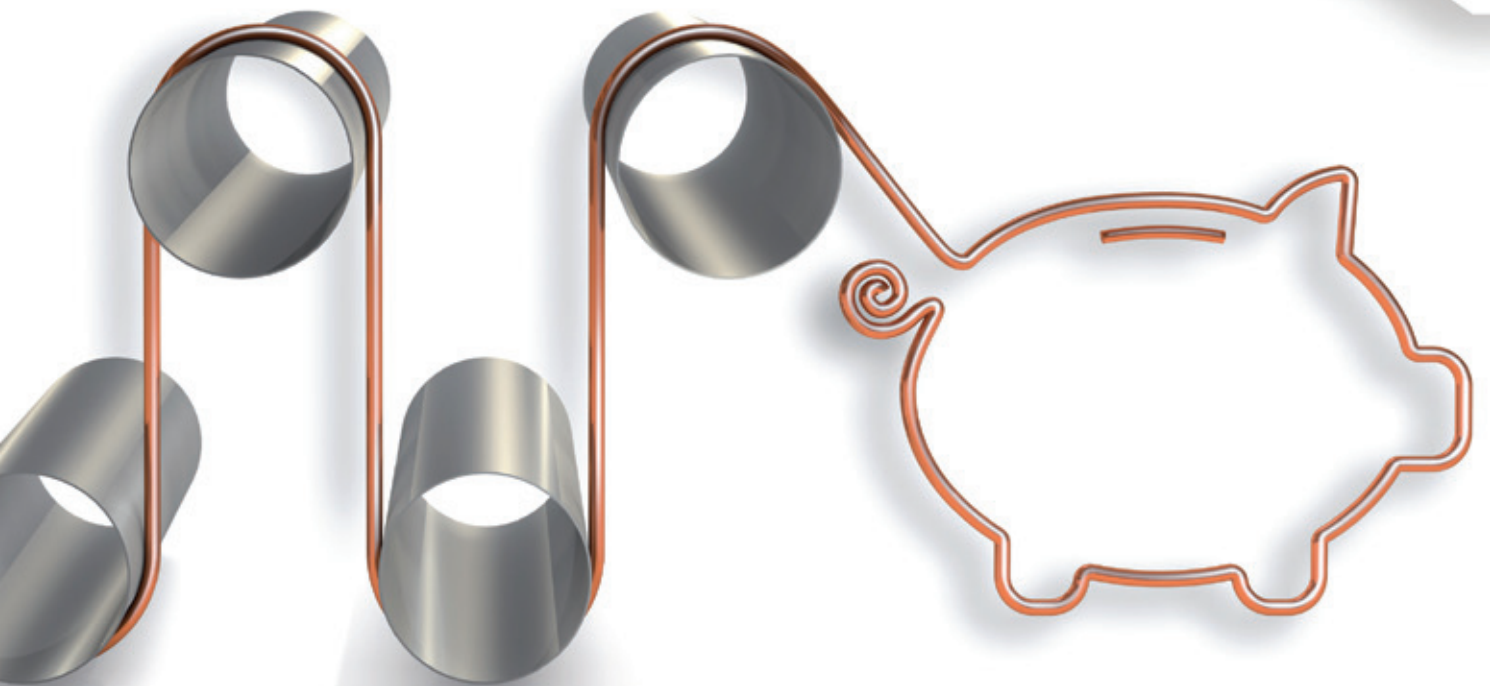


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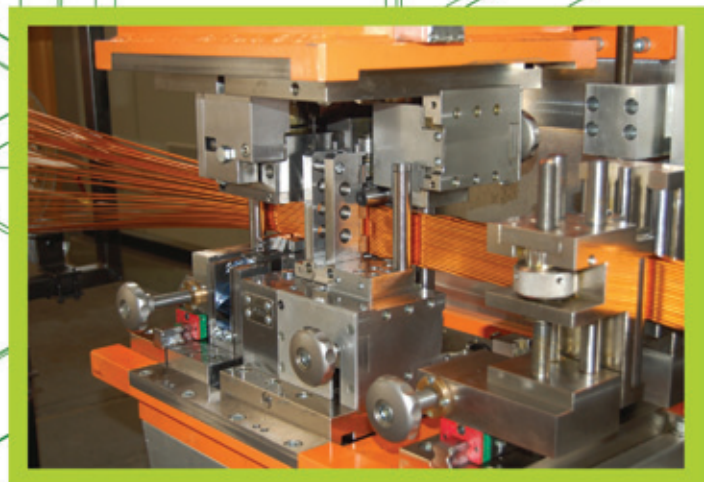
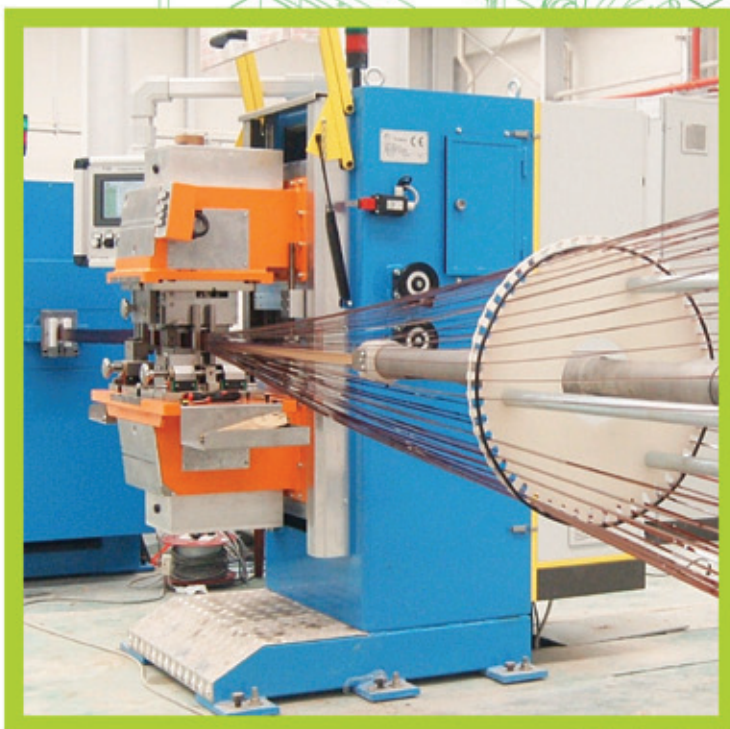
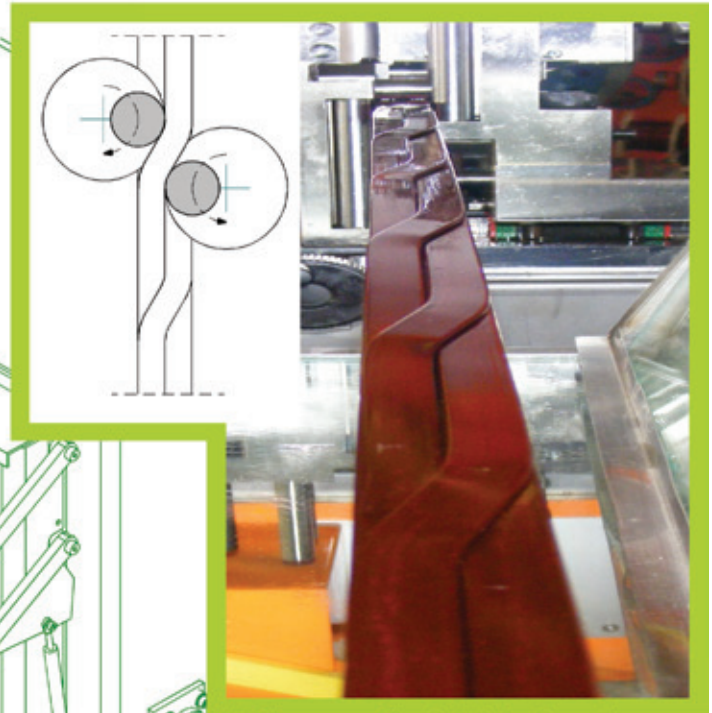


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UAE : Spark International FZE, PO Box 16111, RAK FTZ, Ras Al Khaimah, United Arab Emirates
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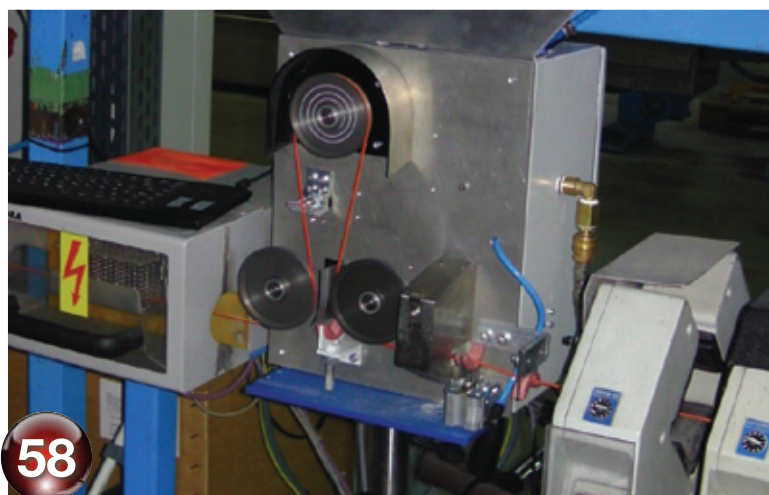
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- Cable sheathing, armouring & taping materials & machinery

Getting Technical

Fire resistant optical cable

By L Caimi, D Ceschiati and M Maritano, Prysmian SpA, Milan, Italy, and E Consonni, Prysmian Cavi e Sistemi Italia Srl, Milan, Italy

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Editor (编辑):..... David Bell
Features Editor – USA
(专栏编辑 – 美国):.....Dorothy Fabian
Editorial Assistant
(助理文字编辑):.....Christian Bradley
Design/Production (设计/制作):..... Julie Tomlin
Production (制作):..... Lisa Wright

Translation (翻译经理):..... Tony Zhou
Jianye Yang
Linda Li

Advertising/Marketing:..... Jason Smith
(广告/营销):..... UK, ROW, USA, Canada
Giuliana Benedetto
Italy
Hendrike Morriss
Germany, Austria, Switzerland
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Jeroo Norman
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Advertisement Coordinator
(广告联络人):..... Liz Hughes
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Publisher (发行人):..... Caroline Sullens
Founder (创办人):..... John C Hogg

Europe (欧洲)
Advertising/Marketing & Editorial
(广告、营销及编辑部)
46 Holly Walk, Leamington Spa
Warwickshire CV32 4HY, UK
Tel (电话):..... +44 1926 334137
Fax (传真):..... +44 1926 314755
Email (电子邮箱):..... wca@intras.co.uk
Website (网站):..... www.read-wca.com

USA (美国)
Editorial (广告/营销)
Intras USA – Doug Zirkle
Danbury Corporate Center, 107 Mill Plain
Road, Danbury, CT 06811, USA
Tel (电话):..... +1 203 794 0444
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Wind of change blowing in China

Hot on the heels of a successful wire China, change is afoot in the country. As I was driving into work this morning, the news headlines were dominated by the world's second largest economy.

This was on a number of fronts. Firstly by the once-in-a-decade leadership change that happened in October.

Secondly by another story trickling across the airwaves... another one you don't generally hear associated with China.

The economy had slowed for the seventh successive quarter. On further investigation, this is not necessarily as gloomy as it first appears.

While this would have been devastating news for any number of countries around the globe, for China it is a predicted 'stabilising' of the economy, according to leading government figures, that is.

Whilst any dip in growth is not the brightest of economic news for any country, the fact that it was 7.4 per cent for the quarter puts it all into perspective, despite the fact that GDP growth in that part of the world is generally in the double digit numbers.

There will, inevitably, be further changes in the economy now the leadership change has taken place, but the two incoming leaders already have their fingerprints over the next ten year plan for the country, having played a large part in its formulation.

China, it appears, will be as strong as ever. The speed of growth may slow a little and it may be a little more domestic rather than global, but expect a very bright 2013.



David Bell
Editor

when and where



April 2013	June 2013	September 2013	September 2013
<p>23-25 April: Interwire 2013 – trade exhibition – Atlanta, USA Organisers: WAI Fax: +1 203 453 2777 Email: info@wirenet.org Website: www.wirenet.org</p>	<p>25–28 Jun: wire Russia – trade exhibition – Moscow, Russia Organisers: Messe Düsseldorf GmbH Fax: +49 211 4560 7740 Email: info@wire-russia.com Website: www.wire-russia.com</p>	<p>17–19 Sept: wire/Tube SE Asia – trade exhibition – Bangkok, Thailand Organisers: Messe Düsseldorf Asia Pte Ltd Email: wire@mda.com.sg Website: www.wire-southeastasia.com</p>	<p>16–21 Sept: EMO Hanover – trade exhibition – Hanover, Germany Organisers: VDW on behalf of CECIMO Fax: +49 69 756081 74 Email: emo@vdw.de Website: www.emo-hanover.de</p>



▲ The preformer is the latest solution from Queins

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Queins Machines – Germany
Website: www.queins.com

Nexans lands €110m contract

Nexans has been awarded contracts worth around €110 million by Libya's PEWCO (Public Electrical Works Company), a wholly-owned subsidiary of GECOL, the state-owned company responsible for the production and distribution of electrical power, to supply cables for projects to upgrade the country's power transmission and distribution infrastructure.

The contracts involve the supply of over 1,000km of high-voltage (HV) and low and medium-voltage (MV) cables. The transmission contract comprises 245kV underground cables to be manufactured and supplied by Nexans France.

The 33kV and 15kV distribution cables and the optical fibre cables will be supplied by Nexans Greece, while the accessories will be supplied by Nexans Italy.

PEWCO will install the cables. Nexans will supply all required accessories as well as optical fibre cables (for substation automation, control and communications and monitoring of the cable temperature), as well as engineering services, technical assistance and training to PEWCO and GECOL.

Cable delivery and installation is expected to take place during 2012 and 2013.

Nexans – France

Website: www.nexans.com

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In the automotive wire industry, market leaders including Leoni, Delphi and Force have been Singcheer's major customers in China for more than 10 years already; while in the building wire industry, Singcheer has been always working closely with Far East, Baosheng, TBEA.



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ReneSola Saw wire plant is commissioned in China

GCR Eurodraw has completed and commissioned a plant for the production of 9,000 tons per year of saw wire at Sichuan Ruiyu Photovoltaic Materials Co Ltd, in Sichuan Province, a company of ReneSola Group.

ReneSola is a leading manufacturer of solar wafers and provider of solar module OEM services. Its solar products include virgin polysilicon, monocrystalline and multicrystalline solar ingots and wafers, photovoltaic (PV) cells and modules.

Innovative technologies, a reputation for quality and reliability, and expanded operational capabilities have helped the company develop a diversified customer base of leading solar companies while allowing capture of new growth opportunities.

Concurrently, ReneSola has developed new G6 multicrystalline furnaces based on G5 ones, which further improves the production capacity of the silicon wafers.

GCR designs and manufactures machines and equipment, processing lines as well as complete plants for the steel wire industry including 'turnkey' projects, all related to the cold process, that is downstream of the hot rolling mills.

As well as covering dry and wet drawing, coating lines, stranding and cabling, GCR Eurodraw can provide technical and technological services, know-how and manufacturing technology, training of personnel, supervision of installation and start-up and technical assistance services.

GCR Eurodraw SpA – Italy

Website: www.gcrgroup.com

Nexans buys Shandong Yanggu

Nexans, a worldwide leading expert in the cable industry, has bought a 75 per cent stake in the Shandong Yanggu New Rihui joint-venture, alongside its historical shareholder.

This acquisition gives Nexans a strategic footprint in the rapidly growing Chinese Energy Infrastructure market.

The transaction values the business (100 per cent basis) at approximately 1,240 million RMB (approximately €156 million) on an Enterprise Value basis.

Nexans – France

Website: www.nexans.com



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Borouge and Borealis sponsor annual meeting

BOROUGE and Borealis sponsored the Wire & Cable Committee's annual meeting organised by the China Electro technical Society (CES) in Lanzhou, the capital and largest city of Gansu Province in Northwest China.

More than 200 people from cable manufacturing, utilities and electric power design companies attended the meeting, in addition to representatives from the Wire Academy, universities and the Shanghai Electric Cable Research Institute (SECRI), one of the committee partners.

The two-day meeting featured a number of sessions and workshops where Borouge discussed a topic on "Solutions for XLPE submarine cables". This is the second time that Borouge and Borealis have sponsored this event.

Following the Wire & Cable Committee annual meeting, Borouge and Borealis hosted a dinner where SK Tham, marketing manager of wire and cable at Borouge, conducted a presentation highlighting Borouge and Borealis' wire



▲ The annual meeting in Lanzhou

and cable portfolio, the new investment in LD5, Borouge 3, and the new Borouge Innovation Centre in Abu Dhabi. SK Tham explained how Borouge's mission in enhancing 'Value Creation through Innovation' has helped the company to enhance its position as a leading provider of innovative, value creating plastics solutions. He also talked about the 2015 future plans of growth for both Borouge and Borealis wire and cable business.

Borouge and Borealis – Abu Dhabi
Website: www.borouge.com

New network will aid unserved

The Universal Service Fund (USF) is implementing a programme to deploy around 6,000km of long haul fibre-optic network to facilitate previously unserved tehsils (districts) in Pakistan.

Parvez Jabri of *Business Recorder* reports that a source at USF revealed that presently 30 per cent of approximately 400 tehsils in the country have no fibre connectivity.

Extending fibre cables to these areas will facilitate telecom service providers in supplying a range of telecom services.

Giving examples, the source said 18 out of 91 tehsils in Sindh are without fibre optic access. Fibre deployment of nearly 703km will benefit an unserved population of 3.5 million.

In Balochistan, a population of around 0.34 million people residing in five tehsils will benefit from 900km of optical fibre connecting Dasht,

Noshki, Dalbandin, Mashkhel and Taftan Tehsil headquarters including Dringar, Ahmadwal, Nokundi and Chaghi.

A planned 1,166km optical fibre to Bela, Pasni, Turbat and Hub Tehsil including Jhal Jao, Awaran, Dureiji, Peerdrk, Dasht, Mehnaz, Buleda, Kalag, Jiwani, Kalatuk, Nodaiz, Hoshab, Nasirabad, Bilecha, Tump, Gwadar, Uthal, Duddar and Kanraj cities will serve a population of approximately one million.

The official said that through 818km of fibre, 1.45 million unserved people in Bhag, Dera Bugti, Jand, Jhal Magsi, Kotli Sattian and Sui tehsils would benefit.

Once completed, the programme will help build a network, which was considered uneconomic and unaffordable by competing operators.

Universal Service Fund – Pakistan
Website: www.usf.org.pk

Plant investment

Eastern Copper, a copper wire producer from Shandong Province, has commissioned its second Contirod CR 3700 continuous copper wire rod plant. The plant, supplied by SMS Meer, is believed to be the highest capacity plant in China with an annual capacity of 320,000 tonnes of rolled wire rod.

The new Contirod line comprises a shaft-type melting furnace, a 20-tonne holding furnace, a Hazelett twin belt caster and a continuous SMS rolling mill with 14 mill stands.

The mill stands are equipped with individual drives and the main drives of the mill and the fans all feature variable frequency 3-phase AC motors for reduced energy consumption. The plant includes an automatic compacting, strapping and film packaging line for the resulting wire coils.

The new plant is expected to achieve a casting capacity of 48 tonnes per hour with a casting cross section of 8,610mm² and a casting speed of around 10m per minute. The standard finished size is 8mm diameter.

Eastern Copper – China

Seychelles get connected

Cable & Wireless has announced its connection to the SEAS undersea fibre optic cable that, as of 15th August, has become commercially available to the people of Seychelles.

Seychelles will now benefit from consistent broadband speeds unaffected by the problems experienced with satellite internet, such as cloud cover, which made the connection erratic and unreliable. Other benefits of the fibre optic cable include lower latency times.

The connection, originating from the Tanzanian coast off Dar es Salaam, landed in the Beau Vallon Bay area of the main island of Mahe in early June, and has undergone extensive testing before being officially launched.

Cable & Wireless – USA
Website: www.cw.com

It's an Olympic gold for Endurance!

THE Dow Endurance™ family of insulation and semi-conductive materials from Dow Electrical and Telecommunications (Dow E&T) provide high quality performance while ensuring durable and reliable power supply during and after the 2014 Winter Olympic Games in Sochi, Russia.

With product and technical support from Dow E&T, Dow Inside licensee Sevkaabel Group was awarded the bid to provide cable being installed in the Sochi and Krasnodar regions of Russia.

This cable installation makes it possible to bring increased electrical capacity to power in Olympic venues in the mountain resort of Krasnaya Polyana and the ski resort complexes in Rosa-Hutor and the Imeretinskaya Valley.

The bid included Dow solutions for medium voltage (MV) and high voltage (HV) cables. The cables will be installed underground to manage long-term reliability issues, some of

which are associated with the extreme weather and terrain conditions in the region.

"Increasingly, underground power cables are being recognised for technical advantages and consistent performance," says Filip Tauson, commercial director Europe/Middle East/Africa, Dow E&T.

"In addition to the obvious benefits for power losses associated with challenging terrain and weather, underground systems offer improved economics over the life of the system with lower short- and long-term maintenance costs with a life expectancy of more than 40 years."

Vladimir Bukhin, director general, Sevkaabel Group, added: "The combination of our manufacturing expertise and quality products, combined with Dow E&T's technology leadership and commitment to innovation will enable us to deliver the long-life, reliable cables that our industry demands."

The MV and HV cables destined for the Winter Olympic Games installations range from 6kV to 220kV – all manufactured to meet stringent industry standards using Dow Endurance materials.

Installation has already been completed for 54km of 110kV HV cable and 340km of 10kV MV cable.

"The super-clean Dow Endurance™ insulation and semi-conductive compounds from Dow E&T will help provide the reliability and long service life needed to support the Krasnodar region well past the Sochi 2014 Olympic Winter Games and into the future," added Mr Tauson.

"As a Worldwide Olympic Partner, The Dow Chemical Company and its business units like Dow E&T, are proud to support our customer and the Sochi Olympic Winter Games Organising Committee in this important project."

Dow E&T – USA
Website: www.dow.com

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Bar mill deal is done

NANJING Iron and Steel Co signed a contract with the German company Friedrich Kocks for the supply and the commissioning of a three-roll reducing and sizing block 370/4 in heavy-duty design [RSB++] for a new SBQ bar mill.

NISCO is part of the Nanjing Iron and Steel Union Company Limited with its headquarters in Nanjing and is listed on Shanghai Stock Exchange.

It has approximately 11,400 employees and operates blast furnaces and rolling mills, and had a production of 6.8m tons in 2011.

After completion the new rolling mill will produce 800,000t/a of first class SBQ-bar within the range of 16-80mm diameter. Downstream the roughing and intermediate mill, consisting of 20 stands, the four stand 370mm reducing and sizing block will produce all finished dimensions in coils and in straight lengths onto the cooling bed. The three-roll RSB design also enables controlled rolling at low temperatures within the range of up to 60mm diameter.

The heavy duty RSB allows rolling out of only one pass series from the roughing and intermediate mill and significantly reduces the number of required feeders.

Any required finished dimension of the complete dimensional range can be produced in any desired sequence with a minimum number of roll sets and just a few stand changes.

The optimum adjustment values for motor speed, rolls and guides as well as gear steps are calculated by the bar mill configuration system Bamicon in relation to the final product.

Besides the reducing and sizing block with the automatic quick stand changing system the scope of supply comprises the bar mill configuration program Bamicon, and the remote-controlled adjustment of pass and guides of the three-roll stands in the mill line as well as the roll shop with quick roll change and Capas, the computer aided system for accurate adjustment of rolls and guides in the stands.

The supervision of erection, commissioning and the training of customer personnel complete the contract package.

Delivery is expected for the third quarter of 2013.

Friedrich Kocks GmbH & Co KG – Germany
Website: www.kocks.de

New beam furnace for India

Tenova LOI Italimpianti and Tenova Hypertherm have signed a contract with BMM Ispat Ltd for a 160t/h walking beam furnace.

BMM Ispat, located at Hospet, in the state of Karnataka, South India, is setting up a 850,000tpa merchant bar mill with all upstream facilities such as blast furnace, coke oven batteries, steel melting shop, and continuous caster as part of its 2 million tonnes per year steel plant, which will integrate an existing operational plant producing sponge iron, pellets, TMT bars and power. Siemens VAI will supply the rolling mills.

BMM Ispat chose Tenova as furnace supplier due to its technical references and performance of the furnaces supplied for similar applications in India. The main feature of the new furnace is the use of low calorific value maximising the use of blast furnace gas. The combustion system of the new furnace will be fuel flexible, allowing use of 100% HFO, fuel mix of BFG and HFO as well as mixed gas in the future.

With this contract, Tenova LOI Italimpianti and Tenova Hypertherm have further strengthened their presence in the Indian market.

Tenova LOI Italimpianti – Italy
Website: www.tenovagroup.com



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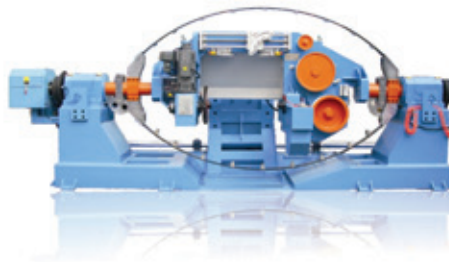
Our company passed ISO 9001:2008 quality system certification from Det Norske Veritas(DNV) in 2010



Wire and cable extruder line



HD-Ø70+70+50mm PLC three layers co-extrusion extruder
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HD-Ø1250/1600/2000mm D type double twist bunching machine(for copper wire)



HD-Ø630/800/1000/1250 Taping machine(mica tape)
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HD-Ø630/800/1000/1250mm PLC High speed rotate frame type single twister(cabler)



HD-Ø630/800/1000/1250mm PLC High speed cantilever type single twister(cabler)



HD-Ø250B/300B/400B/500B/630B /800Bmm PLC High speed bunching machine

Foreign market:
 Contact person:Lily Nie
 Cellphone:0086-13815079818
 Tel:0086-519-86230798
 MSN:keke_0345@hotmail.com
 Skype:keke0345
 Web:www.hdxljx.com
 Email:export@hdxljx.com

Domestic market:
 Contact person:Mr Xiao
 Cellphone:0086-13815076898
 Tel:0086-519-86486126
 Web:www.hdxljx.com
 Email:hd@hdxljx.com
 Add:Lijia Town,Changzhou City,Jiangsu Province,China.



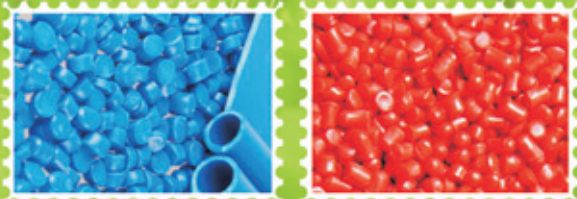


Suzhou Gafen Plastics Co., Ltd.

Suzhou Gafen Plastics Co., Ltd. Founded in 2001, is a professional manufacturer of PVC, PE and other metallocene modified polymeric materials. It is located in Wuzhong Industrial Park, Suzhou, covering a total area of 80 mu, a floor area of more than 12 thousand square meters. Total investment is above RMB 80 million Yuan. Output of PVC and PE modified compound is more than 30 thousand tons/year.

Product Catalogue

- Radiation Cross-linking Flame Retardant LSZH Series
- PVC UL Series
- PVC Audio and Video Series
- PVC Automotive Series
- PVC Communication Series
- Thermoplastic Flame Retardant LSZH Series
- Foam Material Series
- GB Series



Nanhu Road, Wuzhong district, Suzhou, China

Tel: 00886-512-65652968/65637358

Fax: 00886-512-65637368/65652958

Email: ellen.chen@gafen.com.cn

Web: www.gafen.com.cn



The wire and cable industry goes digital

CREATING links is important. And who knows it better than a web portal? Expowire.net, known as wiredrawing.net, can announce the onset of various collaborations.

One of the most significant ones to be established is with ACIMAF, the Italian wire machinery manufacturers' association, founded in 1987 to promote the image of Italian technology in the field of machines and products for wire and cable manufacturing.

ACIMAF now has its own online showcase on Expowire.net, which already hosted many ACIMAF members.

This partnership is in line with the portal's intent to cooperate with all the international trade associations of the wire, cable, fasteners and metal working field.

Companies on Expowire.net can also now get a ten per cent discount on both the shell scheme and space only option at the Wire & Cable Expo in Tianjin, China, from 25th-27th June 2013.

Expowire.net is also involved in the organisation of Made in Steel 2013, the event that gathers producers, distributors, users and the whole world that lives "off" and "for" steel.

The conference and exhibition will take place in Milan, Italy, from 3rd-5th April 2013. Members of Expowire.net are entitled to a special five per cent discount on the exhibition fees.

But Expowire.net is working not only on building partnerships and offering further advantages to its members. The site, already translated into English, German, French, Spanish and Italian, will soon be available in Russian and Chinese.

Expowire.net – Italy

Website: www.expowire.net

Investment pays for UK company

UK manufacturer JDR Cables has been selected by WindMW GmbH to supply subsea cables for the Meerwind Sud/Ost Offshore Wind Farm. The project, based 13 miles north of the island of Heligoland, will use 80 wind turbines to generate 288MW of electricity.

Andrew Norman, CEO of JDR, said: "This is JDR's first wind energy project in Germany and we are very pleased to have been selected by WindMW as a partner for this very important project. Our investment of £30 million in our manufacturing facilities in Hartlepool has created over 130 additional skilled jobs in the UK and we believe the opportunity to participate in the Meerwind offshore wind farm is just the beginning of a significant period of growth for JDR and the offshore wind industry."

JDR Cables – UK

Website: www.jdrcables.com



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www.supermacindia.com

Seminar helping the cable makers

THE newly established Gauder Group Middle East Centre hosted a maintenance-orientated services seminar, which focused on the needs of cable makers who run Pourtier/Setic rotating machines.

Open to Gauder Group customers, the seminar featured experts from the Pourtier/Setic service and engineering teams who discussed ways in which customers can restore machine productivity and improve product quality.

The seminar was developed in response to customer expectations in predictive maintenance (vibration analysis, mechanical thermography), slip rings cleaning and maintaining (to avoid major electrical crashes), wire paths evolution to limit tensions and increase production speeds, Bluetooth transmission, belt tension impact on rotating assemblies and other critical components.

The event attracted some 15 participants representing four countries: United Arab Emirates, Saudi Arabia, Oman and Bahrain.



The centre is dedicated to offer the best service to Pourtier and Setic customers in the Middle East according to the strong and sustained development of cable industry in the area.

▲ *Helping customers first hand at the Gauder Group Middle East Centre*

Gauder Group Middle East – Bahrain
Website: www.gaudergroup.com

Cables at the forefront of innovation

The European cable industry is showing signs of consolidation according to AMI's latest report.

AMI's guide to the cable extrusion industry in Europe provides detailed information on 325 cable extrusion sites across Europe, from multinational groups such as Prysmian and Nexans to smaller new sites looking to make their mark.

This new guide reports a slight drop of around five per cent in the number of

operational cable extrusion sites in Europe since its last edition in 2008. The total consumption of compounds also dropped from 1.45 to 1.23 million tonnes over the same period with Italy and Germany leading the way.

Manufacturers continue to refocus their product range with plants specialising in the production of specific cables supplied to certain markets, which are often driven by local demand. In terms of materials, the report confirms PVC is the

dominant polymer due to its competitive price, technical performance and ease of processing. Linear grades of PE and low smoke zero halogen (LSFOH) materials have grown rapidly despite small volumes.

Whilst the figures suggest the market remains stagnant, cables continue to be at the forefront of technical innovation in the plastics sector in terms of formulation and modification of resin and development of additives. The renewable energy sector is also showing signs of growth and its demand for cable applications will offer encouragement to the European cable industry.

Demand in Poland bucks the European trend, however. Unlike almost all European nations, Poland has remained relatively untouched by the economic recession and its cables sector now accounts for around ten per cent of European polymer consumption.

Seeking subsea supply

Germany's TenneT TSO GmbH is seeking offers for the manufacture, supply and laying of subsea AC cables, including light waveguide in the area of the DoIWin cluster, designed for a transmission range of up to 400MW and a voltage level of about 155kV.

In particular, the project includes the connection of cables to the electrical set up of the platform, development of cross structures, manufacturing, supply and installation of possibly two seaworthy compensation coils with a reactive power of up to 20 MVAR, to be used on the platform of the offshore wind farm operation.

TenneT TSO GmbH – Germany Website: www.tennetso.de

Applied Market Information – UK
Website: www.amiplastics.com

Indian wire probe

The European Commission has confirmed that it received an anti-dumping complaint from the European steel producers' group, Eurofer, regarding imports of stainless steel wire from India.

The complaint alleges that producers of some types of steel wire have benefited from subsidies granted by India, and are selling their wire in the EU at below market prices, to the detriment of European competitors.

The Commission is to open an investigation into whether steel wire is being unfairly subsidised and has invited the Indian government for consultations on the matter.

Eurofer – Belgium

Website: www.eurofer.org

Diver-less repair for London Array

PHAROS Offshore Group has completed cable repair and burial on a section of damaged subsea export cable for the London Array Offshore Wind Farm. Pharos teams located, recovered, re-laid and re-buried the power cable off the Kent coast. The 800mm² HVDC export cable has a 218mm diameter and weighs over 50kg/m in water and 86kg/m in air.

Pharos CEO Phil Walker said: "With the use of a DP-2 vessel we were able to reroute the cable away from the original route to an area within the planned cable corridors.

"To our knowledge, this is the first diver-less operation to de-bury, retrieve

and repair a cable of this size and weight."

In addition to the complexities of cable retrieval, the Pharos team converted a conventional telecoms cable ship to accommodate the loading, storage, lay, splicing and safe handling of the cable. The equipment and procedures developed for this repair will work for other repair situations, especially those where increasingly congested cable corridors preclude anchoring and grapnel runs and/or are beyond diver limits.

Pharos Offshore Group Ltd – UK

Website: www.pharosoffshoregroup.com

Ajex acts for ZT

ZT-Italy is pleased to introduce its India distributor Ajex & Turner.

ZT designs and manufactures machines and special equipment for drawing wire, stainless steel, aluminium and bronze, copper wire (welding wires, wires for points), galvanised wire (for points, for decoration, for network), aluminium wire (wire for welding), stainless steel wire (welding wires, spring wires, super alloys), high carbon wire for springs and cored wires.



▲ Ajex and Turner – agents for ZT

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A complete view of customers

WITH a customer base of approximately 8.5 million connected households throughout Germany, Kabel Deutschland (KD) turned to Jacada, a leading global provider of customer service experience technology, to provide a single yet comprehensive view of its customers.

In doing so, KD has been able to increase customer and agent satisfaction while reducing operational costs, average handle time and streamlining work processes.

Jacada's solution integrates vital applications and multiple customer communication channels across KD's

contact centres to provide a single, optimised view of customer information.

This integration enables agents to easily navigate through customer data and services in a more efficient matter.

"Customers demand a positive and productive experience every time they engage with a company.

"We are committed to delivering customer service technology that enables a company to achieve an effective and consistent customer experience," said Gideon Hollander, CEO for Jacada.

"Kabel Deutschland sought out leading technology solutions to help deliver a better customer experience and as a result they've shown their customers they value their business and will continue to make their needs a priority."

Together with Jacada's desktop solution, KD has been able to achieve the following:

- Reduce average handle time by nearly 30 per cent
- Increase customer satisfaction
- Improve agent satisfaction
- Streamline working processes
- Automate application navigation
- Improve first call resolution

Jacada's customer service solutions include a mobile service platform, customer-facing desktops, and agent scripting technologies that simplify the way companies interact with their customers.

Kabel Deutschland – Germany
Website: www.kabeldeutschland.de

New website for EuroWire

Our sister publication – EuroWire Magazine – has launched a new multi-media website at www.read-eurowire.com

The site, which caters for the PC, tablet and smartphone market, includes video and daily news updates to keep you informed of all the changes in the industry.



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All aboard for Tratos cables

TRATOS Cavi SpA has been awarded the contract to supply DP World with Tratosflex-ESDB reeling cables for installation in the cranes at the Jebel Ali port in Dubai.

The port is in the process of electrifying its existing diesel-driven RTG cranes as a means of significantly reducing energy costs and CO₂ emissions. As part of this process, Tratosflex-ESDB cables will be fitted to the newly electrified cranes.

The decision to specify Tratosflex-ESDB cables was based on a combination of quality product used extensively in similar applications worldwide (including the Busan Port terminal in Korea) and strong local support from the Tratos office located in Jebel Ali Free Zone.

Tratosflex-ESDB is different from other reeling cables available in that Tratos engineers have modified the internal cable design, tightening the structure against the internal relative movement to accommodate high speed applications; this prevents the common problem of twisting that affects cables reeling at high speed.

Twisting makes cable cores elongate unevenly which in turn leads to conductors on the outer layer of a strand facing a greater risk of being broken. A broken cable reeling at high speed is dangerous and can cause extensive and costly damage to equipment.

A medium voltage rubber insulated and sheathed drum reeling cable, Tratosflex-ESDB operates in temperatures from -20°C to +60°C.

Tratosflex-ESDB is one of the range of cables for moving applications from Tratos, which include mono-spiral and multi-spiral reeling, basket reeling, festoons and spreaders. The cables



▲ The Tratosflex-ESDB cable

can supply power, control and signalling functions including fibre-optic cables and components.

Tratos Cavi SpA – UK
Website: www.tratos.co.uk

Link between Taiwan and China

Taiwan telecom provider Chunghwa Telecom has announced that the first submarine cables linking Taiwan with China, between China's city of Xiamen and the Taiwanese Kinmen Island, began operation in August.

The project is a joint venture between Chunghwa Telecom and China Telecom, China Unicom and China Mobile – China's three major telecom operators.

Chunghwa Telecom – Taiwan

Website: www.cht.com.tw

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创建链接是很重要的。有谁知道它比门户网站更好呢Expowire.net, 通称为wiredrawing.net, 将宣布正在进行的各种合作。最重要的合作伙伴之一是意大利线材机械制造商协会ACIMAF, 协会成立于1987年, 致力于为电线电缆生产设备和产品推广意大利技术的形象。ACIMAF目前在expowire.net网站上有自己的橱窗, 已经接待了许多ACIMAF会员。这种合作关系和门户网站的意向是一致的, 力求与所有的电线电缆、紧固件和金属加工领域内的所有国际贸易协会合作。Expowire.net网站上的公司还能够得到10%的折扣展位, 仅限于2013年6月25至27日在中国天津举行的电线电缆世博会。Expowire.net也参与组办Made in Steel 2013, 该展会将云集生产商、分销商、用户和全球钢“里”钢“外”的人。会议和展览将于2013年4月3至5日在意大利米兰举行。Expowire.net会员将享有展费5%的特殊优惠。然而, 并不意味着expowire.net只是建立合作伙伴关系和提供优惠给会员。Expowire.net已经被翻译成英语、德语、法语、西班牙语和意大利语, 并很快翻译成俄文和中文。

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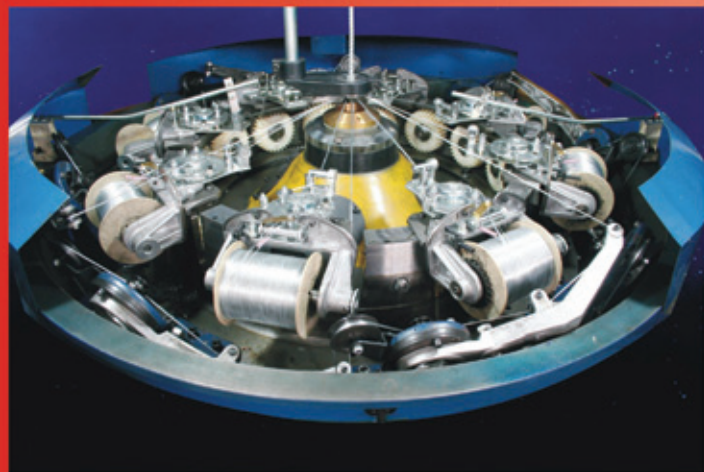
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上海南洋电工器材有限公司主要从事于电线电缆机械的设计和制造，现主要产品为编织机，绕包机，印字机。其中，编织机按编织线径由小到大分为：轻型、标准型、重型。



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昱辉切割钢丝设备中国投产

GCR Eurodraw在四川瑞昱光伏有限公司圆满完成年产切割钢丝9,000吨生产设备的运行,该公司位于四川省,隶属昱辉集团。

昱辉是领先的太阳能硅片制造商和太阳能电池组件OEM供应商。其太阳能产品包括纯多晶硅、单晶硅、多晶硅太阳能硅锭及硅片以及光伏(PV)电池和模块。

创新的技术,质量和可靠性的美誉,不断扩大的运营能力,这些优势有助于公司在太阳能领域发展多元化的客户基础,同时捕捉新的发展机遇。

与此同时,昱辉在G5基础上新开发了G6多晶硅炉,从而进一步提高了硅晶片的产能。GCR设计生产机器、设备和生产线,以及钢丝工业应用的成套设备,包括“交钥匙”工程,所有这些都和冷加工紧密相连,是热轧机的下游设备。

此外,GCR Eurodraw还制造干湿拉丝机、涂装线、绞线和成缆机,并提供技术服务、专业知识、生产技术、人员培训、指导安装和启动,以及技术援助服务。

GCR Eurodraw SpA - 意大利
网址: www.gcrgroup.com

这是黄金耐力!

陶氏电子和电信(Dow E&T)生产的Dow Endurance™系列绝缘和半导体材料,具有高品质的性能,在2014年俄罗斯索契冬季奥林匹克奥运会期间和之后保证耐用和可靠的电力供应。因为拥有来自Dow E&T的产品和技术支持,陶氏内部持证者Sevkabel集团获得中标,为俄罗斯索契和克拉斯诺达尔地区提供电缆安装。电缆的安装将增加奥运场馆电容量功率,场馆位于山区度假胜地的红波利亚纳,以及滑雪胜地Rosa-Hutor和Imeretinskaya 山谷。投标包括用于中压(MV)和高压(HV)电缆的陶氏解决方案。电缆将被安装在地下,解决长期的可靠性问题,其中有些与该地区的极端天气和地形条件有关。

“地下电力电缆越来越被人们认为具有技术优势和稳定的性能,”Dow E&T欧洲/中东/非洲地区商务总监Filip Tauson先生说。

“除了能够应对挑战性的地势和天气造成的电力损耗的显著优势外,地下系统还能带来更好的经济效益,比如长期和短期的维护成本更低,预期生命周期超过40年。”

Sevkabel集团总干事Vladimir Bukhin补充说:“我们专业的制造技术和优质产品的组合,加上Dow E&T的尖端技术和不断创新的理念,这使得我们能够为业界提供使用寿命长、可靠的电缆产品。”冬季奥运会安装的中压和高压电缆范围从6千伏到220千伏 - 所有产品使用陶氏耐力材料,符合严格的行业标准。目前已完成安装54千米110千伏高压电缆和340千米10千伏中压电缆。

“Dow E&T提供的超洁净Dow Endurance™ 绝缘和半导体化合物具有可靠性和使用寿命长等特点,以支持克拉斯诺达尔地区顺利举办索契2014奥林匹克冬季奥运会,并为未来所需,”Tauson补充道。

“作为世界奥林匹克合作伙伴,陶氏化学和其业务单位Dow E&T倍感自豪,支持我们的客户和索契冬季奥运会筹备委员会这一重要项目。”

Dow E&T - 美国
网址: www.dow.com



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

交易完成

南京钢铁公司与德国Friedrich Kocks公司签署了一项关于供应和试运行三辊减径定径轧机组 370/4的合同,该机型重型设计[RSB++],用于新型SBQ棒材生产。

NISCO隶属南京钢铁联合有限责任公司,总部设在南京,在上海证券交易所上市。公司拥有员工约11,400人,2011年高炉和轧机产能达到680万吨。建成后的新轧机能够以800,000t/a的能力生产质量一流的SBQ棒材,直径范围16-80毫米。

下游粗中轧机包括20个轧机架,4机架370毫米减径定径轧机组将用于生产所有成品尺寸的线圈和冷却床上的直线长度。

三辊RSB设计能够在低温下60毫米直径范围内控制轧制。

重型RSB能够从粗、中轧机中辊平一个轧道,从而显著减少所需的进料器数量。

完整的二维范围内所需的任何成品尺寸都能够按照指定的顺序生产,而且只需要最少数量的轧套和少量的机座更换。

电机速度的最佳调整值,轧辊、导轨以及齿轮的步骤都可以由棒材轧机配置系统

Bamicon计算出来,该系统与最终成品密切相关。

除了带有自动快速更换机架系统的压缩定径块以外,供货范围还包括棒材轧制配置方案Bamicon和轧机生产线上的远程控制调整轧道和导轨的三辊机架,快速更换轧辊的轧辊车间,以及用来精确调整机架上轧辊和导轨的计算机辅助系统Capas。启动和调试监督,人员的培训,都包括在合同内。

预计2013年第三季度交付。

Friedrich Kocks GmbH & Co KG – 德国
网址: www.kocks.de

一幅完整的客户视图

连接整个德国家庭约850万客户群, Kabel Deutschland (KD)与Jacada合作, Jacada是全球领先的客户服务经验技术供应商,能够为客户提供简单又全面的建议。

因此KD能够增加客户和代理商的满意度,同时降低了运营成本和平均处理时间,并且简化了工作流程。

Jacada解决方案结合了重要应用和多个客户沟通渠道,跨过KD的联络中心,提供单一优化的客户信息视图。这种集成使得代理能够方便有效地浏览客户数据和服务。

“客户需要积极和富有成果的经验。我们致力于提供客户服务技术,使公司实现有效和一致的客户体验,” Jacada 首席执行官Gideon Hollander说。

“德国Kabel寻求领先的技术解决方案,以帮助提供更好的客户体验,因此,他们也向客户表明,公司重视业务发展,并继续遵循以客户需求为中心的宗旨。”

因为拥有Jacada桌面解决方案, KD已经能够实现以下工作:

- 平均处理时间减少了近30%
- 提高了客户满意度
- 提高了代理满意度
- 简化了工作流程
- 自动化应用程序导航
- 提高了首次呼叫解决率

Jacada的客户服务解决方案包括移动服务平台,面向客户的桌面,代理脚本技术简化了公司与客户互动的方式。

Kabel Deutschland – 德国
网址: www.kabeldeutschland.de

Ahead together

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MEASURE AND CONTROL INSTRUMENTS

Wire & Cable INDIA:
Booth 1F22

FINE WIRES

High performance Diameter measurement

- Repeatability and stability $\pm 0.03\%$ of the diameter
- Range from 5 to 2000 μm (0.2 - 78.8 mils)

High performance surface quality check

- 64 dots per circumference at 300 000 circumferences/sec.

CABLES, RODS, TUBES

Diameter, Ovality and Defect check

- 1 to 3 axis, 20 to 100kHz per axe
- Range from 0,05 to 80 mm (2 mils - 3.2")

OPTICAL FIBRES

In line High-performance Measurement & Defect detection instrument

- full in line fibre quality certification

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

Measure & Control Instruments

Tratos电缆走向世界



○ Tratosflex-ESDB电缆

Tratos Cavi SpA被授予合同,为迪拜环球港务集团(DP World)供应Tratosflex-ESDB纜丝电缆,安装在迪拜杰贝阿里港口的起重机上。

该港口正在对现有柴油驱动RTG起重机进行通电,作为显著降低能源成本和减少二氧化碳排放的一项重要举措。作为项目的重要组成部分,Tratosflex-ESDB电缆将与新通电的起重机配备。

之所以选用Tratosflex-ESDB电缆,是因为Tratos产品质量保证,已经广泛使用在全球类似领域(包括韩国的釜山港码头),并能够得到位于杰贝阿里自由区的Tratos办公公司强有力的本地支持。

Tratosflex-ESDB不同于其它纜丝电缆,因为Tratos工程师们修改了内部电缆的设计,拧紧了电缆的结构,以抵抗内部的相对运动,从而适应高速应用的需求。因此避免了因扭绞而影响电缆在高速下卷绞的常见问题。

捻绞使得电缆芯被不均匀拉长,反过来又导致外层导体一链面破损的风险更大。在高速下纜丝电缆断开是很危险的,可能会导致广泛和昂贵的设备损坏。

中压橡胶绝缘和护套鼓卷筒电缆,Tratosflex-ESDB能够在-20°C到+60°C的工作温度范围内运作。

Tratosflex-ESDB是Tratos生产的用于移动领域的系列电缆之一,其中包括单螺旋和多螺旋卷绞,篮形卷绞,花形状和散布状。电缆可以提供电力、控制和信令功能,包括光纤电缆和组件。

Tratos Cavi SpA – 英国
网址: www.tratos.co.uk

新炉销往印度

Tenova LOI Italmimpianti和Tenova Hypertherm与BMM Ispat Ltd签订了关于160t/h步进梁式加热炉的交易合同。

BMM Ispat位于印度南部卡纳塔克邦的一个州斯培,目前正在建立一个85万吨的商业棒材轧机,所有的上游设施包括高炉、焦炉、钢铁熔炼车间,连续caster作为年产能200万吨钢铁厂的一部分,整合现有的运营工厂,生产海绵铁, pellets, TMT bars和电源。Siemens VAI将提供轧机。

BMM Ispat之所以选择Tenova作为加热炉的供应商,是因为其产品在印度类似应用领域的技术参考和产品性能。新炉的主要特征在于使用了低热值,最大化应用了鼓风机气体。新炉燃烧系统使用的燃料灵活,起初允许使用100% HFO,将来可使用BFG和HFO的混合燃料,以及混合气体。

有了该合同, Tenova LOI Italmimpianti和Tenova Hypertherm进一步加强了其在印度市场的存在。

Tenova LOI Italmimpianti是金属行业工业炉产品和服务的领先供应商。Tenova是钢铁和矿山等行业的先进技术、产品和工程服务的全球供应商,为整个生产领域提供革新、集成解决方案。

Tenova LOI Italmimpianti – 意大利
网址: www.tenovagroup.com

ZT经销商Ajex

意大利ZT公司很荣幸向业界推出其印度经销商Ajex & Turner。

ZT设计和生产专用机器设备,广泛应用于拉丝、不锈钢、铝和铜、紫铜线(焊丝,点线)、镀锌丝(用于尖端、装饰和网络)、铝线(焊丝)、不锈钢丝(焊丝、弹簧钢丝和超合金)、弹簧高碳钢丝和包芯线等。

Ajex & Turner Wire Dies Co – 印度
网址: www.ajexturner.com



○ Ajex and Turner – ZT经销商

Borouge and Borealis赞助年会

中国电工技术学会(CES)主办的电线电缆委员会年度会议在中国西北的甘肃省兰州市举行, Borouge and Borealis成为本届年会的赞助商。

来自电缆制造业、公用事业和电力设计公司的200多人出席了会议,另外,与会代表还包括电线学院、大学以及本次年会的合作伙伴之一上海电缆研究所(SECRI)。

为期两天的会议期间, Borouge讨论了关于“交联聚乙烯绝缘海底电缆”的话题。这是Borouge and Borealis第二次赞助该年会。

继电线电缆委员会年度会议之后, Borouge and Borealis举行了盛宴, Borouge电线电缆部市场营销经理SK Tham向来宾隆重推介了Borouge and Borealis的电线电缆系列产品, LD5新的投资, Borouge 3, 以及位于阿布扎比的新Borouge创新中心。SK Tham并陈述了Borouge是如何强化“革新创造价值”使命的,这将帮助公司提升其作为创新、增值塑料解决方案的领先供应商地位。

SK Tham还谈到了2015年Borouge and Borealis电线电缆业务的未来增长计划。

Borouge and Borealis – 阿联酋
网址: www.borouge.com



○ 本届年会在兰州举行

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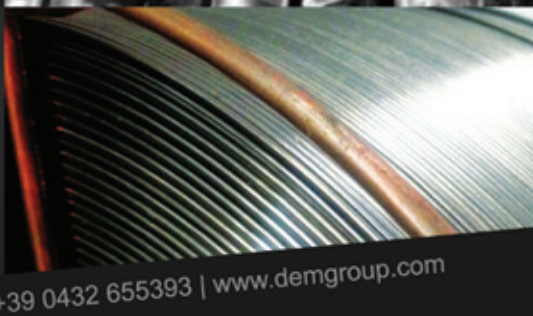
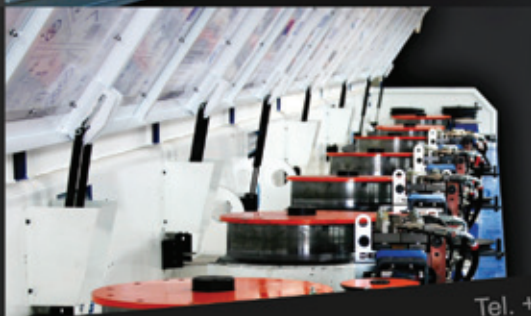
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▲ The new PlasmaAnnealer from Plasmat

High-speed PlasmaAnnealer for stainless steel and nickel alloy wire

PLASMAIT has introduced the new PlasmaAnnealer for continuous heat treatment, degreasing and oxide removal of stainless steel and nickel alloy wires up to 5mm in diameter.

This new machine can be designed for annealing, stress relieving or material hardening applications featuring process speeds of up to 300m/min.

Energy efficient, the high-speed plasma-heating concept allows for accurate targeting of mechanical properties of the processed material.

The plasma heating is complemented with an appropriate length dwell zone for annealing of materials with extended recrystallisation time.

Small and homogeneously distributed grain combined with exceptional surface condition improves material susceptibility to cold working, which manifests itself in better drawability and lower drawing die wear rate of plasma annealed materials.

PlasmaAnnealer is equipped with a vacuum system to

ensure controlled inert atmosphere and exceptionally low usage of purging gas.

The manufacturers who adopted plasma annealing have recognised the value from low cost of ownership in comparison to traditional tube or muffle furnaces.

The benefits of plasma treatment include more than 60 per cent lower energy use, up to 10 times lower purging gas consumption, in addition to the savings from dry, chemical-free degreasing and surface cleaning.

Increased annealing speeds by the factor of 5-10 result in lower capital expenditure in take-ups and pay-offs and associated costs of maintenance.

PlasmaAnnealer suits applications with demanding surface or annealing requirements in the medical, precision mechanical, welding, marine, aerospace and energy sectors.

Plasmat GmbH – Germany
Website: www.plasmat.com



中国最具规模线缆设备制造商之一
One of the largest cable machinery manufacturers with advantages of scale in China

江苏富川机电有限公司

JiangSu Fuchuan Electrical & Mechanical Co., Ltd

Jiangsu Fuchuan Electrical & Mechanical Co., Ltd. was founded in 2001. It is a hi-technology enterprise of being engaged professionally in designing, manufacturing, installing, and adjusting of electric wire and cable equipment. The company is located in Huaqiao Economic and Technological Development Zone in Kunshan City of Jiangsu Province, China.

Through unyielding efforts of all staffs, Fuchuan keeps developing incessantly and becomes one of the largest cable machinery manufacturers with the advantage of scale in China. The company owns three subsidiaries, Jiangsu Fuchuan, Kunshan Fuchuan, and Kunshan Sanyou, which covers an occupying area of more than 21000 m².

The wire and cable equipment launched by Fuchuan, including high-speed strander, high-speed annealing and tinning machine for ultra fine wire, high speed extruder, high speed wire drawing machine, high speed cable laying machine and all kinds of maintenance equipment for wire and cable equipments. All equipments reach the international advanced level in the industry. Currently, Fuchuan provides high quality equipments for famous corporations at home and abroad, such as Sumitomo Electric Group, Hitachi Group, Hewtech Electronics, Kurabe Industrial, Hayakawa wire, Zhenxiang Copper Group, Hanhe Cable Group, Jiangnan Group, Tianjin 609 Cable, Zhongli Sci-Tech Group, Wantai Group as well as Tebian Electric. Praised highly by all clients.



Series for FC-200B,250B,300B Ultra-fine high speed bunching machine



Series for FC-200C,250C,300C,500C high speed bunching machine



Series for FC-500B,650B,800B,1000B new type of high speed bunching machine



Series for FC-1000B,1250B,1600B high speed bunching machine



Series for FC-10D,10DT gear type medium wire drawing and continuous annealing machine



Series for FC-14D,20D,22D,24D wire drawing machine



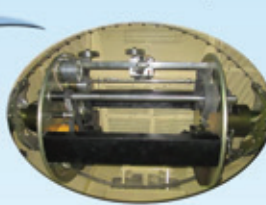
Series for FC-712,T16,T24,T32 Ultra-fine high speed annealing tin machine



Series for FC-T24,T32,T40 normal wire high speed annealing tin machine



FC-650C bunching machine+Multiple active pay-off machine



Internal structure of FC-650C bunching machine



Series for automotive/electronic line wire high speed extruder



Series for FC-180 active/passive pay-off rack



车间一角 (A corner of workshop)

Contact Person: Xiaoping Ye
Cellphone: 0086-13372158288
Tel: 0512-57699169
Fax: 0512-57699189
Http://www.jsfjcd.com
E-mail: yw1@fcjd88.com

Address: NO.168 Garden North Road, Huaqiao Development District, Kunshan City, Jiangsu Province of China

第五届中国国际线缆及线材展览会
The 5th All China-International Wire & Cable Industry Trade Fair
展位号 (Show NO): W2B58

本企业为日本技术在江苏投入生产

The technology of this machine is brought from Japan and put in production in Jiangsu

走向世界

富川机电

FUCHUAN JIDIAN



X-ray technology tailored to your needs

SIKORA offers two X-ray measuring systems for quality control during cable production. Customers who measure up to three cable layers during production choose the X-Ray 6000 Pro. For cable production lines where only one cable layer is measured, the X-Ray 6000 Basic is available.

The X-Ray 6000 Basic measures the wall thickness, the eccentricity, and the outer diameter of single-layer cables. In particular, in insulation and jacketing lines where only the outer jacket is measured, the X-Ray 6000 Basic is used.

The production data is clearly displayed at a 7" monitor, which is integrated directly in the measuring system. The operation is intuitive via touch screen. In combination with the processor system Ecocontrol 600 or 6000 an automatic control of the line is possible. By controlling line speed or extruder rpm the cable parameters are controlled to the nominal value.

The Basic device is a cost-efficient and at the same time powerful alternative to the X-Ray 6000 Pro, which measures up to three layers of different materials. With the Basic the operator receives an X-ray device that includes exactly the functions that are required. For cables where only one material layer needs to be tested, the X-Ray 6000 Basic proves to be an efficient and reliable partner.

The X-Ray 6000 Pro measures the wall thickness, the eccentricity, the diameter and ovality of up to three different cable layers. This device is suitable for products requiring a precise measurement of the insulation wall thickness of the individual material layers.

The system includes as a standard the display and control device Ecocontrol 6000 with a vertical arranged 22" TFT monitor. It is either mounted directly at the X-Ray gauge head, a separate stand, or is remotely integrated in the control cabinet of the line control.

As the 7" monitor of the Basic model, the Ecocontrol 6000 is conveniently operated via touch screen and shows all measuring values numerically and graphically as well as trend and statistical data. The Professional device includes a control of the line speed or extruder rpm under consideration of the minimum values as a standard.

From the very first day of operation, both X-ray devices, the X-Ray 6000 Pro and the X-Ray 6000 Basic, assure a



▲ The new X-Ray 6000 Basic for quality control of single-layer products

continuous online quality control at the cable production. An offline quality control is not necessary. Simultaneously, the systems reduce the wall thickness to a minimum value. Quality assurance and the reduction of material lead to a significant increase of productivity.

Sikora AG – Germany
Website: www.sikora.net





Hard Drawn Wire on 450-1000kgs 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 IEC60858)

Anbao(Qinhuangdao) Wire & Mesh Co.,Ltd
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 Email:anbao@anbao.com Web: www.anbao.com

New machine, bright new future

PS COSTRUZIONI has recently pioneered its latest cable packaging line model, the new Double Automatic Spooling line, model PS630/15 2B – a result of PS's commitment to material-technology based innovation and product development.

This machine, which has the capability to execute the manufacturing process fully automatically, having the operator purely as a supervisory function, has been sold and installed by some of the most demanding customers throughout the world, who are already taking advantage of its engineering excellence and high level of performance.

Customer feedback on this new product has already been favourable.

Another outstanding strength of this machine, 'ad-hoc' built with distinctive features of reliability and solidity, is the possibility to work on three shifts, immediately giving customers the chance to maximise their investment.

This line has been conceived to work with the following technical features:

- Spools diameter: from 400mm up to 630mm
- Flexible cable diameter: from 6mm up to 15mm
- Rigid cable diameter: from 6mm up to 10mm
- Flat cable: width from 4mm up to 16mm



▲ The spooling phase in the new PS630/15 2B

- Thickness from 4mm up to 7mm
- Full spool max weight: 150kg
- Spools wrap material: stretch film.

Linear speed ranges from 0 up to 400/500m per minute, depending on the cable type, the length to be wound and diameter of the reel barrel.

The line consists of:

Driven pay off, accumulator, metre

counter plus one spark tester, double automatic spooling head (400/630), labelling machine, automatic pallet unit and an automatic pallet wrapper.

The machine is available in different models, depending on spool dimensions, and customer service provides tailor-made offers.

PS Costruzioni Meccaniche Srl – Italy
Website: www.pscostruzioni.com



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SKET Central Stranders – three generations

SKET Central Stranders have significantly changed modern stranding technology. Maximum cage rotational speeds of 500rpm and linear stranding speeds of up to 180m/min are reached in practical application.

In the manufacture of overhead lines of all types and copper and aluminium wire conductors (round, sector shaped, compacted and non-compact, straight and pre-spiralled) with cross-sections up to 1,200mm² or more, the central strander has proven successful over a period of more than ten years. More than 150 stranding units are in operation worldwide.

The market responsibility resulting from this success has led to the engineers and fitters at SKET being involved in a continuous process of optimisation of machine detail and in a programme of further development, which has been in clearly defined stages.

SKET can differentiate between three distinct machine generations.

The basic version of the machine uses entirely mechanical solutions for the functioning of the stranding rotor. Customers have judged this basic design to be of significant advantage and it is also a factor in the reliability and low maintenance characteristics of the machine.

This version remains the one most favoured by the marketplace and is a perfectly good solution for the majority of applications. As is the case with the following two generations, it is designed to provide optimum feed of the stranding stock direct from wire containers making use of a further advantage relating to stranding with a central strander: bobbin winding, bobbin transport and loading and unloading of bobbins are all done away with.

A second generation made possible the use of the machine together with smaller diameters of copper wire, whilst maintaining the same bobbin pay-off capacity (700kg of copper wire), for example as a screening machine. An adjustable pneumatically operating system operates in conjunction with the well tried and tested mechanically operating friction clutches which control the centrally mounted bobbins.

This system makes possible the starting up of fully loaded bobbins and the maintenance of stretch free tension in the wire with small diameters of soft copper wire (approx. 1.4mm).



▲ The MK2 from SKET

Using the same principle, machines (type MKZ 250, with bobbins designed for 550kg aluminium wire) have also been used successfully in conjunction with larger bobbin volumes of thicker aluminium wires.

The development of the third generation was brought about by the extreme requirements related to the tolerances imposed on the conductive values related to finished conductors. With

copper prices rising, the exact maintenance of a minimum cross-sectional area became an important cost factor.

Machines of the third generation also differ from their predecessors in their external appearance.

SKET Verseilmaschinenbau GmbH – Germany
Website: www.sketvmb.de

Different reels for different markets

GMP Slovakia's range of products includes many different reels and drums for any kind of application.

For wire and cable there are two reel models: SD-Structural Drum and CD-Corrugated Drum. The main difference between these models is the flange; SD-Structural Drum type has the internal of the flange completely flat, CD-Corrugated Drum has this surface corrugated.

Both models are available in two different versions, one for cable and rope process and the other for cable and rope transportation. The design of the reel is similar aesthetically both for process and transport, but there are important differences in the construction and in the structure of the product.

Reels for process need to be well structured to support stress during the working process, so flanges and barrel are manufactured with special reinforcements, and are designed considering the type of the material loaded, the loading capacity, the speed of application and according to customer requirements.

This version can be statically or dynamically balanced, can have hardened changeable bushings and can be supplied with special lifting hooks or slots for fixing the wire. Reel for transport is lighter in weight, has no special internal reinforcements and can be supplied disassembled to reduce transport cost.

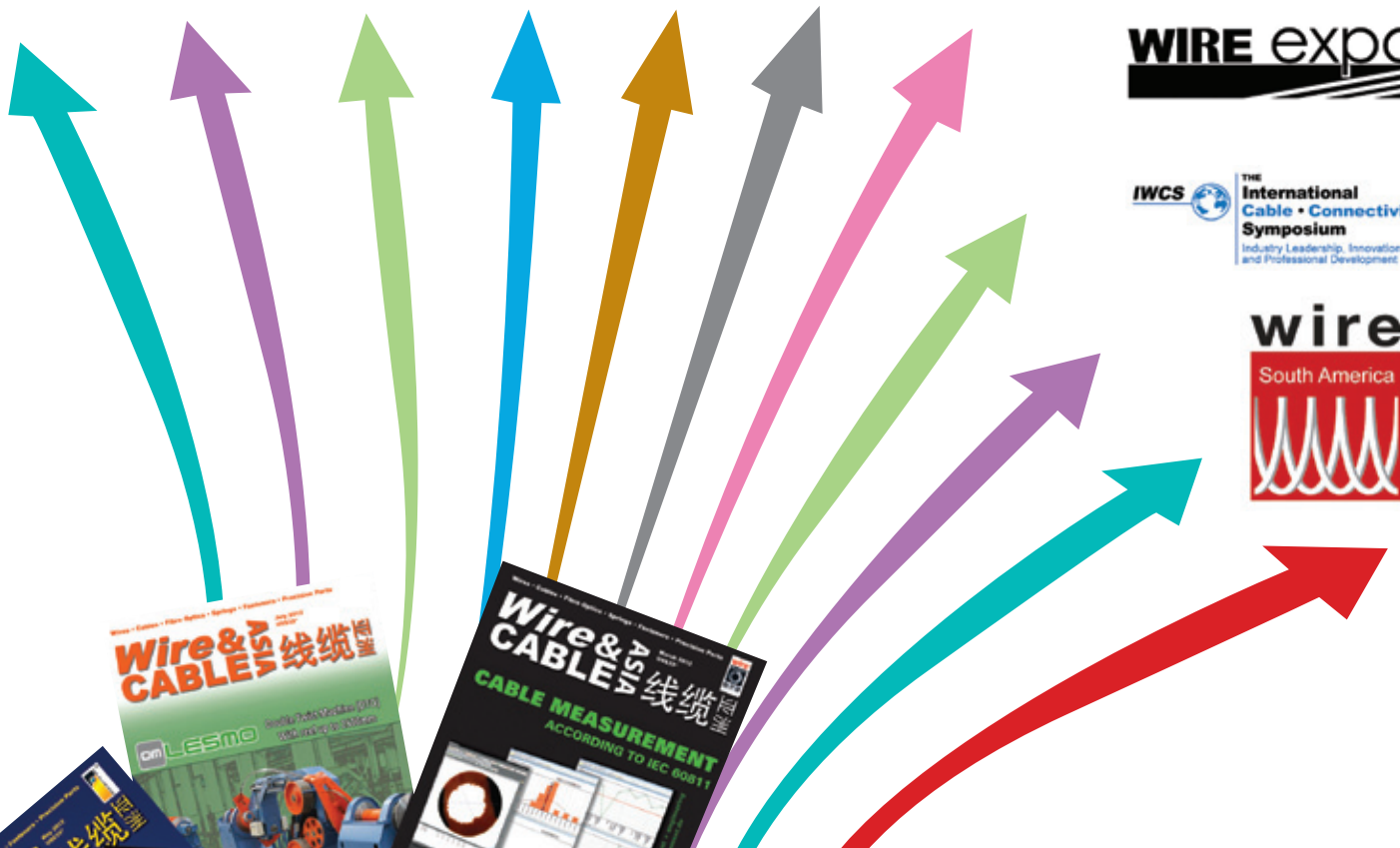
This knock down condition is a very good solution for multi transport, when the customer has to move the reel from its plant to the final customer's plant.

GMP Slovakia also supplies all the equipment suitable to handle these reels, both in vertical and horizontal positions. Many of its products are customised according to customer requirements.

GMP Slovakia – Slovakia

Website: www.gmp-slovakia.com

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Advertorial on behalf of Decalub

Lubrication provides rod anti-friction coat at all speeds

THE innovative LVC/PDH lubrication system provides a high-performance anti-friction coat, reliable lubrication for the most demanding drawing applications, allowing the highest drawing speed with all steel rods/wires, including mechanically descaled uncoated 0.85-0.88 %C rod. Applications include drawing of spring wire, high-tensile rope wire, PC strand wire, CO₂ welding wire, plating wire, cold heading wire, etc.

The LVC/PDH lubrication system features automatic control of lubrication parameters, including lubricant pressure, temperature and viscosity, enabling the use of standard high melting lubricants (+220°C=428°F) which are converted from solid into liquefied state and instantaneously deposited on bare rod, generating exceptional thermal stability in all drafts at the highest drawing speed, replacing phosphate, borax and their wet pre-coating substitutes, completely eliminating rod residual moisture.

In operation, all these parameters 'communicate' together in a sensitive and automatic multi-way interaction to form a consistent exceptionally adherent full-film anti-friction lubricant coat, weight-adjustable, enabling frictionless drawing by physical separation of wire-die contact in all drafts, eliminating friction heat, greatly increasing die life, providing superior surface quality and improved wire ductility.

Typical applications with the LVC/PDH



▲ Rod coating and lubrication by LVC/PDH system

coated rod: Output of 2.2 tonne/hour with 5.5mm 0.83-0.88%C mechanically descaled bare rod, in a 'frictionless' drawing application with die life of 200 tonnes/die in the first draft and a die wear of 0.20 micron/tonne of wire drawn in the last draft.

Spring wire is drawn from mechanically descaled bare rod, without pre-coating chemicals, at 18m/s (3,600ft/min); 5.5mm 0.72 %C rod drawn to 2.35mm at 16m/s (3,200ft/min); 0.5mm 0.85-0.88 %C rod drawn to 4.22mm at 8-9m/s (1,800ft/min).

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Ropes for all from Chonghong

Chonghong Industries manufactures and supplies galvanised aircraft cables, steel wire ropes of various structures and specifications, brake wires for cars, motorcycles and bicycles, stainless steel ropes, non-rotating steel ropes, elevator wire ropes, and wire ropes for special uses.

The company's current annual capacity is 4,000 tons of galvanised steel ropes.

Backed by a complete line-up of production

equipment, advanced testing measures, and experienced staff, Chonghong can guarantee a reliable and quality product.

The company exports to more than 60 countries in the EU, North America, South and Central America, the Middle East and Southeast Asia.

Chonghong Industries - China
Website: www.ch-industrial.com

▲ Chonghong exports to more than 60 countries



Cost-effective multi-sensor process control and data acquisition

THE USYS IPC models are powerful, modular and very flexible processor systems, which are suitable for any manufacturing process in the wire and cable, plastic or rubber industries and for all processes in the cold steel and metals industries. The USYS IPC systems are an alternative to the other processor and display units of the USYS series.

The economic and space-saving USYS IPC hardware complements the USYS family of processors. It offers the flexibility to mount the processor in a convenient location while mounting the LCD touch screen at a more appropriate location for the operator.

The front panel of the industrial processor provides power on/off switch, USB keyboard/mass storage connector; USYS IPC 2 & USYS IPC 8 also with PS 2 keyboard connector.

A passive back plane features the connectors for all measuring gauges, Ethernet and USB connectors, I/O



▲ Overview of the USYS IPC 1, 2 and 8 processors with separate touch screen display

board slots as well as serial and parallel connectors for peripherals.

With Zumbach's new concept of modular extension modules, the customer invests only in what he or

she really needs to match the required measurement and control challenges, and thus reaching quality requirements.

Zumbach Electronic AG – Switzerland
Website: www.zumbach.com

Worldwide appeal of Nevatia

Nevatia Steel & Alloys, an ISO 9001:2008, ISO 14001:2004 and OHSAS 18000:2007 accredited company, was incorporated in 1988 for manufacturing stainless steel wires.

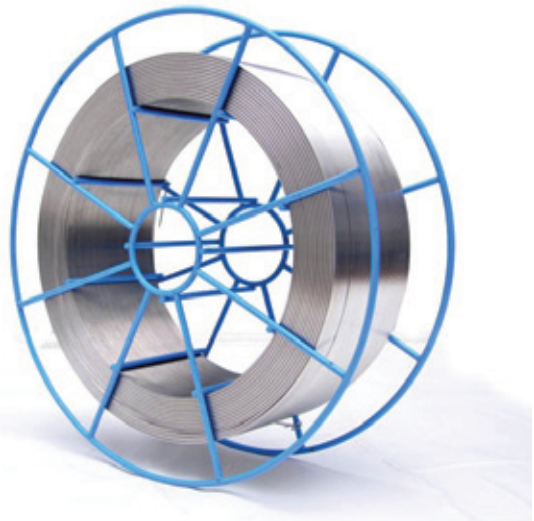
The company's manufacturing facilities are strategically located close to the port of Mumbai, India, and have a capacity of 9,000mt per annum.

Nevatia Steel Wires are manufactured in compliance with international standards of quality and are in accordance with customers' stringent specifications.

Wires are made in a variety of grades (AISI 201, 202, 204Cu, 304, 304L, 316, 316L, 302, 303, 302HQ, 314, 321, ER308L, ER309L, ER316L, ER 347, 310, 410, 420, 430, 430L, etc) in the size range of 0.1mm to 12mm in wire and in the size range of 2mm to 6mm in bright bars, having demanding applications in various fields like braiding, knitting, weaving, cold heading, redraw, spring, electro-polish, nails, staple wire, MIG, TIG, core for welding electrodes and general purpose.

Over the years, Nevatia's products have been exported to a large part of the international community with major destinations including North & South America, Australia, Canada, Europe, South Africa, Israel, Korea, Turkey and Vietnam.

The Nevinox® brand MIG (GMAW) and TIG (GTAW) stainless



▲ Meeting international standards

steel filler welding wires have recently been accredited with Deutsche Bahn (DB) approval in addition to prestigious approvals from Bureau Veritas for marine applications, TUV for pressure vessels and equipment and the CE Mark.

Nevatia Steel & Alloys Pvt Ltd – India
Website: www.nevatiasteel.com

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 Email: zli@changan.net

Production lines for precision micro metal tubes with optical fibres

THE MACHINES, of Switzerland, supplies two fully automated and continuous operating production plants for OPGW applications. The full supply scope covers a wide range of precision formed and welded metal tubes with optical fibres, like FIST, which are integrated into a number of different end products such as OPGW, OPPC and fibre optic submarine cables.



▲ Excellence in production from THE Machines

The precision micro tubes with optical fibres are specified in many different diameters, wall thicknesses and with many different numbers of fibres. The fibre excess length in the precision micro-tube is controlled and adjusted to suit the application.

The lines are equipped with tape feeding (pay-offs); laser cross welding and tape accumulator for full continuous and non-stop operation. The lines are equipped with high precision tension controlled multi fibre pay-off stations.

The heart of the lines, bringing together the fibres and the metal tape, feature:

- Precision tape guiding and edge cutting, when required
- High precision tape forming benches
- Precisely controlled jelly filling (Thixotropic gel compound)
- Robot controlled orbital welding
- Patented welding-seam following and tracking system
- Perfect and fault-free welding with real time vision systems
- On-line welding seam control ECC100 for a 100% quality inspection of the weld

- Trend display, recording and tracking of all relevant process parameters
 - Fault-free welding of tubes with tolerances to $\pm 0.01\text{mm}$
- Down-stream operations complete the solution featuring:-
- Draw down stations for exact final tube dimensions
 - Drying, cleaning and oil separation unit
 - Capstan with precision controlled line tensions throughout the whole process
 - Fibre over length station – regulated and fibre slack-length controlled
 - Documented during the entire production process
 - Auto traversing winding (take-up) for precision winding of spools 630 to 1,250mm

THE Machines' knowledge in production technology covers a wide range of applications and fields of expertise in extrusion lines for drip irrigation systems, stand-alone equipment for drip irrigation systems, multilayer piping, metal tape forming and welding, laser welding as well as all up and down stream operations in tape or pipe pay-offs and take ups.

THE Machines – Switzerland
 Website: www.the-machines.ch

Customers on a global scale

Goodcomer has been producing aluminium ferrules for wire rope in Taiwan for over 25 years.

The company is able to supply seamless aluminium ferrules in sizes from 8mm-102mm according to EN13411-3 (DIN3093) standard (seamed ferrules for sizes 1mm to 7mm are also available).

ISO 9001 certified since 2010, Goodcomer has an excellent reputation with customers from Singapore, Japan, Hong Kong, Korea and Dubai.

Goodcomer Co Ltd – Taiwan
 Website: www.goodcomer.com

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For the full programme and to register to attend visit

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▲ The Hascelik Halat San Tic site

Reaching the market on a global scale

HASÇELİK Group, a Turkish aluminium and steel manufacturer, has four plants dedicated to producing and exporting worldwide.

The company has been producing the following products since 1989:

Has Celik cable plant: All aluminium conductors (AAC), all aluminium alloy

conductors (AAAC), aluminium conductors steel reinforced (ACSR), OPGW composite optical grounding wire, aluminium clad wire and strand alumoweld, 9,5 EC grade aluminium rod, aerial bundled cables (0.6-1kV ABC cables), underground 0.6-1 kV aluminium power cable NAYY, NA2XY, from 6kV to 66kV underground XLPE insulated copper or aluminium power cables.

Coreal cable plant: All aluminium alloy conductors (AAAC), aluminium conductors alloy reinforced (ACAR), aluminium conductors steel reinforced (ACSR), all aluminium conductors (AAC), aluminium alloy wire rod 9.5-12 mm EC grade, 6000 series, aerial bundled cables (0.6-1kV ABC cables), underground 0.6-1kV aluminium power cable, XHHW-2, SER, SEU LV aluminium building wires, LV service drop aerial bundled cables, 600 VOLT UD cables.

Has Celik steel wire rope plant:

Galvanised, single stranded ropes as earth wire, galvanised and bright steel wire ropes for different applications and purposes from 8mm to 70mm, galvanised, stranded steel wires for ACSR steel core and suspension wires for telecommunication cables.

With modern facilities, equipment and technologies, plus engineers with many years of experience in production, Coreal and Hasçelik are producing steel and aluminium products in accordance with world standards such as EN, ASTM, BS, GOST, DIN, UNE, IEC, IEEE and NFC.

With a strong commitment to quality, the company has developed a quality control team inspecting quality throughout every phase of the production.

Hascelik Halat San Tic AS – Turkey
Website: www.hascelik.com.tr
Website: www.coreal.com.tr

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PWM's video demonstrations

PWM has produced a series of videos demonstrating four of its high-performance cold welders in action.

The videos show how PWM's P1500, P1000, EP500 and HP200 cold welders utilise the multiple upset technique to create strong, permanent welds on copper and aluminium wire and rod, without heat, flux or fillers.

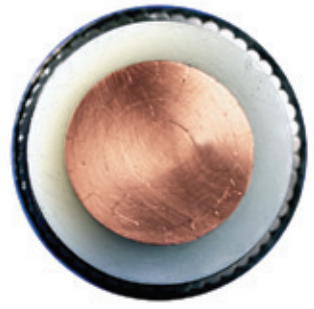
PWM's EP500, P1000 and P1500 freestanding rod welders cater for wire/rod sizes from 5mm to 30mm (0.197" to 1.181"). The HP200 portable model, mounted on a trolley, is for wire 2mm to 6.5mm (0.079" to 0.256") diameter.



▲ The PWM P1500 is one machine featured

The videos can be viewed at the company's website.

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



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www.borealisgroup.com
www.borouge.com





○ Plasmait生产的新型等离子退火设备

高速等离子退火设备用于不锈钢和镍合金丝

Plasmait已推出新型等离子退火设备，用于连续热处理、除油和氧化除去最大直径5毫米的不锈钢和镍合金丝。

该新型机器可设计成用于退火、消除应力或材料硬化，加工速度最高达300米/分。

高效节能，高速等离子加热设计允许准确定位被加工材料的机械性能。

等离子加热配有适当长度的停留区，用于退火材料，并延长重结晶时间。

小而均匀分布的颗粒结合特殊的表面条件，改善了冷加工材料的易受磨损性，这体现在更好的拉伸性和等离子退火材料较低拉丝模磨损率。

等离子退火设备配备有一个真空系统，用来确保控制的惰性气体和特别低使用率的净化气体。

采用等离子退火的制造商已认识到，与传统管或马弗炉相比，节约了成本。等离子体处理的好处包括，60%以下的能源使用，

少于10倍的净化气体消耗，另外，干燥、无化学脱脂和表面洁净的成本也降低了。

提高退火速度5-10个因子，将直接导致收、放线机和相关维护成本支出更低。

等离子退火设备适合于苛刻的表面或退火的要求，比如医疗、精密机械、焊接、船舶、航空航天和能源部门。

Plasmait GmbH – 德国
网址: www.plasmait.com

光纤精密微型金属管生产线

瑞士THE MACHINES为OPGW应用供应两台全自动连续运作生产设备。完整的供货范围涵盖了广泛系列的光纤精密成型和焊接金属管，比如FIST，融入了许多高端产品，如OPGW、OPPC和光纤海底电缆。



○ THE MACHINES 卓越的生产线

光纤精密微管有许多不同的直径、壁厚和不同的纤维数量。在精密微管中，纤维过量长度根据应用要求，能够控制和调整。

生产线都配备了带供给(放线机)；激光交叉焊接和带累加器用于完全连续不间断运行。

生产线也配备有高精度张力控制的多纤维放线站。

生产线的核心汇集了纤维和金属带，具体如下：

- 精密导带和切边，需要时
- 高精度带成型台
- 精密控制胶体充填(触变性凝胶复合物)
- 机器人控制轨道焊接
- 专利焊缝跟踪系统
- 完美、无故障焊接，带有实时视觉系统
- 在线焊缝控制ECC100用于100%质量检验焊接
- 趋势显示，记录和跟踪所有相关的工艺参数
- 无故障焊接管，公差为±0.01毫米

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- 向下拉伸台用于精确最终的管尺寸
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- 精确控制整个过程线张力的绞盘
- 光纤超长站 - 受纤维松弛长度控制
- 在整个生产过程中备有证明文件
- 自动穿越绕组(收线机)，精密卷绕线轴630到1250毫米

THE MACHINES的卓越生产技术涵盖广泛的应用，专业领域中挤出生产线用于滴灌系统，独立的设备用于滴灌系统、多层管道、金属带成型和焊接、激光焊接以及所有的上下游操作，在带或管收放线机上。

所有的机器和设备由THE MACHINES内部设计、开发和实施，得到了经验丰富的专家团队的支持，他们提供了大量的技术专业知识和工程服务。

THE Machines - 瑞士
网址: www.the-machines.ch

针对不同市场提供不同的卷轴

GMP Slovakia系列产品包括应用广泛的各种卷轴和工字轮。

应用于电线电缆行业的两种卷轴，型号分别为：SD-结构鼓和CD-波纹鼓。这两个型号产品的主要区别在于凸缘，SD-结构鼓型内部凸缘完全平坦，CD-波纹鼓表面有波纹。

两个型号应用各异，一个用于电缆和绳索加工，另一个用于电缆和绳索运输。卷轴的设计从美学角度看，似乎没什么异样，都用于加工和运输，但重要的区别在于制造和产品的结构。

卷轴需要良好的结构来支撑加工过程中的压力，因此凸缘和圆筒要经过特殊强化加工，设计时要考虑承载的材料类型、承载的容量、应用的速度以及根据客户的具体要求。

该类型可以是静态或动态平衡，也可以有硬化可变的套管，或可供应特殊起重吊钩或槽用于固定线材。用于运输的卷轴重量上要轻，无需内部特殊强化，可供拆卸，以降低运输成本。拆卸条件是多式联运的很好解决方案，比如客户需要从工厂将卷轴移动到用户的工厂。

GMP Slovakia也提供各种设备，适合于在垂直和水平位置处理这些卷轴。公司的许多产品可根据客户要求定制。

GMP Slovakia - 斯洛伐克
网址: www.gmp-slovakia.com

物超所值的多传感器过程控制和数据采集

USYS IPC型是强大的、模块化的和非常灵活的处理系统，适用于电线电缆、塑料橡胶的任何生产工艺，以及冷钢和金属行业的所有生产过程。USYS IPC系统可替代USYS其它处理器和显示器。物超所值和节约空间的USYS IPC硬件弥补了USYS系列处理器的不足，它更灵活，处理器能够安装在方便的地方，而且LCD触屏的安装位置也更加方便操作员。

工业级处理器的前面板提供电源开/关，USB键盘/大容量存储接口；USYS IPC 2和USYS IPC 8也带有PS 2键盘接口。无源背板上设有测量仪的连接接口，以太网和USB连接器，I/O电路板插槽以及串行和并行连接的外围设备。

使用Zumbach的新型模块化扩展模块，客户的投资只要与他或她真正需要的测量控制挑战相匹配，从而达到质量要求。



○ 带有独立触屏显示的USYS IPC 1, 2和8处理器 一览

Zumbach Electronic AG - 瑞士
网址: www.zumbach.com

在所有速度下, 润滑剂提供杆耐磨涂层

软文代表 Decalub

创新LVC/PDH润滑系统提供高性能抗摩擦涂层, 可靠的润滑适用于诸多苛刻的拉丝应用, 允许所有的钢棒/钢丝最高速度拉伸, 包括机械去除氧化皮的无涂层0.85-0.88 %C杆。其应用包括拉伸弹簧钢丝、高强度绳线、PC绞线、CO₂焊丝、电镀丝和冷镦丝等。

LVC/PDH润滑系统能够自动控制润滑系数, 包括润滑压力、温度和粘度控制, 可以使用标准高熔点润滑剂(+220°C=428°F), 该润滑剂从固体转换为液化状态, 瞬间沉积裸杆, 在最高拉丝速度下产生优异的热稳定性, 取代磷酸盐、硼砂和它们的湿预涂层替代品, 彻底消除连杆残留的水分。

在操作中, 所有这些参数敏感而又自动地双向互动“沟通”, 形成一致异常附着的全膜抗摩擦润滑剂涂层, 重量可调, 能够物理隔离线模接触无摩擦拉伸, 消除摩擦热, 大大提高了模具寿命, 从而提供优异的表面质量和提高线材的延展性。

LVC/PDH涂层杆的典型应用包括: 输出为2.2吨/小时, 5.5毫米0.83-0.88%C机械除垢裸杆; 在“无摩擦”拉伸应用中, 第一次拉伸, 模具寿命200吨/模, 最后一次拉伸, 模具磨损0.20微米/吨。

通过拉伸机械去氧化皮的裸杆制造而成的弹簧钢丝, 不预涂层化学物质, 速度为18米/秒(3600英尺/分); 5.5毫米0.72 %C



来自LVC/PDH的杆涂层和润滑系统

杆拉伸到2.35毫米速度为16米/秒(3200英尺/分); 0.5毫米0.85-0.88 %C杆拉伸到4.22毫米, 速度为8-9米/秒(1800英尺/分)。

Decalub - 法国
 传真: +33 1 60 20 20 21
 电子邮件: info@decalub.com
 网址: www.decalub.com

高性能工业以太网电缆

Alpha Wire公司是电线电缆和管道行业先进的解决方案和服务供应商, 最近扩展了其高性能Xtra-Guard系列产品的范围, 新添加工业以太网电缆Cat 5e, 该产品具有抗化学、耐磨损和抵挡日晒的特点, 应用的温度范围也非常广泛(-50°C到+125°C)。耐磨损热塑弹性体护套, 加上3x低温灵活性, 比普通PVC更能抵抗溶剂、化学品和燃料, 新的Cat 5e电缆能够为最具挑战性的网络需求提供坚固、耐用的连接。

Xtra-Guard工业以太网电缆可供选择非屏蔽、金属箔屏蔽, 或Supra-Shield®箔/编织层。Alpha Wire公司的超屏蔽结合使用铝/聚酯/铝箔和镀锡铜编织层, 提供杰出的EMI性能和灵活性。此外, 电缆还能够抵挡紫外线和耐流体, 符合UL 1666 Riser和CSA FT-4火焰测试, 是NFPA 79应用的理想选择。该连接电缆可提供温度范围在-50°C到+125°C之间的FEP绝缘导线, -50°C到+105°C之间的聚乙烯绝缘导线。TPE护套颜色为黑色, 标准长度152米(500英尺)。其它颜色包括红色和蓝绿色, 可作为特殊订单。工业以太网的具体应用包括机器装置水平的机器人技术/执行器, 控制层PLCs, 企业级服务器, 其它应用包括极端温度, 户外, 机械损伤, 接触化学品和电磁干扰环境等。各行业组织将受益于这一新的电缆, 比如军工、石油和天然气、采矿、高速通信、过程控制系统、安全性和安全互连, 以及半导体OEMs。

Alpha Wire - 美国
 网址: www.alphawire.com

X射线技术为您量身定制

Sikora为电缆生产质量控制提供两种X射线测量系统。客户如在生产过程中需要测量三个电缆层, 可选择X-Ray 6000 Pro。若电缆生产线中只需测量一个电缆层, 那么可选择X-Ray 6000 Basic。

X-Ray 6000 Basic测量壁厚、偏心率和单层电缆的外径。值得一提的是, 在绝缘和护套线生产中, 只需测量外护套, 那么可使用X-Ray 6000 Basic。

生产数据清晰显示在7英寸的显示器上, 该显示器直接与测量系统集成。操作通过触摸屏非常直观。与处理器系统Ecocontrol 600或6000结合, 可实现自动控制生产线。通过控制线速度或挤压机的转速, 电缆参数可控制到标称值。

Basic装置成本经济, 同时, 是测量三层不同材料X-Ray 6000 Pro强有力的替代。使用Basic, 操作员等于接受一台X射线装置, 包括了完全所需的功能。如果电缆只需测试一个材料层, X-Ray 6000 Basic被证明是有效和可靠的合作伙伴。X-Ray 6000 Pro能够测量三个不同电缆层的壁厚、偏心率、直径和椭圆度。该设备适合于产品需要精确测量各个材料层的绝缘壁厚度。该系统包括一个标准显示和控制装置Ecocontrol 6000, 带有垂直排列的22英寸TFT显示器。它可以直接安装在X射线测量头上, 一个独立的支架, 或者与线路控制的控制柜远程集成。

Basic型带有7英寸的监视器, Ecocontrol 6000通过触屏操作方便, 并且以数字和图形显示所有的测量值, 以及趋势和统计数据。该专业设备包括: 作为一个标准, 在最低值的情况下, 控制线速度或挤压机转速的控制器。从第一天操作起, X射线装置X-Ray 6000 Pro和X-Ray 6000 Basic保证电缆生产过程中连续在线质量控制。离线质量控制是没有必要的。同时, 系统将壁厚降至最小值。质量保证和材料减少必然带来生产力的显著提高。

Sikora AG - 德国

网址: www.sikora.net



用于单层产品质量控制的新型X-Ray 6000 Basic

ESM牵头研究

商业化生产的光纤在电信应用中呈下降趋势，铜缆越来越多地成为首选替代品，目前大量的研究工作正专注于新一代光纤产品。为此，总部设在英国的工程服务管理公司(ESM)任重而道远。

该专业公司最近负责设计、建造和安装定制的两用光纤塔，用于拉伸纤维和藤茎，便于研究。可比的商业系统是大型的钢铁结构，ESM系统是模块化结构，更加紧凑，以满足空间和访问限制的研究环境。

设计的ESM系统，光纤生产工艺的重要组成部分是光滑，无摩擦垂直进给玻璃预成型，圆筒状的玻璃坯料进入线炉。一旦熔化，产生的薄二氧化硅最终涂覆有超强度和柔软度的树脂。

纵向进给机的基础是HepcoMotion®降低工程包。此螺丝驱动的线性致动器系统，专门用于洁净室条件下，包含一个安

装有螺杆驱动的重型梁PSD120。该产品特别适合Z-轴应用，其中HepcoMotion® Herculane轮具有光滑、低维护性能。

PSD120滚珠螺杆驱动和直线导轨容纳在强大的铝梁内，由贯穿整个产品线的不锈钢盖条保护着，以防止灰尘和碎屑进入，是直线运动系统的理想替代品，因为整体波纹管直线运动系统易于造成颗粒污染的敏感环境。

该系统的设计系简单的解决方案，用于主塔施工，旨在提供连接钢板，便于现场组装。横梁上的T型槽还为辅助部件提供简单的连接方法。

滚珠螺杆驱动满足玻璃熔炉位置轻微的小调整需求。

ESM“微型”塔上，稳稳地托住玻璃压片入炉的卡盘依附于巨大的PSD120车厢

板。PSD120提供所需的稳定性，确保给运动的高线性，PSD120还配有额外的Utilittrak®轧辊，来提高抗弯承载力和刚度。

首个ESM压缩光纤塔现已安装，在德国马克斯普朗克研究所运行良好，该研究所是光子晶体光纤和柔软玻纤发展的杰出中心，研究团队在著名科学家Belfast-born, Philip St John Russell FRS教授的带领之下，他在该领域做了大量的工作，使得光子晶体光纤在1996年才得以实现。

第二个塔于2010年交付给马来西亚吉隆坡的马来亚大学，用于研究扁平光纤。第三个塔将于今年2月运往巴西。

Engineering Services Management
- 英国
网址: www.esmgroup.co.uk

SKET中心式绞线机 - 历经三个时代

SKET中心式绞线机显著改变了现代绞线技术。在实际应用中，最大笼转速速度达500rpm，线性绞合速度达到180米/分钟。

制造的各种架空线和铜、铝导线(圆形，扇形，压实和非压实，直线形和预螺旋形)的横截面达到1,200mm²或更大，十余年的经验证明中心式绞线机是成功的。150多台绞线设备在全球运作。

成功赋予的市场责任使得SKET工程师和装配工不断优化机器的细节，按步发展，早已提上了明确的日程。

SKET经历了三个不同的机器时代。

普通机器使用完全机械化的解决方案来运作绞线转子。客户已普遍认可该基本设计机器的显著优势，具有可靠性和低维护的特性。

该型机最被市场看好，是主要应用领域的最理想解决方案。正如以下两个时代的情形，机器的设计能够直接从线容器最佳绞合进料，利用与中心式绞线机绞合相关的另一优势：线轴缠绕，线轴传输和装卸都能完成。

第二代实现了机器能够和较小直径的铜线一并使用，同时保持相同的线轴放线量(700千克铜线)，比如筛选机。可调节的气动操作系统结合久经考验的机械操作摩擦离合器共同运作，离合器控制安装在中心的线轴。

系统能够满载线轴启动，维护弹力无张力线与小直径软铜线(约1.4毫米)。



○ SKET生产的MK2型机

利用同样的原理，机器(MKZ 250型机的线轴设计用于550公斤铝线)已成功应用在厚铝线的大线轴上。

第三代的发展带来了关于成品导线导电公差极端要求。随着铜价的上涨，最小横截面的精确维护成为重要的成本因素。

对于绞合过程，这意味着，不论线轴上有多少线，在所有绞线条件下(启动，平稳运行，减速)，要求每根导线上有恒定的张力。使用机械摩擦的所有张力控制解决方案取决于波动摩擦系数值。耦合转矩产生的电马达更加精确和高效节能，使线张力可以同样精确地设定和保持在一个恒定水平。

第三代机器上位于中心位置的线轴安装在同轴特殊电机上。电机根据现代“扭矩马达”原理运作，其扭矩或速度可通过智能

电源转换器设定，以保证绞合过程中恒定的张力(使用SKET加工专利)。此外，在耦合过程中所使用的能量可以被反馈到使用合适控制电路的电源供应。

该解决方案还具有一个显著的优势：电机用于中心位置的线轴，在四象限模式下结合工作。电机能够向中央线轴提供直接驱动功能，由于其用铁丝填充。填充因子控制的电机速度保持恒定水平的线性速度。

先前卷绕操作所需的摩擦轮系统完全被淘汰；只有卷绕操作过程中圆柱形导丝的系统还保持着。

第三代机器在外观上也不同于其前辈。

SKET Verseilmaschinenbau GmbH
- 德国
网址: www.sketvmb.de

India

Insight

Power shortages and land costs see fasteners move

Citing power shortages, rising land costs and unfavourable policies for them in Punjab, the state's fastener manufacturers are planning to establish themselves in Gujarat.

The companies see huge growth potential in Gujarat, which has a strong industrial base in the refinery, power and automobile sectors.

"We have made up our mind to set up a fastener cluster in Gujarat, as the state offers immense potential to us because of the presence of a host of industries in the field of refinery, power and automobile and our products can be used in these sectors in a big way," explained Narinder Bhamra of the All India Fastener Manufacturers Association.

The industry also sees export potential, using

the sea port in Gujarat. "As we will be near the port, we can also import cheap raw material from China and Taiwan, which will help us in reducing our input cost," he added.

"Initially we will be investing Rs 1,000 crore for setting up a fastener cluster comprising 50 to 60 units," he said.

A delegation of fastener makers led by Narinder Bhamra was to visit Gujarat during September to meet with the senior officials of the Gujarat government, in order to settle issues such as land, incentives, and approvals to start the project.

"We are looking at 100 acres of land in Ahmedabad to start our venture," he said.

CII predicts surplus power for Northern States

A Confederation of Indian Industry (CII) report predicts that six of the nine Indian Northern States will have surplus power within four years if all plants under execution are commissioned by the end of the 12th Plan period, adding, however, that peaking shortages will continue.

Referring to the blackout in the Northern grid during July, the industry body said that: "Coupled with a scanty monsoon this year, the situation only threatens to become worse if immediate steps are not taken to address the problem."

According to the CII report, Uttar Pradesh had the highest deficit among the Northern States.

Haryana, Jammu and Kashmir also witnessed a rise in energy deficits, while Punjab, Rajasthan and Uttarakhand witnessed a fall for the year 2010-11 from the previous year.

It said the role of nuclear energy in the region was growing, with Rajasthan receiving the highest share of capacity addition (6.7 per cent) as a percentage of the total in 2010-11.

The CII report said transmission and distribution losses had reduced in most states, with Delhi, Chandigarh and Himachal registering the sharpest fall from 43.6 per cent, 39.06 per cent and 38.64 per cent in 2005-06 to 18.3 per cent, 17.4 per cent and 18.96 per cent respectively in 2010-11.

Within the Northern region, thermal continues to be the dominant source of power – with 60.4 per cent of total installed generation capacity in the region – followed by hydropower (29.9 per cent), while nuclear and renewable energy are yet to make a significant mark.

Confederation of Indian Industry – India
Website: www.cii.in

Cable chaos

Networks of untidy cables and wires have become so unsightly that Greater Hyderabad Municipal Council (GHMC) has decided to cut and neaten the stretches in time for the forthcoming Conference of Parties (CoP), GHMC commissioner M T Krishna Babu said.

Speaking to City Express, he said that cable wires hanging on to electricity and street lighting poles would be removed from PV Narasimha Rao Elevated Expressway, Sarojini Devi Eye Hospital, Mehdipatnam to



▲ Just a snapshot of the problems in Hyderabad

Hyderabad International Convention Centre (HICC), Madhapur and other roads from Charminar to Erragadda.

The corporation had previously given 15th August as a deadline for cable companies and operators to remove tangled cables but, at the operators' request, the deadline was extended to 20th August.

Krishna Babu revealed that a team of GHMC officials is to visit Mumbai to study the common ducting system undertaken by the MMRDA on Build Own Operate and Transfer (BOOT) basis. Around 40km of common duct system has been laid and given on lease to the cable companies.

Greater Hyderabad Municipal Council – India
Website: www.ghmc.gov.in

RINL provides solar lighting

Rashtriya Ispat Nigam Ltd (Visakhapatnam steel plant) has executed a solar energy project called "Surya" at the SOS children's village at Nerellavalasa Colony in Bheemunipatnam.

The solar system was inaugurated by B Ramanjaneyulu, commissioner of the Greater Visakhapatnam Municipal Corporation. Umesh Chandra, director of operations, and YR Reddy, director of personnel of the RINL, participated in the function.

Ramanjaneyulu appreciated the initiatives of RINL in helping the orphan students of the SOS village and urged the RINL management to continue with more such programmes in rural areas.

The SOS children's village at Bheemili was established in 1998 on 10 acres of land. Currently, 168 children are living in 14 family homes and each home has 12 children.

Rashtriya Ispat Nigam Ltd – India
Website: www.vizagsteel.com

Insulation project sees poor response

The call for tenders for a project by Bangalore Electricity Supply Company (BESCOM) to insulate high-tension wires across the city has received a poor response from potential contractors.

The project identified residential areas around the city where wires are dangerously close to housing and public areas, and sought replacement with bunched insulated wires for safety, and to guard against power theft.

The lack of interest by bidders for the project has prompted BESCOM to abandon the process and re-evaluate the project.

"We found that the bidders had quoted close to 20 per cent more than the 351 crore mentioned in the tender. This amounted to almost 70.2 crore of additional cost for the project, which forced us to look into the details minutely," said a senior official with BESCOM.

He added that there were allegations of non-revision of cost of raw material and that bidders felt the project had not taken a rise in the cost of materials into its budget.

The spokesman for BESCOM confirmed that the company will be examining and revising its costs, and plans to restart the tender process in the very near future.

BESCOM – India
Website: www.bescom.co.in

Tata Steel cost cuts

Mr Ratan Tata, chairman of Tata Steel, has said that Tata Steel Europe needs to focus on cutting costs by identifying and sourcing raw material at competitive prices to keep its operations profitable.

Speaking at the company's 105th AGM, Mr Tata said that the steel industry in Europe, particularly the UK, has sought government help to meet new environment obligations, and he hoped a favourable decision would be taken.

In his last speech as chairman, Mr Tata said steel has been referred to as both a sunrise and a sunset industry, but that Tata Steel has the fortitude to get through difficult times, predicting that Asia will regain momentum, while China and India will continue to grow.

However, Fitch Ratings has revised the outlook on Tata Steel and Tata Steel UK Holdings from stable to negative.

The revision reflects Fitch's view that profitability pressures will remain on both companies, given the challenging short-term outlook for the global steel market.

Tata Steel – India
Website: www.tatasteel.com

Airtel to increase Nigeria network

Airtel Nigeria, the subsidiary of India's Airtel, is set to improve its service with the addition of over 2,000km of fibre optic cable. Airtel currently has over 4,000km of fibre cable on its transmission network and 20 million subscribers.

Making the announcement recently in Lagos, MD and CEO of Airtel Nigeria, Mr Rajan Swaroop, disclosed that the company has doubled its network capacity and is poised to improve on that in its bid to continue providing telecommunications services in Nigeria.

Speaking of the company's plans, Swaroop said: "In this first phase, we will be adding over 2,000 kilometres of fibre optic cable to our network," raising it to 6,000km, and he drew attention to the recent rating by telecommunications regulator, the Nigerian Communications Commission, where Airtel was rated the best network in Nigeria in the first quarter of 2012.

"Our efforts are paying dividends," Mr Swaroop said. The doubling of the capacity has put the company in a good position to double its subscription base without impacting on the quality of service.

Airtel – India
Website: www.airtel.in

Solar cities plan

India's ministry of new and renewable energy (MNRE) has proposed plans to turn 60 Indian cities into so-called solar cities. The region of Tripura, in north east India, has been selected as a pilot for the scheme. The MNRE is expected to bear 90 per cent of the cost with the remaining costs covered by the Tripura government.

Solar hot water systems will be installed in all hotels, nursing homes, school hostels, government circuit houses and bungalows, hospitals and health centres, tourist lodges, temples and the governor's residence. The city's street lights and other lights in public places will also be operated on solar energy.

"Agartala city will be the first solar city in northeast India within the next few years," Tripura's urban development minister Manik Dey said, after inaugurating a 50kW solar power plant at the Agartala Municipal Council head office. He continued: "Solar power is the sustainable and viable energy for both cities and remote areas. [The] electricity crisis [will] not be solved in the country unless we use non-conventional energy like solar power in a big way."

Tripura's science, technology and environment minister, Joy Gobinda Debroy, said that through the Tripura renewable energy development authority, 80,000 solar lanterns have been distributed among poor people residing in urban as well as rural areas in Tripura, and over 66,000 small and medium hot water plants have been installed across the region.

Good news for Internet providers: the cost of a key incremental budget item – IP transit – is going down

Even as rising costs and flattening revenues are a concern for mobile telecoms and Internet access providers generally, IP transit prices, at least, are actually in decline: in fact in steepening decline, according to the industry research group TeleGeography. ('Internet Traffic Costs Plummet,' 2nd August)

Citing *TeleGeography's* IP Transit Pricing Service, I D Scales noted that transit prices actually declined at an accelerating rate in most locations around the world between the second quarter of 2011 and Q2 2012. So, he wrote, compared with the longer-term trend "not only are [transit prices] getting better: the rate at which they are getting better is also getting better."

The median monthly lease price for a full Gigabit Ethernet port in London dropped 57 per cent between Q2 2011 and Q2 2012 to \$3.13 per Mbps, compared with a 31 per cent decline compounded annually from Q2 2007 to Q2 2012. *TeleGeography* showed New York to be slightly less competitive. The comparable price there dropped 50 per cent to \$3.50 per Mbps over the year, and 26 per cent compounded annually over the five-year period ending in Q2 2012.

And, pricing for short-term promotions and high capacities was seen to drop below \$1 per Mbps per month. Of course, although all prices are going down at "pretty much the same rate" around the globe, Mr Scales acknowledged some huge price differences among locations.

For example, despite falling 22 per cent compounded annually between Q2 2007 and Q2 2012, the median price of a Gigabit Ethernet port in Hong Kong has remained 2.7 to 5.1 times the price of the same port in London over the past five years. The price of a GigE port in São Paulo also fell 22 per cent compounded annually between Q2 2007 and Q2 2012, but has remained between 5.2 and 8.2 times the price of a comparable port in New York.

Clearly, pricing is affected by the distance of some developing markets from major IP transit hubs. But to *TeleGeography's* Mr Scales, the uniform percentage rate of reduction shows that Moore's law (according to which the number of transistors on a CPU chip will double every two years) is "diligently at work around the globe."

Change comes to the Sony Ericsson joint handset venture: a move from Sweden to Japan for a leaner Sony Mobile Communications

Sony has announced that it will move its global mobile headquarters from Lund, Sweden, to Tokyo.

As reported by Phil Goldstein of *FierceWireless* (23rd August), the shift – which will entail a 15 per cent cut to the workforce of Sony Mobile Communications, in a gradual phase-out of 1,000 jobs by March 2014 – reflects Sony's renewed emphasis on smartphones and their integration with other Sony products and content offerings.

The job cuts and restructuring represent the first major shift Sony has made since finalising its \$1.47 billion purchase of Ericsson's 50 per cent stake in their decade-old Sony Ericsson joint handset venture. In a statement, the company said the changes will enable Sony Mobile to "improve its time-to-market efficiency, streamline supply chain management, and drive greater integration with the wider Sony group."

FierceWireless observed that the cuts come as Sony is seeking to use its Xperia-branded Android smartphones as one of the pieces of a revived corporate strategy. Earlier this year Sony CEO Kazuo Hirai said he would use Sony's strength in smartphones to rebuild the company. Specifically, Mr Goldstein wrote: "Sony said it will grow its Xperia line of smartphones

and other mobile devices, including tablets, to \$22 billion in three years – triple its current size." According to ABI Research, Sony Mobile was the 11th-largest handset maker in the world in the second quarter, with a market share of two per cent.

China accounted for 27 per cent of the 158 million global smartphone shipments in second-quarter 2012

Powered by domestic vendors, China saw stellar growth in smartphone shipments in the second quarter of this year, with Google's Android – at 81 per cent of Chinese shipments – the clear platform of choice. These are among the results in the final Q2 2012 country-level shipment estimates from the British information technology and services company Canalsys.

The report provided 1st August to Canalsys clients put Chinese growth at a phenomenal 199 per cent year-on-year and 32 per cent over the previous quarter. In total, more than 42 million smartphones were shipped in China in Q2 2012, for the second consecutive quarter of record-breaking volumes in a single country market. China accounted for 27 per cent of the 158 million global smartphone shipments, compared to 16 per cent for the United States.

Notably, according to Canalsys, the growth in China was heavily driven by domestic vendors, while international vendors struggled to keep up.

Samsung, of South Korea, did maintain its overall leadership position in China with a 17 per cent market share, but volumes were flat and several local vendors closed the gap. ZTE, Lenovo and Huawei – all three Chinese – placed second, third and fourth among vendors, ahead of Apple, of the US, and making up one-third of the market. They achieved growth of 171 per cent, 2,665 per cent, and 252 per cent year-on-year, respectively.

Collectively, domestic Chinese vendors shipped 25.6 million units, representing growth of 518 per cent and command of 60 per cent of the market. By comparison, international vendors grew by 67 per cent, to 16.7

million units. Apple fell to fifth place in China. While its shipments were up 102 per cent year-on-year, they were down 37 per cent compared to Q1 2012.

Other highlights of the Canalys second-quarter report include:

- ① Finland's Nokia and Motorola, of the US, both lost significant ground in China, with Nokia's volumes down 47 per cent on Q2 2011. Among the international vendors, only the Taiwanese smartphone maker HTC managed an outstanding performance in mainland China. Its shipments grew 389 per cent year-on-year to reach 1.8 million units for the quarter;
- ② Android has become a major growth driver in China, running on 81 per cent of the smartphones shipped there in Q2 2012. Android continued to grow in importance on a global basis, as well, surpassing 100 million quarterly smartphone shipments for the first time and reaching a two-thirds share of the world market;
- ③ Samsung retained its gold-medal position in the global smartphone market with a 31 per cent share, followed by Apple and Nokia once again. Huawei and ZTE were unable to push in on the global top five with shipments of their own branded devices. However, HTC moved up to fourth place, just ahead of Research in Motion (RIM), of Canada, which shipped 8.5 million units in the second quarter.

Elsewhere in telecom . . .

- ① Apple might face a difficult task in seeking to invalidate patents held by HTC of Taiwan for data transmission in wireless devices, a US trade judge said at a trial that could lead to import bans on the newest iPad and the next version of the iPhone, Bloomberg News reported from Washington.

"Clear and convincing means something to me," the US International Trade Commission judge, Thomas Pender, said 6th September, referring to the legal standard for determining that a patent should not have been

issued. "I have to be pretty darn certain a US patent is invalid." HTC accuses Apple of infringing two patents it owns. HTC said the patented methods are critical to the 4G technology LTE, or long-term evolution, which allows faster downloads.

As noted by Reuters (7th Sept), victory could let HTC seek an import ban against the latest iPad and even the newest iPhone, if it uses LTE. That could give the Taiwanese handset maker leverage to force a settlement with Apple, which has made its own patent-infringement claims against HTC.

- ② According to Infonetics Research, the global market for telecom switching and routing equipment reached \$3.5 billion during the second quarter of this year, a step up from the prior three-month period but down 9 per cent as compared with IIQ2011 because of carriers' reluctance to invest in new equipment. The Infonetics data published 22nd August show continued dominance of the router and switch market in the quarter by Cisco Systems, of the US, followed by China's Huawei. The other major players include Alcatel-Lucent, Juniper, and ZTE. Latin America was the only major world region to have posted an increase in carrier router and switch revenue on a year-over-year basis (up 57 per cent in IIQ12 over IIQ11).

- ③ Singapore Telecommunications Ltd said its fiscal first-quarter net profit rose 3.2 per cent from a year earlier, mainly due to bigger contributions from its regional mobile associates and gains from an asset sale in Taiwan. Net profit for the quarter ended 30th June was 945.3 million Singapore dollars (US\$759 million), compared with S\$916.2 million a year earlier, SingTel said in a 14th August statement to the Singapore Exchange. That was higher than the S\$919 million profit forecast by a Dow Jones Newswires poll of four analysts.

SingTel holds minority stakes in phone operators in more than 10 countries in Asia and Africa, with a total customer base of about 462 million as of 30th June, making its

earnings vulnerable to currency fluctuations. The strength of the Singapore dollar against most regional currencies (notably the Indonesian rupiah, the Indian rupee, and the Thai baht) and against the Australian dollar has adversely impacted Singapore dollar earnings.

Even so, earnings contribution from regional associates rose 2.4 per cent to US\$387 million in the quarter, SingTel said. Given the slowing growth in its main markets — Singapore and Australia — the company announced about US\$899 million of acquisitions in the 12 months through June, including mobile advertiser Amobee Inc for US\$321 million.

- ④ Two of China's largest Internet firms, Baidu and Sina, have been working recently to adapt their strategies for mobile and have forged a partnership to more closely align their mobile offerings. Baidu, the country's most popular search engine, has an estimated 80 per cent share of the local market. Sina is the company behind Weibo, China's Twitter-like microblogging service which boasts over 300 million users. According to a BBC report cited by Mobile World Live (1st August), Sina plans to integrate Baidu search into its mobile site, while Baidu's cloud service is to come preinstalled on the Weibo app.

Baidu in May made a foray into China's crowded low-cost smartphone market with the launch of the Foxconn-made Changhong H5018, a device powered by Baidu's own mobile operating system, Cloud. Also in May, Sina announced that the majority of Weibo users are now accessing the service via mobile devices rather than desktop PCs.

- ⑤ Italy's biggest telecommunications operator Telecom Italia SpA said its sales rose in the first half of 2012 as a decline in its Italian home market was offset by strong growth in Argentina and Brazil. In line with analysts' expectations, overall revenue for the six months to 30th June rose 1.7% to \$18.1 billion from \$17.7 billion in 2011. The Milan-based telecom's revenue in Italy dipped 3.1% in the first half.

互联网服务提供商的福音: 关键增量预算项目——IP转接服务的成本正在不断减少

根据行业研究组织《电信地理学》(TeleGeography)的报告,正如成本上升和收入紧缩这两个移动通信和互联网接入服务提供商普遍面临的问题,IP转接价格至少是呈现出了一个下降的趋势。(“互联网流量成本骤减”,8月2日)

以《电信地理学》的IP转接定价服务为例, I D Scales指出在2011年的第二季度到2012年的第二季度间,全球多数地区的转接服务费价格都呈现出了加速下滑的趋势。因此,他写道,相较于长期趋势“不仅仅是[转接服务费]情况有所好转:其好转的速度也加快了。”2011年第二季度至2012年第二季度期间,伦敦全千兆以太网端口的平均月租费暴跌了57%,为每Mbps(兆位/秒)3.13美元,而2007年第二季度至2012年第二季度的年均减少量为31%。《电信地理学》显示纽约的竞争性较低。年度可比价格下降50%,为每Mbps 3.50美元;到2012年年末为止,五年的总下降量为26%。

同时,短期推广和高容量每月服务费也跌至每Mbps 1美元以下。当然,尽管所有的价格在全球范围内正在“以近乎相同的速度”下降,但是Scales先生也指出不同地区间也存在一些巨大的价格差异。例如,尽管自2007年第二季度至2012年第二季度期间的年均减少量达到了22%,香港的千兆以太网端口的平均月租费在过去的五年中依然为伦敦相同端口租费的2.7至5.1倍。圣保罗的千兆以太网端口的年租费也在2007年第二季度至2012年第二季度期间下降了22%,但始终为纽约同类端口的5.2至8.2倍。毫无疑问的是,该价格会受到一些发展中国家与主要IP转接中心间距离的影响。但是对于《电信地理学》的Scales先生来说,价格下降速度的统一性正是反应了摩尔定律(其中指出CPU上的晶体管数量每两年就会翻一番)在“全球各地的适用性。”

索尼爱立信手机合资企业的的变化: 从瑞典转移到日本, 精简版的索尼移动通信

索尼宣布即将将其在瑞典隆德的全球移动总部转移至东京。根据FierceWireless(8月23日)的Phil Goldstein的报道,该次转移——将使索尼移动通信裁员15%,到2014年3月为止逐步淘汰1000项工作岗位——反映出索尼重新将重点转移到了智能手机以及与其他索尼产品和业务发行的综合运用上去。

此次的裁员和重组表明了索尼自以14.7亿美元的价格从索尼爱立信手机合资公司中收购爱立信50%股份以来的首次重要转型。在声明中,该公司宣称此次转型将使索尼移动“优化上市时间的效率、简化供应链功能以及执行与索尼集团更大程度的整合。”

FierceWireless注意到,此次裁员正值索尼将Xperia品牌的安卓智能手机作为其复兴企业战略之时。在本年的早些时候,索尼的首席执行官Kazuo Hirai说他将在智能手机上投入索尼公司的人力物力,用以重新组建公司。特别是,Goldstein先生写道:“索尼称其将发展Xperia智能手机的生产线和其他移动设备,包括平板电脑,在接下来的三年中数额将增长到220亿美元——是目前规模的三倍。”根据ABI咨询公司的报告,第二季度索尼移动位列世界第11大手机制造商,占有2%的市场份额。

中国在2012年的第二季度承担了全球1.58亿台智能手机装运量中的27%

由于获得了国内销售商的支持,本年第二季度中国智能手机的装运量得到了显著的增长,其中的81%装有谷歌的安卓系统——明确的选择平台。这些数据来源于英国信息技术和服务公司Canalys对2012年第二季度末国际级装运量的评估报告。8月1日,该报告指出相较于去年同期数据,中国的增长量达到了显著的199%,同时与上一季度相比增长了32%。2012年第二季度,中国共计装运了4200多万台智能手机,连续第二个季度刷新了单一国家市场内的记录。中国承担了全球1.58亿台智能手机装运量中的27%,而美国则承担了16%。

值得注意的是,根据Canalys的报告,中国装运量的增长很大程度上来源于国内销售商的支持,而与此同时国外销售商也正在努力赶上他们的步伐。

尽管韩国的三星公司(Samsung)以17%的市场份额依旧占据了中国的整体领导地位,但是装运量趋于平缓,几家国内销售商正在逐步缩小差距。中兴通讯(ZTE)、联想公司(Lenovo)和华为公司(Huawei)——这三家中国公司分别位列第二、第三和第四大销售商,领先于美国的苹果(Apple)公司,占据了三分之一的市场份额。相较于去年同期数据,这三家公司的增长量分别达到了171%、266%和252%。

从总量上来看,国内销售商共装运了2,560万箱产品,增长量达518%,占市场总量的60%。相比较而言,国外销售商增长了67%达到1,670万箱。苹果公司下降到了中国市场的第五位。尽管与去年同期数据相比,该公司的装货量上升了102%,但与2012年第一季度相比则下降了37%。

电信领域的其他新闻.....

① 根据Infonetics调研公司(Infonetics Research)的调查报告,本年第二季度的电信开关和路由设备的全球总额达到了35亿美元,较前三个月有所上升,但是由于运营商拒绝投资新的设备,这一数值比起2011年第二季度则下降了9%。根据Infonetics于8月22日所发布的数据,本季度美国思科系统(Cisco Systems)依旧在路由器和开关市场占有主导地位,其次是中国的华为公司。其他的主要供应商包括阿尔卡特朗讯(Alcatel-Lucent)、Juniper公司和中兴通讯。

拉丁美洲是唯一一个相较于去年同期数据,在载波路由器和开关产品方面的收益有所增加的世界主要地区(从2011年第二季度至2012年第二季度期间增长了57%)。

② 新加坡电信有限公司(Singapore Telecommunications Ltd)宣称其第一财政季度的净收益相较于去年上升了3.2%,这主要是归功于其地区移动联合公司的支持以及台湾地区的资产出售。新加坡电信公司在其8月14日致新加坡交易所的声明中称,到6月30日为止,该季度的净利润为9.453亿新币(约合7.59亿美元),而去年的同期净利润为9.162亿新币。这一结果高于道琼斯通讯社(Dow Jones Newswires)四位分析师9.19亿新币的预期值。

新加坡电信公司在亚洲和非洲的10多个国家持有电话运营商的少量股权,到6月30日为止共计拥有的客户群总数为4.62亿,这使其营业收入很容易受到汇率波动的影响。

新币对多数区域货币(尤其是印尼盾、印度卢比和泰铢)和对澳币的汇率强度会对该公司的新币营业收入产生不良影响。

尽管如此,新加坡电信公司称区域联合公司本季度的收益也增长了2.4%达到3.87亿美元。该公司位于新加坡和澳大利亚的主要市场获得了缓慢的增长,该公司宣称到6月份为止的12个月中,其通过并购获得的收入为8.99亿美元,其中包括移动广告商Amobee公司(Amobee Inc)的3.21亿美元的收购额。

Commerce

Arizona, the state roiled more than any other by immigration issues, spreads a 500-acre welcome mat for foreigners

"A project fueled by foreign investors that holds the promise of creating thousands of jobs is scheduled to break ground by year's end in Pinal County."

Huge even by the standards of American commercial complexes, the 1.5 million-square-foot Phoenix Mart described by Gabriela Rico in the *Arizona Daily Star* is noteworthy on two other counts. The bazaar-style operation, patterned on the Dragon Mart in Dubai, originated with Chinese investors. And, in the Sun Corridor state least hospitable to newcomers seeking to make a home in America, it offers permanent residence in the US to foreigners who meet two conditions: an initial investment of \$500,000 in a new commercial enterprise; and the creation, within two years, of at least ten full-time, steady jobs for American workers.

Already, 300 vendors intent mainly on reaching businesses needing supplies or products to sell, have signed leases for space in the wholesale/retail complex on 500 acres in Casa Grande, a city in the southern part of the Greater Phoenix area approximately halfway between the capital and Tucson. Mayor Bob Jackson of Casa Grande said that, when built out, the mart will be able to accommodate up to 1,800 vendors. One-third of these will be from China; one-third from other countries; and one-third from the United States.

The mayor does his arithmetic. Casa Grande has a population of about 49,000 and an unemployment rate of 10 per cent, higher than the national average rate in August of 8.1 per cent. "It is exciting," Mr Jackson said, of the Phoenix Mart. "Three thousand jobs in our area practically eliminates our unemployment problem." ("Massive Commercial Complex Promises Jobs for Casa Grande," 24th August)

❖ The *Daily Star* provided some surprising background on the first initiative of its kind in the country: the federal programme under which it was inaugurated has been around for over two decades. The Immigrant Investor Program, or EB-5, was created by Congress in 1990 to stimulate the US economy through job creation and investment by foreigners. It is administered by the Citizenship and Immigration Services unit of the Department of Homeland Security.

Marie Sebrechts, a spokeswoman for Citizenship and Immigration Services, told Ms Rico that a foreign investor who has met the job-creation requirement may apply to have the conditional provision of residential status removed and receive a permanent resident's "green card." From that point, she said, the business owner has five years within which to apply for full US citizenship.

❖ Meanwhile, lessees in Phoenix Mart will be getting a bargain. The required initial \$500,000 investment – in the

form of cash, equipment, inventory, and/or property – would be \$1 million if the city of Casa Grande were not in an area of high unemployment.

The Panama Canal expansion

With completion now only two years out, the rivalry is on for cities with deepwater ports up and down the US East Coast

"Just off the boat from China and now being prepared for operations, the \$40 million machines are part of this city's gamble that when supersize container ships start coming through the expanded Panama Canal in 2015, Baltimore will be one of the few ports on the East Coast ready for their business."

The machines – four cranes, each 14 storeys high, rising over the port at Baltimore – figured in a report by John Schwartz of the *New York Times* on a federal initiative to speed up the review process for developing and deepening several harbours along the US Eastern Coast Seaboard. These include the deepwater ports of New York and New Jersey; Charleston, South Carolina; Savannah, Georgia; and Jacksonville and Miami, in Florida. In announcing the plan in July, President Barack Obama said that it "will help drive job growth and strengthen the economy."

James J White, the executive director of the Maryland Port Administration, which includes Baltimore, had a narrower focus on the benefits to be expected by a city with the foresight to prepare itself for the big ships – known as "Post-Panamax" and even "Super-Post-Panamax" – already in heavy use worldwide. He told the *Times*: "We think it's going to be a major win for us." ("Panama Canal's Growth Prompts US Ports to Expand," 20th August)

Plans for the Canal expansion were announced in 2006, and Mr Schwartz, who is the *Times's* national legal correspondent, noted that some cities are already out in front of Baltimore. The Port of Virginia, in Norfolk, is ready to receive the big ships today. And New York is also prepared, thanks to a massive dredging project that began 13 years ago. But Mr Schwartz also pointed out that nearly every port in the game still faces major challenges and expense. The Port Authority of New York and New Jersey, for example, plans to spend \$1 billion to raise the Bayonne Bridge roadway by 64 feet to allow the giant ships through on their way to Newark and Port Elizabeth on the New Jersey side of that harbour.

And Baltimore, which already has a 50-foot channel dug, has a bottleneck on the land side: a tunnel through which trains have to pass to reach the port, and is too small to accommodate the double-stacked container cars that are increasingly the standard for rail shipping.

"The rail line CSX has announced a workaround that could cost hundreds of millions, involving a new yard beyond the tunnel filled with containers brought by truck," Mr Schwartz wrote. "The port will load the trains with a single container to get through the tunnel, and the trains can be completed at the yard."

With well-heeled friends like CSX, a determined and focused Baltimore would appear to be justified in having high hopes. But the competition in the Canal sweepstakes goes beyond New York and Virginia. The *Times* summarised the efforts of two other highly motivated contenders:

- ❖ Miami is putting \$2 billion into improvements to its port. A dredging project was approved by the Army Corps of Engineers in April, and the city is building a tunnel costing an estimated \$1 billion to create a crucial link between the port and the Interstate System of highways;
- ❖ A plan for Savannah and Charleston to team up on a common port has all but stalled. But Savannah is preparing to move forward with a \$652 million deepening project, while the South Carolina Legislature has committed \$300 million to dredging for Charleston.

A contrarian view: that the preparations for exploitation of the 'new' Canal far outstrip the prospects for a bonanza

The second half of the *Times* article cited above took note of some state officials who, bowing to economic necessity, are scaling back their Panama Canal-related ambitions. After Hurricane Katrina, in 2005, Gov Haley Barbour of Mississippi announced plans for a "port of the future" with a 50-foot-deep channel at Gulfport, and redirected some \$600 million in federal disaster relief to the project.

But it was announced recently that the port is no longer pursuing its plans to dredge the channel to 50 feet. A victim of lapsed maintenance, the channel does not even reach the depth of 36 feet authorised by law.

The *Times*'s Mr Schwartz wrote: "[Mississippi] is now focused on improving what it has instead of expanding greatly, and its plans focus more on the cascade effect as smaller ships are crowded out of the major ports by the new superships."

The big ships will also be starting out from well beyond Panama and plying various routes to their destinations. Many are expected to come from Southeast Asia through the Suez Canal, and from South America's eastern ports.

But more fundamental questions have been raised about the real benefits to be expected from the trade and traffic effects of the new Canal. Moving goods by water is generally cheaper than moving them by land because of the economies of scale of moving so many containers on big ships, said John Martin, a ports consultant in Lancaster, Pennsylvania. That would suggest that Canal routes will offer lower-cost shipping to the East Coast and Midwest.

But, he said, containers loaded on the West Coast, which has built up its container yards and highway and rail infrastructure, can outrun those that travel to the East Coast by water. That can make a difference when speed and dependability are more important considerations than cost. Besides, Mr Martin added, costs and fees can shift. Panama can be expected to raise rates for canal passage: "and the railroads are not going to sit idly by" and let the water route undercut their business.

Scudder Smith, a consultant with the New York-based engineering consulting firm Parsons Brinkerhoff, said that a water passage, all things being equal, will offer cost economies. "But all things are not equal," he noted; and thus he is "not at all confident in any numbers."

- ❖ That could be why J Christopher Lytle, executive director of the Port of Long Beach, does not sound worried. He told Mr Schwartz: "There's just not going to be a huge movement of cargo from the West Coast to the East Coast."

The basis of his confidence is an open secret. Long Beach, and its counterpart in Los Angeles, are already dealing with some of the biggest vessels on the water, capable of carrying the equivalent of 13,000 container units. These are vessels too big to pass through the new Panama Canal locks.

Automotive

Unlikely stars of Port Newark: car carriers like floating shoeboxes, with only about 15 per cent of their hulls submerged

Port Newark, New Jersey, already plays host to some very big ships of a highly specialised type: ships with packing-case profiles that – for weeks at sea and over thousands of ocean miles – haul up to 8,500 vehicles each, on 13 decks, packed tight.

Described by Ken Belson of the *International Herald Tribune* as the nautical workhorses of the industrialised world, "both impossibly clunky and imposingly grand," these behemoths may fairly be considered an extension of the automobile production process. And for many a shipping company – including the NYK Line, a Japanese giant of Panamanian registry – Newark, with its ready access to major US markets, serves as an American hub.

The *Andromeda Leader*, operated by NYK, is typical of modern car carriers. Launched in 2004 when global auto sales were booming and shippers racing to keep up with demand from car makers, the ship is two football fields long and has a cargo capacity of 21,443 tons.

At Newark, the ship's main port of call, more than half (the Toyota half) of the *Andromeda Leader*'s 5,500-vehicle payload is offloaded and parked in a 12,000-place lot at the pier. In the following days, the cars are driven a few hundred yards to a Toyota facility where electronics, roof racks, and other options are installed before delivery to dealerships from Maine to Virginia.

Mr Belson wrote: "For eight years the *Andromeda Leader* has brought Toyota, Lexus, and Scion vehicles across the Pacific to the United States in all seasons without incident, maintaining an accident-free record.

"Its captains have detoured to avoid rough seas, keeping a day's cushion in reserve" to maintain their promised arrival times. ("Around the World with 5,500 Cars," 13th July).

Indeed, auto makers depend heavily on shippers if they are to implement their own just-in-time policies. Accordingly, for its North American service Toyota engages seven of NYK's 120 car carriers. And the auto maker has similar agreements with two other Japanese shippers: K-Line and Mitsui OSK.

❖ Mr Belson outlined the plan designed to meet tight deadlines, avoid delays, and keep the Andromeda Leader moving. The ship sails at 17 to 19 knots during its 28-day journey from the port of Tahara, near Nagoya, to Jacksonville, Florida, where the cars intended for the southeastern United States are unloaded. Then it works its way up the coast to Newark. On its return trip, the ship stops in Puerto Rico to drop off its few hundred remaining cars before heading back empty to Japan.

On occasion, Mr Belson was told, cars are damaged in transit, but just 0.04 per cent of the vehicles that NYK delivers to Toyota in Newark need repairs, and most of those are for small scratches.

But even small scratches to cars can lead to costly repairs. "Which is why," wrote Mr Belson, "NYK and Ports America, which hires the stevedores in Newark, must determine the optimal number of drivers needed to unload a ship. NYK tries to limit the time its ships stay in port to 24 hours, avoiding overtime and berthing fees of \$3,000 or more a day."

❖ Recently, according to the *Herald Tribune*, even greater urgency has attended the movement of the Toyota cargo from Japan. The company said it expected its imports passing through Newark to increase by nearly 20 per cent in 2012 compared with 2011, as the company rebounds from the previous year's natural disasters in Japan and Thailand.

Volkswagen lavishes care on its Passat assembly plant in the Tennessee Valley, critical to VW expansion in the United States

Port facilities are not a concern for Volkswagen of America, whose one-year-old plant in Chattanooga, Tennessee, is in one of the 20 landlocked states of the United States.

But everything else is receiving scrupulous attention at the \$1 billion, 2.5 million-square-foot facility that according to business writer Nathan Bomey of the *Detroit Free Press* is an increasingly critical component in VW's plans for quality improvement and image-burnishing.

From a day-long midsummer tour for a dozen auto journalists, Mr Bomey brought away an impression of a company eager to showcase an emphasis on quality at the assembly plant for the redesigned Passat sedan — and eventually, perhaps, another new car as well.

Volkswagen was stung, in June, when it was ranked 31st among 34 nameplates in the widely followed Initial Quality Study from J D Power & Associates. A better showing for the Passat in the next IQS results is a top priority for the company. ("Volkswagen Offers Preview of Plant Vital to Its US Expansion," 31st July).

The focus at Chattanooga is on training. Production workers, most of whom have never worked in the auto industry before, receive six weeks of training at the 163,000ft² Volkswagen Academy adjacent to the plant before they join the assembly line.

The programmes — paid for by the state of Tennessee under an eight-year, \$16 million commitment for employee training — include a three-year apprenticeship for Chattanooga State Community College students destined for jobs in equipment maintenance next door.

With intensive training a must for new employees with little grasp of the importance of precision manufacturing, VW executives have made a virtue of necessity.

Director Gary Booth of the Volkswagen Academy told the *Free Press* that he doesn't want employees who have developed "bad habits" at previous jobs.

"Inexperience is a key," said Mr Booth, leading his visitors around the only auto plant in the country to be Platinum-certified by the US Green Building Council. "Some of our best employees came from McDonalds. They know standardised work."

❖ As to wages and benefits, VW Chattanooga presents an attractive alternative to fast-food assembly. Frank Fischer, CEO of the Chattanooga Operations, said VW had completed its hiring for the plant by the end of July and now has 3,350 workers, including some 1,000 in "indirect labour" such as contract workers. Pay starts at \$14 an hour plus health care insurance and an employer-assisted retirement plan, with a rise to \$19.50 after three years.

❖ Sales of the Passat in the US reached 55,065 over the first six months of 2012, bolstering Volkswagen's aggressive push. Sales of all VW brand vehicles in the US rose 35.4 per cent, marking the company's best first-half performance since 1973.

According to Edmunds.com, the Volkswagen brand had US market share of three per cent in June, up from 2.7 per cent a year earlier. And, in what might be considered a consolation prize from J D Power & Associates, the VW Passat tied for most appealing midsize car in Power's 2012 Automotive Performance, Execution and Layout (APEAL) Study.

In brief . . .

❖ Final agreement was reached 16th August whereby the Wanxiang Group, one of China's biggest automotive suppliers, would provide emergency capital to A123 Systems (Waltham, Massachusetts), a maker of batteries for electric vehicles. After the immediate infusion of \$25 million, Wanxiang over time is expected to invest a total of \$465 million and take an 80 per cent ownership interest in A123. The deal is considered crucial to the survival of A123, the centrepiece of an effort by President Barack Obama to support battery manufacturing in the United States.

A123 received \$249 million in grants from the US Energy Department in 2009, primarily to build a battery plant

in the Detroit suburb of Livonia, and had tapped about \$130 million of its grant when it met with reverses. In a presidential election season, as a Republican challenger sought to deny Mr Obama, a Democrat, a second term, the pending Chinese investment attracted attention in Washington.

But David Vieau, CEO of A123, said Wanxiang had a record of investing in American companies without making management changes or diverting resources to its operations in China. The Chinese company owns a variety of manufacturing businesses in the US that employ a total of 3,000 workers.

Steel

Fresh stimulus talk boosts US steel firms, miners

In a 7th September report on bullish sector developments – including fresh talk of a new US stimulus plan, an increased buyout offer for the British-Swiss mining company Xstrata PLC, and higher commodity prices – MarketWatch found mining and steel companies holding the top berths among gainers in the Standard & Pools 500.

Not even the day's bad news fazed UBS analyst Schneur Gershuni, the New York-based executive director of the Swiss bank's Energy Group, who said that a weaker-than-expected August employment report was prompting more speculation about additional quantitative easing (QE) by the US Federal Reserve.

"The poor jobs report increases the odds of a new QE programme and could help infrastructure spending overseas," Mr Gershuni told MarketWatch. "That's good for mining and steel companies."

In fact, No 1 in the S&P 500 – a stock market index based on movement in the common stock prices of 500 top publicly traded American companies – was Alpha Natural Resources (Bristol, Virginia), the largest US supplier of metallurgical coal for making steel. Another top performer was Cliffs Natural Resources (Cleveland), which got a boost in its labour negotiations. United Steelworkers of America officials said the union had agreed to work beyond a 1st September contract deadline and return to the bargaining table on 8th October. The contract covers 22,000 workers. ("Alpha, Cliffs Shine in Mining Rally").

At least another half-dozen steel and mining companies could be found among the leaders, notably United States Steel Corp (Pittsburgh) and mining equipment maker Joy Global Inc (Milwaukee, Wisconsin). US-listed shares of the Brazil mining firm Vale SA jumped, as well.

Steve Gelsi, the New York-based initial public offering (IPO) reporter for San Francisco-based MarketWatch, also noted something of enormous potential benefit to the steel sector: a sign of healthy demand from China. The world's most populous country approved plans to spend \$156 billion on infrastructure. The money would go toward steel-intensive projects such as subways and highways.

Elsewhere in steel . . .

- ❖ The World Trade Organization on 31st August agreed to investigate the legality of US countervailing duties on certain Indian hot-rolled carbon-steel flat products. India, which lodged its complaint with the WTO in April, is challenging a US finding that Indian steel producers received an illegal subsidy by paying too little for iron ore from a state-owned producer. The US first imposed the tariff, which is fixed at 102.7 per cent, in December 2001 and extended it six years later.

Telecom

Apple may not be the sole beneficiary of its decisive California court victory over Samsung on patent infringement

Although Samsung Electronics Co has vowed to fight on – all the way to the US Supreme Court – when the South Korean company's long courtroom battle with Apple Inc wound to at least a demi-climax, on 24th August, Apple had unmistakably prevailed. The American computer titan was awarded \$1.05 billion in damages after an eight-person jury in San Jose, California, handed down a unanimous verdict that Samsung had copied Apple's patented technology for the iPhone and iPad.

Apple reps began immediately to seek injunctions against the range of Samsung handsets found to have infringed six of the seven patents at stake in the trial. These included the Galaxy S2 and the Droid Charge, both of which were found to violate patents established by Apple.

In another prompt response to the verdict, some industry analysts observed that others besides Apple stood to benefit from a weakened Samsung presence in the marketplace: in particular Microsoft, also of the US, and Finland's Nokia.

In February of 2011, Microsoft and Nokia announced their partnership to release a line of handsets running Microsoft's Windows Phone operating system. Among the products of that union is the Lumia smartphone.

As noted on 28th August by Matthew Shaer of the *Christian Science Monitor*, there was widespread expectation of an early introduction by Nokia of a line of handsets running Windows Phone 8, the upcoming version of the Windows Phone OS.

"After the verdict, I am sure that vendors in the Android ecosystem are wondering how long it will be before they become Apple's target," Carolina Milanese of Gartner Research told *Bloomberg News*. "[The outcome] might sway some vendors to look at Windows Phone 8 as an alternative."

Bobbie Johnson of GigaOM contributed this pertinent note: Nokia stock climbed steadily in the days following the conclusion of the Apple-Samsung case.

Dorothy Fabian – Features Editor

商业

一个被移民问题搅乱最严重的州——亚利桑那州，铺了500英亩的红毯迎接外国人

“一个由国外投资者发起的项目承诺要创造上千的就业岗位。截至今年年底，暂定在皮纳尔县启动该项目。”

根据Gabriela Rico在《亚利桑那每日星报》中的描述：如按照美国综合商厦的大型标准，150万平方英尺的凤凰城在其他两方面最为显著。凤凰城效仿迪拜的龙城，集市风格的运营模式其实起源于中国投资者。并且，在昇阳廊道（Sun Corridor），人们对新来者想在美国安家这件事表现出极为不友好的态度。外国人想成为美国的永久居民必须要符合两个条件：初期投资50万美金成立一家新的商业企业；两年之内，投资者要为美国工作者提供至少10个全职的、稳定的就业岗位。

300家供应商已经达成意向提供企业需求供应或代售产品。并且已经签署租赁协议租用在卡萨格兰德市500英亩的批发/零售综合商厦里面的摊位。卡萨格兰德市位于大凤凰城区的南部，大约在商业中心与图森市的中间位置。卡萨格兰德的市长Bob Jackson说：建成后，市场将能够容纳1800家供应商。其中有三分之一来自中国，三分之一来自其他国家，另外三分之一来自美国。市长打过一个算盘：卡萨格兰德有49,000的人口。失业率为10%，8月份的失业率高于全国平均水平8.1%。杰克逊说：“令人振奋的是凤凰城能在我们地区提供3,000个工作机会，这样就切实消除了我们的失业问题。”（“大型综合商厦给卡萨格兰德提供就业机会”，8月24日）

- ❖ 《每日星报》提供了一些令人惊讶的关于国内此类首次倡议的背景情况：在该背景下联邦计划已经启动了超过20年。投资移民计划或EB-5类移民是在1990年由国会提出，其目的是为了通过创造就业机会和外国人的投资来刺激美国经济。此类计划由美国国土安全部的美国公民和移民事务局管理。美国公民和移民事务局的发言人Marie Sebrechts对Rico女士说：可以满足创造就业机会这个条件的国外投资者就可以有条件申请居民身份，取消或获得成为永久居民的“绿卡”。她还说：“从这一点来讲，企业主必须在五年内正式申请美国国籍。”
- ❖ 同时，在凤凰城的租户将会享受到优惠。要求的初期投资为50万美元，其投资形式可以是现金、设备、存货，和/或财产。如果在卡萨格兰德市失业率不高的地区投资金额要高达100万美金。

巴拿马运河的扩建

建成仅两年时间的美国东海岸，其上游和下游但凡有深水港的城市之间就存在竞争。

价值4000万美元的机器刚从来自中国的船上卸下，现在正准备运行，这些仅是该城市冒险投资的一部分。当2015年大型集装箱船开始通过扩建后的巴拿马运河，巴尔的摩将会成为美国东海岸上开展业务的几个港口中的一个。

这些设备是四台起重机，每台有14层楼那么高。这几台起重机将在巴尔的摩港口作业。《纽约时报》的John Schwartz在一篇报道中对一项联邦倡议进行的阐述，该倡议是关于对开发和深化沿美国东海岸的几个港口的审核过程要加快速度。这些港口包括纽约、新泽西的深水港，以及在查尔斯顿，南卡罗来纳州、萨凡纳、格鲁吉亚、佛罗里达州的杰克逊维尔和迈阿密的港口。7月份宣布此项计划时，奥巴马总统说：“该计划将有助于推动就业增长和

加强经济。”马里兰港务管理局的常务董事James J White有一个较窄范围的兴趣点就是：包括巴尔的摩在内的一些港口城市要有远见在大型船上做投资并获得利润。这些大型船只也称作“超巴拿马型集装箱船”和“特超巴拿马型集装箱船”，这类船只已在全世界大量使用。他对《纽约时报》说：“我们认为这对我来说是一个重要的盈利。”（“巴拿马运河的发展促进美国港口的增加”，8月20日）

运河扩建计划于2006年被宣布。《纽约时报》国家法律的记者Schwartz先生指出，一些城市已经在巴尔的摩之前出手了。诺福克的佛吉尼亚港在今天就准备迎接大船。并因为始于13年前的大规模疏浚工程，纽约也做好了准备。但是Schwartz先生也指出，几乎计划内每个港口仍面临着重大挑战和支出。例如，纽约和新泽西港务局计划投资10亿美元将巴约纳桥的桥面提高64英尺，提高后巨型船可以通过此路到达港口新泽西段的纽瓦克和伊丽莎白港。并且，已经有50英尺长的通道的巴尔的摩在背水侧有一处瓶颈：火车到达港口的必经隧道太小不能容纳双层集装箱火车的通过。但是双层集装箱火车已经越来越成为铁路运输的标准。

相反看法：开发的“新”运河计划的前景远远超过开矿

上面引用的《纽约时报》文章的后半部分注意到国家官员迫于发展的需要，正在缩减他们关于与巴拿马运河相关的宏伟目标。在2005年卡特丽娜飓风过后，密西西比州长Haley Barbour宣布了“未来港”计划，该计划要在格尔夫波特建一个50英尺深的航道，且改变了大约6亿美元联邦救灾项目的使用方向。

但最近又宣布，港口不再继续进行疏通50英尺航道的计划。维修计划失败的害处就是：航道甚至没有达到法律认可的36英尺的深度。《纽约时报》的Schwartz先生写道：“密西西比现在的重点是改建而不是极大的扩建。并且，此计划更多关注于级联效应，例如较小的船被新型大船从主要港口中挤出来。”

大型船舶也将开始从巴拿马以外的各航线出发到达它们的目的地。许多船只将要从东南亚出发，经过苏伊士运河，以及将要从南美的东部港口出发。但是，更多的根本问题已经产生，这些问题关于从新运河的贸易和交通影响中预计可以得到的实际利益。宾夕法尼亚州兰卡斯特的港口顾问John Martin说：“水路运输货物的成本通常比陆路运输要低，因为用大船运送大量的集装箱的大规模就相应地节约了成本。这表明，运河路线将为美国东海岸和中西部提供低成本的运输。

但是，他说，集装箱在美国西海岸装船，通过水路出发前往东海岸。西海岸已经建立了集装箱堆场、公路和铁路基础设施。当对速度和可靠性的考虑超出对成本的考虑时，运输选择上就会有所差异。除此之外，Martin补充说道：成本和费用会发生改变。巴拿马有望为运河通道提高费用：铁路不会坐以待毙，并让水路运输线削弱他们铁路运输的业务。

Scudder Smith是位于纽约的一家工程咨询公司——柏城的顾问。他说：“所有事物都是平等的，水道节约成本。”他又指出：“但同时所有事情又是不平等的。”因此他“根本不相信任何数字。”

- ❖ 这可能就是为什么长滩港口执行董事J Christopher Lytle完全不担心原因。他对Schwartz先生说：“这不仅仅是将大宗货物从西海岸运到东海岸那么简单。”

他信心的基础是一个公开的秘密。长滩港口和它在洛杉矶的配套已经通过交易过一些水运用最大船只，这种船只可承载相当于13,000个集装箱的重量。这些船只太大而无法通过新巴拿马运河的船闸。

汽车业

和纽瓦克港的运气不一样：汽车运载船就像流动的鞋盒，仅有约15%的船体浸水深度

纽瓦克港和新泽西已经可以为一些高度专业化的大型船只在海上提供停靠：装满装货箱的船舶是这样——一连几周在海上和航行几千海里，每艘船只有13层甲板，装载高达8500台车辆，这些车辆紧紧挤在一起。《国际先驱论坛报》的Ken Belson将其描述为工业化世界的“海上老黄牛”——超乎想象的笨重，也令人印象深刻的庞大。这些庞然大物简直可以被视为汽车生产流程的一个延伸。并且，许多在纽瓦克港的船舶公司都打算进入美国市场，并成为美国的海运中心——其中包括在巴拿马注册的日本船舶业巨头日本邮船株式会社。

由日本邮船株式会社运营的仙女座领导号是典型的现代汽车运载船。仙女座领导号于2004年投入使用，当时的情况是：全球汽车销售火爆，而且承运商都竞相跟上汽车制造商的需求。这艘船有两个足球场那么长，货舱容积为21,443吨。在这艘船的主要停靠港口——纽瓦克，仙女座领导号5500辆有效载荷的一大半（丰田占一半）已经被卸载，并将其存放在码头里12000个存放位。在接下来的一些天，汽车开出几百码的距离，到达丰田工厂。从缅因州到佛吉尼亚交付给经销商之前，电子器件、行李架和其他配件在工厂被安装上。Belson先生写到：“八年来仙女座领导号一年四季运载丰田、雷克萨斯和赛恩穿过太平洋到达美国，没出过事故，保持了一个无事故记录。船长绕道而行来避开风大浪急的海域，并保留一天的补给以备在规定的时间内到达。（“载着5500台车环游世界”，7月13日）。事实上，如果汽车制造商要实现他们自己的准时化政策，很大程度上要依赖于承运商。于是，丰田为了它北美的服务，订用了NYK株式会社120辆汽车运载船中的7辆。汽车制造商与其他两家日本承运商有类似的协议：川崎汽船公司（K-Line）和商船三井船务株式会社（Mitsui OSK）。

- ❖ Belson先生概述了一个计划，该计划旨在满足严格的期限，避免延误，并保持仙女座领导号的航行。在28天的航程中该船航行速度17节至19节，它从名古屋附近的田原港口出发，到达佛罗里达州的杰克逊维尔市。为美国东南部生产的汽车在那里卸载。然后这艘船沿海岸向上游航行，到达纽瓦克。在其回程的路上，船在波多黎各停靠，卸下剩下的几百辆车，然后空船返回日本。有时，Belson先生会被告知汽车在运送过程中被损坏了。但是，NYK运送到纽瓦克丰田工厂的车辆中仅有0.04%需要修理，而且它们中的大部分是因为小划痕。但即使是小划痕，汽车修理费也是很贵的。Belson先生写道：“这就是为什么NYK株式会社和Ports America集团在纽瓦克雇佣搬运工时，必须要限定司机每只船卸载的最佳数。NYK株式会社尝试将其船只停靠在港口的时间限制在24小时之内，以避免每天交3000美元或者更多的超时费和停泊费。”
- ❖ 最近，来自《国际先驱论坛报》的消息：日本的丰田货物运输方面形势更加紧迫。公司说：随着从去年日本和泰国自然灾害中恢复过来，公司期望经过纽瓦克的进口商品与2011年相比，在2012年能增长将近20%。

钢铁工业

全新刺激性商谈推动钢铁企业和矿业的发展

在9月7日关于乐观行业发展报告中——包括一项全新商谈的首次美国刺激计划，该计划要提高对英国—瑞士矿业公司——斯特拉塔公司控股收购价格，并且要上涨商品价格。MarketWatch专栏发现：在标准普尔500指数中，矿业和钢铁公司在收益者中占有最高位置。即使今天这样的坏消息也不能让瑞银集团的

分析师Schneur Gershuni感到担心，此人是总部设在纽约的瑞士银行能源集团的执行董事。他说，比预期情况低迷的八月份就业报告引起更多对美联储新一轮量化宽松（QE）政策的怀疑。Gershuni对MarketWatch专栏说：“情况糟糕的工作报告增加了新一轮量化宽松（QE）政策的可能性，也可以帮助在海外投资基础设施。这对矿业和钢铁企业是一个很好的机会。标准普尔500指数是指股市指数，该指数基于前500名公开交易的美国公司普通股价格的波动。事实上，标普500的第一名是位于弗吉尼亚州布里斯托尔的阿尔法自然资源公司，该公司是炼钢用冶金煤的最大美国供应商。另外一个最佳表现者是位于克利夫兰的克里夫斯自然资源公司，该公司在其劳资谈判中得到繁荣。美国钢铁工人联合会的官员说，联邦已经同意9月1号合约截止日期后继续工作，并在10月8号重返谈判桌。该合约涉及22,000名工人。（“阿尔法和克里夫斯在矿业大会上表现出色”）。

至少另外一半的矿业和钢铁公司可以在标普500的领军者中被找到，位于匹兹堡的美国钢铁公司和位于威斯康星州密尔瓦基的采矿设备制造商久益环球公司尤为显著。巴西矿业公司Vale SA的美国上市股票同样也是暴涨。总部在旧金山的MarketWatch的驻纽约首次公募记者Steve Gelsi也提到了一些能给钢铁行业带来巨大潜在利益的行业：来自中国的健康需求信息。世界上人口最多的国家批准在基础设施方面投资1,560亿美元的计划。这些资金将流向钢铁密集型项目，比如地铁和高速公路。

钢铁业的其他新闻...

*世界贸易组织于8月31日同意调查对某些印度热轧碳钢平板产品美国反倾销税的合法性，印度于4月份向WTO提出申诉，反对美国的一项调查结果。该调查认为印度钢铁生产商收到非法补助，通过该补助钢铁生产商可以花非常少的钱从国有生产商那里购买铁矿石。美国率先推行关税，在2011年12月将关税固定在102.7%，并在六年后扩大关税范围。

电信业

苹果公司可能不是三星公司侵权案在加利福尼亚法庭决定性胜利的唯一收益者

虽然三星电子公司发誓要继续通过所有途径上诉到美国最高法院——当韩国公司和苹果公司的长期法庭战争于8月24日达到至少可以算是对峙高潮的时候，苹果显然占了上风。8人陪审团在加利福尼亚圣若泽给出一致判决，三星抄袭苹果公司在iPhone和iPad中的专利技术之后，美国计算机业的巨头苹果公司获得了10.5亿美元的损失赔偿。苹果销售人员立刻请求强制令，禁止销售在法庭上涉及侵权的七项专利中的六项的三星手机。这包括Galaxy S2和Droid Charge，这两种产品都被发现侵犯了苹果公司的专利。

对本次判决的另一个迅速反应中，一些行业分析师发现除了苹果以外的其他公司从三星在市场占有率的削弱中开始收益。尤其是：同是美国的微软，还有芬兰的诺基亚。在2011年2月，微软和诺基亚宣布合作，来发布一系列运行微软Windows电话操作系统的手机。该系列产品中一款是Lumia智能手机。就像基督科学箴言报的Matthew Shaer在8月28日提到的那样，人们普遍期望诺基亚应尽早介绍运行Windows Phone OS操作系统即将推出的版本——Windows Phone 8操作系统的手机。贾德纳市场研究公司的Carolina Milanesi对彭博新闻社说：“此次判决之后，我确信安卓系统的供应商在疑惑：他们还要多久才能成为苹果的供应商。这个结果也许会影响到一些供应商，让他们将Windows Phone 8视为一种选择。”来自美国科技博客GigaOM的Bobbie Johnson给出他中肯的提示：继苹果三星案结束后，诺基亚股票这段日子稳步上涨。

专栏编辑：Dorothy Fabian

Extended quality control of cable insulation by colour measurement during extrusion

By Dr Horst Scheid, Siebe Engineering, Germany

Abstract

In order to get better quality information during extrusion of colour coded cable insulation, Siebe developed a new system that can detect colour faults even with small product geometry and fast running lines. The accuracy has been tested to be same or even better than the human eye and reproducible results have been measured with single colours as well as with stripe coded cable types for automotive applications.

Introduction

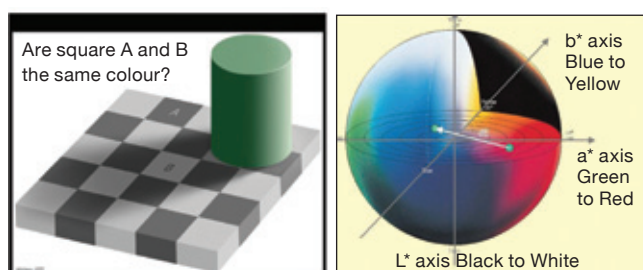
In today's cable production, it is common standard and state-of-the-art in automotive wire production to use automatic colour changing systems and automatic colour batch dosing systems on extrusion lines. On such production lines for automotive wires a huge number of combinations of main and stripe colour are used and can be preset within the line control menu.

For quality control, concentricity, diameter, capacitance and spark faults are constantly measured and protocolled. Readings can automatically influence and correct the extrusion parameters. But the correctness of cable colours is still left to the imagination and skill of the line operator, to recognise the correct colours in accordance with relevant standards and auditing procedures.

The proper colour is checked either visually inline or after the completion of a drum by inspection of the top layer. Start and end of the colour changing process is normally not monitored during running production. The scrap length is set by means of empirical values under consideration of a safety value which is longer than actually necessary. It is therefore obvious that wrong colours cost valuable production time and material scrap. The logical consequence of these considerations is the need of some automatic inline colour measurement.

Colour metrics

For a better understanding of colour measurements, it is useful to define first some basics of colour perception and colour metrics. Just to demonstrate the difficulties in interpretation 'colour' by human eyes, *Figure 1* shows two squares, A and B.



○ **Figure 1:** Optical Illusion. Square A and B have the same grey value, but they are interpreted by human eye as different because of differences in their nearest neighbourhood^[1]

○ **Figure 2:** L*a*b* space with two colour positions (red and blue) with the resulting difference vector dE

Everyone classifies A to be darker than B, but indeed they both have the same grey value. This (like many other optical illusions) explains why objective colour specification by human eyes is nearly impossible. To describe colour in physical terms, the base is a part of the electromagnetic spectrum that has wavelengths from 350 to 800nm and will be recognised by human eyes as 'colour' (in ascending order violet-indigo-blue-green-yellow-orange-red).

A better physiological representation is the so-called colour wheel (or colour circle), where different circular sectors are filled with different colours.

○ **Table 1:** Statistical colour blindness among industrial nations' population, separated between male and female

Type	Male %	Female %
Protanopia	1	0.02
Deuteranopia	1.1	0.01
Tritanopia	0.002	0.001
Cone monochromastism	~0	~0
Rod monochromastism	0.003	0.002
Protanomaly	1	0.02
Deuteranomaly	4.9	0.38
Tritanomaly	~0	~0
Totals	8	0.4

Colours in opposite sectors are designated as complimentary, that leads to the well-known RGB model: with the three basic colours Red, Green and Blue, all other colours can be created by suitable mixing.

Mixing complimentary colours 1:1 results in a neutral grey or white (additive RGB-mixing). This model is very common for camera or monitor applications, but it is a pure mathematical description without any feeling for human colour perception.

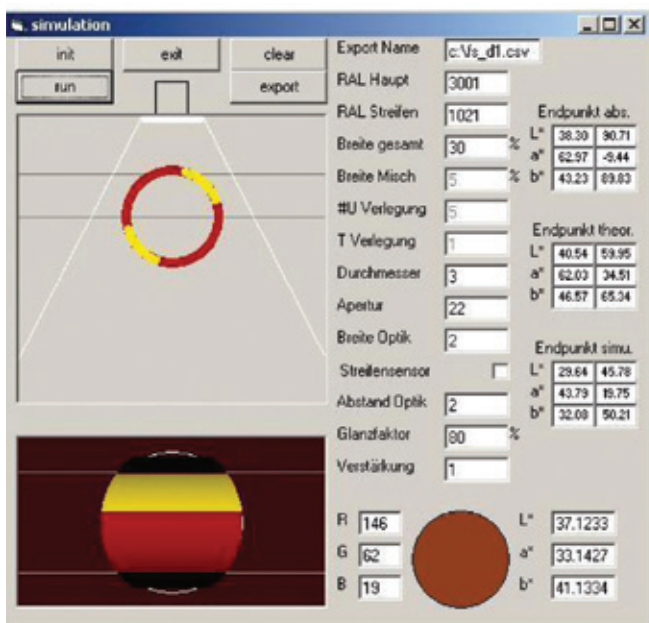
In 1927, the German 'Reich-Ausschuß für Lieferbedingungen' (an organisation for quality assurance) arranged a colour chart, which should serve as reference for coloured parts. That table is nowadays still very common in industry as 'RAL Palette classic/design/effect'^[2]. This does not include the complete continuum of colour variations and so it is not suitable for an automated system.

In 1931 the 'Commission Internationale de l'Eclairage' (CIE, an international organisation concerned with light and colour) proposed a method for a numerical expression of colours including weight factors in order to fit a certain visual colour differentiation in human perception to the same geometrical distance in the colour space. This attempt was revised in 1976 and is known as the L*a*b* model (also named CIE-Lab model)^[3].

The colour space is based on a colour wheel with the main axis Red-Green (a* axis) and Blue-Yellow (b* axis) with different scalings. The outer rim defines the hue, while saturation decreases to neutral grey at the centre. Perpendicular to the centre is the lightness (or luminance) from absolute black to pure white (L* axis). The result is a sphere, where every visible colour is represented by three coordinates (L,a,b, Figure 2).

(Exactly defined is CIE-Lab only for reflected colours. In case of lamps, monitors or other light sources there exists a modified description named CIE-Luv.)

○ **Figure 3:** Simulated 2-coloured wire in the scan field. The upper part is a view into the longitudinal direction with the sensor at the top and its aperture indicated as a cone. The lower part shows the sensor's 'camera view' at a coincidental time (with the average colour values at the right side)



Diameter	Line speed	Single/dual colour	Test parameter focus
2-6mm	<500m/min	single colour	Colour deviation dE <= 3-4
2-2.5mm	<500m/min	dual colour	Separation main/stripe colour
1.5-2mm	<500m/min	dual colour	Colour change and stripe missing
1.5-2mm	<500m/min	dual colour	Stripe to main ratio

○ **Table 2:** Testing with different wire types under various quality criteria

Having two different colours in the Lab sphere, the geometrical length dE (or Delta-E, ΔE) of the vector between both coordinates corresponds to the visual colour deviation:

$$\Delta E_{L^*a^*b^*} = \sqrt{(\Delta L^*)^2 + (\Delta a^*)^2 + (\Delta b^*)^2} \quad \text{eq (1)}$$

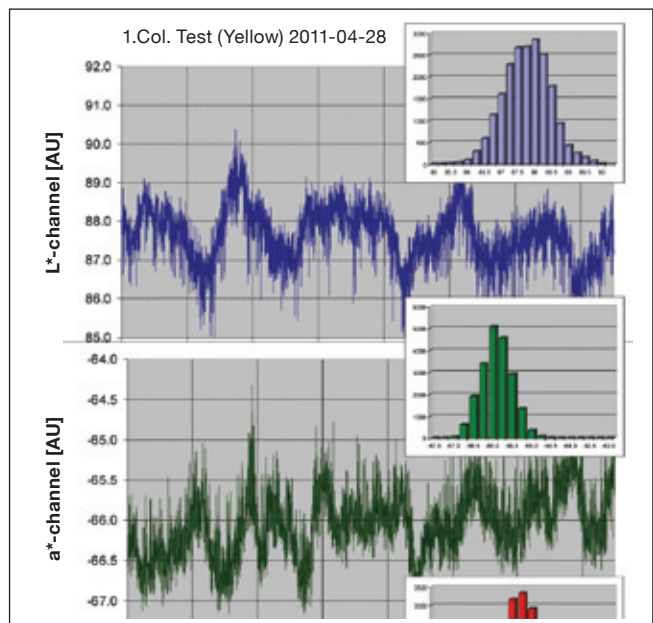
The smaller ΔE, the less is the visible difference between these colours.

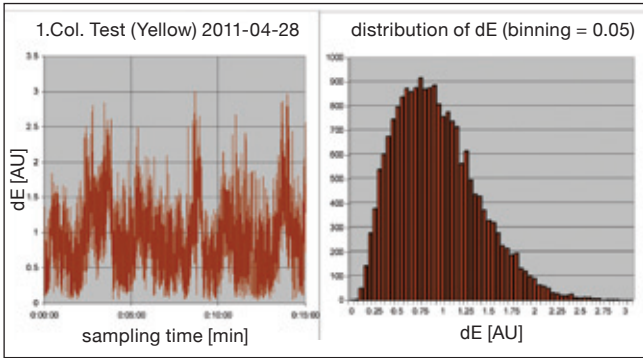
According to the special scaling of the model, the perceived and calculated deviation is same and independent of position within the sphere.

Or in other words: the Lab model is a mathematical description of colour differences interpreted by human eye that is all the same whatever colour is compared.

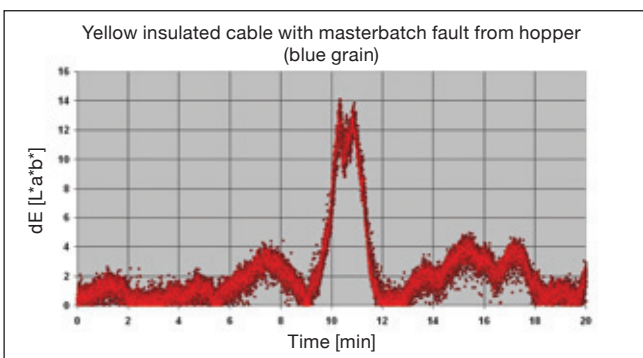
Statistical tests based on CIE-Lab showed that ΔE values greater than 10 are noticed by humans as a significant colour deviation, many people can differentiate colours down to ΔE≈4.

○ **Figure 4:** L*/a*/b*-channel of a yellow cable during 15 minutes. Small plots are the corresponding histograms for each channel. FWHM of the histogram plots is L*≈2, a*≈1.25, b*≈1.5





○ **Figure 5:** Left side – ΔE calculated from data in Figure 4 (with setpoints 87.62/-66.04/39.10)
Right side – Histogram of ΔE with a binning of 0.05. Average $\Delta E = 0.89$



○ **Figure 6:** Forced colour fault by putting blue masterbatch into the barrel feeding

Only very few people with well trained eyes can see differences between $2 \leq \Delta E \leq 4$. Below $\Delta E \approx 2$, the eyes' receptors resolve only one single colour. An additional problem is (partial) colour blindness.

Table 1 is taken from studies among industrial nations' population groups (eg^[4]) and shows that around five per cent of men have green-weakness (Deuteranomaly), so they are poor at discriminating small differences in hues. Only objective automatic colour control can avoid faults caused by that.

Technical requirements and problems caused by wire geometry and processing

Colour measurement on the base of CIE-Lab is today state-of-the-art in the paint industry or graphic art applications, with tolerance values of sometimes $\Delta E < 1$.

Conditions for such exact measurements are plane objects, a scan spot with a diameter of some 5-10mm and a sampling time in the order of 100ms on a motionless object – but all these conditions are definitely not given at an extrusion line.

That's why an inline measurement has to consider the following points:

- With a very short sampling time an averaging over a certain number of single shots eliminates local deviations. This is justifiable, as colour changes in extrusion have a relatively long transition time caused by mixing effects in the barrel

- Object movement (jitter) has to be minimised at the sensor position. This is important for the object-sensor distance d_s (illumination reduces with d_s^2) as well as for transversal movement, where the object is leaving the scan spot partially or completely
- The wire geometry is detected as a side view on a cylinder surface. This results in a colour variation from the cylinder centre view towards the cylinder border. This effect is also influenced by the surface roughness. As both conditions cannot be changed, the final colour value cannot be interpreted as an absolute measurement but as relative measurement with high reproducibility

Normally one line runs different conductor/insulation diameters. The device should be able to work with various geometries (over a certain range) without mechanical preparation or sensor recalibration.

One more challenge is the measurement in a production of colour-coded wires (one or two stripes). As the final colour establishes after the cooling down of the polymer, sampling has to be done behind the cooling trough.

Caused by redirecting wheels and the product itself (particularly stranded conductor), the wire can turn around the longitudinal axis in an irregular way. Therefore the sensor detects sometimes the main colour, sometimes the stripe colour, or both at the same time in the scan field.

Figure 3 gives an impression of the sensor's view on a two-coloured wire. With sophisticated mechanics the wire turning can be changed to be more regular and used for main and stripe colour detection with only one sensor.

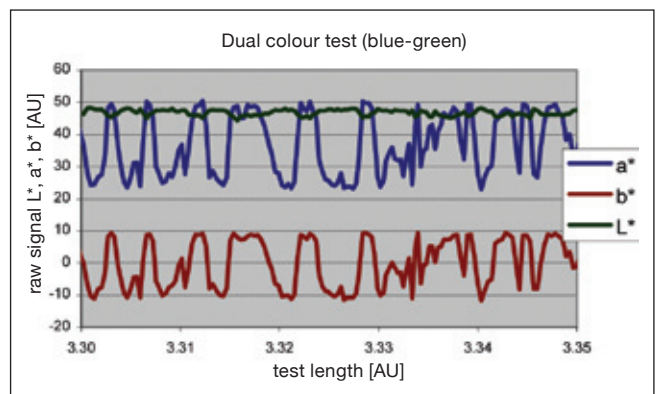
Typical applications and inline measurement test results

Different production setups have been tested to cover most typical applications:

The first test with single colour wires was to verify the aim of a resolution of at least $\Delta E \approx 3$, so the result would be the same or better than checking by human eye.

Figure 4 shows a detailed yt-plot from a measurement period of 15 minutes for all 3 L*a*b* coordinates of a yellow wire. The histogram maxima (88/-66/39.25) correspond very well to the average values (87.62/-66.04/39.10) that have been used to calculate ΔE according to equation (1).

- **Figure 7:** Raw data with stripe – well recognisable changes in a*- and b*-channel when the stripe is moving through the scan field

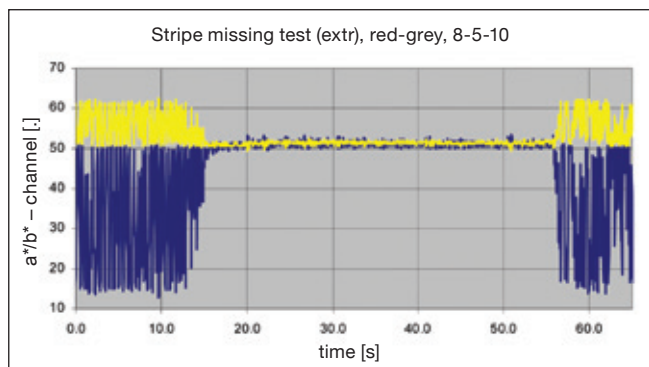


Due to the above-mentioned jitter and surface variations, FWHM value of the luminance channel L^* is higher than that of the pure colour channels a^* and b^* . The histogram of all ΔE values in Figure 5 depicts a maximum of around 0.75 (average value 0.89) and is a proof that the system has a resolution of minimum $\Delta E=1$. No values higher than 3 are recorded, so a threshold could be set to values of 5-7 for colour fault alarm. By putting one grain of blue masterbatch into the feeding of the screw, ΔE was increasing significant to values ≥ 10 (middle of Figure 6) for 1-2 minutes.

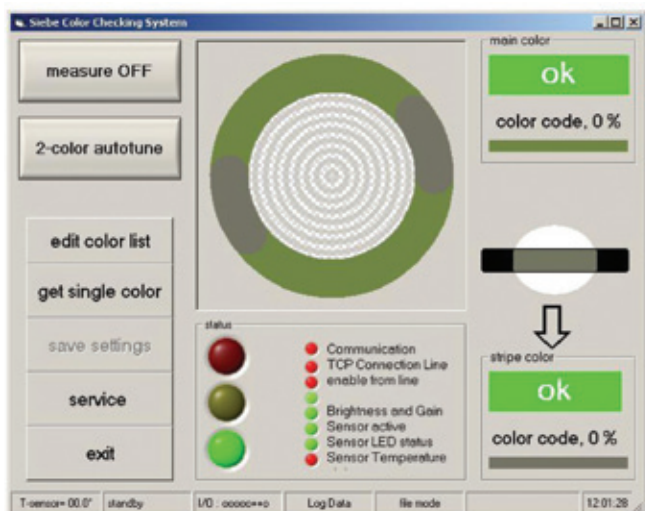
The smaller increase of ΔE some 3 minutes later can be interpreted by blue residues that were still somewhere on the screw for a certain time. Only the main deviation was found later by visual inspection. The second step was to measure on a stripe coded wire. For a separation of both colours from the raw signal, statistical methods are used as the portion of main and stripe colour in the scan field is variable.

Figure 7 shows the raw $L^*a^*b^*$ plot of a wire with main blue and green stripe. As the longitudinal wire rotation speed changes, the residence time of one colour under the sensor position cannot be predicted. A 'turn mechanism' was used to make the rotation more regular and to ensure

- **Figure 8:** Stripe missing test – only shown on the a^* - and b^* -channel. Co-extruder was switched off at x-scale position 10s and switched on again at position 50s



- **Figure 9:** User interface of the colour measurement. In the upper middle a schematical cross section of the wire shows detected main and stripe colour. Lower middle shows the status transferred to the PLC (green=both colours in tolerance, yellow=one is missing or out of tolerance, red=double fault or wrong recipe). At the right, actual colour info is displayed



that both colours come into the scan field within a time period shorter than the alarm time.

With very small wire geometry (<1.5mm diameter) and/or with small stripe width, even when the stripe position is in the scan field middle, the sensor detects a bit of main colour at the stripe borders. This is limiting the colour separation, as there is more 'mixing' between main and stripe colour at smaller geometries.

According Table 2, the third setup was to get a clear indication of a stripe missing. To force this fault during production, the co-extruder for stripe was switched off for about 40 seconds.

Figure 8 illustrates the result in the raw data (only showing the colour channels a^* and b^*): during normal production, values toggle between main and stripe colour. After the co-extruder was off (at 10 seconds on x-scale), the stripe signal slowly disappears towards the main colour simultaneously to the decreasing stripe width. After around 5 seconds, the raw signal moves only within the main colour tolerances. The co-extruder was switched on again at around 50 seconds on x-scale and stripe signal ramped up in 5 seconds to normal condition.

The last setup in Table 2 is to test the stripe to main ratio. As the sensor only detects the average colour in the scan field, it isn't possible to measure the stripe width directly. In case of a constant longitudinal product rotation, the time interval of main t_m and stripe t_s colour found in their tolerance interval can be integrated for certain time T and the resulting time ratio

$$\frac{\sum t_m}{\sum t_s}$$

should be almost same as the geometrical ratio. First trials under optimum conditions gave almost satisfying results with $T > 10s$, but scan field size, jitter and rotation irregularities are still a challenge for an evaluation with high evidence.

Actual device specifications and forthcoming development

The user interface of the device should be quite easy to control for the line operator without losing setup flexibility or detail information, comparable with inline wire centricity measurement.

Based on an IPC, control of the sensor is completely transparent for the user. A non-contact measurement reduces the risk of sensor damage. Very often the wire isn't completely dry while passing the device. This caused contamination of the sensor surface but could be solved by installation of a permanent compressed air blowing over the sensor.

To protect the optics during production start/stop and bare wire running, the sensor is moved into a safe position until normal production. Temperature compensation is done automatically. As already mentioned, colours are detected as relative measurement, so the system needs a teach-in for each geometry/colour combination. This is done once after the wire runs in good production and the detected



○ **Figure 10:** Prototype of Siebe colour measurement system during test at a customer's line. Installation between spark test and lump camera. IPC at the top, below, turn mechanics and sensor (under light cover)

reference can be stored for further production of this wire type. Any number of recipes can be stored. Until now the recipe database is very simple and should include search functions in future software.

Connection to the line PLC should be possible via simple digital 24V signals (signal status and device enable) where fault messages are implemented to the coil protocol like spark or diameter faults or with a more complex network communication via TCP/IP to have access to the recipe database or to support host computer link.

Figure 9 shows the main screen that includes the most important information for the line operator. Additional windows can display more details, like separated L*/a*/b*-channel measurement, various signal history or trend information. For later evaluation, a subsample of raw data is stored on the IPC hard disk. To be independent of all production lighting conditions, the scan field is covered and illumination is done by an internal LED light source (see Figure 10, white arrow). According the higher luminance variation compared to a* and b*, a modification of equation (1) should be tested:

$$\Delta E_{L^*a^*b^*} = \sqrt{\frac{(\Delta L^*)^2}{f} + (\Delta a^*)^2 + (\Delta b^*)^2} \quad \text{eq (2)}$$

While equation (1) represents a circular error distribution, the modification is an elliptical distribution with enhanced tolerance in the L* channel (for f > 1).

Technical aspects are almost solved; the main focus is now the improvement of device interface and handling.

This needs feedback from the wire and cable production companies. Another point of discussion should be the combination of stripe and main colour. For example main colour red with a brown stripe is difficult to separate

for an automatic device as well as for a line operator. So this is not a problem in colour measurement itself but a possible improvement of quality control by a simple redefinition of colour pairs with high ΔE .

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Siebe Engineering GmbH
 Industriegebiet Fernthal
 53577 Neustadt/Wied,
 Germany
Email: vkde@siebe.de
Website: www.siebe.de

在挤压过程检测电缆绝缘色彩来加强质量控制

作者：德国Siebe Engineering公司Horst Scheid博士

摘要

为了在挤压成形时改善色码电缆的质量检测，Siebe开发了一种新系统，它能在快速运行的生产线上检测出体积微小产品的色差。无论是用于单一色彩还是条纹的汽车电缆，该系统的准确度都能达到甚至超越人类肉眼识别的效果。

介绍

在目前电缆生产中，最常用也是最好的方法是在挤压线上用自动色彩变化和自动着色系统。在这种生产线上，多种主色或条纹的结合可以使用在色彩菜单上，并可以提前设置好。

为了达到质量要求，需要一直测量和规范电缆的同心度、直径、电容和火花，其结果会自动影响和纠正挤压参数。但是电缆色彩的准确度还是有赖于生产线操作人员的想象力和技术，他们需要相关标准和质检程序来辨认出正确的色彩。

操作人员一般并无法在生产线上检测电缆从头至尾颜色的渐变，只能在缠绕电缆过程中检查其色彩，或只检查电缆线圈表层色彩，然后根据经验和安全考虑废弃比实际要求更多的电缆。

因此，色彩误差会浪费生产时间和原材料，而其解决办法就是在生产过程中进行色彩检测。

色彩识别

为了更好地理解色彩识别，这里有必要先解释下一些基本的色彩知觉和色彩识别概念。图1证明了人类肉眼正确识别色彩的困难。图中有A和B两个方块。大家都认为A比B颜色深，它们都属于同一灰色色值。跟很多其他视错觉一样，这说明了肉眼几乎无法客观辨别色彩。

以物理学来描述色彩的话，电磁光谱中波长350到800nm的部分可以被人类肉眼识别为颜色，升序为紫-青-蓝-绿-黄-橙-红，以更符合心理学的形式展示出来就是所谓的色轮（或色盘）。在色盘上，不同颜色占据不同扇形区，相对两个扇形区中的两个颜色为互补色，这就形成了众所周知的源色模型：适量混合三种基本色红、绿和蓝，我们可以得到任何其他颜色。按1:1混合互补色，我们可以得到中性的灰色或白色（加源色混合法）。

这个模式常被应用在相机和显示屏上，这是纯数学的诠释，没有考虑人类感官对色彩的认知。1927年，德国的Reich-Ausschuß für Lieferbedingungen（质量保障组织）设计了一个色谱，可以用来作为彩色产品的色彩参考。如今，这个色谱被广泛应用在劳尔色卡/设计/效果等行业中，但它并不包括完整连续光谱的各种色彩，所以不适合自动系统。

1931年，国际照明协会提出了用数字来表达色彩的方案，涉及各个重要因素由此使肉眼感知的色彩差异与色彩空间的物理距离一致。

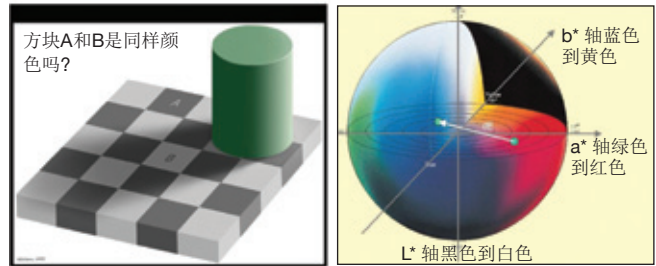


图1: 视觉幻觉。方块A和方块B属于相同灰色彩色值，而肉眼把它们判断为不同颜色，这个错觉是它们周围的不同颜色引起的。图2: (红和蓝)两种颜色的色彩空间得出的矢量DE值不同。

1976年，这个方案得以修正，这就是现在使用的色彩空间模型。

色彩空间是以色彩盘为基础的，其主轴包括不同缩放比例的a轴红-绿和b轴蓝-黄；其边缘是正色，越到中心饱和度越底，直至最后减弱为中性灰色，垂直中心的L轴是从纯黑到纯白的亮度变化，这就形成了一个球体，每个肉眼可见的色彩都由三个坐标构成(L, a, b, 图2)。(准确来说，色彩空间只用于反射色彩。灯、显示器和其他光源则属于照明色彩空间范畴。)

在色彩空间球上的两个色彩，两个座标的矢量距离DE与两种色彩的肉眼差异一致。

$$\Delta E_{L^*a^*b^*} = \sqrt{(\Delta L^*)^2 + (\Delta a^*)^2 + (\Delta b^*)^2} \quad \text{eq (1)}$$

DE越小颜色的视觉差异就越小。根据这个模型的特殊比例，看到的和计算出的差异程度是一致的，与其在球体上的位置

表格1: 工业国家色盲数据，男女性别分开

种类	男性%	女性%
红色色盲	1	0.02
绿色色盲	1.1	0.01
蓝色色盲	0.002	0.001
锥形全色盲	~0	~0
棒形全色盲	0.003	0.002
红色觉变常	1	0.02
绿色觉变常	4.9	0.38
蓝色觉变常	~0	~0
总数	8	0.4

无关。换句话说来说，无论哪种色彩，色彩空间模型都可以用数学来描述肉眼看到的差异。

色彩空间数据试验显示，DE距离指大于10时，肉眼能轻易识别出色差，很多人甚至能区分DE距离值小于4的色彩，只有少数人能区分2和4之间的色彩色差，而DE距离值小于2时，肉眼会识别为一种颜色。另外一个问题就是(部分)色盲。

表格1出于工业国家的人群调查中(例如^[4])，5%男性患有绿色色弱，他们难以察觉不同的绿色色调。因此，只有客观的自动色彩控制可以避免由色差引起的产品问题。

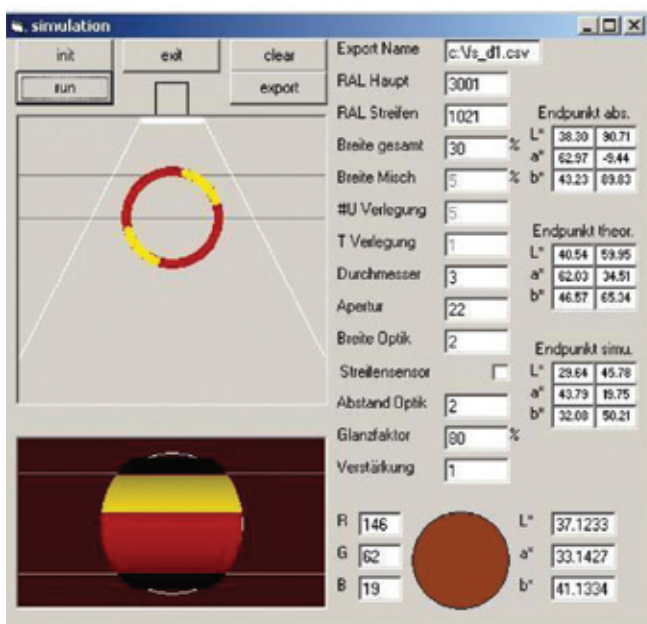
技术要求以及由电线自身或生产过程引起的问题

在油漆业和美术领域等，DE距离值小于1的色彩误差是允许的，人们就往往以色彩空间为基础的来识别色彩。为了达到准确识别的目的，识别对象应该是简单的静止物体，扫描光点的直径应该有5mm-10mm，采样时间不短于100ms。然而在挤压线上这些条件都无法达到，所以这样的色彩识别就必须注意以下几点：

- 在挤压过程中，挤压管中种种因素使色彩变化的时间延长，因此如果取样时间过短就无法识别色差。
- 在物体部分或完全穿过感应器位置时，物体的运动（振动）应该被尽量减小。这对物体和感应器的距离（光随着该距离的减小而减弱）和物体的横向移动都很重要。
- 感应器检测到的电线是其圆柱体表面的一个侧面，这与从圆柱体中心向柱体边缘观察所测到的颜色是有差异的，另外检测结果还会受到表面光滑程度的影响。既然这两个因素都无法改变，最后色值的检测结果不是绝对的，而是相对的，但如果多次检测的话，其结果应该是基本一致的。

通常，一条生产线会生产不同直径的绝缘电缆，所以这个仪器应该适用同一系列中不同大小的电缆，而不需要事先调节或设置。

图3: 模拟双色电线在感应器扫描区。上面部分显示的是感应器在顶端朝纵轴方向扫描，出现的小孔应该是锥体。下面部分是感应器同时水平扫描（右边显示的是平均色彩值）



直径	线速	单/双色	测试参数重点
2-6mm	<500m/min	单色	色差 dE ≤ 3-4
2-2.5mm	<500m/min	双色	分开主/条纹色
1.5-2mm	<500m/min	双色	颜色变化和条纹消失
1.5-2mm	<500m/min	双色	条纹与主色比例

图2: 在不同质量标准下测试不同种类的电线

另一个难题是单色或双色条纹色码电线的色彩检测。聚合物冷却后，电线才能最终定色，所以感应器取样必须在冷却槽后面。由于要重新使输送轮对准入口，还有产品自身因素(特别是绞线)，电线会以纵轴为轴心轻微不规则转动。

因此，感应器检测到的可能是主色，可能是条纹或两者同时被检测到。

图3可以看到检测双色电线时感应器的视图。我们会用更先进的机械系统来规则电线的转动，使同一感应器能检测到主色和条纹。

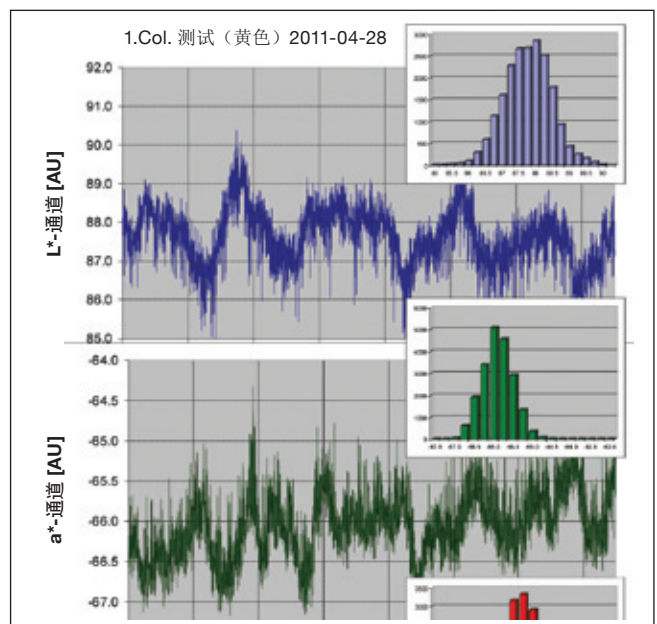
典型应用和生产线上的检测结果

测试针对不同产品的设置来涉及大多数典型应用:

第一项测试对象是单色电线，目的是证明DE距离值大于等于3的分辨率，因此其效果应等于或优于肉眼检测。图4是一根黄色电线的yt测绘图，详细呈现了色彩空间三个座标15分钟的检测结果。

柱形图的最高点(88/-66/39.25)基本与平均值(87.62/-66.04/39.10)对应，这个平均值曾被用来计算DE距离所对应的方程式(1)。

图4: 15分钟黄色电缆的L*-l a*-l b*-通道。每条通道都有相对应的柱形图。FWHM的柱形测绘是L*≈2, a*≈1.25, b*≈1.5



鉴于上文所提到的电线传输过程引起的振动和线体表面色泽和光滑度的不统一，有照明的FWHM值比无照明纯色彩FWHM值高。

图5柱形图中的最大值是0.75左右(平均值为0.89)，这就证明这个系统的分辨率最低值为1，在所有测试中没出现过高于3的值，所以5-7可以作为色彩是否合格的标准。

将单颗粒蓝色母体色注入螺口时，DE距离值在攀升到10(见图6中间)，并维持了1-2分钟，3分钟左右以后的小幅提升则是由螺口中残留的蓝色引起的，稍后才是肉眼能观察到的比较大的色差。

第二步是检测条形码电线。因为主色和条纹受到检测的比例会有所不同，统计法会被应用来区分这两种颜色和原始信号。

图7是主体蓝色加绿色条纹的电线的色彩空间测绘图。因为电线以纵轴为轴心旋转的速度会变，每种颜色被感应器检测的时间也无法预测。A turn装置被应用来规范两种颜色在检测区的时间，并使其短于警戒时间。

如果电线过细(直径小于1.5mm)，或者条纹过细，即使条纹在检测范围正中，感应器也只能检测到主色在条纹旁边的微小部分。这就使主色和条纹相互混淆，限制了色彩的分离。

根据表格2，第三个装置能明确显示出未受到检测的某一条纹。为了在生产模拟这种错误，辅助条纹挤压器被关闭40秒。

图8显示了由原始数据得出的结论(只显示彩色信号通道a和b)：在一般生产过程，主体和条纹交替被检测。在辅助挤压器关闭后(在x轴停留10秒)，条纹越来越窄，条纹信号慢慢消失与主体溶为一色。

图5：左侧—由图4中数据计算出的DE距离值(设定值为87.62/66.04/39.10) 右侧—重量分级为0.05的DE距离值柱形图。平均DE为0.89

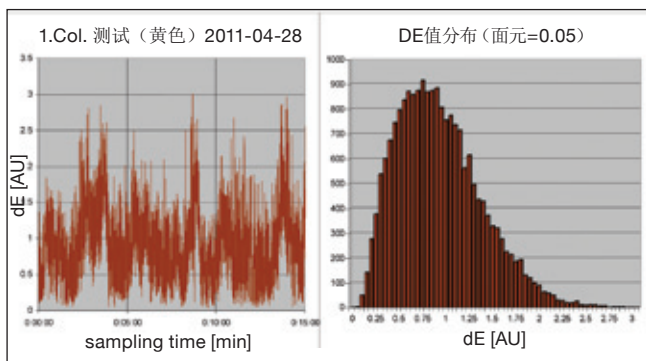


图6：把蓝色母体色放入检测舱来模拟色彩误差

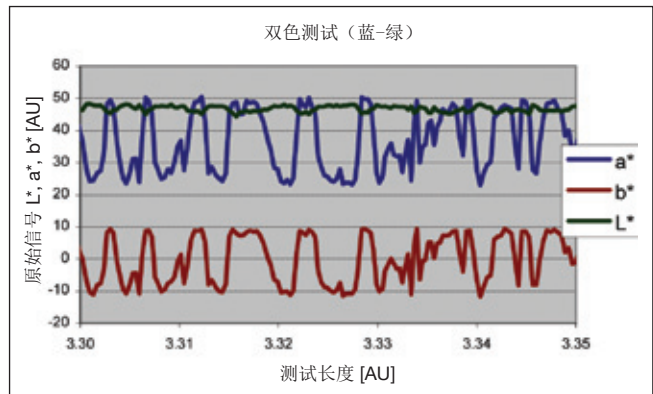
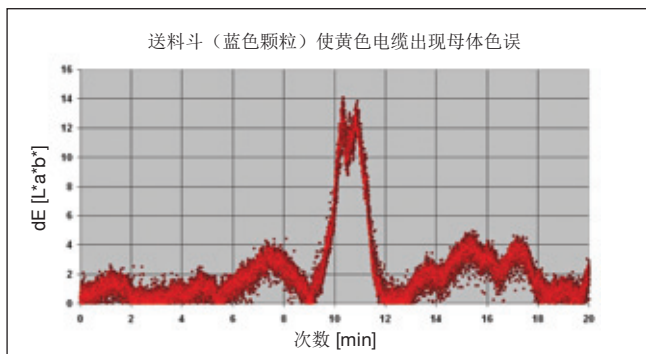


图7：条纹原始数据—当条纹穿过扫描区的时候，a*-和b*-通道的变化显而易见

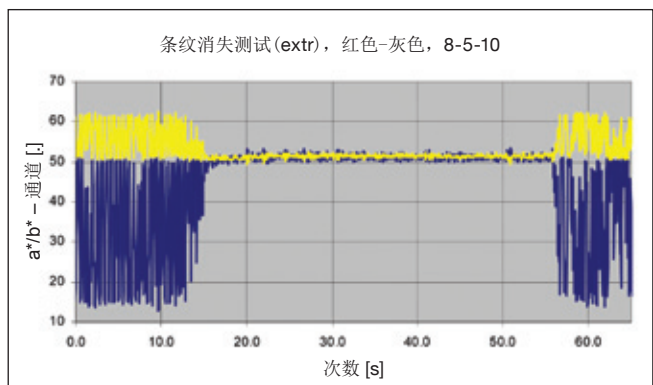


图8：条纹被忽略测试—只有在a*-和b*-通道有显示。在x轴辅助挤压器关闭10秒，在50秒时重新启动

大约5秒钟后，原始信号会在色容许差范围内移动。在x轴上，辅助挤压器在50秒后被开启，条纹信号在5秒内恢复正常。

图2的最后一个设置是按主比例来检测条纹。感应器只能检测扫描范围内的色彩平均值，不能直接测量条纹的宽度。如果电线不停地绕纵轴旋转，电线主体被检测的时间记为 t_m ，条纹时间为 t_s ，在色容许差范围内，两个时间结合为时间T，

$$\frac{\sum t_m}{T} = \frac{\sum t_s}{T}$$

其结果是时间比例与体积是几乎一致的。最初在最优化条件下的一些试验得出时间值t大于10秒的近乎人意的结果，但是扫描范围大小、振动和不规则旋转还是检测色彩值需要克服的障碍。

装置详细说明和未来发展

这个装置的用户界面比较容易控制，却又不失设置的灵活性和信息的细节性，跟从电线中心检测颜色不相上下。以IPC为基础，感应器的控制十分直观，而且无需接触的检测减小了其受损的危险。

在通过传感器的时候电线经常不是干燥的，这就需要安装被压缩空气装备来吹干感应器表面，这样就不会损害到感应

器。为了在生产开始/结束时保护镜片不受裸线磨损，直到正常生产开始之前感应器都被安装在安全位置。装置也会自动控制温度。

前文已有提到，检测出来的色彩值是相对的，所以需要事先为不同尺寸和颜色组合的电线设置好参照。

设置参照的方法就是使合格电线经过感应器，检测到的这种电线各种参考数据就会被储存起来。

该装置可以储存任意种类电线的参考数据，但目前数据库的内容比较少，也需要为其编写出搜索软件。

与PLC线的连接是通过24v信号来完成的(根据信号状态和装置是否允许)，跟火花及直径错误信息一样，色彩误差信息会在线圈中得以纠正，或者通过更复杂的网络联系通过TCP/IP到达数据库或用来支持服务器连接。

图9显示了主屏幕能为生产线操作者显示最重要的信息，而其他窗口可以显示的信息更为细节化，比如L*/a*/b*通道各自的检测，各种信号史或趋势信息。为了以后的评估，原始数据的二次取样被储存在IPC硬盘里。

为了使生产不受外界光的影响，扫描区被完全遮盖起来，由内部的LED灯来照明(见图10，白色箭头)。

照明对检测的影响要比a*和b*大，方程式(1)的升级版应该得到检验：

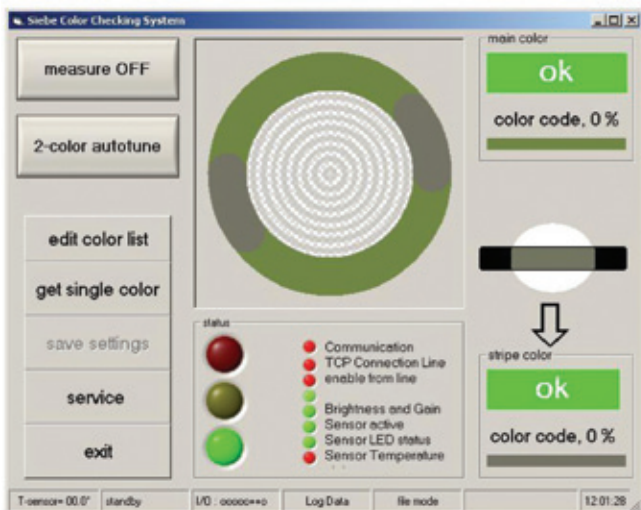
$$\Delta E_{L^*a^*b^*} = \sqrt{\frac{(\Delta L^*)^2}{f} + (\Delta a^*)^2 + (\Delta b^*)^2} \quad \text{eq (2)}$$

方程式(1)代表错误的环形分布，它的升级版则是椭圆形的，着重加强L*通道的色容许值(为了使f>1)。

技术层面的问题差不多已经得以解决，现在的重点是从电线电缆生产厂家得到反馈，以改善装置界面和操作。

另外值得讨论的一点是主色和条纹的组合。比如无论对机器还是工作人员来说，红色为主色棕色条纹都很难分辨。

○ 图9: 色彩检测的用户界面。中间上部，电线的截面示意图显示检测出的主色和条纹。中间下部显示转化为PLC状态(绿色=两种都在色容许度内，黄色消失或者在容许度外，红色=双重错误或成分错误)。右侧显示了实际色彩信息



○ 图10: 在用户端测试Siebe色彩检测系统的原型，被安装在火花测试和相机之间。IPC在顶部，下端，转动机械系统和感应器(有轻薄遮盖物)

这就不是色彩分辨的问题，只有组合DE距离值较大的两种颜色在一起才有可能提高质检效率。

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Siebe Engineering GmbH
 Industriegebiet Fernthal
 53577 Neustadt/Wied,
 Germany
 电子邮件: vkde@siebe.de
 网址:www.siebe.de

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46 Holly Walk • Leamington Spa • Warwickshire CV32 4HY • UK

Tel: +44 1926 334137 • Fax: +44 1926 314755 • Email: wca@intras.co.uk • Website: www.read-wca.com

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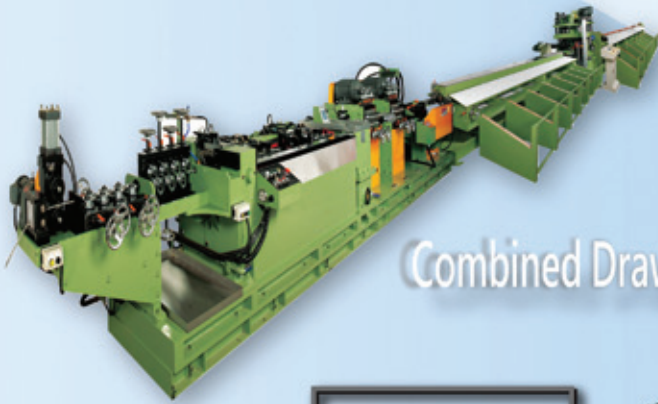
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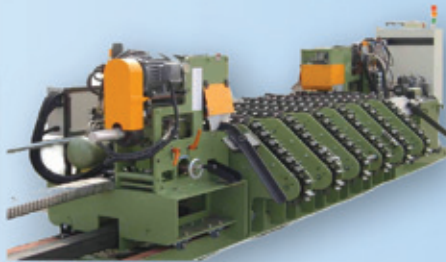
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Address: No.217-1, Yu-Pu RD., Yu-Pu Village, Hsienhsi, Changhua, Taiwan