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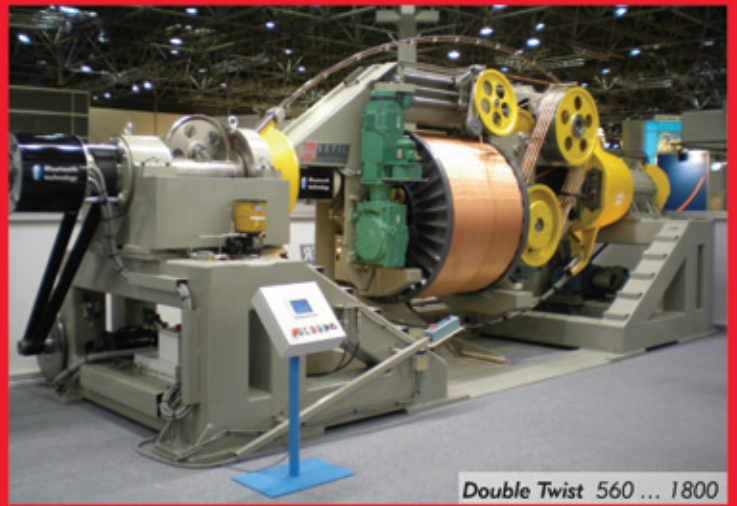
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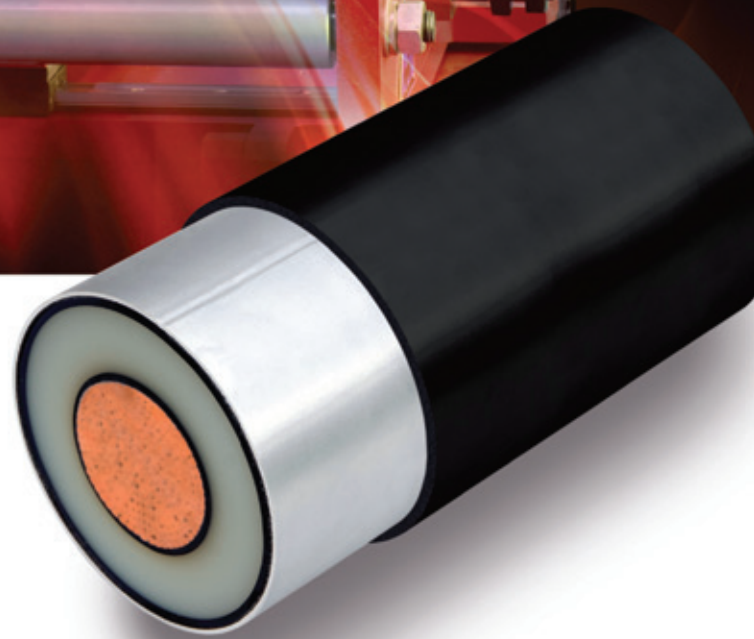
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contents

- 8 Industry News
- 18 行业新闻

- 22 India Insight
- 22 印度透视

- 26 Telecom News
- 28 通信新闻

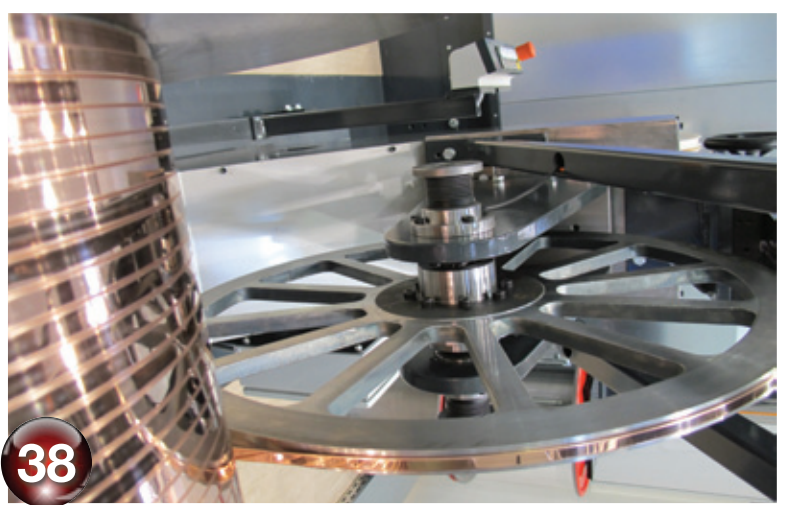
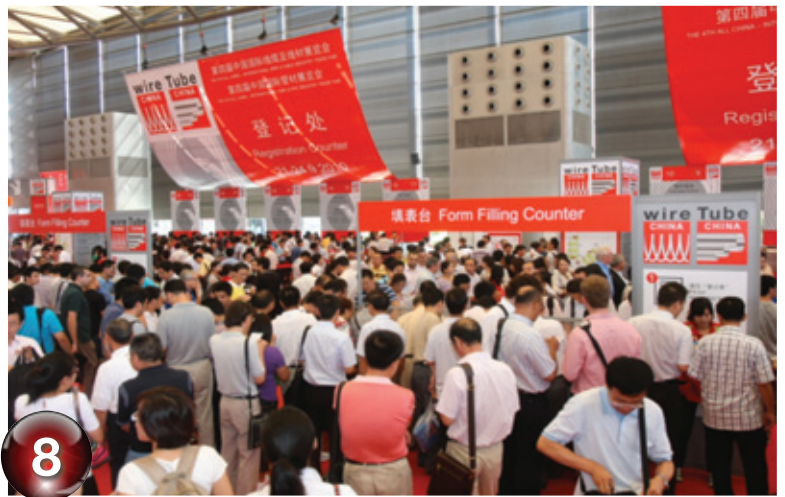
- 30 From the Americas
- 34 来自美国的消息

- 38 Technology News
- 44 技术与产品

- 46 21st Anniversary
- 46 21周年纪念

- 59 Editorial Index
- 59 通讯目录

- 59 Advertisers Index
- 59 广告索引



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Technical Articles

51 Effect of Boron alloying on microstructural evolution and mechanical properties of high carbon wire
By Emmanuel De Moor, Advanced Steel Processing and Products Research Centre, and Walther Van Raemdonck, NV Bekaert SA

56 高碳钢丝中硼合金对其显微结构及力学性质的影响
作者: Emmanuel De Moor, 高级钢铁加工及产品研究中心, 和Walther Van Raemdonck NV贝尔卡特SA

Next Issue

Features On

- Dies, lubricants & drawing
- wire China 2012
- Wire & Cable India 2012
- Focus on Iran

Getting Technical

'Cable print verification system'

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Our sincere thanks

It seems a very long time ago now but I always wanted to be a journalist after entering the world of local newspapers as an editorial assistant (office junior) at the age of 16. Being part of a team of people giving something and providing a service to the community was and still is an extremely rewarding feeling.

It's about giving news to people. Providing a service. Whether that be on a daily or weekly newspaper, trade magazine, consumer magazine, website, radio or television. All my journalist friends feel the same. We may all be a little more cynical these days, but the reason for being journalists still remains.

I was at Interwire in Atlanta, USA, when Osama Bin Laden was killed. I actually went around CNN on the tour and as I looked into the newsroom at editors reading the copy coming in from all over the world, I wondered if the man I was watching had been the first in the newsroom to learn of the Al Qaeda leader's death, outside of Government officials. There are not many jobs where you can get that close to events happening in the world.

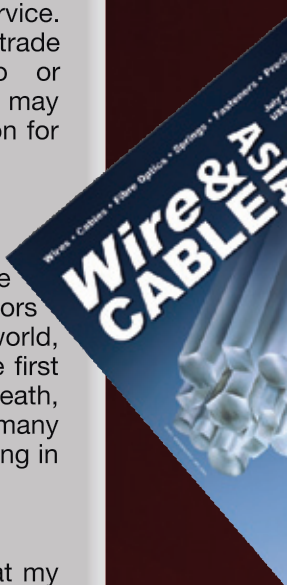
Similarly, on a far more local scale, I was working at my first paper when it celebrated its centenary. No small feat that, and the warmth with which we were received by people in the town still lingers in the memory.

So it is with no small amount of pride that I sit in the editor's chair at *Wire & Cable ASIA* as it celebrates its 21st anniversary. To have played a part in producing something regularly, providing a service to its own community, to me, reminds me of why exactly I joined this industry.

The very fact that we are celebrating our anniversary is down to you: our readers, subscribers and advertisers. Without you there would be no anniversary.

You are the industry that *Wire & Cable ASIA* serves and it is with our grateful thanks that you keep letting us have the news and support to keep us number one in providing you with the service we take pride in delivering.

David Bell
Editor



21 Years



Contents in this issue

- 8 Industry News
- 20 行业新闻
- 24 Telecom News
- 29 通信新闻
- 30 From the Americas
- 40 来自美国的消息
- 42 Technology News
- 63 技术与产品
- 66 Furnaces & heat treatment
- 72 熔炉和热处理炉
- 74 Fasteners & fittings
- 82 紧固件及配件——机械设备和生产制造
- 84 wire China 2010
- 127 Editorial Index
- 127 通讯目录
- 127 Advertisers Index
- 127 广告索引



Technical Articles

- 121 Improving the mechanical properties of non-halogenated flame retardant compounds, Jeremy R Austin, Herbert S.-I Chao, Sartomer Company
- 125 改进非卤素阻燃混合物的机械性能 撰文 - Jeremy R Austin, Herbert S.-I Chao, Sartomer Company

Chinese



September 2012

25-28: **wire/Tube China**
 – trade exhibition –
 Shanghai, China
Organisers:
 Messe Düsseldorf China Ltd
Fax: +86 216 169 8301
Email:
 shanghai@mds.cn
Website: www.mdc.com.cn

October 2012

30-1 Nov: **wire and Cable India/Tube India** – trade exhibition – Mumbai, India
Organisers: Messe Düsseldorf India
Fax: +91 112 697 1746
Email: info@md-india.com
Website: www.md-india.com

November 2012

11-14 Nov: **IWCS** – Technical conference & trade exhibition – Providence, RI, USA
Organisers: IWCS Inc
Fax: +1 732 389 0991
Email: phudak@iwcs.org
Website: www.iwcs.org

April 2013

23-25 April: **Interwire 2013** – trade exhibition – Atlanta, USA
Organisers: WAI
Fax: +1 203 453 2777
Email: info@wirenet.org
Website: www.wirenet.org

when and where



○ Visitors at wire China 2010. This year's exhibition will be the biggest yet

wire China – large scale, more exhibitors

ASIA'S number one wire and cable industry exhibition – wire China – gets underway at the Shanghai New International Expo Centre from 25th-28th September.

Joining forces with Tube China, the two exhibitions are estimated to occupy 7.5 halls, covering a total of 85,000m². 1,500 exhibitors from all over the world are expected to participate, demonstrating the innovative technologies, products and solutions from the areas of global wire, cable and tube industry.

Despite the gloomy global economy, the Chinese wire and cable market has been in a rapid growth due to its urban transformation, fast development in power grid construction as well as investments in UHV, submarine cable and wind power projects.

The Chinese wire and cable industry has increased by 15 per cent annually in the last 15 years. The gross output

value of the Chinese wire and cable industry has surpassed that of the US while China has become the number one wire and cable producing country in the world.

As the second largest industry next to the automobile sector, the wire and cable industry could reach up to over 90 per cent domestic market share.

Currently, the gross output value of the Chinese cable industry is more than \$140 billion.

During the twelfth five-year period (2011-2015), the growth rate may slow down given the economic restructuring in China but it is expected that the annual industry sales growth will be from 4 to 8 per cent.

wire and Tube China 2010 witnessed a total of 1,306 exhibitors showcasing the latest technologies and applications in an exhibition space of over 74,500m². The parallel exhibitions

attracted 26,035 trade visitors from 78 countries.

The massive scale of visitors and exhibitors from abroad promoted and boosted the internationalisation and quality of the exhibitions. Conferences and seminars including China Wire & Cable Industry Conference and China International Tube & Pipe Conference shared the latest ideas, expertise and insights in the industry, and enriched the contents of the exhibitions.

wire China 2012 is jointly organised by Shanghai Electric Cable Research Institute and Messe Düsseldorf (Shanghai) Co Ltd. Based on the success of past editions, the organisers expect to achieve a new zenith as a famous international trade platform in 2012, given the extending scale and a rapid growth in demand.

Messe Düsseldorf (Shanghai) Co Ltd – China
Website: www.wirechina.net

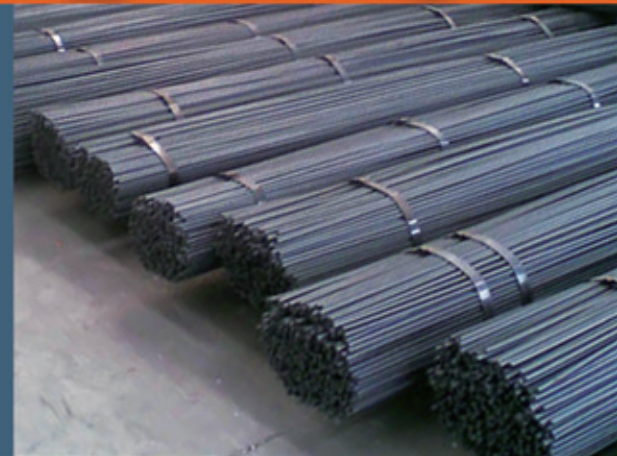
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Tratos wins Baghdad refinery cable contract

Specialist cable manufacturer Tratos Cavi SpA has been awarded a €1 million contract to supply Iraq's state-owned Midland Refineries Company (MRC) with cables for installation at the Daura Refinery in Baghdad.

A range of power cables, high temperature cables and fire resistant cables have been supplied to MRC, a new customer for Tratos, as part of the modernisation process of the refinery.

The Daura refinery, located in the south of Baghdad, was constructed in 1953 and started operations in 1955. It daily produces three million litres of gasoline, 1.5 million

litres of kerosene and 2 million litres of gas oil, along with other products going to local power plants and for industrial use.

Tratos Cavi has been producing cables for use in the oil and gas industry throughout its 40 year history.

The cables are manufactured to all relevant American, British and European standards including BS6883, NEK 606 and UKOOA.

Tratos Cavi SpA – Italy
Website: www.tratos.it

It's Shanghai boom time for Evonik

New company for distribution

Joe Snee has announced the formation of Joe Snee Associates, Inc of Seekonk, Massachusetts. The company will serve as the exclusive North American distributor for the Pressure Welding Machine (PWM) line of cold pressure welders, dies and spares. Snee has nearly 20 years' experience in the wire and cable industry and has sold cold welding products since 1992.

Joe Snee Associates – USA
Website: www.coldpressurewelding.com

TO meet the constantly growing demand for biopolyamides, Evonik Industries began to undertake extensive measures to increase production capacities for the bio-based Vestamid® Terra polymers at the beginning of this year.

As an essential component of this plan, an additional compounding facility will become operational in the third quarter of 2012 in Shanghai, China.

The new facility will safeguard long-term supplies for speciality compounds, both to existing markets and for many new fields of application.

Measures for capacity expansion in the area of polymerisation are also in the works. The commissioning is scheduled for the second half of 2013. Demand for renewably sourced materials has risen substantially in recent years, because, for one, many customers wish to conserve resources sustainably.

Evonik's Vestamid® Terra product line offers a broad range of renewably sourced high-performance polyamides whose properties are comparable with strictly oil-based polyamides.

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Evonik Industries – Germany
Website: www.vestamid-terra.com

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Sewedy announces profit drop

One of the Arab world's biggest listed cable makers, Egypt-based El Sewedy Electric, has reported a 34 per cent fall in its consolidated net profit for 2011, a year of political uprisings that disrupted economies in the region.

Net profit fell to 536.5m Egyptian pounds (approximately \$88.82m) from 816.6m Egyptian pounds in 2010, the company said. On an unconsolidated basis, net income slumped by 70 per cent.

El Sewedy – Egypt Website: www.elsewedy.com

Tenova acquires Envita and lands in South Korea

TENOVA'S growth strategy has continued with the acquisition of Envita Co Ltd.

The South Korean company, founded in 1995 and with headquarters in Incheon (near Seoul), is active in the fields of industrial furnaces, processing lines and heat treatment furnaces for aluminium components in the automotive industry.

Its employees, over 100, operate in three locations in South Korea, Vietnam (Ho Chi Minh City) and China (Yantai).

The company is well known to Tenova, who began working with Envita in 2007. Thanks to the collaboration with Envita, Tenova has been awarded contracts in the country with major steelmakers like Hyundai Steel and Posco.

The acquisition marks Tenova's first step into the sixth crude steel producer in the world with 68.6Mt in 2011, a rise of over 16 per cent from 2010 in a country with the per capita highest density production of steel in the world: a strategic market in the global post-crisis scenario.

The Tenova Iron & Steel division achieves the goal of entering South Korea through an engineering hub with excellent references and manufacturing centres.

The combination of these factors allows the expansion of the commercial and operating network in ASEAN countries (Vietnam, Thailand, Indonesia, Malaysia, Philippines, Singapore, Laos and Cambodia) and an expansion of Tenova Iron & Steel product portfolio in the business of cold rolling and aluminium for the automotive industry.

Tenova is a worldwide supplier of advanced technologies, products and services for the iron and steel and mining industries.

With about 3,100 employees, Tenova operates through more than 30 companies in 22 countries on five continents.

Tenova – Italy
Website: www.tenovagroup.com

Good things come in small packages...



○ Installation of the TR-XLPE from Dow

DOW Electrical & Telecommunications (Dow E&T) has made a small but powerful change in the formulation of its tree-retardant cross-linked polyethylene (TR-XLPE) for medium voltage (MV) power cable insulation.

This change will enable an enhanced level of performance for underground (UG) cable manufacturers, installers and utilities.

Dow Endurance™ HFDC-4202 EC offers:

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- Improved manufacturing robustness which ensures improved cable quality
- Ability for continuous operations at 105°C cable rating, with Dow E&T semiconductive shields

“Over time we’ve demonstrated that proper material selection is critical to the performance of the cable in field applications,” said Nathan Jeppson, global power platform leader, Dow E&T.

“Equally important is high-quality cable manufacturing. As part of our Dow Inside programme, we’ve worked closely with select cable manufacturers during the one-year ICEA S-94 cable qualifications that are now complete.

“Based upon these results, we are confident that Dow Endurance HFDC-4202 EC delivers excellent performance.”

Dow Endurance HFDC-4202 EC is also undergoing testing according to the European CENELEC HD 620 specification and is expected to meet the highest requirements of the long-term wet aging test.

Dow Electrical & Telecommunications – USA
Website: www.dow.com

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Contents in this issue

- 8 Industry News 行业动态
- 24 Telecom News 通信新闻
- 30 From the Americas 来自美国的消息
- 42 Technology News 技术与产品
- 66 Furnaces & Heat Treatment 炉子和热处理
- 72 Fasteners & fittings 紧固件和生产制造
- 84 wire China 2010
- 127 Editorial Index 目录
- 127 Advertisers Index 广告索引

Technical Articles

123 Improving the mechanical properties of iron-hydrogenated ferrite magnetic compounds, Jeremy R Austin, Herbert S.-I Chao, Sartomer Company

128 提高铁基氢化铁磁化合物的机械性能 原文 - Jeremy R Austin, Herbert S.-I Chao, Sartomer Company

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Fourth cable goes live in Kenya

KENYA'S information technology sector has received a boost with the entry of its fourth undersea fibre optic cable, the Lower Indian Ocean Network (LION2). Telkom Kenya announced that the submarine cable it has been laying through its parent firm, France Telecom, has gone live.

LION2 submarine cable is a 2,700km long extension of the initial Lower Indian Ocean Network connecting Madagascar to the rest of the world.

The cable extends from Mayotte, an island off the Indian Ocean Coast, to Nyali in Mombasa. It links East Africa to Madagascar, Mayotte and Réunion Island, providing an opportunity for increased international traffic through Kenya which further strengthens the

country's positioning as a regional communication hub.

Telkom Kenya's CEO, Mickael Ghossein, said the cable will currently offer a maximum capacity of 1.28 Tbps, and in future, this capacity can be increased without additional submarine work.

Investment in the new cable began in the fourth quarter of 2010, with key shareholders being France Telecom-Orange, Telkom Kenya, Mauritius Telecom and Orange Madagascar, as well as carrier companies Emtel Ltd and Société Réunionnaise du Radiotéléphone.

Telkom Kenya – Kenya
Website: www.telkom.co.ke

New joint venture

Tata Power and South Africa's Exxaro Resources have launched a 50:50 joint venture – Cennergi (Pty) Ltd – to focus on developing electricity generation projects in the expanding energy markets of South Africa, Namibia and Botswana. Cennergi marks a major overseas foray for Tata Power, India's largest private power generator.

South Africa-based Cennergi will focus on investigation of feasibility, development, ownership, operation, maintenance, acquisition and management of generation projects.

Tata Power – India
Website: www.tatapower.com

Exxaro – South Africa
Website: www.exxaro.com

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LONG-STANDING customer Danieli Corporation has installed a broad range of Tratos cables into Emirates Steel's recently expanded Abu Dhabi plant.

HEPR insulated medium, low tension and very high flexible cables for inverter applications have been supplied by Tratos, all manufactured in the company's Italian factory.

The cables have been used within phase II B of Emirates Steel's Dh9 billion expansion, which has seen parent company General Holding Corporation (GHC) become one of the region's largest steel manufacturers.

The plant's new facilities will enable Emirates Steel to increase its production capacity from 2 million metric tonnes a year to 6.5 million by 2015.

Italian company Danieli was the turnkey engineering, procurement and construction (EPC) contractor for phase II B, which involved the creation of a heavy section rolling mill – the first of its kind in the Gulf Cooperation Council – producing heavy section beams and columns, channels, angles

and sheet piles, manufactured to international standards. Tratos has won a number of prestigious contracts across the Middle East over the past year and has recently opened an office in Dubai through its subsidiary company Modular Wiring Systems.

The new office allows Tratos to target countries across the UAE and beyond, providing a professional service and support.

Tratos – Italy
Website: www.tratos.eu

More choice, technology and support

Huestis Industrial in a cooperative agreement purchased Wyrepak Industries in March 2012.

This acquisition will provide customers with more choice of equipment for the wire and cable industry, while benefiting from technology and support from Huestis Industrial.

The synergy between Wyrepak Industries and Huestis Industrial will take customer service and support to another level while providing rugged machinery and real time solutions to meet the demands of modern manufacturing.

Wyrepak Industries has a great

reputation and has been established as a long time supplier of high quality machines for the wire and cable industry.

"I have the greatest confidence that this company will continue to grow and complement the Huestis Industrial product lines, while giving the customers more choice," said Howard Fancher.

Wyrepak Industries will remain as a stand-alone company and continue to sell products under the Wyrepak brand name.

Huestis Industrial – USA
Website: www.huestis.com





Hard Drawn Wire on
450-1000kg Spools



Galvanized Wire Strand



Armouring Wire for Cable



Oil Tempered Spring Wire

Metal Wire: iron wire, galvanized wire, redrawn galvanized wire, Galfan wire, copper coated wire, PVC(PE) coated wire, stainless steel wire, Ultra fine ss wire, cable armouring wire, ACSR wire, spring wire, oil tempered spring wire, staple wire Strand: ACSR strand, guy wire, stay wire, overhead strand (ASTM A475 ASTM A363 ASTM A498 IEC60888)

Anbao(Qinhuangdao) Wire & Mesh Co., Ltd
 Add:33 Qinhuangxi street P.R. China 066000 Tel: +86-335-3893600 Fax:+86-335-3870760
 Email:anbao@anbao.com Web: www.anbao.com

Bahra Cables' \$66m contract

Bahra Cables Ltd, a cable manufacturing company in Saudi Arabia, has signed a contact worth over \$66 million with Saudi Bin Laden Group to supply electrical cables for the Shamiya project, part of a government project to develop the areas around the Makkah Haram.

Saudi Bin Laden Group has been assigned all the site development and expansion work, beginning with infrastructure upgrading.

Engineer Talal Idriss, CEO of Bahra Cables Ltd Co, said the company will supply fire-resistant low and medium voltage cables that emit limited smoke and no halogen when exposed to flame.

Bahra Cables holds many accreditation certificates such as KEMA, IPH, SASO, LPCB, CSA and BASEC, among others, in recognition of the quality of its products.

The company is also ISO 9001: 2008 certified for its range of medium and high pressure cables up to 132kV, and is the first Saudi cable company to receive ISO 14001: 2004 and OHSAS certifications.

Bahra Cables – Saudi Arabia Website: www.bahra-cables.com

New subsea cable for west Africa

THE 14,000km West African Cable System (WACS), the first new subsea telecommunications cable on Africa's west coast since Sat-3 was launched 11 years ago, was officially launched in May.

Angus Hay, co-chair of the WACS management committee and chief technology officer at Neotel, says testing of WACS has progressed well and that the system was "essentially ready" for commercial service.

An official launch function took place at Yzerfontein, the site of the cable's South African landing north of Cape Town. Commercial traffic should begin flowing across the system at the same time or shortly thereafter, promising to put further downward pressure on broadband prices in South Africa.

The cable, which has a design capacity of 5.1Tbit/s and has cost \$600m to build, will probably have in the region of 400Gbit/s of capacity when it becomes available for commercial service — more than the total design capacity of the older Sat-3 cable at 340Gbit/s.

Mr Hay says the WACS management committee is in the process of "accepting" the cable from the

supplier, Alcatel-Lucent Submarine Networks. This entails signing off the final contractual agreements.

WACS – South Africa
Website: www.wacscable.com

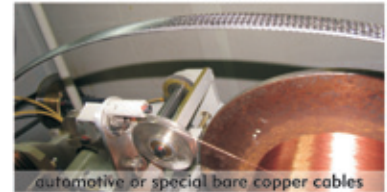
Fujikura acquires Nistica

Japanese wire and cable manufacturer Fujikura has acquired Nistica.

The acquisition will complement its portfolio of optical fibres, cables and optical devices. Among the products that Nistica offers are its Full Fledge series of wavelength selective switches (WSS).

Fujikura has invested in Nistica since 2007. As part of the purchase agreement, Fujikura will acquire the remaining shares in Nistica and the company will become a Fujikura subsidiary. NTT Electronics will maintain its share in the company.

Fujikura – Japan
Website: www.fujikura.com



bowtechnology@gaudergroup.com
www.bowtechnology.com

GUANBIAO ELECTRICAL MACHINERY CO.,LTD
WIRE-DRAWING MACHINE

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HTTP://www.guanbiao.com/dgguanbiao.en.alibaba.com
ADD:Humen Town Dongguan City China



○ 参观者出席2010年中国国际线缆及线材展览会。这一年的展览迄今为止规模最大

中国国际线缆及线材展览会 - 规模盛大, 参展商更多

亚洲头号电线电缆行业展览-中国国际线缆及线材展览会-将于9月25-28日在上海新国际博览中心隆重举行。

联手中国国际管材展, 预计这两大展览将在7.5个展馆展出, 占地面积达到85,000平方米, 预计有来自世界各地的1,500位参展商参展, 届时将呈现全球电线电缆和管材行业的革新技术、产品和解决方案。

尽管全球经济不景气, 中国电线电缆市场却保持快速增长, 因为中国在进行城市改造, 加上电网建设快速发展, 以及超高压海底电缆和风力发电项目的大力投资。

中国电线电缆行业在过去的15年里以每年15%的速度增长。中国电线电缆行业的总

产值已经超过了美国, 中国成为世界第一电线电缆生产大国。

作为仅次于汽车业的第二大产业, 电线电缆行业的国内市场占有率可达到90%以上。当前, 中国电缆行业总产值超过1400亿美元。

“十二五”(2011-2015)计划期间, 中国经济转型, 增长率可能放缓。然而, 整体经济环境仍保持稳定。2011-2015年期间, 预计年度行业增长率4-8%。

2010年中国线缆和管材展, 参展商达到1,306, 展示了其最新技术和应用, 展览面积超过74,500平方米, 吸引了来自全球78个国家的26,035位专业参观者。

来自海内外的大规模参展商和参观者推动了该展览的国际化 and 展览的品质。展览期间的会议和研讨会包括中国电线电缆行业大会和中国国际管与管道行业会议, 与会者共同分享最新的理念、专业知识和见解, 丰富了展会的内容。

2012中国国际线缆及线材展览会由上海电缆研究所和杜塞尔多夫展览(上海)联合举办。基于前几届的成功举办, 作为一个著名的国际贸易平台, 规模不断扩大和需求快速增长, 主办单位预期在2012年达到新的顶峰。

Messe Düsseldorf (Shanghai) Co Ltd
- 中国
网址: www.wirechina.net



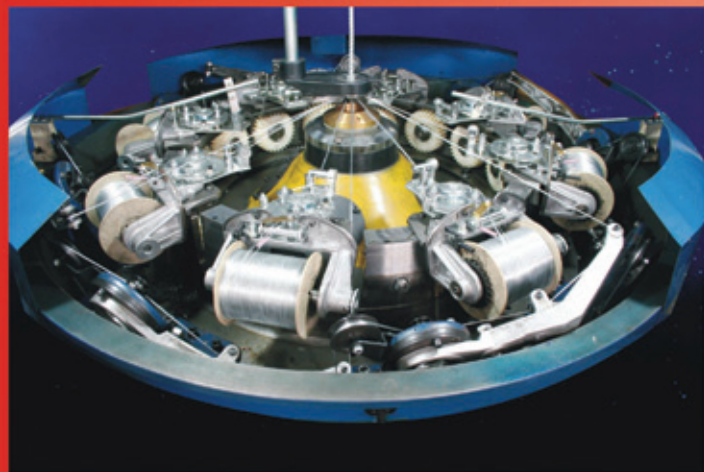
NYDG

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。



GSB-Z系列

重型机方面，GSB-Z系列高速编织机主要适用于大直径、大长度线缆及管材的钢丝编织。GSB-1Z，2Z，WGSB-3，WGSB-3B型（16锭，24锭，32锭卧式，36锭卧式钢丝编织机）的最大编织丝直径可达0.4mm*12股（钢丝）。最大编织芯线直径 ϕ 100mm。



绕包机系列

本系列产品可分单头，双头或三头绕包，绕包分为卧式或立式，是生产通讯电缆、控制电缆、防火电缆等专用设备。绕包盘最大转速可达1500r.p.m，绕包节距0.5mm~30mm，绕包盘最大外径 ϕ 300mm。绕包带可分为片式和筒式两种。

上海南洋电工器材有限公司

地址：上海南汇区鹿达路110号

电话：0086-21-33896306

33896307 33896308

传真：0086-21-33896305

http: www.shanghai-nanyang.com

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

Tenova收购Envita进军韩国

Tenova收购Envita公司, 持续推进其增长战略。该韩国公司成立于1995年, 总部设在仁川(靠近首尔), 活跃于工业炉领域, 为汽车行业的铝部件提供生产线和热处理炉具。公司有数百员工, 分别在以下三个地点工作: 韩国、越南(胡志明市)和中国(烟台)。Tenova对这家韩国公司非常了解, 2007年就建立了合作关系。由于和Envita的合作, Tenova获得了韩国主要钢铁制造商的一系列订单合同, 诸如现

代钢铁和浦项制铁等。此次收购标志着Tenova跨出了成为世界第六大粗钢生产商的第一步, 2011年生产钢铁68.6Mt, 与2010年相比上涨超过16%, 成为世界上人均密度最高的钢生产国: 全球后经济危机的战略市场。

Tenova钢铁事业部通过一个拥有优良参考和生产中心的工程中枢实现了进驻韩国的目标。这些因素的整合使商业和运营网

络在东盟(越南, 泰国, 印尼, 马来西亚, 菲律宾, 新加坡, 老挝和柬埔寨)得以扩大, Tenova钢铁产品在冷轧业务和汽车工业的铝生产也得到了扩展。Tenova是全球钢铁和采矿业先进技术、产品和服务的供应商。Tenova拥有3,100名员工, 在五大洲22个国家设立了30多家公司。

Tenova - 意大利
网址: www.tenovagroup.com

小包装成就好品质



Dow Electrical & Telecommunications (Dow E&T)对其树形阻燃交联聚乙烯(TR-XLPE)的成分做了微小而强大的改变, 用于中压(MV)电力电缆的安装。这一改变增强了地下(UG)电缆生产、安装和使用的性能水平。Dow Endurance™ HFDC-4202 EC具有以下特征:

- 预期寿命比现有TR-XLPE 产品更长
- 加强的树阻燃技术, 改进了地下潮湿电缆的性能
- Dow E&T绝缘屏蔽降低了带钢的力量, 在安装过程中更容易和更清洁终端以及拼接电缆
- 坚固性提高了, 从而保证电缆的质量
- Dow E&T半导体屏蔽实现了在105°C电缆负荷下连续运作

“随着时间的推移, 我们已经证明, 正确选材对于电缆的应用性能至关重要,” Dow E&T 全球电力平台负责人Nathan Jeppson表示。“同样重要的是高质电缆的制造。作为Dow内部计划的一部分, 在为期一年的ICEA S-94资格评定中, 我们与精心挑选的电缆制造商密切合作, 现已圆满完成。基于这些成果, 我们相信Dow Endurance HFDC-4202 EC具备优良的性能。” Dow Endurance HFDC 4202 EC根据欧洲CENELEC HD 620标准, 目前还处于测试阶段, 可望满足长期潮湿老化试验的最高要求。

Dow Electrical & Telecommunications - 美国
网址: www.dow.com

SCH

上海申辰线缆设备有限公司

Shanghai Shenchen Wire & Cable Equipment Co., Ltd

— The Kingdom of Cold Welding Machines



SB-10



SB-1D



SB-11



J2-B



J3-B

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

YJ4-A

YJ5-B

AC705



AC107

AC1208

AC2013



AC158

AC1510

AC2515



Address: Rm. 1804, Bldg. No.1 (Guoke Mansion), Lane 1029, Kongjiang Road, Yangpu District, Shanghai 20093, China.
Tel: +86 21 65199437 / +86 21 65199438 / +86 21 65187232 Fax: +86 21 65199430

Evonik上海蓬勃发展

为了满足对生物聚酰胺不断上涨的需求，Evonik Industries在今年年初采取一系列措施来提高基于生物的Vestamid® Terra聚合物的生产能力。

作为该计划的重要组成部分，另一化工厂将于2012年第三季度在中国上海投入运营。

新工厂将保证特殊复合材料的长期供应，不仅能满足现有市场的需求，而且能保证许多新兴领域的应用。

该工厂在聚合领域也同样采取了扩张能力的措施。定于2013年下半年投产。

近年来，可再生来源材料的需求持续上升，许多客户希望开源节流，实现可持续性发展。

Evonik's Vestamid® Terra 产品生产提供广泛的可再生来源高性能聚酰胺，其性能与严格的油聚酰胺相媲美。Vestamid® Terra用于创新高质产品，比如电子、体育、卫生和化妆品，以及

汽车工业。其二氧化碳排放量极少：纵观整个生命周期，与普通化石聚酰胺相比，Vestamid® Terra更受欢迎。

Vestamid® Terra产品在减少温室效应方面作出了宝贵的贡献。

广泛的生态认证，其中包括美国农业部、DIN和Certco都已经证实了这一点。

Evonik Industries – 德国
网址: www.vestamid-terra.com

Sewedy宣布利润大幅缩水

阿拉伯世界最大的上市电缆制造商之一，埃及El Sewedy Electric报道称2011年综合净利润下降34%，一年的政治动乱打断了该地区的经济发展。

该公司表示，净利润从2010年的8.166亿埃及磅下降到5.365亿埃及磅(约合8,882万美元)。加上一些不可预估的因素，净收入下跌70%。

El Sewedy – 埃及
网址: www.elsewedy.com

Tratos赢得巴格达炼油厂电缆合同

电缆制造专家Tratos Cavi SpA最近获得价值100万欧元的合同，为伊拉克国有美联炼化公司(MRC)提供电缆，安装在巴格达的乌拉炼油厂。

一系列电力电缆、高温电缆和阻燃电缆已供应给Tratos 的新客户MRC，作为其炼油厂现代化进程的一部分。

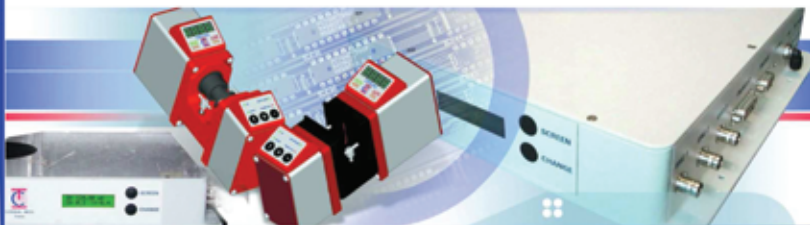
乌拉炼油厂位于巴格达以南，建于1953年，1955年开始运营。该厂日产300万公升汽油、150万公升煤油和200万公升汽油以及其他产品，应用于当地的发电厂和工业领域。

Tratos Cavi在过去的40年里致力于为石油和天然气工业生产电缆。这些电缆根据美国、英国和欧洲等相关标准制造，比如BS6883、NEK 606和UKOOA。

Tratos Cavi SpA – 意大利
网址: www.tratos.it

CERSA-MCI

法国赛飒测控仪表有限公司



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- 高精度外径测量
- 可重复性及稳定性: 外径的±0.03%
- 测量范围: 5 - 2000 μm
- 高精度表面质量检测
- 每周64点, 每秒300000周


电缆, 棒材及管材

- 外径、椭圆度及缺陷检测
- 1 - 3 向, 每向20 - 100kHz
- 测量范围: 0.05 - 80mm

光纤

- 在线高精度
- 测试及缺陷检测
- 测量范围: 0.05 - 80mm

Shanghai Potomer International Trade Co., Ltd. Xue Peng Chen
Rm.1012, No. 11 Lane 258, Yongxing Rd., 200071 Shanghai, P.R. CHINA
Tel: +86-21-6653 1938



Measure & Control Instrument

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13480 Cabriès, FRANCE
Tel: +33 4 4202 6044
Email: sale@cersa-mci.com
Web: www.cersa-mci.com

India

Insight

LS Cable & System cuts ribbon in Bawal

LS Cable & System has completed the construction of a power cable plant in Bawal, Haryana, India.

The power cable company held a ribbon-cutting ceremony for the completion of the plant on 4th April 2012 with 150 guests, including government officials and business leaders.

Major items to be produced at the plant include 220kV power cables and optical composite ground wires (OPGW).

“With the completion of the plant, LS Cable has been equipped with the capacity to produce \$200 million worth of power cables and \$100 million in communication cables,” Jongho Son, CEO of LS Cable & System, told the press.

“At the same time, LS Cable has possessed all production and sales lines in both advanced

and newly developing markets, including North America, China, India and Vietnam,” he added.

“LS Cable plans to aggressively attack the value of the cable market, including ultra-high pressure cables and special cables for the industry, for which Indian companies have not yet equipped with the proper know-how,” he said.

“In addition, we are planning to introduce broadband wire and wireless communication equipment to enter the Indian communication market which shows a faster growth than the Chinese market.”

Jongho Son continued that the aim of LS Cable is to become the leading cable maker in India.

LS Cable & System – South Korea
Website: www.lscns.com

BRICS Cable unveiled

A new submarine cable system was unveiled at the BRICS (Brazil, Russia, India, China and South Africa) Business Forum held in New Delhi, India.

Andrew F B Mthembu, chairman of i3 Africa and Imphandze Investments – two South African entities promoting the project – presented the BRICS Cable, welcomed as a strategic project for the social and economic benefit of the BRICS countries.

The BRICS Cable has been in the planning stages since March 2011, shortly after the admission of South Africa into the BRICS economic bloc.

Currently, the BRICS countries are connected to each other via telecommunications hubs in Europe and the USA resulting in high costs, and in some instances on potential interception of critical financial and security information by non-BRICS entities.

Recent discussions at the BRICS Business Summit concluded that a critical factor of success for the various initiatives relies on an advanced high-speed communication infrastructure.

This also has to ensure high-capacity and reliable direct connectivity between the BRICS countries.

The BRICS Cable is a 34,000km system (2 fibre pair, 12.8 Tbit/s of capacity) linking the BRICS economies and the United States.

It will interconnect with the WACS cable on the west coast of Africa, as well as with the EASSY and SEACOM cables on the east coast of the continent. The projected ready for service date is in the second half of 2014.

i3 Africa – South Africa
Website: www.i3-group.co.uk

From the concept to commissioning in just 129 days

L&T Construction, part of the Larsen & Toubro conglomerate, has commissioned India's largest solar photo voltaic based power plant (40MWp) owned by Reliance Power Limited at Dhursar village, Jaisalmer district of Rajasthan.

L&T Construction executed the solar power plant from concept to commissioning in 129 days. With the commissioning of this plant, L&T Construction has installed 114MW of utility scale solar PV power plants over the last fiscal year.

The plant, equipped to supply more than 70 million units of clean and green energy to 75,000 households, was commissioned in the presence of national and local government officials and senior officials from L&T. The energy generated by the plant is expected to displace nearly 70,000 metric tonnes of CO₂ every year.

The solar power plant, spread across 350 acres, comprises over 500,000 high output-generating thin film technology solar PV modules and thirteen 3.5 MVA power transformers to generate 40MWp.

L&T Construction – India
Website: www.lntecc.com

Follow us on Facebook

You can keep right up to date with all the latest in the wire and cable industry, simply by signing up to be our friend on Facebook. We update the site weekly, giving you the latest news of all the happenings in the industry, from the serious company buy-outs and mergers to the more light-hearted features.

Tweet us on Twitter

Want news and quick? Then sign up for your Twitter account and follow us. Get short, bullet-pointed news throughout the week from the leading source of information in the wire and cable industry. You can also follow editor David Bell at @wire_editor for regular updates.



SUPERMAC
SUPERMAC INDUSTRIES (INDIA) LTD
AN ISO 9001 CERTIFIED COMPANY

PIONEERING INNOVATIVE TECHNOLOGIES AND SYSTEMS
FOR CABLE INDUSTRIES.

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New director general for the IEEMA

The Indian Electrical and Electronics Manufacturers' Association (IEEMA) has appointed Mr Vishal Gakhar as director general.

IEEMA said Mr Gakhar has over 17 years' experience and prior to this appointment was with the Confederation of Indian Industry. Mr Gakhar has an MBA in marketing and is interested in building business linkages for industry and trade.

IEEMA is the apex body of the power equipment manufacturing industry in India. It has over 750 members, around 100 of whom are cable manufacturers producing cable up to 220kV. IEEMA has a dedicated cable division.

Indian Electrical and Electronics Manufacturers' Association – India
Website: www.ieema.org

More power to Gujarat

Lanco Solar has announced the commissioning of 56MW grid-connected solar photovoltaic power plants in Gujarat, including 35MW from three plants owned by Lanco Infratech Ltd and 21MW built for other developers – the Gujarat Power Corporation Ltd (5MW), GSPC Pipavav Power Company Ltd (5MW), GHI Energy Pvt Ltd (10MW) and Gujarat State Electricity Corporation Ltd (1MW).

A fully-owned subsidiary of Lanco Infratech Ltd, the solar arm of Lanco said that these projects will generate up to 90 million units of green electricity annually.

Mr V Saibaba, CEO Lanco Solar, said: "Gujarat is at the forefront of solar development. We look forward to continued growth here."

According to the company, Lanco Solar is currently developing 350MW solar farms as a developer and an EPC (engineering, procurement and construction) partner. Over 90MW solar PV is currently operational.

Lanco is building a fully integrated PV manufacturing facility at a 250 acre economic zone in Chhattisgarh in central India. In phase-I, 75MW module production capacity has been in operation since May last year.

Lanco Solar – India
Website: www.lancogroup.com

International orders

KEC International Ltd, an RPG Group company based in Mumbai, has secured considerable international orders in various business sectors.

The transmission division accounts for the largest chunk of the orders, both from India and abroad.

In India, the division has won an order from Power Grid Corporation of India Ltd (PGCIL) for the design, supply and construction of a double circuit transmission line between Wardha and Aurangabad in Maharashtra.

The overseas orders are from Bangladesh and the Democratic Republic of Congo for the design, supply and construction of power transmission lines. Its overseas subsidiary SAE Towers has secured orders for tower supply to the US, Mexico and Brazil.

In the power system business, the company has an order from Kenya Electricity Transmission Company, and the cable business has secured power and telecom cable orders. PGCIL has given orders for an optical power ground wire communication system in northern and eastern India.

KEC International Ltd – India
Website: www.kecprg.com

India's largest solar power producer

India's chief minister, Mr Narendra Modi, recently dedicated a further 600MW of solar power projects to the nation. India's total solar power production is nearly 900MW, two-thirds of which will be produced by Gujarat.

By utilising large tracts of wasteland, Gujarat is set to emerge as India's largest solar power destination.

In April, Mr Modi launched India's first Solar Power Park with generation capacity of 500MW across 3,000 acres at Charanka village, in the Patan district.

Currently, it has an aggregated operational capacity of 214MW of solar power projects commissioned at a single location.

Under its solar power policy, the state government has signed memorandums of understanding for the generation of 968.5MW of solar power by December 2012 and launched the Gujarat Solar Park. Its foundation stone was laid in December 2010.

The dedication ceremony was followed by the "India Solar Summit 2012: Investment and Technology Expo", in Gandhinagar on 20th and 21st April.

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Mouda project progress

National Thermal Power Corporation Ltd (NTPC) has commissioned the 500MW Unit-I of its Mouda Super Thermal Power Project in Maharashtra, taking the total capacity of the NTPC group to 37,514MW. The state-run power utility will supply around 150MW to the host state.

The power from the plant will ease the power deficit in Maharashtra. The state, excluding the island city of Mumbai, sees demand in its area rising to 15,500MW in the summer months, as against 15,000MW during the rest of the year.

A second production site for Chemetall

Chemetall-Rai, a member of the Chemetall Surface Treatment Group, has invested in a second production facility in India.

The design and construction of the new plant set new benchmarks in safety and quality, while responding to the increasing demand for local sourcing in this growing region.

The new facility will enhance Chemetall-Rai's current capacity substantially.

"To keep pace with the growth dynamics of the Indian market, we have built our new facility in the heart of the automotive industry," said Asis Ray, managing director of Chemetall-Rai.

"Many of our global customers located in this region require premium quality and local availability. Now we offer both. The investment in our new plant is a further milestone in Chemetall's expansion strategy and clearly demonstrates the importance of the Indian market," stressed Joris Merckx, president of Chemetall Surface Treatment.

Recently the company has acquired the chemical business of Gramos, one of the major local players of surface treatment technology for the Indian automotive industry.

Chennai, also known as the Detroit of India, has a significant importance for automotive OEMs and component manufacturers.

The automotive industry is of particular interest for Chemetall, as it triggers innovation, sets high quality standards and feeds many other metal producing industries.

With a modern production plant close to the Hyundai, Ford and Renault Nissan manufacturing facilities, Chemetall is following its strategy to provide state-of-the-art quality technologies as well as local support for global customers.

Chemetall Ltd – UK

Website: www.chemetall.co.uk



○ The new site in Chennai, known as the Detroit of India

Following Spain's analogue switchover, SES Astra demands that satellite be taken into account in 'digital dividend' allocation

Well in advance of a deadline of January 2014, SES Astra Iberica – the Spanish subsidiary of Luxembourg-based satellite operator SES – is urging the Spanish government not to discriminate against the company in the matter of deployment of freed-up spectrum, primarily in the UHF band. Because digital television needs less spectrum than analogue, the “digital dividend” from the transition by TV broadcasters in EU member-states to digital-only generally favours DTT (digital) operators. SES specifically named Abertis Telecom as a beneficiary (*Advanced Television Ltd*, 21st April).

“With the analogue switch-off, there was no technological neutrality and satellite has been relegated without any reason,” claimed Luis Sanchez Merlo, president of SES Astra Iberica, in a press conference reported from Madrid by David del Valle. “Now that we have to face the digital dividend we want to be taken into account.” (“New Spanish Battlefront for SES Astra”).

SES Astra warned that, with the launch of new mobile services, the radio spectrum will have insufficient bandwidth to accommodate TV, HDTV and 3D broadcasting. The company proposes satellite distribution as a means of circumventing the limitation, for what it sees as a significant cut in the cost of DTT migration. Mr del Valle noted that the Spanish administration is already renegotiating its plan for the digital dividend in mobile telephony, with the intention of reducing the estimated \$1 billion cost. Victor Calvo-Sotelo, the secretary of state for telecommunications, has said that the plan to release spectrum for 4G generation “was very ambitious but expensive.” Indeed, Mr Calvo-Sotelo’s own agency budget of \$1.14 billion is down 23% from a year ago.

Spanish TV operators vigorously resist a government proposal that they give up half of their DTT frequencies as an economy measure. The electronics industry and dish installers join the opposition. SES Astra claims a penetration rate of 80% in Spain. Some 82.2% (2.28 million) of the 2.77 million Spanish satellite households reportedly receive TV through Astra, which enrolled 200,000 new households over the last year.

The takeover of Cable & Wireless Worldwide will add fixed-line to Vodafone's mobile network in the UK

When Vodafone Group in April agreed to buy Cable & Wireless Worldwide for \$1.7 billion, the former mobile-only player became the second-biggest UK telecommunications operator. (BT Group, from which Vodafone leases fixed-line network access, is first.) C&WW, also London-based, operates 12,700 miles of fibre optic cable in the UK. Its acquisition by Vodafone means that the world’s biggest mobile operator by revenue will gain not only its own fixed-wire network but also a boost to its global business-to-business operations and – according to Vodafone CEO Vittorio Colao – some important cost savings.

C&WW specialises in Internet, data, voice, and hosting services for large enterprises both public and private. It also owns the biggest UK fibre network dedicated to businesses and has an international cable network that reaches beyond Europe to India and Asia. But, as noted by Jessica Hodgson and Lilly Vitorovich of *Dow Jones Newswires* (23rd April), the company’s fortunes declined after its spin-off from parent Cable & Wireless PLC in 2010.

Vodafone plans to use C&WW’s UK fibre network to meet rising demand from business customers for combined fixed and mobile communications. Mr Colao said Vodafone would invest in the C&WW network and information technology platforms over the next two to three years, but he provided no figures. The acquisition will likely see Vodafone’s revenue in the UK rise by a third to

\$11.2 billion a year. This would put it ahead of Everything Everywhere Ltd (\$10.9 billion annual revenue) and Telefónica Europe (\$9.3 billion). But *Dow Jones* pointed out that Vodafone still would significantly lag BT with its annual domestic revenue of \$25.1 billion.

That mobile subscriptions in the United Arab Emirates now top 11 million is not lost on its career-minded college students

The Geneva-based International Telecommunication Union estimates that by the end of 2011 there were six billion mobile subscriptions worldwide, corresponding to 87% of the global population. The developing world held 76% of these subscriptions.

According to another authority – the Telecommunications Regulatory Authority (TRA) of the United Arab Emirates – the Arab world in January 2012 accounted for 349 million mobile subscriptions and the UAE had nearly 11.9 million. Staff reporter Rania Moussly of *Gulf News* (Dubai) noted that, in July 2011, the TRA had tallied the UAE’s total mobile subscriptions at 11.1 million. She wrote that the record growth, over only five months, “represents an opportunity.”

The opportunity seems likely to be grasped, to judge from the potential in the increasing penetration of smartphones both locally and globally. As Zakaria Maamar from the faculty of IT at Zayed University told Ms Moussly: “Mobile computing and mobile application development are very much a viable career option” for students in the UAE. (“Students Eye Careers in Creating Mobile Applications,” 22nd April).

Professor Maamar spoke to *Gulf News* after the second annual Middle East Summit on Mobile Computing, held 11th-12th April at the ZU campus in Dubai in conjunction with Canada’s Research in Motion, maker of the BlackBerry smartphone. He predicted that instant Internet access would intensify the need to develop smartphones and tablets, and related applications, to enable UAE residents on the go to access government agencies or university services online.

"We have a core course on mobile computing we started running on the Dubai campus last fall and it is very popular," Dr Maamar told Ms Moussly. "The possibilities for application development are unlimited."

Gulf News noted that more than 23 billion mobile applications were downloaded globally in 2011, with a 38% increase to over 32 billion expected this year.

A trio of studies from the US charts global trends in wireless, smartphones and information technology

Wireless home networks are now commonplace in many global markets, according to Strategy Analytics. Researchers at the Boston-based company found that, by the end of 2011, 439 million households worldwide had installed Wi-Fi networks, equivalent to 25 per cent of all households. The report "Broadband and Wi-Fi Households Global Forecast 2012" also foresees that Wi-Fi households will reach a total of nearly 800 million in 2016, a penetration rate of 42 per cent.

South Korea, where broadband networks are almost ubiquitous, was found to have the highest Wi-Fi household penetration in the world in 2011. China, even though its Wi-Fi network penetration stood at only 25 per cent in 2011, will almost certainly become the main growth driver in the global Wi-Fi home market by 2016, adding another 110 million Wi-Fi households over that period.

Analyst Kantideep Thota wrote: "As most broadband growth will come from Asia Pacific, the bulk of Wi-Fi household growth will also will take place in China, India, and other emerging Asia Pacific countries. China alone will account for 31 per cent of total Wi-Fi household growth over the next five years."

"The worldwide smartphone market is poised for continued double-digit growth in the years ahead," says Ramon Llamas, senior research analyst

of mobile phone technology and trends at International Data Corp (IDC). Framingham, Massachusetts-based IDC believes that total smartphone shipments will reach 659.8 million units in 2012, up 33.5 per cent from the 494.2 million units shipped in 2011. From there, smartphone shipments are forecast to grow at a compounded annual growth rate (CAGR) of 18.6 per cent until 2016, at the end of the period covered by a five-year market analysis published by IDC in March.

Strong end-user demand, broader and deeper selection of smartphones from mobile operators and smartphone vendors, and lower price points are expected to drive shipments higher in the years to come. Underpinning the market, in the IDC view, is a "shifting operating system ecosystem."

The IT intelligence provider believes Android will retain its overall leadership role throughout the forecast period, with competition among BlackBerry, iOS and Windows Phone shifting their relative positions each year.

Information technology research and advisory company Gartner Inc has said that information technology spending worldwide is likely to climb 2.5 per cent to \$3.7 trillion in 2012, down from a previous forecast of a 3.7 per cent increase. Gartner (Stamford, Connecticut) said that the lower growth rate projection is attributable to a stronger US dollar. IT spending is seen as rising 5.2% this year, compared with a previous forecast for a 4.6% increase.

Gartner's vice president for research, Richard Gordon, said in an April 5th statement that, despite ongoing concerns, "early signs in 2012 suggest that the global economic outlook has brightened a little." The strongest area of growth is expected to be in the telecom equipment market, with spending forecast to climb 6.9% to \$472 billion. The firm pointed to continuing strength in sales of mobile devices and a more hopeful outlook for enterprise network equipment.

Elsewhere in telecom . . .

Paris-based telecom equipment and services provider Alcatel-Lucent reported 2011 net income of \$1.5 billion, ending five years of losses. The company will cut about \$660 million in costs this year, following the end of the three-year turnaround plan inaugurated by CEO Ben Verwaayen who plans to use the company's patents to generate free cash flow for the first time.

As reported by Hannah Benjamin of Bloomberg News (23rd April), the intention is to license the Alcatel-Lucent trove of 29,000 patents, which include voice-recognition and videoconferencing technology, through a licensing syndicate to garner value from the rights. It is, she noted, a strategy that Sweden's Ericsson adopted to counter a slowdown in spending by phone operators.

After giving local management time to improve results, Deutsche Telekom may look into selling its units in Britain and the Netherlands as early as next year, the *Financial Times Deutschland* reported on 17th April. Citing company sources, the newspaper said the German telecom giant, the largest in Europe, had considered selling the units in the past and would do so again this summer.

One of its holdings is a stake in Britain's biggest mobile company Everything Everywhere, a 50-50 joint venture with France Télécom.

Supplying context, Reuters noted that Deutsche Telekom is seeking ways to preserve its dividend while reinvesting in the United States after the collapse last year of its \$39 billion deal to sell its T-Mobile USA unit to AT&T. As part of a breakup package from AT&T, Deutsche Telekom received \$3 billion in cash and mobile spectrum.

The Bonn-based group said in February it would increase its network investments in T-Mobile USA by about \$1.4 billion over the next two years. For its part, T-Mobile USA said it would spend a total of \$4 billion, over time, on its LTE upgrade.

追随其西班牙模拟转换商的做法, SES Astra 要求将卫星纳入到“数字福利”分配这一计划中

在2014年的最后期限前, SES Astra Iberica——以卢森堡为本部的卫星运营商SES的西班牙分公司——力劝西班牙政府在发布的频谱部署开发, 尤其是UHF波段中不要对其予以区别对待。因为数字电视相对于模拟电视而言需要的频谱更少, 所以欧盟成员国内的DTT运营商在电视广播商转变成为数字广播商这一过程中得到了更多的好处, SES特别指出了Abertis在这一过程中受益良多。(先进电视公司, 4月21日)

在一次马德里由David del Valle报导的新闻发布会上, SES Astra Iberica的总裁Luis Sanchez Merlo如此说道: “随着模拟信号业务的关闭, 再也不存在科技中立性这一情况, 并且卫星也在没有任何理由的情况下被降级了, 因此我们必须面对数字福利这一情况, 我们希望被纳入其中。” (“SES Astra 的新西班牙战场”)

SES Astra 警告道, 随着新型移动服务的推出, 无线电频谱的带宽将不足以同时兼容电视, 高清电视和3D电视的广播业务。公司提议将卫星进行广泛分布作为一个避免此局限的应对措施, 因为这一方案能够大幅度减少DTT业务转变过程中的花费。Del Valle先生注意到, 为了减少大约10亿元开支, 西班牙政府已经对其在移动电话业务中的数字福利计划进行重新制定。Victor Calvo-Sotelo, 电信业部长已经表示这一开发4G无线电频谱的计划是“具有雄心壮志但是代价高昂的”。实际上, Calvo-Sotelo自己部门的预算已经削减至11.4亿美元, 相对于一年前减少了23%。

西班牙电视运营商强烈抵制政府放弃它们手中近一半频谱的计划以作为一种应对现行经济情况的措施。电子产业和天线安装商也加入了这一抵制大军中。SES Astra 表示其在西班牙的占有率达80%。据报道, 277万西班牙卫星电视使用家庭中的82.2% (228万) 都是通过Astra 接收电视信号, 在过往的一年中, 有20万新用户加入。

对Cable & Wireless Worldwide的并购将会增加沃达丰在英国的移动网络中的固网线路数量

当沃达丰在四月份同意以17亿美元的价格收购Cable & Wireless Worldwide公司后, 原本仅为移动运营商的沃达丰一跃成为英国第二大电信运营商。(BT集团是第一, 沃达丰从其租借固网线路) 也是以伦敦为本部的C&WW运营着英国境内长度为12,700英里的光纤电缆。

根据沃达丰首席执行官Vittorio Colao所述, 沃达丰的这一收购意味着世界上收入最大的移动运营商不仅获得了自己的固网网络, 同时也增强了其全球B2B运营的能力, 当然还减少了一些重要的支出。

C&WW专注于为公共以及私有大型企业提供互联网, 数据, 语音以及主机业务。它同时也拥有这英国最大的商务专用光纤网络, 并有着延伸出欧洲, 抵达印度以及亚洲的大型国际有线电视网络。但是, 正如道琼斯通讯社(4月23日刊)的Jessica Hodgson和Lilly Vitorovich 所注意到的, 自从2010年从母公司Cable&Wireless PLC拆分出来后, 公司的资产出现了缩水。

沃达丰计划使用C&WW的英国光纤网络来满足其公司客户日益增长的对固网移动复合通信的需求。Colao说到, 沃达丰计划在未来的两到三年会对C&WW的网络和信息技术平台进行投资, 但是没有提供任何细节。

这次并购有可能会增加沃达丰在英国三分之一的年收入, 达到112亿美元一年的水平。这将会使其领先Everything Everywhere (109亿美元的年收入) 和Telefónica Europe (93亿美元的年收入)。但是道琼斯通讯社指出, 沃达丰仍将会显著落后BT集团公司, 后者的国内年收入达到251亿美元之多。

使用移动通信业务的阿拉伯人已经达到历史最高的1,100万人, 他们并没有在以职业为导向的大学生活中迷失

总部位于日内瓦的国际电信联盟预测到2011年底为止, 全世界有60亿移动通信用户, 即全世界87%的人口。发展中国家用户的比例为76%。

根据另一家权威机构——阿拉伯移民的电信管理机构(TRA)所说——2012年一月, 阿拉伯世界有着3.49亿移动

用户, 而UAE拥有着其中大约1,190万用户。海湾新闻(迪拜)的记者Rania Moussly注意到, 在2011年7月, TRA计算的UAE移动用户数字为1,110万。她写道, 这五个月之间的增长, “表明存在着机会。”

根据当地以及全球智能手机增长比率的潜力来判断, 这一机会看起来很有可能被抓住。正如Zayed大学IT学院的Zakaria Maamar告诉Moussly女士道: “对于UAE的学生而言, 移动计算机和移动应用发展是一个相当可行的职业选择。” (“学生眼中的创新移动应用行业职业机会”, 4月22日刊)

由迪拜ZU大学与加拿大移动通信, 黑莓智能手机的制造商所合办的, 在4月11至12日举办的中东峰会移动计算分会中, Maamar教授接受了海湾新闻的采访。他预测即时互联网接入将增强发展智能手机, 平板电脑以及其相关应用的需求。这样能使得UAE的住户能够接入政府机构以及大学的在线服务中。

“我们在移动计算方面中有一个核心课程, 在上个秋天我们在迪拜的院区开始推行这一课程, 它非常受到欢迎。” Maamar 博士如此告诉Moussly女士。“应用程序的发展可能性是无限的。”

海湾新闻注意到在2011年, 全球用户下载了超过230亿移动应用程序, 增长了38%, 今年预计能够达到320亿美元。

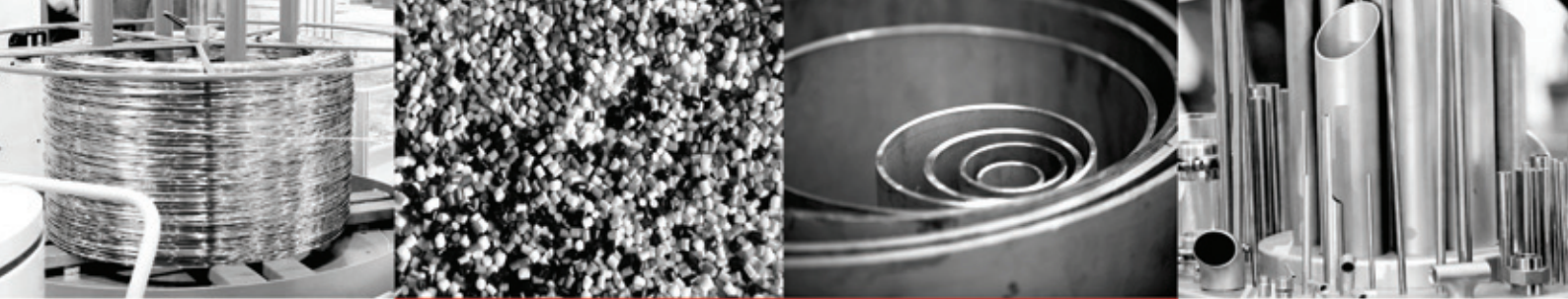
三个对美国无线, 智能手机和信息技术全球趋势图的研究

根据战略分析公司所述, 无线家庭网络在许多国际市场中是一个老生常谈的话题。一位为总部位于波士顿公司工作的研究者发现, 到2011年底为止, 全球有4.39亿家庭已经安装了无线网络, 相当于全球总共25%的家庭数量。“全球宽带和无线家庭用户2012预测”报告也预见2016年, 无线家庭用户的整体数量将达到近8亿, 覆盖率达到42%。

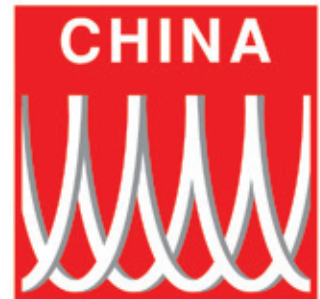
在韩国, 宽带几乎是无处不在。2011年, 在全球所有国家中, 韩国被认为是无线家庭覆盖率最高的国家。

中国, 尽管其2011年的无线网络覆盖率只有25%, 但是到2016年, 中国几乎毫无疑问地将成为全球无线家庭用户的主要增长点, 预计将在这一段时间内增长1.1亿用户。

分析员Kantideep Thota 说道: “由于大多数宽带增长将会来自于亚太地区, 大量无线家庭的增长也将会在中国, 印度以及其他新兴亚太国家出现。在未来的五年中, 中国将占到所有无线家庭用户增长中的31%。”



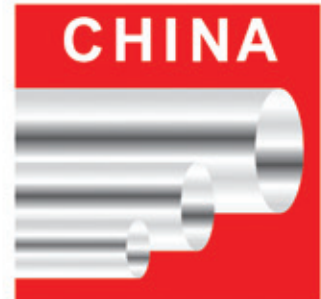
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International Wire &
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Italian Wire Machinery Manufacturers
Association (ACIMAF)



WCISA
Wire and Cable Industry
Suppliers Association (USA)



International Tube Association (ITA)

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China's Caribbean outreach

For a long game with Taiwan, more than a little Chinese financial encouragement goes to prospective allies in the tropics

"China's economic might has rolled up to America's doorstep in the Caribbean, with a flurry of loans from state banks, investments by companies, and outright gifts from Beijing in the form of new stadiums, roads, official buildings, ports and resorts in a region where the United States has long been a prime benefactor."

Writing from Nassau, the Bahamas, Randal C Archibold of the *New York Times* took note of a recent series of Chinese-sourced initiatives that are benefiting the people of Dominica, Antigua, Barbuda, Trinidad, and Tobago. China announced late last year that it would lend \$6.3 billion to Caribbean governments, in addition to the hundreds of millions of dollars in loans, grants, and other forms of economic assistance it has channelled into the area over the past decade. That the Chinese are showing off their economic prowess far from home is hardly news. But their planting the flag so close to the US has attracted the notice of diplomats, economists, and investors. ("China's Cash Buys Inroads in Caribbean," 7th April).

China's thrust into Africa is prompted largely by a need for commodities. Its expanding presence in the Caribbean has a different impetus. What most analysts see, Mr Archibold wrote, is an emerging superpower securing political support from a bloc of developing countries "with anemic budgets" that once counted almost exclusively on the US, Canada, and Europe.

These observers do not appear to perceive a security threat. Even so, Mr Archibold noted, American diplomatic cables released through WikiLeaks and published in the British newspaper *The Guardian* indicate a watchful attitude toward the Chinese presence less than an hour by air from Florida. The eventual end of the Castro era will likely find China in a strong position vis-à-vis Cuba, with which it already enjoys a relationship. The US, in contrast, has had vexed relations with Cuba for over a half-century.

Quid pro quo

"I am not particularly worried, but it is something the US should continue to monitor," said Dennis C Shea, the chairman of the US-China Economic and Security Review Commission, a bipartisan Congressional panel. He told the *Times*: "With China you have to be wary of possible policy goals behind the effort." An entirely overt Chinese policy goal is to line up support for its position that the island-nation of Taiwan is integral to China.

The new \$35 million stadium that opened recently in the Bahamas – a gift from the Chinese government – illustrates this approach. It is one of a number of sporting arenas that China has caused to be erected in Caribbean and Central American nations in gratitude for their recognition of "one China," inclusive of Taiwan.

Charles Maynard, the Bahamian sports minister, summarised this mutuality in action: "[The Chinese] offered a substantial gift and we opted for a national stadium."

- ❖ Another candid acknowledgment came from Kevin P Gallagher, of Boston University, an author of a recent report on Chinese financing: *The New Banks in Town*. Professor Gallagher told Mr Archibold of the *Times*: "When you've got a new player in the hemisphere all of a sudden, it's obviously something talked about at the highest level of governments."

Immigration

After a half-century, undocumented Mexicans entering and exiting the United States are in net balance

According to Mexican census data, between 2005 and 2010, a million undocumented Mexican immigrants to the US returned home. The total was more than three times the number of self-acknowledged returnees from 2000 through 2004, and the changing pattern has implications for an issue that has roiled American politics for some time. As reported by Amanda Peterson Beadle of *Think Progress* (9th April), statistics on the shrinking population of illegal immigrants were supplied by Douglas Massey, founder of the Mexican Migration Project at Princeton University. The numbers fell from 12 million to approximately 11 million at the height of the financial crisis of 2008-2009 in the US. Since then, Mexicans without documents are not migrating to the US at rates to offset the loss.

Think Progress also cited Agustin Escobar, a demographer at the Center for Research in Social Anthropology in Guadalajara, Mexico. After analysing census data and household surveys, this source found that the number of Mexicans leaving for the US dropped from more than 1 million in 2005 to 368,000 in 2010. Thus "net zero migration" for the first time in 50 years. While the shift is generally seen as a consequence of a weak US economy, also mentioned as contributing factors are anti-immigrant state laws, tougher US border enforcement, and border violence. Political analyst Michael Barone of the *Washington Examiner* noted these additional factors (11th April):

- ❖ Mexico has been growing more prosperous. As pointed out by former foreign minister Jorge Castañeda in his 2011 book *Mañana Forever?*, Mexican birth rates declined sharply two decades ago and the country now has a middle class majority;
- ❖ With the US and Mexican economies tied together by the North American Free Trade Agreement (NAFTA) of 1993, Mexico seemed unlikely to achieve higher economic growth than its big neighbour. But its growth rate over the past two years (on the order of 5-7 per cent) has handily outpaced that of the United States.
- ❖ The majority of Mexican returnees from the US declare themselves to be home to stay. For Mexico, which has come to rely on billions in yearly remittances from its US diaspora, this is a potential negative aspect of the reverse migration now under way.

Some children of immigrants are leaving the US for the ancestral home – whether or not they have ever seen it

Even as the decades-old problem of illegal immigration from Mexico may be easing (see “Mexicans exiting the United States,” above), the US could soon be challenged by another – subtler, but potentially more serious – trend in population-shifting.

“In growing numbers, experts say, highly educated children of immigrants to the United States are uprooting themselves and moving to their ancestral countries,” wrote Kirk Semple in the *New York Times*. “They are embracing homelands that their parents once spurned but that are now economic powers.”

The US government does not collect data on the emigration of the American-born children of immigrants or on those who were born abroad but were brought to the US as young children. But several migration experts consulted by Mr Semple said the phenomenon was significant and increasing.

“We’ve gone way beyond anecdotal evidence,” he was told by Edward J W Park, director of the Asian Pacific American Studies Programme at Loyola Marymount University in Los Angeles. Mr Park said the migration was spurred by the efforts of some overseas governments to attract more foreign talent with offers of employment, investment, tax, and visa incentives. “So it’s not just the individuals who are making these decisions,” he said. “It’s governments who enact strategic policies to facilitate this.” (“Many US Immigrants’ Children Seek American Dream Abroad,” 15th April).

Officials in India said they had seen a sharp increase in the arrival of people of Indian descent in recent years – including at least 100,000 in 2010 alone, said Alwyn Didar Singh, a former senior official at the Ministry of Overseas Indian Affairs.

“Many of these Americans have been able to leverage family networks, language skills, and cultural knowledge gleaned from growing up in immigrant households,” Mr Semple wrote. And he noted the view of some scholars and business leaders that this emigration is not necessarily bad for the United States:

“They say young entrepreneurs and highly educated professionals sow American knowledge and skills abroad. At the same time, these workers acquire experience overseas and build networks that they can carry back to the United States or elsewhere – a pattern known as ‘brain circulation.’”

❖ One of the circulating brains interviewed by Mr Semple is Samir N Kapadia who, on the rise in Washington, moved from a Congressional internship to jobs with a major foundation and a consulting firm. But his days began to seem static in comparison with those of friends and relatives in India. One was creating an e-commerce business; another, a public relations company; still others, a magazine, a business incubator, and a gossip and events website.

“I’d sit there on Facebook and on the phone and hear about them starting all these companies and doing all these dynamic things,” recalled Mr Kapadia, 25, who was born in India but reared in the United States. “And I started feeling that my nine-to-five [job] wasn’t good enough anymore.” Last year he quit the job and moved to Mumbai, where he is a researcher at Gateway House, a new foreign-policy research organisation; and where, he reported, the scene is much livelier than in Washington. “Markets are opening,” he enthused. “People are coming up with ideas every day. There’s so much opportunity to mould and create.”

❖ The *Times* passed on a warning from the experts who identified the currents that carried young Mr Kapadia to India. In the global race for talent, they say, the return of such expatriates to the United States and to American companies “is no longer a sure bet.”

The economy

Faster pace in the United States helps buoy IMF global forecast for 3.5 per cent economic growth this year

The International Monetary Fund, the global lending organisation, said 17th April that the American economy should expand 2.1 per cent this year. In its latest economic report the IMF found that, in the US, consumers are spending more, business investment has grown, and the job market has shown signs of life.

“Some optimism has returned,” Olivier Blanchard, the IMF’s chief economist, wrote. He added: “It should remain tempered.”

The group’s forecast for Europe – economic shrinkage of 0.3 per cent this year – will likely provide all the tempering needed. But even here the IMF found grounds for optimism in the coordinated efforts of European leaders to address the continent-wide debt crisis – notably the bulking-up of their bailout fund.

The IMF noted that the European Central Bank has lent more than \$1 trillion to the region’s banks, bringing down borrowing costs in some of the most troubled nations. Europe’s leaders have also worked together recently on a plan intended to restrain deficit spending.

The IMF report came as the 187-nation group and its sister lending institution, the World Bank, were preparing to hold their spring meetings in Washington.

Given the improvement in the economic landscape from only a few months earlier, Christine Lagarde, managing director of the IMF, said that she might be seeking less than the \$500 billion infusion that was mentioned in January.

Taken together, indications of greater strength in the US and improved stability in Europe prompted an IMF outlook for 3.5 per cent growth in the world economy in 2012. All three IMF estimates are slightly better than those published at the New Year.

“Blockbuster report” on a suddenly un-stalled Canadian labour market shows firms taking on full-time workers

Canada in March gained the most jobs since September 2008. Employment rose by 82,300 following a decline of 2,800 in February, Statistics Canada said 5th April in Ottawa, lowering the jobless rate to 7.2 per cent from 7.4 per cent. Economists surveyed by *Bloomberg News* had projected a gain of 10,500 jobs and 7.4 per cent unemployment in March. “This was a blockbuster report,” Mazen Issa, Canada macro strategist at TD Securities in Toronto, told *Bloomberg’s* Greg Quinn. Plausibly, Mr Issa foresaw “a slight tinge of hawkishness” in the central bank’s next announcement on interest rates. The suggestion was that the encouraging labour report might lead to an earlier rise in rates.

Statistics Canada said that full-time employment in Canada jumped by 70,000 in March while part-time positions grew by 12,400. About 42,600 jobs were created by private companies and 20,900 in the public sector. Manufacturing rose by 11,800, the fourth consecutive monthly increase. Toyota Motor Corp said it would add about 400 new jobs to increase its production capacity at a Woodstock, Ontario, factory.

Workers designated by Statistics Canada as employees rose by 63,600 while the number of self-employed rose by 18,800 in March. The agency also took note of wage gains. Average hourly earnings of Canadian permanent employees rose 2.5 per cent in March from a year earlier.

Statistics Canada, in a separate report, said building permits rose 7.5 per cent to C\$6.51 billion (US\$6.52 billion) in February, faster than the 2 per cent gain forecast by economists. Non-residential permits jumped 36.2 per cent to C\$2.54 billion while residential permits fell 5.3 per cent to C\$3.97 billion.

❖ As noted by Mr Quinn, there were also signs on 5th April of labour market strength in the US, which buys three-quarters of Canada’s exports. Claims for US unemployment benefits dropped in the previous week to the lowest level in four years; and on 6th April the Labor Department would announce a small dip in the unemployment rate: to 8.2 per cent from 8.3 per cent. Coincidentally, the *Bloomberg Consumer Comfort Index* reached a four-year high. This index measures Americans’ perceptions of three variables: state of the economy, personal finances, and whether or not the time is propitious for the purchase of goods or services.

Telecom

Big American wireless carriers are on the prowl for more radio spectrum. But is the need more apparent than real?

“They’re all Band-Aids, and you have to provide additional spectrum to deal with the wound to deal with the large capacity of bandwidth demands.”

Kathleen Ham, vice president for federal regulatory affairs of T-Mobile USA, was expressing the firm conviction of many leading wireless carriers in the United States that new technology will not suffice to solve their problems, and their belief that they will eventually need greater access to the nation’s radio waves.

The inventor of the cellphone, Martin Cooper, does not agree with AT&T, Verizon, T-Mobile, and Sprint et al about the need for more radio spectrum, the government-rationed slices of radio waves that carry phone calls and wireless data. “Every two-and-a-half years, every spectrum crisis has gotten solved, and that’s going to keep happening,” Mr Cooper said. “We already know today what the solutions are for the next 50 years.”

The sharply opposed positions were examined by Brian X Chen of the *International Herald Tribune* in an effort to establish whether or not exploding demands for mobile data have in fact produced a crisis in the industry; or whether the warnings of slower or spotty connections on smartphones and tablets — and soaring prices for cellphone service — are much overblown. (“Mobile Carriers Warn of ‘Spectrum Crisis’; Others See Hyperbole,” 17th April).

The issue is important. Cisco, the networking company, published a study that shows mobile data usage in the US more than doubled in 2011, and data-guzzling smartphones continue to fly off the shelves. But Mr Chen’s review would seem to indicate that a shortage of electromagnetic radio spectrum is much less of a looming threat than the apprehensions of the wireless carriers might suggest.

David P Reed, one of the original architects of the Internet and a former professor of computer science and engineering at the Massachusetts Institute of Technology, pointed out that electromagnetic spectrum is not finite. Arguing that the nation could run out of spectrum is like saying it was going to run out of a colour, he told the *Herald Tribune*.

❖ According to Mr Reed, who is now senior vice president at SAP Labs (Palo Alto, California), a company that provides business software, the reason spectrum is treated as though it were finite is because it is still divided by frequencies — an outdated understanding of how radio technology works. “I hate to even use the word spectrum,” he said. “It’s a 1920s understanding of how radio communications work.”

Mr Reed noted that there are newer technologies for transmitting and receiving signals so that they do not interfere with one another. That means that separation of the frequency bands would not be required.

The non-technical Mr Chen summed up for his readership: “In other words, everybody could share spectrum and not run out.”

❖ The Federal Communications Commission stood clear of the argument, as befits the agency that awards licenses for each frequency band to entities including the military, TV stations, and astronomy researchers, along with the phone carriers. The FCC believes that a combination of adding new spectrum and employing new technologies will be needed to help the wireless industry evolve.



“No single action is a silver bullet when it comes to meeting mobile capacity needs,” Neil Grace, an FCC spokesman, told the *Herald Tribune*. “More efficient use of spectrum, new technologies, and unleashing new spectrum are all important parts of the mix.”

Automotive

The master die-maker is no more. Will the steady advance of technology retire the role of auto mechanic, as well?

A report by the *McClatchy-Tribune News Service* indicates that the honourable American job of grease monkey is being reshaped beyond anything that an old-timer would recognise. Five years from now, the report from the Dallas area suggests, a rookie auto tech may be stroking computer keys more often than twisting wrenches.

“Everything I learned will probably be out-dated by then,” said a 19-year-old recent graduate of Universal Technical Institute (Irving, Texas), plausibly. At the five-year mark, we are told, cars will be driving themselves. (“Auto Mechanic’s Role Shifts Along With Technology,” 8th April).

For more than a decade, young techs have been much in demand at US car dealerships, commanding up to \$70,000 or more a year. Over the same period, the parts and service departments have often generated enough revenue to cover most of the dealership’s overhead. That has not changed, notes *McClatchy*: at least not yet.

But the dramatic improvement in the quality of new cars has meant a sharp drop-off in warranty work, the traditional profit centre of the service department. Most shops have seen a reduction from around 70 per cent of daily work orders to 30 per cent or less. Moreover — with spark plugs now lasting for 100,000 miles and some synthetic oil going 10,000 miles between changes — intervals between maintenance appointments have stretched out.

“Less work and more sophistication is what I see in the years ahead,” Paul Taylor, chief economist of the National Automobile Dealers Association (McLean, Virginia) told the news service. “The future is cars that are less troublesome but more complicated.”

In the interim, dealerships are doing more repair business for owners who are keeping their cars longer. Tom Durant, owner of six Dallas-area dealerships, told *McClatchy* that — for the sake of lower monthly bills — some consumers are taking out loans of up to 84 months. They are buying extended warranties to help cover the cost of repairs over the long repayment period.

This generates more service work for people like Mr Durant, who is not unduly concerned about the speeding technology express.

“No matter how good you make cars, people will still be having wrecks,” he said. “[And] still misusing them.”

Dorothy Fabian – Features Editor



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美国展望

中国涉足加勒比海

为与台湾进行长期博弈，中国向热带地区的潜在盟友提供了相当多的财政支持

在加勒比海地区，中国的经济势力已经扩张到了美国的领地。来自中国的一系列国有银行贷款、企业投资、北京无条件捐赠的崭新的体育馆、道路、办公楼、码头和度假场所使得中国闯入了一直以来由美国作为主要援助国的地区。

《纽约时报》驻巴哈马首都拿骚的记者Randal C Archibold 注意到近来一系列中国主动发起的对多米尼加、安提瓜岛、特立尼达岛和多巴哥岛人民有利的行动。去年年底，中国宣布它将向加勒比海地区的政府提供63亿美元的贷款。除了这数十亿美元的贷款、补助和其他形式的经济援助之外，中国在过去的十年中已向该地区提供了大量资金。虽然中国在远离本土的地区炫耀经济实力几乎已经不是新闻了，但是他们把旗帜插在离美国援助地区如此近的地方还是引起了外交家们、经济学家们和投资者的关注。（《中国现钞打通加勒比海关节》，4月7日）。

中国进入非洲的主要驱动力来源于商品需求。而它在加勒比海地区的活动日益频繁却有着不同的动因。Archibold先生写道，大多数分析师认为，中国进入加勒比海地区的动机是：新兴的超级大国亟需从“预算紧张”且从前基本上只能依赖美国、加拿大和欧洲的发展中国家集团寻求政治支持。

这些观察家们看起来并未察觉到中国对美国安全构成了某种威胁。即便如此，Archibold先生认为，由维基解密（WikiLeaks）公布并发表在英国报刊《卫报》上的美国外交电报表明，美国对中国的行动持戒备态度。这些电报不足一小时前通过无线电从佛罗里达州发出。中国与古巴两国之间本来交好，卡斯特罗时代终结以后很可能会发现中国与古巴的关系更加稳固了。而相比之下，超过半个多世纪以来，美国与古巴的关系则更为复杂。

移民

半个多世纪后，出入美国边境的无证的墨西哥人达到平衡

根据墨西哥人口普查数据，在2005年和2010年间，在美国的百万无证墨西哥移民回国。这一总人数比2000至2004年间确认的回国人数多出三倍，这种变化趋势对许久以来困扰美国政坛的问题有着深刻影响。

正如Think Progress（4月9日）的Amanda Peterson Beadle报导称，非法移民人数减少的相关统计数据由普林斯顿大学墨西哥移民项目的创始人Douglas Massey提供。在美国2008-2009年金融危机最严重的时候，墨西哥非法移民由1,200万人降至约1,100万人次。自那以后，无证墨西哥人进入美国的速率不足以抵消其流失的速率。

Think Progress也引用了墨西哥瓜达拉哈拉社会人类学研究中心一位人口统计学家——Agustin Escobar的研究成果。他通过分析人口普查和家庭调查资料发现，前往美国的墨西哥人从2005年超过100万人减少到2010年的368,000人次。因此，50年来第一次出现了“净移民数为零”的情况。

尽管人们普遍认为这种转变是美国经济衰退的结果，但也有人提到反对移民的州法律、更严格的美国边境执法和边境暴力事件都是推动因素。Washington Examiner的政治分析家Michael Barone注意到了这些额外的因素（4月11日）：

一些移民的子女也要离开美国，回到他们的祖籍地——不论他们以前是否到过那地方。

即使持续了几十年的墨西哥非法移民的老问题可能会缓解（参见上文《墨西哥人退出美国》），美国很快将面临另外一个更加敏感但可能更为严重的问题——人口迁徙潮流。

“专家们说，越来越多的接受过良好教育的美国移民的子女正在迁离美国，返回他们的祖国，”《纽约时报》记者Kirk Semple写道：“他们将回到曾被他们的父母唾弃但现在已成为经济强国的祖国的怀抱。”

美国政府还没有收集有关美国出生然后移居他国的移民后代和在国外出生并在幼时被带到美国的人口数据。但是Semple先生咨询过的几位移民专家表示这一现象在日益增加，并且具有重大意义。

“我们所拥有的绝不是奇闻轶事般的证据，”洛杉矶Loyola Marymount大学美籍亚裔人研究项目主任Edward J W Park告诉Semple先生。Park先生说，一些外国政府提供就业、投资、税收和签证激励以吸引更多国外人才，这些措施加速了移民潮。

“因此这不仅仅与做出这些决策的个人相关，”他说。“还与推出战略性政策以促进移民潮的政府有关。”（《许多美国移民的后代出国追寻美国梦》，4月15日）。

印度官员称，近年来，他们已经注意到印度后裔归国人数的迅速攀升——仅2010年就有至少100,000人次，海外印第安事务部前高级官员Alwyn Didar Singh如是说。

“许多这类美国人能够充分利用其在移民家庭中成长获取到的家族关系网络、语言技能和文化知识，”Semple先生写道。他也提到一些学者和商业领袖关于这些移民不一定对美国有不利影响的观点：

“他们说青年企业家和高学历的专业人才在海外播撒美国知识和技能。同时，这些人在海外工作所获得的经验和构建的网络可以被带回美国或带到其他地方——形成一种著名的“人才循环”模式。

经济

美国经济加快步伐鼓励IMF将今年全球经济增长预测提高到3.5%

国际货币基金组织（全球借贷机构）于4月17日称，今年美国经济将增长2.1%。IMF最新经济报告显示，美国民众消费增加，商业投资也有增长，劳动力市场亦显示复苏迹象。

“我们现在变得更乐观一些，”IMF的首席经济学家Olivier Blanchard写道。他紧接着说“但经济仍会继续回火。”

该组织对欧洲的预测——今年0.3%的经济萎缩——将很可能发挥所有需要的调和作用。但即便如此，IMF仍然找到了乐观的理由——欧洲各国领导人为解决整个大陆范围的债务危机而进行的协调一致的努力，特别是救市基金的迅速增多。

IMF注意到欧洲中央银行已经向地区银行提供了超过1万亿美元的借款，拉低了一些最困难国家的借款成本。欧洲各国领导人近日也在共同努力制定一项旨在抑制赤字开支的计划。

IMF报告出炉之时亦是187国集团和它的姐妹借贷机构——世界银行筹备召开他们在华盛顿的春季会议之时。鉴于近几个月经济

面貌好转, IMF的常务董事Christine Lagarde说, 她要筹集的资金可能少于1月份提到的5,000亿。

综合来看, 美国经济更强的复苏迹象和欧洲稳定性的提高促使IMF做出2012年世界经济将增长3.5%的预测。三份IMF报告的预测均比新年时发布的报告略为乐观。

有关加拿大劳动力市场突然复苏的“爆炸性新闻”显示企业开始雇佣全职员工。

今年三月份是自2008年9月以来加拿大的就业人数增加最多的月份。渥太华的加拿大统计局4月5日称, 继二月份就业人数下降了2,800人之后, 三月份又上升了82,300人次, 将失业率从7.4%拉低至7.2%。而在这之前, 彭博社(Bloomberg News)采访的经济学家曾预计三月份就业人数将增加10,500人, 失业率将为7.4%。

“这的确是一则重大新闻,” 加拿大多伦多TD证券的宏观战略家Mazen Issa对彭博社记者Greg Quinn说。Issa先生充满信心地预见到, 中央银行接下来的利率政策将“略带强硬色彩”。言下之意是, 令人鼓舞的就业报告可能会导致利率的较早提升。

加拿大统计局称, 三月份加拿大全职雇员增加了70,000人, 兼职雇员增加了12,400人。私人部门约创造了42,600个工作岗位, 公共部门创造了20,900个工作岗位。制造业就业岗位增加11,800个, 截至三月份已连续增长了四个月。丰田汽车公司宣称它将增设约400个新工作岗位, 以提升其位于安大略省伍德斯托克的工厂的产能。

三月份, 加拿大统计局界定为雇员的劳工增加了63,600人, 而自营职业的人数上升了18,800人次。该机构也注意到了薪资增幅。三月份加拿大终身雇员的平均小时工资率比上年同期增长了2.5%。

拿大统计局在另一份报告中称, 二月份建筑许可增加了7.5%, 达到65.1亿加元(折合65.2亿美元), 比经济学家预测的增长率高出2%。非住宅许可激增36.2%, 达到25.4亿加元; 而住宅许可降低了5.3%, 降至39.7亿加元。

电信业

美国大型无线通讯运营商正在争夺更多的无线电频谱。但这是否只是表面需要而非实际需求呢?

“他们都是‘创可贴’, 你必须提供额外的频谱来处理‘伤口’, 满足大容量的带宽需求。”

美国T-Mobile公司联邦监管事务部副总裁Kathleen Ham表达了許多美国大型无线通讯运营商的坚定信念, 即新技术并不足以解决他们的问题, 他们坚信最终他们将需要获取更多的美国无线电波来解决问题。

便携无线电话的发明者 Martin Cooper 并不认同AT&T, Verizon, T-Mobile 和 Sprint等公司关于需要更多无线电频谱(政府分配的传输电话和无线电数据的无线电波频段)的说法。“每隔两年半, 每次的频谱危机都得到了解决, 以后的危机也照样能够解决,” Cooper先生说。“如今我们已经知道接下去50年的解决方案了。”

《国际先驱论坛报》(International Herald Tribune)的Brian X Chen分析了这两种鲜明对立的立场, 以便搞清楚对移动数据的爆炸性需求是否实际上制造了行业内危机; 或者智能手机和平板电脑的连接速度较慢或参差不齐的警告——以及手机服务价

格飞涨——是否言过其实。(《“频谱危机”: 移动运营商称要警惕; 其他人则认为是夸大其词》, 4月17日)。这个问题很重要。思科, 一家网络公司, 发布了一项研究表明2011年美国移动数据使用量翻了一倍还多, 且大量耗费数据的智能手机不断地以飞一般的速度离开货架。但是Chen先生的评论似乎表明与无线通讯运营商们表达的担忧相比, 电磁无线电频谱的威胁并没有那么紧迫。

David P Reed, 互联网的原始缔造者之一和麻省理工学院计算机科学与工程系教授, 指出电磁频谱不是有限的。认为美国将耗尽频谱就好像说它将用完一种色彩一样, 他向《国际先驱论坛报》记者说。

❖ 根据现任SAP实验室(位于加利福尼亚州帕洛阿尔托, 是一家提供商用软件的公司)高级副总裁Reed先生的说法, 频谱之所以被视为有限的, 是因为我们仍然按频率分配它——这是对无线电技术如何运作的一种过时的理解。“我甚至讨厌使用‘频谱’这个词,” 他说。“这是20世纪20年代时对无线电通讯运作原理的理解。”Reed先生说, 现在有更新的传输和接收信号的技术可以使信号互不干扰。这意味着将不再需要分割频段。非技术出身的Chen先生替读者们总结道: “换句话说, 人人都可以分享频段而不会致其枯竭。”

汽车业

模具制造大师已不复存在。技术的持续发展也会终结汽车机械师的角色吗?

《麦克拉奇论坛报》新闻服务中心(McClatchy-Tribune News Service)的一份报道指出, 油猴这一体面的美国职业正在发生变革, 变革以后这个行业将脱胎换骨, 令人难以想象。达拉斯地区的一份报告显示, 从今后五年, 一个汽车技术新手可能更多的是在敲击电脑键盘, 而不是扭动扳手。“到时候我学到的所有东西可能都会过时,” 环球职业技术学院(得克萨斯州欧文镇)一位19岁的应届毕业生似乎很肯定地说。在第五年的关口, 我们被告知, 汽车将能够自动驾驶。(《汽车机械师的角色与技术一道转换》, 4月8日)。

过去十多年, 美国汽车经销商对年轻技工的需求旺盛, 每个技工一年索要的薪资可达到甚至超过70,000美元。在同一时期, 零部件和服务部门创造的收入常常足以支付经销商的大部分管理费用。这种状况并没有改变, 《麦克拉奇论坛报》写道: 至少现在还没有。但是新车质量的显著提高意味着保修期内业务的急剧减少, 而这项业务是服务部门的传统利润中心。大部分店铺保修期内业务订单从原来占每日业务量的70%左右下降到了如今的30%甚至更少。此外——由于现在火花塞可以维持100,000英里里程, 一些合成机油的更换间隔长达10,000英里里程——维护预约之间的间隔延长了。

“工作量减少而复杂性提高, 是我认为未来几年将会发生的事情,” 美国汽车经销商协会(位于弗吉尼亚州麦克莱恩)首席经济学家Paul Taylor对新闻服务中心记者如是说。“将来汽车出问题会更少但更难解决。”

在过渡期间, 经销商为希望延长汽车寿命的车主做更多的维修工作。在达拉斯地区拥有6家经销店的汤姆·杜兰特(Tom Durant)告诉《麦克拉奇论坛报》说——为了削减每月的帐单支出——一些顾客办理了长达84个月的贷款。他们通过购买延长保修期来支付他们在较长的还款期内的维修费用。这为像杜兰特先生这样不怎么关注技术瞬息万变的人们创造了更多的服务工作。“不论你汽车做得有多好, 人们仍然可能把它开坏,” 他说。“[而且]仍会使用不得当。”

Dorothy Fabian – 专栏编辑



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WET DRAWING, SHAVING & CLEANING for aluminium wire.



○ Fuhr – a long tradition in designing and building layer winding machines

Fuhr's new systems

PRODUCERS of flat and shaped wires usually supply their products on reels. When it comes to delivery, the customer's first impression is the optical appearance of the winding quality.

A perfect layer-wise winding is associated with a perfect product. Therefore, in today's wire production the winding quality has gained a high level of importance.

But it is not only these facts are important: A low quality of layer winding can indeed be of major impact on the product quality.

When wires are confusedly wound on reels, it does also have a bad influence on quality aspects such as

straightness, torsion and surface. Moreover, a tangled winding can result in difficulties or even wire breakage when customers unwind the material from the reels.

As a producer of wire rolling mills, the Germany-based company Fuhr also has a long tradition in designing and building layer winding machines.

Fuhr offers a wide range of spoolers in cantilever and pintle design for gross weights from 200kg to 10 tons. The machines are prepared to either be used with reels made of plastic, wood and steel or to create coreless coils by the means of collapsible reels.

The common design base of these spoolers is the concept of a traversing

spool and a fixed wire line. The traversing is computer controlled.

The software provides special features to optimise the laying especially in the reversing points such as edge stop, angle offset and spike. For standard applications the software is self-optimising.

The software controls the spool with highest precision, but it needs a precise wire guiding in addition.

Fuhr has developed two guiding systems to cover the wide range of wires – one for strips and one for rectangular and special shapes.

Karl Fuhr GmbH & Co KG – Germany
Website: www.karl-fuhr.com

Static coiler MS series from Frigeco

DESIGNED to be suitable for both copper and aluminium, Frigeco's MS Series is a versatile stem-pack coiler for any application.

It can be supplied with different head diameters from 630 to 1,000mm and can suit all basket dimensions.

The MS series is supplied with an independent cabinet, to be placed in-line with existing drawing machines. A special dedicated version is a perfect take-up solution for electro-plating lines.

Featuring fully automatic changeover, the Frigeco MS series can be completed by motorised conveyors for both empty and full baskets, customised to customers' needs.

Great attention has been given to the operator's accessibility and space, as well as to the reduction of the set-up time.

Frigeco's machinery range from wire drawing to extrusion and stranding, covers the whole range for the wire and cable industry.

Mario Frigerio SpA – Italy
Website: www.mflgroup.com



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Reels range

GMP Slovakia's range of products includes many different items, starting from normal steel reels, take apart reels and all the equipment suitable to handle reels and coils with standard or special dimensions.

which has strong construction for drawing and stranding steel wire process. The reel is normally supplied with high strength, hardened changeable bushings fixed by screws or by welding points. Many different dimensions are available, starting from 355 to 1,250mm flange.

The application of these products is wide and different. There are items suitable for drawing, buncher and stranding steel, copper or aluminium wire and many of them can be used both for winding and unwinding processes.

GMP Slovakia also manufactures carries to load wire that is used for the production of annealed and galvanised wire. These carries can have a very easy structure, completely manufactured by tubes or can have a big central barrel in bent sheet.

HD-Heavy Duty reels type, for example, can be used for steel wire drawing process and also for payoff process. This reel has a machined barrel to avoid damage to the wound wire, and is dynamically balanced for high speed. It can be supplied with wire accumulator system for continuous process.

Both types are made in welded steel structures and they can be painted or zinc galvanised. These carries can also be used for off-shore cable payoff and have large dimensions, according to customers' specifications.

Another suggested reel for both applications is the MR-Massive Reel,

GMP Slovakia sro – Slovakia
Website: www.gmp-slovakia.com

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A mini-wipe that cleanses bare, fine gauge wire

The new mini-wipe from Cosmos features a Vortex air stream, diamond polished wiping cylinders and exchangeable centring guides.

The machine is dedicated to cleanse bare, fine gauge wire of Ø 0.025 to Ø0.71 mm with air velocity within the air wipe exceeding the speed of sound while consuming only 0.1 to 0.2 cubic feet per minute of compressed air. A line speed of 900 metres/minute has been reported.

A range of exchangeable wiping cylinders and centring guides are available to realise the optimum combination of wiping cylinder and centring guide for the wire diameter customers have in mind.

Cosmos Enterprises Co Ltd – Taiwan
Website: www.cosmos-na.com

Borealis and Borouge launch Borlink and set a new standard

BOREALIS and Borouge, a leading provider of innovative, value-creating solutions for the wire and cable industry, have launched Borlink™, a technology platform offering a complete global package of power materials, experience, knowledge and support.

Borlink™ is a wire and cable industry-wide platform cross-linking the technology, products and expertise to connect networks and grids as well as people and their access to energy.

This is another major innovation, specifically for the wire and cable power industry. It underlines Borealis and Borouge's commitment to the industry as it provides an outstanding resource to help meet the challenges the industry faces in the future.

By establishing Borlink, Borealis and Borouge have elevated their total network of support to a new level by helping to facilitate the linking of different grids and energy sources together both regionally and globally.

Key innovations of Borlink include a tailor-made high pressure (HP) process for the production of high purity and super clean low density polyethylene (LDPE) base polymers with superior electrical properties and the introduction of a closed loop (from monomer to final packaging) which avoids contamination and ensures homogeneous and high quality clean compounds.

Applying these technologies enables Borealis and Borouge to deliver a wide range of material solutions such as their unique Supercure™ cross-linked polyethylene (XLPE) for high productivity, as well as the first globally available solutions for high voltage direct current (HVDC) cable applications.

The value of these innovations was underlined by Frost & Sullivan, who awarded their 2011 Europe Product Leadership Award in the HVDC Insulation Market to Borealis.

By successfully applying their well-known proprietary Borstar® and their new Borlink technologies, Borealis and Borouge have delivered a step change innovation for the plastics industry.

Moreover, in 2010, Borealis completed a major investment of nearly EUR 400 million at its plant in Stenungsund, Sweden, to enhance its capability to provide advanced Borlink materials for the entire wire and cable market.

Benefiting from Borlink technology, cables in use for more than 30 years still perform to today's exacting standards and prove the reliability of Borealis and Borouge's solutions.

Additionally, at the end of their useful life these cables can be fully recycled in combination with standard polyethylene (PE) for a fully sustainable multi-generation life cycle.

"Borlink will ensure the credentials we have built as a reputable and innovative partner to the industry are properly positioned to continue to deliver results in the future," said Marc Hubert, Borealis' vice president wire and cable.

"We are anticipating the step changes that will take place in the power and communications grid world.

"Borlink encompasses all aspects of our business, expertise and service capabilities into one central and coordinated technology powerhouse that will connect with the emerging wire and cable value chain."

Mr Hubert added: "Our commitment to the industry is clearly demonstrated by our continued investment in resources and capacity, linking all areas of the wire and cable world and bringing energy all around."


Borealis AG – Austria
Website: www.borealisgroup.com

Borouge – UAE
Website: www.borouge.com


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Teijin really has got it taped!

Teijin Aramid has a new and improved way of protecting optical fibre cables: Twaron Tape.

Optical fibre cables play an increasingly essential role in today's telecommunications, and their fragile cores need protection from various hazards and strains.

Optical fibre cables are getting smaller and smaller – and at the same time it becomes more difficult to protect the core. Twaron Tape is an aramid fibre matrix construction that enables the production of optical fibre cables with a diameter as small as 1.2mm. Simultaneously, it provides three to five times better crush resistance compared to currently used aramid fibre protection.

The production of thinner cables

using Twaron Tape results to several more advantages compared to current solutions. For example, the production of 1.2mm cables translates into an increased capacity for optical distribution frames of 30-50 per cent (compared with 1.6mm cables). Furthermore, the thinner cables demand less cooling power, thereby cutting costs – and emissions – at distribution centres.

Twaron Tape D2800 is a robust and flexible patented solution that contributes to increased cable production speed, saving valuable time. Twaron's flexibility enables quicker and more convenient installation and handling, with easier stripping and connectorisation of optical fibre cables.

The tape consists of a single, spread Twaron yarn which is impregnated

and fixed with a matrix material. This results in significant saving in space and enables optical fibre cables to be this thin. In order to provide complete coverage and optimal force and crush resistance, it is evenly wrapped around the core of the optical fibre cable.

Christoph Hahn, commercial director at Teijin Aramid, said: "We are one of the early pioneers of reinforcement technology for fibre-optic cables, and as this market has developed, we have gained an in-depth understanding of the market requirements. We are proud to contribute to this industry by offering our knowledge in high performance aramid fibres to our worldwide partners."

Teijin Aramid – Netherlands
Website: www.teijinaramid.com

Extended travel materials testing machine

THE new LS2.5 materials testing machine completes the family of single column instruments from Lloyd Instruments, which also includes the LS1 and recently launched LS5 materials testing machines.

The LS2.5 features 1,400mm crosshead travel and high speed range of 0.01-2,032mm/min, making it ideally suited for testing plastic, rubber and other high elongation materials. From stand-alone operation via the convenient, integral control console to PC-control using Lloyd Instruments' well-respected NEXYGENPlus materials testing software, the LS2.5 is an affordable, easy to use system.

With a force capacity of 2,500N (562lbf) and using high accuracy interchangeable YLC Series loadcells for tension, compression and cycling through zero force measurements, the LS2.5 load measuring system exceeds the requirements of all recognised international standards.

Modern linear guide technology, pre-loaded ball screws and advanced software compensation mean that there is no compromise on mechanical stiffness over the extended crosshead travel range.



○ The LS2.5 from Lloyd Instruments

wide range of standard grips and fixtures, extensometers and software to establish the LS2.5 as a versatile materials testing system capable of making tensile, compression, flexural, friction, insertion/extraction, peeling, tearing and creep/relaxation tests on a vast range of material types and components.

An integral console with a membrane multi-function keypad and easy to read backlit LCD provides stand-alone control and display. The control console displays prompts and menus as well as load and extension information, to guide the user through machine operations. The system is capable of storing up to 600 test results from a choice of 10 programmable test set-ups.

Direct linking to a laptop or PC via a USB interface allows control of the LS2.5 by the powerful and flexible NEXYGENPlus material test and data analysis software. The NEXYGENPlus User Configurable Test functionality complements a comprehensive built-in test standards library, and test information can easily be exported to Microsoft® products.

A small tabletop footprint and large work area combine with a

Lloyd Instruments Ltd – UK
Website: www.lloyd-instruments.com

DCM's new broadband telecom cable test system

DCM INDUSTRIES, a leading worldwide producer of cable test and measurement solutions and now part of Beta LaserMike, has released its new 3S-PCX broadband telecom cable test system and new CATS-3000 shielding effectiveness test system.

Utilising DCM's solid-state-switching platform, the company introduces a new generation of test systems for telecom cables.

The new Model 3S-PCX covers the complete range of applications for telecom cables, from 100 kHz to 100 MHz applications.

Traditional as well as new international telecom cable standards for xDSL and other broadband applications (including ASTM, IEC, ANSI-TIA) can be quickly and automatically tested.

The feature-rich 3S-PCX includes 26-pair/52-pair/104-pair test fixture options, dual impedance features, and updated test reporting.

The new Model CATS-3000 from DCM provides a tri-axial test fixture and test automation software enabling the testing of all three of the standard shielding effectiveness test parameters required for data cables.

Utilising the CATS-3000 test solution, combined with a suitable vector network analyser, cable producers and test laboratories can quickly and efficiently perform shielding effectiveness tests.

In addition to the 3S-PCX and CATS-3000 systems, also available are the following solutions for cable production applications:



○ The new 3S-PCX from DCM

- 3SXLD – comprehensive LAN cable testing solution for Cat 5e, Cat 6, Cat 6a, and Cat 7 cables
- ES-2G – efficient compliance testing of high-performance, individually shielded, twisted-pair (Cat 7 ISTP, S/STP) cables
- SCS-350B – cost-effective compliance testing of high-performance LAN cable and cable assemblies (patch cords)
- RF/COAX – fully integrated test system for high performance coaxial cables
- LF-2000 – twisted pair cable testing solution for analysing capacitance and resistance LCR
- TCL/TCTL – LAN cable testing solution to test Transverse Conversion Loss (CAT 6a)

DCM Industries – USA

Website: www.dcmindustries.com

Roblon introduces anti-rodent glass yarns

In response to the increasing demand for all-dielectric rodent resistant OFC, Roblon has introduced a new glass strength member named Anti-rodent Glass.

Roblon Anti-rodent Glass has been developed in close cooperation with suppliers and customers and tested at a test institute in India.

The Roblon Anti-rodent Glass is a glass strength member coated with a non-toxic, non-hazardous rodent aversive coating.

Tests show that Roblon Anti-rodent Glass changes rodent behaviour over time and attack rate decreases after

one week. The change in behaviour indicates that the rodents learn that OFC with Roblon Anti-rodent Glass tastes bad and therefore they avoid these OFCs. In fact the Indian test institute went as far as to conclude:

“Thus it can be concluded that the repellent effect of the test compounds may dominate gradually and lead to a gradual elimination of the rodent attack over a period longer than the period of exposure used in the current study.”

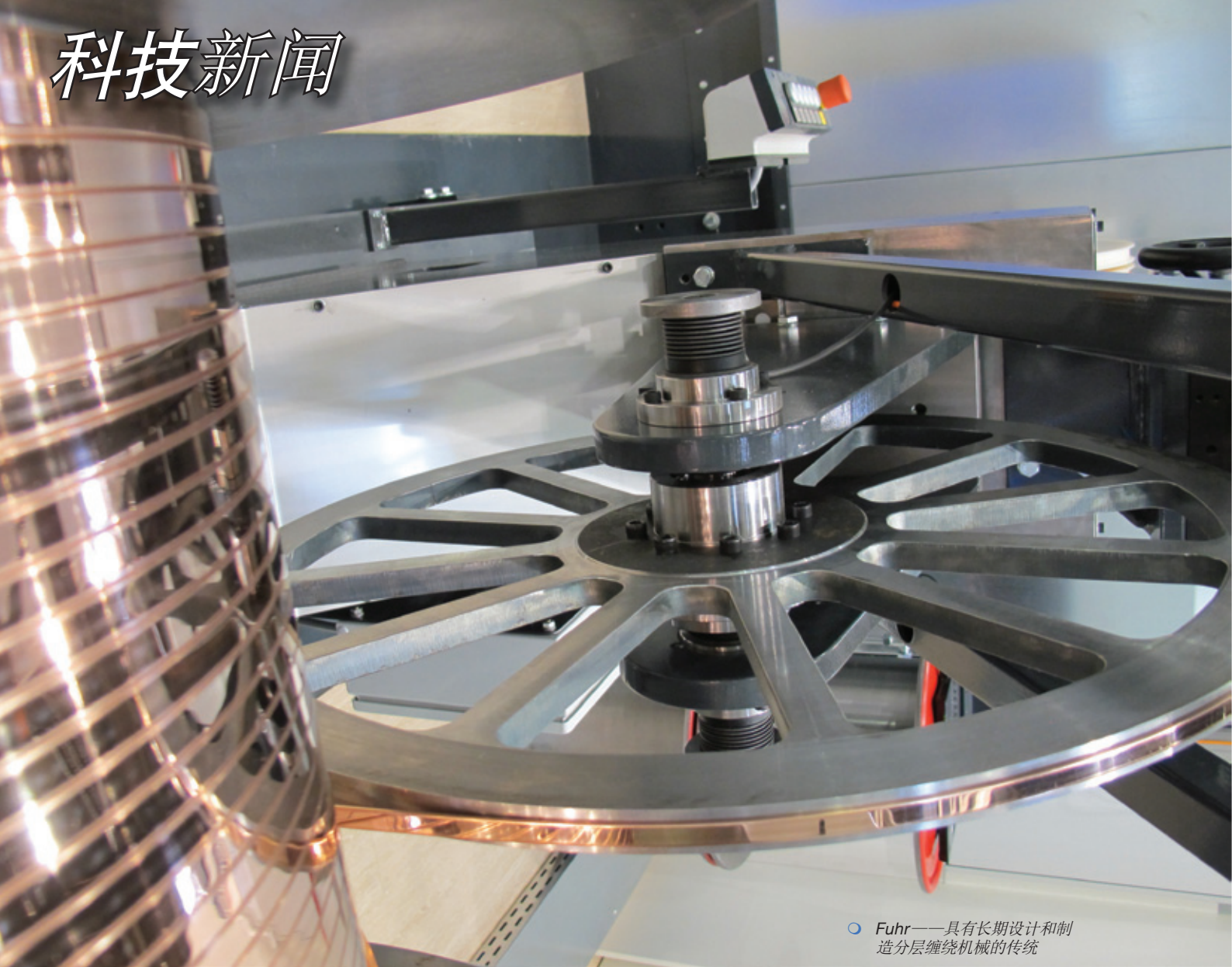
Roblon Anti-rodent Glass is a strength member and rodent protection in one and should be applied as peripheral strength member.

Furthermore, Roblon Anti-rodent Glass offers high wear resistance, thus eliminating possible issues with dust or filaments during production. Five species of rodents were used to test the efficiency of Roblon Anti-rodent Glass compared to other glass strength members.

These five species of rodents are widely distributed and can be considered to represent a wide range of rodents – from the most ferocious to the most docile – that can cause damage to the commercial communication cables.

Roblon A/S – Denmark

Website: www.roblon.com



○ Fuhr——具有长期设计和制造分层缠绕机械的传统

Fuhr的两项定位系统

扁线材和型线材的制造商通常会将线材绕在绕线轮上后供货。交货时，客户的第一印象是其缠绕质量的光学外观。

完美的产品具有完美的分层式缠绕。因此，在如今的线材生产中，缠绕质量的重要性达到了一个更高的水平。

但是重要的不仅仅是这些软事实：低质量的分层缠绕确实会对产品质量产生很大的影响。如果线材被胡乱地缠绕在绕线轮上，对于诸如平直度、扭转度以及线材表面的质量会产生不良影响。

此外，在客户对绕线轮上的材料进行解绕时，混乱的缠绕方式会使该过程变得困难或使线材发生断裂。

作为线材轧制机的生产商，这家德国公司Fuhr也同时具有长期设计和制造分层缠绕机械的传统。Fuhr提供各类悬臂和枢轴设

计的绕卷机，其总重量范围从200千克至10吨。该机器可与塑料、木制和钢制绕线轮一同使用，或通过折叠式绕线轮制造无芯线圈。

这些卷取机的设计基础在于横向线轴和固定金属线。横向运动由电脑控制。该软件提供特使功能以优化线材铺设，特别是在诸如边缘停止、角度偏差和突起处等的换向点。对于标准应用来说，该软件可进行自行优化。

该软件可以最高精度控制线轴，但同时其也需要另外的精确线材定位。Fuhr研发了两项定位系统用以适用于多数线材——一项用于条状材料，一项用于矩形和特殊形状的材料。整体包装是上等品质的证明。

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帝人芳纶(Aramid)研制出了新型保护光纤电缆的改良方法：对位芳纶(Twaron)包裹带。光纤电缆的尺寸变得越来越小——而同时保护芯部的难度却越来越大。对位芳纶包裹带是矩形结构的芳纶纤维，可生产出直径为1.2毫米的光纤电缆。对位芳纶包裹带D2800是一项既稳健又灵活的专利解决方案，它可提高电缆的生产速度，节约宝贵时间。同时对位芳纶的灵活性也可使光纤电缆的安装和处理更为迅速方便，也更易于剥离或连接。

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用于清洁精细测量裸线材的微型擦拭器

Cosmos的新型微型擦拭器的特点在于其装载有螺旋气流、钻书抛光擦拭气缸以及可替换的中心定位系统。

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新型LS2.5材料测试机使Lloyd仪器的单柱仪器系列变得完整,同时它也包含了LS1和最新发布LS5材料测试机。LS2.5拥有1,400毫米的十字型运动路线和每分钟0.01至2032毫米的高速范围,这使其适用于测试塑料、橡胶和其他延伸度较高的材料。通过经由完整简便的控制台转向采用了Lloyd仪器口碑极好的NEXYGENPlus材料测试软件,这项独立操作使得LS2.5易于驱动系统并且经济实惠。

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绕线轮种类

斯洛伐克GMP的产品种类包含了很多不同的项目,从普通钢制绕线轮、拆分式绕线轮以及所有适用于标准或特殊尺寸绕线轮和线圈的设备。

这些产品的应用广泛且各不相同。使用的对象包括钢制、铜制或铝制线材的收线、捆扎以及合股,并且其中的大多数可同时用于缠绕和解绕工序。

例如HD,即重型绕线轮可用于钢制线材的收线工序,也可用于放线工序。该绕线轮具有一个机械加工的滚筒,用以避免散绕线材受到损坏并保持高速下的动态平衡。其也可装备线材储备器或系统用以再加工。另一个具有两项应用的推荐绕线轮是MR,即大型绕线轮,其具备钢制线材

拉丝和合股工序的坚固结构。该绕线轮一般具备高强度、用螺丝或焊接点固定的可替换型坚硬套管。从355到1250毫米轮缘,该绕线轮具有很多不同尺寸。

斯洛伐克GMP(GMP Slovakia)同样也是线材装载的运载工具的制造商,用于煅烧和镀锌线材的运载。这些运载工具具有非常简单的结构,完全由管道制成或在弯曲薄板上装有大型中央滚筒。

这两种类型的绕线轮都为钢铁焊接结构,其表面可进行喷漆或镀锌。这些运

载工具也可用于近海电缆放线或根据客户需要定制大尺寸。

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○ 部分斯洛伐克GMP产品种类



21ST
Anniversary

Wire & ASIA
CABLE 线缆

Wire & Cable ASIA: celebration time

IT is with no apology that we spend the next few pages of this issue congratulating ourselves.

We have achieved our 21st anniversary and it's with justifiable pride that we can tell our subscribers, advertisers and readers about reaching this notable milestone.

Our founder, John C Hogg, proudly proclaimed in his first editorial in the February 1992 issue: "only Wire & Cable ASIA provides this industry with a regular technical publication reviewing and reporting on all aspects of wire." Since then we have done our utmost to uphold this.

The blossoming Asian market was quickly seized upon by Mr Hogg with the introduction of Wire & Cable Hong Kong exhibition in 1993 and then, two years later, wire Singapore – both exhibitions that led to the success of Wire & Cable ASIA.

Mr Hogg, who was also co-founder of the International Wire and Machinery Association, formed Intras Ltd in 1984, publishers of sister wire publications EuroWire and e-zine wiredInUSA. That very first issue in 1992, then published

quarterly, became a bi-monthly magazine in November of 1993.

Since the first issue – and in keeping with changes in publishing – Wire & Cable ASIA has been transformed over those 21 years. Advances led to the magazine going 'full colour' in 2007, launching its first website in 1991 and then joining the social networking sites Facebook and Twitter in 2010.

All of this has been done through a team of multi-national and multi-lingual staff dedicated to making Wire & Cable ASIA the trusted source for news and information in the wire and cable industries.

The fact that so many of the original advertisers remain with us today is testimony to that hard work and the relationships that have been built over the years.

Ensuring that the family tradition continues within the company, Mr Hogg's daughter and our publisher, Caroline Sullens, has written her own foreword to accompany that of her father's from 21 years ago.



1990-91

Creation of WCA
(1st media pre-launch)



1991

1st WCA
website

1992

1st issue
published



1993

Wire & Cable
Hong Kong launched

1992



ASIA MEANS BUSINESS

With a population in the region of two thousand million and investments in joint ventures manufacturing and production operations increasing at a rate far in excess of USA or Europe the Asian market will, for the foreseeable future, be the forerunner

in production and consumption of many of the products represented by the wire and cable industries.

Although there are no less than nine publications serving with wire and cable industries in Europe and the USA, only Wire & Cable ASIA provides this industry with a regular technical publication reviewing and reporting on all aspects of wire, cable, rod, rope, wire products, spring making, fasteners and similar precision parts made from wire within the geographical areas of North and South East Asia and Pacific Rim nations.

Perhaps most important is that the publishers of Wire & Cable ASIA are supported by over 30 years' experience

in our industry, and with regional offices in most Asian countries where the strength of the circulation and readership of WCA will prevail. This qualified commitment will bring to these industries a unique and informative publication, printed in the principal languages used in the technical industries with Asia, being English, Japanese and Chinese.

We take this opportunity to welcome our readers in all South East hemisphere countries and applaud those companies who have the foresight to support our free distribution journal with advertising and gain the advantage of promoting their products and services to this rich and progressive market development area.

Thank you for reading Wire & Cable ASIA and make sure you or your colleagues receive future copies by completing the free reader registration form contained in this and subsequent issues.

Sincerely,
John C Hogg,
Publisher

2012



IMPORTANCE OF GUANXI

Working alongside my father during the creation and launch of the first edition of Wire & Cable ASIA magazine back in 1992, I should have known then that his incredible business foresight was already hard at work – he had a nose for these

things, reaching into newly emerging markets and establishing a presence there for our industry.

In Asia at that time, he was developing this networking further by producing the international trade show 'Wire & Cable Hong Kong' in 1993 and then two years later he created the hugely successful 'wire Singapore 1995' – a uniquely-timed international trade show whose concept was eventually passed on to Messe Düsseldorf GmbH and is currently staged by them in Bangkok, Thailand. Both of these trade fair events were fundamental in establishing the ground-breaking success of Wire & Cable ASIA magazine.

What my father understood was that successful business relationships in Asia are cultivated by developing strong personal contacts. The logic behind this is simple. In highly centralised, bureaucratic states, the honourable business relationship is more valuable than the end transaction.

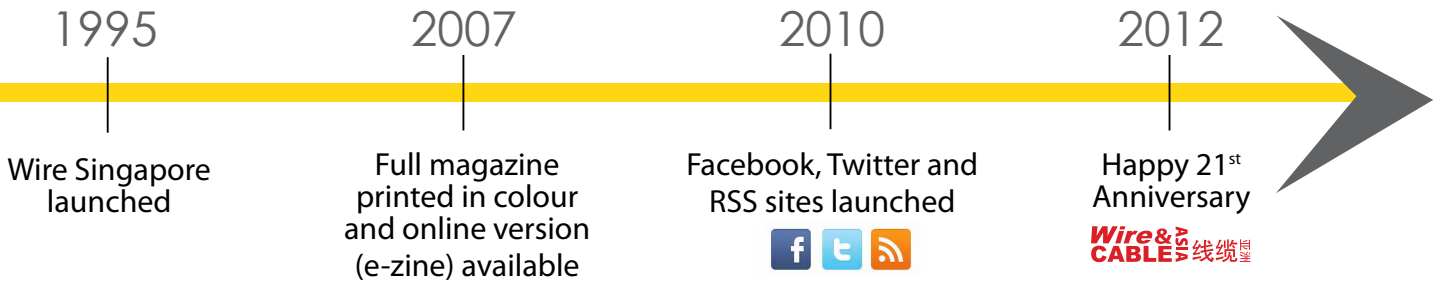
This logical development of such close relationships is the Chinese concept of 'Guanxi'. Virtually all successful

transactions in China result from careful cultivation of 'Guanxi' with the Chinese partner by the foreign one, until a relationship of trust evolves.

This was one golden hint my father passed on to me and last month, while turning the pages back through the 21 year-old first ever issue of WCA, I came to the advertisers index page and I smiled when I read through the list of auspicious company names. These were companies who also applied this foresight and as a result gained the early advantage of doing business within this fast growing economy. You may know some of them – you can still see them advertising today; Boxy SpA, Caballe, Fort Wayne Wire Die Inc, Gauder, Goodwin & Sons, The ICE Group, Microdia SA, Pourtier, Queins & Co, Ridgway & Co, Sikora, Sket GmbH, August Strecker, Tensor, Thermoplastics Engineering, Joachim Uhing, Wardwell and Wire & Plastic Machinery Corp.

Over the following 21 years, with the commitment of these companies and our long-term loyal readers, Wire & Cable ASIA magazine has developed into the essential business read for Chinese and English-speaking wire and cable technologists across north and south-east Asia.

Thank you for your many messages of support and congratulations, and we look forward to providing our clients and readers, old and new, with another 21 years of Wire & Cable ASIA.



What do they say about the magazine?

MARIO FRIGERIO



“Our operations with WCA have been effective in helping to extend message of our activities worldwide”

DECALUB



“Content is most important with wire companies and Wire & Cable ASIA consistently covers all interesting aspects of the industry”

ITO-SIN



“We have spent ten years working with WCA. We have always had a good relationship with the magazine and this has worked well for us”

FAINPLAST



“It is very important in order to make our brand known around the world and Wire & Cable ASIA plays an important role in that”





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Effect of Boron alloying on microstructural evolution and mechanical properties of high carbon wire

By Emmanuel De Moor, Advanced Steel Processing and Products Research Centre, and Walther Van Raemdonck, NV Bekaert SA

Abstract

Boron alloying is frequently applied in low carbon steel to tie up free nitrogen and prevent strain aging resulting in improved (torsional) ductility of wire products. The present contribution investigates boron alloying effects in high carbon (0.80 wt pct) steels. Laboratory heats were prepared with boron to nitrogen ratios of 1:1 and 2:1 in addition to a reference heat.

The material was hot rolled, drawn, patented and further drawn to 1mm. Mechanical properties were assessed along with microstructural characterisation at each intermediate stage. Limited effects of boron alloying on mechanical properties are apparent.

Introduction

Electric arc furnace steelmaking is increasingly employed, especially in North America, for steel making operations of long products.

The substitution of rimming steel by continuous cast electric arc furnace (EAF) steel imposes challenges on meeting product quality requirements in particular with respect to (torsional) ductility.

This relates to the inherently higher nitrogen content of EAF steel.

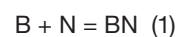
If the nitrogen is mobile, it can cause strain aging resulting in increased work hardening and reduced ductility of the wire product¹.

Significant research has been conducted to reduce the free nitrogen content of low carbon wire rod grades by alloying with micro-additions of eg boron, vanadium or niobium.¹⁻⁶

Boron alloying of high carbon steel has received less attention⁷ and is the focus of present research.

Experimental Procedure

Boron can combine with nitrogen to form boron nitride according to



and stoichiometry corresponds to a B:N ratio of 11:14 or 0.79 given the atomic weights of boron and nitrogen.

Three alloys, with a carbon content of 0.80 wt pct, were designed in current research to have a reference alloy, an alloy with boron and nitrogen in a stoichiometric ratio and one superstoichiometric alloy with a B:N ratio of 2:1. The latter steel enables a study of the effect of the additional "free" boron on microstructural development and properties.

○ **Table 1:** Chemical composition in wt pct of the laboratory prepared steels

	C	Mn	Si	Cr	B, ppm	N, ppm
Base	0.78	0.48	0.25	0.20	-	42
B	0.82	0.46	0.23	0.20	62	43
High B	0.76	0.47	0.23	0.20	98	41

The compositions of laboratory prepared ingots are shown in *Table 1* and it should be noted that the ratios in the as-cast compositions were somewhat higher than designed, namely 1.44 and 2.39 respectively in the B and High B alloys. Free boron may hence also be present in the B alloy.

The ingots were hot rolled on a hand charged rolling mill with reheating done at 1,176°C and reduction carried out in three steps on two hot rolling mills.

Initially the bars were reduced from 12.7 to 9.5cm round corner square (RCS) followed by air cooling to room temperature, reheating and rolling to 4.76cm.

The material was then machined to remove oxides and cut in 6 – 7 blocks. Final reduction was carried out on a second hot rolling mill to a final size of 7.1mm.

The material was ambient air cooled after hot rolling. The material was then saw-cut to 3.7m lengths, prior to drawing. Twenty-four sections were obtained for each alloy.

Although Thermo Calc® thermodynamic calculations predicted a potential for hot shortness in the High B steel, no breakage or significant surface defects were observed.

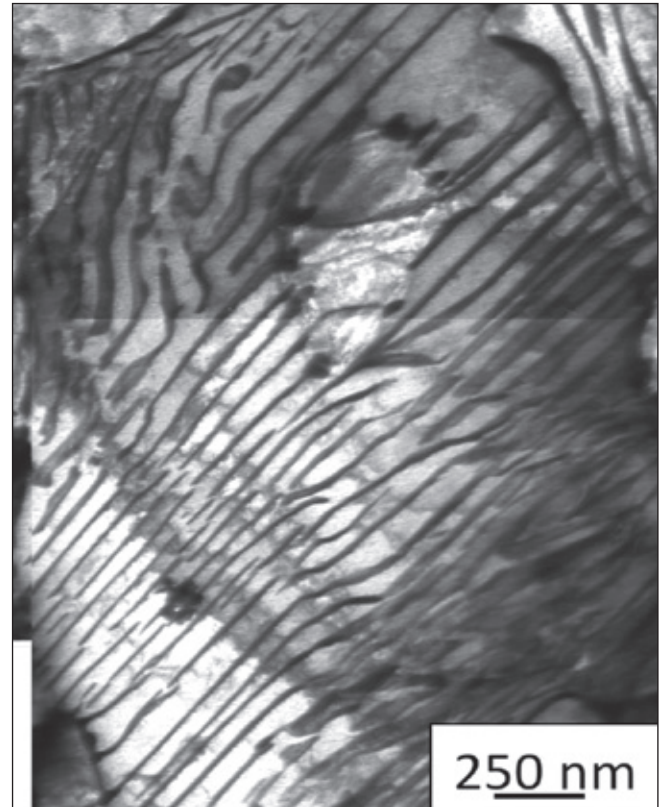
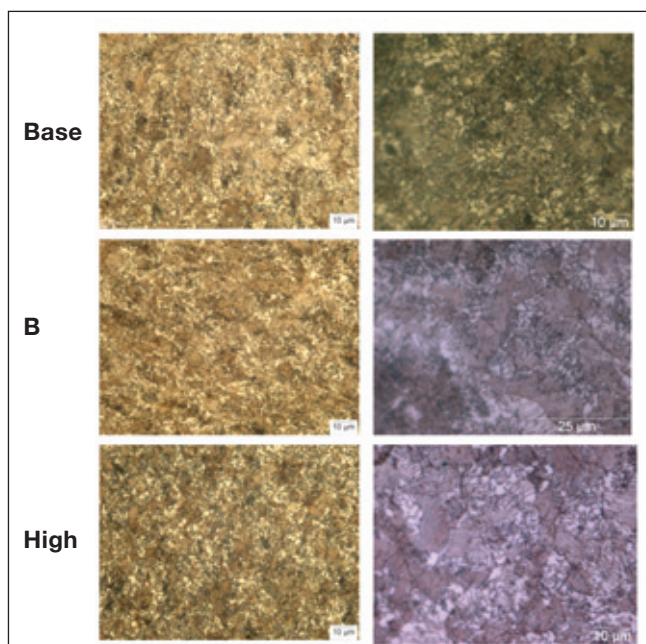
As significant decarburisation was observed,⁸ the material was centreless ground to 5.5mm diameter.

The hot rolled rods were then assessed for carbon segregation and only those rods with a carbon content of 0.78 ± 0.01 wt pct were retained for further wire drawing.

Wire drawing was carried out at the Bekaert Technology Centre and involved reduction to 2.5mm diameter in eight drawing steps.

Patenting was then conducted in salt baths with reheating at 980°C followed by 520°C.

○ **Figure 1:** Light optical micrographs of hot rolled rods Base, B and High B steels. Samples taken transverse to the rolling direction, in the centre of the cross section, 4% Picral etch



○ **Figure 2:** Transmission electron micrograph of the hot-rolled and air cooled high B material

The patented wire was then further drawn to 1mm.

Tensile testing was conducted on an electro-mechanical tensile machine at a constant strain rate of $5.6 \cdot 10^{-4}$ /s, with a 5cm 50% extensometer.

Two samples were tested for each condition. Uniform strains were determined as the engineering strain at the peak load used for UTS calculations, and total strains to failure were obtained from the extensometer output at final fracture.

All samples were observed to fail within the specified extensometer gauge length unless otherwise stated.

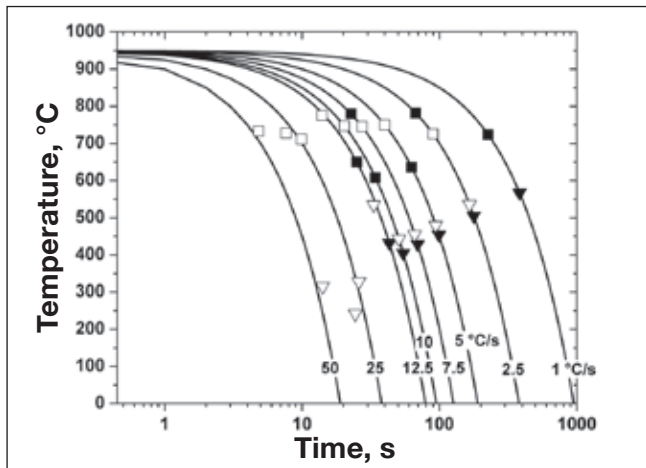
Microstructural characterisation was done by light optical microscopy on 4% Picral etched samples and by transmission electron microscopy (TEM) on a Philips CM120 instrument operating at 120kV.

Thin foils were electropolished with a Fischione twin-jet polisher operating at 32V at room temperature, using a mixture of 95 pct acetic and 5 pct perchloric acid.

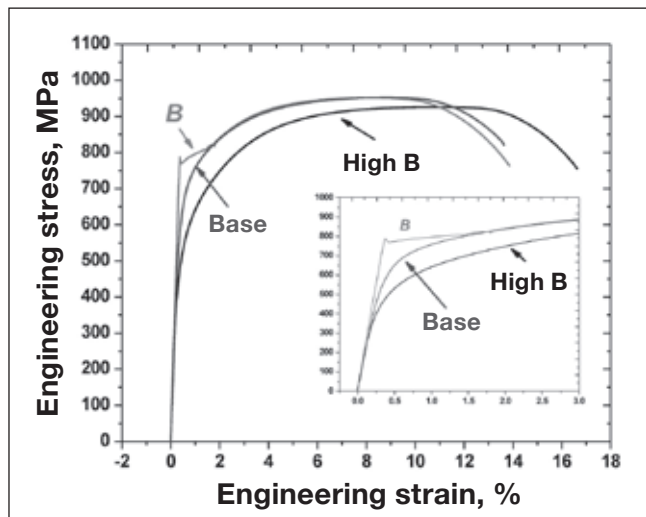
Dilatometry was carried out on a Gleeble® 1500 system. Samples were reheated to 950°C at a constant heating rate of 20°C/s and held isothermally for five minutes.

The steel was then cooled in helium gas at programmed constant cooling rates of 50, 30, 25, 12.5, 10, 7.5, 5, 2.5 and 1°C/s, respectively.

Consecutive tests were conducted on a single specimen per alloy. The dilation of the sample was monitored with temperature and time.



○ **Figure 3:** Transformation start (squares) and finish (triangles) temperatures for different constant cooling speeds. Filled symbols: base alloy and open symbols: B steel



○ **Figure 4:** Stress-strain curves of the hot-rolled rods

Results and Discussion

Light optical micrographs taken in the middle of the cross section of the hot rolled rods are given in *Figure 1*.

Pearlitic microstructures are evident. Pro-eutectoid constituent networks were not observed.

TEM was conducted on the super-stoichiometrically alloyed steel to evaluate the effect of free boron on microstructural evolution and a representative TEM micrograph is shown in *Figure 2*.

Martensite was not detected, perhaps suggesting that the free boron did not increase hardenability. Boron is known to strongly increase hardenability in low carbon steels⁹.

This effect has, however, been reported to be less pronounced in high carbon steels^{10, 11}.

In order to assess the alloying effect on hardenability, dilatometry was conducted on the base and B alloy as discussed in reference 12.

It was shown that the boron alloying resulted in decreased hardenability as shown in *Figure 3* where transformation start and finish temperatures are shown for the Base and B alloy on a temperature as a function of time plot. Various constant cooling rates were investigated as shown.

At cooling rates of 25 and 50°C/s, martensite transformation was the only austenite decomposition mechanism detected in the Base alloy whereas pearlite transformation was observed in the B steel. In addition, the B steel exhibited a larger pearlite transformation region.

Stress-strain curves and tensile properties of the hot rolled rods are given in *Figure 4* and *Table 2*.

The Base and B steels exhibit very similar stress-strain behaviours albeit that the B steel exhibits a yield point elongation (YPE) whereas the Base steel exhibits continuous (ie smooth, “round-house”) yielding.

The occurrence of YPE might be somewhat unexpected as the alloy was designed to have nitrogen tied up to boron and the YPE should hence not result from “free” nitrogen strain aging. The behaviour hence presumably relates to carbon strain aging.

It should be recognised that the rods were straightened at room temperature following hot rolling, and non uniform strain during straightening may have led to removal of YPE in some cases. Similar tensile strengths and elongations were obtained in the Base and B steel.

The High B steel exhibited lower strength values; smooth yielding is observed at lower strengths compared to the other steels and an ultimate tensile strength value lower by about 25 MPa was obtained. This strength difference cannot be ascribed to carbon as samples with the same carbon content were selected for testing. A higher tensile elongation was exhibited by the High B steel.

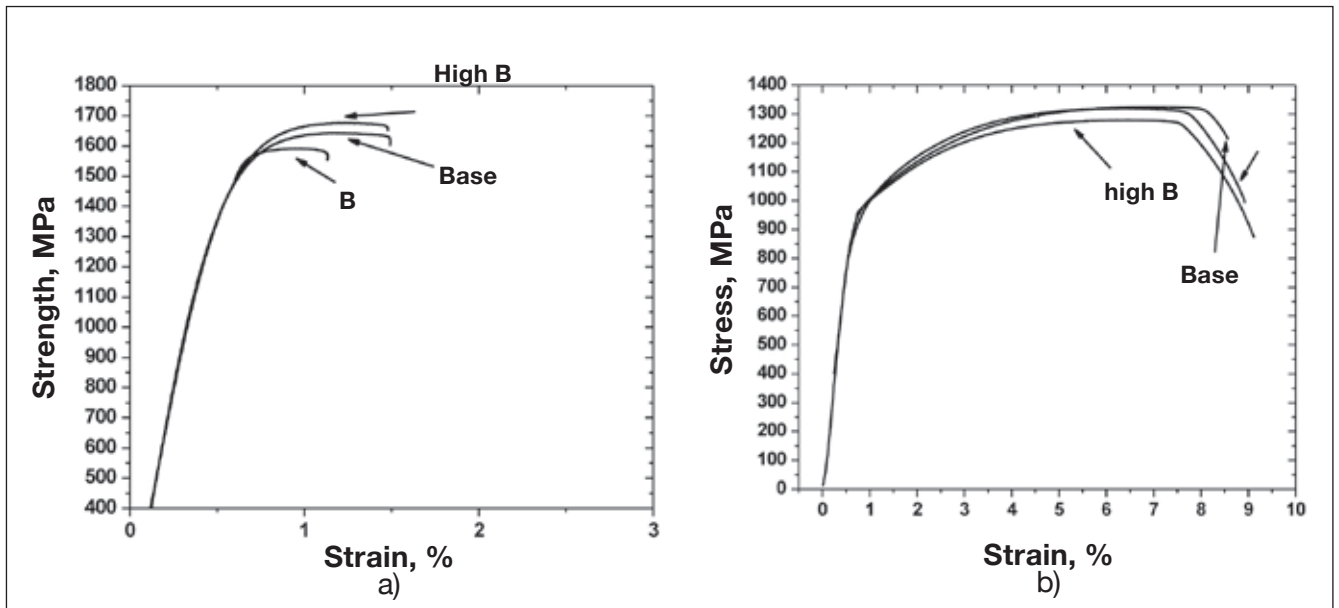
It is interesting to note that reduced tensile strength with boron alloying is in agreement with earlier work on low1

○ **Table 2:** Tensile properties of the hot-rolled rods

	UTS, MPa	UE, %	TE, %
Base	952	9.4	13.7
B	951	8.2	13.9
High B	926	11.2	16.6

○ **Table 3:** Tensile properties Ultimate Tensile Strength (UTS), Uniform Elongation (UE), and Total Elongation (TE) of the wires drawn to 2.5mm and patented at 2.5mm

		UTS, MPa	UE, %	TE, %
Drawn to 2.5mm	Base	1644	1.2	1.5
	B	1592	1.0	1.1
	High B	1677	1.2	1.5
Patented at 2.5mm	Base	1324	7.3	8.6
	B	1317	6.7	8.9
	High B	1277	6.7	9.1



○ **Figure 5:** Stress-strain curves of wire a) drawn to 2.5mm and b) patented at 2.5mm

and high7 carbon steels and is also in agreement with increased hardenability observed in the dilatometry study.

Increased pearlite transformation kinetics may lead to increased lamellar spacing and/or coarser pearlite. One might also argue that the reduced strength level may be related to reduced solid solution strengthening. It should however be recognised that the B alloy does not exhibit strength reduction compared to the Base.

It has been suggested previously that the strength reduction relates to an alloying effect on the austenite to ferrite¹ or pearlite¹¹ transformation.

Mechanical properties following wire drawing to 2.5mm diameter are given in *Figure 5a* and *Table 3*.

In the drawn condition, the B steel exhibits the lowest tensile strength and elongation, the High B steel exhibits the highest tensile strength and higher elongation compared to the B steel.

The Base steel exhibits similar uniform and total elongation compared to the High B steel albeit at a lower tensile strength. It should be recognised that failures occurred at the tensile grips which likely influenced the total elongation values.

Tensile properties obtained after patenting at 2.5mm diameter are given in *Figure 5b* and *Table 3*.

Similar tensile strengths are obtained in the Base and B steel whereas the High B steel exhibits an ultimate tensile strength lower by about 50 MPa.

This lower strength value may again be related to increased austenite decomposition kinetics. Slightly higher total elongation is obtained for both boron containing steels.

The patented wires were subsequently drawn to 1mm diameter in consecutive passes and resultant tensile properties in addition to number of twists to failure (Nt) and number of reverse bends (Nb) are given in *Table 4*.

A decrease in tensile strength with boron alloying is again apparent along with a slight increase in uniform and total elongation. The number of twists to failure is however not altered by the alloying whereas a slight decrease in number of reverse bends is observed with increased boron levels.

In order to assess aging response of the 1mm drawn wire, isothermal aging was conducted at 150°C for one hour and the results are given in *Table 5*.

A tensile strength increase by about 170MPa is obtained whereas tensile elongations are reduced to 0.4% uniform and 1.5% total elongation. Similar elongations were obtained in all alloys.

Similar twists to failure were again observed in all alloys albeit at lower levels as for the unaged material.

The trend of reduced reverse bends with increased boron levels is again observed in the aged condition and about one bend less is obtained in the aged condition versus the unaged condition for all steels.

This suggests that the boron alloying does not affect ductility significantly at the levels of nitrogen investigated.

It should be noted that the nitrogen levels of the present heats of approximately 40ppm are on the lower end of industrially produced material.

Conclusions

The effect of boron alloying of 0.80C steels to tie up “free” interstitial nitrogen was investigated.

Heats with B:N ratios of 1.4 and 2.4 in addition to a base alloy without boron were laboratory prepared, hot-rolled, drawn, patented and further drawn to a final diameter of 1mm.

Microstructural characterisation was conducted and tensile properties were assessed.

	UTS, MPa	UE, %	TE, %	Nt	Nb
Base	2106	1.1	2.1	41	12
B	2096	1.3	2.4	42	11
High B	2087	1.4	2.5	41	9

○ **Table 4:** Tensile properties Ultimate Tensile Strength (UTS), Uniform Elongation (UE), and Total Elongation (TE) of the wires drawn to 1mm after patenting

	UTS, MPa	UE, %	TE, %	Nt	Nb
Base	2263	0.4	1.5	35	11
B	2283	0.4	1.5	36	10
High B	2257	0.4	1.5	36	8

○ **Table 5:** Tensile properties Ultimate Tensile Strength (UTS), Uniform Elongation (UE), and Total Elongation (TE) assessed following aging at 150 °C for one hour of the wires drawn to 1mm after patenting

Limited effect of boron alloying was apparent at the investigated nitrogen levels on wire properties in particular torsional ductility.

Reduced ultimate tensile strength was observed in the High B steel.

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高碳钢丝中硼合金对其显微结构及力学性质的影响

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摘要

在低碳钢铁中，我们经常加入硼以固定游离氮并防止应变老化，一种会增强钢丝产品延展性的情况。这份研究讨论的是在高碳（0.80 wt pct）钢丝中硼合金的影响。除了参考热之外，我们按照1:1和2:1的硼氮比例准备实验室供热。我们使用热轧，热拉的方式加工原材料，并进一步将其直径拉为1毫米。在中间的每一个环节中，我们都对力学性质和微观结构性质进行了测定。明显的结论是，硼合金在钢丝中对其力学性质的影响十分有限。

简介

电弧炉炼钢法在长材钢铁的生产领域中正得到了逐渐广泛地应用，尤其是在北美地区。电弧炉炼钢（EAF）法替代沸腾炼钢法的趋势为制造质量合格的产品带来了挑战，尤其在延展性方面。这一问题的产生与EAF钢自身较高的含氮量有关。如果钢铁内的氮原子是流动的，这将会导致应变老化。应变老化会导致线材产品出现加工硬化，延展性变差的情况。有一项著名研究表明，在低碳钢材中加入微量硼，钒或者铌将会降低游离氮的含量。在高碳钢铁中添加硼合金的研究相对而言关注的较少，因此这也成为了本研究的关注点。

试验程序

硼原子和氮原子根据 $B+N=BN$ 的形式组成氮化硼。并且，根据硼原子和氮原子的原子质量，硼与氮的化学计量比为11:14或者0.79。在本研究中，我们采用了三种含碳量为0.80 wt pct的合金，一种为参照合金，一种为硼氮比为1:1的钢材，一种为超化学计量比的合金，硼氮比为2:1。后一种钢材能让我们对过量游离硼对微观结构变化和力学性质的影响进行研究。在表1中，我们将实验准备的铸锭成分进行了展示，并且，我们必须注意在标准硼含量和高硼含量的合金中毛坯铸件的硼含量要高于设计值，即1.44和2.39这两个数值。因此，在标准硼含量合金中也存在着游离硼原子。

我们在1176°C下，使用一台手控轧板机对铸锭进行热轧，并在两台热轧板机上分三步进行压缩。首先，我们将板的圆角方值（RCS）从12.7厘米压为9.5厘米，接着空冷至室温，再加热并再次轧至4.76厘米。然后将材料去除氧化物并切割成6至7块。在第二次热轧后，最后材料压缩为7.1毫米。在每次热轧后，材料都由环境空气进行降温。接着，材料在拉

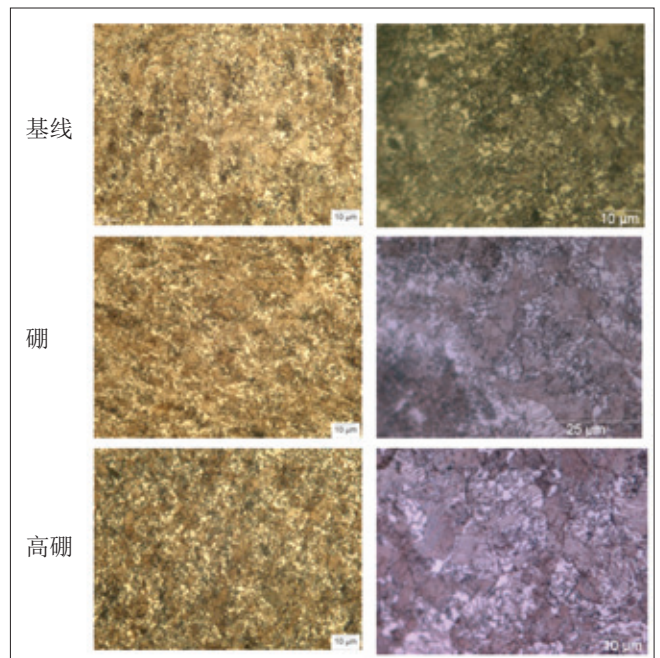


图1: 基线组，硼钢材组以及高硼钢材组热轧棒的光学显微结构图。样品按照横向滚动方向列出，所取部分为横截面的中心部分，4% Picral侵蚀面

伸前，我们按照3.7米的长度进行切锯。每一块合金都要经历24个步骤，尽管热力学动力学计算预测在高硼钢铁中会出现热缺失现象，但是没有观察到破损或者显著缺点情况。由于我们观察到显著的脱碳现象，铸锭变成无心状态，直径变为5.5毫米。接着对热轧棒进行碳偏聚测试，而且只有那些碳含量在 0.78 ± 0.01 wt pct才继续进行拉丝操作。

我们在贝尔卡特技术中心进行钢材拉丝工作并分八个步骤将铸锭拉成2.5毫米直径的钢丝。接着在盐浴中进行拉后退火，将980°C降至520°C。拉丝然后进一步拉成直径为1毫米的线材。

我们在一台使用5厘米50%延伸仪的机电拉伸机器以稳定应变率 $5.6 \cdot 10^{-4}$ /s进行拉伸试验测试。在每一个条件下对两个样品都进行了测试。稳定的应变值在这里被确定为UTS计算中

表1: 实验室准备钢材的化学组成百分比图

	碳	锰	硅	铬	硼, 百万分之一	氮, 百万分之一
基线	0.78	0.48	0.25	0.20	-	42
硼	0.82	0.46	0.23	0.20	62	43
高硼	0.76	0.47	0.23	0.20	98	41

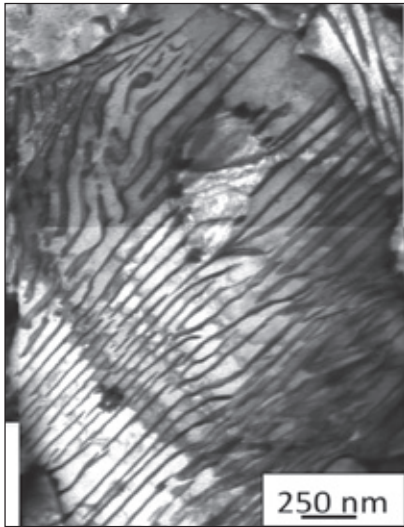


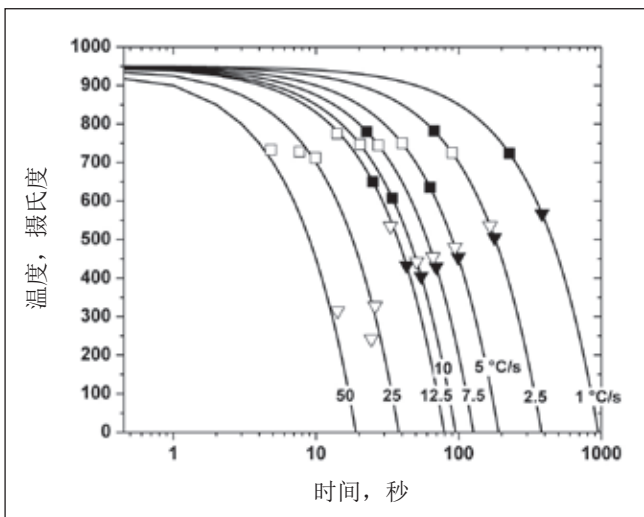
图2: 空气冷却后高硼钢热轧棒的透射电子显微图像

使用的峰值工程应变率, 并且通过延伸仪在最后断裂时的输出数据得到了累积损坏应变总值。除特殊声明的情况外, 所有的样品都在特定的延伸仪延伸长度内测试其损坏应变值。我们使用4% Picral蚀刻样品在光学显微镜下以及飞利浦CM120仪器在120千伏电压下使用透射电子显微镜进行微观结构性质观察。我们在室温32V电压下使用Fischione双喷嘴磨砂机对薄泊进行电抛光操作, 使用的是95%乙酸以及5%的高氯酸溶液。我们使用热加工模拟实验机1500系统进行膨胀测定。我们对样品以每秒20°C的恒定加热速率加热至950°C, 并恒温5分钟。然后分别以50°C、30°C、25°C、12.5°C、10°C、7.5°C、5°C、2.5°C和1°C每秒的恒定冷却速率在氮气中进行冷却。然后对每一个个体合金样本进行后续测试。我们使用温度和时间参量对样品的膨胀率进行测定。

结果和讨论

在热轧板的横截面上进行的光学显微测试的数据记录在了表格1中-实验室准备钢材的化学组成百分比图。图片珠光体组织是十分明确的。没有发现先共析体构成网络。在超化学剂量合金钢铁组中, 我们进行了TEM测试以评估自由氮原子对钢铁微观结构的影响, 而且, 在图表中列举了一组具有代表性的TEM微观图。我们没有检测到马氏体, 这也许暗示着自由硼原子并没有增加钢材的硬化性。硼原子以其能在低碳钢材中大幅度增强硬化性而著称。然而, 这一效果在高碳钢材中要相对弱得多。为了对合金在钢材硬化性上影响进行评定, 我们按照参考文献上的方法对基线组以及硼合金组进行膨胀测定。如图表所示, 硼合金会导致形变发生处的硬化性能下降。另外, 基线组和硼合金组的温度与时间的数据关系也在图表中得到了展现。许多稳定冷却速率下的钢材应变变表

图3: 不同冷却速率下转变起始和结束时的温度。实线: 基线合金组 虚线: 含硼钢组



	最终拉伸强度, 兆帕	平均延伸, %	总量延伸, %
基线	952	9.4	13.7
硼	951	8.2	13.9
高硼	926	11.2	16.6

表2: 热轧棒的拉伸强度性质

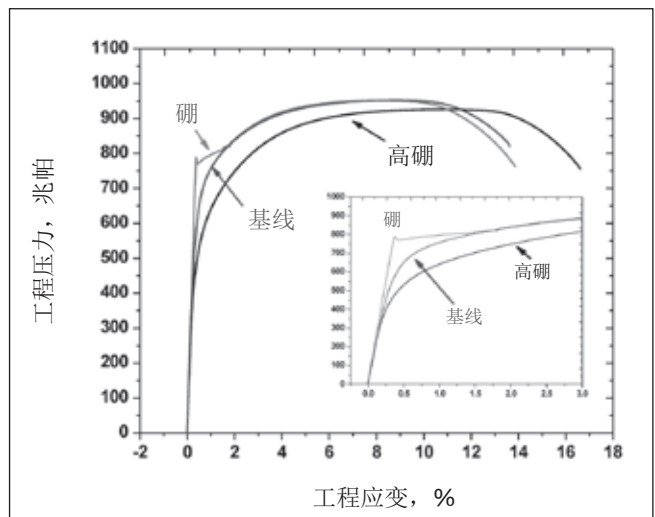
		最终拉伸强度, 兆帕	平均延伸, %	总量延伸, %
拉丝至直径为2.5毫米	基线	1644	1.2	1.5
	硼	1592	1.0	1.1
	高硼	1677	1.2	1.5
在2.5毫米进行拉丝退火	基线	1324	7.3	8.6
	硼	1317	6.7	8.9
	高硼	1277	6.7	9.1

表3: 拉丝后直径为2.5毫米钢材与拉丝退火后直径为2.5毫米钢材在最终拉伸强度(UTS), 平均延伸(UE)以及总量延伸(TE)条件下的拉伸属性

现在图表中都得到了研究。在25°C和50°C的冷却速率条件下, 基线组中唯一发现的奥氏体分解机理为马氏体相变, 而在硼合金组中却发现的是珠光体组织形变。另外, 硼合金钢铁组的珠光体形变区域相对更大。在图像和图表2中展现的是热轧钢的应变曲线以及延伸性质。基线和B钢铁在应变表现上相当, 尽管硼合金钢铁出现屈服点伸长情况(YPE), 而基线钢材组则表现出连续屈服。(例如, 平滑, 圆弧的曲线)YPE的出现可能是原先没有预料到的, 因为合金的设计初衷是将氮原子与硼原子进行连接, 因此YPE产生的原因应该不是自由氮原子所造成的。因此我们可以据此推测这一情况的产生与碳原子应变老化有关。我们必须承认的是在热轧操作后, 钢棒是在室温条件下进行校直, 并且在校直过程中非标准应变可能会导致YPE的消失。在基线和硼合金钢材两组中, 拉伸强度和伸长率的数据结果是相似的。

高硼钢材组的延展性质相对较弱; 相对于其它钢材而言, 其下屈服强度上的屈服表现更光滑, 并且最终拉伸应力降低了大约25MPa。这个差别的产生不能归为碳含量上的不同, 因

图4: 热轧棒的应力应变曲线



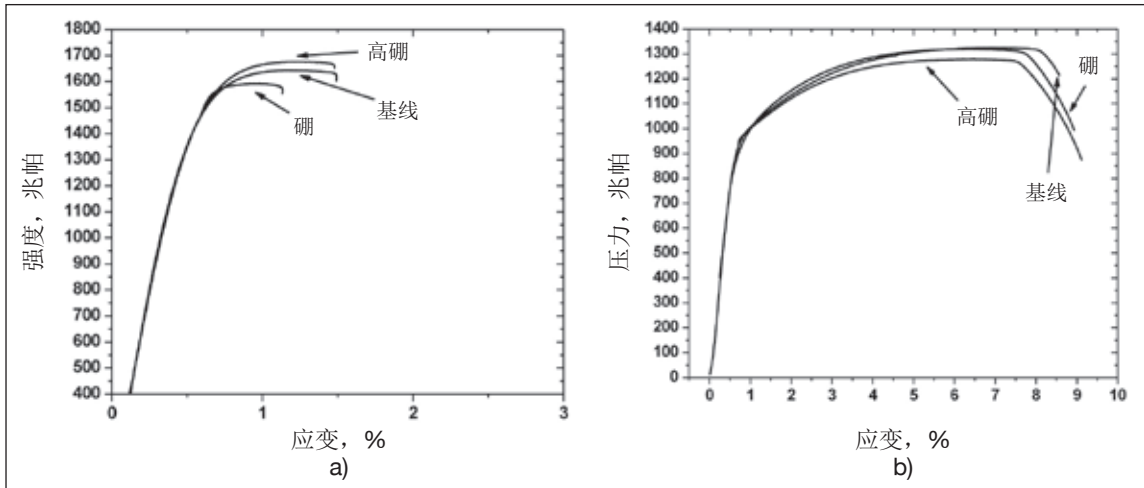


图5: 拉丝后直径为2.5毫米钢材a)与拉丝退火后直径为2.5毫米钢材b)的应变曲线

	最终拉伸强度, 兆帕	平均延伸, %	总量延伸, %	Nt	Nb
基线	2106	1.1	2.1	41	12
硼	2096	1.3	2.4	42	11
高硼	2087	1.4	2.5	41	9

表4: 拉丝退火后直径为1毫米的钢材在最终拉伸强度(UTS), 平均延伸(UE)以及总量延伸(TE)条件下的拉伸属性

	最终拉伸强度, 兆帕	平均延伸, %	总量延伸, %	Nt	Nb
基线	2263	0.4	1.5	35	11
硼	2283	0.4	1.5	36	10
高硼	2257	0.4	1.5	36	8

表5: 拉丝退火后直径为1毫米的钢材在150°C下老化一小时后, 在最终拉伸强度(UTS), 平均延伸(UE)以及总量延伸(TE)条件下评估的拉伸强度属性

为测试选用的钢材的碳含量是相同的。在高硼组钢材中拉伸强度数值更高。有意思的是, 硼合金中出现得拉伸强度减少情况与过往对低和高含碳量钢材的研究相一致, 同时也与膨胀率测定中所观察到的硬化性能提高相一致。珠光体转变动力的增加也许会导致层间间隙和/或珠光体粗糙情况。也许有人会认为强度数值的降低也许与固溶强化的强度降低有关。但是, 我们必须承认硼合金组相对于基线组而言其强度并没有减少。这也就意味着强度的下降程度与奥氏体对铁素体或者珠光体转变的影响有关。在图A以及图表3中列出了2.5毫米直径线材的力学性质。在拉伸条件下, 硼合金钢材的拉伸强度和延展性质最低, 相对于硼合金钢材组而言, 高硼合金钢材组的两个数值更高。基线钢材组的总延展性质与高硼合金组相似, 但是其拉伸强度相对较低。我们必须意识到在张力范围内出现的破损情况会影响整体延伸数值。

在图像B和图表3中列出的是2.5毫米线材拉丝退火后其张力性质。基线组和硼合金钢材组的拉伸强度数值是相似的, 而高硼合金组钢材的最终拉伸强度下降大约50MPa。这一强度数据的降低也有可能和奥氏体分解动力增加有关。两组含硼的钢材中其总延展性质要略微高些。拉丝退火后的线材经历连续几个步骤的操作后, 直径被拉为1毫米。在表格4中除了列举出扭曲形变数值(Nt)和弯折形变数值(Nb)。含硼合金中的拉伸强度下降再一次与延展性的增加情况一起出现。扭曲形变并不受合金影响, 但是随着硼合金的增加, 弯折形变数值出现了些许下降。为了对1毫米线材的老化反应进行评估, 我们在150°C进行了一小时恒温老化测试, 结果在表格5中列了出来。拉伸强度数值增加了大约170MPa, 然而平均延展性质

降低0.4%, 总计下降1.5%。在所有合金中的延展数值是类似的。同样的, 尽管在低强度条件下材料并没有老化情况, 在所有合金组中的扭曲形变数值是相似的。在老化条件下, 硼含量越高, 弯折形变数值存在着越低的趋势。并且, 对于所有钢材而言, 在老化条件下, 弯曲程度相对于未老化条件下要小。这意味着在氮一定条件下, 硼合金对于延展性影响并不显著。我们应当注意到, 现有大约40ppm的热度条件下的氮含量程度是工业原材料中的下限情况。

结论

本实验中, 我们对0.80C钢材中硼原子固定游离间隙氮原子的影响进行了研究。我们按照硼氮比值1.4和2.4的比例进行实验室准备供热。我们对铸锭进行热轧, 热拉丝, 拉丝后退火等操作, 并进一步将其直径拉为1毫米。我们对钢材的显微微观结构特点和拉伸强度性质进行了评估。研究表明硼合金在线材产品中一定氮原子含量情况下, 其对产品性质的影响很有限, 尤其在延展性能方面。在高硼钢材中, 最终拉伸强度出现了下降情况。

致谢

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Borealis AG	41	Fujikura.....	17	Messe Düsseldorf	
Borouge	41	GMP Slovakia.....	40, 45	(Shanghai) Co Ltd	8, 18
Chemetall Ltd.....	25	i3 Africa	23	Roblon A/S	43
Cosmos Enterprises Co Ltd....	40, 45	Indian Electrical and Electronic		Tata Power.....	15
DCM Industries	43	Manufacturers' Association.....	24	Teijin Aramid.....	42, 44
Dow Electrical &		KEC International Ltd.....	24	Telkom Kenya.....	15
Telecommunications	13, 20	L & T Construction	23	Tenova	12, 20
EI Sewedy.....	12, 21	Lanco Solar	24	Tratos.....	16, 21
Evonik Industries.....	10, 21	Lloyd Instruments Ltd	42, 45	Tratos Cavi SpA.....	10
Exxaro	15	LS Cable & System	22	WACS	17

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Anbao (Qinhuangdao) Wire & Mesh Co Ltd.....	16	Messe Düsseldorf GmbH –	
Bow Technology.....	17	Wire & Cable India 2012	33
Candor Sweden AB.....	13	Messe Düsseldorf (Shanghai) Co Ltd –	
CERSA-MCI.....	21	wire China 2012	29
Dongguan Zhangli Machine Fittings Co Ltd	41	Metal-Expo JSC – Metal Expo 2012.....	11
Daloo	13	Pourtier – Gauder Group.....	1
Enshiang Machinery Enterprise Co Ltd	41	Rosendahl Maschinen GmbH.....	3
Gauder – Gauder Group.....	1	Setic – Gauder Group	1
Gimax Srl.....	36-37	Shanghai Nanyang Equipment Factory Co Ltd	19
GMP Slovakia sro.....	40	Shanghai Shenchen Wire	
Guanbiao Electrical Machinery Co Ltd	17	& Cable Equipment Co Ltd.....	20
Huestis Industrial.....	15	Sheng Chyeen Enterprise Co Ltd	Back cover
ITO-SIN (Deyang) Wire & Cable Equipment Co Ltd.....	60	Supremac Industries India Ltd.....	23
Jiangsu Fuchuan Electrical		TJK Machinery (Tianjin) Co Ltd.....	9
& Mechanical Co Ltd	Inside back cover	Joachim Uhing KG GmbH & Co	39
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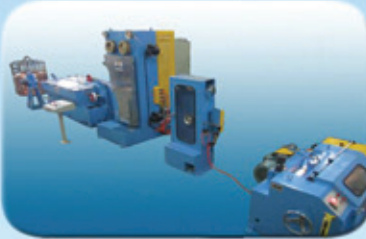
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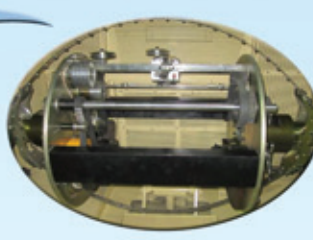
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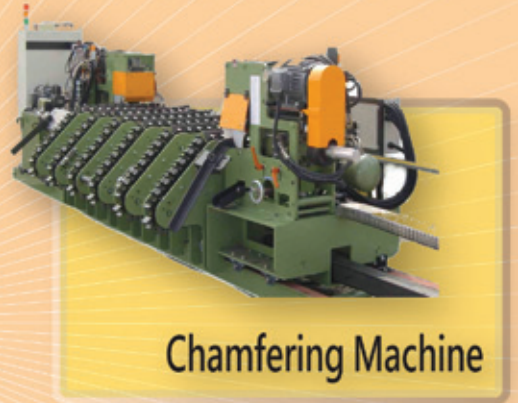


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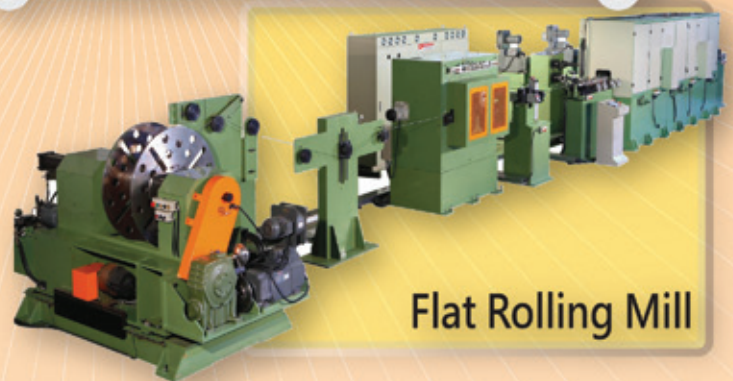
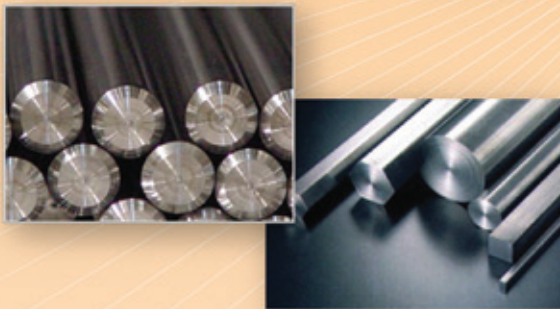


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