美元。穆迪企业融资部的一位高级副经理Carlos Winzer预计现有的电信运营商的债务筹资水平将远远低于其原有债务总额的百分之五, 而且这些融资手段“本身不会影响这些企业的当前评级。”Carroll先生提到, 虽然最近欧洲的拍卖比预期获利丰厚, 但穆迪仍然充满信心。在法国, 2.6GHZ频谱第一轮竞拍使该国净赚12.4亿美元——比底价高出了约33%——而意大利的一项拍卖筹集到了52.5亿美元——高于预期水平约11.3亿美元。然而, 由于穆迪将这些投资视为一次性项目而非资本支出, 在大多数情况下(相关公司的)评级不大可能受影响。

其他地区的电信行业.....

③ 十月份黑莓(BlackBerry)服务的普遍中断对欧洲、中东和非洲的用户影响较大, 但对拉丁美洲的冲击则小得多。加拿大智能手机制造商动态研究公司(RIM)的拉丁美洲市场情报经理Adriano Lino向美国商业新闻透露, 这次中断影响了该区域约30%至40%的黑莓用户。他说智利Entel、意大利电信分公司、巴西TIM和Personal Argentina受到打击最严重, 因为这些公司的服务器是直接连接到英国斯劳的网络运营中心(NOC)的。而与网络运营中心(NOCs)独立的美国服务器只是在10月12日中断了几个小时。这次中断——是核心交换机故障后将系统向备用交换机转移的结果——由此引发的重要信息积压激怒了全球的用户。10月19日, RIM公司宣布, 它将为每一位承受服务中断的用户提供一套价值超过100美元的优质应用程序精选。在社会网络接二连三的批评面前, 这家总部位于安大略省的公司仍能看到积极的一面。Lino先生对美国商业新闻(10月19日)的Patrick Nixon说, “我甚至相信这对RIM来说是一次很好的机会, 因为我们能展示我们的一些应用程序。”

④ “我们之前一直表现得非常低调, 但是现在我们准备好了,” 阿信有限公司(Axin Ltd)董事长Robin Lee对CommsDay Australasia说。和总部位于天津的合作伙伴华为海洋网络一起, 这个有着中国背景的联盟准备耗资1亿美元建造一条连接悉尼和奥克兰的海底通信电缆。这条1400英里的跨塔斯曼纽带计划在新年以前开工。该项目预计20个月能够完工。阿信有限公司成立于2010年, 是中国通信服务市场上的代表企业之一, 该公司自身是中国电信的控股比例为51%的子公司。CommsDay的Petroc Wilton(9月19日)写道, 这条拟建的电缆将为新西兰的公司提供另一条除现有的南十字电缆和正在筹建的太平洋光纤电缆之外的通往悉尼的道路——“再从那里(悉尼)经由像PPC-1和澳大利亚-日本电缆这样的通道走出去。”

⑤ 经济日报(孟买)的一篇报道称, Verizon Business——美国电信巨头Verizon通信公司价值173亿美元的子公司——正在考虑把它的企业服务引入印度, 成为该国更广泛的企业投资战略的一部分。印度没有传统平台和严格的监管制度, Verizon显然是看到了印度移动服务的契机。在新德里与客户和潜在客户的会面中, Verizon Business董事长Robert A Toohey告诉欧盟记者(10月19日), 该公司对当地需求的看法影响了它的判断。Toohey先生说: “我们探讨过我们应该如何从这里(印度)着手, 而不是从亚洲、欧洲或日本开始的问题。”

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Manufacturing

Production outsourced to China is coming back to the United States, heralding an American “manufacturing renaissance”

The Boston Consulting Group, a respected global advisor on business strategy, has concluded that the current pickup in US manufacturing will accelerate over the next five years, boosting output by \$100 billion and adding two million to three million jobs. In a report published 7th October, BCG predicted that, with Chinese wages rising at 15-20 per cent a year, and continued appreciation of the yuan against the dollar, the gap between labour costs in Chinese coastal provinces and in America’s lower-cost states will shrink to less than 40 per cent by around 2015. This will have virtually wiped out China’s edge over the US in the American market.

The BCG analysis identifies seven “tipping-point” sectors poised to return to a US manufacturing base over the five-year period: transportation goods, computers and electronics, fabricated metal products, machinery, plastics and rubber, appliances and electrical equipment, and furniture. Assuming increased US exports, in addition to their contribution to gross domestic product (GDP) these industry groups could lower the US non-oil merchandise trade deficit by 30-35 per cent. (“The US Manufacturing Renaissance: Which Industries?”)

The willingness of BCG to be specific about the industry clusters most likely to return is supported by its research into the shifting economics of manufacturing worldwide and builds on reports released in August (“Made in America, Again”) and in May. The October analysis confidently asserts, “We project that China will lose most of the huge cost advantage over the US that it has enjoyed since it joined the World Trade Organization (WTO) in 2001. As a result, many companies will rethink where they produce certain goods meant for sale in North America.”

The tipping-point sectors account for about \$2 trillion in US consumption per year and about 70 per cent of US imports from China, valued at nearly \$200 billion in 2009. The job gains would come directly through added factory work and indirectly through supporting services, such as construction, transportation and retail.

When factors such as higher US productivity, the actual labour content of a product, shipping and others are taken into account, the cost advantage of manufacture in China of goods bound for sale in the US will be marginal. According to Harold L Sirkin, a BCG senior partner and lead author of the analysis, “That will make the US a much more attractive investment location for new factory capacity.” [Note: Mr Sirkin’s most recent book, *Globality: Competing with Everyone from Everywhere for Everything*, deals with globalisation and emerging markets.]

China will adapt

“This does not mean that factories in China will close,” said Michael Zinser, a BCG partner who leads the firm’s manufacturing work in the Americas. “Instead, more of

their output will be consumed in the fast-growing domestic market and elsewhere in Asia.” Some production migrating from China will go to Mexico, where labour costs will remain lower than in either China or the US. But not as much as one might think, according to Justin Rose, a BCG principal and a co-author of the analysis: “America’s experience in these tipping-point sectors and its much larger pool of skilled workers, as well as logistical and security concerns, will make the US a better option for many companies.”

The changing economics of manufacturing are already showing up in trade data. From 2001 through 2004, imports from China grew by around 20 per cent per year. That growth rate has slowed dramatically, to only around four per cent in the past few years. US imports from other low-cost nations also have flattened – and actually declined in 2009. The trend is especially pronounced in the tipping-point sectors. Douglas Hohner, a BCG partner and also a co-author of the analysis, said: “We are already starting to see some movement of production in these industries.”

❖ “Recent moves by companies underscore the new manufacturing math,” the BCG report asserts. It goes on to cite auto maker Ford, the IT maintenance provider NCR, Master Lock, All-Clad Metalcrafters, audiovisual equipment maker Peerless Industries, and irrigation control company ET Water Systems as having recently shifted the manufacture of some items from China to the US. Escalating Chinese wages are apparently not the sole factor. AmFor Electronics (Portland, Oregon) gave delivery responsiveness and ease of design revisions as reasons for relocating wire-harness production and some final assembly from China and Mexico back home to the American Northwest.

Automotive

In Michigan, a Korean company creates jobs in metal bending and tooling: staples of the state’s bygone industrial heyday

In early Autumn of last year, a ceremony was held in Suwon City, South Korea, to celebrate a memorandum of understanding to strengthen the economic ties between the Korean province of Gyeonggi and the US state of Michigan. Among those present was Moon-Gyu Kong, CEO of GNS Automotive, the South Korean auto parts maker founded by Mr Kong’s father 40 years ago and which has now established an outpost in Holland, on the shore of Lake Michigan.

Interviewed by Tom Walsh of the *Detroit Free Press*, the younger Mr Kong explained the overseas expansion in terms of the company’s wish to better serve its main customer, General Motors – and at the same time to move up from a Tier 2 to a Tier 1 supplier. In his view, an American presence is a big step toward fulfilment of that aim, and the US is more welcoming to newcomers than China: “still not an easy country for foreigners to do business [in],” according to Mr Kong.

The choice of Michigan, where in December 2009 GNS bought out a Holland-based company with 28 employees,

went counter to the preference of other Korean suppliers for locations in southern states, close to the assembly plants of the auto makers Hyundai and Kia. Mr Kong had heard that some parts suppliers had met with difficulty in finding skilled workers and engineers for tooling and design in the South. ("Korean Metal Bender Makes Impression in Michigan," 1st October).

Mr Kong had also heard that labour costs were high in Michigan, but the automotive industry shakeout of 2008-2009 brought the wage scale within his range. GNS pays a starting production worker at the Holland plant \$13 to \$15 per hour: about the same as GM pays new hires under its 2009 agreement with the United Auto Workers.

The decision in favour of Michigan worked out well for both parties. GNS has five plants and some 500 employees in Korea. Today, 65 people work at GNS Holland, and it was reported by the Free Press that the company is close to concluding the purchase of another building, in nearby Canton, for stamping and welding. This bigger facility would turn out parts for the Cadillac CTS, the new Chevrolet Sonic, and other vehicles.

Mr Kong said that the Holland plant is tracking to produce annual revenue of \$20 million, and could double that with a second shift. He believes that the Canton plant, which he hopes to open in 2012, could generate another \$40 million to \$50 million.

❖ Mr Carroll, noting that South Korea runs a huge automotive trade surplus with the US, wrote: "Not bad, in an industrial segment where Michigan has been shrinking, to see a metal bender from Korea pump investment dollars and new jobs into the state."

Steel vs aluminium

With the push on for lighter-weight cars, aluminium gains ground with the steel industry's No 2 customer after service centres

"Steel has to be the loser in terms of pounds. It doesn't have to be the loser in terms of profit."

New York-based analyst Charles Bradford, who has covered competition between the American steel and aluminium industries for decades, was referring to the ongoing battle between the two sets of producers over one of their biggest mutual customers – the automotive industry. The US government's imperative to double the fuel economy of the average car by 2025 has intensified that competition, in which aluminium has been steadily advancing on steel in market share.

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Mr Bradford told the Pittsburgh *Post-Gazette* that the challenge for steel makers will be to realise higher profit margins on the next generation of steels than they did from the lower-grade steels to be replaced. "They may be able to make more money if they sell less pounds," he said. "That's going to be the trick." ("Aluminum and Steel Slug It Out to Become the Lighter, Stronger Metal for Cars," 9th October).

The *Post-Gazette's* Len Boselovic reported that the two industries are pouring millions of dollars into new mills capable of making the lighter, stronger metals needed to cut the weight of a car by about 10 per cent, or 400 pounds. According to Ducker Worldwide, a research firm that advises both steel and aluminium producers, the reduction is essential if the proposed fleet standard of 54.5 miles per gallon of fuel is to be met. Already about 30% of car hoods and 20% of bumper beams are fashioned out of aluminium, and the Ducker consultants forecast greater inroads for the light metal in the years ahead. They estimate that the average vehicle made in North America will contain 550 pounds of aluminium by 2025, up from 343 pounds in 2012. In this scenario, aluminium will account for 16 per cent of the weight of a light vehicle, about double its current aluminium content. Steel's share will drop from 58 to 46 per cent, the research firm said.

Even so, Ducker's Richard Schultz, who managed Alcoa's worldwide automotive business in the 1990s, declined to sound "any kind of death knell" for the steel makers. While acknowledging the steady incursions of the aluminium producers, he observed, "Vehicles will still be predominantly steel 20 years from now."

- ❖ But the rivalry is on. "We've got physics on our side at the end of the day," Alcoa's Randall Scheps, who heads the aluminium industry's Aluminium Transportation Group, told the *Post-Gazette*. "We can build a lighter car than steel can." The *Post-Gazette* article made it abundantly clear that steel makers take the threat seriously; but they claim a strong advantage from having been the partners of the auto makers from the beginning. By steel industry calculations, the steel content of cars actually notched up in recent years, from 63 per cent to 65 per cent. In the view of Lawrence Kavanagh of the Steel Market Development Institute, "We've not lost. We've gained."
- ❖ Mr Boselovic of the *Post-Gazette* believes that both industries are aware they must work closely with car makers to provide metals for the efficient design and engineering of lighter-weight vehicles. Of the current automotive-related projects of both sets of metal producers, he mentioned these:
- ❖ US Steel and its joint venture partner, Kobe Steel of Japan, are investing \$400 million in a new steel processing line at their plant in Leipsic, Ohio. The equipment will alternately heat and cool advanced steel sheet to give it the strength and flexibility needed to shape it into automotive components. Michael S Williams, who directs US Steel's North American sheet operations, said the new equipment, capable of producing 500,000 tons annually, will go into production in early 2013;
- ❖ Russian steel maker OAO Severstal is revamping its Dearborn, Michigan, plant to produce the next

generation of automotive steels, a project financed by a \$730 million loan from the US Department of Energy;

- ❖ On the aluminium side, Novelis is investing \$200 million to boost production of aluminium automotive sheet at its Oswego, New York, plant, citing growing demand from its customers;
- ❖ Alcoa in September announced plans to invest \$300 million to enable its Davenport, Iowa, works to keep up with automotive demand. The decision was based on business already on the books, but Mr Boselovic said that Alcoa expects growth beyond that. "These are long-term decisions," Mr Scheps of the Aluminium Transportation Group – who worked with the auto industry before joining Alcoa six years ago – told the *Post-Gazette*. "These are assets that are going to be in place for 50 years."

In brief . . .

- ❖ Thieves in North Beaver Township, Pennsylvania, brought a new brazenness to metal theft by dismantling, with the use of a blowtorch, and removing a 40x15-foot steel bridge weighing 40 tons and valued at an estimated \$100,000. Pennsylvania State Police said the privately owned structure, an old railroad bridge in an industrial park, was removed in the period 16th-28th September. A resident of the rural area about 50 miles northeast of Pittsburgh, near the Ohio border, told CNN affiliate WTAE-TV, "Its old I-beams are probably hundreds of pounds per foot."

The owner, a development company, told local media that it had recently closed off public access to the bridge, which dated to the early 1900s, because of reports of copper thefts in the vicinity. The alleged thieves – two New Castle, Pennsylvania, brothers apparently more clever with their hands than with their brains – were caught. The 15.5 tons of steel they sold piecemeal to a scrap dealer had netted them a little over \$5,100 before employees of the scrap yard supplied the police with information leading to their apprehension. As reported by ABC News Radio (18th October), the brothers face felony charges including criminal mischief, theft, receiving stolen property, and criminal conspiracy, and are being held on \$25,000 bail. While rare enough, bridge theft is not unheard of. Citing a report from 2008 by Britain's *Daily Mail*, CNN recalled that a group of thieves in Russia dismantled and hauled away a 38-foot, 200-ton steel bridge in just one night.

Business

Bucking the tide, Canada does very nearly everything right

Kurt Badenhausen, who covers "data-driven stories" for Forbes, observed that, during the run-up to every US presidential election, countless Americans threaten to move to Canada if their candidate is beaten. While few of them follow through, the 2011 instalment of Forbes's annual "Best Countries for Business" suggests that a

move north may exert a stronger attraction than ever to disaffected Americans. Canada ranks No 1 in the Forbes rankings, up from No 4 in 2010, for reasons summarised by Mr Badenhausen. While the US is fearful of a double-dip recession and Europe struggles with sovereign debt issues, Canada's economy has held up better than most. The \$1.6 trillion Canadian economy is the ninth-biggest in the world and grew 3.1% in 2010. It is expected to expand 2.4% in 2011. ("The Best Countries for Business," 3rd October).

Canada skirted the banking meltdown that scourged the US and Europe. The Royal Bank of Canada, Bank of Nova Scotia, Bank of Montreal, and other banks avoided bailouts and were profitable during the financial crises that started in 2007. As noted by Mr Badenhausen: "Canadian banks emerged from the tumult among the strongest in the world thanks to their conservative lending practices."

Canada is the only country that ranks in the top 20 in ten of the 11 metrics that Forbes considered. It is in the top five for both investor protection and the absence of red tape, which measures how easy it is to start a business. Credit goes as well to a reformed tax structure; a Harmonised Sales Tax was introduced in Ontario and British Columbia in 2010, with the goal of making Canadian businesses more competitive. Reduced corporate and employee tax rates also contributed to the country's improved tax status.

"Three-quarters of [Canadian] exports end up in the US each year," wrote Mr Badenhausen. Thus, he said,

Canada leans "heavily" on the US economy. But, while unemployment in the US stays stubbornly above nine per cent, it is 7.3 per cent in Canada. The 25-year Canadian average is 8.5 per cent. Currently the eurozone unemployment rate is 10 per cent.

❖ The US ranked No 10 in Forbes's reckoning, down from No 9 in 2010. The world's largest economy at \$14.7 trillion continues to be one of the most innovative, ranking sixth in patents per capita among all countries. Sweden, No 7 overall, comes in tops for innovation. Here is the full list of the Forbes top ten for business in 2011: Canada, New Zealand, Hong Kong, Ireland, Denmark, Singapore, Sweden, Norway, Britain, the United States.

Telecom

A great favourite of its fellow Canadians, Research in Motion leads something of a charmed life

According to survey results released 1st October by the recruitment firm Randstad Canada, the best Canadian employer is Research in Motion Ltd, maker of the BlackBerry smartphone.



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Of the 150 biggest employers in Canada, the Waterloo, Ontario-based telecommunication and wireless devices company ranked most desirable in an online survey of 7,000 students and of employed and unemployed Canadians. Participants were asked if they had heard of the companies; and, if so, if they would like to work for them. Two-thirds of respondents who had heard of RIM said they would like to work there.

The research was done in February and March of last year, before cut-throat competition on the smartphone and tablet front caused a precipitous drop in RIM's stock valuation. But the managing director of Randstad Canada resisted the perception that the blow to the company's fortunes would have affected the results.

Jan Hein Bax told the *Toronto Star* (1st October): "If you are an employer with a strong brand, that attractiveness can outlive short-term blips as long as you're consistent with your manner, your message, and your image in the market. In the fight for talent, this is hugely important."

Mr Bax's theory was put to the test within a month, when Research in Motion was hit with what would be the longest BlackBerry outage in its history. A three-day blackout in North America, Europe, the Middle East, and Africa interrupted email and Internet services for frustrated users around the world.

The company's luck held. On 14th October, when some 70 million of its subscribers again had reliable service, Research in Motion shares were down only ten cents in trading on the Toronto stock exchange. Even more tellingly, there were very few BlackBerry deserters among Toronto iPhone enthusiasts lined up to buy one of the last products developed under the recently deceased Apple leader Steve Jobs.

Of 70 people questioned by the *Star* at one of the city's four Apple retail outlets, only four said they were dropping the BlackBerry in favour of the iPhone 4S. One customer said she was buying an iPhone to use in Canada and keeping her BlackBerry for trips to her native India. Another said she was buying an iPhone but keeping her BlackBerry "because I'm attached to it."

Education

Ivy League colleges in the US reach out for top-flight Indian applicants too many for the best universities at home

"American universities and colleges have been more than happy to pick up the slack. Faced with shrinking returns from endowment funds, a decline in the number of high school graduates in the United States, and growing economic hardship among American families, they have stepped up their efforts to woo Indian students thousands of miles away."

The "slack" cited by Nida Najjar, writing from New Delhi in the *New York Times*, is the discrepancy between the surging numbers of academically qualified, ambitious

Indian high school graduates and the too-few openings at India's first-rank colleges. With about half of India's 1.2 billion people under the age of 25, and its middle class growing rapidly, the country's highly selective universities are overwhelmed. ("Squeezed Out in India, Students Turn to US," 13th October).

Cumulative scores on final high school examinations are the sole criteria for admission to most colleges in India. Ms Najjar reported that, this past summer, Delhi University, or DU – the first choice of many applicants – issued cutoff scores at its top colleges that reached a near-impossible 100 per cent in some cases. The countrywide Indian Institutes of Technology have an acceptance rate of less than two per cent – and that from a pool of roughly 500,000 who had to put in two years of after-school coaching even to qualify to sit for the entrance exam.

"The problem is clear," Kapil Sibal, the government minister overseeing education in India and himself an Ivy Leaguer (Harvard Law School), told the *Times*. "There is a demand and supply issue. You don't have enough quality institutions and there are enough quality young people who want to go to only quality institutions."

The formidable Indian selectivity is America's opportunity – and it is being grasped. Ms Najjar wrote that representatives from the Ivy League (the eight institutions widely considered the crème de la crème of American higher education: Brown, Columbia, Cornell, Dartmouth, Harvard, Princeton, the University of Pennsylvania and Yale) have begun visiting India to recruit students and explore partnerships with Indian schools. Some have set up offices there.

On 12th October, the US government lent a hand. The State Department held a United States-India higher education summit meeting at Georgetown University, its neighbour in Washington DC, to promote connections between the two countries.

❖ Indians are now the second-largest foreign student population in North America, after the Chinese, with almost 105,000 students in the United States in the 2009-2010 academic year. According to the American Embassy in New Delhi, student visa applications from India increased 20 per cent in the year to mid-October 2011.

Although a majority of Indian students in the US are in graduate school, undergraduate enrolment has grown by more than one-fifth over the past few years. As noted in the *Times*, while wealthy Indian families have been sending their children to the best American schools for years, the expedient is beginning to spread to the middle-class families for whom Delhi University has historically offered the best option.

For those families, the US alternative comes at a price. "The difference in tuition between top American and Indian universities is staggering," wrote Ms Najjar. "Tuition at Dartmouth is \$41,736 a year, not including room and board, while most of the colleges of Delhi University cost about \$150 to \$500 per year."

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- Caterpillar (4 Cylinder to 12+12 Cylinder)
& Capstan



Taping Machines for Copper / PVC/Steel/ Cotton

- Tangential Type
- Pad Dia 500/400 mm

Cable Tech Machines (CTM) started its manufacturing plant over two decades ago and since then, it has urged technological advancements with enthusiasm and commitment towards machinery construction. Our team of industrial professionals specializes in the design and construction of rotating machinery for cable manufacturing. The Company's extensive range of machinery and systems offers the most efficient and reliable solutions for the cable industry. Over hundreds of regular buyers worldwide are a guarantee of its performance.

The Group has two manufacturing units at premium locations - Delhi NCR & M.P. (Heart of India) with four separate independent sheds equipped with state-of-the-art machinery to manufacture machines for the conductor, cable (HT/LT) & rope industries. It also has an independent high tech machine design and drawing office equipped with US software networked CAD, CAM, Workstation & fully integrated processes are standardized. The Company has further acquired 80,000 sq. mts. area to meet its capacity expansion plans in the future.

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制造业

外包中国的制造业生产回迁美国，引领美国“制造业复兴”

备受推崇的全球经营战略顾问波士顿咨询公司（Boston Consulting Group）认为当前美国制造业形势的好转在今后五年中将会呈加速趋势，产值增涨1000亿美元，新增工作机会200万到300万个。

波士顿咨询公司在10月7日发布的报告中预测，随着中国的工资每年上涨15%—20%以及人民币兑美元的持续升值，到2015年前后，中国沿海省份与美国部分低成本州之间的劳动力成本差距将小于40%。这实际上将使中国在美国市场的优势消失殆尽。

波士顿咨询公司分析认为在未来五年间七大热点行业将随时准备迁回美国，这包括：运输工具、计算机和电子产品、金属制品、机械、塑料、橡胶、家电和电气设备、家具。如果美国的出口量增长，这些行业不仅能对国内生产总值（GDP）的增长做出贡献，同时可以将美国非石油商品贸易赤字降低30-35%。（“美国制造业复兴：哪些行业？”）

波士顿咨询公司具体指出了最有可能回迁美国的行业，其观点基于8月（《重回美国制造》）和5月发布的报告，并且得到全球制造业转移经济学的研究支持。

波士顿咨询公司在十月份的分析报告中断言：“我们预计中国将失去自其2001年加入世界贸易组织（WTO）以来享有的大多数成本优势，因此，许多公司将会重新考虑某些销往北美市场的商品的生产场所。”

七大热点行业在美国每年的消费额中约占2万亿美元，占美国从中国进口产品的70%，在2009年其价值总额约为2000亿美元。就业增长分别直接及间接源自工厂工作的增加和配套服务的增加，例如建筑业、交通运输和零售业。

如果将美国劳动生产率较高、产品的实际劳动含量、航运和其它因素纳入考虑，那么在美国市场上所销售的中国产商品的成本优势是微不足道的。

据波士顿咨询公司的资深合伙人和此分析报告的主要作者Harold L. Sirkin说：“这会使美国成为一个对新工厂更具投资吸引力的地方。”[注：Sirkin先生的新书《全球化：与任何地方的任何人竞争一切》探讨了全球化和新兴市场。]

中国将做出调整

波士顿咨询公司的合伙人、领导美洲地区制造业工作的Michael Zinser说：“这并不意味着会关闭中国区的工厂，而是说更多的产品将在快速增长的国内市场和亚洲其它地区销售。”

部分生产将会从中国转向墨西哥，因为那儿的劳动力成本比中国和美国都要低。但是也并非完全如此，据波士顿咨询公司的负责人和此分析报告的合著者Justin Rose称：“美国在这些热点行业拥有丰富的经验、充足的技术人力资源和后勤安全保障，这让美国成为许多公司投资的更好选择。”

制造业经济的变化态势已经体现在贸易数据上。从2001年到2004年，从中国进口产品的年增长速度大约为20%。此增长速度已经大幅度放缓，在过去几年间约为4%左右。美国也放缓从其他低成本国家的进口速度——于2009年呈现下降态势。此趋势在热点行业尤为明显。波士顿咨询公司的合伙人兼该分析报告的合作作者Douglas Hohner说：“我们已经开始看到了这些行业中的生产转移。”

波士顿咨询公司的报告称：“企业们的最新动态凸显了新的制造业排名。”此报告继而指出福特（Ford）汽车制造商、IT维护服务商NCR公司、MasterLock、All-Clad Metalcrafters、视听设备制造商Peerless Industries和灌溉控制公司ET Water Systems最近都已将部分产品项目的制造从中国转移到了美国。中国的工资上涨显然不是唯一的因素。AmFor Electronics公司（俄勒冈，波特兰）认为交货速度更快和设计修改更便捷是其将线束生产和部分产品的最后组装从中国和墨西哥撤回美国西北部的原因。

汽车

在密歇根州，韩国公司创造金属成型及制模方面的就业机会：该州曾经在工业鼎盛期的主要产品

去年初秋，在韩国水原市举行了一场盛大的典礼，用以庆祝美韩两国谅解备忘录的签订，此谅解备忘录加强了韩国京畿道省和美国密歇根州之间的经济联系。

出席典礼的有韩国汽车零部件生产商GNS Automotive的首席执行官Moon-Gyu Kong。GNS Automotive由Kong先生的父亲在四十年前创立，现已在密歇根湖沿岸的荷兰市（Holland）建立了制造基地。

Kong先生接受了来自底特律自由报（Detroit Free Press）的Tom Walsh的采访，他从公司希望更好地服务其主要客户——通用公司（General Motors）并且从第二层供应商升至第一层供应商两个方面阐述了海外扩张。

在他看来，在美国占据市场是实现此目标的重要步骤，同时比起中国，美国更受新人欢迎，“对外商来说，在中国做生意仍不简单。”

2009年12月GNS购买了一个总部位于荷兰市并拥有28名员工的公司，由于南方地区临近汽车制造商现代（Hyundai）和起亚（Kia）的组装工厂，因而GNS选择密歇根作为投资地与其它韩国供应商更倾向于南方地区的作风背道而驰。

Kong先生听说一些零部件供应商在南方很难找到熟练的技术工人和模具制造设计的工程师。（《韩国金属制造入驻密歇根州》，10月1日）

Kong先生也听闻密歇根州的劳动力成本很高，但是2008年到2009年间汽车行业的萧条将工资水平拉回他的掌控范围之内。对于荷兰地区工厂新上岗的工人，GNS给他们每人每小时13美元到15美元的工资：这相当于通用公司按照2009年与汽车工人联合会（United Auto Workers）签订的协议支付给新雇员的工资水平。

选择密歇根的决定对双方均有利。GNS在韩国拥有5家工厂，大约500名员工。现在有65人在GNS的荷兰地区工作。Freep报道称公司即将完成对Canton附近一栋建筑的收购，该建筑主要用于进行冲压和焊接生产。这些大型设施将为凯迪拉克CTS、新雪佛兰Sonic和其它汽车生产零部件。

Kong先生说荷兰地区的工厂将创造2000万美元的年收入，并且这个数字可能会翻倍。他相信其计划在2012年开办的Canton工厂能创造另一笔4000万美元到5000万美元的收入。

Carroll先生注意到韩国与美国间巨大的汽车贸易顺差，他写道：“对于工业一直呈现缩减趋势的密歇根州来说，韩国金属材料制造商投资资产和工作机会的引入是一个好现象。”

钢铁与铝

随着轻型汽车的推进，继服务中心后钢铁行业的第二大客户推动了铝工业的发展

“钢铁行业输在含量，但未输在利润。”

纽约的分析员Charles Bradford报道了美国钢铁工业和铝工业之间数十年的竞争，他指出这两大行业间的持续争斗是为了抢夺他们最大的互利客户——汽车制造商。美国政府下令在2025年之前将普通汽车的燃料经济收益翻倍，该政策决议使竞争更为激烈，并且在此期间，铝工业市场份额的稳定增长态势优于钢铁工业。

Bradford先生告诉匹兹堡邮报 (Pittsburgh Post-Gazette)，钢铁制造商面临实现下一代钢铁产品更高利润幅度的挑战，该利润需高于将被替代的相对品质较低的产品。他说：“如果他们卖得少一些，就会赚的更多，这就是诀窍所在。”（《钢铝行业决一雌雄，力争成为更轻更坚固的汽车制造金属》，10月9日）。

该邮报记者Len Boselovic报道称，两大行业正将数百万美元投入新工厂，生产更轻更坚固的金属材料，将汽车的重量减轻10%，即400磅。Ducker Worldwide研究公司为钢和铝生产商提供咨询服务，据其称，如果要满足提议中每加仑燃料行驶54.5英里的高标准，那么减轻重量是至关重要的。

已经大约有30%的汽车敞篷和20%的保险杠由铝制成，Ducker公司的顾问们预计，今后将有更多的轻型金属材料抢占市场。他们估计到2025年，在北美生产的普通汽车的铝含量将从2012年的343磅上升至550磅。照此情形，铝将占一辆轻型车辆重量的16%，大约是当前铝含量的两倍。研究公司称，钢铁的市场份额将从58%跌至46%。

即便如此，曾在上个世纪90年代管理美国铝业公司 (Alcoa) 世界汽车业务、现任职Ducker公司的Richard Schultz仍否认钢铁生产商的丧钟已敲响。在承认铝生产商稳定介入的同时，他指出：“今后20年汽车仍然主要由钢铁制成。”

- 但是竞争仍然存在。“综合考虑所有因素之后，我们依然具有重量方面的优势，”美国铝业公司主管Aluminium Transportation Group的Randall Scheps告诉邮报记者：“和钢铁相比，我们可以造更轻的车。”匹兹堡邮报的文章明确指出，钢铁制造商们对待此威胁的态度非常谨慎；但是他们也声明作为汽车制造商们多年来的合作伙伴，他们拥有很大的优势。据钢铁行业统计，汽车的钢铁含量实际上在近几年从63%升至65%。美国钢铁协会 (Steel Market Development Institute) 的Lawrence Kavanagh认为：“我们并没有输，我们赢了。”
- 匹兹堡邮报的Boselovic先生认为两大行业都意识到他们必须与汽车制造商密切合作，为轻型汽车的有效设计和制造提供金属材料。就当前两大金属材料制造商的汽车相关项目，他提到以下几点：
- 美国钢铁公司 (US Steel) 和其合资伙伴日本神户钢铁公司 (Kobe Steel) 在位于俄亥俄州Leipsic的新钢铁加工生产线投资4亿美元。这些设备将交替加热和冷却高级钢板，为汽车零部件成型提供所需的强度和柔韧性。主管美国钢铁公司北美地区经营的Michael S Williams说新设备年产量达50万吨，将在2013年初投入生产；
- 俄罗斯钢铁制造商谢尔韦尔钢铁公司 (OAO Severstal) 正在改造其位于密歇根州迪尔伯恩 (Dearborn) 的工厂，生产新一代的汽车钢铁，该项目得到美国能源部 (US Department of Energy) 7.3亿美元的贷款支持；

- 在铝工业方面，基于不断增长的客户需求，Novelis在纽约奥斯维戈 (Oswego) 地区的工厂投资2亿美元增加铝合金汽车板的生产；
- 九月份，美国铝业公司宣布计划投资3亿美元，以使其位于爱荷华州达文波特 (Davenport) 地区的工厂满足汽车市场的需求。这项决定虽然是基于公司的既有订单业务之上，但是Boselovic先生称美国铝业公司期望增长能超过这些订单。“这些是长期决定，”Aluminium Transportation Group公司的Scheps先生在6年前加入美国铝业公司之前与汽车行业有过合作，他告诉邮报记者：“这些资产将持续运作50年。”

简讯...

近来在宾夕法尼亚州的北海滩镇，小偷盗取金属设施的现象十分猖狂。他们用喷灯进行切割，盗走了面积为40×15英尺、重达40吨的钢制桥梁，估计其约价值10万美元。宾州警察称在9月16日至28日这段期间，一工业园区内的一座私有旧铁路桥梁被盗走。一位居住在匹兹堡东北50里、靠近俄亥俄州边境处偏远地区的居民告诉CNN附属WTAE-TV：“那座桥的旧工字钢每英尺可能价值数百英镑。”

桥梁的所有者——一家开发公司对当地媒体称由于附近有偷盗铜质设施的报告，他们近来已经封锁了通往该桥的公共道路，该桥梁的历史则可以追溯到二十世纪初期。然而，所谓的大盗似乎四肢发达而头脑简单，这两名来自宾州纽卡斯尔的小偷兄弟已被抓获。在被废品厂的员工举报而被捕之前，他们向废品商出售了15.5吨的钢块，获取了5100多美元的非法收入。根据ABC新闻电台的报道 (10月18日)，这两兄弟面临着包括刑事破坏、盗窃、收受赃物以及刑事犯罪在内的重罪指控，他们目前在收押之中，需要2.5万美元才可保释。

尽管十分少见，但盗窃桥梁的案件并非没有先例。CNN称根据英国《每日邮报》 (Britain's Daily Mail) 2008年的报道，俄国的一伙小偷曾在一夜之间，切割并盗走了一座38英尺长、200吨重的钢制桥梁。

商业

抵挡潮流，加拿大所做的一切几乎尽是明智之举

《福布斯》杂志 “data-driven stories” 的封面人物Kurt Badenhausen注意到，在每一届美国总统选举的预选期间，有无数美国人威胁称如果他们的候选人落选的话，他们将离开美国迁去加拿大。尽管很少有人能将此坚持到底，但根据《福布斯》杂志2011年度“最适合开展商业活动的国家 (The Best Countries for Business)” 评选结果显示，对于那些对现状有所不满的美国人来说，向北迁移具有前所未有的巨大吸引力。

由于Badenhausen先生所总结的这几点原因，在福布斯排行榜中，加拿大从2010年的第4位上升至第1位。当美国正为可能发生二次衰退以及在与欧洲就主权债务问题上的争端而忧心忡忡之时，加拿大的经济发展却优于其他国家。

总量为1.6万亿美元的加拿大经济体是世界第九大经济体，2010年间其增长了3.1%。预计在2011年将继续增长2.4%。（“最适合开展商业活动的国家”，10月3日）。

加拿大规避了银行业的危机，这对于美国和欧洲是一种鞭策。加拿大皇家银行 (Royal Bank of Canada)、新斯科舍银行 (Bank of Nova Scotia)、蒙特利尔银行 (Bank of Montreal) 以及其他银行都避免了财政援助，并在始于2007年的金融危机



期间依然有所盈利。正如Badenhausen先生所指出的那样：“加拿大银行之所以能摆脱如此严重的世界金融动荡源于其实行了保守放贷。”

在《福布斯》所考量的11个标准中，加拿大是前二十位国家中唯一满足10个标准的国家。在投资者保护以及不存在形式主义这两方面，加拿大都位列前五位，而这两项正是用于考量在该国开展业务的容易程度。功劳同样归功于改革后的税制结构：2010年，以增加加拿大企业的竞争性为目标，安大略省和英属哥伦比亚引入了协调销售税制。同时降低企业与员工的税率同样也改善了该国的税务状况。

Badenhausen先生这样写道：“每年，[加拿大]向美国的出口量占其出口总量的四分之三。”他说，加拿大“主要”依赖于美国经济。然而，尽管美国的失业率一直在高于9%的水平上居高不下，但加拿大的失业率却仅为7.3%。在过去的25年间，加拿大的平均失业率为8.5%，而目前欧元区的失业率则高达10%。

❖ 在债务清算方面，美国在福布斯排行榜中位列第十，从2010年的第九位下降一位。在创新方面，这个拥有14.7万亿美元的世界最大经济体依旧处于领先地位，在世界人均专利拥有量上位列第六。瑞典在总体水平上排名第七，但在创新方面拔得头筹，位列第一。下列是2011年度福布斯商业排行榜的前十位名单，依次是：加拿大，新西兰，香港，爱尔兰，丹麦，新加坡，瑞典，挪威，英国，美国。

电信

加拿大本国人民的最爱，Research in Motion 引导魅力生活

根据加拿大任仕达 (Randstad) 招聘公司10月1日发布的调查结果显示，最有实力的企业雇主是黑莓 (BlackBerry) 智能手机的生产商Research in Motion有限公司。一项对7000名在校学生、在业或待业加拿大居民的在线调查显示，在加拿大150大企业雇主中，滑铁卢以及位于安大略湖的通信和无线设备公司是最受求职者欢迎的公司。参与者需要回答他们是否听说过这些公司；如果有，那么他们是否愿意进入该公司工作。三分之二的受访者都表示知道RIM (Research in Motion) 并希望在那里工作。

该调查在去年的二月至三月期间进行，该时间段正是在由于智能和平板手机的激烈竞争而导致RIM股价急剧下跌之前。但加拿大任仕达公司的总经理并不认为这一轮对公司财产的冲击会对调查结果产生影响。

Jan Hein Bax在接受多伦多星报 (Toronto Star) 访问时 (10月1日) 说：“如果你是一家拥有坚挺品牌的企业雇主，只要你依旧保持在市场上的企业风格、信息量以及形象不变，那么短期波动对于企业吸引力就无法产生长期影响。在对人才的竞争中，这一点尤为重要。”

一个月不到，Bax先生的理论就得到了验证，Research in Motion 公司经受了史上最长的黑莓运行中断。在北美、欧洲、中东及非洲地区长达三天的信号缺失中断了全球用户的邮件和互联网服务。

公司仍保有些许运气。10月14日，当7000万黑莓用户重新获取服务时，Research in Motion在多伦多证券交易市场上的交易价格仅下降了10美分。更为显而易见的是，在大多数的iPhone爱好者中，很少有人会放弃黑莓而去排队购买最近去世的苹果创办人 Steve Jobs所研发的新产品。

星报对该市四家苹果零售网点中一家门店的70名顾客进行了访问，只有4人表示他们更青睐iPhone 4S而舍弃了黑莓。一位顾客

说她购买iPhone的目的是在加拿大使用，而当回到她的本国印度时会继续使用黑莓。另一位顾客说她在购买iPhone的同时也会继续使用黑莓，“因为我离不开它。”

教育

美国常春藤高校联盟为本国的一流大学招收了太多的印度优秀申请者

“美国大学和学院很乐意招收‘闲置人才’。由于面临养老基金的收益减少、美国高中毕业生人数下降以及美国家庭日益严重的经济困难等问题，他们正努力从数千公里以外招收印度学生。”

“闲置人才”这一词汇引用自NidaNajar发表在纽约时报上一篇关于新德里的文章，它反映出在印度，急速增长的高素质高中毕业生人数与一流大学的过低招收人数间的巨大差异。由于25岁以下的青年占印度12亿人口的一半，同时中产阶级发展迅猛，因此该国的高校已人满为患。（“学生被挤出了印度，而投奔美国，”10月13日）。

在印度，高中最后一场考试的总分往往是大多数高校录取的唯一考量标准。MsNajar称在这个夏季，多数申请者的首选—德里大学 (Delhi University)，或简称DU，发布了其顶尖学院的录取分数线，在一些项目中分数线已经达到几乎不可能的满分水平。印度理工学院在全国考生中的录取率小于2%，其中包括约50万名为获得考试资格而在课外学校补习两年的考生。

“问题很明显，” KapilSibal接受泰晤士报采访时说，他是监管印度教育的政府官员同时其本人也是常春藤联盟的毕业生（哈佛法学院）。“这里存在需求与供应的问题。你不具备足够的高素质教育机构，但同时又有太多只想进入一流学府的高素质年轻人。”

印度的艰难抉择却成了美国的机会——美国也已抓住了这一机会。MsNajar写道，常春藤联盟的代表（八所被誉为是美国高等教育典范的大学：布朗大学，哥伦比亚大学，康奈尔大学，达特茅斯大学，哈佛大学，普林斯顿大学，宾夕凡尼亚州立大学和耶鲁大学）已经开始造访印度以招收学生或与印度大学达成合作关系。一些美国大学已在印度设立办公场所。

10月12日，美国政府也出面推进这一事务。美国国务院在临近华盛顿特区的乔治城大学召开了中印高等教育峰会，用以推进两国之间的联系。

❖ 2009-2010学年，在美国的印度留学生人数约为10.5万人，印度成为在北美拥有留学生人数排名第二的国家，仅次于中国。根据新德里的美国大使馆的数据显示，该年至2011年10月中旬，印度学生赴美签证申请量增长了20%。

尽管大部分在美国的印度留学生就读于研究生院，但在过去的数年间，印度留学生的本科招收增长超过五分之一。正如泰晤士报所指出的那样，当印度的富裕家庭将其子女送往美国一流大学学习时，这一对策也开始向中产阶级蔓延，对于他们来说，国内最好的选择仅限于德里大学。

对于这些家庭来说，是否选择美国大学取决于费用问题。“美国与印度一流大学间学费的差异是巨大的，” MsNajar写道，“在达特茅斯大学，一年的学费为41,736美元，其中不包括食宿费；而在德里大学的多数学院，一年的花费在150美元至500美元之间。”

专栏编辑：Dorothy Fabian

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▲ Energy saving solutions from Stolberger

New steel tapping head on the market

CLIMATE protection targets of the European Union dictate a need for speedy development of offshore wind power generation.

This will certainly assume dimensions which are very soon going to entail extreme challenges to be faced by the cable industry in terms of performance and delivery competencies.

Stolberger KMB Maschinenfabrik GmbH, an equipment supplier to the cable and wire industry, and a traditional manufacturer of cable-making and stranding machines, has also been developing and manufacturing choice tapping heads for decades.

In an effort to meet the unmistakable capacity requirements ensuing from the growth potential in the field of offshore wind power, Stolberger has now added a machine to the field-proven BTE 100/2-300 tangential steel tapping head with two tape pads and fully developed and delivered the

first BTE 100/4-300 tangential steel tapping head with four tape pads.

Customised for heavy and offshore cables, this steel tapping head uses 1,000mm diameter tape pads for the first time, intended for tape widths from 20 to 100mm and cable diameters up to 260mm.

For these two tapping heads, Stolberger already build BTE 100/4-450 and BTE 100/2-450 units which are larger versions featuring 450mm free passage for 350mm diameter cables.

In addition to the submarine-cablemaking equipment, Stolberger has a range of foil tapping heads with two or four 800mm diameter tape pads for tape widths from 20-150 mm.

This process of submarine-cable manufacture is complemented by efficient yarn binders.

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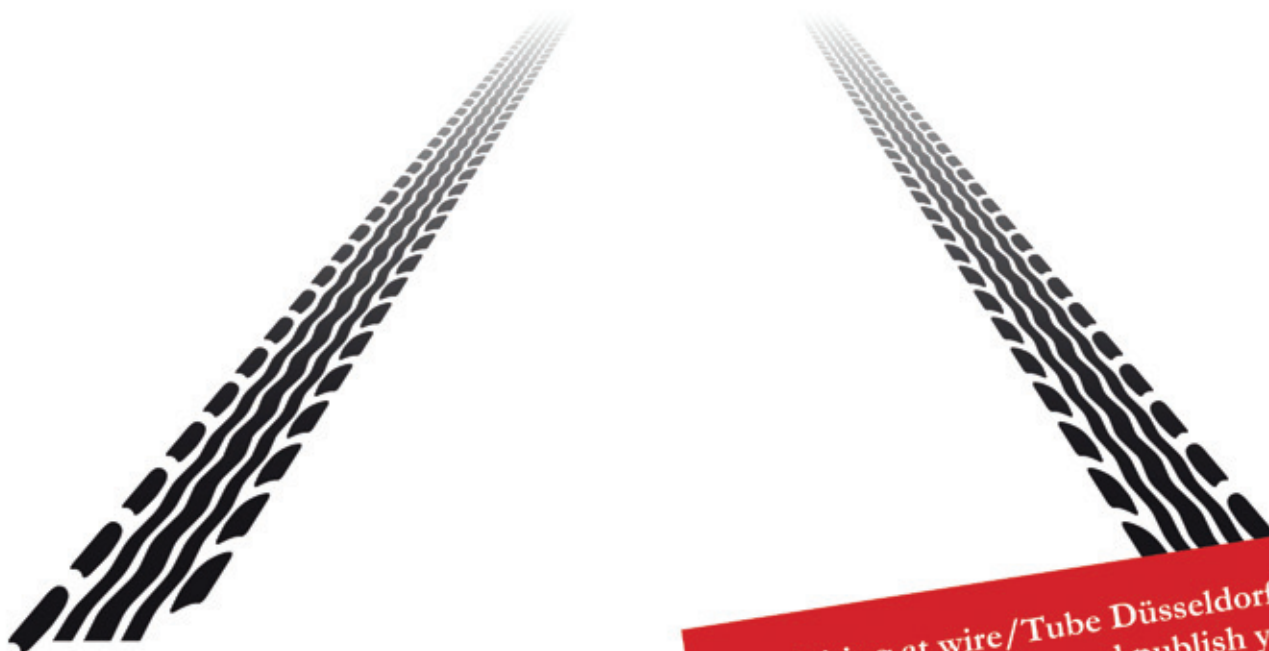
The WT40 wire twister from Eraser

Eraser's model WT40 automatic bench wire twister is used for twisting two or more wires at lengths up to 20 feet. The unit can twist together several small plain or terminated wires and is programmable to a desired number of twists per inch. The maximum material bundle should not exceed an equivalent of three 14 AWG (1.63mm ϕ) insulated wires and twisting speeds are variable.

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Capacitance 2000 assures loss-free data transmission

FOR all LAN, coaxial, telephone or RF cables the loss-free transmission high frequency, analogue or digital signals is a major quality feature.

In this context, the measurement of the capacitance plays an important role. The capacitance influences the impedance of the cable for the

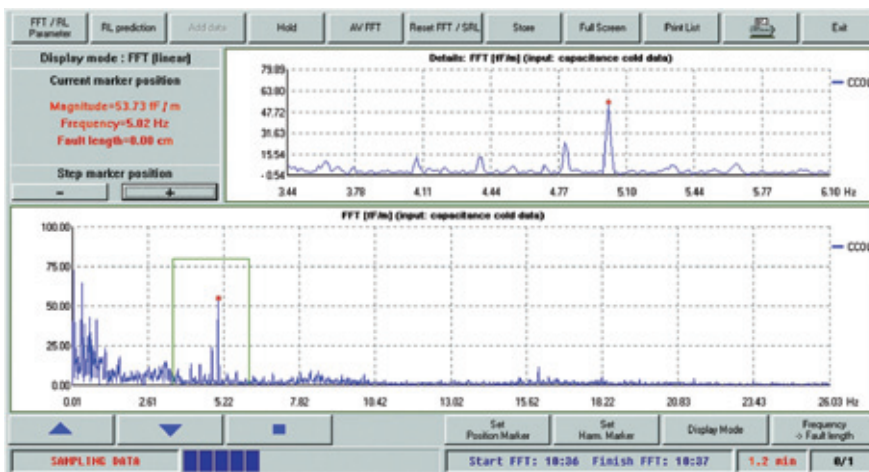
specified frequency range, and thus the quality of the cable, significantly.

Capacitance 2000 is a measuring device which is installed in the cooling trough and measures the capacitance of the wire insulation precisely.

At the same time, the system determines capacitance changes, provides an extremely fast measuring value update and detects bare wires.

This technology is realised by the combination of one short and two long measuring electrodes, which are integrated in a measuring tube.

The short measuring electrode of 10mm length identifies periodical capacitance variations with high spatial resolution by means of Fast Fourier Transformation (FFT).



▲ Capacitance 2000 measures the capacitance and determines periodical capacitance variations by means of Fast Fourier Transformation (FFT)

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From the FFT data, the Structural Return Loss (SRL) is determined and gives information about the expected attenuation of the RF signal during data transmission.

The long measuring zone measures with high precision the average value of the capacitance.

The avoidance of periodical changes of the cable is a precondition for an optimum attenuation characteristic, whereas the critical interval of the periods is the shorter the higher the targeted data transmission rate for the cable increases.

These periodical changes are determined by the multizone technology of the Capacitance 2000, as all parameters that influence quality (eg conductor diameter, foaming, outer diameter) are reflected in the capacitance.

The accuracy is 0.1 pF per metre. At line speeds of up to 2,400m/min predictions of the Structural Return Loss of 3GHz, respectively 8GHz up to 1,300m/min are possible. In this way, the defined impedance of the cable can be reproduced accurately.

The detection of periodical capacitance variations and the prediction of the Structural Return Loss (FFT and SRL) are available as special features directly at the measuring tube via a diagnosis interface.

For displaying the measuring values Sikora offers the processor systems Remote 2000 as well as the Ecocontrol 600/1000/2000. The presentation of FFT and SRL is possible via the Ecocontrol 1000 or 2000.

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▲ The new SMR product from Zumbach

New addition to the range

ZUMBACH Electronic presents the latest addition to its line of Steelmaster gauges.

The new SMR product line offers novel and significant advantages over other gauges, when it comes to fast and accurate capture of dimensions in longitudinal and radial direction.

SMR gauges rotate continuously at 100rpm. Up to 3 ODAC® laser heads take 2,000 measurements per second and head, fully synchronised.

This results in up to ten complete profiles per second, which is faster than other gauges.

Alternatively, the SMR can operate in static, orientatable mode with 2,000 diameter resp. dimension measurements/s in each direction (at 100m/s this means a set of measurements every 50mm).

The mechanical concept is extremely simple and robust; no wear parts, no collector rings, no brakes, etc.

The transmission of power and signals to and from the laser heads is fully contactless. The maintenance for SMR gauges is close-to-zero.

The Steelmaster software has latest features, such as:

- EPM function for true section display, also with polygonal and asymmetric shape deviations
- Special functions for 3-roll mills
- Head and tail scrap calculation
- Flexible, personalised screens

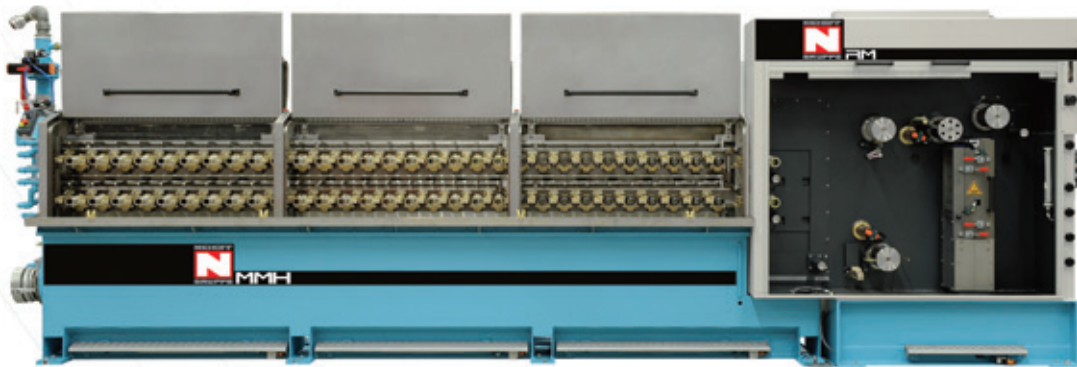
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Sparks out of bounds

A CABLE and hose management solution was needed for an automated drill rod handler on a Bauer deep drilling rig, and other than performance and ATEX-conformity, longevity and service life were of importance.

A Kabelschlepp hybrid energy drag chain now provides the answer.

We all experience static energy at some point and these electrostatic discharges are not only hazardous to men due to the shock reaction, but they can ignite flammable materials.

This also applies to machinery, tools and equipment in industrial applications such as in civil engineering and mining, refining or chemical processing. Movement and friction create a static charge, and the inevitable discharge will have devastating consequences in oil or gas production. Bauer Maschinen GmbH knows this only too well. In product development of deep drilling devices there are strict requirements for explosion prevention.

A vertically fitted MC 1300 type Kabelschlepp drag chain manages the required electric and hydraulic feeds on the mast of deep drilling rig TBA 300.

The previous solution of grouping hose and cable in festoon bags needed replacement to fast movements in operation, and the variety of lines to be handled. The MC 1300 chain was chosen as the inner height of 87 mm and the bespoke compartment width of 650mm.

The multi-variable chain is designed for tough conditions on construction sites and a rigid link design makes it extremely robust, and it is equipped with an enclosed and dirt-resistant stop system.

This stability achieved by the combination of GRP side band and aluminium cross stays also offers good conductivity to avoid excessive static charge.

The ATEX Directive stipulates that all components must have controlled discharge properties. To follow the directive, and essential for ATEX applications, the chain band is made of a special, conductive material.

The special material for this design



▲ Kabelschlepp cable carrier MC1300 with EX rated GRP chain bands and aluminium hole stays

delivers the required properties while retaining the abrasion resistance and stability. This is particularly important for the TBA 300: it is not only more cable to handle, but also larger diameters. The result is higher loads on the chain, and the separators.

Apart from increased torsional stiffness and conductivity, the properties of aluminium cross stays reduce friction.

Even if cables do have appropriate sheathing and modern plastics are less abrasive, aluminium by far copes better with heavy cable. In addition, Kabelschlepp's diverse offering of stay and shelving systems covers includes hole stays (LG type).

Enclosing cable and hose, they feature identical advantages in terms of conductivity and stability as other cross stay designs.

In a vertical application, though, they have the additional advantage of controlling the momentum. The hole stay pattern is designed to suit the OD of cable and hose, and friction or twisting is impossible.

Holding the media in the centreline of the radius, length variances hence movement and wear is avoided. Hanging cable and hose tends to elongate and needs readjusting from time to time. Bespoke strain relief on both ends with cable and hose clamps secure cable and hose.

Compared to loose lines, invariably subject to reduced service life and chafing due to the relative movements, the service life is extended to a maximum, and cost is prevented.

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The non-contact laser makers to accurately mark

MANUFACTURERS today face a number of production challenges based around productivity, quality and cost reduction. At the centre of this challenge, is the ability for manufacturers to accurately measure the length and speed of wire and cable in order to better control sequential printing or marking operations.



▲ LaserSpeed non-contact length and speed encoder

Traditionally, manufacturing plants have used mechanical type encoders, such as contact rotary encoders or tachometers, to measure the length and speed of wire and cable during production in order to control the sequential printing on products. The outer coatings of cables are typically marked with details including product length in the form of metre or footage marks, manufacturer's name, product and operating information.

Wires may indicate special numbering or coding for identification purposes. Customers rely on the accurate spacing of this information to ensure the manufacturer delivers the exact amount of product as specified. Customers also rely on the accuracy of this information to perform critical tasks, such as laying the correct amount or length of wire or cable without needing to re-measure it.

But contact encoders are prone to mechanical and calibration problems which result in costly measurement errors. As such, wire and cable manufacturers are looking to non-contact measurement methods such as the LaserSpeed encoder from Beta LaserMike to accurately measure the length and speed of product during

sequential printing applications. Manufacturers are realising productivity gains with this technology by significantly reducing measurement errors and improving process control. This article gives an inside look.

Contact encoders face real measurement challenges during production

Depending on the application, mechanical contact-type encoders face a number of challenges in wire and cable production processes. First, mechanical encoders must contact the wire or cable in order to measure the length and speed of product during production. These measurements are indirect measurements, relying on the physical contact between the mechanical encoder wheel and the product's surface. Length is calculated from the amount of rotation of the contact wheel. However, contact encoders by their very nature have several fundamental flaws that make them prone to measurement errors.

Contact encoders are subject to slippage and calibration changes caused by variations in the diameter of the contact wheel due to dirt build-up or wear. Since the contact encoder is a mechanical device, it also experiences mechanical component failure from time to time – requiring repair and re-calibration.



▲ Contact method is prone to measurement errors

The measurement error of mechanical systems will also change with production conditions, requiring the line operator to continuously check the spacing of the print and then recalibrate the contact encoder to keep the marks within specification. Product length and speed inaccuracies may be as much as 2%, or even greater, depending on the

application.

Products such as CAT, CV, power, telephone, and other types of cables are very expensive to produce, and manufacturers produce millions of feet or metres of wire and cable product monthly. A two per cent measurement inaccuracy on this large amount of



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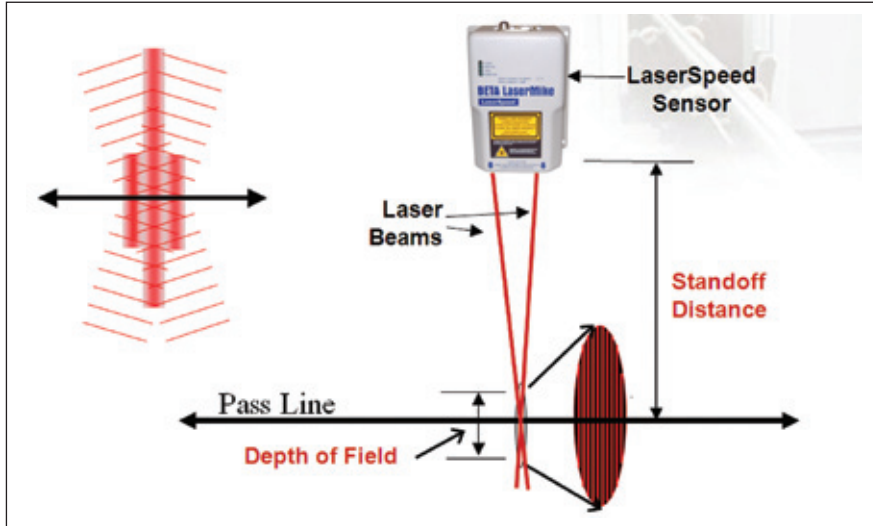
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encoder that allows wire and cable products



▲ LaserSpeed uses non-contact laser technology to measure product length and speed with $\pm 0.05\%$ accuracy

product means the plant can generate a substantial quantity of material scrap or waste. This can cost manufacturers a significant amount of money in unnecessary expense. As such, length accuracy is of paramount importance.

Non-contact approach eliminates measurement errors

Non-contact length and speed measurement systems avoid the measurement pitfalls encountered by mechanical contact systems. For example, the LaserSpeed encoder uses a unique, laser-based measurement technique that does not make contact with the wire or cable. It is permanently calibrated and has no moving parts to wear out. The system projects a unique fringe pattern on the surface of the wire or cable. As the product moves, this movement creates a Doppler signal scattered back to the LaserSpeed system.

This Doppler information is translated into product speed and pulses are produced to determine the product length. The LaserSpeed encoder works on all types of products, regardless of colour, shape or texture. Length and speed measurements are captured with better than $\pm 0.05\%$ accuracy and $\pm 0.02\%$ repeatability.

Ensuring marking accuracy during sequential printing operations

Depending on the production requirement, manufacturers have installed the

LaserSpeed encoder at various locations on the line. The most common place is adjacent to the printing system just after the jacket is extruded onto the wire or cable. Since the jacket is still soft and hot after the extrusion, the LaserSpeed non-contact system provides the ideal measurement method over contact mechanical encoders.

Many manufacturers have installed the LaserSpeed encoder before the capstan station or take-up reel. Situating the LaserSpeed encoder alongside the printing system where the marking occurs, helps to better track the actual length and speed.

To control the sequential printing operation, the LaserSpeed encoder outputs an index pulse directly to the printing system. Some applications may just need the encoder pulses via a quadrature output. Pulses can also be sent to a PLC system.

LaserSpeed enables manufacturers to set the desired pulse rate (ex. pulses every number of feet, metres, etc.) to meet their unique sequential printing requirements.

This enables the manufacturer to control the exact spacing between print marks with $\pm 0.05\%$ accuracy. Under controlled conditions, it is possible for LaserSpeed to approach $\pm 0.02\%$ accuracy. This level of accuracy also ensures the manufacture does not over-ship or short the customer of

product. For European manufacturers, the LaserSpeed encoder is available as a MID-certified system to meet all the Measuring Instrument Directive requirements.

Setting the pace for accurate length, speed, and sequential printing

The advantages of non-contact length and speed measurement systems, such as the LaserSpeed gauge, have been proven on all types of wire and cable production processes including sequential printing applications.

This non-contact, laser-based technology eliminates those measurement errors associated with contact wheel tachometers as a result of slippage and mechanical wear.

Manufacturers that employ laser-based, non-contact measurement technology in their sequential printing operations will be on the road to increased productivity, improved product quality and real bottom-line savings.

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Non-toxic additives: Rodent and termite control in plastics

POLYMERIC materials cater to a plethora of applications, namely wires, cables, plastic pipelines and so on; but they also cater to a range of uninvited guests, prime among them being rodents and termites!

The incidences are interesting. Rats were blamed for a telecom blackout a few years ago in New Zealand which led to the closing of the stock exchange, as a result of which trading was halted for a day.

A survey by The Plastic Pipe Institute, USA, concluded that anti-termite requirement was essential in polymeric applications particularly wires, cables and plastic pipelines.



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Rodrepe[®]™ and Termirepe[®]™ – the non-toxic and non-hazardous anti-rodent and anti-termite/insect additive masterbatches developed by C Tech – have been evaluated in various applications.

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They are compatible with all kinds of polymers.

These products have been tested at various government testing institutes.

The PolyOne Corporation, which distributes Rodrepe[®]™ and Termirepe[®]™ in the USA and Europe, has recently concluded testing them for their anti-rodent and anti-termite properties at the Indian Institute of Chemical Technology, Hyderabad, where the products were evaluated under real life testing conditions and were found to be effective.

Certain problems are universal, but where a problem exists the solution can't be far behind.

Rodrepe[®]™ and Termirepe[®]™ have been developed to address the problems effectively and sustainably while guaranteeing the safety of animals, humans and the environment.

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○ Stolberger的节能解决方案

Stolberger的新 型钢包带机

欧盟的气候保护目标表明它需要加快开发海上风力发电。这明确体现了电缆工业在性能和交货能力方面即将面临的极端挑战的限度。

Stolberger KMB-Maschinenfabrik GmbH是一家线缆工业设备供应商，一家生产和绞合电缆设备的传统制造商，几十年来一直致力于开发和制造优质包带机。

海上风力发电增长潜力是显而易见的，为了满足这种能力增长要求，Stolberger在成熟的、使用两个包带垫的正切钢包带机BTE 100/2-300中增添了一款机型，现在开发交付的BTE 100/4-300钢包带机采用4个包带垫。

这种钢包带机定制用于重型和海上电缆，首次采用1000毫米直径包带垫，旨在用于20-100毫米的包带宽度，电缆

直径可达260毫米。对于这两种包带机型，Stolberger建造了更大的BTE 100/4-450和BTE 100/2-450型包带机，它们的自由通道达450毫米，可用于350毫米直径电缆。

除了海底电缆生产设备外，Stolberger还拥有各种金属薄片包带机，采用2个或4个800毫米直径包带垫，用于20-150mm包带宽度。

这种海底电缆生产流程还补充使用高效合纱机，Stolberger已将其用于含有161个梭子（梭子外径达500毫米）的工艺。

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Eraser的新型台式绞线机

Eraser的WT40型自动化台式绞线机被用来绞合两根或以上长度高达20英尺的线材。这套设备能绞合若干小型普通或复合线材，可编程达到希望的绞合数/英寸。最大的材料束不应超过相当于3根14 AWG (1.63mm ϕ)的绝缘线，而且，绞合速度范围为0到26转/秒。WT40型利用一个定制的保持/夹具装置，这个装置的规格可按照具体应用定制。Eraser庆祝其业务100周年，并庆祝其制造出各种工业产品，包括线缆和管道切割机、线缆剥除器、线材绞合机、线材刷轮、解轮、红外加热设备、测量工具和fybRglass®消除器。

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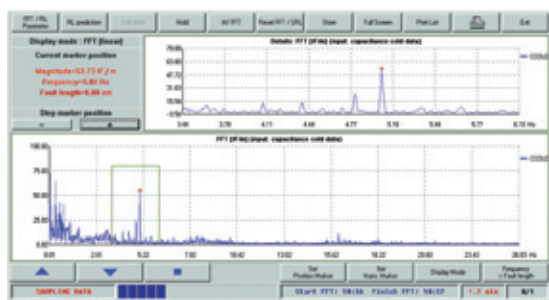
Capacitance 2000保证无损失数据传输

对于所有的LAN、同轴电缆、电话或RF电缆，无损传输高频、模拟或数字信号是一项主要的质量性能。本文中，电容测量起到重要作用。电容影响电缆在规定的频率范围内的阻抗，从而大大影响电缆质量。Capacitance 2000是一种测量装

置，安装在冷却槽内，精密地测量线材绝缘电容。同时，系统鉴定电容变化，提供极快的测量值更新，并检测光裸线。这项技术由组合在一根测量管内的一个短测量极和两个长测量极来实现。短测量极10毫米长，它通过快速傅立叶变换(FFT)，用空间解决方案来识别定期电容变化。

2000的多区域技术确定，因为影响质量的所有参数(例如导体直径、泡沫、外径)均反映在电容内。准确度为0.1皮法/米。当线速度高达2400米/分钟时，结构返回损失先决条件达到3GHz，1300米/分钟时达到8GHz是可能的。这样，能准确地复制确定的电缆阻抗。

- 通过快速傅立叶变换(FFT)，Capacitance 2000测量电容和确定定期电容变化



从FFT数据，结构返回损失(SRL)被确定，并在数据传输期间给出期望的RF信号衰减信息。长测量区域用高精度测量电容平均值。

由于时间临界范围越短，电缆目标数据传输率增加越大，所以，避免电缆定期变化是优化衰减特征的一个先决条件，这些定期变化由Capacitance

通过诊断界面，定期电容变化检测和结构返回损失先决条件(FFT和SRL)是直接反映在测量管上的特殊性能。为了显示测量值，Sikora提供处理器系统Remote2000以及Ecocontrol 600/1000/2000。通过Ecocontrol 1000或2000演示FFT和SRL是可能的。

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消除火星

Bauer深度钻井装置的自动钻杆处理机需要一种电缆和软管管理解决方案。与性能和ATEX-符合性相比，它更看重其寿命和服务年限。Kabelschlepp混合能源拖链现在提供了解答。我们都在某些地方经历过静电能，这些静电触反应不仅对人类有害，而且能引燃可燃物质。

这种稳定性是通过GRP侧带和铝交连带组合而达到的，这种稳定性还提供了很好的导电性，以避免过度静电。

ATEX法令规定所有元件必须具有受控的放电性能。为了遵守这个法令，而且这是ATEX应用的基本要求，链带用特殊的导电材料制成。

无毒添加剂: 塑料抗啮齿动物和白蚁性能

聚合物材料满足许多应用，如线材、电缆、塑料管道等，但它们也满足了各种不请而至的客人 - 主要是啮齿动物和白蚁! 发生率令人感兴趣。几年前，老鼠在新西兰造成电信停运，造成股票市场关闭，交易暂停半天。美国塑料管道学会调查表明：在聚合物应用中，抗白蚁是最基本的要求，尤其是线材、电缆和塑料管道。Rodrepe!™和Termirepe!™ - 由C Tech开发的无毒和无害的抗啮齿动物和抗白蚁/昆虫的添加剂材料 - 已经过各种应用评价。

这也适用于土建、矿产、炼油或化工等工业应用的机械、工具和设备。移动和摩擦产生静电，放电是不可避免的，将给油或气生产带来严重后果。Bauer Maschinen GmbH精通此道，他们在开发深度钻探设备时，对防爆有严格的要求。

这种设计的特殊材料提供所要求的性能，同时保留摩擦阻力和稳定性。这对TBA 300尤其重要：它不仅要处理更多的电缆，而且要处理更大的直径。结果是链条和分离器要承受更高的负载。

除了扭曲强度和导电性增强外，铝交链带的特性还降低了摩擦。即使电缆确实有合适的护套，而且现代化塑料的摩擦更低，铝还是能更好地处理重型电缆。另外，Kabelschlepp的各种带产品和棚架系统包括孔带(LG型)。

这些产品符合RoHS和REACH，而且FIFRA免检，它们在高温(大约400°C)时稳定，因此与挤出工艺兼容。它们不从聚合物母体中析出，而且在低剂量时有效，不挥发，寿命长达5-40年(取决于应用)，与所有聚合物兼容。这些产品经过各国政府测试机构的测试。PolyOne Corporation在美国和欧洲经销Rodrepe!™和Termirepe!™，最近结束了他们在印度海得拉巴化学技术研究院的啮齿动物和抗白蚁性能测试，他们在那里对产品进行真实寿命测试条件测试，发现是有效的。有些问题是普遍存在的，但在存在问题的地方，解决方案也紧随而至! 人们已经开发出Rodrepe!™和Termirepe!™来有效持续地解决问题，同时保证动物、人类和环境的安全。

Kabelschlepp的MC 1300型拖链垂直安装，管理深度钻探装置TBA 300主杆所要求的电力和水力源。以往的解决方案在悬杆袋内将软管和电缆分组，现在需要更换，以便操作时快速运动、处理各条装置。所选的MC 1300链内部高度为87毫米，定制隔室宽度为650毫米。

封闭电缆和软管在导电性和稳定性方面具有与其它交链带设计相同的优点。在垂直应用中，尽管它们在控制动量方面具有附加优点，但孔交链带方式的设计适合于电缆和软管外径，摩擦或扭曲是不可能的。

保持介质在半径中心线上，长度变化，移动和磨损被避免。悬挂电缆和软管趋于拉长，需要时常调节。定制链释放两端，由电缆和软管夹固定电缆和软管。

与松线比较，松线总是受制于降低的服务寿命和相对运动造成的摩擦，这种链的服务寿命最长，成本最低。

多变量链设计用于施工现场苛刻条件，刚性连接设计使其极其稳健，而且，它还配备一个封闭的和防尘停车系统。



- Kabelschlepp电缆载体M1300，配备EX等级GRP链带和铝孔带

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非接触式激光解码器制造商准确标识线缆产品

制造商现在面临许多生产挑战 - 生产力、质量和降低成本。这个挑战的中心是制造商的能力 - 准确测量线材和电缆长度和速度，以便更好地控制后续打印或制造操作。

制造装置传统采用机械型解码器，例如接触转动式解码器或转速计，以便在生产期间测量线缆长度和速度，控制后续产品打印。电缆外涂层通常含有细节标记，包括米或英尺计的产品长度、制造商名称、产品和操作信息。

为了标识，线材可能指示编号或编码。客户依靠这个信息的准确间距来保证制造商递交规定的确切数量的产品，客户还依靠这种信息的准确度来执行关键任务，例如铺设正确数量或长度的线缆，无需重新测量。

但是，接触式解码器容易产生机械和校准问题，导致昂贵的测量错误。因此，线缆制造商希望采用非接触式测量方法，例如Beta LaserMike的LaserSpeed解码器，以便在后续打印应用中准确地测量产品长度和速度。采用这种技术后，通过实质性降低测量错误和改进工艺控制，制造商实现真正的生产力提高。本文为你作一深入的介绍。

接触式解码器在生产期间面临真正的测量挑战

取决于应用，机械接触式解码器在线缆生产工艺中面临许多挑战。首先，机械式解码器必须接触线缆，以便在生产期间保证测量产品长度和速度。这些测量是间接的，取决于机械解码器轮和产品表面的实际接触。长度是根据接触轮转数计算出来的。但是，接触式解码器其本身就有几个基本的缺陷，使其容易产生测量错误。



接触式易于造成测量误差

接触式解码器得接受滑动和校准的挑战，因为接触轮由于脏物累积或磨损而造成直径变化。因为接触式解码器是机械装置，所以其机械元件时常会发生故障 - 需要修理和重新校准。

机械系统测量错误也随着生产条件而改变，要求装置操作人员连续检查打印间距，然后重新校准接触式解码器，将标识保持在规格之内。产品长度和速度的不准确性可能达到2%，甚至更高，取决于应用。

生产CAT、CV、电力、电话和其它电缆产品是非常昂贵的。制造商每个月要生产成

百上千万英尺或米的线缆产品。这么大的产品数量，2%测量不准确性意味着装置会产生实质性数量的废料或废品，造成制造商不必要的成本开支。因此，长度准确性是很重要的。

非接触式消除测量错误

非接触式长度和速度测量系统避免机械接触式系统遭遇的测量难题。例如，LaserSpeed解码器采用一种独特的、以激光为基础的测量技术，无须接触线缆。

这是永久校准，没有移动部件磨损。它的工作原理在于这个系统产生一个线缆表面的独特图案。当产品移动时，这种移动产生一个多普勒信号，并散射回到LaserSpeed系统。

这种多普勒信息被转换成产品速度，被产生脉冲来确定产品长度。LaserSpeed解码器适合于所有类型的产品，与颜色、形状或质地无关。长度和速度测量准确度优于 $\pm 0.05\%$ ，重复性优于 $\pm 0.02\%$ 。

保证后续打印操作期间的标识准确度

根据生产要求，制造商将LaserSpeed解码器安装在装置的各种位置上。最常见的地方是靠近打印系统，就在夹套挤出到线缆后面。因为夹套在挤出后仍然是软的、热的，所以

LaserSpeed非接触式系统提供了比接触式机械解码器更加理想的测量方法。

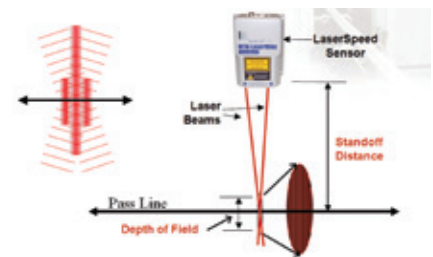
许多制造商将LaserSpeed解码器安装在绞盘机前或卷绕轴前。将LaserSpeed解码器安装在标识打印系统附近有助于更好地跟踪实际长度和速度。

为了控制后续打印操作，LaserSpeed解码器直接输出目录脉冲到打印系统。有些应用可能正好需要积分输出的解码器脉冲。

也能将脉冲发送到PLC系统。LaserSpeed能使制造商设定希望的



LaserSpeed非接触式长度和速度解码器



LaserSpeed采用非接触式激光技术来测量产品长度和速度，准确度达到 $\pm 0.05\%$

脉冲率（例如，脉冲/英尺数或米等），以满足独特的后续打印要求。

这能使制造商控制打印标识之间确切的间距，准确性达到 $\pm 0.05\%$ 。在可控的条件下，LaserSpeed可能达到 $\pm 0.02\%$ 准确度。这种水平的准确度也能保证制造商不会过度发货或缺缺客户产品。

对于欧洲制造商，LaserSpeed解码器拥有MID认证系统，来满足所有测量仪表法令要求。

设定步伐，达到准确的间距、速度和后续打印

非接触式长度和速度测量系统（例如LaserSpeed表）的优点在于：历经所有类型的线缆生产工艺的验证，包括后续打印应用。这种基于激光的非接触式技术消除了那些与接触轮转速器（滑动和机械磨损）相关的测量误差。

把基于激光的非接触式测量技术用于其后续的打印操作的制造商将提升其生产率、改进产品质量、实现真正的节约。

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wire 2012 preview

Düsseldorf awaits . . .

Düsseldorf once again plays host to the world's biggest wire and cable exhibition in March as wire 2012 opens its doors at the Düsseldorf Fairgrounds.

More than 1,000 companies have already registered for the week-long event which will see experts, exhibitors and visitors alike getting to grips with the latest technology and machinery in the industry.

Show dates:

Monday 26th March - Friday 30th March 2012

Show opening hours:

9am-6pm Monday to Thursday

9am-5pm Friday

Messe Düsseldorf GmbH – Germany

Email: wire@messe-duesseldorf.de

Fax: +49 211 45 6087 7793

Website: www.wire.de



wire 2012



MORE than 1,000 companies have already registered for their place at wire 2012 in Düsseldorf.

Companies from 45 countries will be setting up show at the Düsseldorf Fairgrounds with a traditionally strong number of exhibitors from Italy, Belgium, France, Austria, the Netherlands, Switzerland, Turkey, Great Britain and Germany. A high number of registrations from Sweden were also received.

In addition to those, US, China, India and Taiwan also have a high number of reservations as the companies take up a total of 592,000ft² of net exhibit space.

wire 2012 will present wire production and finishing machinery, tools and process engineering auxiliary materials as well as materials and special wires.

Also on display will be innovations from the areas of cable, measuring and control technology, testing technology, logistics, conveyor systems and packaging.

Manufacturers of wire, cable and fibre glass machinery as well as wire and cable producers and suppliers will occupy Halls 9 to 12, 16 and 17. Hall 15 will house fastener technology while Hall 16 will focus on spring making.



wire 2012 - New products on show
March 26th – 30th 2012



Don't forget to book your Advertising in the wire 2012 Show Issue

The March 2012 issue will be freely
distributed from our stand in the
Main Entrance Hall and in Hall 11-D28



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Advertising deadline:

March Show Issue: 6th January 2012

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Braiding, knitting, weaving and welding

The more intricate the product, the more highly specialised the apparatus of its manufacture. Braiding, knitting, and weaving machinery must accommodate a wide variety of feedstocks – ie ferrous metal, flexible brass wire, galvanised wire – and often must work the materials together in patterns that lend new meaning to the machinist's term "arbitrary combination."

The wire mill must also have capability for processing an order for high-tensile double-width woven wire mesh – for, say, a pasture enclosure – that imposes strength and handling challenges beyond the ordinary.

At the same time, the machinery and equipment must meet "ordinary" standards as to speed, economy, and convenience in use and maintenance.

The companies whose products and services are reviewed here are equally responsive to both sets of requirements.

They are aware that a snapped wire at any stage of a run of braided, knitted, or woven product will likely entail a heavier penalty than elsewhere in the mill.



Efficient and economical Niehoff braiders: the BMV series

About ten years ago, Maschinenfabrik Niehoff started to develop the BMV type braiding machines together with the data and special cable stranding machines of the DSI series. The 12, 16 and 24-carrier lever arm rotary braiding machines are mainly designed to apply an EMC shielding onto cables. At wire 2012 trade fair, another BMV model will be introduced.

Because of its precise tension control system and the simplicity of its wire path, the industry proven BMV braiders can process a multitude of wire material and types eg bare or plated copper wire, aluminium wire and stainless steel wire with a single-wire diameter of 0.05 to 0.3mm (44–28 AWG) as well as artificial yarn and fibres.

The machines' sophisticated design allows the processing of the different material copper, textile and steel wire braids without the need of extensive and time consuming setups and changeovers.

○ *BMV 16-carrier lever arm rotary braiding machine (BMV 16)*



Typical applications of the braiders include the manufacture of data, control cables, coaxial cables as well as automotive hybrid drives cables, in which tapes must be inserted before and after braiding.

Further applications are hollow braids for battery cables, stranded braids, mechanical reinforcements for pressure hoses and medical catheters.

The BMV braiders are equipped with the latest technology energy saving drives, energy optimised components and new spool carriers made of precision-machined high-grade aluminium.

The braiders feature an automatic central lubrication system, an infinitely variable electronic line speed and braiding pitch control as well as a quality control system from the cable inlet via single and bundle-wire control to the take-up of the braided cable. Also an automatic empty bobbin detection system can be integrated in the machine: this device stops the machine before a braiding bobbin is completely empty, while minimising the residual wire on the braiding bobbin. The operational safety can still be increased using slide track temperature monitoring and control which varies the track lubrication frequency and quantity to avoid overheating and which stops the braider when a limit temperature is exceeded. Thus BMV braiders can operate unattended and with minimum operator intervention.

The BMV machines can be combined with either longitudinal or central taping devices designed to apply tapes of different materials onto the cable, before or after the braiding point. Because the working process is integrated in one machine, work and storage spaces are reduced requiring considerably smaller equipment footprints.

Moreover, the product quality is higher than before because of the elimination of the intermediate rewinding process and the in-line braiding and taping operations are completed under constant and uniform haul-off tension. Therefore, braiding and subsequent taping of a cable in one step results in considerable operational advantages and cost savings.

The BMV braiders are part of the modular Niehoff machinery programme which covers all operational steps from rod wire drawing to fine wire drawing and to data and special cables manufacturing.

The "Hacoba System" bobbin rewinding machines, also built by Niehoff, play a key role in enabling the BMV machines to work efficiently at their full potential.

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Improve productivity with PWM rod welders



○ The upgraded P1500 electro/hydraulic rod welder welds large rod sections quickly and cost-effectively

Robust, reliable and easy to operate, PWM cold pressure welders produce strong permanent welds on non-ferrous materials, saving downtime and materials and improving productivity.

PWM, which has been at the forefront of cold weld technology for over 25 years, manufactures a comprehensive selection of cold welders to suit a wide variety of applications. Precision engineered in PWM's own UK workshops to stringent quality standards, the range includes manual and powered machines, with capacities up to 25mm copper and 30mm aluminium.

Standard and custom dies are individually hand-made in matched sets by PWM's skilled technicians to tight tolerances and can be manufactured to suit round or profile wire. PWM can also make dies to weld different sizes of wire, enabling manufacturers to weld, for example, 2.5mm diameter wire to 3mm diameter wire without disrupting production.

PWM's newest model is the upgraded P1500 rod welder. First introduced in 1994, the P1500 was the first machine of its kind to offer an economical method of cold welding copper rod up to 25mm in diameter and aluminium to 30mm. The latest model has an upgraded hydraulic operating system to provide a quieter, smoother weld operation and a new user-friendly keypad. Power consumption is limited to the hydraulic pump motor, making the P1500 very energy efficient and economical to operate.

PWM's range of rod welders includes the competitively priced P1000 model and the best-selling EP500 machine. The P1000 offers wire and cable manufacturers a host of time saving design features, packed into a compact frame. The machine has a capacity of 6mm to 16mm copper and 6mm to 20mm aluminium, quick release dies and an easily adjustable die setting mechanism to ensure die changeover is fast and problem-free.

The electro/pneumatic EP500 model welds wire sizes 5mm to 12.5mm copper and 5mm to 15mm aluminium, is low maintenance and simple to operate.

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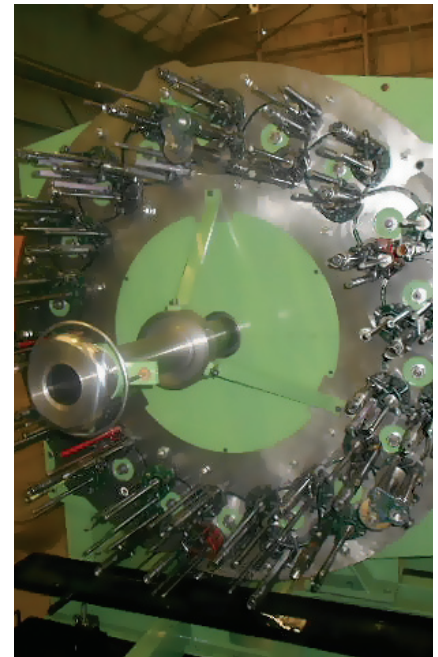
Goodwin still going strong from 1919

Now part of Goodwin Machinery, Ben and Fred Carter braiders are still going strong since originally forming in 1919.

The company has an extremely active spares section that can supply any spare parts from the Carter range of braiders and carriers.

There is also an equally active service and repair section where skilled staff inspect and repair braiders on site or at the Goodwin premises in Bolton.

The company also offers an inspect and report service to customers who are having a particular problem with their braider or who have lost the 'in-house' ability to perform in-depth preventive maintenance inspections.



○ A braider installed in October last year

The company is also still producing new B & F Carter braiders; the one pictured was manufactured entirely in Bolton, UK, and was eventually installed complete with acoustic booth and drive by engineers in October 2011.

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编织机械设备

越复杂的产品，其生产设备也越高度专业化。编织机械必须适应各种各样的原材料 - 例如黑色金属、软黄铜线、镀锌铁丝 - 而且经常各种材料一起以特定模式加工，用操作工的理解意义就是‘独特组合’。线材设备还必须能加工高强度、双宽度金属网编制-例如，牧羊围栏，强度和处理要求挑战超过一般产品。

与此同时，机械设备必须符合“普通”的标准，象速度、经济、方便的使用和维护。在这里介绍的公司，其产品和服务要同样符合两方面的要求。他们都知道，运行中的编织机在任何一个阶段的断线，对编制产品可能会带来严重的损失超过其它任何设备问题。



○ 升级的P1500电动/液压棒材焊机
能快速有效地焊接更大的棒型材

高效、经济的Niehoff编织机：BMV系列

大约十年前，Maschinenfabrik Niehoff 开始开发BMV型编织机以及DSI系列数据电缆及特殊电缆绞线机。12、16和24锭活动臂旋转编织机主要设计用来在电缆上编EMC电磁屏蔽层。在2012年线材展览会上，将推出另一台BMV型编织机。由于其精确的张力控制系统和简单的线道，业界已证明BMV编织机能够处理各种线材和各种类型比如单线直径为0.05到0.3毫米(44-28 AWG)的裸铜或镀铜线、铝线和不锈钢线材以及人造纱线和纤维。

机器精巧的设计使其能够处理各种材质的、铜的、纺织的以及钢丝编织，不需要大量耗时的设置和更换时间。编织机典型应用包括加工数据和控制电缆、同轴电缆以及汽车混合驱动电缆，其中都是必须在编织前后插入带子。进一步的应用包括电池线的空心编织，成股编织以及压力软管和医用导管的机械加固。

BMV编织机配有最新科技的节能驱动器，能源优化的部件以及由精加工优质铝制成的新线轴架。编织机拥有自动集中润滑系统、一个无限变量电子线速度和编织节距控制系统以及从电缆入口通过单根或成束线材控制到编织电缆卷取的质量控制系统。

一个自动空管检测系统也能够集成到机器中：该装置在编织筒子完全变空前使机器停下来，同时使编织筒子上的剩余电缆最少化。操作安全仍然可以增加，使用滑轨温度监控来改变轨道润滑频率和量避免过热，并在超过极限温度的时候使编织机停下来。因此，BMV编织机能够进行无人操作并且使操作者的干预最小化。

BMV编织机能够结合纵向的或位于中间的缠绕装置，用来在编织点前或后将不同材质带子编织在电缆上。因为工作过程是集成在一台机器内的，工作和存储区减小，这样所需设备的占地面积大大降低了。

此外，产品质量比以前更高，因为不需要中间复绕过程，而且在线编织和缠绕操作是在连续一致的牵引张力下完成的。所以，电缆编织和接下来的缠绕是一步完成的，带来了操作优势以及大量的成本节约。

BMV编织机是Niehoff模块化机械程序的一部分，包括了从粗线拉丝到细线拉丝以及到数据电缆和特殊电缆制造的全部操作步骤。“Hacoba System”线轴复绕机，也是Niehoff制造的，在BMV机能充分发挥的工作效率中起了重要的作用。



○ BMV16锭活动臂旋转编织机(BMV 16)

Maschinenfabrik Niehoff GmbH & Co KG - 德国

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PWM棒材焊接设备提高了生产力

坚固、可靠和易于操作的PWM冷压焊机能在有色金属材料上产生牢固的永久焊接，节省停机时间和材料并提高生产力。

PWM，25年多来在冷焊工艺领域一直处于领先地位，生产适合各种不同应用的广泛的冷焊机。

在PWM自己英国工厂按严格的质量标准生产的机器范围包括手动和电动机，能处理25毫米内的铜材和30毫米的铝材。

标准和定制模具是由PWM的熟练技工配套单独手工制作的，公差小，而且能够制作成适合圆形或异型线材的样子。PWM还能制作模具，用来焊接不同尺寸的线材，使操作者能够不间断焊接，比如2.5毫米直径到3毫米直径的线材。

PWM的最新机型是升级的P1500棒材焊机。P1500在1994年首次推出，是同类中第一台能够提供直径25毫米内的铜棒和直径30毫米内的铝棒经济冷焊方法的

机器。最新机型拥有一个升级的液压操作系统，能提供更安静、更平滑的焊接操作以及一个新的用户友好型按键。

液压泵电机耗电量是受到限制的，使P1500非常节能而且操作经济。

PWM的棒材焊机包括价格具有竞争力P1000以及最畅销的EP500机器。P1000为电线电缆制造商提供了大量省时的设计特点，结合到一个紧凑的结构内。

该机器能够处理6毫米到16毫米的铜材以及6毫米到20毫米的铝材，拥有快拆模具和简单可调的模具装定机构，确保模具更换快速顺利。

电动/气动EP500焊机能焊接5毫米到12.50毫米的铜线以及5毫米到15毫米的铝线，是一台低维护易于操作的机器。

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从1919年开始发展壮大

现在Goodwin Machinery的一部分Ben和Fred Carter编织机自1919年生产以来仍在越变越强大。

公司拥有极其活跃的备件部门，能提供Carter系列编织机和托架各种部件。

还有一个同样活跃的服务和维修部门，这里有熟练的员工在现场或Goodwin在博尔顿的经营场所检查和修理编织机。

公司还向那些编织机有特殊问题或已经丧失“厂内”能力的客户供应、检查和报告服务，进行深入的预防性维修检查。

公司还仍在生产新的B & F Carter编织机：这是完全在英国博尔顿制造的，是连同隔声间最终安装完成的，于2011年10月由工程师驱动。

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Cables for Photovoltaic Applications

By Jorg Bor of Freidrich Lütze GmbH & Co KG, Stefan Grunwald of Lutze Inc, and Ilona Hirtz of Kabelwerke Villingen GmbH

Abstract

The recent growth of the renewable energy market applies to both wind energy as well as to solar energy. In many countries this growth is supported by governmental subsidies.

Outdoor applications in renewable energy plants demand high thermal and mechanical requirements from cables and other components. Therefore, some national standardisation bodies defined general requirements for cables used in solar plants.

In 2005 UL 4703 was published in the USA. In Germany a joint working group "Cables for Photovoltaic Application" was established in the same year, which resulted in a specification published in February 2008.

The performance requirements in high temperatures have been set very high for cables. Various German institutes accepted this specification and now offer certifications for it. There has been a huge demand in the European as well as Asian markets for such certified cable.

Due to the differences the UL 4703 requirements cannot be combined together with the German specification. The different solar-cable requirements have advantages as well as disadvantages in respect to the specific regional conditions.

1 Introduction

The renewable energy market is growing rapidly. A tenfold increase for the next five years is anticipated by Merrill Lynch^[1].

This growth applies to wind energy as well as to solar energy. Due to public interest, a number of governments have decided to support the renewable energy economics with large amounts of subsidies. Thus, even a further increase in this market can be expected.

2 External Conditions

The photovoltaic market is a very specific market. Various national regulations are to be taken into account. The system size can vary from a small home power supply with a nominal power of few kilowatts up to large centralised solar plants in the Gigawatt range.

The components used in these systems must be suitable for these specific applications.

One common determining factor for all photovoltaic power systems is the outdoor use, which brings along high temperatures and, of course, high UV radiation. Weathering and humidity need to be taken into account, as well. Furthermore, safety and reliability aspects are very important.

The improvements of the solar panel technology define the electrical performance of components. Usually solar systems are working with low voltage direct current, and the panels are switched in parallel.

Thus, the current is the determining electrical parameter. In terms of cables, this results in different conductor cross sections.

3 Common Specification of German Technical Institutes

In 2005 the German national electro-technical standardisation body, DKE, established a working group called "Cables for Photovoltaic Application" which resulted in a public specification.

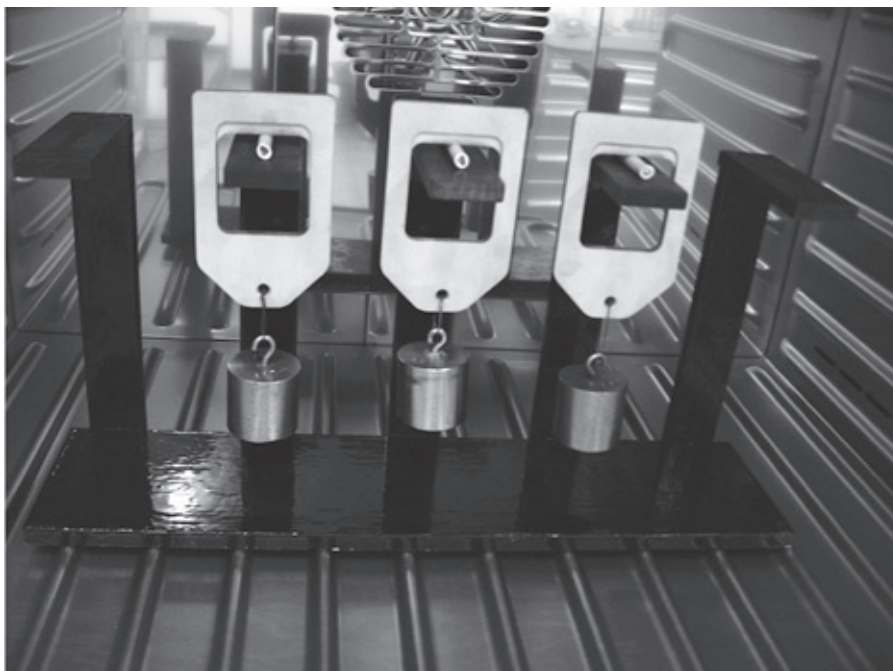
This document was published in February 2008^[2]. Due to the close cooperation between different institutes, this specification is identical to the TÜV-Specification 2 PfG 1169/08.2007 and the VDE-Specification E PV 01:2008-02.

DKE-Subcommittee UK 411.2 released the document for publication and application, but due to CENELEC rules it was not adopted as a national standard in Germany.

4 Technical Details of the German Specification

In this German specification^[2] the requirements have been raised to a very high level regarding the high temperature performance of cables. Additionally, high mechanical stability is required; the cable has to be flame retardant and free of halogens.

To meet this specification the manufacturers generally use halogen free flame retardant cross linked polyolefin copolymers as material for insulation and jacketing.



○ Figure 1: Pressure test at high temperature on the solar cable



○ Figure 2: Hot elongation test

The solar cable according to DKE is a two-layer insulated single core cable with a minimum wall thickness of 0.5mm in each layer. The most important tests required in this specification^[2] are discussed in the following clauses:

4.1 Temperature range

Solar cables according to the German specification^[2] are defined for an environmental temperature range from -40°C up to +90°C. The maximum conductor temperature is specified at +120°C.

4.2 Hot pressure test

The purpose of this test is to check the mechanical stability of the cable insulation and jacket under high

thermal and mechanical load. The test is performed on the completed cable according to the test method described in IEC 60811-3-1. Test temperature is +140°C; the load is applied for four hours.

4.3 Cold bend test and cold impact test

Solar plants must be able to work under extreme weather conditions. Thus, the components are tested not only for high temperature but also for low temperature performance. In the German specification^[2] this is taken into account with high requirements for the cold bend and cold impact test. These tests are performed according to IEC 60811-1-4 at -40°C. But additionally the cold impact test is performed with increased height as well as increased weight of hammer and intermediate piece.

4.4 Short and long term ageing at high temperature

A short term ageing test is required at +150°C with a duration of 168 hours for the insulation as well as for the jacket material.

Additionally, an Arrhenius test has to be performed where the materials have to withstand 20,000 hours at +120°C (see Figure 4). This enables manufacturers to guarantee a lifetime of 25 years in the specified operating conditions.

4.5 Weathering/UV resistance/humidity

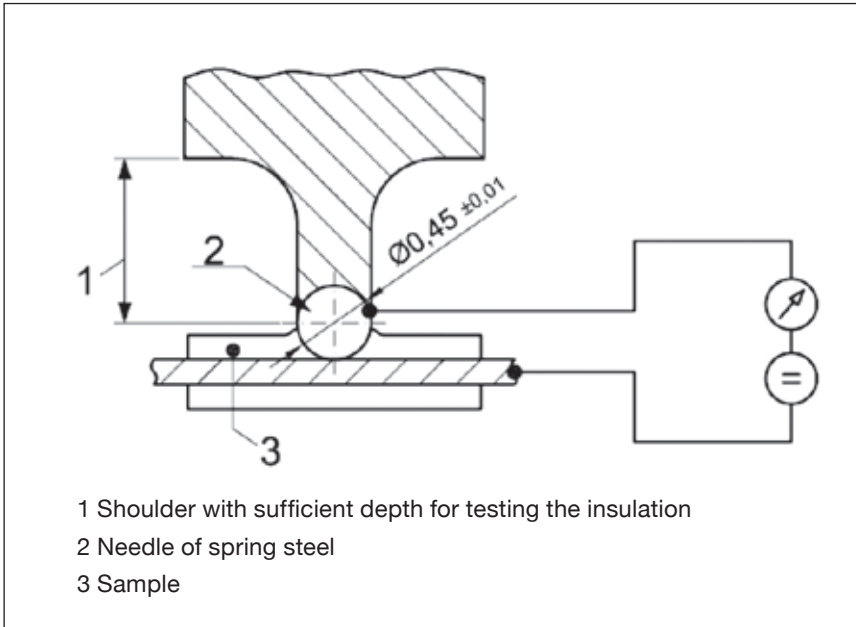
To reveal the performance under different environmental conditions, a weathering and UV resistance test according to HD 605/A1, part 2.4.20 is required as well as a damp heat test according to EN 60068-2-78.

4.6 Dynamic penetration test

A special penetration test was developed to prove the stability of the cable jacket and insulation against mechanical loads. It is described in Annex E of the discussed specification^[2]. As shown in Figure 3, a steel needle is pressed onto the cable sample. The load is continuously increased until the needle contacts the cable conductor, indicated by a low voltage electrical circuit. The load in the moment of contact is derived by a load cell. This test simulates mechanical loads on the cable that could be caused by any object or device falling on the cable or by animals outside.

4.7 Fire performance

Although the danger of fire propagation in outdoor applications such as solar plants is not a great risk for the safety of people, a good fire performance is required to protect the technical equipment.



○ **Figure 3:** Arrangement for penetration test on completed cable

The document^[2] specifies a flame propagation test on the completed cable according to IEC 60332.1.

4.8 Absence of halogens

In the case of fire, acids caused by the smoke of halogenated materials are a serious danger for people's health as well as for the function of electric and electronic devices.

In former times halogen free cables were required in public areas such as hospitals, airports and other similar structures.

But due to the increasing importance of electronics in all areas of everyday life, this quality is increasingly required in industrial premises, too.

As far as for solar cables, this characteristic is especially important for solar power devices on residential buildings.

Several tests have to be performed to prove the absence of halogens in solar cables. Electrical conductivity and pH value of the smoke are to be quantified according to European standard EN 50267-2-2.

The content of chlorine and bromine is determined according to EN 50267-2-1 and a special test is developed for the content of fluorine in Annex C of the discussed specification^[2].

5 UL 4703 Standard

In 2005 the American Underwriters Laboratories (UL) published the UL subject 4703 "Photovoltaic Wire"^[3].

It covers single conductor, insulated and integrally or non-integrally jacketed, sunlight resistant, photovoltaic wire in several temperature and voltage ratings for interconnection wiring of grounded and ungrounded photovoltaic power systems.

The standard UL 4703 is based on the service entry cords USE-2 and specifies some additional requirements for photovoltaic cables.

It applies for solar cables in North America. These UL-requirements are quite different from the German specification.

The UL standard leaves more freedom for the manufacturer as far as the cable construction and the selection of materials is concerned. One or two insulation layers can be chosen optionally as well as a "skinned" single layer construction.

For two-layer construction, as specified in the DKE-document^[2], several combinations of wall thicknesses are allowed in UL 4703. But in each case the total sum of wall thickness will be higher than specified in the German specification (see Table 1).

Thus the diameter for the same conductor cross section will be higher which reduces the suitability for several connectors. And the increased need of insulation compound will add to the production cost.

○ **Table 1:** Wall thicknesses acc. to UL 4703

Dimension	AWG 10 – AWG 18	AWG 2 – AWG 9
Single layer	1.52mm/60mils	1.91mm/75mils
Skinned	1.91mm/75mils (1.14mm + 0.76mm)	2.28mm/90mils (1.52mm + 0.76mm)
Double layer	2.28mm/90mils 2.66mm/105mils	(1.14mm + 1.14mm) (1.52mm + 1.14mm)

○ **Table 2:** German specification versus UL 4703

Parameter	DKE ^[2]	UL 4703 ^[3]
Cable Type	Solar Cable	Based on RHHW/USE-2
Cold Bend/Cold Impact	-40°C	-40°C
Hot Pressure Test	+140°C	+121°C
Ageing Test	+150°C	+121°C
Humidity Test	1000h/90°C/85% rel.	Not required
Dynamic Penetration	Ambient temp, 150N * √_	Not required
Fire Performance	IEC 60332.1.2	UL 1581 sec. 1060 UL 1581 sec. 1080 UL 1581 sec. 1061 UL 1581 sec. 1100
Halogen Free	EN 50267-2 EN 60684-2	Not required
Weathering/UV-Test	HD 605 S1/A1	UL 1581 sec. 1200



○ **Figure 5:** The developed cable in different cross-sections

The main focus of UL 4703 is the fire performance. Tests to be performed are the Vertical Flame Test acc. to UL 1581, Section 1060 or optional flame test VW-1 acc. to UL 1581, Section 1080. Based on RHW-2 the flame test FT-2 acc. to UL 1581, Section 1100 is also required.

Table 2 compares some important parameters and tests of both standards against each other. Therefore, another cable construction will be necessary to meet the UL-requirements.

6 Product Properties

The newly developed solar cable is a single core cable built with a tinned stranded conductor.

All materials are halogen free, flame resistant and fire retardant. No corrosive gases will be released in case of fire and the smoke density is low. The insulation and jacket materials are extremely resistant to weathering, UV-radiation and abrasion.

The wide temperature range from -50°C to +150°C (fixed installation) enables the use of this cable in extreme weather conditions. Additionally, it is salt water resistant and resistant to acids and alkaline solutions.

The cable is flexible and designed for high mechanical loads. So it is suitable for fixed installation as well as for moving applications without tensile load.

It is especially designed for outdoor use, which means direct sun radiation and air humidity, but due to the halogen free flame retardant cross-linked jacket material the cable can also be installed in dry and humid conditions indoors.

A product life cycle of 25 years can be expected for this solar cable. Insulation and jacket are easily removable. All materials used in the cable are in conformance to European RoHS-directive.

There are two versions available signed by ink-jet printing for positive and negative polarity.

The dimension range is from 2.5mm² (overall diameter 4.5mm) up to 35mm² (overall diameter 11.0mm), other cross sections are available upon request.

The described solar cable is named Lütze Thermoflex Solar XPE. It has passed all the described tests and was certified by the VDE testing and certification institute according to the discussed specification^[2].

It is registered at VDE by Reg-No 8293. Another solar cable type using AWG conductor sizes has been developed according to UL 4703^[3] and is currently/actually in the certification process.

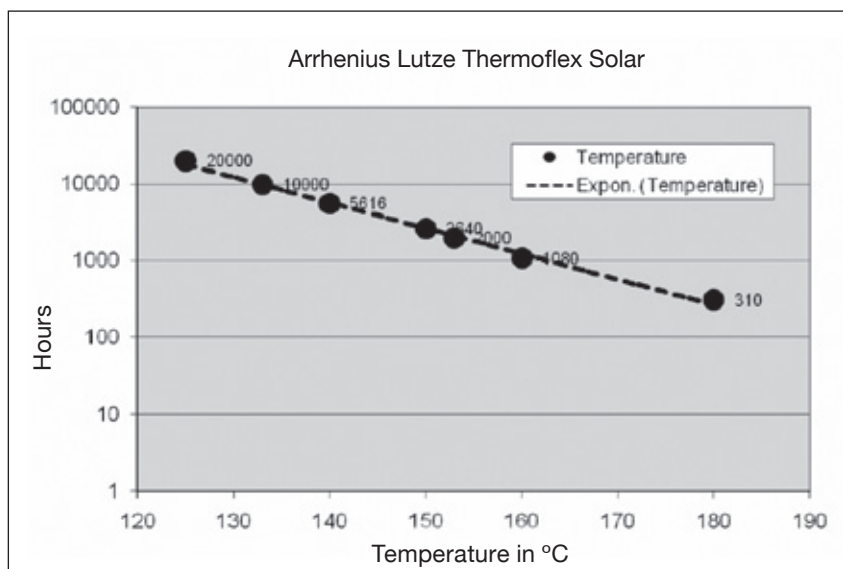
7 Conclusions

There are different standards for solar cables in different countries. The requirements are very high, but they differ due to the various national philosophies in respect to safety and reliability issues as well as market and subvention aspects.

The determining factors in this application are external conditions, which do not depend on national laws and can depend only on local aspects.

Therefore, a standard in the future will be established by international market acceptance.

○ **Figure 4:** Long term thermal test results



Due to the different requirements and philosophies in each individual standard, one cable cannot satisfy both standards at the same time.

In order to meet these standards and not to compromise the performance of the cable, one type of cable is needed to satisfy the requirements of the German specification and another cable type is needed to satisfy the UL requirements.

8 Acknowledgments

We thank all our colleagues working in this project and supporting us in the preparation of this paper, namely Mrs Sari Gregson and Mr Helmuth Schubnell.

Especially we thank the IWCS committee for giving us the opportunity to present this paper, and the IWCS staff for the outstanding support and coordination.

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光伏应用电缆

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摘要

可再生能源市场最近发展很快，包括风能和太阳能。在许多国家，这种发展得到政府补贴支持。可再生能源装置室外应用对电缆和其它组成提出了很高的热力和机械要求。所以，一些国家标准化机构对太阳能装置电缆提出了全面的要求。

美国于2005年出版了UL 4703。同年，德国成立了一个联合工作小组“光伏应用电缆”，并于2008年2月出版了一个标准。

标准对电缆在高温的性能提出了很高的要求。德国的各个机构接受这个标准，现在还为其提供证书。欧洲和亚洲市场对此等出证电缆一直有巨大的需求。

由于存在不同，所以UL 4703的要求不能与德国规格组合在一起。就具体的区域条件而言，不同的太阳能电缆既有优点也有缺点。

关键词：可再生能源；光伏；太阳能电缆；标准化；TÜV；DKE；UL 4703，消防性能；交链。

1 前言

可再生能源市场发展很快。Merill Lynch^[1] 预计今后5年将增加十倍。这种增长适合于风能和太阳能。鉴于公众的兴趣，许多政府已决定支持可再生能源经济，给予大量的补贴。因此，甚至可以预计这个市场可能进一步增长。

2 外部条件

光伏市场是一个非常特别的市场。需要考虑各个国家的法规。系统规模是可变的，从几千瓦的小型家庭供电到千瓦的大型一体化太阳能装置。这些系统的组成必须适合于这些具体的应用。

所有光伏电源系统的一个共同的决定性因素是室外应用，它带来高温，当然还有高的紫外辐射。需要考虑气候和湿度。而且，安全和可靠性方面也很重要。

太阳能板技术改进确定了组成的电气性能。通常，太阳能系统按低电压直流工作，太阳能板开关并联。于是，电流是决定性电气参数。就电缆而言，这导致了不同的导体横截面。

3 德国技术机构的共同规格

2005年，德国国家电气技术标准机构（DKE）成立了一个工作小组（称为“光伏应用小组”），并出版了一个标准。这份文件出版于2008年2月[2]。

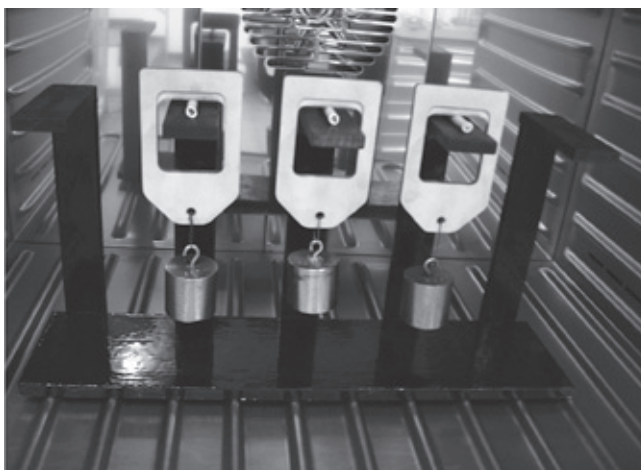
由于不同机构的密切合作，这个标准规格与TÜV-Specification 2 P fG 1169/08.2007、VDE-Specification E PV 01:2008-02相同。DKE-分委员会UK 411.2发布了文件，供出

版和应用，但由于CENELEC规则，未被采纳为德国的一个国家标准。

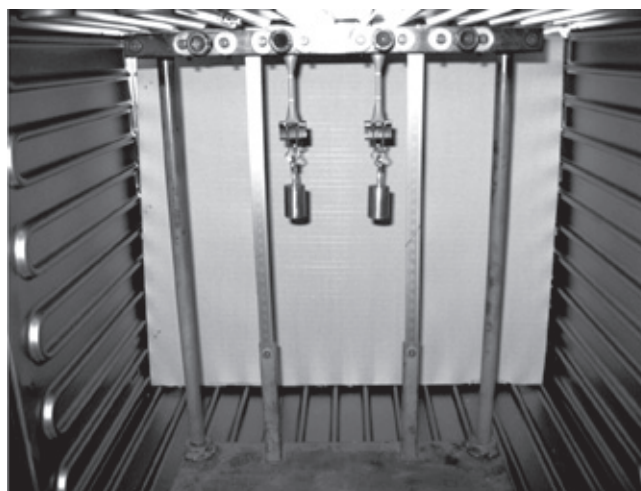
4 德国规格的技术细节

这份德国规格^[2]对电缆的高温性能提出很高的要求，还提出了很高的机械稳定性要求；电缆必须阻燃、无卤素。为了满足这个标准，制造商一般采用无卤素、阻燃、交链聚烯烃共聚物，作为绝缘和护套材料。

根据DKE，太阳能电缆是一种两层绝缘的单芯电缆，每层最小壁厚为0.5毫米。以下讨论了规格^[2]要求的最重要的测试：



○ 图1: 太阳能电缆高温压力测试



○ 图2: 热拉伸测试

4.1 温度范围

根据德国规格[2]，对太阳能电缆的环境温度范围规定为-40°C到+90°C。最高导体温度规定为+120°C。

4.2 热压测试

这项测试目的在于检查电缆绝缘和夹套在高的热力和机械负荷下的机械稳定性。测试根据测试方法IEC 60811-3-1在完整的电缆上进行，测试温度为+140°C，施加负荷4个小时。

4.3 冷弯曲测试和冷冲击测试

太阳能装置必须能在极端气候条件下工作。因此，不仅在高温而且在低温时，对组成性能进行了测试。德国规格[2]考虑了高要求 - 冷弯曲和冷冲击测试。根据IEC 60811-1-4，在-40°C时执行这些测试。另外，还在增加了冲击锤和中段高度和重量的情况下，执行冷冲击测试。

4.4 短期和长期高温老化

短期老化测试要求在+150°C对绝缘和夹套材料执行测试，为时168小时。另外，还必须进行了阿列纽斯测试，使材料在+120°C时承受20000小时(参见图4)。这能使制造商保证在规定的操作条件下电缆寿命为25年。

4.5 气候/抗紫外/湿度

为了揭示不同环境条件下的性能，根据HD605/A1, part 2.4.20要求，进行气候和抗紫外测试，并根据EN60068-2-78进行了抗湿热测试。

4.6 动态渗透测试

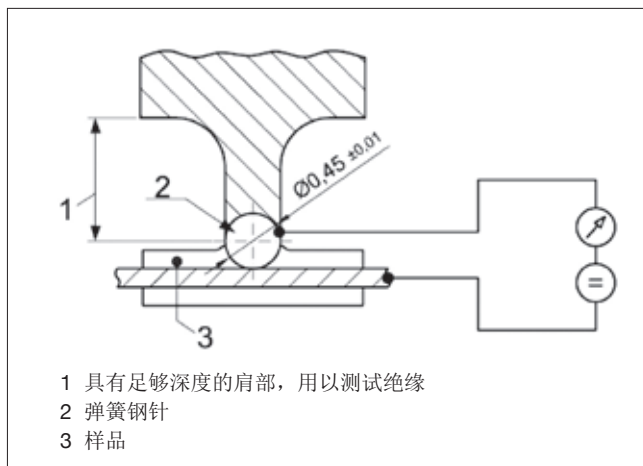
开发了一个特别的渗透测试，以验证电缆夹套和绝缘相对于机械负荷的稳定性，如规格[2]附录E所述。如图3所示，将一根钢针压在电缆样品表面。连续增加负荷，直到钢针接触电缆导体，如一个低电压电路所示。接触瞬间的负荷由一个负荷计获得。这种测试模拟任何物体或装置跌落在电缆上或动物对电缆造成的机械负荷。

○ 表1: 壁厚, 根据 UL 4703

单层	AWG 10 – AWG 18	AWG 2 – AWG 9
单层	1.52mm/60mils	1.91mm/75mils
变薄的	1.91mm/75mils (1.14mm + 0.76mm)	2.28mm/90mils (1.52mm + 0.76mm)
双层	2.28mm/90 mils 2.66mm/105mils	(1.14mm + 1.14mm) (1.52mm + 1.14mm)

○ 表2: 德国规格相对于UL 4703

参数	DKE ^[2]	UL 4703 ^[3]
电缆类型	太阳能电缆类型	基于 RHHW/USE-2
冷弯曲/冷冲击	-40°C	-40°C
热压测试	+140°C	+121°C
老化测试	+150°C	+121°C
湿度测试	1000h/90°C/85% rel.	不需要
动态渗透	环境温度, 150N * √_	不需要
阻燃性能	IEC 60332.1.2	UL 1581 sec. 1060 UL 1581 sec. 1080 UL 1581 sec. 1061 UL 1581 sec. 1100
无卤素	EN 50267-2 EN 60684-2	不需要
气候/抗紫外测试	HD 605 S1/A1	UL 1581 sec. 1200



○ 图3: 完整电缆渗透测试布置

4.7 阻燃性能

尽管在诸如太阳能装置的室外应用中，火势蔓延危险对人们的安全而言不是一个大风险，但要求拥有好的阻燃性能来保护技术设备。文件^[2]根据IEC 60332.1规定了火势在完整电缆上蔓延的测试。

4.8 无卤素

发生火灾时，卤素物质烟雾形成的酸对人们健康以及电气和电子装置功能来说是一个严重的危险。以前，要求在诸如医院、机场和其它类似结构的公共场所采用无卤素电缆。但随着电子设备在所有日常生活区域重要性的增加，工业领域也要求电缆拥有这种质量。至于太阳能电缆，这种特征住宅大楼的太阳能装置来说尤其重要。

已经执行了若干测试，以验证太阳电缆中没有卤素。根据欧洲标准EN 50267-2-2，定量测定了电气导电性和烟雾pH值。

根据EN 50267-2-1测定了氯和溴含量，并开发了一个特殊测试，以测定规格^[2]附录C所讨论的氟含量。

5 UL 4703标准

2005年，美国保险商实验室（UL）出版了UL 4703标准“光伏线材”^[3]，包括单导体、绝缘和一体化或非一体化夹套、抗阳光、连接接地和不接地光伏电源系统的若干温度和电压等级的光伏线材。

UL 4703标准基于服务输入线USE-2，对光伏电缆规定了一些附加要求。它适用于北美的太阳能电缆。这些UL要求不同于德国规格。

UL标准为制造商在电缆构造和选择材料方面留有更大的自由度。能任意选择一层或两层绝缘以及“变薄”的单层构造。对于两层构造，如DKE-文件^[2]规定的那样，UL 4703允许若干壁厚组合。但在每种情况下，总壁厚将高于德国规格规定(见表1)。因此，相同导体横截面的直径将比较大，这降低了若干导体的合适性。需要增加绝缘复合物将增加生产成本。

UL4703主要在于阻燃性能。要执行的测试是根据UL1581,1060节的垂直火焰测试，或根据UL1681, 1080节的可选



图4: 长期热力测试结果

的阻燃测试VW-1。基于RHW-2，还要求执行根据UL1581，1100节的阻燃测试FT-2。

表2比较了两种标准的一些重要参数和测试。所以，要满足UL的要求，则需要另一种电缆构造。

6 产品性能

新开发的太阳能电缆是单芯电缆，含有镀锡绞合导体。所有材料不含卤素、阻燃和阻燃。火灾时不释放腐蚀性气体，而且烟雾密度低。绝缘和护套材料极其能抵御气候、UV辐射和摩擦。广阔的温度范围，从-50°C到+150（固定装置），能在极端气候条件下使用这种电缆。另外，电缆抗盐水、抗酸、抗碱液。

电缆是挠性的，设计用于高机械负荷。所以，它适合于固定装置以及移动应用，不会产生抗张负荷。它尤其设计用于室外，这意味着直接阳光辐射和空气湿度，但由于无卤素、阻燃、交链夹套材料，电缆还能安装在干燥和潮湿的室内条件。

这种太阳能电缆产品寿命预计为25年。绝缘和护套容易去除。电缆的所有材料都符合欧洲RoHS-法令。

有另外两种用喷墨印刷标记正极和负极的版本，尺寸范围从2.5mm²（整体直径4.5mm）到35mm²（整体直径11.0mm），可按要求提供其它横截面。

所述的太阳能电缆名称为Lütze THERMOFLEX Solar XPE。它已经通过了所述的所有测试，并由DVE测试和证书机构根据讨论的规格^[2]出证。它在VDE注册，注册号为8293。已经根据UL 4703^[3]开发出另一种太阳能电缆，它采用AWG导体尺寸，目前/实际上正在认证过程中。

7 结论

太阳能电缆在不同国家有不同标准。要求很高，但它们的不同是由于各种国家在安全和可靠性问题、市场和补助金方面的理念不同。在这方面应用的决定性因素是外部条件，它不依赖于国家法律，可能仅依赖当地的方面，所以，未来的一个标准将被建立，由国际市场来验收。

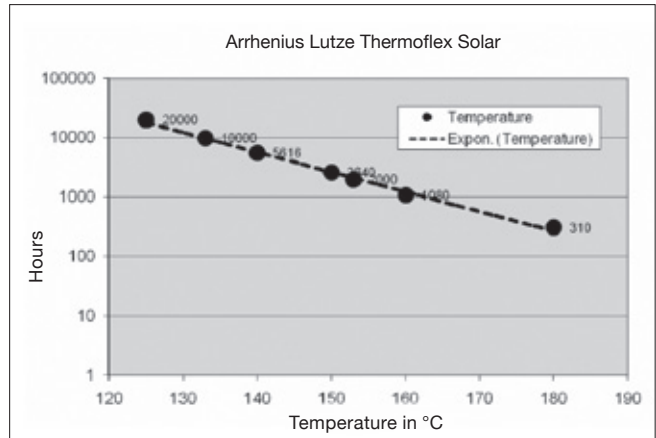


图5: 开发的不同横截面的电缆

由于各个标准的要求和理念不同，所以，一种电缆不能同时满足两种标准。为了满足这些标准，同时不折损电缆性能，需要有一种电缆来满足德国规格要求，需要有另一种电缆来满足UL要求。

8 鸣谢

我们感谢为此项目工作以及支持我们准备这篇论文的我们的所有同事，也就是Sari Gregson小姐和Helmuth Schubnell先生。我们尤其感谢IWCS委员会给予我们发表这篇文章的机会以及IWCS工作人员杰出的支持和协调。

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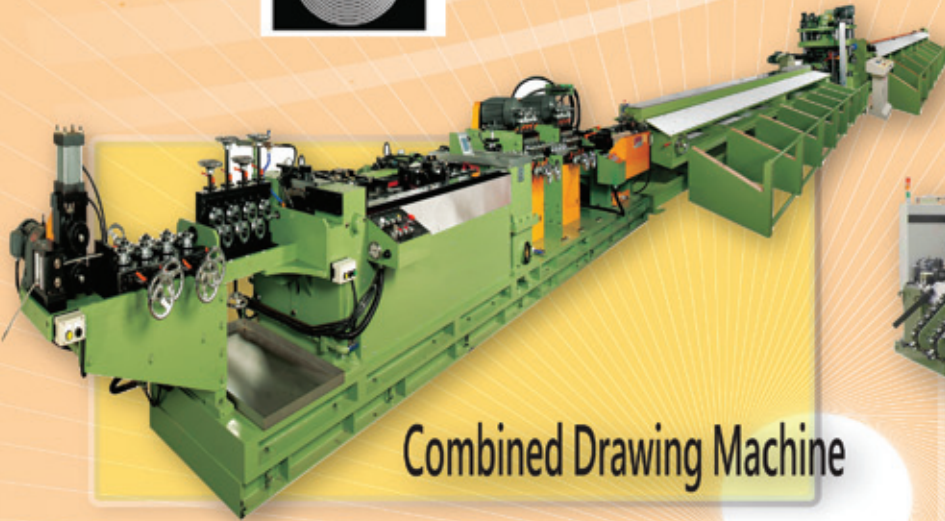
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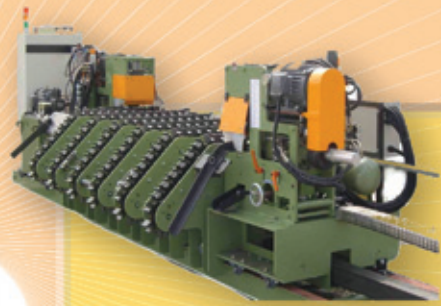
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