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The International Magazine for the Wire & Cable Industries



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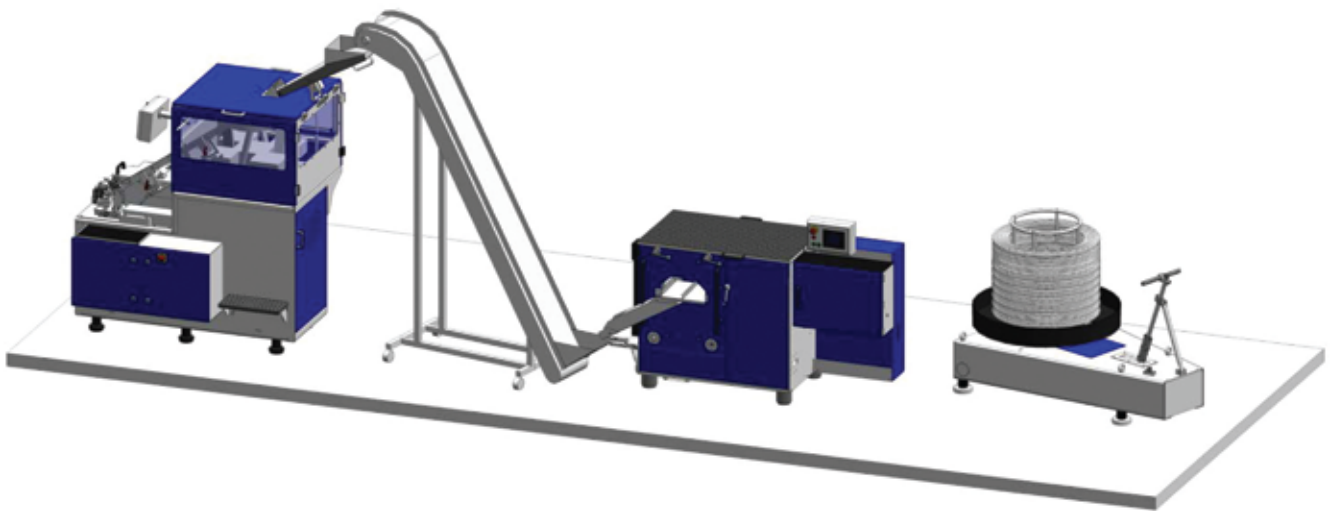
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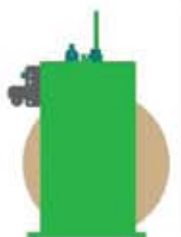
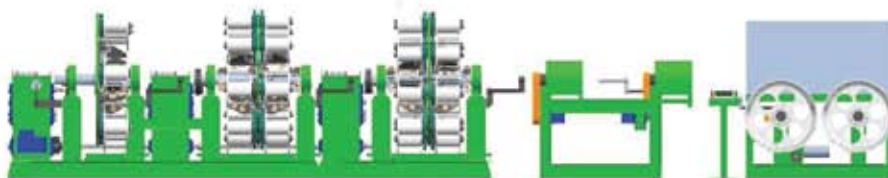
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See page 83 for further details

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I would like to start my second term as editor of EuroWire by wishing you all a happy and prosperous 2011.

After what has been a traumatic three-year period for the industry, I find myself firmly seated in the editor's chair at the leading wire, cable and fibre optics magazine, and in a position to try to help all businesses succeed in what will hopefully be a far better economic climate.

Since my departure a little over two years ago I have kept in touch with a number of people and followed the progress of the magazine, and needless to say, I am delighted to be back and working with colleagues who I know have and continue to serve you all well.

For those of you who don't know me from my previous tenure as editor, I have been employed in the media for 27 years, worked as a senior sub editor and deputy editor at some of the UK's largest selling weekly and daily newspapers, and more latterly been part of an editing team serving some 50-60 newspapers UK-wide.

On a more personal level, little has changed since I left EuroWire in 2008. I remain married to my long-suffering wife Helen, and am still passionate about Liverpool FC – although even I recognise massive changes are underway since they came under new American ownership.

My golf has also improved – much to my relief and thanks in no short measure to a quite lengthy spell of lessons from my local club professional. However, I'm still waiting for that little bit of 'magic' to make tee-ing off a comfortable experience for me!

It would be remiss of me not to mention in my first column the stalwart efforts of the previous editor, Gill Watson.

I know, from talking to staff at the magazine, that Gill was a valuable asset to the company and a personal friend to many businesses that the magazine serves.

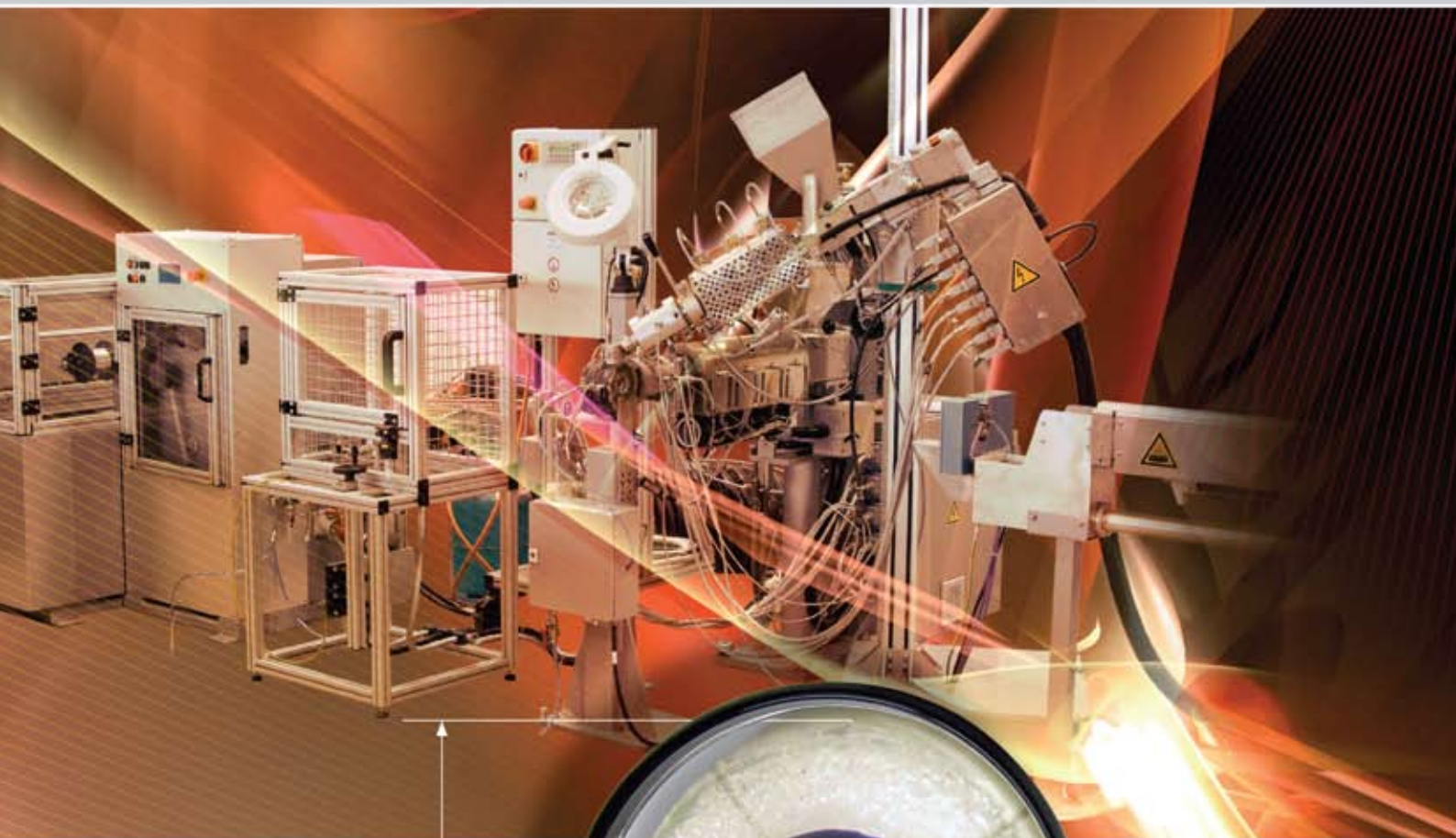
I wish Gill well for her future and thank her also for making my move here as easy as possible.

I look forward to meeting many of you at exhibitions throughout the next 12 months and beyond.

David Bell
Editor



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contents

Technical Articles

- 54** **New technology for lubricating cold extrusion materials and cold heading wire**
By Jude Burke, Chemetall PLC, UK

- 59** **Neue Technologie bei der Schmierung von Kaltextrusionsmaterialien und Kaltstachdraht**
Von Jude Burke, Chemetall PLC, UK

- 64** **Новая технология смазки материалов для холодной экструзии и проволоки для холодной высадки**
Jude Burke, Chemetall PLC, UK

- 70** **Nouvelle technologie pour la lubrification de matériaux d'extrusion à froid et du fil de frappe à froid**
Par Jude Burke, Chemetall PLC, UK

- 75** **Nuova tecnologia per la lubrificazione di materiali per estrusione a freddo e filo per stampaggio a freddo**
A cura di Jude Burke, Chemetall PLC, Regno Unito

- 80** **Nueva tecnología para la lubricación de materiales para extrusión en frío y alambre para estampación en frío**
Por Jude Burke, Chemetall PLC, Reino Unido



Deutsch Inhalt

- 57** Neuigkeiten
83 Inserentenverzeichnis

Содержание на русском языке

- 62** Новости рынка
83 Перечень рекламодателей



44

- 8 **Diary of events**
- 9 **Corporate News**
- 30 **Transatlantic Cable**
- 36 **Technology News**
- 44 **Stranding, twisting, bundling & bunching**
- 50 **Lubrication & filtration**
- 83 **Editorial Index**
- 83 **Advertisers' Index**



Subscribe Now!

To subscribe see page 39

In The Next Issue

Show issue



Interwire 2011

wire Russia 2011



Features On

- Braiding & weaving – (equipment & applications)
- Cutting & welding

Getting Technical

Loose tube FTTx buffer tube mid-span access – a test method comparison by Denise L Matthews, Draka Communications, Claremont, NC

Sommaire Français

- 68** Nouvelles du Marché
- 83** Index des Annonceurs

Indice Italiano

- 73** Notizie del Mercato
- 83** Indice degli Inserzionisti

Indice Español

- 78** Noticias de Mercado
- 83** Índice de Anunciadores

Interwire 2011

May 2011

3–5: **Interwire** – trade exhibition – Atlanta, Georgia, USA

Organisers: Wire Association International (WAI)

Fax: +1 203 453 8384

Email: info@wirenet.org

Website: www.wirenet.org

2011

May 2011

23–26: **wire Russia 2011** – trade exhibition – Moscow, Russia

Organisers:

Messe Düsseldorf GmbH

Fax: +49 211 4560 7740

Email: info@wire-russia.com

Website: www.wire-russia.com

June 2011

19–23: **JICABLE** – conference and trade exhibition – Versailles, France

Organisers: SEE

Email: jicable@see.assoc.fr

Website:

www.jicable.org

September 2011

13–15: **wire Southeast Asia** – trade exhibition – BITEC, Bangkok, Thailand

Organisers:

Messe Düsseldorf Asia Pte Ltd

Email: wire@mda.com.sg

Website:

www.wire-southeastasia.com

October 2011

4–6: **WICAB 2011** – trade exhibition – Centro de Exposições Imigrantes, São Paulo, Brazil

Organisers: Grupo CIPA, Brazil

Fax: +55 11 5585 4359

Email: feira@cipanet.com.br

Website: www.cipanet.com.br

2012

March 2012

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

Organisers: Messe Düsseldorf

Fax: +49 211 45 60668

Email: wire@messe-duesseldorf.de

Website: www.wire.de

September 2012

25–28: **wire/Tube China** – Shanghai New International Exhibition Center, Shanghai, China

Organisers:

Messe Düsseldorf GmbH/

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Website: www.wirechina.net

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 9. Tire steel cord closer for engineering project
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 11. Big and multi-strand rope closer, inner and outer laid in one time



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▲ The new nkt factory in Germany

Cologne factory for nkt

A new cable factory for nkt has been specially designed and constructed to make cable production as efficient as possible.

The move to the factory (named f2c – an abbreviation of ‘flow to customer’) will be completed during 2011, when production capacity will be increased and especially aimed at submarine and extra high voltage cables.

nkt acknowledges that the mix of power sources will change dramatically in the future, with renewable energies becoming increasingly important.

This change of energy mix will lead to a decentralised energy generation. In order to meet the requirements of customers, and the changing market demands, nkt cables has tried to create the most efficient answer to the future challenges.

“We believe that f2c will play a major role in the offshore business,” said Dion Metzemaekers, chief executive of the nkt cables group. “Our new factory marks a decisive milestone in the history of cable factories.

“Never before has a project in this scale been executed. No one in the cable production business has ever invested as heavily in the future, as we have done with our new plant. It will become the benchmark for extra high voltage and submarine cable production.”

nkt cables group GmbH – Germany

Fax: +49 221 676 2033

Email: info@nktcables.com

Website: www.nktcables.com

€1m order from Tele-Fonika Kable

Sikora AG has received one of the biggest orders in its history, worth €1 million. The order from Tele-Fonika Kable, Krakau, will see the company using Sikora measuring systems in its cable plants in Kraków/Bieżanów, Kraków/Wielicka and Bydgoszcz in Poland for quality assurance during cable production.

The order includes wall thickness, eccentricity and diameter measuring systems, and breakdown testers for installation in CV-lines, insulating and jacketing lines.

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IEC60888)

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Petar Erdeljan obituary



▲ *Petar Erdeljan*

Petar Erdeljan, area sales manager of Roteq Machinery, passed away on 21st September 2010 in his seventieth year, in Victoria Hospital in London, Ontario, Canada.

Petar was born in Kikinda, Yugoslavia, and attained his higher education at Leicester School of Technology and Commerce in the United Kingdom, the Academy of Commerce in Belgrade, Yugoslavia, and the University of Subotica, Yugoslavia.

In 1968, on completion of his military duties in Yugoslavia, Petar started work with Wogau Engineering in London, UK, which was an agency that represented companies that sold equipment to the Soviet Union and Eastern bloc companies.

His linguistic talents led him to represent and then be employed by General Engineering (Radcliffe) Co Ltd group of companies, which included Trafalgar Engineering, with responsibilities for the Eastern bloc countries.

In 1989 he re-located to Canada and continued his wire and cable career in the position of area sales manager with Ceeco Machinery, of Concord, Ontario, a position he held till early 2010.

In March of 2010 Petar joined Roteq Machinery, of Concord, Ontario, as area sales manager. Petar's wire and cable involvement totalled about 30 years.

Petar is survived by his son, Dr Petar Erdeljan, and daughter-in-law, Dr Meivys Erdeljan, and his brother Lazar.

He was a member of the Wire Association International.

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www.supermacindia.com

Alpha Wire appoints new regional manager

Alpha Wire International has announced the appointment of its new regional manager for the French and Benelux regions, Emmanuel Deboval. The announcement comes as the company is experiencing increased activity surrounding the highly successful launching of its LSZH (low smoke zero halogen) and Ecowire products.

Since his arrival, Emmanuel has already attended product training sessions in the USA and UK to familiarise himself with Alpha's product portfolio.

Harry Quinn, Alpha Wire's director for EMEA, said: "I am delighted to welcome Emmanuel to the team and feel that he is an excellent candidate for the role.

"His previous work in sales, and qualifications in electronics will be invaluable and will help cement our position as an authority in the wire, cable and tubing arena."

Alpha Wire International – UK

Fax: +44 1932 772433

Email: europe@alphawire.com

Website: www.alphawire.com

Bekaert expands wire business in China

Bekaert has signed an agreement for the acquisition of 75% of the shares of the spring wire and overhead conductor business of Xinyu Iron & Steel Co Ltd in Xinyu, Jiangxi Province, China.

Henri-Jean Velge, Bekaert Group executive vice president wire and stainless technologies, said: "The integration of these activities will strengthen our position in the Chinese market and adds complementary technologies and applications to Bekaert's existing product portfolio."

Mark Goyens, president of Bekaert Asia, added: "This acquisition and partnership will open up new opportunities for Bekaert. After years of intensive expansion of our Steelcord platform in the country, this agreement ensures the immediate extension of Bekaert China's wire business."

The acquired activities include two spring wire production plants in Xinyu. The product portfolio includes

spring wires for the automotive, motorcycle and engineering sectors and complements Bekaert's existing product range, manufactured in its wire plant in Jiangyin, Jiangsu Province.

The transaction involves the transfer of 630 employees. A new manufacturing site will be built in Xinyu where the acquired activities will be concentrated to increase manufacturing capacity and technological capabilities.

The overhead conductor business will continue to serve the utilities sector, which shows strong growth potential driven by the high number of investments in energy transmission and data communication networks in China.

Manufacturing is concentrated in one production plant in Xinyu, employing 240 people.

Bekaert – Belgium

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CCCA fighting to uphold standards

The Communications Cable and Connectivity Association, Inc (CCCA) applauded action by Underwriters Laboratories (UL) to stem the flow of non-compliant communications cable being imported into the North American market.

UL has taken strong action to maintain the integrity of its UL mark and cable performance certifications by publicly identifying manufacturers and their distributors who are supplying substandard and unsafe cable products into the market.

In addition, UL has established further initiatives to verify the integrity of UL listed cables through detailed analytical testing of cable component materials and new marketplace surveillance.

These efforts by UL are, in part, a result of CCCA sharing information and encouraging each of the two independent testing/certification agencies to develop stronger measures to assure compliance to national fire safety codes and telecommunications industry standards for transmission performance.

CCCA is a non-profit organisation, founded in 2007.

Member companies include AlphaGary, Anixter, Berk-Tek, CommScope, Daikin America, Dupont, OFS (a Furukawa company), PolyOne, Solvay Solexis and Tyco Electronics.

CCCA – USA

Website: www.cccassoc.org

New cable plant set for Libya

Egyptian group El Sewedy Cables is expecting to invest up to \$50 million to establish a cable manufacturing plant in Libya before the end of 2011.

El Sewedy Cables, which produces power transmission and telecoms cables, already has plants in many countries from Egypt to Ethiopia, Nigeria, Saudi Arabia, Algeria and Zambia. The group exports to the Middle East and north Africa, Spain, Portugal, eastern Europe and Brazil, with African countries taking 30 per cent of its exports.

El Sewedy Electric – Egypt
Email: info@elsewedy.com

Fax: +20 2291 7078

Website: www.elsewedyelectric.com

AMSC lands world's largest order

American Superconductor Corporation has received what is expected to be the world's largest order for high temperature superconductor (HTS) wire.

LS Cable Ltd, a long-standing client of AMSC, has placed an order for 3,000,000m (nearly 10 million feet) of Amperium wire, AMSC's proprietary second generation (2G) HTS wire.

LS Cable intends to utilise the wire to complete alternating current (AC) and direct current (DC) superconductor cable projects globally.

Under the terms of the contract, AMSC is to begin shipping Amperium wire to

LS Cable in 2012. "Our objective is to be the leading provider of superconductor power cables for electric utilities worldwide," said LS Cable president, Jong-ho Son.

"This Amperium wire contract helps ensure we will have the wire we need to complete the superconductor cable projects we have underway with KEPCO in Korea and also take on commercial project opportunities globally such as Tres Amigas in the US."

American Superconductor Corporation – USA

Fax: +1 978 842 3024

Website: www.amsc.com



Cables for new aircraft carriers

As construction of the first of the UK Royal Navy's new aircraft carriers continues at the Cammell Laird shipyard, Habia Cable has become involved in the design and supply of custom multi-core and defence standard approved cables for the project.

The Habia Cable range of defence standard naval cables includes defence standard approved wires and cables and custom designed multi-core cables to defence standard 61-12 part 25. Habia Cable supplies defence standard wires and cables for a wide range of applications. The primary cores are to defence standard 61-12 part 18 and the jacket conforms to 61-12 part 31.

The QEC class aircraft carriers, HMS Queen Elizabeth and HMS Prince of Wales, are due to enter service in 2014 and 2016, respectively, and each ship will have an operational range of 10,000 nautical miles and the capacity to carry 40 aircraft, a ship crew of 600 and an airgroup crew of up to 900. Each ship will contain over 2.5 million metres of cable.

At 280 metres long and 70 metres wide, the Queen Elizabeth class aircraft carriers will be bigger than any aircraft carriers

currently in service, and will provide four acres of sovereign territory, anywhere in the world.

Propulsion will be provided by two Rolls-Royce Marine 36MW MT30 gas turbine alternators and four Wartsila 38 diesel engines.

The gas turbines and diesels are the largest supplied to the Royal Navy and their combined power feeds the low-voltage system and the shaft driven propellers, with total installed power approaching 110MW.

CVF will carry over 8,600 tons of fuel to support both the vessel and aircraft.

The aircraft carrier's hanger deck is 155m long, 33.5m wide and up to 10m high, accommodating up to 20 fixed and rotary wing aircraft.

The maximum launch rate is 24 aircraft in 15 minutes and the maximum recovery rate is 24 aircraft in 24 minutes. The CVF is three times larger than the 20,000t UK Invincible Class carriers and the hull will be nine-decks deep plus the flight deck.

The carrier will support joint combat aircraft carrying out up to 420 sorties over five days and be able to conduct day and night time operations. The maximum sortie rate is 110 joint combat aircraft sorties in a 24-hour period.

Habia Cable – Sweden
Fax: +46 8630 7481
Email: info@habia.com
Website: www.habia.com

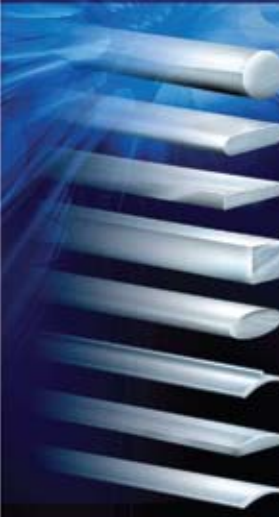
News and views

The most recent issue of *power & trends*, the customer newspaper of wire and cable machinery manufacturer Maschinenfabrik Niehoff, is now available, free of charge, from any Niehoff office, subsidiary or from the website.

power & trends 2/2010 provides equipment and company news and is printed in English, Chinese and German with a Russian summary.

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▲ Jason Smith of INTRAS Ltd

Jason brings his experience to EuroWire

International multi-media group INTRAS Limited has appointed a new marketing executive for its two international wire and cable industry titles, *EuroWire* and *Wire & Cable ASIA*.

Jason Smith, whose sales and marketing career spans 15 years with major publishing houses and the Trinity Mirror newspaper group, takes over responsibility for international advertising sales of English speaking clients across Europe, the Middle East and parts of Asia.

"INTRAS provides its clients with unrivalled support in terms of corporate and promotional marketing, enhancing sales and promoting brand awareness through all the magazines – and at trade exhibitions across the world," he said.

"A great advantage for our advertisers is the strong links we have – and the unique supporting role we play – with many international trade fair organisers and exhibition owners.

"Our 26 years of experience in developing and marketing niche wire and tube industry events, together with our leading industry trade publications, mean no other multi-media group is better positioned for this role.

"I'm looking forward to meeting as many of our clients as I can, getting to know their business needs, what they want from the market and how we can help them develop their business and get them more sales," said Mr Smith, who was previously sales manager with another publishing company for eight years.

"I will also be targeting new businesses which haven't previously advertised with us, and demonstrating why *EuroWire* and *Wire & Cable ASIA* magazines – which are available both in printed and digital e-zine versions – are essential trade magazines for their market."

INTRAS is a family-owned private limited company, whose CEO John C Hogg also co-founded the International Wire & Machinery Association (IWMA), the world's largest corporate membership association for the wire, cable and wire products industries – and the International Tube Association (ITA).

Managing director Caroline Sullens added that the company maintains the finest database of wire and tube related industry contacts and company data, and offers marketing and support services to trade fair organisers wishing to develop or enhance sales of exhibition space or the promotion of visitor attendance at worldwide trade events.

Through its range of publications and industry services, INTRAS provides clients with excellent customer support in terms of corporate and promotional marketing, enhancing sales and promoting brand awareness throughout the magazines and at trade exhibitions across the world.

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Nexans in discussions with Draka Holding NV

Nexans has obtained the commitment of Flint Beheer BV, subject to certain conditions, to tender its shares of Draka Holding NV if Nexans makes an offer to acquire Draka Holding NV.

Nexans has agreed to make a proposal to Draka Holding NV to negotiate an agreement for a recommended cash offer to purchase all of the outstanding ordinary shares of Draka Holding NV at a price of €15 per share, subject to certain conditions.

Frédéric Vincent, chief executive officer of Nexans, said: "The contemplated transaction would contribute to the consolidation of the cable sector, improve the competitiveness of Nexans' European asset base and reinforce its positions in specialty cables."

Nexans intends to begin negotiations with Draka Holding NV with a view to reaching an agreement as soon as possible.

However, asset manager Ed Manie at Keijser Capital said that Nexans' offer for Draka Holding NV could prove to be a hostile opening bid that could trigger a bidding war between Nexans and Italian rival Prysmian.

While Draka's big shareholder Flint Beheer, which owns 48.48% of the company's shares, has backed Nexans' offer, Manie believes that the remaining shareholders will await to see the further developments around the proposed acquisition.

Draka and Prysmian cancelled last year's merger talks as they could not agree on the major conditions of the deal.

Nexans – France
Fax: +33 15669 8484
Email: nexans.web@nexans.com
Website: www.nexans.com

Draka Holding NV – The Netherlands
Website: www.draka.com

First continuous casting forum

The Wire Association International (WAI) has announced its first Global Continuous Casting Forum for copper practitioners, to take place at Interwire, Atlanta, from 2nd-5th May.

A total of 33 industry experts will lead the forum, which will comprise technical and operational presentations, interactive workshops and panel discussions, and will serve as a user's group for all operations personnel involved with copper continuous casting.

Forum topics will include:

- Historical information on copper, continuous casting, wire drawing and the vertical shaft furnace
- Process overviews by Properzi, SCR, Contirod, and Upcast OY
- New technologies: descaling; degassing; rod testing; scrap processing

- New refractory materials and installation practices
- Baghouses: design; fires investigation
- Filtration: molten metal; caster and process water
- Shaft furnace burner combustion ratios and dissolved oxygen
- Cathode impurities and rod quality
- Wire break analysis and copper fines generation
- Preventive maintenance: electronic drives; hardware and software solutions

Registration is \$395 for WAI members; \$495 for non-members. The fee includes access to Interwire 2011 exhibits, technical programme and the opening reception.

Wire Association International Inc – USA
Fax: +1 203 453 8384
Website: www.wirenet.org

Alcan Cable achieves ISO 9000

Alcan Cable, a business of Rio Tinto, has obtained the ISO 9000 international quality management system standard certification for its manufacturing facility in Tianjin, China.

The ISO 9000 quality management system places primary emphasis on prevention, process control, and implementation of procedural management in every

quality activity. "Achieving the ISO 9000 certification at our Tianjin manufacturing facility represents an important milestone in solidifying our market position in China," said Jack Miller, president, Alcan Cable.

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General Cable acquires BICC Egypt

General Cable Corporation has acquired BICC Egypt.

BICC Egypt manufactures a wide variety of wire and cable products for the electrical markets including low voltage insulated power and control cables, building wire, instrumentation cable, halogen free power and control cables, and overhead power cables. In the last 12 months, the business reported revenues of approximately \$30 million.

The acquisition of BICC Egypt furthers General Cable's geographic expansion by establishing a production and commercial base in the region.

The company believes the demand for wire and cable products in Egypt will continue to grow faster than many other nations due to increasing investment in infrastructure and power generation projects.

Egypt continues to invest heavily in large-scale transport, construction, power generation, and transmission and distribution infrastructure.

General Cable Corporation – USA

Fax: +1 859 572 8458

Email: info@generalcable.com

Website: www.generalcable.com

Nexans QICC joint venture in Qatar starts commercial production

Nexans has completed a major step in the development of its joint venture in Qatar – the Qatar International Cable Company (QICC) – with the start-up of commercial production at the new cable plant in Mesaieed Industrial City, around 40km from the capital, Doha.

The plant employs more than 100 people and is expected to generate a volume of business of over \$100 million by 2011.

The new QICC plant is focused on the manufacture of low, medium and low-end high voltage power cables for energy infrastructure and building projects, as well as special cables for the oil and gas industry.

It has a current total floor space of 19,000m² on an overall plot of 70,000m², and a strategic location close to a harbour that is being

developed as the largest in the Middle-East.

"The opening of this flagship plant in Qatar is a key strategic step that enables Nexans to address the specific needs of the buoyant and growing market in the Gulf coast countries," said Frédéric Vincent, chairman and CEO of Nexans.

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Teknor Apex to distribute COIM compounds

The Italian chemical company COIM SpA has appointed Teknor Apex Company to be its exclusive distributor of Laripur™ thermoplastic polyurethane (TPU) elastomer compounds to wire and cable manufacturers in the US, Canada and Mexico. Teknor Apex's Vinyl Division will supply the Laripur materials.

"We are very pleased to engage in a strategic co-operation with a high-value partner like Teknor Apex," said COIM's Antonio Piroddi, division manager for Laripur TPU.

"Their technical and commercial capabilities combined with COIM's TPU expertise and broad product offering provides a valuable new resource for wire and cable customers in North America."

Teknor Apex vice president, Louis R Cappucci, added: "TPUs are particularly valuable for withstanding rugged end-use conditions because of their resistance to abrasion, chemicals, microbial attack, and hydrolysis, as well as flexibility at low temperatures."

Laripur compounds are available in grades ranging in hardness from 60 Shore A to 75 Shore D. As elastomers they are inherently flexible and contain no plasticisers, except as required for certain specialised formulations.

Typical applications include cables for automotive sensor and antilock brake systems and for mining, seismic monitoring and oil exploration.

Teknor Apex Company – USA Email: vinyl@teknorapex.com
Website: www.teknorapex.com

COIM SpA – Italy Website: www.coimgroup.com

New plant to double production

Hu An Cable Holdings, a wire and cable manufacturer in China, has started the construction of a new plant under a newly-incorporated subsidiary, Hu An (Wuxi) Cable Technology Co, to strengthen its cable production capabilities.

The plant occupies 80,000m² with 60,000m² floor space, and is located adjacent to the group's existing plant in Yixing city. The group has already placed orders for two production lines for ultra-high voltage power cables from Finland and Germany.

Costing RMB338 million (\$67 million), the new plant will comprise three production lines for 110kV and above power cables, imported from Finland and Germany, and two domestic production lines for mid-voltage power cables.

The project will be financed using net proceeds from the company's initial public offering with the balance from internal funds and bank borrowings.

Hu An Cable Holdings Ltd – China
Fax: +65 6438 9939
Email: huancabel@singtel.com.sg
Website: www.chinahuancable.com

Order revived as economy improves

German manufacturer SMS Group has announced that ArcelorMittal Hochfeld GmbH, a subsidiary of Luxembourg-based steelmaker ArcelorMittal, has placed an order with SMS Meer for the supply of a complete high-capacity wire rod mill for steel.

The order was originally requested two years ago, but later suspended in view of the economic situation at the time.

According to the SMS statement, the wire rod blocks will also be equipped with a new individual drive technology (MEERdrive) developed by SMS Meer.

The new wire rod mill has been designed to roll technically demanding grades, which are therefore of extremely high quality, to the closest of tolerances. The high-performance mill, designed for an annual capacity of 690,000mt, is expected to commence production in spring 2012.

SMS Meer's scope of supply comprises a walking-beam furnace, the mechanical and electrical equipment of the mill train, all the supply systems, the coil handling equipment, the entire rolling and cooling technology as well as the erection and installation.

SMS Meer GmbH – Germany
Fax: +49 2161 350 1667
Email: info@sms-meer.com
Website: www.sms-meer.com

Qunye

Tel: 0086-514-87381188
 Fax: 0086-514-87383456
 Email: qunye@qunyeglobe.com

Add: fangxiang Industrial Zone,
 yangzhou City,
 Jiangsu Province, China

Reliable and efficient nail production

Swedish nail producer Industrispik Linan AB was founded in 1987 by Gyllsjö Träindustri AB, a Swedish producer of pallets and wood packaging.

Nail production was subsequently transferred to separate premises approximately 20km from the parent company.

Production capacity increased, allowing the company to sell to more Scandinavian pallet manufacturers.

Industrispik Linan produces 1,500 tons of nails per year. The nails manufactured are made exclusively from ore-based steel wire, in order to ensure quality and uniformity.

The plant consists of six production lines, including two new Enkotec inline nail manufacturing lines: one NH01 nail machine with a TA01 thread roller, and one NI01 machine with another TA01.

These two Enkotec lines have replaced four old conventional nail manufacturing lines.

Managing director Kenneth Svensson said: "Our plan is to replace the remaining old nail production lines with yet another new NI01-TA01 inline system for the production of convex head nails."

Industrispik Linan produces nails from $\varnothing 2.5 \times 35\text{mm}$ to $\varnothing 3.7 \times 100\text{mm}$, meeting the requirements of most pallet manufacturers. Generally, the demand for ring shank nails is increasing compared to smooth shank nails because of the improved pulling resistance in the pallets.

According to Mr Svensson, the choice of Enkotec as a supplier for the company's investment in new nail manufacturing lines was a result of comparing the alternative options.

"Among the decisive factors was the possibility of establishing a low noise, space-saving and oil-free production. The lack of oil in the process and the efficient dust exhaust devices mean that there is no need for tumbling the nails afterwards.

"An additional advantage is that our power consumption has fallen significantly on our total volume. What also matters much to us is Enkotec's after-sales concept with quick service and support, easy access to spare parts, and user-friendly technical manuals."

Mr Svensson added: "I am convinced that



▲ Industrispik Linan produces 1,500 tons of nails per year

wood packaging material will continue to be a strong alternative to plastic and other types of packaging in the future.

"The need for nails will still be there for a long time to come. Therefore, I believe the future looks bright for our business. In order to stay competitive, we must be able to produce efficiently with short delivery times and a high-quality nail output in large volumes, when required.

"And with our modern Enkotec production equipment, we have every possibility to do so."

Enkotec – Denmark
Fax: +45 8652 4199
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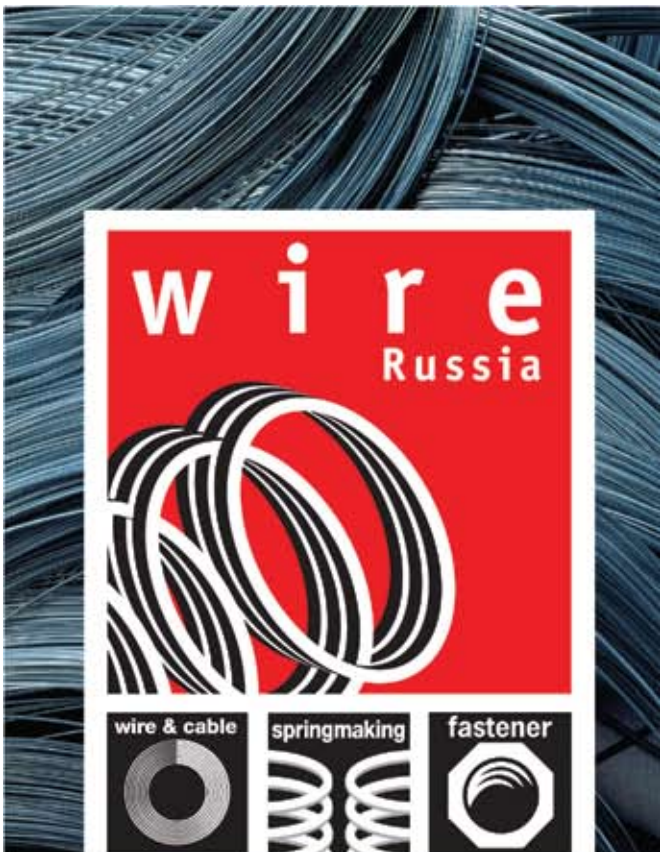
BendBright success

Draka Communications has reported that 2010 shipments for its flagship bend-insensitive fibre BendBright-XS have doubled over the year, bringing cumulative output to over 2 million kilometres since its launch.

"This growth is predominantly due to a leap in FTTH project expansion around the world," said Alain Bertaina, product marketing, single-mode fibre Draka Communications.

"It underlines the fact that the challenges of accelerating FTTH deployment, reflected in the latest ITU G.657 recommendations, are comfortably accommodated with BendBright-XS."

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www.wire-southeastasia.com



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WAI's Interwire returns to Atlanta

Interwire 2001 will be bigger and better than ever as the influential event returns to Atlanta, Georgia, USA, in May.

The Wire Association International has already announced that it has sold more than 95 per cent of its allotted 103,000ft² of exhibit space.

In a show of support for WAI, the American Wire Producers Association (AWPA) will again align its Supply Chain Symposium, to be held on 2 and 3 May, with a Wire Association event at the Georgia World Congress Center, where the event first originated 30 years ago.

"WAI has developed a close working relationship with the AWPA. By coordinating event schedules both organisations can accommodate the ferrous sector and benefit from the participation of the groups' members. We're fortunate to have AWPA's ongoing support," said WAI executive director Steven Fetteroll.

AWPA executive director Kimberly Korbel said: "We were very pleased with the success of the inaugural Supply Chain Symposium held alongside Wire Expo, last

May. This industry event was sponsored by the Wire Association and several other ferrous wire and wire products associations. Their support and marketing efforts were invaluable in launching an event which showcases a new level of industry cooperation."

Support for Interwire's technical programme is also notable with more than 30 scheduled paper presentations over three days. WAI's technical programme content will be divided into three new theme days: Metals & Materials; Manufacturing Best Practices; and Green Initiatives.

Interwire highlights include:

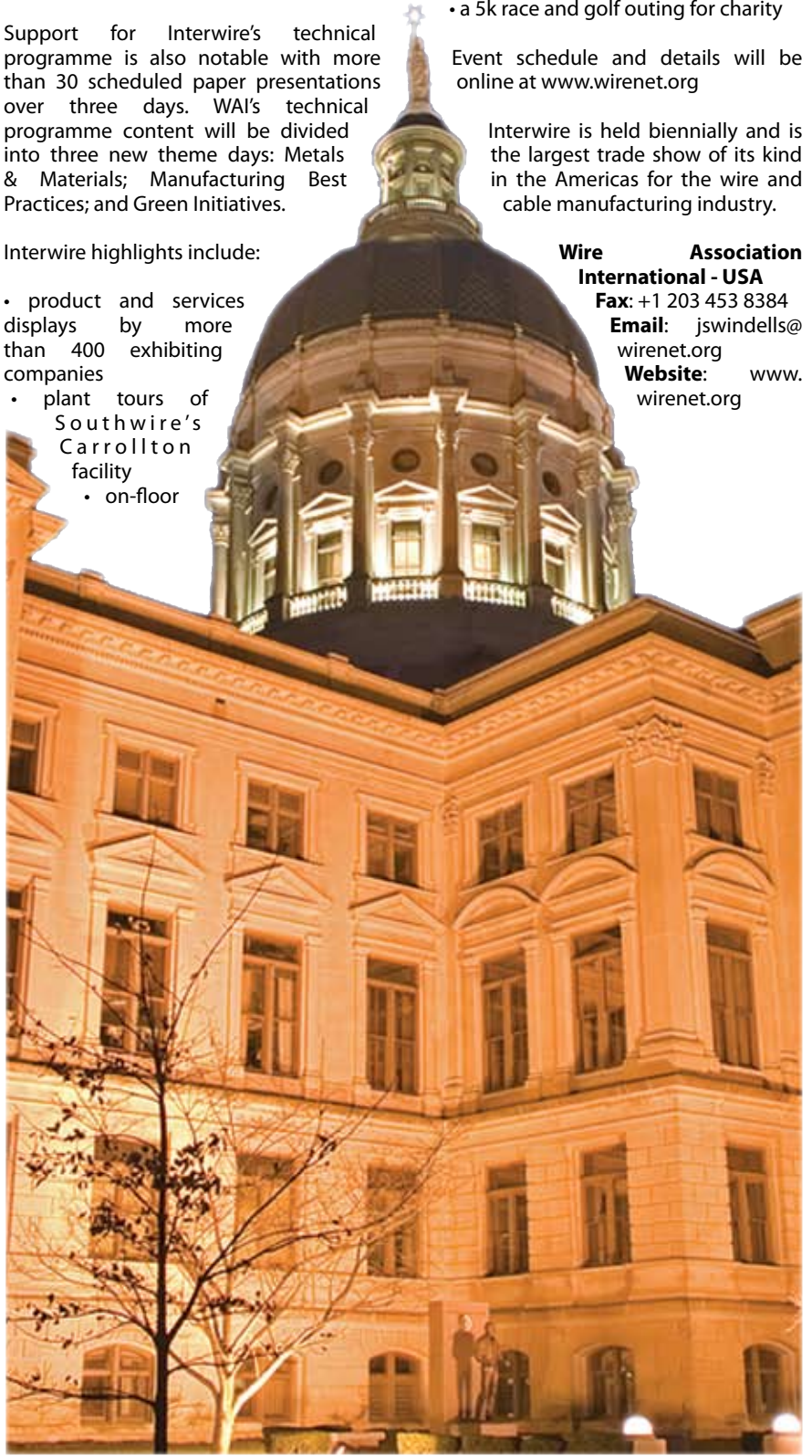
- product and services displays by more than 400 exhibiting companies
- plant tours of Southwire's Carrollton facility
- on-floor

- production solutions demonstrations
- productivity and fundamentals of wire manufacturing workshops
- Global Continuous Casting Forum for copper
- the opening reception and awards presentations
- a 5k race and golf outing for charity

Event schedule and details will be online at www.wirenet.org

Interwire is held biennially and is the largest trade show of its kind in the Americas for the wire and cable manufacturing industry.

Wire Association International - USA
Fax: +1 203 453 8384
Email: jswindells@wirenet.org
Website: www.wirenet.org



▲ Back to Atlanta, Georgia, for Interwire

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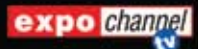


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▲ The opening ceremony at this year's wire and Tube China

China's wire showcase a success

wire and Tube China 2010 was described as a resounding success, despite being held in a post-financial-crisis era.

Already the largest of the industry's Asia exhibitions, wire and Tube China managed to break its own records for trade visitors (26,035 over the four days) and exhibition space (74,500m², 30% higher than the 2008 show).

The concurrent conferences and events, such as the China International Tube and Pipe Conference, China Wire and Cable Industry Conference, Wire and Cable Raw and Auxiliary Materials Technical Exchange Conference and the Wire and Cable Equipment

Technology Seminar, also attracted attention from visitors.

wire China is jointly organised by Shanghai Electric Cable Research Institute (SECRI) and Messe Düsseldorf China Ltd.

wire China 2012 will be held at Shanghai New International Expo Center from 25th-28th September, providing an ideal platform to make contact with the developing Chinese and Asian markets.

Messe Düsseldorf China Ltd – China

Fax: +86 23 6232 8001

Email: press@mdc.com.cn **Website:** www.wirechina.net

Five star service with submarine cable from South Africa to Brazil

Submarine cable infrastructure company Alcatel-Lucent has been selected by eFive Telecoms, a South African telecommunications company, to build a new submarine cable network linking the west coast of Africa to South America.

The system will comprise two trunks, the first one connecting South Africa to Angola and Nigeria, and the second linking Angola to Brazil.

This is a significant development for South African telecoms, which is already benefiting from additional international

bandwidth capacity which was introduced to the country via the SEACOM and Eassy submarine cable systems in the last year.

"We believe that high-growth areas such as the African continent require the development of new projects," said Lawrence Mulaudzi, managing director of eFive Telecoms.

"The planned submarine network will also provide cable route diversity to South America, making the most economical and operational sense in the current landscape."

Alcatel-Lucent will be in charge of the project end-to-end, including the system design, manufacturing, installation and commissioning. The system will also be maintained by Alcatel-Lucent through its Atlantic Private Maintenance Agreement (APMA), which currently covers over 100,000km of submarine cable infrastructure from the west coast of Africa to the Caribbean and as far north as Greenland.

"Growth in African Internet and mobile telephony is driving service providers' demand for more connectivity options to ensure higher reliability, as well as increased widespread access to bandwidth. This project will further position Africa as a major hub for broadband connectivity," said Philippe Dumont, head of Alcatel-Lucent's submarine network activity.

Faster, cheaper connection is planned

Pacific Fibre Ltd and Pacnet have announced plans to jointly build a subsea fibre optic cable between New Zealand, Australia and the United States, with the aim "to make fast, inexpensive, unlimited broadband a reality" and to de-bottleneck capacity at peak times. The proposed plan will cost around US\$400 million (NZ\$550 million), and

in 2013 will connect Sydney, Auckland and Los Angeles with 5.12 Terabits per second of capacity, upgradable to over 12 Terabits per second.

Pacific Fibre Ltd – New Zealand

Website: www.pacificfibre.net

Pacnet – Singapore

Website: www.pacnet.com

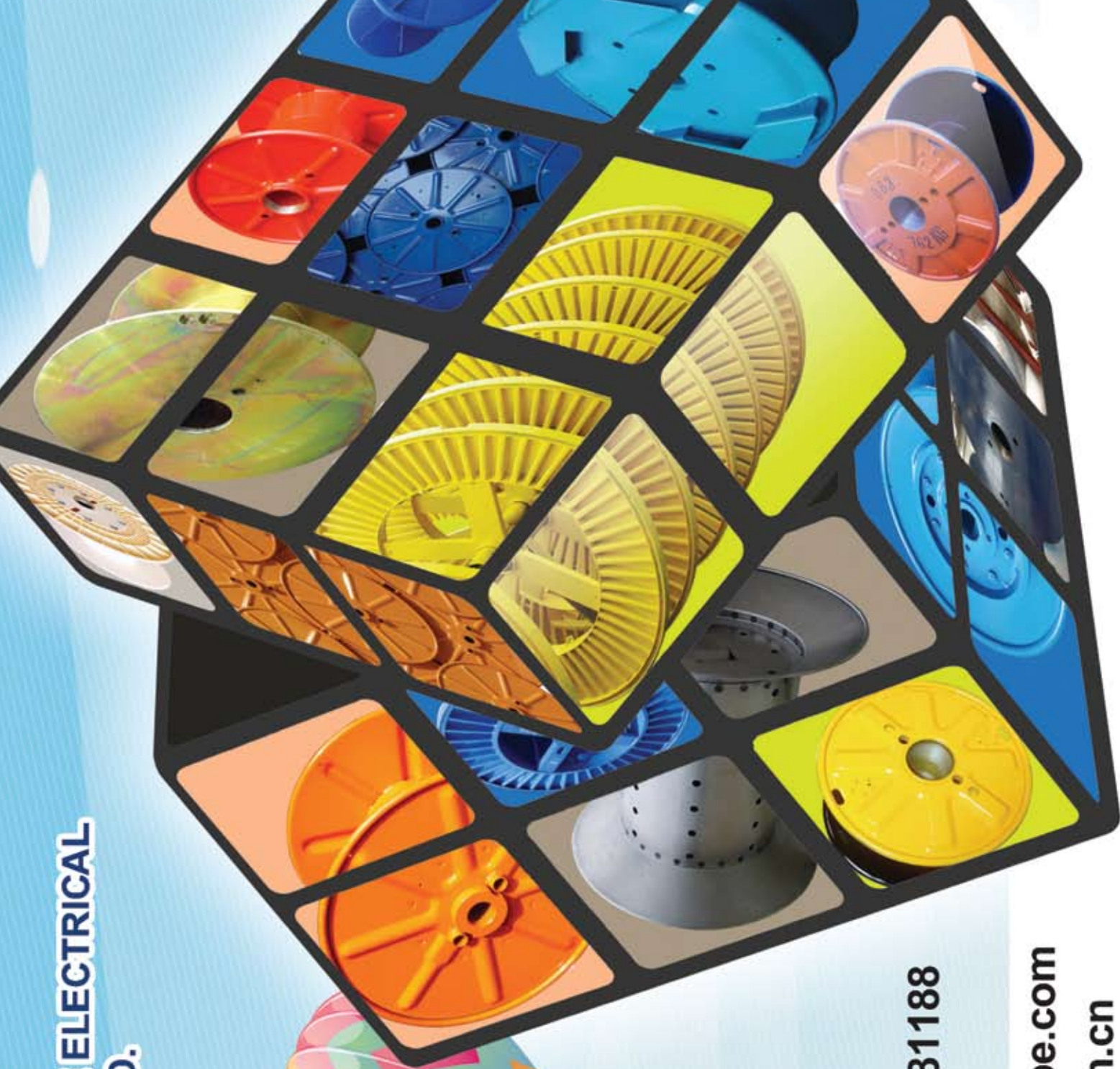
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Trade

At the Group of 20 summit in Seoul the US and South Korea again failed to wrap up a free-trade deal. Why?

Observers of the stop-and-start effort of the US and South Korea to conclude a free-trade agreement may wonder where the problem lies. The leaders of both countries say a pact would benefit their nations and deepen ties between two long-standing allies, and the good effects for specific industry sectors are clear enough. As one example, for American auto makers it would mean access to one of the major Asian economies and a crack at overcoming the Korean bias for hometown favourites Hyundai and Kia.

But, as noted by Howard Schneider of the *Washington Post*, the most recent attempt to wrap up a US-Korea trade agreement took place on the sidelines of the Group of 20 summit in Seoul in mid-November, in a difficult political environment for the leaders of the two nations. Presidents Barack Obama and Lee Myung-bak both faced opposition to an agreement that some unions and corporations argue would put jobs and earnings at risk. "For Obama," wrote Mr Schneider, "any agreement reached in Seoul would have to be followed by a tough sell in Congress, where there are concerns about the effect of trade on US unemployment."

But the *Post's* correspondent supplied a compelling reason why the American president is pushing hard for the trade accord despite South Korea's relatively modest – and declining – trade surplus with the United States. In fact, by playing an important supporting role in China's "export juggernaut," South Korea indirectly contributes to the huge American overall trade deficit. ("For US, Free-Trade Agreement Could Be Backdoor to China," 8th November). Mr Schneider explains: "By the boatload" South Korea ships half-finished flat-panel televisions to Korean-owned factories in China, where they are assembled by lower-paid Chinese workers and thereupon sent into world markets. This pattern, which extends to other products with American, European, and other destinations abroad, helps run up the US trade deficit with China while at the same time relieving international pressure on South Korea to review and revise its trade practices.

While South Korea is not the only Asian country playing a supporting role to China, the *Post* noted that it is one of the few that has been running a major trade surplus with the Chinese: \$38 billion in 2008, before the world economic crisis. A large portion of Korean exports to China are semi-finished goods ultimately on their way to the United States and Europe.

✱ This subtext by no means exhausts the significance of a bilateral trade agreement between the US and South Korea. Such a deal could also help South Korea overcome its reputation for self-protectiveness in the eyes of other potential trade partners. In an interview in Seoul just prior to the Group of 20 meeting, the country host, Mr Lee, declared that an agreement would "send a very positive message to the rest of the world that we [South Koreans] are committed to liberalization."

In Mr Schneider's view, for the United States an agreement with South Korea would mark a significant advance on a goal that has proved elusive ever since Taiwan, Japan, and later South Korea began emerging as industrial powers in the 1960s and 1970s. The trade accord could, he wrote, "represent the most promising chapter in a long [American] effort to recalibrate the balance of trade between the Western developed world and the world's manufacturing center in Asia." But the biggest bilateral trade deal the US has taken up in more than a decade is not to be. At least, not yet.

Automotive

✱ The Chevrolet Volt, the widely anticipated battery-powered car from General Motors, has been named 2011 Car of the Year by *Motor Trend*. The magazine's editors noted that "the world's first intelligent hybrid" can run up to 50 miles on an electric charge before the backup engine takes over to power the car for up to 300 miles. Cited for its advanced engineering, design and unique approach to fuel efficiency, the \$41,000 Volt beat out 20 other finalists, including luxury cars such as the Audi A8 and the Jaguar XJ. A \$7,500 federal tax credit to the buyer will partly offset the high price, and according to GM the Volt is cheaper than many traditional hybrids that preceded it into the market.

The prestigious award was announced on 16th November, a day before GM's initial public offering of stock – the largest ever in the US – which halved taxpayer ownership of the company. General Motors declared bankruptcy in 2009, and Washington's subsequent \$81.8 billion bailout of GM and Chrysler was widely expected to deal the Treasury a loss of \$10 to \$15 billion. Now it appears that the loss will be negligible, thanks to GM's remarkable turnaround, and the Car of the Year award from *Motor Trend* boosts the Volt as a symbol of that feat.

✱ Even as eager investors jockeyed for a piece of the new GM, Chrysler was still some distance from making its own initial public stock offering. The company shaved its third-quarter 2010 losses to \$84 million, but still owed \$7.4 billion to the US and Canadian governments on the day when GM went public. The interest payments on Chrysler's loans – which stood at \$899 million for the year to that point – have precluded any profits. The company's chief executive, Sergio Marchionne, has promised a successful emergence from bankruptcy – only over a longer period than it took GM to recover. Mr Marchionne is also the CEO of Fiat, the Italian auto maker that controls Chrysler by virtue of the stake it acquired in the bailout deal negotiated with Washington in 2009. Chrysler is working to add new fuel-efficient cars to its lineup beginning this year. But its sales in the US are down more than half from five years ago and the company continues to lose money. Overall, Chrysler currently ranks fifth among car makers in the domestic market, behind GM, Ford, Toyota and Honda.

Ford, the third member of Detroit's "Big Three" and the one which did not take any government help, is back to prerecession sales levels and is expected to post record profits for last year.



Telecom

▶ With the help of some persuasive Americans, China's Huawei makes a determined push into the US marketplace

Huawei Technologies Co Ltd is the world's second-largest telecom equipment supplier, behind Sweden's Ericsson. With Chinese government backing, Huawei has signed up major customers in Asia, Africa and Latin America. Even in Europe it has competed well with Ericsson to supply equipment to big carriers. But Huawei has struggled to break into the US market, largely because of worries about national security on the part of a number of members of Congress. Determined to overcome the legislators' reservations, Huawei has assembled an array of lobbyists, lawyers, consultants and public relations firms with the goal of helping it to win US customers. To that end, it also has formed a "cooperative relationship" with Amerilink Telecom, a distributor of Huawei products whose board members include a former US congressman and a former president of the World Bank. Amerilink's CEO is a former senior vice president of Sprint Nextel Corp, the third-largest American wireless carrier. Both Sprint and Amerilink have their headquarters in Overland Park, Kansas.

The concentrated effort by Huawei is already bearing fruit. The Internet communications firm Clearwire (Kirkland, Washington) – an operator of fourth-generation mobile broadband networks in some 30 US cities – was to begin testing a system based on Huawei's 4G network technology before the New Year. And the Chinese company is believed to be under consideration for a contract to supply \$3 billion in advanced wireless equipment to Sprint, which bought its last round of network equipment from Canada's Nortel Networks; Motorola, of the US; and Alcatel Lucent, of France. As noted by John Markoff and David Barboza of the *International Herald Tribune* (25th October), Huawei's American initiative is significant because the Shenzhen-based firm is China's "first truly home-grown" multinational corporation. Accordingly, the *Tribune* reporters wrote, "Some analysts say they believe [Huawei's] spectacular rise will serve as a model for other Chinese companies seeking to compete internationally."

* Huawei's public-relations initiative may have taken a blow when Clearwire, the Chinese company's American choice to test its latest technology, ran into some money troubles with implications for its 54%-owner Sprint Nextel. On 15th November, Clearwire was reported as saying it might need help to remain in operation, possibly obliging Sprint to provide additional financing if Clearwire were to default on debt. *Dow Jones Newswires* noted that Sprint had hoped Clearwire would give it a much-needed boost in subscribers

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after years of attrition. But relations between the two deteriorated, to the extent that this souring was cited by Moody's Investors Service as a factor in its decision to put Sprint on watch for possible downgrade. Moody's also observed that Sprint itself has \$5 billion of debt coming due from 2011 through 2013. Earlier, *Dow Jones* had noted Clearwire's "blistering pace of adoption for next-generation wireless services" and the high costs associated with building a brand-new network.



Telecom interests in the US hope for the best as an important committee chairmanship changes hands

While the midterm elections in the US in November saw the majority in the House of Representatives taken from President Barack Obama's Democratic Party, the effect on the president himself will be limited. In their first terms in office, Presidents Truman, Eisenhower and Clinton experienced just such "corrections" to their governing mandates and went on to win re-election. Franklin Delano Roosevelt, who faced the same situation during his second term, went on to win third and fourth terms in office. And Mr Obama, despite his uncomfortable position presiding over a slow economic recovery, enjoys a good deal of personal fealty among the electorate.

The Republican sweep of the House (the Democrats retain control in the Senate) holds greater significance for individual industry sectors, as congressional committee chairs are taken over by other legislators. Telecommunications is among those bracing for change.

On the Washington-based news website *Politico* on the day after the election, Tony Romm noted that the top House and Senate committees that handle tech and telecom issues will be transformed politically and substantively. This at a time when a number of important issues are reaching the critical stage. ("Tech, Telecom Prep for Sea Change," 4th November)

Mr Romm wrote, "Election Day 2010 brought the defeat of one of Washington's most respected tech minds."

He is Representative Rick Boucher, Democrat of Virginia, whose failure to keep his seat not only leaves a leadership vacancy on the Communications, Technology, and Internet Subcommittee of the House. According to *Politico* it also means the chamber will be without a member who spearheaded countless tech and telecom initiatives. Among Mr Boucher's earnestly pursued initiatives last year are the reform of a programme to bolster phone service to hard-to-reach areas of the country and the freeing up of airwaves for more mobile phone and data use.

On the day before the election, *techdirt.com* regretted in advance the defeat of Mr Boucher, whose support for a controversial climate bill would be penalised by the voters.

"There is a very, very small number of congressional representatives who actually seem to really get technology, telecom, and copyright issues," wrote the site's Mike Masnick. "And Boucher is one of them."

Elsewhere in telecom and tech . . .

- ✧ Is cloud computing also "greener" computing? The US tech giant Microsoft put this question to itself and – perhaps not surprisingly – got a satisfactory answer.

A lifecycle analysis commissioned by Microsoft (Redmond, Washington) and conducted by management consultancies Accenture and WSP shows that cloud computing holds potential for important reductions in energy consumption and carbon emissions. The greatest benefits may be realised by small companies. Large data centres, like those run by Microsoft and Google, obviously benefit from economies of scale and operational efficiencies. For mid-sized organisations, of about 1,000 computer users, the savings were in the range 60 to 90%, according to the study. But small businesses, of about 100 users, that move their business applications away from on-site servers into the cloud can see net energy and carbon savings of more than 90%, the researchers wrote. As summed up by Rob Bernard, the chief environmental strategist at Microsoft, "The cloud has the ability to deliver business value for customers in an age where corporate responsibility is critical to business success."

The 16-page study ("Cloud Computing and Sustainability: the Environmental Benefits of Moving to the Cloud") is available free at www.microsoft.com

- ✧ Under an agreement with Verizon Wireless, Paris-based Alcatel Lucent will build the American operator a faster network based on LTE (long term evolution) technology. Verizon Wireless, a joint venture of Verizon and Vodafone, the British global mobile operator, plans to upgrade its 3G networks to LTE through 2013 as it sells more data-intensive smartphones and other devices. The largest US mobile operator is expected to become the second domestic operator to sell the Apple iPhone, which has been offered only by the American phone giant AT&T. The French company is the product of a merger of Alcatel with Lucent Technologies, which was formerly part of AT&T. Alcatel Lucent said its agreement with Verizon Wireless, announced 4th November, will generate \$4 billion in sales over four years.

In brief . . .

- ✧ New sources of supply, as well as a growing scrap-steel industry in China, will push down the price of iron ore to below \$100 a ton over the next decade. The likely dimming of the bullish outlook for the key ingredient in steel making was reported by Devon Maylie, who covers commodities for *Barron's*. On 20th November he noted that the price of iron ore directed to China was down some 12% from its record high in April of \$186 a ton. According to the analyst, the trend that would hurt the profits of mining companies is being driven by the miners' own investments in new projects and mine expansions around the world. Steel producers will be the beneficiaries.
- ✧ The future is also brightening for information technology companies in remote areas of the US, where a few



fast-growing IT firms are positioning themselves as more convenient, cost-effective alternatives to offshore outsourcing. Industry executives consulted by *Business Week* estimated that there are 20 such companies now, up from only two 12 years ago.

While rural outsourcers will not replace the offshorers – India has outsourcing revenue of about \$50 billion now, and that is expected to triple by 2020 – some of the American companies have reported double- and triple-digit revenue growth recently.

In a 2009 report cited by *Business Week*, the research firm Gartner said that, while the rural companies make up only a sliver of the IT market in the US, they offer an “attractive alternative” for clients wishing to avoid any language barrier.

Dealing with a domestic IT company, even one located far from an urban centre, also eases compliance with US data privacy regulations, the report said.

The bottom line, according to Small Business Channel editor Nick Leiber at *BusinessWeek.com*, is that “US tech outsourcers in rural areas are competing with offshorers on convenience and with their domestic big-city rivals on price.”

The Economy

Modestly but measurably, an important economic index increases yet again

The most recent data in the Leading Economic Index (LEI) published by the Conference Board suggest that the economic expansion gathering some strength in the US will continue in the near term. Published 18th November, the new data derived from ten key industrial components show a 0.5% increase (to 111.3) in the LEI for October, following a 0.5% increase in September and a 0.1% increase in August. A reading above 100 indicates gain; below 100, attrition. To Conference Board economist Ken Goldstein, the report indicates a mild pickup this spring, following the post-holiday lull. While the economy is slow, he said, change “may be around the corner.” Another Board economist, Ataman Ozyildirim, noted that gains in the financial components of the LEI helped its pickup in October. Another encouraging positive from the index is the lengthening of the factory work week, also likely to continue given the nascent uplift in the manufacturing sector. The Conference Board, based in New York, is an independent global source of objective economic data and analyses.

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- ✱ On another positive note for the US economy, gross domestic product (GDP) expanded 2% in the third quarter, topping the 1.7% growth of the April-June period. Economists surveyed by *Bloomberg News* predicted a 2.4% expansion for the fourth quarter.

Improved job numbers enable California to celebrate its first month of economic recovery

California is badly in need of good economic news – and in November its residents at last received some. It was reported that the state added 39,000 jobs in October, across many sectors.

While the unemployment rate was unchanged at 12.4%, the gain was sufficient to persuade economists that the recovery in the Golden State may be building up steam. As reported by Alana Semuels in the *Los Angeles Times*, the October data represented a major improvement over September, when payrolls declined by 53,600 jobs. The state's struggling labour market had seen the biggest monthly employment increase in some three and a half years. ("California Posts Biggest Job Gain Since May 2006," 19th November)

Among the gainers substantiated by the California Employment Development Department were manufacturing (7,100 jobs) and even the weak construction sector (2,500 jobs). Another positive sign for the labour market was the rise in the average hours worked per week from 39.9 in September to 40.4 in October.

Even so, as noted by Ms Semuels, California's "employment hole" remains huge. The state still has 1.3 million fewer jobs than it did at its peak in July 2007. Key sectors including housing continue to struggle. But Californians were inclined to put the best possible construction on the recent job numbers. Esmael Adibi, an economist with Chapman University in Orange, told the *Times*: "This is, relatively speaking, the best news we've gotten this year. We have bottomed out and we are creating jobs."

Jerry Nickelsburg, senior economist at the Anderson School of Management of the University of California, Los Angeles, concurred. "Our losses are starting to become smaller," he told the *Times*; then added, "We've got some climbing to do."

- ✱ While California demonstrated the most dramatic improvement of the four biggest states, the next three in line – Texas, New York and Florida – all added jobs in October as the US economic recovery stoked demand for labour. Texas gained 47,900 jobs; New York, 40,500; Florida, 6,900. Goldman Sachs Group Inc, the investment banking and securities firm, said on 20th November that the gains could help the states to shrink budget deficits as new jobholders boost income- and sales-tax collections. States' tax revenue grew about 6% in the three months ended 30th September, the third consecutive increase.

- ✱ At the national level, employment in the US rose in October for the first time in five months, the Labor Department said 5th November payrolls climbed 151,000, exceeding all estimates in a *Bloomberg News* survey of economists.

Energy

Innovative technology is not enough to save a US maker of solar panels from the vicissitudes of the market

"The cost-cutting move, which will reduce the company's previously announced production capacity, is a sign of the notable shift in the prospects for cutting-edge American solar companies, which now face intense price competition from Chinese manufacturers that use more established photovoltaic technologies."

Todd Woody, who writes the "Green" blog in the *New York Times*, was referring to Solyndra, a Silicon Valley solar panel maker that was aided by Washington to build a state-of-the-art robotic factory. On 3rd November the company announced an alteration in its plans for that facility and another one. Just seven weeks previously, Solyndra had opened Fab 2, its \$733 million factory in Fremont, California. The plant was intended as the first phase of a rapid expansion. Instead, Solyndra will shutter the old plant and postpone the expansion of Fab 2, which was built with a \$535 million federal loan guarantee.

In an interview in San Francisco, Solyndra's chief executive Brian Harrison sounded very much like someone who had spent time between a rock and a hard place. "Fab 2 is much more efficient and cost-effective than our existing facility. We're adjusting our plans to be more in line with where the market is and where our business is at the moment." The necessity for that adjustment became apparent over a mere six months from December 2009, when Solyndra filed for an initial public stock offering. At the time it projected a total production capacity of 610 megawatts by 2013 if its two plants were fully built out. Plans for the stock offering were abandoned in June 2010. The company now expects to have capacity of 285 to 300mW by 2013.

After Solyndra filed for the stock offering, the market underwent a significant shift. Prices of solar modules plummeted as low-cost Chinese manufacturers like Suntech and Yingli Green Energy ramped up production. Mr Woody wrote that this has put pressure on companies like Solyndra, which makes advanced thin-film solar modules. These had been cheaper to install until prices began to fall sharply last year.

- ✱ Solyndra could reopen the old factory, Fab 1, or expand its successor. The closing of Fab 1 will save more than \$60 million in capital expenditures. And according to Mr Harrison, despite the cutbacks Solyndra's production of solar panels for commercial rooftops will double in 2011 from 2010.
- ✱ Suntech is China's biggest solar panel maker, with headquarters in Wuxi. Suntech America, based in San Francisco, opened a facility in Goodyear, Arizona, in 2010. Production there enables the Chinese company to avoid tariffs on imported solar panels imposed by the US.

The Chinese solar module maker Yingli Green Energy (Baoding), which has offices in New York and San Francisco, is also believed to have a Phoenix operation under consideration.

Dorothy Fabian
USA Editor



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▲ Lämneå Bruk's Live Bloc Coiler

High density coiling

The new Live Bloc Coiler from Lämneå Bruk is designed for coiling large size flux-core welding and hard surfacing wire into drums, but can also be used for other types of wires. The machine can act as a take-up directly after the production line or as part of a rewinding operation.

The machine has advanced features including cast adjustment during coiling, fully controlled by the machine's PLC, to produce a coil with an extremely high density.

The Live Bloc Coiler is said to solve the problem of filling drums with the required weight while maintaining a safe operation, fully enclosed and with electrically interlocked guards.

The high quality coiling allows increased drum weights, giving longer runs and saving transport and packaging costs.

Lämneå Bruk AB – Sweden
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Email: info@lamnea.se
Website: www.lamnea.se

New product lines and more to come

Supermac Industries has made rapid strides in the past few years in developing new lines as well exporting extrusion lines to customers worldwide.

The product range now includes extruders from 30mm to 175mm and payoffs and take-ups for 4,500mm bobbins and 50 tonnes capacity. Also developed is a fast speed dual automatic take-up for building, control and instrumentation wires. A major success in the product range is the CCV line for triple extrusion line for MV cables up to 132kV developed with Scholz tube curing technology.

Supermac's product range includes extruders up to 175mm, various types of take-ups and payoffs, caterpillars, crossheads, insulation and sheathing lines for power cables. Future plans include developing rubber extrusion lines and higher speed dual take-ups for bobbins up to 1,000mm.

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Solutions for fibre optics

At wire China 2010, PolyOne focused on its portfolio of solutions for optical fibres. The product family includes several grades of ECCOH™ and ECCOH™ PF low smoke and fume, zero-halogen (LSFOH) compounds, as well as OnColor™ and OnCap™ colourant and additive solutions.

PolyOne Corp sees rising global demand for optical fibre is being led by China, Japan and Korea. In China, government stimulus funds promoting rural infrastructure and major construction programmes have significantly expanded the optical fibre market. In the past, optical fibre cables were mainly for outdoor use and, as such, did not require flame retardant sheathing materials. Increasingly, however, bandwidth providers are bringing fibre optics into buildings. These cables must not only be flame retardant, but must also contain materials that are low-smoke, low-fume, and non-halogenated (also called LSFOH, for Low Smoke and Fume, Zero Halogen). Responding to this trend, PolyOne developed a range of solutions for the FTTB and FTTH markets, called ECCOH™ and ECCOH™ PF compounds. Both product families are said to meet the requirements for LSFOH material use inside buildings, and are classified as a PolyOne Sustainable Solution.

In addition to excellent flame retardance, these solutions offer low smoke and low toxicity benefits, and include the following features:

- ECCOH™ compounds meet tight buffering and sheathing requirements, offer low corrosion, very low shrinkage (less than 1%), good mechanical strength to prevent fibre breakage, and low memory retention to ensure good attenuation properties
- ECCOH™ PF grades are recommended for mini-ducts through which fibre is routed. These compounds offer good flame retardance, while an inherent stiffness allows easy installation and provides bend radius control
- OnCap™ anti-static compound enables optical fibres to be blown further. This compound can be coextruded as an internal layer 0.5mm thick. A patent is pending on the application using LSFOH as an outer layer and antistatic slip compound as the internal layer

Each ECCOH™ compound can also be provided with suitable OnColor™ colour concentrates to match specific requirements, with masterbatches available for other materials such as HDPE, PBT and TPU. PolyOne also offers OnCap™ UV additive and slip additive masterbatches suitable for FTTx applications.

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▲ Wire cleaning by GPS/PDH system

The GPS/PDH system is installed in the last draft of a drawing machine to clean drawn wire from lubricant contaminants. It simultaneously performs surface cleaning and polishing effect, providing a high level of cleanliness of dry drawn wire, without the need for aggressive chemicals, and it operates at all practical speeds at virtually zero energy consumption. The main reason behind this achievement has been the cost, wire quality and environment factors.

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The system is particularly recommended for cleaning applications of wires drawn in severe conditions, resulting in increased heat and burned lubricant tightly bound on the wire surface. The system is compact, and easy to install and to use.

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Crosshead for foamed RF cable

The Rosendahl Crosshead RX 25T for foamed RF cable cores is designed to manufacture the complete RF cable range from ¼" SF to 2¼" F. The basic design comprises an oil heated crosshead with skin application, equipped with an optimised temperature control to cover expansion rates of up to 86%. Two heating/cooling zones on the crosshead – one for the main body, the second for the die holder – provide excellent temperature control and even temperature distribution in the polymer gas melt.

Full natural balancing minimises the shear rates and provides smooth melt flow for perfect roundness, concentricity and mechanical stability. Superior manifold technology enables small formed cells and an homogenous cell distribution at this high foaming degree.

Temperature control, shear stress, pressure drop and flow speed optimisation in the crosshead are significant factors for achieving foam expansion rates on the final cable of up to 86%. This new design is said to enable RF cable manufacturers to surpass the limitations currently experienced with standard equipment.

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▲ Crosshead RX 25T covers the entire RF cable range

Renewable power subsea cable

Draka Offshore has fulfilled an order for 11,000m of 20kV subsea cable for the European Marine Energy Centre (EMEC). Produced at Draka's production facility in Drammen, Norway, the 11,000m of power cable, weighing more than 300 metric tonnes, was directly loaded from the factory to the CS Sovereign vessel owned by Global Marine Services.

"Because the Draka factory is adjacent to a deepwater port, load out and logistics for these large projects is very simple," explained Martin Dale, subsea product manager for Draka. "The cable was taken directly from the factory and installed in the field."

EMEC provides test facilities for a wide range of technologies that can tap into the huge potential of wave and tidal renewable energy.

Wave power alone has an estimated global potential of approximately 1,000–10,000 GW, in the same order of magnitude as the world's electricity consumption. Located in the Orkney Islands of Northern Scotland, the wave and tidal sites are designed to test a range of machines located down to a depth of 50m and up to two kilometres from shore.

Draka Offshore – Norway

Fax: +47 32 24 90 80

Email: subseacable@draka.com

Website: www.drakamog.com

True sequential footage gives precision

Cerro Wire LLC, a manufacturer of copper electrical building wire and cable, has introduced True Sequential Footage™, a sequentially printed cable reel that provides accurate wire length with each cut.

True Sequential Footage prevents the need to carry excess cable inventory, providing precision length, accurate footage and cost control. True Sequential Footage uses a footage mark to document remaining wire, beginning with zero at the bottom of the reel and ending with the finished length at the top. The accurate footage mark allows for quick identification of the re-order point, guaranteeing the full purchased wire length and reducing random lengths. This better controls end-of-reel scrap. The need to carry excess inventory is reduced with the precision cutting allowed by True Sequential Footage.

Wire normally lost on each cut made with less accurate cutting systems (3 to 8%) is said to be saved when True Sequential Footage's precision footage marking system is used.

Cerro Wire LLC – USA

Website: www.cerrowire.com

Spiral cables

Spiral cables are intended for applications that necessitate repetitive actions of extension and recoiling. Spiral cables from Galaxy Enterprises have complete retracement and recoiling qualities, even after stretching up to three times the cable's closed spiral length.

The spiral cable can be screened with copper braid or Mylar, or left unscreened. The conductor diameter range is from 0.2mm² to 4mm² of between 2 and 37 cores. A stretched length from 1,000mm to 10,000mm can be specified, as can the length of straight ends on both sides of the spiral – usually 100mm. The closed length may be specified or not. Custom-design cables are available.

Spiral cables are used in a variety of applications, including CNC machines, conveyors and agricultural equipment.

Galaxy Enterprises – India

Fax: +91 22 22085790

Email: gentp@rediff.com

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AEI unveils its latest rigid strander

Associated Engineers & Industrials Ltd (AEI) has 40 years' experience of manufacturing high technology stranding machines for the production of medium, high and extra-high voltage power cables.

In recent years the company's focus has been on perfecting its rigid stranding machines. The result is the latest line of reliable and versatile ASRB stranding machines suitable for the manufacture of highly compacted conductor (die and roll), sector shaped (Milliken) conductor and round and preshaped wire (TW) overhead conductor.

The latest strander, designed for complete flexibility, offers the following benefits:

- Motorised bobbin pintles that require minimum maintenance
- Auto regulated pneumatic braking mechanism, settable at the control desk
- Instant wire breakage detection displayed at the control desk
- Fast row loading hydraulic system dedicated for each cage
- Latest AC drives and PLC/touch panel control systems using Profibus and Profinet communication for complete line synchronisation (in case of power failure)
- Remote diagnostic assistance available via the telecom network



▲ AEI's rigid strander

AEI's strength lies in understanding customer requirements and the ability to offer suitable products, ranging from the largest stranders (128-bobbin rigid stranding machine for 500kV cables) to the highest productivity stranders.

"Our machines are designed with years of customer feedback and utilise sophisticated systems but are, at the same time, easy to use," said Mr Alok Jain, executive director of AEI.

Associated Engineers & Industrials Ltd – India
Email: info@aeimachines.com

Fax: +91 145 2440126
Website: www.aeimachines.com

New Die Flex MA

Die Quip Corporation is introducing a new machine to its line of precision die finishing equipment. The Die Flex MA is the second machine in the Die Flex line. It is a semi-automatic angle polishing and sizing machine. Once the operator places the die into the machine an automatic cycle runs either the angle polishing or bearing calibration programs.

The machine automatically finds the approach angle so different diameter dies with the same angle can be polished without changing the machine settings; this makes the Die Flex MA easy to use for removing die wear.

The dies are held in a 3-jaw adjustable chuck to insure die concentricity, which reduces out-of-round wire. Like all Die Quip machines the Die Flex MA is built on a sturdy steel base with industry standard parts for long heavy-duty work and a long production life.

Die Quip Corporation – USA
Fax: +1 412 835 6474
Website: www.diequip.com

World's first PVC/halogen-free solution?

Electronics OEMs looking for PVC alternatives to make flexible cords safer and more environmentally sustainable now have halogen-free options from The Dow Chemical Company.

Dow Sustain™ is said to offer the first PVC and halogen-free compounds to meet key global industry standards for continuous operating temperature, low smoke and heat deformation. Four different product grades for jacketing and insulation are available in sample quantities for producers of wires, cables and cords for electrical and electronics applications. "With the demand for PVC alternatives in an electronics market growing fast, Dow has made a significant investment over the last three years in perfecting halogen-free compounds," says Simon Leung, platform leader for personal electronics at Dow Wire & Cable. "Dow Sustain is the first halogen-free offering qualified to meet UL 62, JCS4509 and HD21.14 requirements on a commercial scale while delivering excellent look and feel as well as enhanced product and extrusion performance."

In addition, Dow Sustain exhibits good chemical resistivity, low corrosive off-gassing in the event of a fire, and flexibility for ease of handling during manufacturing of the end product.

Dow Wire & Cable worked with Shenzhen BaoHing Electric Wire & Cable Manufacture Co Ltd and Volex to trial Dow Sustain under manufacturing conditions. The companies were able to meet key global standards using the new Dow Wire & Cable compounds.

Dow Wire & Cable – USA
Website: www.dowwireandcable.com



Laser micrometer

LaserLinc has released a new laser scan micrometer, the Triton331™.

Like the Triton330, the Triton331 has a 30mm measurement window but is said to be much faster at up to 12,000 measurements per second (4,000 per axis). The higher scan rate enables detection of shorter-length flaws and accurate measurement of hexagonal or other product shapes that incur oscillation, and measurement of non-constant diameter products, such as corrugated tubing.



The standard measurement rate is 4,800 per second, with 12,000 as an option.

The gauge is also suitable for use with LaserLinc's new Lobex™ system for in-process lobing measurement on centreless ground products, including centreless ground wire.

Like all LaserLinc scanners, the Triton331 links, via the TLAser400™ micrometer interface card, to a PC running Total Vu™ software.

▲ Triton331 high-speed, three-axis laser micrometer

Total Vu software is LaserLinc's measurement/data processing package, which runs on any Windows-based PC to provide in-process tolerance checking, trending, SPC, feedback control, data logging, recipes and other features.

LaserLinc Inc – USA
Email: info@laserlinc.com

Fax: +1 937 318 2445
Website: www.laserlinc.com

Green alternative for cable packaging

A new environmentally friendly RF60 paper fibre tube is now available from Reelex. This new payout tube allows all cabling packages using Reelex coiling technology to be 100% recyclable, 100% compostable, and be manufactured entirely from post-consumer recycled materials. End users can discard both box and tube into the corrugated recycling stream – eliminating plastic waste from the cabling package, and greatly simplifying disposal.



▲ RF60 paper fibre tube from Reelex

The RF60 tube is said to offer improved payout performance and increased flexibility without an increase in pricing.

The RF60 is offered at the same price as existing MP60-TWR plastic tubes and is shipped 5,000 per pallet.

Reelex Packaging Solutions Inc – USA
Email: sales@reelex.com
Website: www.reelex.com

344 super-conductor has a new name

American Superconductor Corporation (AMSC) has introduced Amperium wire, the new brand name for the company's proprietary second generation (2G) high temperature superconductor (HTS) wire.

Previously called "344 superconductors," the new name reflects the product's ability to conduct more than 100 times the electrical current (amperage) of copper wire of the same dimensions.

In high-voltage power transmission systems just one of these ultra-thin wires is believed to be capable of carrying enough power to serve the needs of approximately 10,000 homes.

The high power density of Amperium wire dramatically reduces the footprint and cost of large-scale electrical equipment, such as power cables and wind generators.

In the USA, Amperium wire is utilised by Nexans to produce an extension of the superconductor power transmission cable system that has been running in Long Island Power Authority's (LIPA) primary power corridor since April 2008.

Additional cable projects that are expected to utilise Amperium wire include the Tres Amigas™ SuperStation, which aims to connect America's three power grids to unlock the country's renewable energy resources.

American Superconductor Corporation – USA
Website: www.amsc.com

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Please contact: Mr Michel Landman
E-mail: michel.landman@wiresteel.be
Website: www.wiresteel.be

Welding ribbed concrete reinforcement steel

August Strecker's programme of machinery includes butt welding machines with a vertical welding axis. The material to be welded is usually hot-rolled ribbed concrete reinforcement steel, but other material qualities, including high-carbon and alloyed steels, can be connected in this method which was developed for process optimisation and to relieve operator labour. Especially with the dimensions of hot-rolled ribbed concrete reinforcement steel most commonly used (WR18mm, WR16mm, WR14mm and WR12mm) it is difficult to pull the wire ends to be connected far enough out of the line to be positioned horizontally for joining in a conventional welding machine. In addition, the large wire loop resulting from welding must then be forcibly pushed back into the line, which often presents problems, such as loop jams, and an interruption to continuous operation.



▲ The SS80 vertical butt welder from August Strecker

Strecker's vertically configured machines allow the welding head to be positioned very close to the wire ends. The machine is designed so that the wire ends do not need to be straightened for welding, but instead the wires can be hydraulically clamped into the clamping device in the radius of the coil.

Various configurations and options are available to suit individual conditions, such as swivelling machines (suspended on a pillar) or welding machines with flanged wheels that roll on rails. Or, if welding takes place at various points along the horizontal sequence, a machine configuration is useful that allows motor-driven movement on a platform along the line. At the same time, the welding machine itself is also moveable on the platform, toward the coil ends to be connected. After welding the motion is reversed, away from the line. Depending on the requirements of the steel quality, various annealing options are possible, including programmable microprocessor control of the welding and annealing processes, or adjustable infrared pyrometers.

Strecker also offers the SS series dual upset butt welding machines with automatic flash removal, configured vertically. The vertical SS welding machine is said to offer the following advantages:

- High welding quality through the dual upset process, nearly all the heated and therefore molten material is pressed out of the joint so a weld with extremely high tensile strength is created
- Automatic flash removal integrated into the process provides welded joints with exactly the same diameter as the original material. Reworking through manual flash removal is unnecessary, saving time, and in addition there is no risk of wire breaks due to excessive de-burring, ie reduction of the cross section at the welded joint
- Reproducible, same-diameter welded joints even with difficult materials
- The machine offers simple, user-friendly operation even for personnel without special qualifications

Machines from the SS series for vertical welding are also available in various configurations. Whether swivel-mounted on an additional pillar at the horizontal payoff, or motor-driven on flanged wheels, every option is available to ideally fit the welding machine to the on-site requirements of the end user.

August Strecker GmbH & Co KG – Germany

Email: sales@strecker-limburg.de

Website: www.strecker-limburg.de

Payoffs and take-ups

Fine International offers a wide range of payoffs and take-ups. Three basic versions are available for handling medium to large size reels: cantilevered, floor traversing and portal.

Cantilevered versions utilise a rigid frame design and allow for picking up reels direct from the floor. The cantilevered design usually restricts weight capacity. The telescoping frame design collapses the end of the machine into the reel and utilises an electric lift system.

Standard portal units utilise a rigid frame and bring the hanging pintle arms together. The reel limitation of the telescoping and portal version is typically one half of the maximum size. The telescoping and portal version are most commonly used for traversing reel style, where the reel itself is traversed to provide optimum winding and unwinding with minimal cable stress. All units are available in sizes ranging from 1,250–3,200mm (50" to 126").

Smaller reel sizes can be handled with overhung shaft style, cantilevered or fixed pintle designs. Overhung shaft style machines can be used for reel sizes up to 800mm but A-frame units with dual-side supported shafts can be utilised for much larger reel sizes. Fixed pintle designs can handle typical line speeds up to 2,000fpm (600mpm) and utilise lift platforms to get the reel into place. These machines typically have limited reel width range. The cantilevered versions are the best for medium to large sized reels and can cover a wide range of operating line speeds.

Fine also offers a wide range of multiple reel systems for cablers or bunchers. Dual reel take-up systems are available in manual, semi-automatic or fully automatic, and horizontal semi-automatic coiling machines are also available.

Fine International Corporation – USA

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Website: www.fineinternational.com



New single fibre assemblies

To allow the use of fibre optics in potentially damaging environments, Fiberguide Industries has introduced a new standard line of single fibre assemblies. Fiberguide's assemblies have proved effective in a number of scientific and industrial applications ranging from light measurement, process monitoring and control, to UV-VIS spectroscopy, chromatography and fluorescence.

Single fibre assemblies are available with two choices of chemical resistant, non-magnetic sheathing. For general purpose use, Fiberguide's furcation tubing is comprised of a Kevlar reinforced PVC sleeve over a polypropylene tube. Furcation tubing is non-conductive and protects fibres with a liquid-tight seal.

For more specialised applications, Fiberguide offers stainless steel monocoil sheathing.



▲ Fiberguide's single fibre assemblies

The monocoil is vacuum compatible and resistant to tight bending, crushing, cutting, kinking and high temperatures. Both standard cable designs are rated for use at ambient temperatures. Single fibre assemblies are available with core sizes ranging from 50 μ to 1000 μ and wavelengths from deep UV (DUV) to UV-VIS and VIS-IR. Assemblies are also available upon request with ST and FC connectors and in continuous lengths up to 50m.

Fiberguide Industries Inc – USA **Email:** info@fiberguide.com **Website:** www.fiberguide.com

Diameter measurement with high single value precision

Sikora presents the new Laser Series 6000 for online diameter measurement during wire and cable production.

With a measuring rate of 2,500 measurements per second, all measurements show an extremely high single value precision. Precise single values are decisive in order to define the fluctuation range of diameter values of a product. Only an instrument with a significantly lower fluctuation range than the product to be measured is capable of providing a representative value.

The Laser Series 6000 is able to take single measurements of the diameter with high precision and low fluctuation, and therefore ensures an optimum line control and provides reliable statistical data.

The opening of the gauge heads is directed to the bottom and is twice as wide as the measuring range, which allows for an easy product feed through. Directly integrated in the gauge head is a pluggable universal interface module for all connections. In this position it is optimally protected against water, dirt or mechanical influences during the production. There are no external plugs.

As there are no moving parts in the Laser Series 6000, the gauge heads maintain their accuracy during the entire operation time. Calibration procedures or maintenance are not necessary.

The product range of Sikora's laser devices includes dual- and triple-axis gauge heads and covers diameter ranges from 0.05mm to 500mm.

Sikora AG – Germany
Fax: +49 421 48900 90
Email: sales@sikora.net
Website: www.sikora.net

Senior Executive wanted

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Ideally the person will be knowledgeable in all aspects of the non-ferrous rod and wire industries.

Please send an application, with CV, to the following email address:-

all@raeurope.co.uk

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Stranding, twisting, bundling & bunching

These specialities come into their own when the application requires strength, flexibility, kink resistance and break resistance even when repetitive bending is anticipated. And the forward march of technology means that the equipment must meet additional and more challenging demands all the time.

For example, weight-saving imperatives in the automotive industry increasingly dictate the replacement of copper conductors with aluminium conductors. This means that bunching machines will be expected to operate equally well – tangle-free and without wire damage, even at very high speeds – with both materials.

The products and services reviewed in these pages are intended to ensure that these indispensable processes will be equal to the new tasks.

New four-twist bunching machine from Euroalpha

Euroalpha is a leading manufacturer of drawing machines for non-ferrous wires with limited-slip technology, a design appreciated by wire and cable manufacturers worldwide.

The company has recently extended its range of bunching machines, which are an advancement on the technology of similar machines currently available on the market.

Bunching machines are the natural complement of multiwire drawing lines, and Euroalpha entered into this sector with the aim of looking beyond the wire and cable manufacturers.

Euroalpha's B630-F 'Four-Twist' bunching machine was introduced at the 2010 Wire & Cable fair in Düsseldorf.

A patented dual-bow rotating group performs four twists at each revolution of the transmission shaft, while conventional bunchers perform only two twists.



▲ Euroalpha's B630-F 'Four-Twist' bunching machine

Productivity is therefore double at the same RPM, and energy consumption can be reduced by running the machine at lower RPM. The machines are suitable for producing 1+6 concentric strands, and 1+6+12 unilay strands as well as ordinary bunches.

Euroalpha Srl – Italy
Email: sales@euroalpha.it

Fax: +39 04 24 72780
Website: www.euroalpha.it

High efficiency Frekans

Frekans was originally established under the name of Vega in Denizli, Turkey, in 1997. In 2004 Frekans began to manufacture cable machinery. Frekans is introducing new products to the industry and the company has an ISO certification of 9001-2008. Frekans offers central stranding and armouring machines, drum twister assembling, coiling rewinding, mica taping machines and laboratory test equipment.

Frekans also offers a central armouring high-efficiency machine, the Celik08. This is a high speed and high power saving machine and can manufacture up to 4 x 16mm² using 0.9-1.6mm wires; it is claimed to be two to four times more efficient and has four to five times more power saving ability.

The capacity can be upgraded to up to 48 wires. Production has a two step method. At the first step, steel wires are wound from the baskets to bobbins. At the second step, the cable is armoured.

All of the machine's functions are performed with PLC, and internet monitoring options are also present.

Features:

- High production speed
- High power saving
- High production capacity; 40km/day (0.9mm)
- Safety production

Frekans Makina San Ve Tic AS – Turkey

Website: www.frekansmakina.com.tr

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Fax: +46 11 12 63 12 Website: www.candorsweden.com

Drive units for bunchers

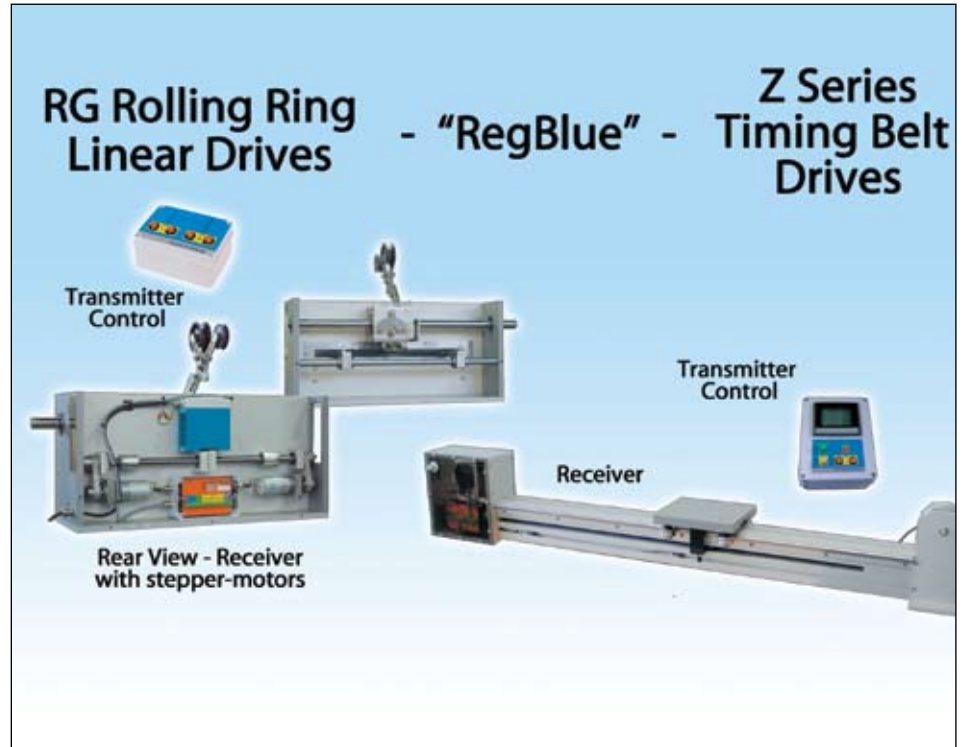
Techna International represents Joachim Uhing KG, a manufacturer of rolling-ring and timing-belt linear drive units and systems. A recent development in this field is the RegBlue wireless signal transmission system for double twist bunchers.

Rolling-ring drives operate by converting unidirectional, rotary motion of a round, unthreaded, hardened shaft into totally backlash-free, automatically reciprocating, bi-directional linear travel.

Such drives are equipped with infinitely variable pitch and can, by utilising slowdown reversal mechanisms, reach a speed of up to 4.2m per second.

A simple "free-movement" lever allows for manual disengagement and re-positioning of the unit on the shaft and automatic reciprocating travel is achieved with a constant shaft speed and rotational direction, with automatic reversal at set positions (changeable by the user) or controlled by pneumatic or electromagnetic actuators.

All functions (reversal, stroke width, pitch per revolution and free-movement) can be remotely controlled and heavy loads or high forces can be accommodated with additional load carriers.



▲ RegBlue from Uhing

Eight models cover shaft diameters from 15mm to 80mm diameter with up to 3,600N side thrust. The RegBlue system provides interference-immune Bluetooth wireless technology for handling signal transfer for traverse winding units without slip-rings and in particular, for use with double twist bunchers.

Operators can externally adjust the stops of a rolling-ring drive, or can control the reversal points of a traverse unit with a spindle or timing-belt, while the system is operational. Optional length measurement of wound material and the connection of wire-break sensors causing the machine to stop can be provided where required.

The RegBlue system consists of (1) a receiver unit installed inside the rotating bows of a buncher, (2) a controller with transmitter installed in the machine's switch cabinet (antenna must be inside the soundproof hood) and (3) a control box located where visual contact with the spool is possible (all three can be installed in a separate single enclosure).

Techna International Ltd – UK
Email: sales@techna.co.uk

Fax: +44 1923 219700
Website: www.techna.eu

GER SA sells stranding and bunching machinery park

GER SA Nessonvaux (Belgium) plays a major part in buying and selling second hand-machines on a worldwide scale.

The company recently sold the entire stranding and bunching machinery park of a medium-sized wire and wire rope factory in Italy to one of its long-term customers in India, also a well-known producer of wire ropes.

The sale included 15 tubular stranders/closers of different configurations and sizes, six double-twist bunchers as well as accessories and more than 600 bobbins.

GER SA – Belgium
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Fax: +32 87 26 02 01
Website: www.ger.be

ArcelorMittal orders two-strand high-capacity wire rod mill

In 2008, ArcelorMittal Monlevade SA, Brazil, had placed an order with SMS Meer, Germany, for the supply of a single-strand high performance wire rod mill with the option of expansion to two strands.

In view of the world economic crisis, the order was subsequently suspended but it has now been reinstated. The original expansion option for two strands is to be implemented immediately.

The plant is scheduled to go into production in the second quarter of 2012. Within the framework of this order, SMS Meer is to supply a walking beam furnace, the mechanical and electrical equipment for the mill train, the complete media supply systems, the finishing facilities for the wire-rod coils and the rolling and cooling technology. The wire rod mill will have an annual capacity of 1,000,000 t. The main equipment consists of a walking-beam furnace with a capacity of 180 t/h. The billet dimensions are 160 x 160mm or 155 x 155mm. This is followed by a four-stand, single-strand roughing mill of HL (Housing Less) stands in horizontal and vertical arrangement with downline free runout.

The intermediate train consists of six horizontal HL stands that are designed for the two-strand operation. The two single-strand wire rod outlets comprise four HL and four CL (Cantilever) stands in H/V arrangement, a cooling and equalising section, a ten-stand wire rod block and a water cooling section downstream of the wire rod block.

The CL stands and the wire rod block are of UHD (Ultra Heavy Duty) design. The stand cassettes for the CL stands and the wire rod block are identical.

In addition, space has been planned in each line for a four-stand FRS® (Flexible Reduction and Sizing) mill in order to enable an increase in the efficiency of the plant in the future. The maximum rolling speed for 5.5mm wire rod is 120m/s.

The scope of supply for each wire rod outlet includes a 96 m-long Loop Cooling Conveyor (LCC®) for accelerated and delayed cooling and two water cooling sections. The plant is completed by the Controlled Cooling Technology (CCT®) developed by SMS Meer.

The equipment supplied by SMS Meer permits the temperature-controlled rolling of all steel grades in the size range from 5.5 to 15.9mm. The coil handling equipment with two coil tying presses completes the overall solution.

The secondary metallurgical centre with ladle furnace and continuous caster for the production of Special Bar Quality (SBQ) billets with six strands upstream of the wire rod mill was ordered from Concast AG in Zurich, Switzerland.

ArcelorMittal Monlevade SA – Brazil

Fax: +49 211 881 774449

Email: thilo.sagermann@sms-group.com

SETIC's new double-twist bunching/stranding machine

The SETIC Gauder Group has recently been awarded several contracts for its new and advanced bunchers for automotive wire, including a contract from Leoni Kabel (one of the worldwide leading suppliers of cable for the automotive industry).

SETIC's stock policy regarding its new double-twist bunching/stranding machine type "TD 630 i" is to aim for reduced manufacturing costs and reducing the time taken to respond to customer needs.

TD 630 i launched on stock includes:

- Change gear capstan including 5 pairs of gears
- Green bow (instead of standard eyelet bow) to reduce power consumption
- Traverse limits adjustable from the control panel during the production
- Electrical cabinet (Rittal brand) on the side of the machine to save space in the case the machines are placed back-to-back and face-to-face
- Bluetooth transmission (to reduce the number of rings)

The design of this machine is flexible enough for easy integration of motorised driven capstan (TC 630 i versus TD 630 i), air conditioning, and tropicalisation (options).

SETIC Gauder Group technology presents several major advantages such as: single bow design, full AC motors, motorised driven capstan available, reduced maintenance (no encoder, Bluetooth system) and Green bow design. This allows cost savings of 1,500 to 2,000 euros per buncher per year in comparison with the conventional single-bow buncher.



▲ SETIC double-twist bunching/stranding machine TD 630 i

Setic sas – France

Email: sales.setic@gaudergroup.com

Fax: +33 4 77 71 10 85

Website: www.gaudergroup.com

Niehoff's new generation double-twist bunchers and stranders

Maschinenfabrik Niehoff, one of the leading manufacturers of machinery for the wire and cable industry, is continuously improving its bunching and stranding equipment in order to meet the growing requirements of its customers. Precision, energy efficiency, material savings, flexibility, ecological and economical aspects are criteria that play an increasingly important role in cable making and design.

Niehoff's D-series of double-twist bunching machines is now comprised of six sizes covering a wide strand cross section range (0.013mm² – 50mm²). The characteristics of these machines include the single bow design, non-contact data transfer inside the machine, and infinitely variable tension control using closed loop load cell. With this full product line, it is now possible to manufacture strands with 7 x 0.05mm (44 AWG) construction as smallest strand variant, as well as large wire rope lay strands and battery cables of copper and aluminium (on the largest D model).

During the wire 2010 show, Niehoff introduced a new energy-saving ECO-BOW which was specially developed for these bunchers. When equipped with this bow, energy consumption of the D-series bunchers is reduced by more than 60%, and noise emission is reduced considerably in comparison to the two-bow conventional bunching machines.



▲ Data cable stranding line consisting of a DSI 631 double-twist stranding machine with backtwist pay-off ARD 630 and a longitudinal tape payoff ALB

Another important feature of the D series machines is that they can be equipped with the "Niehoff Bunching Automatic Traverse" (NBAT) system, which automatically detects spool flanges and also controls the wire laying process. This improved spooling quality means that strands can be paid off in downstream processes, they are tangle-free and without wire damage and at higher speeds.



▲ Detail of a D type double twist bunching machine with the new energy-saving ECO-BOW

The successful concept of the D-series bunchers has led to the design of the DSI 631 and DSI 1001 double-twist stranding machines. These machines are designed to strand insulated conductors into pairs or quads or to strand conductor pairs into LAN cables and other special cables at high speeds with highest quality. The stranders are built for a wide conductor cross section range and a maximum stranding diameter of 8mm or 15mm and can be combined with numerous other production equipment, such as wire payoffs and longitudinal tape payoffs.

The DSI systems allow data cables, special cables, bus cables and LAN cables of all categories to be produced efficiently, with extreme precision and highest quality standards.

The new D and DSI machines are equipped with electronically controlled Class IE2 energy-efficient AC motors and energy optimised components, meeting the current safety regulations of the machinery directive RL 2006/42/EG and they also feature a completely new and functionally optimised machine design.

Maschinenfabrik Niehoff GmbH & Co KG – Germany
Email: info@niehoff.de

Fax: +49 9122 977 155
Website: www.niehoff.de

Nova's role in stranding and bunching

Nova Srl specialises in the design and manufacture of machines and systems for wire and cable industries. The company's production range includes take-up and payoff systems of any type and class. These include the double-twist bunching machine, double-twist stranding machine, single-twist stranding machine, rigid-cage stranding machine, tubular machine, drum twister line, armouring line, rewinding line and taping line.

Nova's production has always been characterised by manufacturing quality, with the use of high quality parts and components. Its machines are manufactured exclusively in Italy in at its two plants.

Nova Srl – Italy Fax: +39 39 6985321 Email: nova@novait.it Website: www.novait.it

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That lubricants are essential to wire drawing is seen immediately in the definition of the process: “During deformation, a thin film of lubricant between wire surface and die surface is essential to minimise friction, to reduce die wear, and to keep the die cool.” The point is made again in the first sentence of the description of the procedure: “Lubrication is introduced, and the material is guided to the deformation zone of the die.”

But lubricants can do their vital work only if they are right for the material being worked; of the proper composition and consistency; and chosen, applied, and monitored by people with a confident understanding of wet and dry drawing, metal coating and ultrasonic vibration. This section of *EuroWire* presents some companies that specialise in this exacting technology.

Lubrication & filtration



3M introduces three new lubricants

3M Communications Markets Division has introduced three new lubricants to help communication service providers protect their investment when pulling cable.

The three new lubricants are 3M Concentrated Multi-Purpose Cable Lubricant; 3M Multi-Purpose Gel Cable Lubricant; and 3M Multi-Purpose Liquid Cable Lubricant. They all offer superior friction reduction and easy application when used on cables during installation.

3M's Concentrated Multi-Purpose Cable Lubricant is designed for fibre, copper and coaxial cables types. The lubricant provides immediate tension reduction that lasts even after it has dried, reducing the need to re-apply, therefore boosting productivity and curbing costs. It is also highly concentrated, meaning that less lubricant is required than standard lubricants.

This concentrated lubricant is available in three forms – a spray, a wipe and a pourable liquid – to provide the most efficient application for each situation. Wipes and spray applications are well-suited for category 6 cables and vertical cable jobs.

The 3M Multi-Purpose Gel Cable Lubricant is a high-performance, thick, silicone gel containing microspheres, which offer added friction reduction.

The gel lubricant is a high viscosity lubricant designed for heavier cable jackets for both inside and outside environments.

3M's Multi-Purpose Liquid Cable Lubricant is a low viscosity lubricant that is formulated for longer cable pulls. It is designed for fibre copper and coaxial cable types. The gel and the liquid lubricants are designed to dry slowly, therefore reducing the need to re-apply.

All three of the new cable lubricants from 3M are compatible with commonly used communication cable jackets, so one product can be used for a variety of cable pulling jobs. The lubricants are non-staining, non-hazardous and easy to clean off. They are designed to apply evenly in order to provide consistent lubrication and superior friction reduction.

3M Communication Markets Division has been a major player in the telecommunications industry for more than 40 years.

The company offers one of the widest and most comprehensive suites of scalable solutions to communications service providers around the world.

3M Communications Markets Division – USA
Website: www.3mtelecommunications.com

New sodium soap developed by Tecno

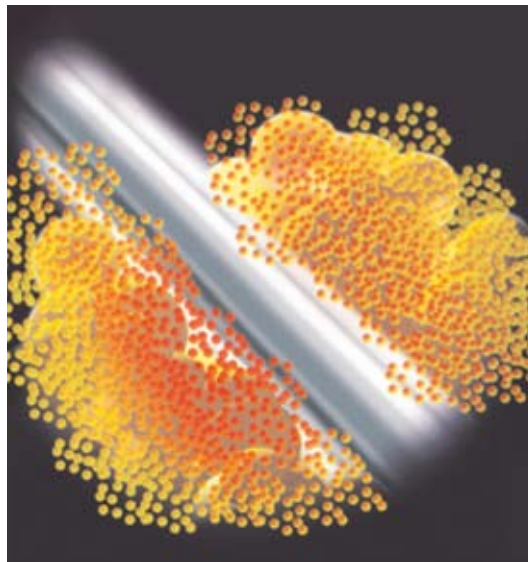
Sodium soaps commonly used in wire drawing contain components that are harmful to the environment. These components include nitrites, chlorinated and sulphurised compounds, and soaps of heavy metals (barium, chrome, lead).

Tecno has developed a line of sodium soap products that do not contain any of these substances.

Tecno is continuing research of new sodium-based lubricants.

The company has developed a production process which uses only inorganic, non toxic and non harmful salts to obtain perfect reticulation of the fibre of the soap. It has also been possible to obtain more constant and stable behaviour at high temperatures than is obtained with soaps containing dangerous products.

They can provide adequate lubrication of wire over a wider temperature range to cover temperature differences between first and last draft. Further important features are: strong adhesion of the lubricating film to the drawn wire, resistance to compression, strong polarity towards the drawn wire and removability of the lubricating film from the surface of the wire



▲ New sodium-based lubricants from Tecno

Tecno – Italy Fax: +39 02 54 55832 Website: www.tktgroup.it

“ACID-FREE PROCESS FOR STEEL ROD CLEANING & SURFACE PREPARATION”

“New Way to Draw Steel Wire in the 21st Century”



DCCD process features:

- Eliminates acid, borax and precoatings
- Zero energy consumption
- Direct drawing from bare rod with no speed limitation, for H/C and L/C
- New Lubricant Viscosity Control provides exceptionally adherent coating
- Adjustable lubricant residual
- Zero lubricant waste
- Recommended for severe drawing applications (spring, rope, bead, CO₂ welding, PC strand, plating quality)
- H/C wire drawn at 18 m/s (3600 ft/min)
- Up to 8 times longer die life
- Exiting wire temp. 45°C (113°F)
- Greatly improved wire ductility



DECALUB

31, avenue de Condé
77500 CHELLES, FRANCE
Fax: +33 1 60 20 20 21
E-mail: info@decalub.com
Website: www.decalub.com

Traxit's Borax-free lubricants

Traxit International has been providing the wire-drawing industry with a complete range of lubricants to suit all types of wire for all applications, since 1881.

The company is one of the largest manufacturers of drawing lubricants, coatings and emulsions and operates from manufacturing bases in Germany, China and the US.

Traxit lubricants are high quality and are constantly updated to ensure maximum environmental and health friendliness. Additionally, the company strives to improve the performance of its lubricants to bring maximum advantage to customers.

The much delayed European legislation, which classifies all mixtures containing Borax and some other Boron compounds above a certain level as toxic for reproduction, came into force and requires labelling and packaging provisions to be adapted accordingly.

Traxit is already able to offer a full range of dry drawing lubricant products completely free of Borax and all boron compounds. These products offer the following improvements over some of the traditional boron-containing products:

- Longer die life
- Higher drawing speeds
- Reduced wire breaks
- Reduced drawing temperatures
- Sodium based lubricants with less moisture pick up

Traxit International GmbH – Germany

Fax: +49 2336 919101

Email: info@traxit.com

Website: www.traxit.com

Decalub's wire lubrication system

Decalub's wire lubrication system revolutionises the wire-drawing process. It benefits from unique PDH multi-function technology, thus enabling an automatic control of lubrication crucial parameters (pressure/temperature/viscosity), including lubricant injection speed and lubricant thermal stability. During operation, all these parameters communicate together in a sensitive and automatic multi-way interaction, performing a high-density strongly adherent anti-wear multi-layer coat for high carbon wire (0.88–0.90%C), deposited in 5–10 microseconds; and a nano-layer coat for plating wire.

The critical aspects of lubrication are greatly simplified and some are virtually eliminated, such as friction and wear. Instantaneous wire and rod dry coating, operating with no speed limit, at zero energy consumption (self-generated by the PDH unit), enables automatic control of liquefied lubricant thermal stability, a vital parameter that prevents metal-to-metal contact at the wire-die interface and permits the highest frictionless drawing speed with a unique wear performance of about 0.1–0.3 micron per ton of wire drawn in the last draft, and 200 tons per die in the first 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); 10.5mm 0.88%C rod drawn to 4.22mm at 9m/s (1,800ft/min).

In the LVC version, used in the first draft, the PDH system eliminates conventional wire rod wet preparation, including phosphate and borax pre-coating chemicals. The result is a lower cost, improved wire quality and environmental benefits. The PDH unit is compact, and easy to install and use.

Decalub – France

Fax: +33 1 60 20 20 2

Website: www.decalub.com

Drawing dies from Koner

Lubrication is a crucial factor for the finished quality of drawn wire. An interrupted lubrication in the drawing process causes an increase in surface tension in the wire, strong pressures inside the die, rapid die wear, breakage of the drawing nib and consequent non-programmed interruptions. To avoid these problems, Koner has developed a new concept in drawing dies. The K.340 and K.370 pressure drawing dies (patented worldwide) are specially constructed and designed to improve lubrication in dry drawing. With its revolutionary concept, these drawing dies become real dismountable drawing tools, adapted to meet all operating requirements.

For wet drawing the K.320 tool has been created. Its particular inside geometry allows optimum wet drawing process characteristics and economic savings. The K.340, K.370 and K.320 methods provide considerable operating advantages such as: maximum drawing speeds; reduced downtime to replace die; better and homogeneous wire quality; wire drawing under optimum quality control; nib life increased by 30% and more just to name a few. The overall costs are also reduced by around 40%. The overall dimensions of K.340, K.370 and K.320 tools are the same as for traditional dies.

Koner SpA – Italy

Fax: +39 02 545 5832

Website: www.tktgroup.it

State-of-the-art mechanical descaling systems from Wilco

The Wire Lab Company (Wilco) specialises in the development and marketing of state-of-the-art mechanical descaling systems for use in the steel wire industry. There are five standard models of Wilco mechanical descaling systems available. This line may be separated in two classes of 1) Non-aggressive systems and 2) Aggressive systems.

The non-aggressive systems consist of standard scale breakers and any one of three cleaning units. These are mainly used for the production of IQ wires where emphasis is on producing wire with the least processing cost. The aggressive systems include an automatic rod brushing unit for producing higher quality wires. There are two standard systems available.

Wilco's wire drawing aids include lubricant applicators and pressure die holders. Both of these field-proven products are beneficial in the drawing of ferrous and non-ferrous wires. The main benefit of their use is increased levels of lubrication during the wire-drawing process. This results in increased die life, better wire quality and increased productivity.

Wire Lab Company Wilco – USA

Fax: +1 216 433 0007

Website: www.wirelab.com

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Contents in this issue

- 8 Industry News
- 20 行业新闻
- 24 Telecom News
- 29 通信新闻
- 30 From the Americas
- 40 来自美国的消息
- 42 Technology News
- 63 技术与产品
- 66 Furnaces & heat treatment
- 72 熔炉和热处理炉
- 74 Fasteners &



Chinese



Technical Articles

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

Wire & Cable Asia - November/December 2010

7

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New technology for lubricating cold extrusion materials and cold heading wire

By Jude Burke, Chemetall PLC, UK

Abstract

It is increasingly difficult to deal with the contamination of wastewater from zinc phosphate or zinc-calcium phosphate coatings. This paper describes a conversion coating process involving the electrolytic deposition of a calcium phosphate carrier coat.

The process is efficient, free from heavy metals and sludge, and well suited to wire drawing, cold heading and extrusion. The paper highlights the cost savings, environmental benefits and productivity improvements that can be achieved by a combination of calcium phosphating with a polymer coating.

Synopsis

The lubricants currently used for drawing cold heading wire and for cold extrusion processes are soaps. In addition, molybdenum disulphide dispersions are used for cold extrusion processes. These lubricants are increasingly being replaced by ultra thin polymer technology, which offers benefits such as improved tool life, extension of the interval between oil changes in cold heading machinery and allowing the fabrication of parts with complex geometry.

These polymer coatings are applied on top of conventional coatings as use on bare steel is restricted to a very few specific cases.

Conventional coatings used are zinc phosphate or zinc-calcium phosphate. However, it is becoming increasingly difficult to deal with the sludge and heavy metal contamination of wastewater from these processes. The answer to these problems is given in this paper, which describes a conversion coating based on the electrolytic deposition of a calcium phosphate carrier coating.

This process is highly efficient and free from heavy metals and sludge. The conversion coating is eminently suitable for wire drawing, cold heading and cold extrusion. This paper highlights the cost savings, environmental benefits and productivity improvements that can be achieved by using a combination of calcium phosphating with a polymer coating.

1 State of the art

The diagram below illustrates what is currently described as the state of the art process sequence.

1.1 Explanations regarding the state of the art

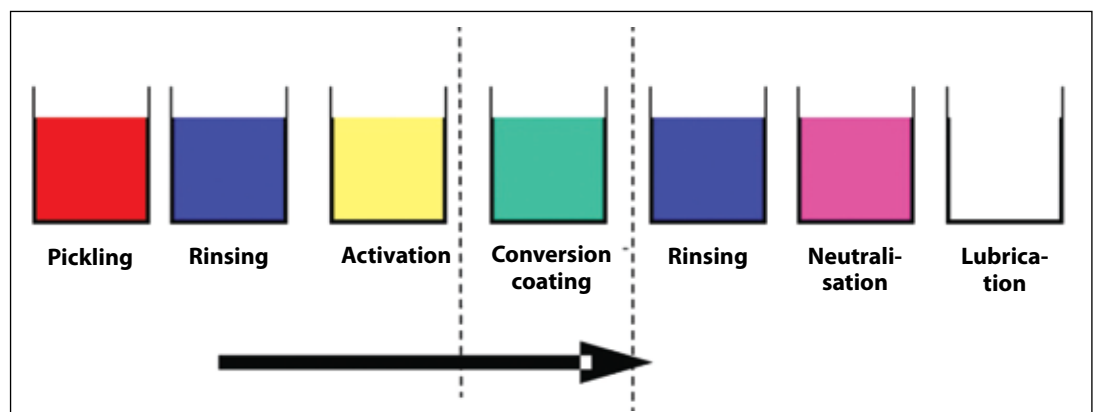
Initially the parts are pickled, rinsed and activated. An alternative to pickling is mechanical descaling. This is followed by a zinc phosphate conversion coating, which is obtained by means of a chemical reaction.

For many manufacturing processes a conversion coating is essential to achieve high quality, cost effective large-scale production.

The parts being processed are again rinsed, neutralised and finally a lubricant is applied. The lubricants are water-soluble soaps that react with the conversion coat or, alternatively molybdenum disulphide (MoS_2) dispersions. The complete process sequence takes between 60 and 90 minutes.

It is worth noting that the quality of the phosphate, and the subsequent performance results, are a reflection on how much care has been taken in the early process stages.

▼ Figure 1: State of the art workflow





2 Zinc phosphates

Currently there are three types of zinc phosphate commonly in use. These are defined by their means of acceleration. They are:

- Nitrite/nitrate
- Chlorate/nitrate
- Nitrate/air (Fe side process)

Nitrite/nitrate is the most widely used outside Central Europe. The system operates at high temperatures producing sludge that settles at the bottom of the process tank. The most common form of accelerator is sodium nitrite. These processes commonly contain nickel, which acts as a refining agent.

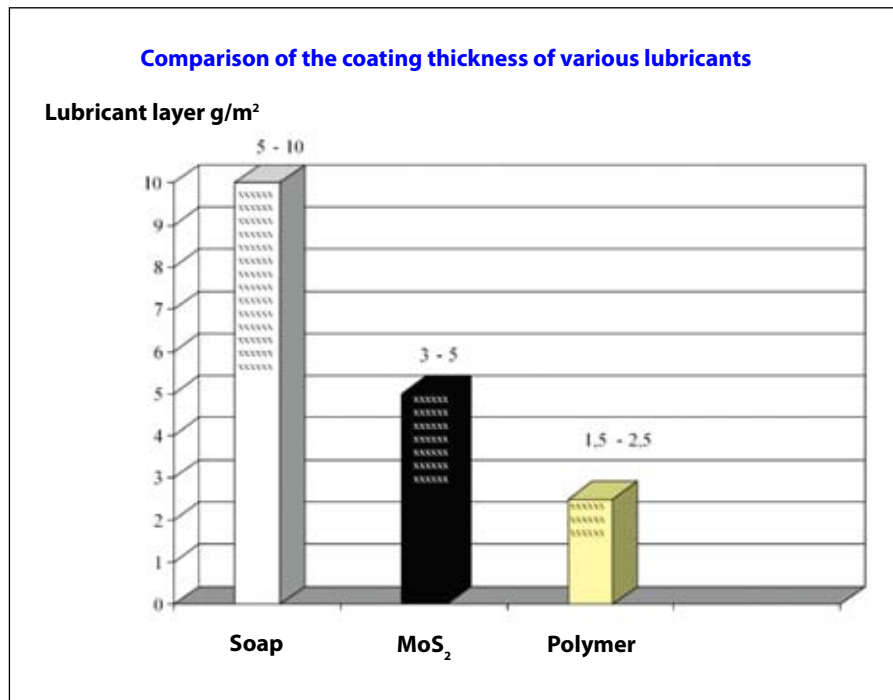
Chlorate/nitrate processes are used for specific situations where either the operation is more suited to this method of acceleration, such as intermittent working, or the phosphate produced meets a particular demand. Sludge is also produced in the process tank by this system.

Nitrate/air (Fe side processes) operate at lower temperatures and produce their sludge in an external tank into which a controlled supply of air is introduced.

The sludge produced is hard and dense, and settles readily at the bottom of the tank. These processes are nickel and nitrite free.

3 Activation

To obtain the maximum benefits from a zinc phosphate coating the use of an



▲ Figure 2: Comparison of the coating thickness of various lubricants

activator prior to the zinc phosphate is highly recommended. The activator provides sites for the nucleation of the zinc phosphate crystals, which produces a refined, controlled, crystalline coating.

This will lower the coefficient of friction and improve the adhesion of the coating to the metal surface.

The fine crystal structure also increases the available surface area for the subsequent lubrication process.

4 A new type of lubricant as an alternative to soaps and MoS₂

The new lubricants are high performance polymer systems. Applied by immersion in an aqueous solution they produce thin organic coatings.

For maximum performance results this lubricant is best used on top of a conversion coating. Application on bare material is possible but must be examined on a case-by-case basis and thus cannot be generalised.

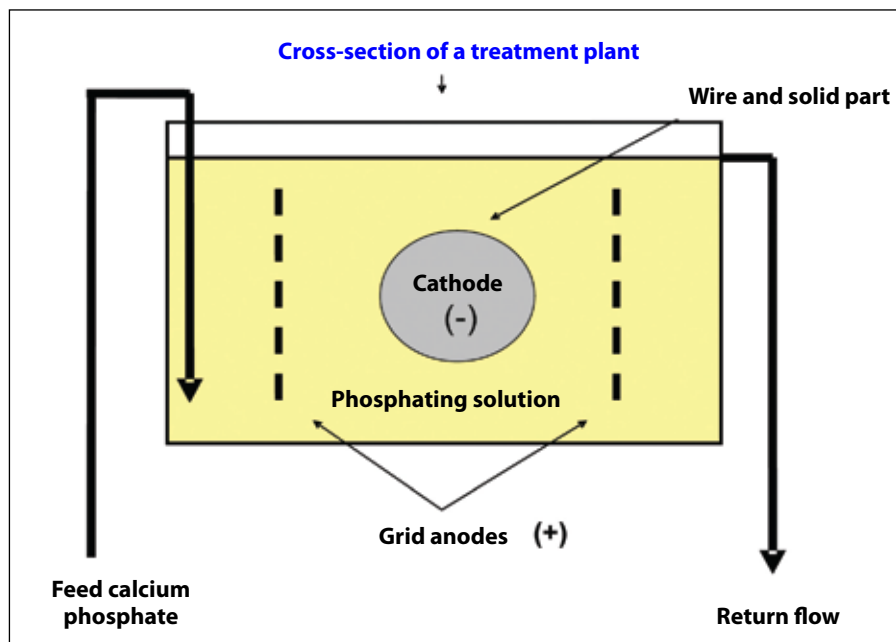
The chart above shows the coating thickness as compared to the conventional lubricants used so far.

4.1 Objectives of the new development

The general target was to develop a coating that allows net shape forming without any negative impact on the tool life. This means that the forming accuracy should be appreciably better than that obtained when using soap, and should be at least equivalent to that obtained with MoS₂.

Moreover, the goal was to achieve a coating that is substantially cleaner and easier to remove. The lubricant concentrate should be classified in the lowest water hazard class and no additives were to be used that may present a potential corrosion risk.

▼ Figure 3: Cross-section of a treatment plant



4.2 Chemical principles of the new coating

The newly developed polymer coating is a mix of high-molecular compounds that are free from heavy metals, boron compounds, mineral oil, chlorine or sulphur-containing lubricant additives (such as molybdenum disulfide and tungsten disulfide) or compounds based upon fluorine, for example, Teflon®.

4.3 Benefits for the customer

4.3.1 Benefits of a polymer coating for the wire manufacturer or the pre-treater of rod sections. Using a polymer bath instead of a soap bath will provide the wire manufacturing plant with the following benefits:

- Polymer coatings need no soap powder in the drawing die. This avoids the problem of dust formation affecting the operators. It reduces costs, as there is no need to purchase soap powder or to provide for its disposal. It also improves the reliability of the drawing machines because less soap dust settles on the machines and drives
- Improved forming means improved productivity
- Clean wire is beneficial for subsequent processing operations
- Improved corrosion protection helps the product store for longer, providing customers with a better product

4.3.2 Benefits of a polymer coating for manufacturers of fasteners or cold extruders

For wire processors, such as fastener manufacturers, this coating offers the following benefits:

- Improved extrusion accuracy due to cleaner material
- Higher speed of the bolt heading machines
- Longer tool life
- Manufacture of parts with complex geometry that were not possible before
- Less frequent changes of oil in the bolt heading machines, as no soap is carried over to contaminate the oil re-circulation system

To conclude, both wire manufacturers and wire users benefit from the use of polymer coatings. This results in a competitive advantage for both parties.

5 Electrolytic phosphating – a heavy metal-free coating process

If a conversion coating (zinc phosphating) is required, then the problems of disposal of the produced sludge and the heavy metals that contaminate the effluent stream must be addressed.

The solution to this problem is a calcium phosphate coating applied electrolytically.

5.1 Electrolytic application of a calcium phosphate coating

A calcium phosphate coating is also a conversion coating but it differs fundamentally from the conventional zinc phosphate coating used to date.

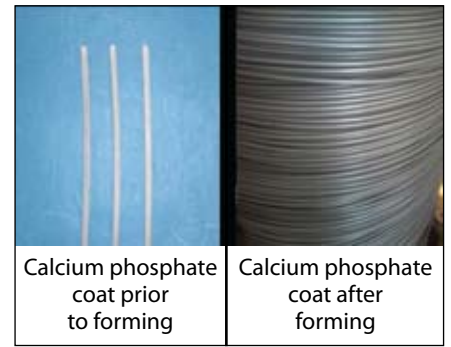
The coating solution is free from heavy metals such as zinc or nickel and so, therefore, is the coating.

The coating can best be described with the formulation CaHPO_4 . The principle of coating deposition on a conductive surface is illustrated in Figure 3.

Since the part acts as a cathode, pickling attack on the iron material does not occur.

Without this pickling attack no phosphating sludge will form so this application process does not generate sludge.

Figure 4 shows phosphated and drawn cold heading wire. It can be clearly seen that the calcium phosphate coats are white prior to forming. After forming, the wire exhibits a regular grey colour.



▲ **Figure 4:** Cold heading wire prior to and after forming

5.2 Benefits

- Free from heavy metals so the effluent becomes easier to manage
- No sludge for disposal
- Process temperature of approximately 25°C
- Treatment time of 2–5 seconds allows for relatively short plants
- Required coating weight of 5–15g/m² can be adjusted via the current density (A/dm²)
- Higher drawing speeds for wire, and lower pressing and ejection forces in cold heading and cold extrusion
- No heavy metal-containing effluent in the de-phosphating of fasteners prior to heat treatment

5.3 Outlook

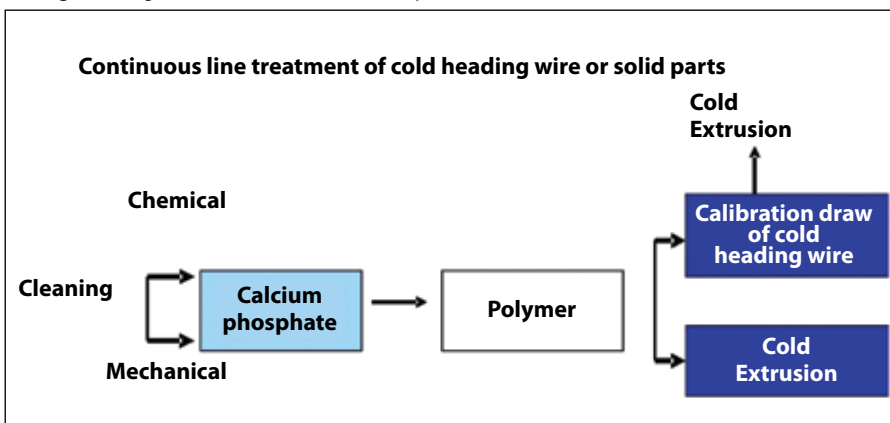
A future treatment process for cold heading wire and solid parts could combine the benefits of an electrolytic, heavy metal-free phosphating with those of a polymer coating. Figure 5 shows such a plant.

This will contribute to reducing the treatment times for surface treatment from around one hour to less than one minute.

Consequently, the quality and productivity will appreciably improve for both the surface treatment plant, and the bolt manufacturing or cold extrusion plant. ■

This paper was presented at Istanbul Cable & Wire '09 and is reproduced here by kind permission of the IWMA.

▼ **Figure 5:** Diagram of a continuous line treatment plant



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Neue Kabelfabrik in Deutschland

Eine neue Kabelfabrik für nkt wurde speziell entworfen und gebaut um die Kabelproduktion so effizient wie möglich zu gestalten.

2011, wenn der komplette Umzug in das neue Werk (f2c genannt – eine Abkürzung von „flow to customer“) abgeschlossen ist, wird die Produktionskapazität gesteigert und zielt dann insbesondere auf See- und Höchstspannungskabel ab.

nkt ist sich bewußt, dass sich der Energiequellenmix zukünftig drastisch verändern wird, wobei die erneuerbaren Energien dabei immer wichtiger werden. Diese Veränderung bei der Energiezusammensetzung wird zu einer dezentralisierten Energieerzeugung führen. Um die Anforderungen der Kunden und die sich ständig verändernden Bedürfnisse des Marktes zu erfüllen, hat nkt cables versucht die effizienteste Antwort auf die Herausforderungen der Zukunft zu schaffen.

„Wir glauben, dass f2c bei der



▲ Neue Kabelfabrik von nkt in Deutschland

Entwicklung des Offshore-Geschäfts eine entscheidende Rolle spielen wird“ sagte Dion Metzemaekers, CEO der nkt cables group und fuhr fort: „Unser neues Werk stellt einen entscheidenden Meilenstein in der Geschichte der Kabelwerke dar. Niemals zuvor wurde ein Projekt in dieser Größenordnung umgesetzt. Niemand in der Kabelproduktionssparte hat jemals

zuvor so viel in die Zukunft investiert wie wir mit unserem neuen Werk. Es wird zum Maßstab für die Produktion von Höchstspannungs- und Seekabeln werden.“

nkt cables group GmbH – Deutschland

Email: info@nktcables.com

Website: www.nktcables.com

Erhöhung der Pfahlkorbherstellung

Colin Prior von Lemon Groundwork Supplies hat die Spezifikationen der neuesten automatischen Pfahlkorbmaschinen des italienischen Herstellers MEP geliefert, um die bestehenden Pfahlkorbtätigkeiten des Unternehmens zu erhöhen. Geliefert wurde die GAM durch die englischen Vertreter von MEP, Whitelegg Machines.

Lemon Groundwork Supplies ist sowohl ein Liefer- wie ein Montageunternehmen von geschnittenen und gebogenen Stahlbewehrungsstäben, Bewehrungsmatten und Produkte gegen die Tonausdehnung, zusammen mit einer kompletten Auswahl an passendem Zubehör und Dienstleistungen. Vor der Einführung der neuen GAM stellte man Pfahlkörbe manuell her, in Größen von 100mm (Außendurchmesser) bis 2.100mm, drahtgeheftet oder handgeschweißt.

Die komplette GAM-Baureihe soll eine schnelle und genaue Pfahlkorbmontage bieten, mit einer automatischen

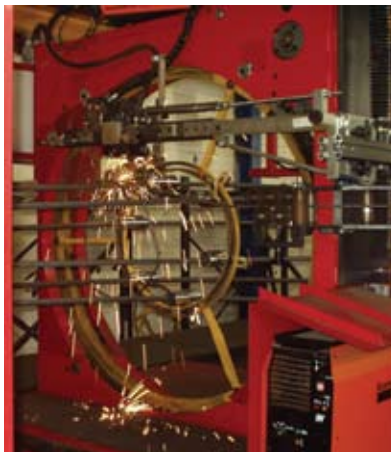
Fertigung geschweißter Körbe von 150mm (Außendurchmesser) bis zu 2.000mm und mit einer Länge bis zu 21m.

Whitelegg Machines Ltd – UK

Fax: +44 1306 711865

Email: sales@whitelegg.com

Website: www.whitelegg.com



▲ Schweißung mit der neuen GAM

Großauftrag von Tele-Fonika Kable

Sikora AG hat im Jahr 2010 von Tele-Fonika Kable, Krakau, einen Großauftrag erhalten.

Das Projekt ist mit einem Gesamtvolumen von 1 Million Euro einer der größten Aufträge in der Unternehmensgeschichte.

Tele-Fonika Kable wird die Sikora-Messsysteme in seinen Kabelwerken in Kraków/Bieżanów, Kraków/Wielicka und Bydgoszcz in Polen zur Qualitätssicherung während der Kabelfertigung einsetzen.

Der Auftrag umfasst Wanddicken-, Exzentrizitäts- und Durchmessermesssysteme sowie Durchschlagmesser für die Installation in CV-Linien sowie Mantel- und Isolationslinien.

Sikora AG – Deutschland

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Email: sales@sikora.net

Website: www.sikora.net



Erfolgreiche Präsentation der wire in China

▲ Kongreßteilnehmer bei der Fachmesse wire and Tube China 2010

wire and Tube China 2010 wurde als renommierter Erfolg beschrieben, obwohl diese Ausstellung zur Zeit der postfinanziellen Krise stattfand.

Als bereits größte Industrieausstellung in Asien meisterte es wire and Tube China seinen eigenen Rekord an Messebesuchern (26.035 in vier Tagen) und Ausstellungsfläche (74.500m², d.h. 30% mehr als bei der Ausstellung im Jahre 2008) zu brechen.

Die gleichzeitig stattgefundenen Konferenzen und Ereignisse, wie die China International Tube & Pipe Conference, China Wire & Cable Industry Conference, Wire & Cable Raw & Auxiliary Materials Technical Exchange Conference und der Wire & Cable Equipment Technology Seminar, stießen ebenfalls auf das Interesse der Besucher.

wire China wird in Zusammenarbeit mit dem Shanghai Electric Cable Research

Institute (SECRI) und der Messe Düsseldorf China Ltd organisiert. wire China 2012 wird im Shanghai New International Expo Center vom 25. bis 28. September stattfinden und eine ideale Plattform sein, um Kontakte mit den sich entwickelnden chinesischen und asiatischen Märkten aufzunehmen.

Messe Düsseldorf China Ltd – China
Fax: +86 23 6232 8001
Email: press@mdc.com.cn
Website: www.wirechina.net

True Sequential Footage bietet Präzision

Cerro Wire LLC, ein Hersteller von Gebäudeleitungen und -kabel aus Kupfer, hat True Sequential Footage™ auf den Markt gebracht, eine sequenziell gekennzeichnete Kabelspule, die eine genaue Drahtlänge je Schnitt bietet.

True Sequential Footage vermeidet den Bedarf einen übermäßigen Kabelbestand zu tragen, da eine genaue Länge und Metermessung sowie die Kostenüberwachung geboten werden.

Dank der genauen Kennzeichnung bei der Metermessung kann eine schnelle Erkennung des Nachbestellungspunktes ermöglicht werden, was wiederum die Ausnutzung der ganzen erworbenen Drahtlänge garantiert sowie eine Reduzierung der ungenauen Längen.

Somit werden die Spulendenschöpfen besser überprüft.

Cerro Wire LLC – USA
Website: www.cerrowire.com

Querkopf für geschäumtes RF-Kabel

Der Querkopf RX 25T von Rosendahl für geschäumte RF-Kabelkerne ist für die Herstellung einer kompletten Auswahl an RF-Kabel von ¼" SF zu 2¼" F bestimmt.

Der Grundentwurf umfaßt einen ölbeheizten Querkopf mit Skin-Anwendung, ausgestattet mit einer optimierten Temperaturregelung um Ausdehnungsraten bis zu 86% abzudecken.

Zwei Heiz-/Kühlbereiche am Querkopf – einer für das Hauptgehäuse, der zweite für den Ziehsteinhalter – sorgen für eine hervorragende Temperaturregelung sowie eine Temperaturverteilung in der Polymer-Gas-Schmelze.

Ein natürlicher kompletter Ausgleich minimiert die Scherraten und bietet einen glatten Schmelzfluß für eine perfekte Rundheit, Konzentrität und mechanische Stabilität. Die überlegene Verteilertechnik ermöglicht kleine geformte Zellen und eine gleichmäßige Zellenverteilung bei diesem hohen Schaumgrad.

Die Optimierung der Temperaturregelung, der Scherbeanspruchung, des Druckabfalls und der Fließgeschwindigkeit im



▲ Der Querkopf RX 25T deckt die ganze RF-Kabelausswahl

Querkopf sind wichtige Faktoren, um am Endkabel Schaumausdehnungsraten bis zu 86% zu erreichen.

Der neue Entwurf soll es RF-Kabelherstellern ermöglichen die Einschränkungen zu übertreffen, auf die man derzeit mit einer Standardausrüstung stößt.

Rosendahl Maschinen GmbH – Österreich
Fax: +43 3113 5100 51
Email: office@rosendahlaustria.com
Website: www.rosendahlaustria.com



Neue Technologie bei der Schmierung von Kaltextrusionsmaterialien und Kaltstauchdraht

Von Jude Burke, Chemetall PLC, UK

Zusammenfassung

Es wird in zunehmenden Maße schwieriger die Verunreinigung von Abwasser aus Zinkphosphat- oder Zink-Kalziumphosphatbeschichtungen zu behandeln. In diesem Artikel wird ein Verfahren zur Umwandlungsbeschichtung beschrieben, das die elektrolytische Abscheidung einer Kalziumphosphat-Trägerschicht einschließt. Das Verfahren ist effizient, frei von Schwermetallen und Schlamm, und eignet sich besonders für das Drahtziehen, das Kaltstauchen und die Extrusion. Der Artikel lenkt die Aufmerksamkeit auf die Kosteneinsparungen, die Umweltvorteile und die Verbesserungen der Produktivität, die durch eine Kombination von Kalziumphosphatierung mit einer Polymerbeschichtung erzielt werden können.

Übersicht

Die Schmiermittel, die derzeit zum Ziehen von Kaltstauchdraht und bei Kaltextrusionsverfahren verwendet werden, sind Seifen. Darüber hinaus werden Dispersionen von Molybdän-Disulfid für Kaltextrusionsverfahren benutzt. Diese Schmiermittel werden zunehmend durch eine Technologie ultradünner Polymere ersetzt, was wiederum Vorteile bietet wie z. B. eine verlängerte Lebensdauer der Werkzeuge, Erhöhung des Ölwechselzeitraums in den Kaltstauchmaschinen und die Möglichkeit

Teile mit einer komplizierten Geometrie herzustellen. Diese Polymerbeschichtungen werden über den konventionellen Beschichtungen aufgetragen, da der Einsatz von Blankstahl auf sehr wenige spezielle Fälle beschränkt ist.

Die traditionell benutzten Beschichtungen sind Zinkphosphat oder Zink-Kalziumphosphat. Jedoch wird es zunehmend schwieriger die wegen Schlamm und Schwermetallen verursachte Verunreinigung von Abwasser zu behandeln, die durch solche Verfahren erzeugt wird. Als Lösung für diese Probleme wird hier eine Umwandlungsbeschichtung beschrieben, die auf die elektrolytische Abscheidung einer Kalziumphosphat-Trägerbeschichtung basiert. Dieses Verfahren ist hocheffizient und schwermetall- und schlammfrei. Die Umwandlungsbeschichtung eignet sich optimal für das Drahtziehen, das Kaltstauchen und die Kaltextrusion.

Dieser Artikel lenkt die Aufmerksamkeit auf die Kosteneinsparungen, die Umweltvorteile und die Verbesserungen

der Produktivität, die durch den Einsatz einer Kombination von Kalziumphosphatierung mit einer Polymerbeschichtung erzielt werden können.

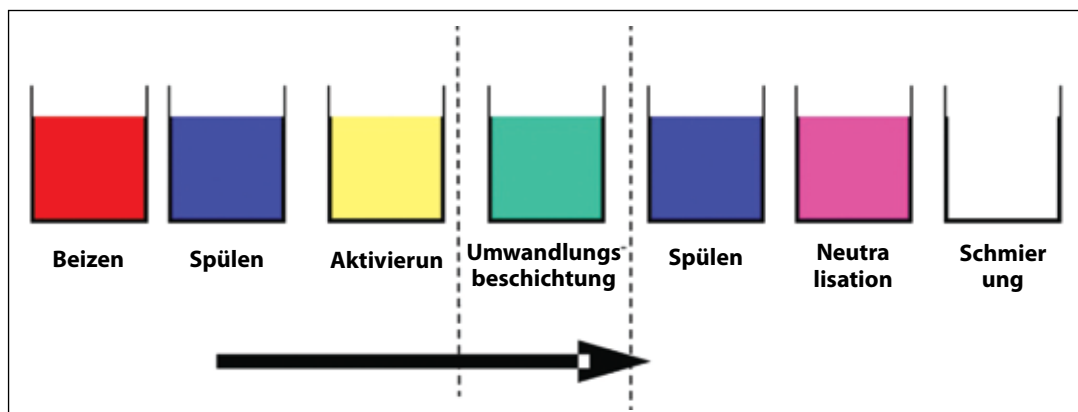
1 Stand der Technik

Im nachfolgenden Diagramm wird dargestellt, was derzeit als Verfahrensablauf nach dem neuesten Stand der Technik beschrieben wird. *Bild 1* Arbeitsablauf nach dem neuesten Stand der Technik.

1.1 Erläuterungen zum neuesten Stand der Technik

Anfänglich werden die Teile gebeizt, gespült und aktiviert. Eine Alternative zum Beizen ist die mechanische Entzunderung. Gefolgt von einer Zinkphosphat-Umwandlungsschicht, die durch eine chemische Reaktion erzielt wird. Bei vielen Herstellungsverfahren ist die Umwandlungsbeschichtung von grundlegender Bedeutung um eine hochwertige und wirtschaftliche Fertigung in großen Serien zu erreichen.

▼ Bild 1: Arbeitsablauf nach dem neuesten Stand der Technik



Die zu bearbeitenden Teile werden nochmals gespült, neutralisiert und zuletzt wird ein Schmiermittel aufgetragen. Die Schmiermittel sind wasserlösliche Seifen, die mit der Umwandlungsschicht reagieren, oder anderenfalls die Dispersionen von Molybdän-Disulfid (MoS_2). Für den kompletten Verfahrensablauf werden zwischen 60 und 90 Minuten angesetzt.

Es ist beachtenswert, dass die Qualität von Phosphat, und die darauf folgenden Leistungsergebnisse, eine Reflexion der Pflege darstellen, die in den früheren Verfahrensphasen angewendet wurde.

2 Zinkphosphate

Derzeit gibt es drei Typen von Zinkphosphaten, die allgemein verwendet werden. Sie werden durch deren Beschleunigungsmittel festgelegt, bzw.:

- Nitrit/Nitrat
- Chlorat/Nitrat
- Nitrat/Luft (Fe-Sekundärverfahren)

Nitrit/Nitrat ist das am meiste außerhalb Mitteleuropa eingesetzte. Das System läuft mit hohen Temperaturen und erzeugt Schlamm, der sich am Boden des Verfahrenstanks ablagert. Die gängigste Beschleunigungsform ist Natriumnitrit. Diese Verfahren enthalten üblicherweise Nickel, der als Raffinationsmittel wirkt.

Chlorat-/Nitrat-Verfahren werden in besonderen Fällen benutzt und zwar dort wo sich das Verfahren dieser Beschleunigungsmethode besser anpasst, wie z. B. bei unregelmäßigen Vorgängen, oder wo das hergestellte Phosphat eine

besondere Anforderung erfüllt. Durch dieses System wird auch Schlamm im Verfahrenstank erzeugt.

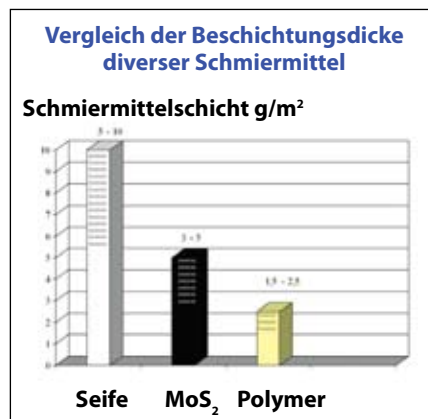
Nitrat/Luft (Fe-Sekundärverfahren) agiert bei niedrigeren Temperaturen und erzeugt deren Schlamm in einem Außentank, in dem eine kontrollierte Luftversorgung eingeführt wird. Der erzeugte Schlamm ist hart und dicht, und lagert leicht am Tankboden ab. Diese Verfahren sind nickel- und nitritfrei.

3 Aktivierung

Um die meisten Vorteile von der Zink-Phosphat-Beschichtung zu erzielen ist der Einsatz eines Aktivators vor dem Zink-Phosphat sehr zu empfehlen. Der Aktivator bietet die Stellen zur Kernbildung der Zink-Phosphatkristalle an, die wiederum eine verfeinerte, geprüfte, kristallartige Beschichtung erzeugt. Somit wird der Reibungskoeffizient gesenkt und die Haftung zwischen Beschichtung und Metalloberfläche verbessert. Die feine Kristallstruktur erweitert auch den verfügbaren Oberflächenbereich für das darauf folgende Schmierverfahren.

4 Ein neues Schmiermitteltyp als Alternative zu Seifen und MoS_2

Die neuen Schmiermittel sind Hochleistungs-Polymersysteme.



▲ Bild 2: Vergleich der Beschichtungsdicke diverser Schmiermittel

Durch das Tauchen in eine wässrige Lösung aufgetragen, erzeugen sie dünne organische Beschichtungen. Für die höchsten Leistungsergebnisse werden diese Schmiermittel am besten oberhalb der Umwandlungsschicht benutzt. Die Auftragung auf Blankmaterial ist zwar möglich, muß aber Fall für Fall untersucht werden und kann daher nicht verallgemeinert werden. Das nachfolgende Diagramm zeigt die Beschichtungsdicke im Vergleich zu traditionellen, bis heute benutzten Schmiermitteln.

4.1 Ziele der neuen Entwicklung

Das Hauptziel lag darin eine Beschichtung zu entwickeln, die eine Konturformgebung ermöglichte ohne eine negative Wirkung auf die Lebensdauer der Werkzeuge zu verursachen. Das bedeutet, dass die Genauigkeit der Umformung durchaus besser sein sollte als jene die beim Einsatz von Seife erzielt wird. Sie sollte zumindest jenen entsprechen, die mit MoS_2 erzielt wurden.

Die Zielsetzung lag außerdem darin, eine Beschichtung zu erzielen, die wesentlich sauberer ist bzw. leichter zu beseitigen ist. Das Schmiermittelkonzentrat sollte in den niedrigsten Wassergefährdungsklassen eingestuft werden. Dabei sollten keine Additive benutzt werden, die eine mögliche Korrosionsgefahr darstellen könnten.

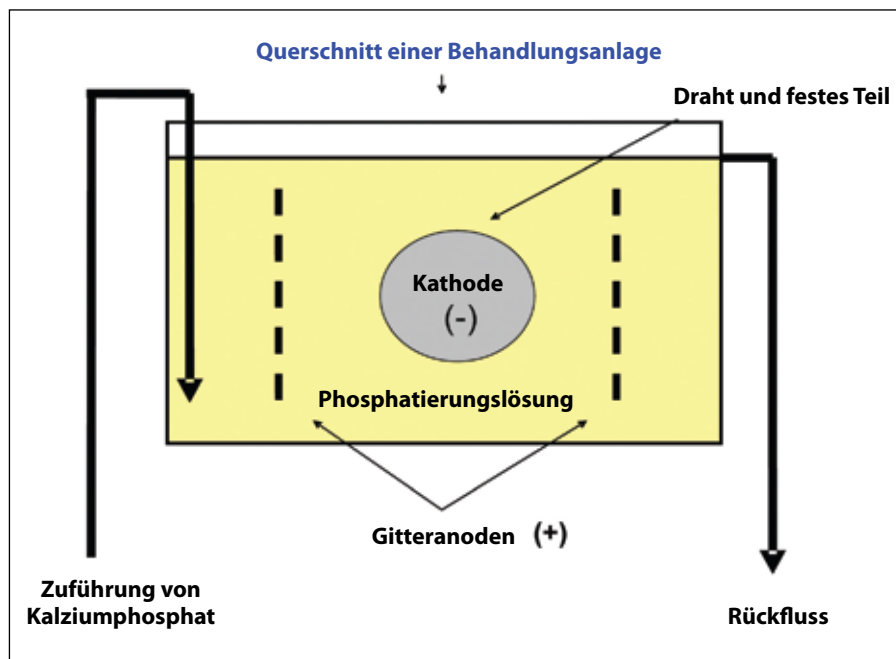
4.2 Chemische Grundsätze der neuen Beschichtung

Die neuentwickelte Polymerbeschichtung ist eine Mischung von hochmolekularen Compounds, die frei von Schwermetallen sind sowie von Bor-Mischungen, Mineralöl, chlor- oder schwefelenthaltende Schmiermitteladditive (wie z. B. Molybdän-Disulfid, Hartmetall-Disulfid) oder auf Fluor basierende Compounds, z. B. Teflon®.

4.3 Vorteile für den Kunden

4.3.1 Vorteile der Polymerbeschichtung für Drahthersteller oder Vor-Benutzer von Stabquerschnitten

▼ Bild 3: Querschnitt einer Behandlungsanlage





Der Einsatz eines Polymerbads statt eines Seifenbads, bietet den Drahtherstellungsanlagen nachfolgende Vorteile:

- Bei den Polymerbeschichtungen wird kein Seifenpulver im Ziehstein benötigt. Somit wird das Problem der Staubbildung vermieden, die die Bediener beeinträchtigt. Die Kosten werden gesenkt, weil der Kauf des Seifenpulvers entfällt bzw. auch dessen Entsorgung. Außerdem wird die Zuverlässigkeit der Ziehmaschinen erhöht, weil sich weniger Seifenpulver auf den Maschinen und Antrieben niederläßt
- Eine verbesserte Umformung bedeutet eine verbesserte Produktivität
- Sauberer Draht ist für die darauf folgenden Verarbeitungsverfahren vorteilhaft
- Ein verbesserter Korrosionsschutz unterstützt eine längere Produktlagerung und bietet den Kunden ein besseres Produkt an

4.3.2 Vorteile einer Polymerbeschichtung für Hersteller von Verbindungselementen oder Kaltextrudern

Für Drahtbearbeiter, wie z. B. Hersteller von Verbindungselementen, bietet diese Beschichtung nachfolgende Vorteile an:

- Verbesserte Extrusionsgenauigkeit dank dem saubereren Werkstoff
- Höhere Geschwindigkeit der Bolzenstauchmaschinen
- Längere Lebensdauer der Werkzeuge
- Herstellung von Teilen mit komplizierter Geometrie, die zuvor nicht ermöglicht wurden
- Seltener Ölwechsel in den Bolzenstauchmaschinen, da keine Seife verschleppt wird, die das Ölumlauftsystem verschmutzt

Daraus kann geschlossen werden, dass sowohl Drahthersteller wie Drahtendbenutzer vom Einsatz der Polymerbeschichtung profitieren können. Es resultiert nämlich ein Konkurrenzvorteil für beide Parteien.

5 Elektrolytische Phosphatierung – ein schwermetallfreies Beschichtungsverfahren

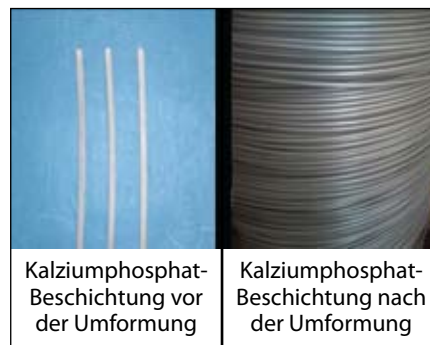
Wenn eine Umwandlungsbeschichtung (Zinkphosphatierung) erforderlich ist, müssen die Entsorgungsprobleme des erzeugten Schlammes und der erzeugten Schwermetalle angesprochen werden. Die Lösung zu diesem Problem ist eine Kalziumphosphat-Beschichtung, die elektrolytisch aufgetragen wird.

5.1 Elektrolytische Auftragung einer Kalziumphosphat-Beschichtung

Eine Kalziumphosphat-Beschichtung ist auch eine Umwandlungsbeschichtung, aber sie unterscheidet sich grundlegend von der konventionellen, bis auf heute angewandten Zinkphosphat-Beschichtung. Die Beschichtungslösung ist frei von Schwermetallen, wie z. B. Zink oder Nickel und dementsprechend ist auch die Beschichtung frei davon. Die Beschichtung kann am besten mit der Formulierung CaHPO_4 beschrieben werden.

Der Grundsatz der Beschichtungsabscheidung auf einer leitenden Oberfläche ist nachfolgend dargestellt. Da das Teil als Kathode agiert, erfolgt kein Beizangriff auf das Eisenmaterial. Ohne diesen Beizangriff bildet sich kein Phosphatierungsschlamm, daher erzeugt dieses Anwendungsverfahren keinen Schlamm.

In Bild 4 wird der phosphatierte und kaltgezogene Stauchdraht dargestellt. Es ist deutlich ersichtlich, dass die Kalziumphosphatschichten vor der Umformung weiß sind. Nach der Umformung weist der Draht eine gleichmäßige graue Farbe auf.



▲ Bild 4: Kaltstauchdraht vor und nach der Umformung

5.2 Vorteile

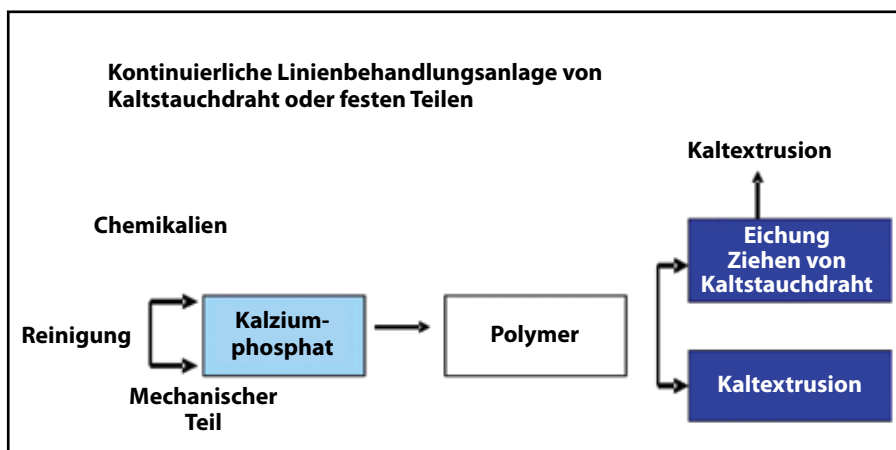
- Frei von Schwermetallen, demzufolge kann man leichter Abwasser behandeln
- Kein Schlamm braucht entsorgt werden
- Prozesstemperatur von zirka 25°C
- Die Behandlungszeit von 2 bis 5 Sekunden ermöglicht relativ kleine Anlagen
- Das geforderte Beschichtungsgewicht von 5–15g/m² kann mittels Stromdichte (A/dm²) eingestellt werden
- Höhere Ziehgeschwindigkeiten für Draht, und niedrige Druck- und Ausstoßkräfte beim Kaltstauchen und bei der Kaltextrusion
- Schwermetallfreier Abfluss in der Dephosphatierung von Verbindungselementen vor der Wärmebehandlung

5.3 Aussicht

Ein zukünftiges Behandlungsverfahren fürs Kaltstauchen von Draht und festen Teilen könnte die Vorteile einer elektrolytischen, schwermetallfreien Phosphatierung mit jenen einer Polymerbeschichtung vereinigen. In Bild 5 wird eine derartige Anlage dargestellt. Dies wird dazu beitragen die Behandlungszeiten für die Oberflächenbehandlung von zirka einer Stunde auf weniger als eine Minute zu verkürzen. Demzufolge werden sich die Qualität und die Produktivität für die Oberflächenbehandlungsanlagen sowie für die Bolzenherstellungs- oder Kaltextrusionsanlagen wesentlich verbessern. ■

Diese Unterlage wurde während der Istanbul Cable & Wire '09 vorgestellt und ist hier mit freundlicher Genehmigung der Konferenzveranstalter IWMA vervielfältigt worden.

▼ Bild 5: Diagramm einer kontinuierlichen Linienbehandlungsanlage



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Новое кабельное предприятие в Германии

Новый кабельный завод для компании «нкт» (nkt) специально спроектирован и построен для обеспечения максимально возможной эффективности кабельного производства.

Переход на новое производство (именуемое сокращенно "f2c" от 'flow to customer', или «выпуск продукции с ориентацией на заказчика») завершится в 2011 году, в течение которого будет увеличены производственные мощности, ориентированные, прежде всего, на выпуск подводного кабеля и кабеля сверхвысокого напряжения.

По признанию «нкт», структура источников энергии в будущем кардинально изменится, и возобновляемые источники энергии будут играть все более важную роль. Подобное изменение структуры энергетики повлечет за собой развитие децентрализованного производства электроэнергии. Для удовлетворения требований заказчиков и меняющихся потребностей рынка компания «нкт кейблз» попыталась дать наиболее рациональный ответ на задачи, которые могут возникнуть в будущем.



▲ Новый кабельный завод компании «нкт» в Германии

«Мы считаем, что предприятие f2c будет играть важную роль при производстве морских работ, – сказал Дион Метцмаекерс (Dion Metzmaekers), главный исполнительный директор «нкт кейблз групп», и добавил: – Наш новый завод – несомненная веха в истории кабельного производства. Никогда еще не реализовывался проект подобного масштаба. Никто из производителей кабельной продукции еще не производил столь крупных

инвестиций на перспективу, какие были сделаны нами в строительство нового завода.

Он станет отправной точкой для производства кабелей сверхвысокого напряжения и подводных кабелей».

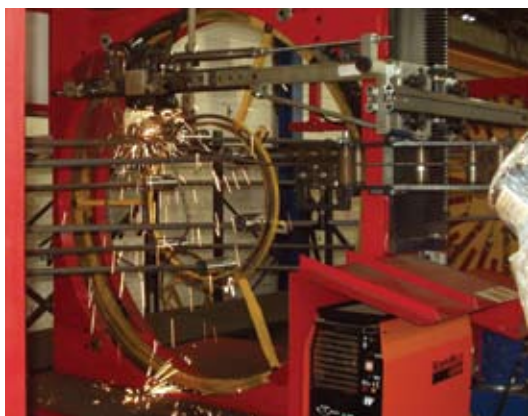
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Наращивание производства арматурных каркасов

Как определил Колин Прайор (Colin Prior) из «Лемон граундуорк сапплайз» (Lemon Groundwork Supplies), помочь выполнить задачу увеличения объемов существующего производства компании по выпуску арматурных каркасов должна новейшая модель

станка-автомата для производства арматурных каркасов от итальянского производителя – компании «Эм-и-пи» (MEP). Станок серии GAM был поставлен через компанию «Уайтлегг машинз» (Whitelegg Machines), являющуюся агентом «Эм-и-пи» на территории Великобритании.

До появления станков серии GAM арматурные каркасы изготавливались вручную. При этом размер каркасов варьировал от 100 мм (наружный диаметр) до 2100 мм, а арматурные стержни в местах пересечения либо перевязывались проволокой, либо сваривались ручной сваркой.



▲ Сварка с использованием нового станка серии GAM

Компания «Лемон граундуорк сапплайз» осуществляет как непосредственно поставки, так и поставки с последующей установкой гнутой стальной стержневой арматуры мерной длины, арматурной сетки и защиты от вспучивания глины, а также поставки широкого ассортимента вспомогательных компонентов и оказание сопутствующих услуг.

Как указывается, все станки серии GAM осуществляют скоростную прецизионную сборку арматурных каркасов и позволяют в автоматическом режиме изготавливать сварные каркасы диаметром от 150 мм (наружный диаметр) до 2000 мм и длиной до 21 м.

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Прошедшая в Китае презентация достижений проволочной промышленности признана успешной

▲ Делегаты на торговой ярмарке wire and Tube China 2010

По отзывам, выставка wire and Tube China 2010 имела ошеломляющий успех, несмотря на то, что проводилась она в период после завершения финансового кризиса. Ставшая уже крупнейшей отраслевой выставкой в Азии, wire and Tube China смогла побить собственные рекорды по количеству посетивших ее специалистов (26 035 человек за четыре дня проведения выставки) и занимаемой выставочной площади (74 500 кв. м, что на 30 % больше, чем на выставке 2008 года).

Одновременно проходили конференции и другие мероприятия, такие как Китайская международная конференция предприятий трубной промышленности (China International

Tube & Pipe Conference), Всеитайская конференция производителей проволочно-кабельной продукции (China Wire & Cable Industry Conference), Конференция по вопросам технического обмена в сфере использования сырья и вспомогательных материалов для производства проволочно-кабельной продукции (Wire & Cable Raw & Auxiliary Materials Technical Exchange Conference) и Семинар по вопросам технологии использования оборудования для производства проволочно-кабельной продукции (Wire & Cable Equipment Technology Seminar), также привлекли внимание посетителей.

Выставка wire China совместно организована Шанхайским научно-

исследовательским институтом электрокабельной промышленности (SECRI) и компанией «Мессе Дюссельдорф Чайна лтд» (Messe Düsseldorf China Ltd).

В 2012 году wire China будет проведена с 25 по 28 сентября в Новом шанхайском международном выставочном центре и обеспечит идеальную базу для установления контактов с развивающимися рынками Китая и других стран азиатского региона.

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Экструзионная головка для производства ВЧ кабеля со вспененным диэлектриком

Экструзионная головка RX 25T компании «Розендал» (Rosendahl) предназначена для изготовления жил ВЧ кабелей с изоляцией из вспененного диэлектрика всех типоразмеров – от ¼" SF до 2¼" F.

Базовая конструкция состоит из головки с масляным нагревом для наложения пленочной изоляции, при этом головка оборудована термостатом, обеспечивающим оптимальный температурный режим при коэффициентах расширения до 86 %. Предусмотренные в экструзионной головке две зоны нагрева и охлаждения (одна зона – для корпуса, вторая – для матрицедержателя) обеспечивают превосходные параметры терморегулирования и равномерное

распределение температур в газосодержащем расплаве полимера.

Полная сбалансированность естественных характеристик предельно уменьшает скорости сдвига и позволяет добиться равномерности потока расплава для обеспечения правильной геометрии (идеальной круглости), соосности и механической прочности.

Совершенная конструкция коллектора обеспечивает формирование мелких клеток пены и равномерное распределение клеток при столь высокой степени вспенивания.

Оптимизация терморегуляции, напряжения сдвига, падения давления

и скорости движения потока расплава в экструзионной головке является важным фактором для достижения коэффициента расширения пены на готовом кабельном изделии, составляющего до 86 %.

Указывается, что эта новая конструкция позволит производителям ВЧ кабеля преодолеть те ограничения, которые сегодня существуют при использовании стандартного оборудования.

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Новая технология смазки материалов для холодной экструзии и проволоки для холодной высадки

Jude Burke, Chemetall PLC, UK

Аннотация

Обезвреживание сточных вод, образующихся при нанесении покрытий на основе фосфорнокислого цинка или фосфата кальция-цинка, становится все более сложной задачей. В настоящей работе описывается процесс нанесения конверсионного покрытия методом электролитического осаждения покрытия подложки из фосфата кальция.

Процесс эффективен, характеризуется отсутствием тяжелых металлов и шлама и прекрасно подходит для применения при волочении проволоки, холодной высадке и экструзии. В работе освещаются вопросы снижения затрат, экологические преимущества и возможности повышения производительности, которые могут быть обеспечены за счет комбинированного использования покрытия на основе фосфата кальция и полимерного покрытия.

Эти смазочные материалы все чаще заменяются технологическими решениями на основе ультратонких полимерных пленок, которые предлагают такие преимущества, как повышенный ресурс стойкости инструмента, увеличенный интервал между сменами масла в оборудовании для холодной высадки и возможность изготовления деталей сложной геометрической формы.

Указанные полимерные покрытия наносятся поверх обычных покрытий, поскольку их использование на чистой стальной поверхности допускается лишь в отдельных, весьма редких случаях.

Используемые сейчас обычные покрытия получают при обработке деталей фосфорнокислым цинком или фосфатом кальция-цинка. Однако бороться с загрязнением сточных вод шламом и тяжелыми металлами, образующимися

в результате выполнения указанных технологических операций, становится все труднее. Ответ на эти проблемы приводится в настоящей работе, которая описывает создание конверсионного покрытия на основе электролитического осаждения покрытия подложки из фосфата кальция.

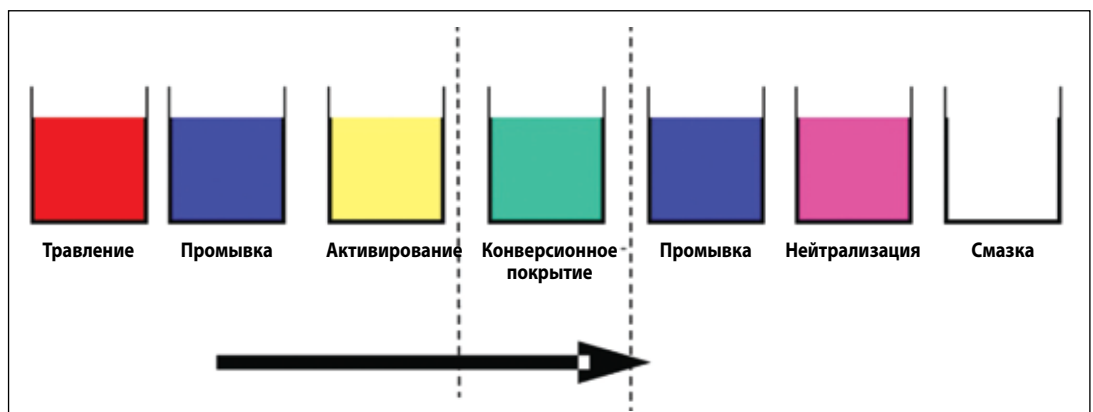
Данный процесс высокоэффективен и характеризуется отсутствием тяжелых металлов и шлама. Конверсионное покрытие как нельзя лучше подходит для использования при волочении проволоки, холодной высадке и холодной экструзии.

В настоящей работе освещаются вопросы снижения затрат, экологические преимущества и возможности повышения производительности, которые могут быть обеспечены за счет комбинированного использования покрытия на основе фосфата кальция и полимерного покрытия.

Реферат

Смазочные материалы, в настоящее время используемые при волочении проволоки для холодной высадки, а также в технологии холодной экструзии, представляют собой омыляющие вещества. Помимо этого, при холодной экструзии и используются дисперсии дисульфида молибдена.

▼ Рис. 1. Последовательность операций, известная из уровня техники





1. Известный уровень техники

Приведенная ниже схема иллюстрирует то, что сегодня называется последовательностью технологических операций в известном уровне техники.

1.1 Пояснения к известному уровню техники

Сначала детали подвергаются травлению, промываются и активируются. Вместо травления допускается механическое удаление окалины. После этого посредством химической реакции создается фосфатно-цинковое конверсионное покрытие. В рамках многих технологических процессов конверсионное покрытие необходимо для обеспечения высокотехнологичного и эффективного серийного производства.

Обрабатываемые детали вновь промываются, обрабатываются нейтрализатором, и, наконец, на их поверхность наносится смазка. В качестве смазочных материалов используются водорастворимые омыляющие средства, которые вступают в реакцию с конверсионным покрытием, либо, как вариант, дисперсии дисульфида молибдена (MoS_2). Вся последовательность технологических операций занимает от 60 до 90 минут.

Следует отметить, что качество фосфатного покрытия и результаты его последующей эксплуатации являются

показателем того, насколько тщательно были выполнены начальные стадии технологического процесса.

2. Обработка фосфорноокислым цинком

В настоящее время широко применяются три вида обработки фосфорноокислым цинком. Определяются они в зависимости от используемых средств для ускорения реакции, коими являются:

- нитритно-нитратный комплекс;
- хлоратно-нитратный комплекс;
- нитратный комплекс с подачей воздуха (обработка с участием ионов железа)

Нитритно-нитратный комплекс наиболее широко используется за пределами Центральной Европы. Комплекс действует при высоких температурах с образованием шлама, который осаждается на дне технологического резервуара. Самым распространенным видом ускорителя является нитрит натрия. В указанных процессах обычно используется никель, который выступает в качестве рафинирующего агента.

Технологии с использованием хлоратно-нитратного комплекса применяются в отдельных случаях, когда для данного способа ускорения больше подходит именно эта операция, как, например, при периодической работе, либо когда

получаемое фосфатное покрытие должно отвечать специальным требованиям. Под воздействием данного комплекса в технологическом резервуаре также образуется шлам.

Нитратный комплекс с подачей воздуха (обработка с участием ионов железа) действует при более низких температурах и образует шлам во внешнем резервуаре, в который подается регулируемый поток воздуха.

Образующийся шлам имеет твердую и плотную консистенцию и легко осаждается на дне резервуара. В указанных процессах никель и нитриты отсутствуют.

3. Активирование

Для получения максимальных преимуществ, которые дает покрытие на основе фосфорноокислого цинка, перед обработкой фосфорноокислым цинком настоятельно рекомендуется использовать активирующую добавку.

Активирующая добавка способствует образованию центров кристаллизации фосфорноокислого цинка, в результате чего создается рафинированное кристаллическое покрытие с контролируемыми параметрами. Благодаря этому уменьшается коэффициент трения, и улучшается адгезия между покрытием и металлической поверхностью. Мелкокристаллическая структура также увеличивает действительную площадь поверхности для последующего процесса смазки.

▼ Рис. 2. Сравнительная толщина покрытия из различных смазочных материалов



4. Новый вид смазочных материалов взамен омыляющих веществ и MoS_2

Новые смазочные материалы представляют собой высококачественные полимерные смеси. Наносятся они при погружении заготовки в водный раствор и образуют тонкое органическое покрытие.

Для обеспечения максимальной эффективности эту смазку лучше всего наносить поверх конверсионного покрытия. Нанесение на чистый металл возможно, однако этот вопрос должен изучаться в каждом отдельном случае, и потому общие правила здесь не применимы.

На приведенной ниже схеме приведена толщина покрытия в сравнении с покрытиями обычными смазочными материалами, используемыми до настоящего времени.

4.1 Задачи новой разработки

Общей задачей ставилась разработка покрытия, позволяющего выполнять объемное формование до заданной формы, не оказывая какого-либо отрицательного влияния на ресурс стойкости инструмента. Это означает, что точность формования должна быть существенно выше, чем та, которая обеспечивается при использовании омыляющих средств, и, по меньшей мере, аналогична точности, обеспечиваемой при использовании MoS_2 . Кроме того, задача состояла в получении покрытия, которое имело бы значительно более чистый состав и легче поддавалось бы удалению. Смазочный концентрат должен иметь самый низкий класс опасности в воде, при этом нельзя было использовать никаких добавок, которые могут создавать опасность возникновения коррозии.

4.2 Химическая основа создания нового покрытия

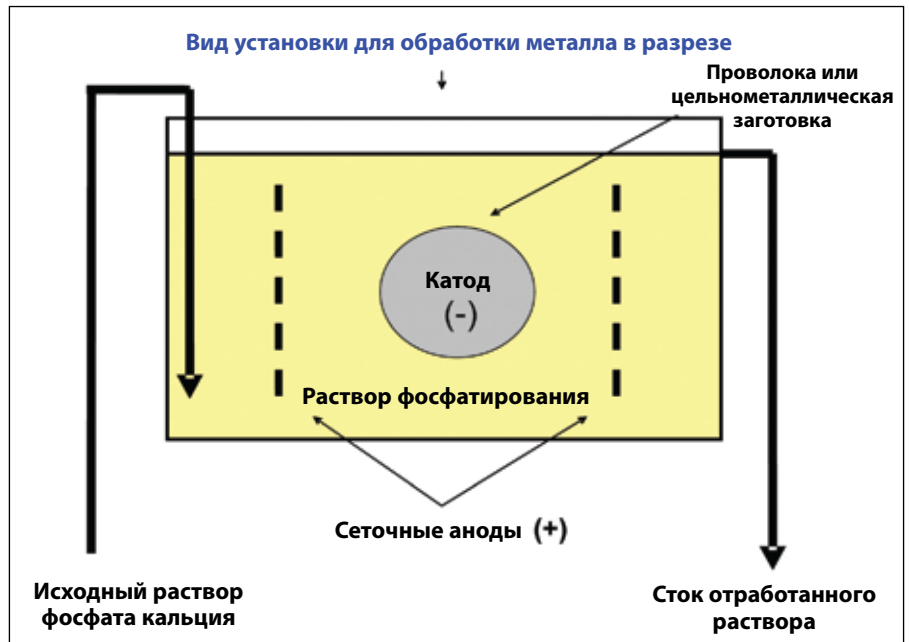
Вновь разработанное полимерное покрытие представляет собой смесь высокомолекулярных соединений, не содержащих тяжелых металлов, соединений бора, минерального масла, хлор- или серосодержащих присадок к смазочным материалам (таких, как дисульфид молибдена, дисульфид вольфрама) или соединений на основе фтора, например, Teflon®.

4.3 Преимущества для заказчиков

4.3.1 Преимущества полимерного покрытия для производителей проволоочной продукции или предприятий, на которых производится предварительная обработка прутковых заготовок

Использование ванны с полимерным раствором вместо ванны с омыляющими средствами даст производителям проволоки следующие преимущества:

- полимерные покрытия не требуют использования мыльного порошка в фильтре. Это позволяет избежать проблемы пылеобразования, отрицательно влияющей на условия работы операторов. Благодаря этому снижаются затраты, так как отпадает необходимость в приобретении мыльного порошка или в организации его утилизации. Кроме того, это способствует повышению надежности волочильных станков за счет уменьшения осаждения мыльной «пыли» на оборудовании и приводных механизмах;
- усовершенствованная технология формования предполагает



▲ Рис. 3. Вид установки для обработки металла в разрезе

- повышенную производительность;
- очищенная поверхность проволоки облегчает выполнение последующих технологических операций;
- улучшенная антикоррозионная защита позволяет дольше хранить продукцию, заказчикам поставляются изделия более высокого качества.

4.3.2 Преимущества полимерного покрытия для производителей крепежных деталей или предприятий, производящих продукцию методом холодной экструзии

Для производителей метизов из проволоки, например, крепежных деталей, данное покрытие дает следующие преимущества:

- повышенную точность экструдирования за счет чистоты заготовок;
- увеличенную производительность станков для высадки головок болтов;
- увеличенный ресурс стойкости инструмента;
- возможность изготовления деталей сложной геометрической формы, которая ранее была недоступной;
- увеличенный интервал между сменами масла в станках для высадки головок болтов ввиду отсутствия уноса омыляющих веществ, загрязняющих систему циркуляции масла.

Итак, использование полимерных покрытий несет выгоду как производителям, так и пользователям проволоочной продукции.

В результате обе стороны получают конкурентное преимущество.

5. Электролитическое фосфатирование – процесс нанесения покрытия без использования солей тяжелых металлов

При необходимости нанесения конверсионного покрытия (цинкового фосфатирования) должны быть решены вопросы утилизации образовавшегося шлама, а также тяжелых металлов, которые загрязняют поток сточных вод.

Решением данной проблемы является покрытие на основе фосфата кальция, которое наносится электролитическим методом.

5.1 Нанесение покрытия на основе фосфата кальция электролитическим методом

Покрытия на основе фосфата кальция также представляют собой конверсионные покрытия, однако они принципиально отличаются от обычных покрытий на основе фосфорнокислого цинка, используемых до настоящего времени.

Раствор для покрытия не содержит тяжелых металлов, таких как цинк или никель, а потому они отсутствуют и в составе покрытия. Композиция покрытия наилучшим образом описывается формулой CaHPO_4 .



▲ **Рис. 4.** Проволока для холодной высадки до и после формования

Принцип нанесения покрытия на проводящую поверхность проиллюстрирован ниже.

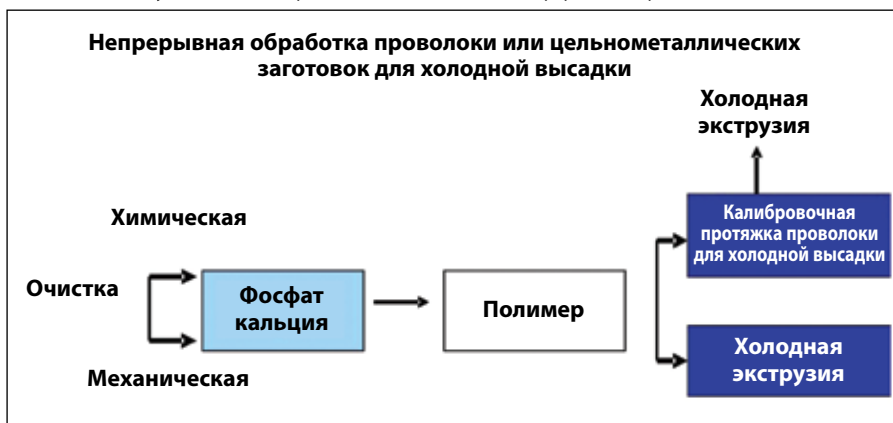
Поскольку заготовка выступает в качестве катода, поверхность черного металла не подвергается травлению. В отсутствие реакции травления шлам в ходе фосфатирования не образуется, то есть данная технология нанесения покрытия не ведет к формированию шлама.

На рис. 4 представлены образцы фосфатированной и тянутой проволоки для холодной высадки. Четко видно, что покрытие на основе фосфата кальция до формования имеет белый цвет. После формования проволока приобретает обычный серый цвет.

5.2 Преимущества

- Не содержит тяжелых металлов, что облегчает организацию удаления сточных вод
- Отсутствие необходимости в утилизации шлама
- Температура технологического процесса составляет около 25 °С
- Время обработки, составляющее 2–5 с, позволяет использовать установки относительно небольшого размера
- Вес покрытия в необходимом диапазоне от 5 до 15 г/м² можно регулировать плотностью тока (А/дм²)

▼ **Рис. 5.** Схема установки для обработки металла на линии непрерывного производства



- Более высокие скорости волочения проволоки и меньшие значения усилия сжатия и выталкивания при холодной высадке и холодной экструзии
- Отсутствие сточных вод, содержащих тяжелые металлы, при дефосфатировании крепежных деталей перед проведением термической обработки

5.3 Перспективы

Перспективная технология обработки проволоки и цельнометаллических заготовок для холодной высадки могла бы сочетать в себе преимущества электролитического фосфатирования без использования солей тяжелых металлов и достоинства полимерных покрытий. На рис. 5 показана установка, использующая данную технологию.

Данная технология позволит сократить время обработки поверхности с приблизительно одного часа до менее чем одной минуты.

В результате существенно повысится качество и производительность как установок для обработки поверхностей, так и станков для изготовления болтов или установок холодного прессования. ■

Настоящая работа была представлена на выставке Cable & Wire '09 в г. Стамбуле и перепечатывается здесь с любезного разрешения организаторов конференции – Международной ассоциации производителей кабелей и кабельного оборудования (IWMA).

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Nouvelle usine de câble en Allemagne

Une nouvelle usine de câble a été spécifiquement conçue et réalisée pour nkt afin de rendre la production de câbles la plus efficace possible.

Une fois complété le déménagement à l'usine (appelée f2c – une abréviation pour «flow to customer») au cours de l'année 2011, lorsque la capacité de production sera augmentée et spécifiquement penchée sur la production de câbles sous-marins et de câbles extra haute tension (EHV).

nkt reconnaît que la combinaison de sources d'alimentation entraînera un changement drastique dans le futur, avec des énergies renouvelables qui deviendront de plus en plus importantes.

Ce changement de bouquet énergétique aboutira à une production décentralisée d'énergie. Afin de répondre aux exigences des clients et aux demandes variables du marché, nkt cables a cherché la meilleure réponse aux défis du futur.

"Nous croyons que f2c jouera un rôle



▲ Nouvelle usine de nkt pour la production de câbles en Allemagne

essentiel dans les activités commerciales offshore» a déclaré Dion Metzemaekers, Président-Directeur général de nkt Cables group, et il a continué "Notre nouvelle usine représente une étape décisive dans l'histoire des usines de câbles. Aucun projet de cette envergure n'a jamais été réalisé jusqu'à présent. Aucun producteur de câbles n'a jamais autant investi dans

le futur comme notre société dans cette nouvelle installation, qui représentera le standard de référence pour la production de câbles sous-marins et de câbles extra haute tension".

nkt cables group GmbH – Allemagne

Email: info@nktcables.com

Website: www.nktcables.com

Augmentation de la production de pieux cylindriques

Colin Prior de Lemon Groundwork Supplies a fourni les spécifications des dernières machines automatiques d'assemblage pour pieux cylindriques réalisées par le producteur italien MEP afin d'améliorer les activités courantes de la société dans le secteur de l'assemblage de pieux cylindriques. L'assembleuse GAM a été fournie par l'intermédiaire de Whitelegg Machines, agent de MEP au Royaume-Uni.

Lemon Groundwork Supplies est une société de fourniture et de montage spécialisée dans la production de barres d'armature en acier pliées et coupées, de réseaux métalliques et de produits contre la dilatation de l'argile ainsi que d'une ample gamme d'accessoires et de services associés. Avant l'introduction de la nouvelle gamme de produits GAM, les pieux cylindriques, dont le diamètre extérieur allait de 100mm à 2100mm, étaient réalisés manuellement et étaient fixés au moyen de fil d'acier ou soudés manuellement.

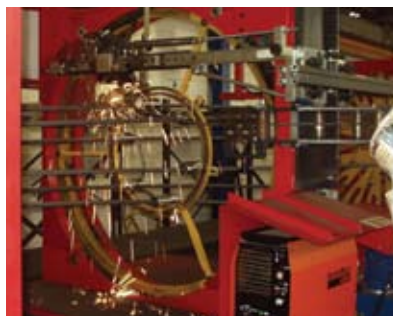
La gamme complète des produits GAM permet un assemblage rapide et précis de pieux cylindriques et la possibilité de produire automatiquement des pieux soudés d'un diamètre extérieur de 150mm à 2100mm et une longueur jusqu'à 21m.

Whitelegg Machines Ltd – Royaume-Uni

Fax: +44 1306 711865

Email: sales@whitelegg.com

Website: www.whitelegg.com



▲ Soudage avec la nouvelle gamme GAM

Commande en gros de Tele-Fonika Kable

La société Sikora AG s'est adjugé une commande substantielle par Tele-Fonika Kable, Krakau en 2010. Le projet s'élevant à un montant total d'un million d'euros, représente une des commandes les plus significatives de l'histoire de la société.

Tele-Fonika Kable utilisera les systèmes de mesure de Sikora dans ses installations de câbles de Kraków/Bieżanów, Kraków/Wielicka et Bydgoszcz en Pologne pour contrôler la qualité durant la production des câbles.

La commande comprend des systèmes de mesure de l'épaisseur des parois, de l'excentricité et des diamètres ainsi que des testeurs de perforation à installer dans les lignes CV et dans les lignes d'isolement et de revêtement.

Sikora AG – Allemagne

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Succès éclatant de l'exposition wire en Chine

▲ Congressistes participant à l'exposition wire and Tube China 2010

L'exposition wire and Tube China 2010 a été considérée un succès éclatant bien que l'événement ait eu lieu pendant cette époque de post crise économique.

Désormais considérée la majeure exposition industrielle asiatique, wire and Tube China a réussi à battre ses records traditionnels de visiteurs du secteur (26 035 pendant les quatre jours) et d'espace d'exposition (74 500m², 30% en plus par rapport à l'édition 2008).

Les conférences et les événements organisés simultanément, tels que China International Tube & Pipe Conference, China Wire & Cable Industry Conference, Wire & Cable Raw & Auxiliary Materials Technical Exchange Conference et Wire & Cable Equipment Technology Seminar ont également attiré l'attention des visiteurs.

L'exposition wire China est organisée conjointement par Shanghai Electric

Cable Research Institute (SECRI) et Messe Düsseldorf China Ltd. wire China 2012 se tiendra au Shanghai New International Expo Center du 25 au 28 septembre, en fournissant une plateforme idéale pour établir des contacts avec les marchés chinois et asiatiques en plein essor.

Messe Düsseldorf China Ltd – Chine

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Précision de longueur avec True Sequential Footage

Cerro Wire LLC, fabricant de fils et câbles électriques en cuivre pour le secteur du bâtiment, a présenté True Sequential Footage™, un tambour de câble marqué de façon séquentielle fournissant la longueur de câble exacte dans chaque coupe.

True Sequential Footage évite la nécessité de prévoir des stocks de câble en excès, en offrant la longueur exacte, la longueur du métrage exacte, et le contrôle des coûts.

La précision du marquage du métrage permet une identification rapide du point de repositionnement (*reorder point*), ce qui garantit l'utilisation de la totalité de la longueur du fil acheté et réduit les longueurs approximatives.

Ce système permet de mieux gérer les déchets de fin de bobine.

Cerro Wire LLC – États-Unis
Website: www.cerrowire.com

Tête d'équerre pour câbles RF expansés

La tête d'équerre RX 25T pour noyaux de câbles RF expansés réalisé par Rosendahl est conçu pour fabriquer la gamme complète de câbles RF de 1/4" SF à 2 1/4" F.

La conception de base comporte une tête d'équerre chauffée avec de l'huile avec application «Skin», équipé d'un système de contrôle de la température optimisé pour couvrir des indices d'expansion jusqu'à 86%. Deux zones de chauffage / refroidissement sont présentes sur la tête transversale, une pour le corps principal et l'autre pour la porte-filière, qui permettent de réaliser un excellent contrôle de la température et une distribution de la température uniforme dans le bain gazeux du polymère.

Une compensation naturelle complète minimise les taux de cisaillement et offre un indice de fluidité ayant pour résultat rondeur, concentricité et stabilité mécanique parfaites. Une technologie de collecteurs supérieure permet d'obtenir des cellules de dimensions réduites et une distribution homogène des cellules à ce haut degré d'expansion.

L'optimisation du contrôle de la



▲ La tête transversale RX 25T couvre la gamme entière des câbles F

température, de la contrainte de cisailage, de la chute de pression et de la vitesse du flux dans la tête sont des facteurs significatifs pour obtenir des taux d'expansion de la mousse dans le câble final arrivant jusqu'à 86%. Cette nouvelle conception permet aux fabricants de câbles RF de dépasser les limites actuellement rencontrées avec l'équipement standard.

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Nouvelle technologie pour la lubrification de matériaux d'extrusion à froid et du fil de frappe à froid

Par Jude Burke, Chemetall PLC, UK

Résumé

Le traitement des eaux usées contaminées par les revêtements de phosphate de zinc ou de zinc-calcium apparaît de plus en plus difficile à gérer.

Le présent article décrit un processus de revêtement de conversion entraînant l'électrodéposition d'une couche porteuse de calcium phosphate. Le processus est efficace, sans métaux lourds et sans boues, et il est particulièrement indiqué pour le tréfilage des fils, pour la frappe à froid et pour l'extrusion. Cet article met en évidence les économies, les avantages environnementaux et les améliorations de la productivité pouvant être réalisés grâce à un processus de phosphatation avec calcium associé à un revêtement polymérique.

Description

Les lubrifiants utilisés couramment pour le tréfilage du fil de frappe à froid et pour les processus d'extrusion à froid sont les savons. En outre, pour les processus d'extrusion à froid on utilise le bisulfure de molybdène sous forme de dispersions.

Ces lubrifiants sont de plus en plus remplacés par la technologie des polymères ultrafins, qui offre des avantages tels que longévité des instruments améliorée et intervalle supérieur entre les vidanges d'huile dans les équipements de frappe à froid tout en permettant la fabrication

de parties caractérisées par une géométrie complexe. Ces revêtements polymériques sont appliqués sur les revêtements traditionnels, l'utilisation sur l'acier nu étant limitée à des cas très spécifiques.

Les revêtements traditionnels utilisés sont le phosphate de zinc ou le phosphate de zinc-calcium. Toutefois, il est de plus en plus difficile de contrôler la contamination des eaux usées causée par les boues et par les métaux lourds provenant de ces processus. La réponse à ces problèmes est fournie dans le présent article qui décrit un revêtement de conversion basé sur l'électrodéposition d'une couche porteuse de phosphate de calcium. Ce processus est hautement efficace et sans métaux lourds ni boues. Le revêtement de conversion est surtout indiqué pour le tréfilage des fils, pour la frappe à froid et pour l'extrusion à froid.

Cet article met en évidence les économies, les avantages environnementaux et les améliorations de la productivité pouvant être réalisés grâce à une combinaison de phosphatation de calcium et un revêtement polymérique.

1 État de la technique

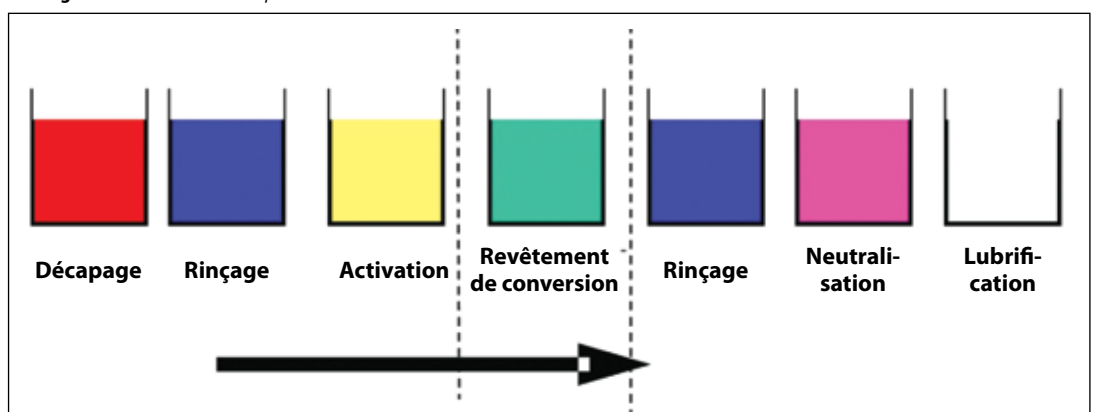
Le diagramme suivant illustre ce qui est actuellement connu comme la séquence de processus de pointe.

1.1 Explications concernant l'état de l'art

Au début, les composants sont décapés, rincés et activés. Une alternative au décapage est représentée par le décalaminage mécanique. Ce dernier est suivi par un revêtement de conversion de phosphate de zinc obtenu au moyen d'une réaction chimique. Pour plusieurs processus de fabrication un revêtement de conversion est essentiel pour obtenir une production à grande échelle de qualité élevée et rentable.

Les composants soumis au processus sont encore rincés et neutralisés et enfin un lubrifiant est appliqué. Les lubrifiants sont des savons hydrosolubles qui réagissent avec le revêtement de conversion ou, en alternative, avec le bisulfure de molybdène sous forme de dispersions (MoS_2). La durée de la séquence de processus complète est de 60 à 90 minutes.

▼ Figure 1: Flux des travaux de pointe





Il faut remarquer que la qualité du phosphate et les résultats consécutifs des performances sont un reflet de l'attention accordée au cours des phases préliminaires du processus.

2 Phosphates au zinc

Il y a trois types de phosphates de zinc actuellement utilisés et ils sont définis par leurs moyens d'accélération. C'est-à-dire:

- Nitrite/nitrate
- Chlorate/nitrate
- Nitrate/air (processus secondaire Fe)

Le Nitrite/nitrate est le système le plus utilisé hors de l'Europe centrale. Il fonctionne à des températures élevées en produisant des boues qui se déposent sur le fond du réservoir de processus.

La forme la plus commune d'accélérateur est le nitrite de sodium. Généralement, ces processus contiennent du nickel qui fait fonction d'agent d'affinage.

Le système avec chlorate/nitrate est utilisé pour des situations spécifiques où cette méthode d'accélération est la plus indiquée pour le processus (comme dans le cas du processus intermittent), ou lorsque le phosphate produit répond à une exigence spécifique. Les boues sont également produites dans le réservoir du processus au moyen de ce système.

Le système avec nitrate/air (processus secondaire Fe) est effectué à des températures inférieures et produit ses boues dans un réservoir extérieur dans lequel on introduit une alimentation à air contrôlée.

Les boues produites sont dures et denses, et se déposent immédiatement sur le fond du réservoir. Ces processus sont sans nickel et sans nitrite.

3 Activation

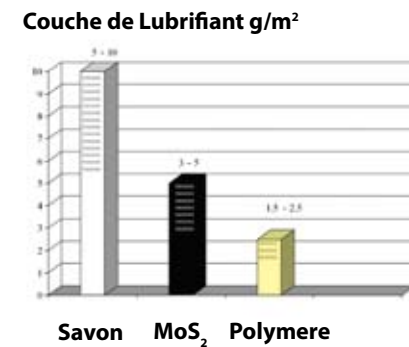
Pour obtenir un avantage maximal d'un revêtement de conversion de phosphate de zinc, il est hautement recommandé d'utiliser un activateur avant le phosphate de zinc. L'activateur fournit les sites pour la nucléation des cristaux de phosphate de zinc, qui produit une couche fine, contrôlée et transparente. Cela entraînera une réduction de la friction et une amélioration de l'adhérence du revêtement à la surface du métal. En outre, la structure fine du métal augmente la surface disponible pour les processus de lubrification suivant.

4 Un nouveau type de lubrifiant comme alternative aux savons et au MoS₂

Les nouveaux lubrifiants sont des systèmes de polymères à haute performance. Appliqués par immersion dans une solution aqueuse, ils produisent des revêtements organiques minces.

Les meilleures performances sont obtenues en appliquant ce lubrifiant sur le revêtement de conversion. L'application sur les matériaux nus est possible, mais il faut vérifier cas par cas en évitant toute généralisation.

Comparaison entre les épaisseurs du revêtement de différents lubrifiants



▲ Figure 2: Comparaison entre les épaisseurs du revêtement de différents lubrifiants

Le diagramme fourni ci-après montre l'épaisseur du revêtement des systèmes polymériques par rapport à l'épaisseur des lubrifiants traditionnels utilisés jusqu'à ce jour.

4.1 Objectifs du nouveau développement

L'objectif général consistait à développer un revêtement permettant la mise en forme à côtes finies sans entraîner aucun impact négatif sur la vie de l'outil. Cela signifie que la précision de formage devrait être considérablement meilleure que celle obtenue en utilisant le savon et qu'elle devrait être au moins équivalente à celle obtenue avec le MoS₂. En outre, l'objectif consistait à réaliser un revêtement essentiellement propre et plus facile à retirer. Le concentré de lubrifiant devrait être classé dans la classe de pollution de l'eau la plus basse et aucun additif pouvant présenter un risque potentiel de corrosion ne devrait être utilisé.

4.2 Principes chimiques du nouveau revêtement

Le revêtement polymérique récemment développé est un mélange de composés hautement moléculaires sans métaux lourds, composés de bore, huile minérale, des additifs lubrifiants contenant chlore ou soufre (tels que le bisulfure de molybdène, bisulfure de tungstène) ou des composés à base de fluor, comme par exemple le Téflon®.

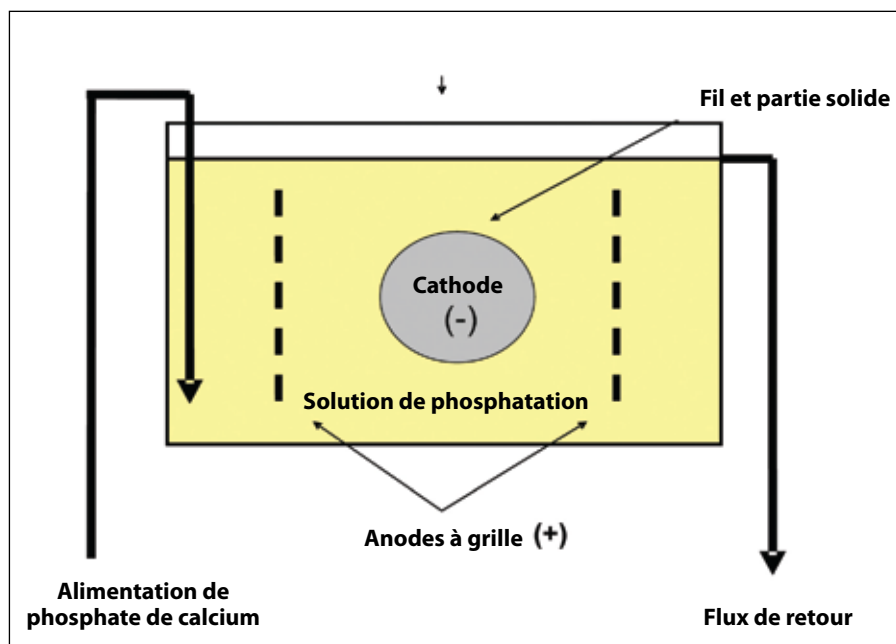
4.3 Avantages du client

4.3.1 Avantages d'un revêtement polymérique pour le fabricant de fils ou pour le prétraiteur de sections de barres

En utilisant un bain de polymères au lieu d'un bain de savon, l'établissement de production de fils obtiendra les avantages suivants:

- Les revêtements polymériques n'exigent pas de poudre de savon dans la matrice d'emboutissage. Cela évite le problème de formation de poudre pouvant causer des problèmes aux opérateurs. Il y a une réduction des coûts, attendu qu'il n'est pas nécessaire

▼ Figure 3: Section transversale d'une installation de traitement



d'acheter du savon ni de pourvoir à son élimination. La fiabilité des machines de tréfilage est améliorée, la quantité de poudre de savon se déposant sur les équipements et sur les actionnements étant inférieure

- Une mise en forme améliorée signifie une productivité améliorée
- Un fil propre est avantageux pour les opérations de traitement successives
- Une meilleure protection contre la corrosion contribue à un stockage prolongé pour offrir aux clients un produit meilleur

4.3.2 Avantages d'un revêtement polymérique pour les fabricants de pièces de fixation ou extrudeuses à froid

Aux producteurs de fil, tels que les fabricants de pièces de fixation, ce revêtement offre les avantages suivants:

- Une précision d'extrusion améliorée grâce à la propreté du matériau
- Une vitesse supérieure des machines à refouler pour boulons
- Une longévité supérieure des outils
- Fabrication de parties caractérisées par une géométrie complexe impossible auparavant
- Vidanges d'huile moins fréquentes dans les machines à refouler les boulons grâce à l'absence de savon qui contamine le système de recirculation de l'huile

En conclusion, tant les fabricants que les utilisateurs de fils profitent de l'emploi de revêtements polymériques, d'où un avantage compétitif pour les deux parties.

5 Phosphatation électrolytique – un processus de revêtement sans métaux lourds

Au cas où un revêtement de conversion (phosphatation au zinc) serait requis,

alors il faut prendre en considération les problèmes de l'élimination des boues produites et des métaux lourds contaminant le cours d'eau drainant.

La solution à ce problème est représentée par un revêtement de phosphate de calcium appliqué électrolytiquement.

5.1 Application électrolytique d'un revêtement de phosphate de calcium

Un revêtement de phosphate de calcium est également un revêtement de conversion mais il est tout à fait différent du revêtement de phosphate de zinc traditionnel utilisé jusqu'à ce jour.

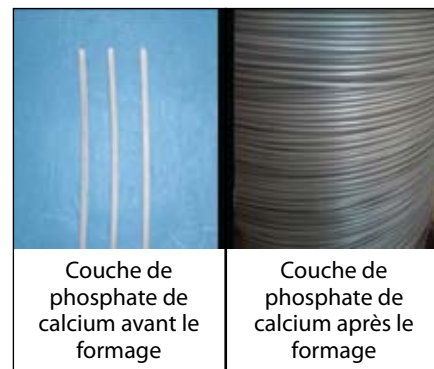
La solution du revêtement est sans métaux lourds tels que le zinc ou le nickel et donc également le revêtement. Ce dernier peut être mieux décrit avec la formule CaHPO_4 . Le principe de la déposition du revêtement sur une surface conductrice est illustré plus bas.

Puisque la partie agit en tant que cathode, il n'y a pas d'agression du décapage sur le matériau ferreux. Sans cette agression du décapage, il n'y a aucune formation de boues de phosphatation et donc ce processus d'application ne produit pas de boues. La Figure 4 représente le fil de frappe à froid phosphaté et tréfilé.

L'on peut clairement voir que les revêtements de phosphate de calcium sont blancs avant le formage. Après le formage, le fil présente une couleur grise standard.

5.2 Avantages

- Absence de métaux lourds ce qui facilite la gestion des effluents
- Élimination des boues non requise
- Température de processus de 25°C environ
- Temps de traitement de 2-5 secondes permettant des installations relativement contenues
- Le poids de 5-15g/m² requis pour le revêtement peut être ajusté au moyen de la densité de courant (A/dm²)



▲ Figure 4: Fil de frappe à froid avant et après le formage

- Vitesses de tréfilage supérieures pour le fil et forces de pression et d'éjection inférieures dans la frappe à froid et dans l'extrusion à froid
- Absence d'effluents contenant des métaux lourds dans la déphosphatation des pièces de fixation avant le traitement thermique

5.3 Perspectives

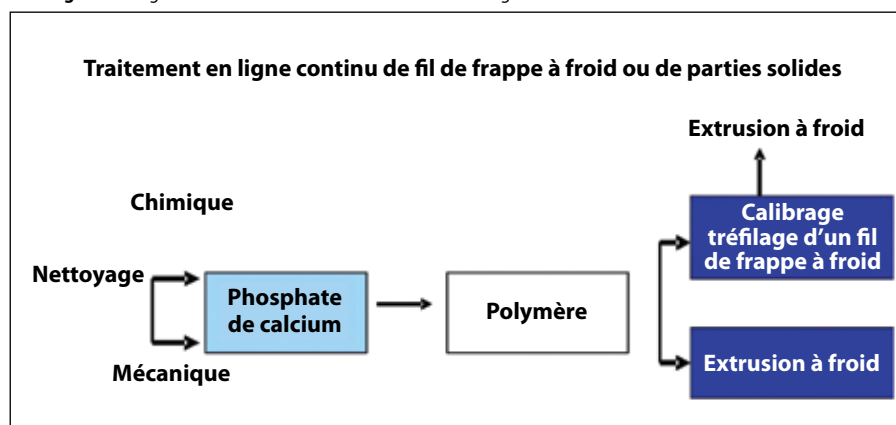
Un processus de traitement futur pour le fil de frappe à froid et pour les parties solides pourrait associer les avantages de la phosphatation électrolytique sans métaux lourds et ceux dérivant d'un revêtement polymérique. La Figure 5 illustre une installation de ce type.

Cela contribuera à la réduction des temps de traitement de surface d'une heure à moins d'une minute environ.

Il s'ensuit que la qualité et la productivité seront sensiblement améliorées dans les installations de traitement de surface et dans les installations de production de boulons ou d'extrusion à froid. ■

Le présent article a été présenté à Istanbul Cable & Wire '09 et a été reproduit avec l'autorisation des organisateurs de la conférence IWMA.

▼ Figure 5: Diagramme d'une installation de traitement avec ligne en continu



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Nuovo stabilimento di cavi in Germania

È stato specificamente progettato e realizzato un nuovo stabilimento di cavi per nkt al fine di rendere la produzione il più efficiente possibile.

Una volta completato il trasferimento allo stabilimento (denominato f2c – un'abbreviazione per "flow to customer") nel corso del 2011, la capacità di produzione sarà aumentata e orientata in particolare verso la produzione di cavi sottomarini e di cavi ad altissima tensione (EHV).

nkt riconosce che la combinazione di fonti di energia determinerà un cambiamento drastico in futuro, con energie rinnovabili che diventeranno sempre più importanti. Questo cambiamento di mix energetico condurrà ad una produzione decentralizzata di energia. Al fine di rispondere alle esigenze dei clienti e alle richieste variabili dei mercati, nkt cables ha cercato la migliore risposta alle sfide del futuro.

"Crediamo che f2c giocherà un ruolo essenziale nelle attività commerciali



▲ Nuovo stabilimento per la produzione di cavi di nkt in Germania

offshore" ha dichiarato Dion Metzemaekers, presidente e direttore generale di nkt cables group, e ha proseguito: "Il nostro nuovo stabilimento rappresenta una tappa decisiva nella storia degli stabilimenti di cavi. Fino ad oggi non è stato mai realizzato alcun progetto di tale ampiezza. Nessun produttore di cavi ha mai investito così tanto nel

futuro come la nostra società in questo nuovo impianto, che rappresenterà lo standard di riferimento per la produzione di cavi sottomarini e di cavi ad altissima tensione".

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Aumento della produzione di pali cilindrici

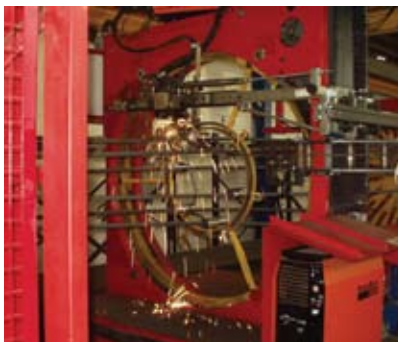
Colin Prior di Lemon Groundwork Supplies ha fornito le specifiche delle recenti assemblatrici automatiche di pali cerchiati realizzate dal produttore italiano MEP allo scopo di migliorare le attività correnti della società nel settore dell'assemblaggio di pali cilindrici. L'assemblatrice GAM è stata fornita tramite Whitelegg Machines, agente di MEP nel Regno Unito.

Lemon Groundwork Supplies è una società di fornitura e di montaggio specializzata nella produzione di barre di rinforzo in acciaio piegate e tagliate, reti metalliche e prodotti contro la dilatazione argillosa nonché un'ampia gamma di accessori e di servizi correlati. Prima dell'introduzione della nuova GAM, i pali cilindrici, il cui diametro esterno varia da 100mm a 2.100mm, erano realizzati manualmente ed erano fissati mediante filo d'acciaio o saldati manualmente.

La gamma completa di prodotti GAM

consente un assemblaggio rapido e preciso di pali cilindrici e offre la possibilità di produrre automaticamente pali saldati del diametro esterno da 150mm a 2.000mm e con lunghezze fino a 21m.

Whitelegg Machines Ltd – Regno Unito
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▲ Saldatura con la nuova GAM

Ordine voluminoso di Tele-Fonika Kable

La società Sikora AG si è aggiudicata un ordine consistente da Tele-Fonika Kable, Krakau nel 2010. Il progetto del valore complessivo di un milione di euro, rappresenta uno degli ordini più significativi nella storia della società.

Tele-Fonika Kable utilizzerà i sistemi di misurazione di Sikora nei propri stabilimenti di produzione dei cavi di Kraków/Bieżanów, Kraków/Wielicka e Bydgoszcz in Polonia per controllare la qualità durante la produzione di cavi.

L'ordine comprende sistemi di misurazione dello spessore delle pareti, dell'eccentricità e dei diametri nonché dei tester di perforazione da installare nelle linee CV e nelle linee di isolamento e di rivestimento.

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Clamoroso successo dell'esposizione wire in Cina

▲ Congressisti presenti all'esposizione wire and Tube China 2010

L'esposizione wire and Tube China 2010 è stata giudicata un clamoroso successo nonostante l'evento si sia tenuto in un periodo di post crisi economica. Oramai considerata la maggiore esposizione industriale asiatica, la fiera wire and Tube China è riuscita a battere i propri record tradizionali di visitatori del settore (26.035 durante i quattro giorni) e di superficie espositiva (74.500m², 30% in più rispetto all'edizione del 2008).

Anche le conferenze e gli eventi organizzati contemporaneamente come China International Tube & Pipe Conference, China Wire & Cable Industry Conference, Wire & Cable Raw & Auxiliary Materials Technical Exchange Conference e Wire & Cable Equipment Technology Seminar hanno suscitato interesse fra i visitatori.

L'esposizione wire China è organizzata congiuntamente da Shanghai Electric

Cable Research Institute (SECRI) e Messe Düsseldorf China Ltd. wire China 2012 si terrà allo Shanghai New International Expo Center dal 25 al 28 settembre, e costituirà una piattaforma ideale per stabilire dei contatti con i mercati cinesi ed asiatici in pieno sviluppo.

Messe Düsseldorf China Ltd - Cina
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Precisione di lunghezza con True Sequential Footage

Cerro Wire LLC, fabbricante di fili e cavi elettrici di rame per l'edilizia, ha presentato True Sequential Footage™, una bobina per cavo marcato sequenzialmente che fornisce la lunghezza esatta del cavo in ciascun taglio.

True Sequential Footage evita la necessità di prevedere scorte di cavo in eccesso, poiché offre una lunghezza esatta, un metraggio preciso, e un controllo dei costi.

La precisione della marcatura di metraggio consente una rapida identificazione del punto di riposizionamento (reorder point) che garantisce l'utilizzo dell'intera lunghezza del filo acquistato e riduce le lunghezze approssimate.

Cerro Wire LLC - Stati Uniti
Website: www.cerrowire.com

Testa trasversale per cavi RF espansi

La testa trasversale RX 25T per nuclei di cavi RF espansi realizzata da Rosendahl è progettata per fabbricare la gamma completa di cavi RF da ¼" SF a 2¼" F.

La concezione di base comprende una testa trasversale riscaldata con olio e con applicazione Skin, equipaggiata con un sistema di controllo della temperatura ottimizzato per coprire indici di espansione fino all'86%.

Sulla testa trasversale sono previste due zone di riscaldamento / raffreddamento: una per il corpo principale e l'altra per il portatrfila, che consente di realizzare un eccellente controllo della temperatura ed una distribuzione uniforme della temperatura nel bagno gassoso del polimero.

Una completa compensazione naturale minimizza i gradienti di taglio e offre un indice di fluidità per rotondità, concentricità e stabilità meccanica perfette.

Una tecnologia dei collettori superiore consente di ottenere delle cellule di dimensioni ridotte ed una distribuzione omogenea delle cellule a questo



▲ Testa trasversale RX 25T che copre tutta la gamma di cavi RF

elevato grado di espansione.

L'ottimizzazione del controllo della temperatura, della sollecitazione di taglio, della caduta di pressione e della velocità del flusso nella testa trasversale sono fattori significativi per ottenere indici di espansione della schiuma nel cavo finale fino all'86%.

Questa nuova concezione consente ai fabbricanti di cavi RF di superare i limiti attualmente incontrati con gli equipaggiamenti standard.

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Nuova tecnologia per la lubrificazione di materiali per estrusione a freddo e filo per stampaggio a freddo

A cura di Jude Burke, Chemetall PLC, Regno Unito

Riassunto

Gestire la contaminazione delle acque di scarico causata dai rivestimenti di fosfato di zinco o fosfato di zinco-calcio risulta sempre più difficile. Il presente articolo descrive un processo di rivestimento di conversione mediante deposizione elettrolitica di uno strato portante di calcio-fosfato. Il processo è efficiente, non utilizza metalli pesanti né vi è formazione di fanghi e si adatta perfettamente ai processi di trafilatura di filo, stampaggio a freddo ed estrusione. Il presente articolo evidenzia i risparmi economici, i benefici ambientali e la maggiore produttività che si possono ottenere utilizzando un processo di fosfatazione con calcio associato ad un rivestimento polimerico.

Descrizione

I lubrificanti attualmente utilizzati durante la trafilatura di filo per stampaggio a freddo e nei processi di estrusione a freddo, sono i saponi. Inoltre, per i processi di estrusione a freddo si utilizzano bisolfuro di molibdeno sotto forma di dispersioni.

L'utilizzo di questi lubrificanti è progressivamente sostituito dalla tecnologia dei polimeri ultrasottili, che offre vantaggi quali una maggiore durata degli strumenti, aumento degli intervalli tra il cambio dell'olio negli equipaggiamenti di stampaggio a freddo e la possibilità di fabbricare pezzi dalla forma complessa. Questi rivestimenti polimerici si

applicano sopra i rivestimenti tradizionali poiché l'utilizzo sull'acciaio nudo si limita a pochi casi specifici.

I rivestimenti tradizionali utilizzati sono il fosfato di zinco o il fosfato di zinco-calcio. Tuttavia, è sempre più difficile controllare la contaminazione delle acque di scarico causata dai fanghi e dai metalli pesanti provenienti da questi processi. Il presente articolo fornisce una risposta a questi problemi, presentando un processo di rivestimento di conversione basato sulla deposizione elettrolitica di uno strato portante di fosfato di calcio.

Questo processo è molto efficiente e non richiede l'utilizzo di metalli pesanti né produce fanghi. Il rivestimento di conversione si adatta perfettamente ai processi di trafilatura di filo, stampaggio a freddo ed estrusione a freddo.

Il presente articolo evidenzia i risparmi economici, i benefici ambientali e la maggiore produttività che si possono ottenere grazie al processo di fosfatazione con calcio associato al rivestimento polimerico.

1 Stato dell'arte

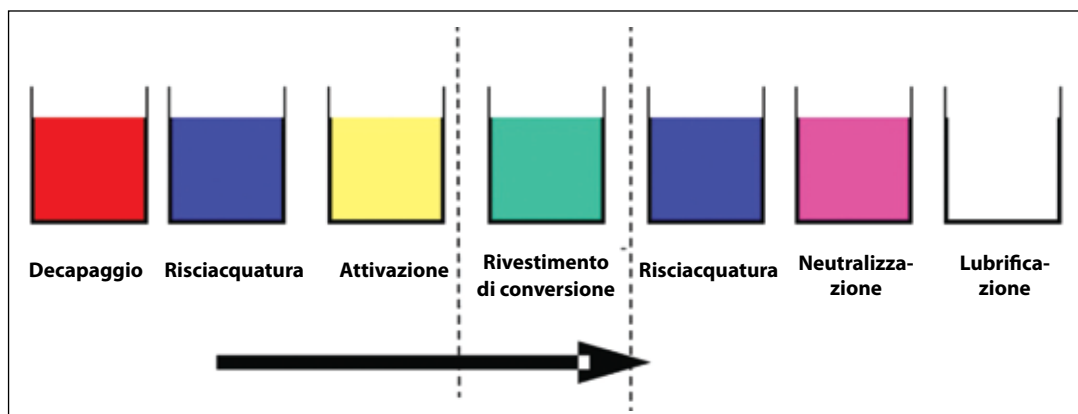
Lo schema fornito qui di seguito illustra ciò che viene attualmente descritto come sequenza del processo di avanguardia.

1.1 Spiegazioni relative allo stato dell'arte

Inizialmente i pezzi sono sottoposti a decapaggio, risciacquatura e attivazione. Un'alternativa al decapaggio è la discagliatura meccanica. Questo processo è seguito dal rivestimento di conversione del fosfato di zinco, che si ottiene mediante una reazione chimica. Per numerosi processi di fabbricazione, il rivestimento di conversione è essenziale per ottenere una produzione di elevata qualità e su grande scala economicamente vantaggiosa.

Le parti lavorate vengono nuovamente risciacquate, neutralizzate e infine viene applicato un lubrificante. I lubrificanti sono saponi solubili in acqua che reagiscono con lo strato di conversione, o in alternativa, con il bisolfuro di molibdeno sotto forma di dispersione (MoS_2). L'intera sequenza del processo dura da 60 a 90 minuti.

▼ **Figura 1:** Flusso di lavoro di avanguardia



Va notato che la qualità del fosfato e le prestazioni ottenute riflettono la cura con la quale sono state realizzate le prime fasi del processo.

2 Fosfati di zinco

Attualmente, tre sono i tipi di fosfato di zinco normalmente utilizzati. Essi si differenziano per i loro mezzi di accelerazione, quali:

- Nitrito/nitrato
- Clorato/nitrato
- Nitrato/aria (processo secondario Fe)

Il sistema con nitrito/nitrato è il più utilizzato fuori dall'Europa Centrale. Funziona ad alte temperature producendo fanghi che si depositano sul fondo del serbatoio di processo. L'acceleratore più comune è il nitrito di sodio. Normalmente, questi processi contengono nichel, che agisce quale agente affinante. Il sistema con clorato/nitrato si utilizza in situazioni specifiche in cui questo metodo di accelerazione è più adatto al processo (come nel caso di processo intermittente), o quando il fosfato prodotto è conforme ad un determinato requisito. Con questo sistema si producono anche fanghi nel serbatoio di processo.

Il sistema con nitrato/aria (processo secondario Fe) funziona a temperature più basse e produce i propri fanghi in un serbatoio esterno nel quale viene introdotta una alimentazione ad aria controllata. I fanghi prodotti sono duri e densi e si depositano rapidamente sul fondo del serbatoio di processo. Questi processi non utilizzano nichel né nitrito.

3 Attivazione

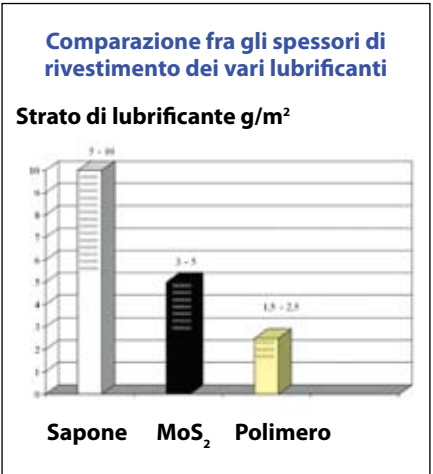
Per ottenere i maggiori vantaggi da un rivestimento di fosfato di zinco, si raccomanda fortemente di utilizzare un attivatore prima del fosfato di zinco. L'attivatore fornisce i siti per la nucleazione dei cristalli di fosfato di zinco, che crea un rivestimento raffinato, controllato e cristallino. Si determina così una riduzione del coefficiente di attrito e un miglioramento dell'adesione del rivestimento alla superficie del metallo. La struttura cristallina sottile aumenta inoltre l'area superficiale disponibile per il processo di lubrificazione successivo.

4 Un nuovo tipo di lubrificante come alternativa ai saponi e al MoS₂

I nuovi lubrificanti sono sistemi polimerici ad elevate prestazioni. Applicati per immersione in soluzione acquosa, producono rivestimenti organici sottili.

Per ottenere i massimi risultati, questo lubrificante deve essere utilizzato sopra un rivestimento di conversione. L'applicazione su materiali nudi è possibile, ma deve essere esaminata caso per caso e, pertanto, non può essere generalizzata.

Lo schema illustrato qui di seguito mostra lo spessore di rivestimento dei sistemi polimerici comparati con lo spessore dei lubrificanti tradizionali utilizzati fino ad oggi.



▲ Figura 2: Comparazione fra gli spessori di rivestimento dei vari lubrificanti

4.1 Obiettivi del nuovo sviluppo

L'obiettivo generale consisteva nello sviluppare un rivestimento che permettesse di ottenere una formatura finita senza influenzare negativamente la durata dell'utensile. Ciò significa che la precisione di formatura dovrebbe essere notevolmente migliore rispetto a quella ottenuta utilizzando il sapone e comunque almeno equivalente a quella ottenuta mediante il MoS₂. Inoltre, l'altro obiettivo consisteva nell'ottenere un rivestimento sostanzialmente più pulito e facile da rimuovere.

Il concentrato di lubrificante dovrebbe essere classificato nelle classi di inquinamento dell'acqua più basse e non doveva essere utilizzato alcun additivo che potesse presentare un potenziale rischio di corrosione.

4.2 Principi chimici del nuovo rivestimento

Il nuovo rivestimento polimerico sviluppato è una miscela di composti altamente molecolari che non contengono metalli pesanti, composti di boro, olio minerale, additivi lubrificanti con cloro o zolfo (come il bisolfuro di molibdeno, il bisolfuro di tungsteno) o composti a base di fluoro, come ad esempio il Teflon®.

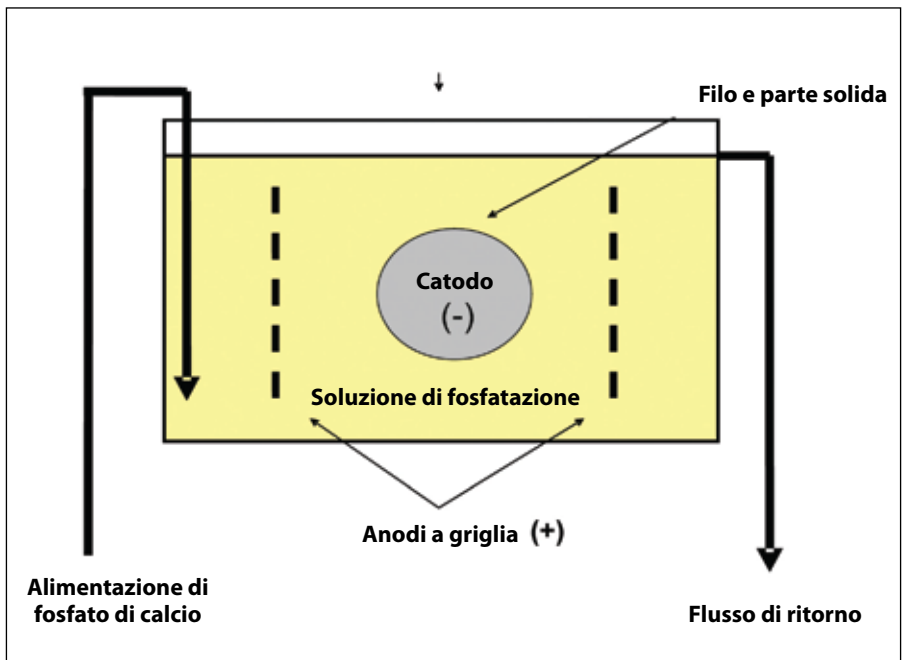
4.3 Vantaggi per il cliente

4.3.1 Vantaggi offerti dal rivestimento polimerico per il fabbricante di filo o il pretrattante di sezioni di barre

L'utilizzo di un bagno polimerico anziché un bagno di sapone, offrirà ad uno stabilimento di produzione i seguenti vantaggi:

- I rivestimenti polimerici non richiedono polvere di sapone nella trafila. Ciò evita il problema della formazione di polvere per gli operatori. Riduce i costi poiché non vi è alcuna necessità di acquistare polvere di sapone né di provvedere alla sua eliminazione. Migliora inoltre l'affidabilità delle trafille poiché sulla

▼ Figura 3: Sezione trasversale di un impianto di trattamento





macchina e sugli azionamenti si deposita una quantità inferiore di polvere di sapone

- Una migliore formatura si traduce in una maggiore produttività
- Il filo pulito è vantaggioso per le successive operazioni del processo
- Una migliore protezione contro la corrosione consente lo stoccaggio dei prodotti per un periodo maggiore, offrendo così un prodotto migliore ai clienti

4.3.2 Vantaggi di un rivestimento polimerico per fabbricanti di elementi di fissaggio o estrusori a freddo

Per i produttori di filo, come i fabbricanti di elementi di fissaggio, questo rivestimento offre i vantaggi indicati qui di seguito:

- Migliore precisione durante l'estrusione grazie ad un materiale più pulito
- Maggiore velocità delle macchine di stampaggio per bulloneria
- Maggiore durata degli utensili
- Fabbricazione di parti con geometrie complesse precedentemente irrealizzabili
- Cambi d'olio meno frequenti nelle macchine di stampaggio per bulloneria data l'assenza di sapone che contamina il sistema di ricircolazione dell'olio

Per concludere, i fabbricanti e gli utilizzatori di filo beneficiano dell'impiego di rivestimenti polimerici. Questo comporta come risultato un vantaggio competitivo per entrambe le parti.

5 Fosfatazione elettrolitica - un processo di rivestimento senza metalli pesanti

Nel caso sia richiesto un rivestimento di conversione (fosfatazione con zinco), si devono considerare i problemi di

eliminazione dei fanghi prodotti e dei metalli pesanti che contaminano gli effluenti liquidi.

La soluzione a questo problema è un rivestimento di fosfato di calcio applicato elettroliticamente.

5.1 Applicazione elettrolitica di un rivestimento di fosfato di calcio

Un rivestimento di fosfato di calcio è anche un rivestimento di conversione, ma è fondamentalmente diverso dal rivestimento di fosfato di zinco tradizionale utilizzato sino ad oggi. La soluzione del rivestimento non contiene metalli pesanti come lo zinco o il nichel e così pure il rivestimento. Il rivestimento si può descrivere più precisamente con la formulazione CaHPO_4 .

Il principio della deposizione del rivestimento su una superficie conduttrice è illustrato qui di seguito.

Siccome la parte agisce come catodo, non si verifica l'attacco di decapaggio sul materiale ferroso. Senza questo attacco di decapaggio non si formeranno fanghi di fosfatazione e, di conseguenza, questo processo non genererà fanghi.

La *Figura 4* illustra un filo per stampaggio a freddo fosfatato e trafilato. Si può chiaramente osservare che gli strati di fosfato di calcio sono bianchi prima della formatura. Dopo la formatura, il filo presenta un colore grigio omogeneo.

5.2 Vantaggi

- Assenza di metalli pesanti e conseguentemente gli effluenti liquidi sono più facili da trattare
- Non vi sono fanghi da eliminare
- La temperatura di processo è approssimativamente pari a 25°C
- La durata del trattamento di 2-5 secondi consente di avere impianti relativamente contenuti
- Il peso del rivestimento richiesto di 5-15g/m² può essere regolato mediante la densità di corrente (A/dm²)



▲ **Figura 4:** Filo per stampaggio a freddo prima e dopo la formatura

- Si ottengono velocità di trafilatura più elevate per il filo e forze di pressione ed espulsione più basse durante lo stampaggio a freddo e l'estrusione a freddo
- Gli effluenti liquidi nella defosfatazione degli elementi di fissaggio prima del trattamento termico non contengono metalli pesanti

5.3 Prospettive

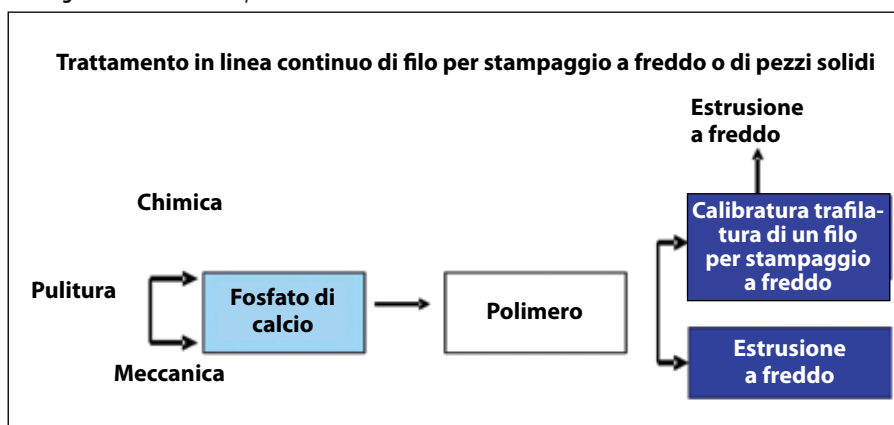
Un processo futuro per il trattamento di filo per stampaggio a freddo e dei pezzi solidi potrebbe associare i vantaggi della fosfatazione elettrolitica senza metalli pesanti ai vantaggi di un rivestimento polimerico. La *Figura 5* mostra un impianto di questo tipo.

Ciò contribuirà a ridurre i tempi necessari ai trattamenti superficiali da circa un'ora a meno di un minuto.

Ne deriva conseguentemente un notevole miglioramento della qualità e della produttività sia degli impianti di trattamento superficiale, sia degli impianti di produzione di bulloni o di estrusione -a freddo. ■

Il presente articolo è stato presentato in occasione della Istanbul Cable & Wire '09 ed è stato riprodotto con l'autorizzazione degli organizzatori della conferenza IWMA.

▼ **Figura 5:** Schema di un impianto di trattamento in linea in continuo



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Nueva fábrica de cables en Alemania

nkt dispondrá pronto de una fábrica de cables nueva, diseñada y construida específicamente para mejorar la eficiencia en la producción de cables.

El traslado a la fábrica (llamada f2c, abreviación de *flow to customer*) será completado en 2011, cuando la capacidad productiva será incrementada y orientada específicamente a la producción de cables submarinos y de extra alta tensión.

nkt es consciente de que la combinación de fuentes de alimentación cambiará drásticamente en el futuro, cuando las energías renovables cobrarán fuerte auge.

Este cambio en la combinación de energías llevará a una producción de energía descentralizada. Para cumplir los requisitos de los clientes, y seguir las variables demandas del mercado, nkt cables ha buscado la mejor respuesta a los desafíos futuros.

“Creemos que la planta f2c jugará un papel fundamental en las operaciones



▲ Nueva fábrica de cables de nkt en Alemania

costa afuera”, declaró Dion Metzemaekers, director ejecutivo del grupo nkt cables, y añadió luego: “Nuestra nueva fábrica marca un hito decisivo en la historia de las fábricas de cables. Hasta ahora no se había realizado nunca un proyecto de tal envergadura.

“Ningún productor de cables había

invertido nunca tanto en el futuro, como hemos hecho nosotros en nuestra planta nueva, la cual se convertirá en el estándar de referencia para la producción de cables submarinos y de extra alta tensión.”

nkt cables group GmbH – Alemania
Email: info@nktcables.com
Website: www.nktcables.com

Mejorando el ensamblado de armaduras y pilotes

Colin Prior de Lemon Groundwork Supplies ha aplicado su propia configuración a la recién recibida ensambladora automática de armaduras y pilotes redondos del fabricante italiano MEP con la que pretende mejorar las actividades corrientes de la empresa en el campo del ensamblado de armaduras y pilotes.

La ensambladora GAM fue suministrada a través del representante de MEP en el Reino Unido, Whitelegg Machines.

Lemon Groundwork Supplies es una empresa abastecedora y montadora de barras de refuerzo de acero cortadas y dobladas, malla y productos para la prevención de la dilatación de las arcillas, además de una completa gama de accesorios y servicios relacionados. Antes de la llegada de la nueva GAM, las armaduras, cuyo diámetro externo oscilaba entre 100mm y 2.100mm, eran fabricadas a mano y fijadas con alambón o soldadas a mano.

Toda la gama GAM permite ensamblar las armaduras y pilotes con precisión y rapidez y producir automáticamente armaduras soldadas de diámetro externo entre 150mm y 2.000mm y longitud de hasta 21m.

Whitelegg Machines Ltd – Reino Unido
Fax: +44 1306 711865
Email: sales@whitelegg.com
Website: www.whitelegg.com



▲ Soldadura con la nueva ensambladora GAM

Pedido de envergadura de Tele-Fonika Kable

Sikora AG recibió un pedido voluminoso de la sociedad polaca Tele-Fonika Kable, con sede en Cracovia, en 2010.

El proyecto, valorado en 1 millón de Euros, representa uno de los mayores pedidos en la historia de la compañía.

Tele-Fonika Kable usará los sistemas de medida de Sikora en sus plantas de cables de Cracovia-Biezanow, Cracovia-Wielicka y Bydgoszcz, en Polonia, para controlar la calidad durante la producción de cables.

El pedido comprende sistemas de medida de espesor de la pared, excentricidad y diámetro, además de probadores de rotura para instalación en líneas catenarias de vulcanizado (CV), líneas de aislamiento y recubrimiento.

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Fax: +49 421 48900 90
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Website: www.sikora.net



Rotundo éxito de la feria del alambre en China

▲ Delegados en la feria wire and Tube China 2010

wire and Tube China 2010 fue considerada todo un éxito, a pesar de haberse celebrado en tiempos de post crisis económica. Estimada ya la mayor feria industrial de Asia, wire and Tube China consiguió batir sus propios récords de visitantes del sector (26.035 en los cuatro días) y superficie ferial (74.500m², un 30% más que la edición de 2008).

Las conferencias y eventos organizados contemporáneamente, como la China

International Tube & Pipe Conference, China Wire & Cable Industry Conference, Wire & Cable Raw & Auxiliary Materials Technical Exchange Conference y el Wire & Cable Equipment Technology Seminar, despertaron igualmente la atención de los visitantes.

Wire China es organizada conjuntamente por el Instituto de Investigación sobre Cables Eléctricos de Shanghai (SECRI, Shanghai Electric Cable Research Institute)

y Messe Düsseldorf China Ltd. Wire China 2012 será celebrada en el Nuevo Centro Internacional de Exposiciones de Shanghai del 25 al 28 de septiembre y constituirá un escenario ideal para establecer contactos con los crecientes mercados de China y Asia.

Messe Düsseldorf China Ltd – China

Fax: +86 23 6232 8001

Email: press@mdc.com.cn

Website: www.wirechina.net

Precisión de metraje con True Sequential Footage

Cerro Wire LLC, fabricante de alambres y cables eléctricos de cobre para el cableado de edificios, ha presentado True Sequential Footage™, un carrete de cable impreso secuencialmente que indica la longitud de cable exacta en cada corte. True Sequential Footage evita tener que prever cable de más, ya que ofrece la longitud exacta, metraje de precisión y buen control de costes. La precisión de la marca de metraje permite calcular rápidamente el nuevo punto de reposición, o reorder point, que garantiza el uso de toda la longitud de cable comprado y reduce el cálculo aproximado de cable.

Cerro Wire LLC – Estados Unidos
Website: www.cerrowire.com

Cabezal inyector para cables de RF de PE expando

El cabezal inyector RX 25T para núcleos de cables de RF de PE expando de la casa Rosendahl está diseñado para fabricar toda la gama de cables de RF de ¼" de tipo SF a 2¼" de tipo F.

El diseño de base comprende un cabezal calentado con aceite preparado para la aplicación de piel, equipado con sistema de control de temperatura optimizado para cubrir índices de expansión de hasta 86%.

Dispone de dos zonas de calentamiento-enfriamiento en el cabezal, una para el cuerpo principal y la otra para el porta hilera, que permiten realizar un excelente control de temperatura y una equitativa distribución de temperatura en el polímero con contenido gaseoso.

La completa compensación natural minimiza las tasas de corte y ofrece un flujo constante que da como resultado una perfecta redondez, concentricidad y estabilidad mecánica. Una tecnología de colectores superior permite obtener celdas conformadas pequeñas y una homogénea distribución de las celdas con este alto grado de expansión.



▲ El cabezal inyector RX 25T cubre toda la gama de cables de RF

La optimización del control de temperatura, esfuerzo de corte, caída de presión y velocidad de flujo en el cabezal inyector son factores significativos para poder alcanzar índices de expansión de la espuma en el cable final de hasta un 86%. Este nuevo diseño permite a los fabricantes de cables de RF superar las limitaciones que suelen encontrarse con los equipos estándares.

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Nueva tecnología para la lubricación de materiales para extrusión en frío y alambre para estampación en frío

Por Jude Burke, Chemetall PLC, Reino Unido

Resumen

Hacer frente a la contaminación de las aguas residuales causada por los recubrimientos de fosfato de zinc o fosfato de zinc-calcio resulta ser cada vez más difícil. Este artículo describe un proceso de recubrimiento de conversión mediante deposición electrolítica de una capa portadora de fosfato de calcio. El proceso es eficiente, no utiliza metales pesados ni produce lodos, y se adapta perfectamente a los procesos de trefilado de alambre, estampación en frío y extrusión. Este artículo destaca el recorte de costes, los beneficios ambientales y la mayor productividad que se pueden obtener utilizando el proceso de fosfatación con calcio combinado con un recubrimiento polimérico.

Descripción

Los lubricantes usados corrientemente durante el trefilado de alambre para estampación en frío y en los procesos de extrusión en frío son jabones. Para los procesos de extrusión en frío se utilizan también dispersiones de bisulfuro de molibdeno. El uso de estos lubricantes está siendo reemplazado gradualmente por la tecnología de polímeros ultra finos, que ofrece ventajas como mayor duración de las herramientas, tiempos de cambio de aceite más largos en las máquinas de estampación en frío

y la posibilidad de fabricar piezas con formas complejas. Estos recubrimientos poliméricos se aplican por encima de los recubrimientos convencionales dado que su aplicación en el acero desnudo se limita a pocos casos específicos.

Los recubrimientos convencionales utilizados son de fosfato de zinc o de fosfato de zinc-calcio. Sin embargo, cada vez es más difícil controlar la contaminación de las aguas residuales debida a los lodos y a los metales pesados de estos procesos.

Este artículo ofrece una respuesta a estos problemas, presentando un proceso de recubrimiento de conversión basado en la deposición electrolítica de una capa portadora de fosfato de calcio.

Este proceso es muy eficiente y no requiere el uso de metales pesados ni produce lodos. El recubrimiento de conversión se adapta perfectamente a los procesos de trefilado de alambre, estampación en frío y extrusión en frío.

Este artículo destaca el recorte de costes, los beneficios ambientales y la mayor productividad que se pueden obtener utilizando el proceso de fosfatación con calcio combinado con un recubrimiento polimérico.

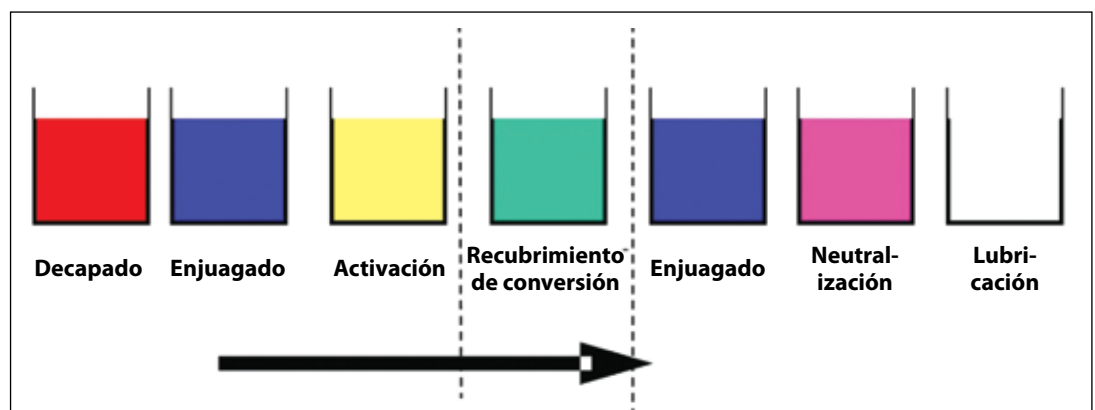
1 Estado del arte

El esquema de abajo ilustra lo que se describe como secuencia del proceso de vanguardia.

1.1 Explicaciones sobre el estado del arte

Inicialmente las piezas son decapadas, enjuagadas y activadas. Una alternativa al decapado es el descascarillado mecánico. A éste sigue un recubrimiento de conversión de fosfato de zinc, que se obtiene mediante reacción química. Para muchos procesos de fabricación, el recubrimiento de conversión es esencial para obtener una producción a gran escala rentable y de alta calidad.

▼ Figura 1: Flujo de trabajo de vanguardia





Las piezas elaboradas son enjuagadas de nuevo, neutralizadas y, por último, se aplica un lubricante.

Los lubricantes son jabones solubles en agua que reaccionan con la capa de conversión, o bien, como alternativa, con las dispersiones de bisulfuro de molibdeno (MoS_2).

La duración de la secuencia del proceso completa va de 60 a 90 minutos. Se debe notar que la calidad del fosfato y las prestaciones obtenidas reflejan el cuidado con que se han realizado las fases iniciales del proceso.

2 Fosfatos de zinc

Actualmente, hay tres tipos de fosfato de zinc que se usan normalmente. Estos se diferencian por sus medios de aceleración, que pueden ser:

- Nitrito/nitrato
- Clorato/nitrato
- Nitrato/aire (proceso secundario Fe)

El sistema con nitrito/nitrato es el más usado fuera de Europa Central. Funciona a altas temperaturas produciendo lodos que se depositan en el fondo del tanque de proceso. El acelerador más corriente es el nitrito de sodio. Normalmente, estos procesos contienen níquel, que actúa como agente de afinación.

El sistema con clorato/nitrato se usa en situaciones específicas en las que este método de aceleración es más adecuado para el proceso (como en el caso de proceso intermitente), o cuando el fosfato producido cumple un determinado

requisito. Con este sistema también se producen lodos en el tanque de proceso. El sistema con nitrato/aire (proceso secundario Fe) funciona a temperaturas más bajas y produce sus lodos en un tanque externo donde se introduce una cantidad controlada de aire.

El lodo producido es duro y denso y se deposita rápidamente en el fondo del tanque de proceso. Estos procesos no usan níquel ni nitrito.

3 Activación

Para obtener los máximos beneficios de un recubrimiento de fosfato de zinc, se recomienda altamente usar un activador antes del fosfato de zinc. El activador sitúa para la nucleación de los cristales de fosfato de zinc, que genera un recubrimiento refinado, controlado y cristalino. Esto baja el coeficiente de rozamiento y mejora la adhesión del recubrimiento a la superficie de metal.

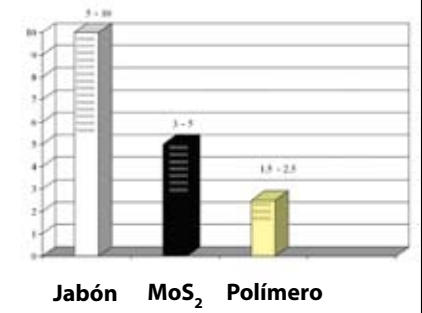
La estructura cristalina delgada aumenta también el área superficial disponible para el proceso de lubricación siguiente.

4 Un nuevo tipo de lubricante como alternativa a los jabones y al MoS_2

Los nuevos lubricantes son sistemas poliméricos de altas prestaciones. Aplicados por inmersión en solución acuosa,

Comparación entre los espesores de recubrimiento de varios lubricantes

Capa de lubricante g/m^2



▲ **Figura 2:** Comparación entre los espesores de recubrimiento de varios lubricantes

producen recubrimientos orgánicos delgados. Para obtener los máximos resultados, se deben usar estos lubricantes sobre un recubrimiento de conversión. La aplicación en materiales desnudos es posible, pero debe ser examinada caso por caso y, por lo tanto, no puede ser generalizada.

El esquema de abajo muestra el espesor de recubrimiento de los sistemas poliméricos comparado con el espesor de los lubricantes convencionales utilizados hasta ahora.

4.1 Objetivos del nuevo desarrollo

El objetivo general era desarrollar un recubrimiento que permitiera obtener formas finales sin afectar negativamente a la duración de la herramienta.

Esto significa que la precisión de conformación debería ser sensiblemente mejor que la obtenida usando jabón y, por lo menos, equivalente a la obtenida con el MoS_2 .

Además, otro objetivo era obtener un recubrimiento sustancialmente más limpio y fácil de quitar. El concentrado de lubricante debería pertenecer a la clase de peligro para el agua más baja y no se deberían usar aditivos de alto riesgo de corrosión.

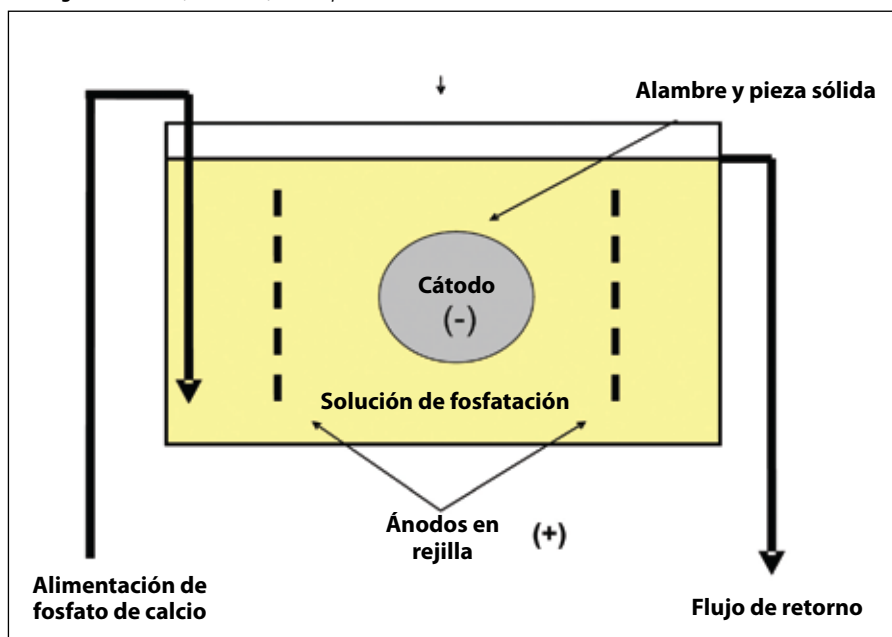
4.2 Principios químicos del nuevo recubrimiento

El nuevo recubrimiento polimérico desarrollado es una mezcla de compuestos altamente moleculares que no contienen metales pesados, compuestos de boro, aceite mineral, aditivos lubricantes con cloro o azufre (como el bisulfuro de molibdeno, el bisulfuro de tungsteno) o compuestos a base de flúor, por ejemplo, el Teflon®.

4.3 Ventajas para el cliente

4.3.1 *Ventajas del recubrimiento polimérico para el fabricante de alambre o el pretratador de secciones de alambros*

▼ **Figura 3:** Sección (transversal) de una planta de tratamiento



Usando un baño polimérico en lugar de un baño de jabón, en una planta de fabricación de alambre se obtienen las ventajas siguientes:

- Los recubrimientos poliméricos no necesitan polvo de jabón en la hilera de trefilado. Esto les evita a los operadores el problema de la formación de polvo. Reduce los costes, porque no es necesario comprar polvo de jabón ni ocuparse de su eliminación. Mejora también la fiabilidad de las trefiladoras porque en las máquinas y en los accionamientos se deposita una cantidad menor de polvo de jabón.
- El conformado mejorado se traduce en una mayor productividad.
- El alambre limpio es ventajoso para las operaciones de los procesos siguientes.
- Una protección mejorada contra la corrosión permite almacenar los productos durante más tiempo, con lo cual ofrecen un producto mejor a los clientes.

4.3.2 Ventajas de un recubrimiento polimérico para los fabricantes de piezas de sujeción o extrusoras en frío

Para los procesadores de alambre como los fabricantes de piezas de sujeción, este recubrimiento ofrece las ventajas indicadas a continuación:

- Mayor precisión durante la extrusión gracias a un material más limpio.
- Mayor velocidad en las máquinas para estampación de pernos.
- Mayor duración de las herramientas.
- Fabricación de piezas de forma geométrica compleja, imposibles de realizar antes.
- Cambio de aceite menos frecuente en las máquinas para estampación de pernos, porque no hay jabón que contamine el sistema de recirculación del aceite.

Para concluir, los fabricantes y los usuarios de alambres sacan ventaja del uso de recubrimientos poliméricos.

Como resultado, las dos partes consiguen una ventaja competitiva.

5 Fosfatación electro-lítica, un proceso de recubrimiento sin metales pesados

Si se requiere un recubrimiento de conversión (fosfatación con zinc), se deben considerar los problemas de la eliminación de los lodos producidos y de los metales pesados que contaminan los desechos líquidos.

La solución para este problema es un recubrimiento de fosfato de calcio aplicado electrolíticamente.

5.1 Aplicación electrolítica de un recubrimiento de fosfato de calcio

Un recubrimiento de fosfato de calcio también es un recubrimiento de conversión, pero básicamente es diferente del recubrimiento de fosfato de zinc convencional usado hasta ahora.

La solución de recubrimiento no contiene metales pesados como zinc o níquel y, por lo tanto, el recubrimiento tampoco. El recubrimiento se puede describir mejor con la formulación CaHPO_4 .

El principio de deposición del recubrimiento en una superficie conductora está ilustrado a continuación.

Dado que la pieza actúa como cátodo, no tiene lugar el ataque de decapado en el material de hierro. Sin este ataque de decapado no se formarán lodos de fosfatación, y por lo tanto, este proceso no generará lodos.

La *Figura 4* ilustra un alambre para estampación fosfatado y trefilado en frío. Se puede ver claramente que las capas de fosfato de calcio son blancas antes del conformado.

Después del conformado, el alambre muestra un color gris homogéneo.



▲ **Figura 4:** Alambre para estampación en frío antes y después del conformado

5.2 Ventajas

- No hay metales pesados y, por consiguiente, los desechos líquidos son más fáciles de tratar.
- No hay lodos por eliminar.
- La temperatura de proceso es aproximadamente 25°C.
- El tiempo de tratamiento de 2-5 segundos permite tener plantas relativamente de modestas dimensiones.
- El peso del recubrimiento requerido de 5-15g/m² puede ser ajustado mediante la densidad de corriente (A/dm²).
- Se obtienen velocidades de trefilado más altas y fuerzas de presión y eyección más bajas durante la estampación en frío y la extrusión en frío.
- Los desechos líquidos de la desfosfatación de las piezas de sujeción antes del tratamiento térmico no contienen metales pesados.

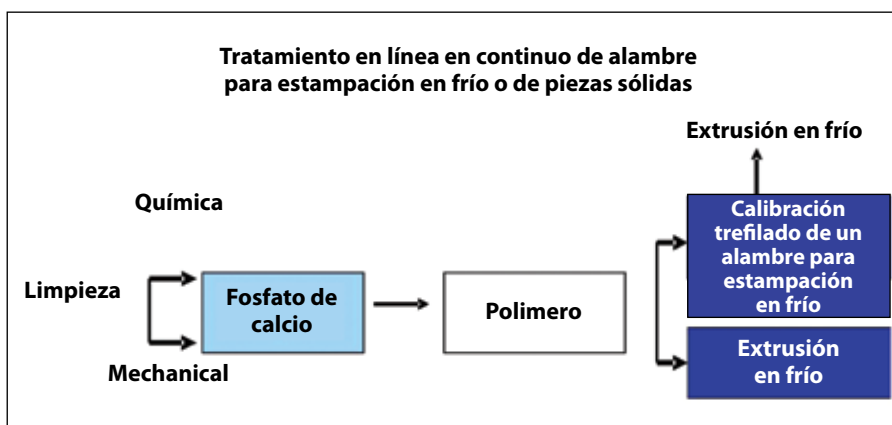
5.3 Perspectivas

Un proceso futuro para el tratamiento de alambre para estampación en frío y de piezas sólidas podría combinar las ventajas de la fosfatación electrolítica sin metales pesados con las ventajas de un recubrimiento polimérico. La *Figura 5* muestra una planta de este tipo.

Esto contribuirá a reducir los tiempos necesarios para los tratamientos superficiales de aproximadamente un hora a menos de un minuto. Por consiguiente, la calidad y la productividad de las plantas de tratamiento superficial, de fabricación de pernos o de extrusión en frío mejorarán considerablemente. ■

Este artículo fue presentado en Istanbul Cable & Wire '09. Ha sido reproducido aquí con la autorización de los organizadores de la conferencia IWMA.

▼ **Figura 5:** Esquema de una planta de tratamiento en línea en continuo



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editorial index

3M Communications Markets Division	51	Industrispik Linan AB	24
Alcan Cable.....	20	INTRAS Ltd.....	18
Alcatel-Lucent.....	28	Koner SpA	52
Alpha Wire International.....	14	Lämneå Bruk AB.....	36
American Superconductor Corp	16, 41	LaserLinc Inc.....	41
ArcelorMittal Monlevade SA	47	Messe Düsseldorf China Ltd	28, 58, 62, 69, 74, 79
Associated Engineers & Industrials Ltd	40	Nexans.....	22
Bekaert	14	Maschinenfabrik Niehoff GmbH & Co KG	17, 48
CCCA	16	nkt cables group GmbH.....	10, 57, 62, 68, 73, 78
Cerro Wire LLC	38, 58, 74, 79	Nova Srl.....	48
COIM SpA.....	23	Pacific Fibre Ltd	28
Decalub.....	37	PolyOne Corp.....	37
Die Quip Corp	40	Reelex Packaging Solutions Inc.....	41
Dow Wire & Cable.....	40	Rosendahl Maschinen GmbH	38, 58, 62, 69, 74, 79
Draka Communications	24	Roteq Machinery	12
Draka Holding NV.....	20	Setic sas.....	47
Draka Offshore	38	Sikora AG	10, 43, 57, 68, 73, 78
El Sewedy Electric.....	16	SMS Meer GmbH	23
Enkotec	24	August Strecker GmbH & Co KG.....	42
Euroalpha Srl	44	Supremac Industries (India) Ltd.....	36
Fiberguide Industries Inc	43	Techna International Ltd.....	46
Fine International Corp	42	Tecnovo.....	51
Frekans Makina San Ve Tic AS	44	Teknor Apex Company.....	23
Galaxy Enterprises.....	38	Traxit International GmbH	52
General Cable Corp.....	22	Whitelegg Machines Ltd.....	57, 62, 68, 73
GER SA	46	Wire Association International Inc	20, 26
Hu An Cable Holdings Ltd.....	23	Wire Lab Company Wilco.....	52

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4 Kablo & Tel Expo 2011	27	Messe Düsseldorf GmbH – wire Russia 2011	25
Ajex & Turner Wire Dies Co.....	16	Messe Düsseldorf GmbH – wire Southeast Asia 2011	25
Alloy Wire International	17	Ningbo Kaite Machines Co Ltd.....	9
AMI Cables 2011 Conference	11	Ofenbau Fritz Group.....	26
Anbao (Qinhuangdao) Wire & Mesh Co Ltd.....	12	Pave Automation Design & Development*	Front cover
Associated Engineers & Industrials Ltd	16	Richards Apex	43
Cabex 2011 – MVK – International Exhibition Company.....	49	Rosendahl Maschinen GmbH	5
Candor Sweden AB.....	45	SF Diamond Co Ltd.....	20
Continuus-Properzi SpA.....	3	Shanghai Nanyang Equipment Co Ltd	22
Dalian Konform Technical Company Ltd.....	14	Sheng Chyeen Enterprise Co Ltd.....	84, Inside back cover
Decalub.....	37, 51	Stolberger KMB Maschinenfabrik GmbH.....	Back cover
Enkotec A/S	1	Supremac Industries India Ltd.....	13
Enshiang Machinery Enterprise Co Ltd	2	Wire & Plastic Machinery Corp.....	37
Guangzhou Julang Exhibition Design Co Ltd	35	Wire & Steel Trading NV.....	41
Huestis Industrial.....	31	Wire Association International Inc	19
Jiangyin Kangrui Stainless Steel Products Co Ltd.....	33	WTM Srl.....	18
Jiashan Winsun Industrial Co Ltd.....	20	Yangzhou Qunye Electric Machinery Factory	23, 29
Lamnea Bruk AB.....	15	Zumbach Electronic AG	Inside front cover

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