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The International Magazine for the Wire & Cable Industries

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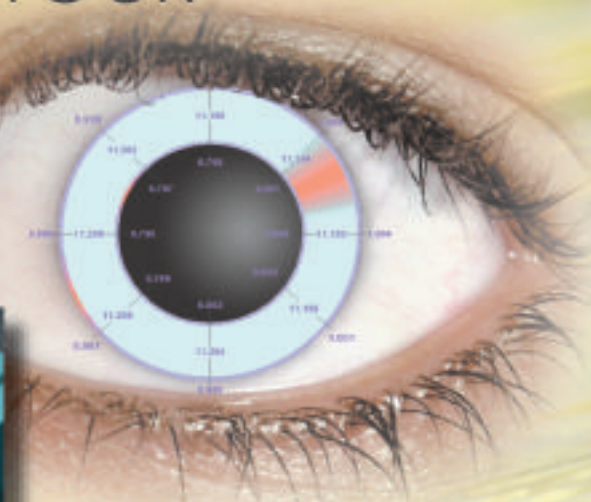
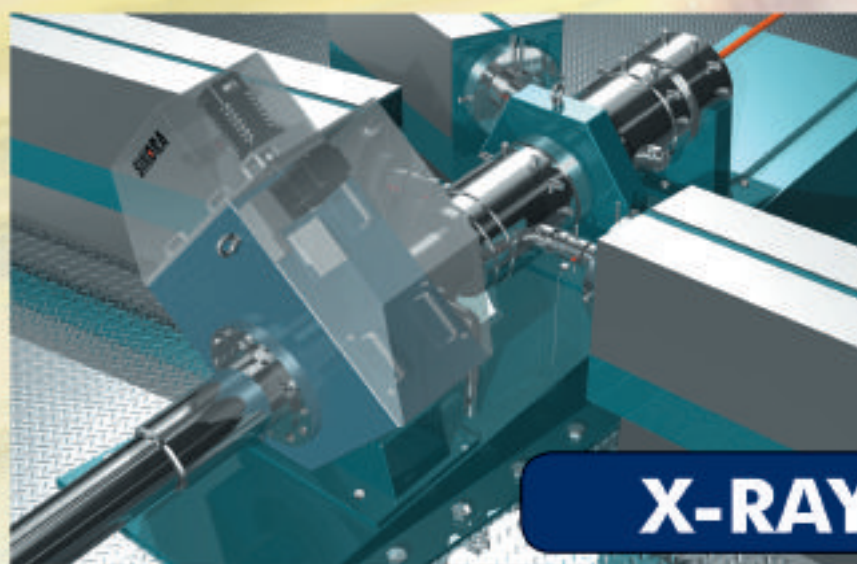


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Credit shockwaves

The shockwaves heading out from the US sub-prime mortgage losses have well and truly washed up on European shorelines.

Firstly, here in the UK, there was the near collapse of Northern Rock which needed some £25bn of taxpayers' money to keep it afloat.

The 'Rock' has since been nationalised in a temporary move after a suitable buyer failed to materialise.

Now another government – the German one – has stepped in to shore up the finances of IKB to the tune of £1.1bn.

This, although a smaller amount, again has far reaching consequences of taxpayers picking up the bill of a failing financial giant.

IKB is a part of KfW Bankengruppe which, in turn, is owned by no less than 16 of the German states.

The financial carnage doesn't stop there. Commerzbank, also in Germany, has been hit to the tune of £723m, all because of sub-prime losses.

Even the greatest banking bastion of all – Switzerland – cannot escape the bloodletting.

UBS suffered a £9bn loss in 2007 and many financial experts predict that the crisis at the bank will last as long as the credit crunch.

That credit crunch has been squeezing markets around the globe for the last six months now and will, experts believe, lead the US to cutting interest rates to just 2.5%.

Does it not seem strange then that brokers working in the City of London have just received record bonuses for last year's work?

It seemsthat life in the city is all smiles – even while the possibility of recession and financial gloom rings loud and clear in the UK capital.

Wire and cable companies will, no doubt, be hoping that business is also booming at *wire 2008* in Düsseldorf later this month.

Let us hope that this industry can be one of those blossoming should the financial crisis deepen.



David Bell

The International Magazine for the Wire and Cable Industries



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See page 236 for further details

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September

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Organisers: Messe Düsseldorf GmbH
Fax: +49 211 4560 7740
Email: info@wirechina.net
Website: www.wirechina.net



June

7-11: **Wire Expo 2008** – trade exhibition – Pittsburg, USA
Organisers: Wire Association Int
Fax: +1 203 453 8384
Email: info@wirenet.org
Website: www.wirenet.org

17-20: **Wires & Fasteners 2008** – trade exhibition – Kiev, Ukraine
Organisers: TDS Expo
Fax: +380 44 596 9374
Email: info@weldexpo.com.ua
Website: www.weldexpo.com.ua
International Exhibit Sales: INTRAS Ltd
Fax: +44 1926 314755
Email: intras@intras.co.uk
Website: www.wire-ukraine.com

23-26: **9th China (Guangzhou) International Metal and Metallurgy Exhibition** – trade exhibition – Guangzhou, China
Organisers: Julang Exhibition Co Ltd
Fax: +86 20 386 20790
Email: meiwen@julang.com.cn
Website: www.julang.com.cn

November

9-12: **IWCS** – technical conference – Rhode Island, USA
Organisers: IWCS Inc
Fax: +1 732 389 0991
Email: admin@iwcs.org
Website: www.iwcs.org

20-22: **Wire and Cable India** – trade exhibition – Mumbai, India
Organisers: CII
Fax: +91 22 2493 9463
Email: info@ciionline.org
Website: www.ciionline.org

April 2009

25-30: **Interwire** – trade exhibition – Cleveland, USA
Organisers: Wire Association Intl
Fax: +1 203 453 8384
Email: info@wirenet.org
Website: www.wirenet.org

May

12-15: **wire Russia 2009** – trade exhibition – Moscow, Russia
Organisers: Messe Düsseldorf GmbH
Fax: +49 211 4560 7740
Email: info@wire-russia.com
Website: www.wire-russia.com

September

18-21: **Wire Turkey** – trade exhibition – Istanbul, Turkey
Organisers: Media Force
Fax: +90 212 465 7417
Email: info@mediaforceonline.com
Website: www.mediaforceonline.com



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Making the switch . . .

The UK's oldest manufacturer of speciality wires, Webster & Horsfall, has replaced a gas furnace with an electrically heated furnace from Meltech Engineering, to cut energy costs and reduce the company's carbon footprint.

The Meltech MT1100 is used for strand annealing Webster & Horsfall's range of Austenitic and Super Duplex stainless steel wires.

Founded in 1720 by James Horsfall, Birmingham-based Webster & Horsfall manufactures carbon steel spring, music and rope wire, stainless steel spring wire, low alloyed steel spring wire and strip for springs, clips and pressings.

Over the past 12 months its energy costs have increased by more than 50%.

"We needed to cut our energy costs and contacted Meltech Engineering," said Charles Horsfall, managing director, Webster & Horsfall Ltd.

"The MT1100 is far more energy efficient than our gas furnaces. It also gives us greater versatility in our manufacturing operations. Until now we've had to start the gas furnace the night before using it to give it time to heat up to temperature; the cost against demand for annealing means we can no longer justify keeping the gas fired furnace on all the time.

"With the MT1100 we can turn it on as we need it; and the furnace is up to temperature within a fraction of the time," he explained.

The MT1100 is being used to strand anneal stainless steel wires from 0.7mm-4mm at 1,100°C. It is designed on the Meltech 'low thermal mass' principle and features multi-zone temperature control.

Customisation of element design allows optimisation of the MT1100's performance to fine tune temperature zoning and increase element operational life.

In addition, the MT1100 uses advanced ceramic and insulation materials to give 90% thermal efficiency, leading to more consistent and manageable heating across the length of the furnace and reduced furnace heating running cost.

Charles Horsfall sees the move away from gas to electric as both inevitable and welcome.



▲ Meltech's electrically heated furnace

"The switch from a gas furnace to the MT1100 will have two positive benefits to our business, as well as reducing our energy costs," he said.

"It will improve the quality of our heat treatment and significantly reduce our carbon footprint ahead of any government legislation.

"Electricity can be generated from various fuel sources which hopefully will improve long-term security of supply. Ultimately we plan to replace all our gas furnaces with electric."

Meltech Engineering – UK
Fax: +44 1254 680175
Email: sales@meltech.co.uk
Website: www.meltech.co.uk

Show time in the Ukraine

A new show for the buzzing Ukrainian market, Wires and Fasteners 2008 will kick off this year in Kiev at the Ukraine's largest exhibition centre, KyivExpoPlaza. The show will be held from 17th-20th June.

The exhibition – organised by TDS-Expo and sponsored by EuroWire and Wire & Cable ASIA – has support from the Ministry of the Industrial Policy of Ukraine, Ukrtruboprom Association, Ukrainian Manufacturers and Employers Association, Ukrainian Association 'Ukrelectrocable', Society of Welders of Ukraine, Machine-Building Engineers and Technologists Association of Ukraine.

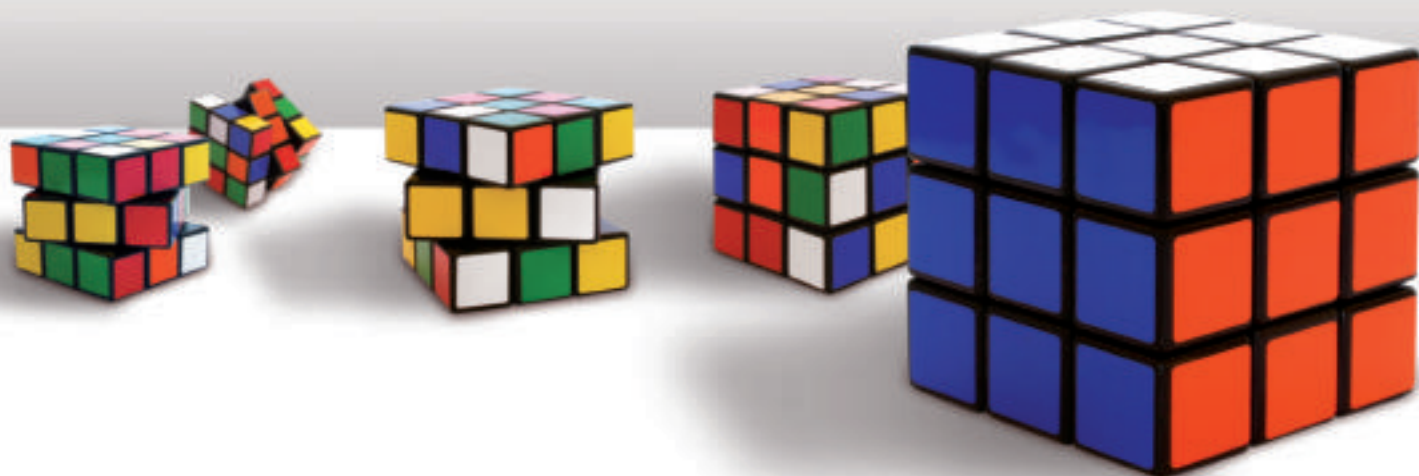
The show comes at a time when the Ukrainian market is showing incredible potential and a lucrative country for foreign investment. The Ukraine's economic growth in the last two years has risen by 5 per cent. The net increase in direct foreign investment in Ukraine has reached US\$6.8 billion, based on the results of 10 months during 2007. This investment is 1.6 times higher than 2006 and 6.4 times higher than 2005.

Ukraine is the third largest producer of steel in the world.

Added to this bright economic and investment outlook, the Ukraine is widely regarded as more accessible and with easier business practices than neighbouring Russia. The organisers expect that exhibitors and visitors will have a smoother experience with issues such as freight, tourism and cost of living.

Organisers: TDS Expo – Ukraine
Fax: +380 44 526 93 76
Email: olga@welding.kiev.ua
Website: www.weldexpo.com.ua

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Web www.sifmdc.com





Nordson's Georgia plant in the top 21 in USA

Nordson Corporation's Swainsboro, Georgia, USA, manufacturing facility was named a finalist in Industry Week magazine's 2007 Best Plants competition. The Nordson plant was recognised as one of the top 21 in the USA.

The Swainsboro facility produces ProBlue adhesive melters – hot melt dispensing systems, dispensing guns, modules and nozzles.

The plant will also add new ProBlue Fulfill integrated fill systems and Classic XIV melters to its portfolio in 2008.

These systems are used in the packaging of consumer products and in a wide variety of general industrial assembly applications.

Established in 1990, the annual competition salutes plants that are on the leading edge of efforts to increase competitiveness, enhance customer satisfaction and create stimulating and rewarding work environments.

The competition encourages manufacturing managers and work teams to emulate the honorees by adopting world-class practices, technologies and improvement strategies.

Entrants are judged on criteria including:

Proactive environmental and safety practices; operational improvements; agile production systems; supplier partnerships;

customer focus; employee empowerment; quality systems; management practices; and manufacturing capability. Industry Week selected Nordson from more than 200 entries in 2007.

Nordson Corporation – USA Fax: +1 866 667 3329
Email: info@nordson.com Website: www.nordson.com

Career awards for WCMA

The Wire & Cable Manufacturers' Alliance (WCMA) has announced the recipients of its 2008 Distinguished Career Award.

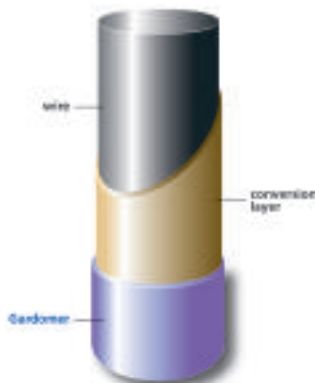
The 24th annual awards dinner and investiture ceremony will take place on 12th April in Windsor, Connecticut, at the Hartford/Windsor Marriott Airport Hotel. This year's recipients are: Brian Bukovec, chief operating officer and vice president, Radix Wire; Mike Carbray, general manager, Amphenol/Spectra-Strip; David Chu, materials development director, Draka USA; Tony Dolce, CFO and director of administration, T & T Marketing; Virginia Hauser, vice president of sales, Phelps Dodge Sales Co; Richard Kruger, vice president sales and marketing, Champlain Cable Corp; Guy Marini, president and CEO, NEPTCO Inc; Fred Wagner, founder, Minnesota Wire & Cable.

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Autumn fair date in Zagreb



▲ Croatian president Stjepan Mesic at the exhibition

Unipromet Sarajevo, and a number of other exhibitors from Bosnia and Herzegovina, took part at last year's Zagreb International Autumn Fair from 11th-16th September.

As the owner of Zica dd Sarajevo, Unipromet presented Zica dd's production programme that includes an extensive range of wire products. Zica dd Sarajevo's merchandise ranges from reinforced wire mesh to nails in addition to many other kinds of wire.

Along with the many guests to visit the Unipromet stand was Stjepan Mesic, president of Croatia. The Zagreb fair attracts a large audience of international buyers, suppliers and companies. It represents an important economic event for the Balkan region and is held annually.

Unipromet dd Sarajevo – Bosnia
Email: int.relations@unipromet.com

Fax: +387 33 234 182
Website: www.zica.ba

New global director for CommScope

Ben McNamara has been promoted to global director of sales for CommScope's BiMetals division.

Ben joined CommScope in November 2006 as BiMetals sales manager for the EMEA region and has worked diligently to strengthen this market.

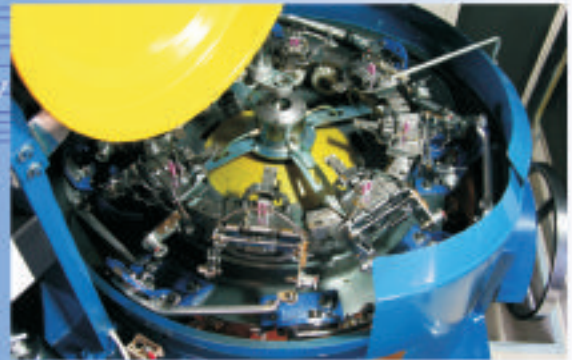
He earned his Bachelor's degree in Marketing from the University of Liverpool, UK, and his MBA from the University of Wales, UK.

Supporting Ben in his new role will be Robert McEllen, who has been promoted to the position of BiMetals NAR/CALA sales manager.

CommScope – USA
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Nexans makes sure rail contract stays on the right track

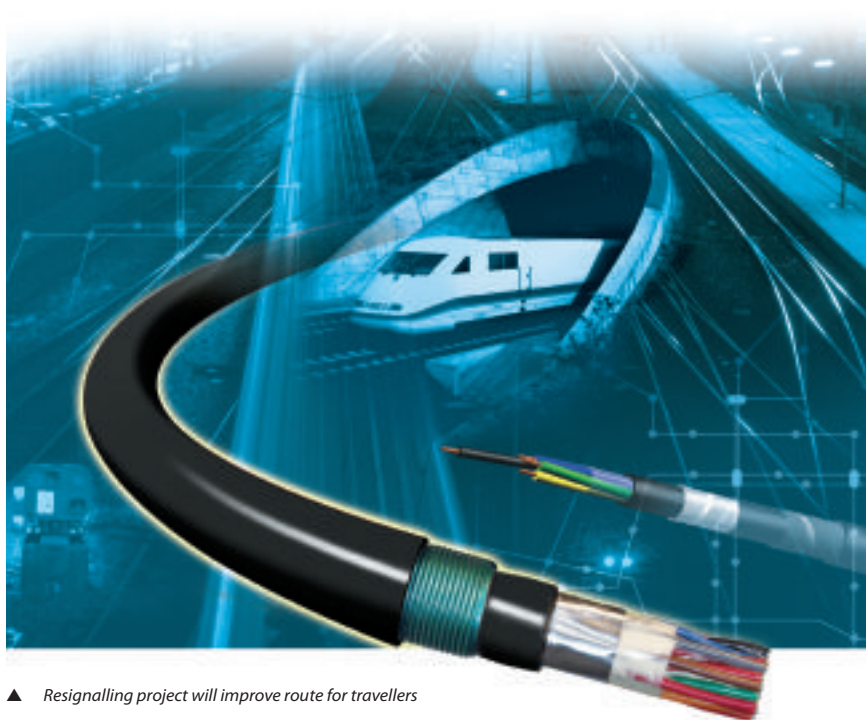
Nexans has completed a contract for the manufacture and delivery of more than 160km of specialised axle counter cable for Balfour Beatty Rail Projects to enable the resignalling of a 29km section of railway track in the Trent Valley, close to Lichfield, Staffordshire, UK.

The resignalling project is a part of a much larger Network Rail scheme known as TV4 (Trent Valley Four Tracking) which will improve the route through Tamworth, Lichfield and Armitage by upgrading and widening the railway from two to four tracks.

"A particular challenge for this project was that the large number of possible variations in the specification of axle counter cables, due to the choice of conductor sizes and varying twisted pair counts, means that it is not feasible to deliver from stock," said Steve Robbins, Nexans UK business development manager for rail infrastructure.

"So the lead time had to include gearing up the factory in Santander, Spain, to manufacture a bespoke order for Balfour Beatty Rail Projects.

"Following the first delivery in May, we then delivered every two weeks, with the final delivery taking place in August."



▲ Resignalling project will improve route for travellers

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Website: www.nexans.com

... and agrees to buy Madeco

Nexans has signed a framework agreement to acquire the cable business of Madeco, in South America.

At current non-ferrous metal prices, the 2006 sales of the Madeco Group cable business totalled US\$ 672 million (€457 million), in three major segments: cables for infrastructures, industry and building (and in electrical wires to a lesser extent).

The organic volume growth for these segments was 12% per year during the 2004/2006 period. For the 2007 half-year, Madeco's wire and cable sales breakdown by country was approximately: 43% in Brazil, the largest market in South America, 28% in Chile, 18% in Peru, 6% in Argentina, and 5% in Colombia.

In all these countries, Madeco has a leading position thanks to its established reputation and commercial image.

These growing markets, Madeco's leading position, and its management excellence enabled the company to realise a US\$ 43 million (€29 million) EBITDA in the first half of 2007, representing an operating margin of 10.6% of sales at current non-ferrous metal prices.

The closing of this acquisition is expected in the third quarter of 2008 and is mainly subject to approval of Madeco's and Nexans' shareholders, as well as relevant regulatory authorities.

Nexans – France
Email: nexans.web@nexans.com

Fax: +33 1566 98484
Website: www.nexans.com

In Brief ...

Dries Ausems, at present Director Investor Relations, was appointed Spend Area Director Petchem and Energy with DSM Sourcing, from 1st January 2008. On the same day, Hans Vossen – DSM's Director of Corporate Strategy and Planning – succeeded Dries Ausems.

DSM Desotech – Netherlands
Fax: +31 45 571 9753
Email: media.relations@dsm.com
Website: www.dsm.com



Dow Wire and Cable has upped its prices on all its wire and cable resins, compounds and materials sold in North America by \$0.12 per pound, effective from 1st January.

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EBNER Industrieofenbau 10A 40-05

EDER Engineering 10A 40-02

GEBAUER & GRILLER 10A 40-04

ISOVOLTA 10A 44-03

LENZING Plastics 10A 44-09

MAG 10A 40-03

MALI 10A 40-10

MEDEK & SCHOERNER 10A 44-01

UNITEK 10A 44-8

voestalpine AUSTRIA DRAHT 10A 40-06

Four members will be individual exhibitors:

K D S Knill Group 9A-74

ROSENDAHL (+Nextrom) 9A-74

EVG + Filzmoser 10G-04 + 10H-18

Fortuna Federn 14B-23

Other Austrian companies exhibiting:

E. Eisenbeiss Soehne GmbH 10A 40-08

Joh. PENGG AG 10A 44-07

LUMPI-BERNDORF GmbH 10A 44-04

SCC GmbH 10A 44-02

MTT Machinery Technology

Trading 10A 40-09

For further information on Austrian exhibitors or any sourcing enquiries address to AWCMA. [E kurt.eder@awcma.com](mailto:kurt.eder@awcma.com)

InterWire Group opens a new facility in Mexico

InterWire Products (IWP) has opened a new facility in Mexico to accommodate significant business growth and the demand for high quality ferrous and non-ferrous wire.

The new 30,000 square foot facility will service the wire markets in the Mexican region.

"We are very excited to officially open the doors to InterWire Mexico after so many months of preparation," said Frank Cardile Jr, president of IWP.

"I'm confident that customers will find our wire products of high quality, our customer service excellent and our prices reasonable."

Pete Rosa has been appointed general manager of IWP Mexico. Pete has been with the company for more than 15 years and has played an important role in managing the growth of IWP's Connecticut division.

This event follows IWP's recent expansion in North Carolina with a 54,000ft² facility and Michigan with an 80,000ft² facility servicing the Western Pennsylvania, Ohio, Indiana and Michigan markets.

The addition of these new locations to the existing distribution centres now



▲ InterWire's new facility in Mexico

provides IWP, the largest distributor of fine quality wire, with a total of 500,000ft² of warehousing throughout the United States and Mexico.

The new, state-of-the-art IWP facility is located at Tepeyac 1420-D, Parque

Industrial Odonnell-Aeropuerto, El Marques, Queretaro, CP 76250 Mexico.

InterWire Group – USA

Fax: +1 914 273 6848

Email: info@interwiregroup.com

Website: www.interwiregroup.com

Czech upgrade for Tenova

Tenova Strip Processing has been awarded an order for a new silicon steel line for the Frydek-Mistek plant upgrade in the Czech Republic.

Tenova has acquired an order from Valcovny Plechu, of the Arcelor-Mittal group, for the first of six operations planned as part of the project to upgrade the plant in Frydek-Mistek, 30km from the city of Ostrava.

The order is relevant to the supply of a complete silicon steel line.

This line is a medium size installation for the application of a magnesium-based thermal insulator on grain-oriented steel plate with magnetic properties.

Tenova will provide all the mechanical, electrical and hydraulic engineering, assembly supervision and plant start-up.

Installation will begin in March with start-up scheduled before summer. The line will deliver an annual production of 73,000 tons of steel with magnetic properties, to be used for electrical applications.

This order is in addition to the three plants currently under construction – one in Novolipetsk, Russia, for NLMK and two in Wuhan, China, for WISCO.

Tenova – Italy Fax: +39 02 469 3026

Email: tenova@tenovagroup.com

Website: www.tenovagroup.com

Website for Chinese market

SPI Lasers, a designer and manufacturer of fibre lasers, has launched a new website – www.spilasers-china.cn – for the Chinese market.

The new website provides information on SPI Lasers' entire range in the Chinese language for the first time, as well as the capability to book evaluations, download datasheets and application notes, book samples into the applications laboratory, find contact details of the relevant sales and customer support team and more.

SPI Lasers – UK

Email: info@spilasers.com

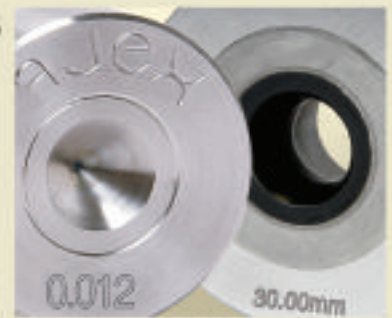
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Website: www.spilasers.com

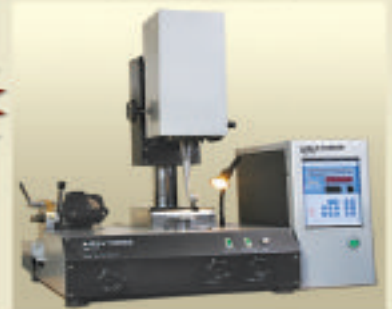
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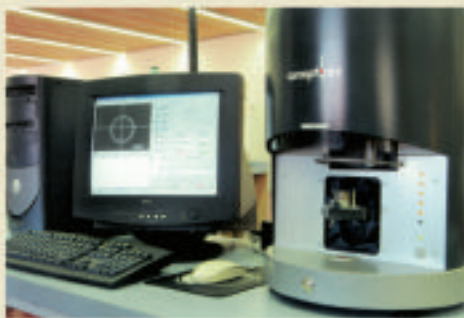
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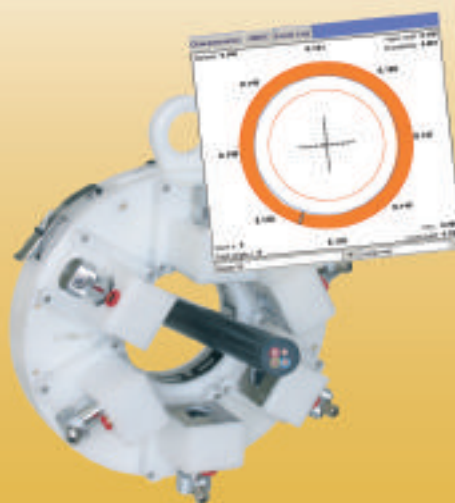
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Joining up with the students

Joachim Uhing KG GmbH & Co in Mielkendorf is supporting the startIng! project run by Kiel University of Applied Sciences.

Grouped in project teams, freshman students can gather on-site experience, test their aptitude and get informed of career opportunities.

For a long time, business management students have had the privilege of practically implementing their theoretical knowledge.

What would be more obvious than putting flesh on the bones of mechanical engineering theory by allowing an insight in the daily life of a practical engineer?

"There is hardly any other sector that demands such a close interaction between theoretical background and practical skills," says Burkhard Bohn, Uhing KG's Engineering head.

"This is why we decided to support the startIng! project."

Kiel University of Applied Sciences launched the project in winter 2006/07. Some 50 freshman students, grouped in teams of 10, may take on the role of an engineer after only six weeks of studies. To give them an idea of what their future job holds in store, they solve a problem posed by a sponsoring company.

In the course of the project, originating from a very successful initiative of Darmstadt Technical University started in 1998, the future engineers also learn to understand why it is important to study the theoretical background often regarded as dry and removed from reality.

"During project work, the students can find out whether the subject they have chosen appeals to them. We can assist young students and also inform them of their career opportunities," added Bohn.

"Everybody is talking about the threatening technological emergency in Germany," said Wolfgang Weber, Uhing's sales and marketing head, in an attempt to explain the motives of the likewise innovative and long-established enterprise to sponsor a group of students.

"It is relatively easy to replicate a machine but you cannot imitate the decades of experience that led to its development. We are glad to offer young students an insight into the daily life of classical engineering.

"They get first hand experience of what it means to practically implement theoretical knowledge and realise how much know-how is required for our work."

Joachim Uhing KG GmbH & Co – Germany

Fax: +49 4347 90640

Email: sales@uhing.com

Website: www.uhing.com

New staff for US expansion

SPI Lasers LLC has hired two new senior staff members to expand the North American team as the company looks to build on strong growth in 2007.

Jim Data joins SPI Lasers as Director of Sales for North and South America and Ken Dzurko joins the company as Business Development Director.

"We are pleased to welcome Jim and Ken to the SPI Lasers team," said John Tinson, vice president of worldwide sales.

"SPI have been ramping up activities in North America for the last year. The effects of the increase in activity are now proving their value in terms of good results in the area in 2007.

"The new G3 and R4 platforms that were recently announced are showing significant growth prospects for 2008."

A sales executive with more than 17 years' experience, Jim Data has considerable understanding of micro-machining and marking with a long history in lasers and laser applications.



▲ Jim Data



▲ Ken Dzurko

He is heading up the US team and will be based at the company's US head-quarters in Santa Clara, California, with responsibility for Canada, USA, Mexico, Central America and South America.

Ken Dzurko joins SPI following 18 years in diode laser related experience that includes technology advancement and high reliability product development for defence, industrial and communications markets.

As the senior executive in the region, Ken is responsible for expanding the company's contracts business and supporting business development in all commercial markets. The applications lab has recently announced new applications that expand the proven capabilities of the fibre laser.

These new applications for the fibre laser come as a result of the free of charge 'Proof of Principle' trials where device and component manufacturers from around the globe are invited to work with SPI on their own application specific trials. In

addition, SPI offers a 'try before you buy' programme and provides a progressive programme to support academic and not-for-profit research centres.

SPI Lasers – USA

Fax: +1 408 317 0407

Email: info@spilasers.com

Website: www.spilasers.com

Better performance after installation

The installation of Morgan Construction Company's No-Twist Mill® (NTM) guide upgrades has resulted in significant improvements in mill utilisation at the ArcelorMittal Georgetown steel plant in Georgetown, South Carolina, USA, according to rolling mill division manager Danie Devapiriam.

"At the time of the upgrade, we had been experiencing many delays and cobbles in the NTM utilising outdated equipment.

"Overall we have experienced better-than-expected performance and benefits from this upgrade over the past five months," he added.

Morgan Construction Co – USA

Fax: +1 508 755 6140

Email: sales@morganco.com

Website: www.morganco.com



Green light in China

Royal DSM NV has started construction on a new factory for the production of waterborne acrylic resins in China.

With the investment of around €20m, DSM has taken another step in its ambition to reach sales of US\$1.5 billion in China in 2010, while at the same time introducing products to the country that contribute to a reduction in harmful emissions.

Waterborne acrylic resins can be used in water-based coatings which do not require volatile organic compounds (VOCs).

These VOCs have negative effects on the environment. Waterborne resins are applied as a raw material in a wide range of products, varying from decorative paints to adhesives.

The new factory is being built in the province of Guangdong on the existing site of DSM Syntech. The factory will be completed in the second quarter of 2008. It will be the first factory in China for the production of waterborne resins for DSM NeoResins+.

China currently represents a small, but very promising market for speciality waterborne resins. DSM has good expectations for these resins for the industrial wood and metal coatings as well as for the adhesives and graphic arts markets.

This expansion for waterborne resins is one of the first expansions at the DSM NeoResins+ site in China.

The ground-breaking ceremony was held on 22nd November 2007, in the presence of Mr Lie Hai Jian, vice mayor of Shunde.

DSM – Netherlands
Email: info@dsm.com

Fax: +31 45 5740680
Website: www.dsm.com

... and Desotech gets the ISO-9001 seal of approval

DSM Desotech has received ISO-9001 certification for its China operation.

This includes a sales office in Shanghai, as well as a local production facility at DSM Desotech Specialty Chemicals (Shanghai), Ltd (DDSC).

As a leading supplier of UV-curable coatings, inks and matrix resins to the optical fibre industry, DSM Desotech opened DDSC in 2005 in response to significant growth in the Asian optical fibre and cable market.

The plant currently produces Cablelite[®] fibre optic inks for the Asia-Pacific region.

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Production underway for Teknor Apex in Suzhou, China

The new Teknor Apex plant in Suzhou, China, has begun production of Apex® PVC compounds for wire and cable, including jacketing formulations for fast-growing communications, data, and electronic interconnect cable markets.

Apex jacketing compounds are available for riser (CMR) and tray (CM) cable applications as defined by UL. In addition, Fireguard® compounds for plenum (CMP) cables can be stocked at Suzhou for local availability.

Customers outside China can continue to source Apex wire and cable compounds from Singapore Polymers Corporation (SPC), a Teknor Apex subsidiary.

The transfer of Teknor Apex compounding technology to both SPC and Teknor Apex Suzhou has made it possible for the local production of compounds that precisely duplicate those manufactured by Teknor Apex in the US. These products already meet virtually all key regulatory codes and industry standards specified in the US, Canada, Europe, and Japan for their intended applications.

Teknor Apex now offers RoHS-compliant alternatives to all of its existing Apex compounds. These products have no compromise in physical and electrical properties and are priced comparably to lead-stabilised counterparts.

Teknor Apex – USA

Fax: +1 401 729 0166

Email: info@teknorapex.com

Website: www.teknorapex.com

Russian mill start up

Zao Kyshtym Electrolytic Copper Plant of Ekaterinburg, Russia, has started up a single-strand copper rod mill supplied by Morgan Construction Company.

This is the second SCR system purchased by Russian Copper Company, the parent company of Kyshtym.

John T Buell, manager, non-ferrous sales, noted the SCR 2000 copper system is being supplied to Kyshtym by the Southwire Company of Carrollton, GA, USA. Morgan supervised the installation and start up of the mill, which is designed to produce 8mm to 16mm copper rod at 12 metric tons per hour.

Morgan Construction Company – USA

Fax: +1 508 755 6111

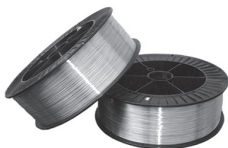
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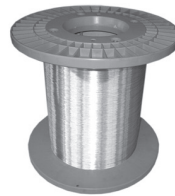
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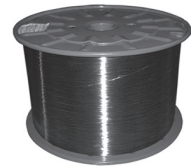
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DSM takes the plunge for Olympic teams

DSM will become the official sponsor of the Netherlands' best two sailing teams in the 470 class – and the Swiss fencing team heading for the Beijing Olympics this year.

In the run-up to the Olympics, DSM is supporting sailing world title holders Marcelien de Koning and Lobke Berkhout and the silver medal winners of the 2007 World Championships in Portugal, Sven and Kalle Coster.

Both teams will be major medal

contenders at the Olympics. And DSM has also stepped in to sponsor the Swiss fencing team for Beijing.

The team, led by Marcel Fisher, claimed the gold medal at the 2004 Olympics in Athens, Greece.

This top-level fencing team is joining the expanding DSM unlimited sports team which already includes the best two Dutch sailing teams in the 470 class, the Dutch mens volleyball team, Dutch pole

vaulter Rens Blom and Dutch Paralympics wheelchair tennis player Sharon Walraven.

By adding the Swiss fencing team to its team, DSM's involvement in sport is gradually becoming an international effort.

DSM – Netherlands

Fax: +31 45 571 9753

Email: info@dsm.com

Website: www.dsm.com

New cooling system order for Tenova

Techint Italimpianti Deutschland GmbH – part of Tenova LOI Italimpianti – has received an order from Georgsmarienhütte GmbH for the engineering, manufacturing, assembly and commissioning of a new evaporative cooling system for the waste gas duct of the EAF in the customer's main plant in Georgsmarienhütte, Germany.

The new cooling system for the waste gas duct was planned as a state-of-the-art evaporative cooling system and will use the waste heat energy for steam production. 12t saturated steam with 20.5 bar and 216°C will be produced hourly. The steam will be used for vacuum steel degassing.

Due to the discontinuous mode of the furnace and the continuous steam demand of the steel degassing additional steam accumulators will be used as buffers.

Tenova – Italy

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Nexans lays cable on bottom of Lake Constance, Germany . . .

Nexans has completed a contract for Stadtwerke Konstanz GmbH to lay a submarine fibre optic cable across Lake Constance, Germany, providing a new ultra-fast data communication link between the German towns of Konstanz and Friedrichshafen.

Konstanz and Friedrichshafen are on opposite shores of Lake Constance, the large freshwater lake on the Rhine between Germany, Switzerland and Austria.

Stadtwerke Konstanz, the local utility, wanted to upgrade the data communications link between the two towns. However, laying the cable on land would have involved taking a long route around the lake with expensive excavation work. The direct route, with the cable laid on the lake bed, has proved more cost-effective.

The fibre-optic cable, weighing more than 30 tons and 26 kilometres long, was manufactured and delivered by Nexans in one single continuous piece thus eliminating jointing operations. Beneath a robust outer sheath, it comprises four stainless steel sheathed bunched conductors, each consisting of 48 mono-mode fibre optic cables.

Each individual fibre is capable of ultra-quick transmission of large amounts of data, digital television signals and an almost unlimited number of telephone conversations.

A condition for Nexans receiving the order was that the materials used in the construction of the cable must not harm the drinking water reservoir, as many towns and communities, right up to the northern border of Baden-Württemberg, get their water from Lake Constance.



▲ Workers lay the cable on the bed of Lake Constance, Germany

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

. . . and sends €21 million worth of cables to Canada

Nexans will provide €21 million worth of power cables over the next four years, for Manitoba Hydro, the electric power and natural gas utility for the Canadian province.

The agreement further extends a long relationship between Manitoba Hydro and Nexans in Canada, established in 2001, when Nexans was selected as its sole supplier for all utility cables and wires.

Nexans currently provides Manitoba Hydro with 41 different cables, wires and accessories used by the overhead and underground power distribution network throughout the province, including medium voltage and low voltage cables, and bare aluminium and ACSR (aluminium conductor steel reinforced) wires.

In addition to its cable and wire products, Nexans also provides a team of commercial and technical representatives to supervise installation and participate in joint continuous improvement objectives.

The wire and cable products to be delivered over the next four years will be manufactured locally in the Nexans Weyburn plant in southeastern Saskatchewan.

New head at Roblon

Cable solutions company Roblon has appointed Thomas Holt Jørgensen to head up its industrial fibre division.

In his new role as division executive manager, Mr Jørgensen will head up activities including new R and D projects, the launch of new products, and participation in trade shows around the world.

He has 10 years' experience within the company, and has previously been based at Roblon Engineering Division and then at Roblon Industrial Fibre Division where he was sales and marketing manager since 2004.

Roblon, which celebrated its 50th anniversary last year, has representatives in more than 50 countries.

Roblon A/S – Denmark
Fax: +45 9620 3399
Email: info@roblon.com
Website: www.roblon.com



Tenova will boost Mechel steel plant in Russia

Tenova has been awarded an order for revamping the number 23 melt shop at the Izhstal OAO plant, in Ishvesk, Udmur Republic (Russia).

The plant is owned by Mechel, one of Russia's leading mining and metals companies, producer of coal, iron ore, nickel, steel, rolled products, and hardware.

The project includes the supply of a new complete line of equipment, including electric arc furnace, ladle furnace, vacuum degassing station, fume dedusting plant, water treatment plant and material handling plant.

The new electric arc furnace will combine high efficiency with low consumption and be equipped with the last generation of Tenova technologies, such as electrodes digital regulation system (TDRH) and KT injection system.

New mill heading for China

In response to Chinese market demands for higher quality products, the Jiangsu Jiang Run Copper Co Ltd of Yixing, China, has ordered an SCR 7000 system for its copper rod mill.

In announcing the contract, John T Buell, manager non-ferrous sales for Morgan Construction Company, noted the SCR 7000 system is being supplied to Jiangsu Jiang Run by the Southwire Company of Carrollton, GA, USA.

Under the terms of contract, Morgan will supply the mill with an entry and intermediate shear, 13 stands – one 18", four 12" and eight 8" stands, a pickling line, pinch rolls, turndown, coiler and a conveyor.

The mill's guaranteed speed will be 48 metric tons per hour.

Morgan Construction Company – USA
Fax: +1 508 755 6111
Email: sales@morganco.com
Website: www.morganco.com

The nominal EAF capacity will be 40 tons with an hourly production rate of 56 tons.

The new line will be able to achieve a production of 400,000 tons per year of low-alloy carbon steel grades and alloyed steel grades and stainless steel.

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Umstellung . . .

Der älteste englische Sonderdrahthersteller, Webster & Horsfall, hat einen Gasofen durch einen elektrisch erwärmten Ofen von Meltech Engineering ersetzt, um Energiekosten einzusparen und den Kohlenstoffverbrauch des Unternehmens zu reduzieren.

Meltech MT1100 wird zum Glühen einer Auswahl an austenitischen und Super-Duplex-Edelstahldrähten von Webster & Horsfall eingesetzt.

1720 von James Horsfall gegründet, stellt das in Birmingham ansässige Unternehmen Webster & Horsfall kohlenstoffhaltige Stahlfedern, Drahtsaiten und Seildrähte, Edelstahl-Federdrähte, niedriglegierte Stahlfederdrähte und Band für Federn, Klammern und Pressteile her.

In den letzten 12 Monaten haben die Energiekosten des Unternehmens um über 50% zugenommen.

„Wir mußten unsere Energiekosten kürzen und haben uns mit Meltech Engineering in Verbindung gesetzt,“ sagte Charles Horsfall, Geschäftsführer der Webster & Horsfall Ltd.

„Der MT1100 ist durchaus energie günstiger als unsere Gasöfen. Außerdem erhalten wir dadurch eine höhere Anpassungsfähigkeit unserer Herstellungsverfahren. Bis jetzt mußten wir den Gasofen in der Nacht vor dessen Anwendung starten, damit er genügend Zeit hatte die Temperatur zu erreichen; vergleicht man nun die Kosten mit dem Bedarf nach Glühen bedeutet es, daß wir nicht mehr rechtefertigen können den gasbetriebenen Ofen ständig laufen zu lassen.“

„Mit dem MT1100 brauchen wir den Ofen lediglich einzuschalten, wenn dies wirklich notwendig ist; und der Ofen



▲ Elektrisch erwärmter Ofen von Meltech

erreicht im kürzester Zeit die erforderliche Temperatur“ erklärte Charles Horsfall.

Der MT1100 wird eingesetzt um Edelstahldrähte von 0,7mm bis 4mm bei einer Temperatur von 1.100°C zu glühen. Er wurde nach dem Prinzip der „niedrigen thermischen Masse“ von Meltech konzipiert und verfügt über eine Mehrzonen-Temperaturregelung.

Dank individueller Anpassbarkeit der Element-Ausstattung kann die Leistung des MT1300 optimiert und so die Zoneneinteilung feinabgestimmt und die Lebensdauer der Elemente verlängert werden. Mit seinen hochmodernen Keramik- und Isolierwerkstoffen hat der MT1100 eine Temperatureffizienz von 90 %, was eine gleichmäßigere und leichter steuerbare Beheizung auf der gesamten Ofenlänge ermöglicht und die Betriebskosten der Ofenbeheizung senkt.

Charles Horsfall betrachtet den Wechsel von Gas auf Elektrik als unvermeidlich und willkommen.

„Die Umstellung von einem Gasofen zum MT1100 wird zwei positive Vorteile für unser Geschäft darstellen, sowie unsere Energiekosten reduzieren.“ fügte er hinzu.

„Damit wird die Qualität unserer Wärmebehandlung erhöht und unser Kohlenstoffverbrauch im Vorfeld jeglicher Regierungsgesetzgebung reduziert. Die Elektrizität kann von verschiedenen Treibstoffquellen erzeugt werden, was hoffentlich die langfristige Liefersicherheit verbessern wird. Schließlich planen wir alle unsere Gasöfen durch elektrische Öfen zu ersetzen.“

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Website: www.meltech.co.uk

Website für den chinesischen Markt

SPI Lasers, ein Designer und Hersteller von Faserlaser, hat eine neue Website – www.spilasers-china.cn – für den chinesischen Markt vorgestellt.

Die neue Website bietet zum ersten Mal Informationen auf chinesisch über die komplette Auswahl von SPI Lasers, sowie die Möglichkeit Bewertungen zu buchen, Datenblätter und Anwendungshinweise herunterzuladen, Proben im Anwendungslabor zu buchen, Kontaktdetails des betreffenden Verkaufs- und Serviceteams zu finden und mehr. Diese neue Website ist das Ergebnis hervorragender Verkäufe in der Region.

„China ist eines unserer erfolgreichsten Exportgebiete“ sagte John Tinson, Vizepräsident für Verkauf von SPI Lasers.

„Diese Website wird sich auf dem Erfolg verbreiten, den wir bereits in der Region erfahren haben und wird es den Interessenten ermöglichen sich über die neusten Entwicklungen von SPI Lasers in Muttersprache zu informieren.“

SPI Lasers – UK
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Nexans unterzeichnet Abkommen um Madeco zu erwerben

Nexans hat eine Rahmenvereinbarung unterzeichnet, um den Geschäftsbereich Kabel von Madeco, in Südamerika zu erwerben.

Mit den derzeit geltenden NE-Metall-Preisen, belaufen sich die Verkäufe im Jahr 2006 des Geschäftsbereich Kabel bei der Madeco Group auf 672 Millionen USD (457 Millionen Euro), unterteilt in die drei Hauptsegmente: Kabel für Infrastrukturen, Industrie und Bauwesen (und elektrische Leitungen mit einem geringeren Anteil).

Der wesentliche Umsatzzuwachs für diese Segmente lag bei 12% pro Jahr während der Zeitspanne 2004/2006. Für das Halbjahr 2007 lag die Unterteilung der Draht- und Kabelverkäufe bei Madeco bezogen auf Länder bei: 43% in Brasilien - der größte Markt in Südamerika - 28% in Chile, 18% in Peru, 6% in Argentinien und 5% in Kolumbien.

In all diesen Ländern hat Madeco eine führende Position dank seinem etablierten Ruf und Geschäftsimage. Diese anwachsenden Märkte, die führende Position von Madeco und seine Leitungskompetenz haben es dem Unternehmen ermöglicht, ein Ergebnis vor Zinsen, Steuern und Abschreibungen (EBITDA) im ersten Halbjahr 2007 in Höhe von 43 Millionen USD (29 Millionen Euro) zu erzielen. Dies entspricht einer Umsatzrendite von 10,6% auf Verkäufe bei den derzeitigen NE-Metall-Preisen.

Der Abschluß dieses Erwerbs ist für das dritte Quartal 2008 vorgesehen. Die Zahlung wird aus 2,5 Millionen neu ausgegebenen Aktien von Nexans und 422 Millionen USD (287 Millionen Euro) in bar bestehen sowie Schuldenübernahme nachdem die Minderheiteninteressen berücksichtigt wurden.

Madeco wird einen Anteil an Nexans von zirka 9% (auf der Grundlage von 28,1 Millionen Aktien) erhalten, verbunden mit der Verpflichtung diese mindestens 12 Monate lang ab Abschlußtermin zu halten.

Nexans Vorstand wird eine außerordentliche Aktionärsversammlung Anfang 2008 für die Zustimmung zur Aktienaussgabe und zur Wahl des Vertreters der Madeco Group als Vorsitzender einberufen.

Der Abschluß der Transaktion erfolgt vorbehaltlich der Zustimmung der Aktionäre von Madeco und Nexans sowie der entsprechenden Aufsichtsbehörde.

Nexans – Frankreich

Fax: +33 1566 98484

Email: nexans.web@nexans.com

Website: www.nexans.com

InterWire Group eröffnet eine neue Anlage in Mexiko

InterWire Products (IWP) hat eine neue Anlage in Mexiko eröffnet, um einem wichtigen Geschäftswachstum und die Nachfrage nach hochwertigem Eisen- und Nichteisendraht entsprechen zu können. Die neue ca. 2.800qm (30.000 Quadratfuß) große Anlage wird die Drahtmärkte der mexikanischen Regionen bedienen.

Pete Rosa wurde zum Generaldirektor von IWP Mexiko ernannt. Pete ist schon seit über 15 Jahren im Unternehmen und hat eine wichtige Rolle bei der Leitung des Wachstums der Division von IWP in Connecticut gespielt.

Dieses Ereignis folgt der kürzlichen Erweiterung von IWP in North Carolina mit einer ca. 5.000qm (54.000 Quadratfuß) großen Anlage und in Michigan mit einer ca. 7.500qm (80.000 Quadratfuß) großen Anlage, um die Märkte in West-Pennsylvania, Ohio, Indiana und Michigan zu bedienen. Dank dieser neuen Standorte, die zu den bestehenden Vertriebszentren hinzukommen, umfaßt nun der wichtigste Zwischenhändler von hochqualitativem Draht, IWP, insgesamt ca. 46.500qm (500.000 Quadratfuß) Lagereinrichtungen in ganz Amerika und Mexiko.

Die neue IWP Anlage nach neuestem Stand der Technik befindet sich in Tepeyac 1420-D, Parque Industrial Odonnell-Aeropuerto, El Marques, Queretaro, CP 76250 Mexiko.

InterWire Group –USA

Fax: +1 914 273 6848

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▲ Neue Anlage von InterWire in Mexiko

Baustelle in China

Royal DSM NV hat mit dem Bau einer neuen Fabrik für die Herstellung wässriger Acrylharze in China begonnen.

Mit einer Investition von rund 20 Mil. Euro, unternahm DSM einen weiteren Schritt mit der Absicht in China einen Umsatz von 1,5 Mrd. USD im Jahr 2010 zu erreichen, wobei gleichzeitig Produkte im Land eingeführt werden, die zu einer Reduzierung schädlicher Emissionen beitragen.

Die neue Fabrik wird in der Provinz Guangdong am gegenwärtigen Standort von DSM Syntech gebaut. Die Fabrik wird im zweiten Quartal 2008 fertig gestellt. Es handelt sich dabei um das erste Werk in China zur Herstellung wässriger Harze für DSM NeoResins+.

Der Spatenstich fand am 22. November statt, in Anwesenheit von Lie Hai Jian, Vizebürgermeister von Shunde.

DSM – Niederlande

Email: info@dsm.com

Fax: +31 45 5740680

Website: www.dsm.com

Переход на новое . . .

Старейший британский производитель специальной проволоки – компания «Вебстер энд Хорсфол» (Webster & Horsfall), заменила газовую печь на электропечь от компании «Мелтек инжиниринг» (Meltech Engineering) с целью снижения энергозатрат и сокращения выбросов двуокси углерода на ее производстве.

Печь Meltech MT1100 используется для термотравления в нитку всего ассортимента выпускаемой компанией «Вебстер энд Хорсфол» проволоки из аустенитных и супердуплексных нержавеющей сталей. Основанная в 1720 году Джеймсом Хорсфолом (James Horsfall) компания «Вебстер энд Хорсфол», которая находится в г. Бирмингеме, производит проволоку для пружин, струн и тросов из углеродистой стали, проволоку для пружин из нержавеющей стали, проволоку для пружин из низколегированной стали, а также полосу для пружин, зажимов и штампованных деталей.

За последние 12 месяцев энергозатраты компании выросли более чем на 50%. «Нам необходимо было сократить затраты на энергию, и мы обратились в «Мелтек инжиниринг», – сказал Чарльз Хорсфол (Charles Horsfall), управляющий директор компании «Вебстер энд Хорсфол лтд».

«Печь MT1100 гораздо экономичней наших газовых печей. Она также обеспечивает большую эксплуатационную гибкость при использовании в нашем производстве.

До этого времени нам приходилось запускать газовую печь за ночь до ее использования, чтобы она могла прогреться до необходимой температуры; при этом сопоставление расходов со спросом на отжиг показывает, что мы больше не можем позволить себе держать газовую печь разогретой все время.

Печь MT1100 мы можем включать, когда это необходимо; печь разогревается до требуемой температуры за очень короткое время», – пояснил он. Печь MT1100 используется для отжига в нитку проволоки из нержавеющей стали диаметром от 0,7 мм до 4 мм при 1100 °С. Она сконструирована с использованием принципа «низкой теплоаккумулирующей способности», разработанного компанией «Мелтек», и обладает такой конструктивной



▲ Электропечь компании «Мелтек»

особенностью, как многозонный контроль температуры.

Индивидуально выполненная конструкция отдельных элементов позволяет оптимизировать работу печи MT1100, точно регулировать температуру в отдельных зонах и увеличить эксплуатационный ресурс всех компонентов. Кроме того, в MT1100 используются современные керамические и изоляционные материалы, что увеличивает тепловой КПД до 90 % и в результате обеспечивает более ровный и управляемый нагрев по всей длине печи и уменьшает текущие расходы на нагрев печи.

Чарльз Хорсфол считает, что переход с газа на электричество был неизбежным и долгожданным. «Помимо снижения энергозатрат, переход с газовой печи на MT1100 даст нашей компании два несомненных преимущества», – сказал он. «Это улучшит качество термической обработки и значительно уменьшит уровень выбросов двуокси углерода еще до принятия государством соответствующих законодательных норм. Электричество можно вырабатывать, используя различные виды топлива, что, как я надеюсь, повысит надежность снабжения в долгосрочной перспективе. В конечном итоге мы планируем заменить все наши газовые печи на электрические».

«Мелтек инжиниринг» (Великобритания)
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Адрес электронной почты: sales@meltech.co.uk
Web-страница: www.meltech.co.uk

Web-страница для китайского рынка

Компания «Эс-пи-ай лэйзерз» (SPI Lasers), разработчик и производитель волоконных лазеров, открыла новый сайт – www.spilasers-china.com, ориентированный на китайский рынок. Новая Web-страница впервые предоставляет информацию о полном ассортименте продукции компании «Эс-пи-ай лэйзерз» на китайском языке, а также дает возможность заказать проведение экспертизы, скачать техническое описание и указания по применению, заказать обработку образцов в лаборатории прикладных исследований, найти контактную информацию по отделам продаж и работы с покупателями и многое другое. Открытие новой Web-страницы обусловлено отличными показателями продаж в этом регионе.

«Китай является одним из регионов, в которых наши экспортные операции наиболее успешны», – сказал Джон Тинсон (John Tinson), вице-президент «Эс-пи-ай лэйзерз» по продажам. «Этот сайт обеспечит развитие успеха, который уже достигнут нами в регионе, и позволит заинтересованным сторонам получать информацию о последних достижениях «Эс-пи-ай лэйзерз» на их собственном языке».

«Эс-пи-ай лэйзерз» (Великобритания)
Факс: +44 1489 779698
Адрес электронной почты: info@spilasers.com
Web-страница: www.spilasers.com

«Интеруайр групп» открывает новое предприятие в Мексике

Компания «Интеруайр продактс» (InterWire Products) открыла новое предприятие в Мексике для обеспечения значительного роста своего бизнеса и удовлетворения спроса на высококачественную проволоку из черных и цветных металлов. Новое производство площадью 30 000 кв. футов будет обслуживать потребности рынка проволоки в регионе Мексиканского залива.

«Мы очень рады официально открыть предприятие «Интеруайр продактс» в Мексике после стольких месяцев подготовки, – сказал президент компании Фрэнк Кардайл-младший (Frank Cardile Jr). – Я уверен, что клиенты убедятся в отличном качестве наших проволочных изделий, высоком уровне нашей службы по работе с клиентами и доступности предлагаемых нами цен». Пит Роуза (Pete Rosa) назначен управляющим «Интеруайр продактс Мексико». Пит проработал в компании больше 15 лет и играл важную роль в управлении развитием отделения «Интеруайр продактс» в шт. Коннектикут.

Открытие нового отделения стало продолжением недавнего выхода компании «Интеруайр продактс» на рынки шт. Северная Каролина, где был открыт новый комплекс площадью 54 000 кв. футов, и шт. Мичиган, где она ввела в эксплуатацию новый склад площадью 80 000 кв. футов, обслуживающий заказчиков в Западной Пенсильвании, Огайо, Индиане и Мичигане. С открытием новых мощностей в дополнение к уже существующим дистрибьюторским центрам общая площадь складских помещений компании «Интеруайр продактс» – крупнейшего дистрибьютора высококачественной проволоки – на территории Соединенных Штатов и Мексики теперь составляет 500 000 кв. футов.

Новый комплекс «Интеруайр продактс», оборудованный по последнему слову техники, находится по адресу: Мексика, СР 76250, Керетаро, Эль Маркес, Тепейяк, 1420-Д, промышленный парк «Аэропорт О’Доннелл».

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Факс: +1 914 273 6848
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info@interwiregroup.com
Web-страница:
www.interwiregroup.com

Цены растут

Компания «Доу уайр энд кейбл» (Dow Wire and Cable) повысила цены на все смолы, компаунды и другие материалы для производства проводов и кабелей, продаваемые в Северной Америке.

Подорожание на 0,26 доллара США за килограмм вступило в силу с 1 января 2008 года.

«Доу уайр энд кейбл» (США)
Факс: +1 713 978 3281
Адрес электронной почты: info@dow.com
Web-страница: www.dow.com

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Changement d'équipement

Webster & Horsfall, le fabricant le plus ancien de fils spécifiques, a remplacé un four à gaz avec un four réchauffé électriquement de Meltech Engineering, pour couper les coûts de l'énergie et réduire la consommation de carbone de la société.

Le four Meltech MT1100 est utilisé pour le recuit de fils d'acier inoxydable austénitiques et super duplex de la gamme Webster & Horsfall.

Fondée en 1720 par James Horsfall, la société Webster & Horsfall de Birmingham est spécialisée dans la fabrication de ressorts d'acier au carbone, de fils et cordes à piano, de fils pour ressorts en acier inoxydable, de fils pour ressorts en acier faiblement allié et de rubans pour ressorts, d'agrafes et de pièces embouties.

Pendant les 12 derniers mois l'énergie consommée a augmenté de plus de 50%.

"Nous nécessitions de couper nos coûts de consommation de l'énergie et nous avons contacté Meltech Engineering", a déclaré Charles Horsfall, directeur général de Webster & Horsfall Ltd.

"Le four MT1100 est beaucoup plus efficace du point de vue énergétique que nos fours à gaz. En outre, il offre une majeure versatilité dans nos opérations de fabrication. Jusqu'à aujourd'hui nous avons dû démarrer le four à gaz durant la nuit avant de l'utiliser pour lui donner le temps de se réchauffer.

"Le coût contre la demande de recuit indique qu'il n'est plus rentable de maintenir le four à gaz en fonction en continu. Avec le MT1100 nous pouvons l'allumer lorsque nous le nécessitions et le four atteint la température requise en beaucoup moins de temps" a-t-il expliqué.

Le MT1100 est utilisé pour recuire les fils d'acier inoxydable de 0,7 à 4mm à 1 100°C. Il est conçu selon le principe de "basse masse thermique" de Meltech et dispose d'un système de contrôle de température multizone.

La personnalisation de la conception des éléments permet d'optimiser les prestations du MT1100 pour mettre à point le zonage de température et augmenter la durée de vie utile de chaque élément. En



▲ Four Meltech réchauffé électriquement

outre, le four MT1100 utilise des matériaux céramiques et des matériaux d'isolement de pointe permettant d'obtenir 90% de rendement thermique, avec pour résultat un chauffage plus uniforme et maniable le long du four et de réduire les frais d'exploitation du chauffage du four.

Charles Horsfall considère le passage du gaz à l'électricité comme inévitable et souhaitable en même temps.

"Le changement d'un four à gaz au MT1100 aura deux avantages positifs pour notre activité, et réduira les coûts énergétiques", a-t-il déclaré.

"Il entraînera également une amélioration de la qualité de notre traitement thermique et une réduction significative du bilan de CO₂ avant toute réglementation imposée par le gouvernement.

"L'électricité peut être générée à partir de plusieurs sources de carburant, qui l'on espère amélioreront la sécurité de la fourniture à long terme. Finalement, nous programmons de remplacer la totalité de nos fours à gaz par des fours électriques".

Meltech Engineering – Royaume-Uni
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Email: sales@meltech.co.uk
Website: www.meltech.co.uk

Site Web pour le marché chinois

La société SPI Lasers, spécialisée dans la conception et dans la production de laser à fibres optiques, a créé un nouveau site Web (www.spilasers-china.cn) destiné au marché chinois.

Le nouveau site Web offre des informations concernant toute la gamme de SPI Lasers, pour la première fois en chinois ainsi que la possibilité de réserver des évaluations, télécharger des fiches techniques et des notes d'application, réserver des échantillons dans le laboratoire d'applications, trouver les informations détaillées pour contacter l'équipe de support aux ventes et au service clients et plus encore.

"Ce site Web sera développé en fonction du succès que nous avons déjà obtenu dans la zone et permettra aux parties concernées de se tenir informées sur les récents progrès de SPI Lasers dans sa propre langue", a déclaré John Tinson, vice-président des ventes.

SPI Lasers – Royaume-Uni
Fax: +44 1489 779698
Email: info@spilasers.com
Website: www.spilasers.com

Nexans signe un accord pour le rachat de Madeco

Nexans, annonce la signature d'un accord cadre portant sur l'acquisition de la totalité des activités câbles de Madeco, en Amérique du Sud.

Le groupe Madeco a réalisé en 2006, dans ses activités câbles, un chiffre d'affaires au cours des métaux courants de 672 millions de dollars (457 millions d'euros) dans les trois segments essentiels que sont les câbles d'infrastructures, industriels et du bâtiment (et plus marginalement les fils conducteurs).

La croissance organique de ces métiers a été de 12% annuels en volume sur la période 2004/2006.

Au 1er semestre 2007, la distribution des ventes des fils et des câbles par pays réalisées par Madeco a été de 43% au Brésil (le marché le plus important

d'Amérique du Sud), 28% au Chili, 18% au Pérou, 6% en Argentine et 5% en Colombie.

Dans l'ensemble de ces pays, Madeco occupe une position de leader grâce à ses marques commerciales à forte notoriété.

La vigueur des marchés, la position de leader qu'y détient Madeco et son excellence opérationnelle lui ont permis de dégager un EBITDA de 43 millions de dollars au premier semestre 2007 (29 millions d'euros), soit un taux de 10,6% sur ventes au cours du cuivre courant.

Cette acquisition, dont le closing est attendu au 3e trimestre 2008, sera rémunérée par 2,5 millions d'actions et une composante cash/reprise de dette qui, nette des minoritaires, représentera 422 millions de dollars (287 millions d'euros).

Madeco détiendra alors environ 9% du capital de Nexans (sur la base de 28,1 millions d'actions), qu'il s'engage à ne pas céder dans les 12 mois suivant la réalisation de la transaction. Le Conseil d'Administration de Nexans convoquera une Assemblée Générale Extraordinaire des actionnaires début 2008 pour l'approbation de l'augmentation de capital et la nomination comme Administrateur d'un représentant du Groupe Madeco.

La réalisation de l'opération sera notamment soumise à l'accord des actionnaires de Madeco et de Nexans, ainsi qu'à l'approbation des autorités concernées.

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Le Groupe InterWire ouvre une installation au Mexique

InterWire Products (IWP) a ouvert une nouvelle installation au Mexique pour satisfaire la forte croissance de l'entreprise et la demande de fil ferreux et non ferreux haute qualité.

La nouvelle installation, qui occupera 2 800m² (30 000 pieds carrés), desservira les marchés du fil du Mexique.

Pete Rosa a été nommé directeur général de IWP Mexico. Pete travaille depuis plus de 15 ans dans la société et a eu un rôle de direction dans la croissance de la division de IWP dans le Connecticut.

Cet événement suit la récente expansion de IWP avec l'ouverture d'une installation de 5 000m² (54 000 pieds carrés) en Caroline du Nord et un autre établissement de 7 500m² (80 000 pieds carrés) dans le Michigan, desservant les marchés de Pennsylvanie occidentale, Ohio, Indiana et Michigan.

Avec ces nouvelles installations, en plus des centres de distribution existant déjà, IWP, principal distributeur de fil fin de qualité, dispose actuellement d'une surface totale d'environ 46 500m² (500 000 pieds carrés) de dépôt aux États-Unis et au Mexique.

La nouvelle installation de pointe de IWP, est située à Tepeyac 1420-D, Parque Industrial Odonnell-Aeropuerto, El Marques, Querétaro, CP 76250 Mexique.

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▲ Nouvelle installation de InterWire au Mexique

Travaux en cours sur l'installation de Chine

Royal DSM NV a commencé à construire une usine pour la production de résines acryliques aqueuses en Chine.

Avec cet investissement d'environ 20 millions d'euros, DSM a effectué un pas supplémentaire vers son objectif d'atteindre un volume de ventes de 1 500 millions de dollars américains en Chine en 2010, tout en introduisant des produits contribuant à réduire l'émission de particules nuisibles. La nouvelle usine est réalisée dans la province de Guangdong sur le site de DSM Syntech existant déjà.

L'usine qui sera terminée le deuxième semestre 2008, sera la première usine de Chine spécialisée dans la production de résines aqueuses pour DSM NeoResins+.

La cérémonie d'ouverture a été célébrée le 22 novembre en présence de Lie Hai Jian, vice-maire de Shunde.

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Cambiamento di equipaggiamenti

Webster & Horsfall, il costruttore di fili speciali di più antica data, ha sostituito un forno a gas con un forno riscaldato elettricamente da Meltech Engineering, per tagliare i costi energetici e ridurre il consumo di carbonio della società.

Il forno Meltech MT1100 è utilizzato per la ricottura dei fili d'acciaio inossidabile austenitici e Super Duplex della gamma di Webster & Horsfall.

Fondata nel 1720 da James Horsfall, la società Webster & Horsfall di Birmingham è specializzata nella fabbricazione di molle d'acciaio al carbonio, di filo armonico e cavi, fili per molle in acciaio inossidabile, fili per molle in acciaio bassoalegati e nastri per molle, graffe e parti stampate.

Durante gli ultimi 12 mesi i costi dell'energia sono aumentati più del 50%.

"Avevamo la necessità di tagliare i nostri costi di consumo energetico ed abbiamo contattato Meltech Engineering", ha dichiarato Charles Horsfall, direttore generale di Webster & Horsfall Ltd.

"Il forno MT1100 è molto più efficace dal punto di vista energetico rispetto ai nostri forni a gas. Inoltre offre una maggiore versatilità nelle nostre operazioni di fabbricazione. Fino ad oggi abbiamo dovuto avviare il forno a gas la notte prima di utilizzarlo per dargli il tempo di riscaldarsi.

Il costo rispetto alla domanda di ricottura indica che non è più conveniente mantenere il forno a gas continuamente in funzione. Con il forno MT1100 possiamo metterlo in funzione quando ne abbiamo bisogno ed il forno raggiunge la temperatura richiesta in molto meno tempo" ha spiegato Charles Horsfall.

Il forno MT1100 è utilizzato per la ricottura di fili d'acciaio inossidabile da 0,7 a 4mm a 1.100°C. È progettato secondo il principio della "bassa massa termica" di Meltech e dispone di un sistema di controllo della temperatura multizona.

La personalizzazione della progettazione dei componenti consente di ottimizzare le prestazioni del forno MT1100 per mettere a punto la suddivisione in zone della temperatura e aumentare la vita utile



▲ Forno Meltech riscaldato elettricamente

di ciascun componente. Inoltre, il forno MT1100 utilizza materiali ceramici e di isolamento d'avanguardia che permettono di ottenere il 90% del rendimento termico, e conseguentemente un riscaldamento più uniforme e gestibile lungo il forno, nonché di ridurre i costi di esercizio per il riscaldamento del forno.

Charles Horsfall considera il passaggio dal gas all'elettricità inevitabile e auspicabile allo stesso tempo.

"Il cambiamento da un forno a gas al forno MT1100 offrirà due vantaggi positivi per la nostra attività, e ridurrà i costi energetici", ha dichiarato ancora Charles Horsfall.

"Tale cambiamento comporterà inoltre un miglioramento della qualità del nostro trattamento termico ed una riduzione significativa del bilancio del carbonio prima di qualsiasi regolamento di governo.

"L'elettricità può essere generata da numerose fonti di combustibile che si spera miglioreranno la sicurezza della fornitura a lungo termine. Infine, i nostri programmi prevedono di sostituire tutti i nostri forni a gas con forni elettrici".

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Sito Web per il mercato cinese

La società SPI Lasers, specializzata nella progettazione e nella produzione di laser a fibre ottiche, ha creato un nuovo sito Web (www.spilasers-china.cn) destinato al mercato cinese.

Il nuovo sito web fornisce informazioni riguardanti l'intera gamma di SPI Lasers, per la prima volta in cinese nonché la possibilità di prenotare le valutazioni, scaricare schede tecniche e applicazioni, prenotare campioni nel laboratorio di applicazioni, trovare le informazioni dettagliate per contattare l'équipe di supporto alle vendite e al servizio clienti ed altro ancora. Questo nuovo sito web è il risultato delle eccellenti vendite registrate nella regione.

"Questo sito web sarà sviluppato in funzione del successo che abbiamo già ottenuto nella zona e permetterà alle parti interessate di tenersi informate sui recenti progressi di SPI Lasers nella propria lingua", ha dichiarato John Tinson, vice-presidente delle vendite.

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Nexans firma un accordo per l'acquisizione di Madeco

Nexans annuncia la firma di un accordo quadro per l'acquisizione di tutte le attività di Madeco in America del Sud.

Nel 2006 il gruppo Madeco ha realizzato, con le sue attività nel settore dei cavi, un volume d'affari, ai prezzi correnti dei metalli non ferrosi, di 672 milioni di dollari (457 milioni di euro) nei tre segmenti principali che sono i cavi per le infrastrutture, l'industria e l'edilizia (e più marginalmente i fili conduttori).

La crescita fondamentale del volume questi settori è stata pari al 12% l'anno nel periodo 2004/2006. Nel primo semestre del 2007, la distribuzione delle vendite di fili e cavi per paese realizzata da Madeco è stata di circa il 43% in Brasile (il mercato più importante dell'America del Sud), 28% in Cile, 18% in Perù, 6% in Argentina e 5% in Colombia.

In tutti questi paesi, Madeco occupa una posizione di leader grazie alla sua consolidata reputazione e alla sua immagine commerciale.

Questi mercati emergenti, la posizione di leader occupata da Madeco e la sua superiorità da una punto di vista manageriale hanno consentito alla società di realizzare nel primo semestre 2007 un EBITDA di 43 milioni di dollari (29 milioni di euro), pari ad un tasso del 10,6% delle vendite al prezzo corrente dei metalli non ferrosi.

La chiusura di quest'acquisizione è attesa per il terzo trimestre del 2008. Il pagamento sarà pari a 2,5 milioni di azioni di nuova emissione di Nexans e 422 milioni di dollari americani (287 milioni di euro) in contanti e l'assunzione di debito al netto degli interessi di minoranza.

Madeco avrà una partecipazione di circa il 9% in Nexans (sulla base di 28,1 milioni di azioni), che si impegna a non cedere per un periodo minimo di 12 mesi dalla data di chiusura. Il Consiglio di Amministrazione di Nexans convocherà un'Assemblea Generale Straordinaria degli azionisti all'inizio del 2008 allo scopo di approvare l'aumento di capitale e la nomina come Amministratore di un rappresentante del Gruppo Madeco.

La realizzazione dell'operazione sarà in particolare soggetta all'accordo degli azionisti di Madeco e di Nexans, nonché all'approvazione delle autorità interessate.

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Il gruppo InterWire apre un impianto in Messico

InterWire Products (IWP) ha aperto un nuovo impianto in Messico per soddisfare la forte crescita dell'impresa e la domanda di filo ferroso e non ferroso di alta qualità. Il nuovo impianto che occuperà 2.800m² (30.000 piedi quadrati), servirà i mercati del filo del Messico.

Pete Rosa è stato nominato direttore generale di IWP Mexico. Pete lavora da oltre 15 anni nella società dove ha ricoperto un importante ruolo di direzione nella crescita della divisione di IWP in Connecticut.

Questo evento segue la recente espansione di IWP con l'apertura di un impianto di 5.000m² (54.000 piedi quadrati) in Carolina del Nord e un altro stabilimento di 7.500m² (80.000 piedi quadrati) in Michigan, che serve i mercati della Pennsylvania occidentale, l'Ohio, l'Indiana e il Michigan.

Con questi nuovi stabilimenti, oltre ai centri di distribuzione esistenti, IWP, principale distributore di filo fino di qualità, dispone attualmente di una superficie totale di circa 46.500m² (500.000 piedi quadrati) di deposito negli Stati Uniti e in Messico.

Il nuovo impianto d'avanguardia di IWP, è situato a Tepeyac 1420-D, Parque Industrial Odonnell-Aeropuerto, El Marques, Querétaro, CP 76250 Messico.

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▲ Nuovo impianto di InterWire in Messico

Lavori in corso sull'impianto in Cina

Royal DSM NV ha avviato la costruzione di una fabbrica per la produzione di resine acriliche acquose in Cina.

Con questo investimento di circa 20 milioni di euro, DSM ha fatto un passo avanti verso il suo obiettivo di raggiungere un volume di vendite di 1.500 milioni di dollari americani in Cina nel 2010, introducendo prodotti che contribuiscono a ridurre l'emissione di particelle nocive.

La nuova fabbrica viene realizzata nella provincia di Guangdong sul sito di DSM Syntech esistente. La fabbrica che sarà ultimata il secondo semestre del 2008, sarà la prima fabbrica in Cina specializzata nella produzione di resine acquose per DSM NeoResins+. La cerimonia di apertura è stata celebrata il 22 novembre alla presenza di Lie Hai Jian, vice sindaco di Shunde.

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Cambio de equipo

Webster & Horsfall, el fabricante de hilos especiales más legendario del Reino Unido, ha cambiado un horno a gas por un horno calentado con electricidad de Meltech Engineering, con el fin de recortar gastos de energía y reducir el consumo de carbón de la compañía.

El horno Meltech MT1100 es usado para recocer hilos de acero inoxidable austeníticos y súper dúplex de la casa Webster & Horsfall.

La sociedad Webster & Horsfall de Birmingham, fundada en 1720 por James Horsfall, se dedica a la fabricación de resortes de acero al carbono, cuerdas de piano e hilos para cables, alambres para resortes de acero inoxidable, alambres para resortes de acero de baja aleación y bandas para resortes, piezas de retención y piezas estampadas.

En los últimos 12 meses sus gastos de suministro energético han aumentado más del 50%.

“Necesitábamos recortar el gasto energético y nos pusimos en contacto con Meltech Engineering”, comentó Charles Horsfall, director general de Webster & Horsfall Ltd.

“El horno MT1100 es mucho más eficiente desde el punto de vista energético que nuestros hornos a gas. Además, ofrece mayor versatilidad en nuestras operaciones de fabricación.

“Hasta ahora teníamos que poner en marcha el horno a gas por la noche antes de usarlo para darle tiempo a calentarse.

El coste frente a la demanda de recocido indica que ya no nos es rentable mantener el horno a gas funcionando de modo continuo.

“Con el MT1100 podemos encenderlo cuando lo necesitamos y el horno alcanza la temperatura requerida en mucho menos tiempo”, explicó.

El MT1100 es utilizado para recocer hilos de acero inoxidable de 0,7 a 4mm a 1.100°C. Está diseñado según el principio de “baja masa térmica” de Meltech y dispone de un sistema de control de temperatura multizona.

La personalización del diseño de los elementos permite optimizar las



▲ Horno Meltech calentado eléctricamente

prestaciones del MT1100 para ajustar la temperatura con precisión en distintas zonas y aumentar la vida útil de cada elemento. Además, el horno MT1100 está hecho con materiales cerámicos y aislantes que permiten conseguir un 90% de eficiencia térmica, lo cual permite calentarlo de manera más uniforme y manejable y reducir los tiempos de encendido del horno para ahorrar costes.

Charles Horsfall considera el cambio de gas a electricidad como algo inevitable y al mismo tiempo bienvenido.

“El paso de un horno a gas al MT1100 aportará dos ventajas a nuestra actividad, además de reducir los costes energéticos”, dijo.

“Mejorará la calidad de nuestro tratamiento térmico y reducirá considerablemente nuestro uso de carbón antes de que lo imponga el gobierno.

“La electricidad puede ser generada por varias fuentes de carburantes, que se espera mejoren la seguridad de suministro a largo plazo. Por último, tenemos planeado cambiar todos nuestros hornos a gas por hornos eléctricos”.

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Página web para el mercado chino

SPI Lasers, diseñador y fabricante de láseres de fibra, ha creado una nueva página web (www.spilasers-china.cn) orientada al mercado chino.

La nueva página web ofrece información sobre la entera gama de láseres SPI, por primera vez en chino.

Permite, además, solicitar presupuestos, descargar hojas de datos y notas de aplicación, solicitar muestras al laboratorio, buscar información de contacto del equipo de soporte de ventas y atención al cliente y mucho más. La nueva página web es fruto de las magníficas ventas registradas en la zona.

“Esta página web será ampliada en función del éxito obtenido en la zona y permitirá a las partes interesadas mantenerse informadas sobre los últimos avances de SPI Lasers en su propio idioma”, comentó John Tinson, vice presidente de ventas de SPI Lasers.

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Nexans firma acuerdo para comprar Madeco

Nexans ha firmado un acuerdo marco para comprar la empresa de cables que Madeco tiene en Suramérica.

Al precio actual de los metales no ferrosos, en 2006 el grupo Madeco registró en sus actividades en el sector de cables un volumen de ventas de 672 millones de dólares americanos (457 millones de euros), en tres segmentos de mercado principales: cables para infraestructuras, para la industria y para la construcción (y en hilos eléctricos en menor medida).

El crecimiento en volumen orgánico de estos segmentos fue del 12% anual durante el periodo 2004-2006.

A mitad de 2007, las actividades de hilos y cables de Madeco por país fue aproximadamente de un 43% en Brasil, el mayor mercado de Suramérica, un

28% en Chile, un 18% en Perú, un 6% en Argentina y un 5% en Colombia.

En todos estos países Madeco ejerce liderazgo gracias a su reconocida reputación e imagen comercial.

Estos crecientes mercados, el liderazgo de Madeco y su magnífica gestión permitieron a la empresa producir 43 millones de dólares americanos (29 millones de euros) de EBITDA (beneficios antes de intereses, impuestos, depreciaciones y amortizaciones) en H1 2007, que representan un margen operativo del 10,6% de las ventas al precio actual de los metales no ferrosos.

Se espera que la adquisición finalice en el tercer trimestre de 2008. El pago se efectuará con 2,5 millones de acciones de Nexans recién emitidas y 422 millones de dólares americanos (287 millones

de euros) en metálico y la asunción de deuda al neto de derechos menores.

Madeco se hará con una cuota de Nexans equivalente a casi un 9% (sobre 28,1 millones de acciones) que se compromete a conservar durante 12 meses como mínimo a partir de la firma del acuerdo. El Consejo Directivo de Nexans celebrará una junta extraordinaria a principios de 2008 con motivo de la aprobación de una emisión de acciones y de la elección de un representante del grupo Madeco como director.

El cierre de la transacción depende principalmente del visto bueno de los accionistas de Madeco y Nexans, además del de las autoridades reguladoras.

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El grupo InterWire abre planta en Méjico

InterWire Products (IWP) ha abierto una planta nueva en Méjico para satisfacer el considerable crecimiento de la empresa y la demanda de alambre ferroso y no ferroso de alta calidad. La planta nueva, que ocupará unos 2800m² (30.000 pies cuadrados) prestará servicio a los mercados del alambre de Méjico.

Pete Rosa ha sido nombrado director general de IWP Mexico. Pete lleva más de 15 años trabajando en la compañía y ha desempeñado un papel importante dirigiendo el crecimiento de la división de IWP en Connecticut.

Este acontecimiento llega tras la reciente expansión de IWP con la apertura de una planta de 5000m² en Carolina del norte y otra de 7500m² en Michigan, orientadas a los mercados de Pennsylvania occidental, Ohio, Indiana y Michigan.

Con estas nuevas plantas, además de los centros de distribución existentes, IWP, principal distribuidor de alambre fino de calidad, dispone ahora de una superficie total de unos 46500m² para almacenamiento en todo el territorio de Estados Unidos y Méjico.

La nueva planta de IWP, tecnológicamente avanzada, está situada en Tepeyac 1420-D, Parque Industrial Odonnell-Aeropuerto, El Marques, Querétaro, CP 76250 Méjico.

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▲ Planta nueva de InterWire en Méjico

Obras en la planta de China

Royal DSM NV ha empezado a construir una fábrica en la que producirá resinas acrílicas al agua en China.

Con esta inversión de unos 20 millones de euros, DSM se acerca un poco más a su objetivo de llegar a un volumen de ventas de 1500 millones de dólares americanos en China en 2010, al mismo tiempo que introduce productos que reducen la emisión de partículas nocivas.

La fábrica nueva está siendo construida en la provincia de Guangdong en la planta existente de DSM Syntech. La fábrica será terminada en el segundo trimestre de 2008. Será la primera fábrica de China que producirá resinas al agua para DSM NeoResins+.

La revolucionaria ceremonia fue celebrada el 22 de noviembre, en presencia de Lie Hai Jian, vice alcalde de Shunde.

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Transatlantic Cable

The economy

US manufacturing ended 2007 at its weakest in nearly five years

The manufacturing index of the Institute for Supply Management, which had already slipped markedly over the second half of last year, dropped further to 47.7 in December. This was its lowest level since April 2003. A reading below 50 indicates expansion in the economy; below 50, contraction. A falling-off in new orders for the month also hinted at softening demand, even as companies paid higher prices for their materials. The shrinkage in factory production for the first time in nearly a year fanned concern that the economy may be headed for recession.

These fears are exacerbated by the most severe housing slump in more than a decade. And credit markets have been experiencing turmoil as the crisis that began in with defaults on sub-prime mortgages spread into other areas of finance.

Norbert Ore, chairman of the ISM manufacturing business survey committee, did not minimise the implicit threat of a greater impact on the broader economy.

"Manufacturing leads the rest of the economy," Mr Ore said.

If credit problems worsen, how much longer can consumer spending keep the US economic expansion going?

The year 2007 saw a number of shocks delivered to the American economy. Job growth slowed. Inflation fears grew. Oil prices soared. Mortgage debt became a major problem. Banks tightened their credit requirements. Still, consumers kept spending, companies compensated for weakness at home with higher sales abroad, and the economy continued to expand. The question now becomes, how much longer can it be expected to withstand the assaults?

The major, closely related, worry points – the burst housing bubble, a wave of foreclosures, and tight credit – are holdovers from 2006 and 2007. Easy credit and speculation produced a glut of 2.1 million vacant, unsold houses – about 2.6% of the nation's housing stock. But the whittling-down to normal levels of this inventory of unsold properties faces a new challenge, perhaps distinctive to 2008.

As of November of last year, nearly one-quarter of the loans extended to homeowners with weak credit were in default. The trouble in the mortgage market, while bad enough, was largely confined to these sub-prime loans. Now, however, there appears to be a strong possibility that foreclosures will spread to people with good credit – good enough, that is, for ordinary times.

Writing in the *New York Times*, Peter S Goodman and Vikas Bajaj note that default rates on loans to homeowners with relatively good credit, while still low, are rising sharply. In November, 6.6% of so-called Alt-A home loans – those considered somewhat less risky than sub-prime – were either delinquent by at least

60 days, in foreclosure, or had been repossessed. That was up from 4.3% in August. ('In the Land of Many Ifs,' 2nd January). The article warns: "This is a potentially ominous sign, because sub-prime and Alt-A mortgages issued in 2006 together made up about 40% of all mortgages. Like many of the sub-prime loans that have landed in trouble, Alt-A loans often begin with a low introductory interest rate that later escalates."

The *Times* reporters point out that the spike in foreclosures is happening even before many mortgages have reset to higher rates, suggesting that borrowers are falling behind because their properties are worth less. Many are having trouble refinancing as banks tighten lending standards.

* Taken together, these indications have economists expecting national housing prices to fall by 5- to 10% more in 2008, and perhaps into 2009 as well, before hitting bottom. Messrs Goodman and Bajaj note that such a drop could ripple out to the broader economy by depressing consumer spending, which accounts for about 70% of all economic activity. Bernard Connolly, chief global strategist at Banque AIG in London, told the *Times*, "It's almost inconceivable that there won't be severe constraints on the US consumer economy."

The talent crisis

Making the case for reform of US treatment of immigrants with high skills

"Americans entering the workforce today barely make the global top ten. America is no longer a skills-abundant country compared with an increasing share of the rest of the world. As a result, in the coming decade America could face broad and substantial skills shortages." These are the stark conclusions of Jacob Funk Kirkegaard, a Danish-born research associate at the Washington-based Peterson Institute for International Economics and author of 'The Accelerating Decline in America's High-Skilled Workforce: Implications for Immigration Policy,' published by the institute.

Mr Kirkegaard asserts that America rose to economic prominence on the shoulders of the most highly skilled workforce in the world. However, he writes, over the last 30 years skill levels in the US workforce have 'stagnated.' That is, as the current crop of American workers retire, they will take as many skills with them as their children bring into the workforce. What is more, remedial efforts – even if implemented now – will produce more high-skilled Americans only in the long term.

In Mr Kirkegaard's view, the US in the short to medium term will increasingly need foreign high-skilled workers. The country therefore must reform its immigration policies and procedures not only to welcome high-skilled workers from overseas, but also to make it easier for them to stay.

For America to regain its leadership in global talent, Mr Kirkegaard urgently recommends reform of US high-skilled immigration programmes, particularly the H-1B temporary work visa and legal permanent resident (green card) programmes. More than 90% of green cards are issued by way of adjustment-of-status (eg, from H-1B temporary worker to legal permanent



resident) for high-skilled foreigners already residing in the United States. But bottlenecks in the green card system (eg, per-country limits for countries such as India and China, long waiting periods, a costly and time-consuming application process) force many employed high-skilled workers to leave the US once their temporary visas expire.

Meanwhile, Canada, the United Kingdom, Australia, France, and Germany have rapidly revamped their immigration systems, turning the US into only one of many destinations for high-skilled immigrants.

And countries such as China and India, which traditionally have supplied high-skilled emigrants to the US, have actively begun to induce their nationals to return home.

* The Peterson Institute believes the Kirkegaard study verifies that concerns for the plight of American high-skilled workers in the face of significant inflows of foreign high-skilled workers are unfounded. Kirkegaard investigates empirically the labour-market situation faced by US software workers – the group that is usually depicted in American media as facing the greatest risks from globalisation – and reveals that these occupations enjoy full employment at record levels in the US economy of today.

Telecommunications

First on the President's last wish list: legislation protecting companies from lawsuits for aiding warrantless eavesdropping

As President George W Bush began his eighth and final year in office, Dan Froomkin, who writes the 'White House Watch' column in the *Washington Post*, declared that Mr Bush is aiming for one last major domestic legislative triumph: permanent expansion of government spying powers, including retroactive immunity for telecom companies that assist in warrantless surveillance. In an impromptu briefing aboard Air Force One on New Year's Day, as Mr Bush returned to Washington from his Texas vacation, White House counsellor Ed Gillespie told reporters that a bill to amend the Foreign Intelligence Surveillance Act is Mr Bush's top priority. ('Bush's Final Year,' 2nd January). "FISA is front and centre," Mr Gillespie said, according to a press pool report. "If it is allowed to lapse we will be less safe as a country."

Deferring (some would say caving in) to the President, Congress in August 2007 authorised continued warrantless eavesdropping, but only until 1st February.

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The White House wants the protections under FISA made permanent. Mr Gillespie told the reporters on the plane, 'Terrorists do not work on six-month time frames.' In explaining why the FISA extension is such a big deal to the White House, Mr Froomkin referred to the article 'Wider Spying Fuels Aid Plan for Telecoms' in the *New York Times* on 16th December. The work of three *Times* reporters, it asserts that the reliance of the National Security Agency on telecommunications companies is broader and deeper than ever before, as acknowledged by government and industry officials. But it is an alliance strained by legal worries and the fear of public exposure. In this view, what is at stake no less than the federal government's extensive but uneasy partnership with industry to conduct a wide range of secret surveillance operations in fighting terrorism and crime.

In short, Mr Froomkin concludes, the question of whether or not Congress assures permanent protection to telecoms aiding the government's warrantless eavesdropping programme is no small matter. Rather, he says, "It's a historic battle over the future of the country as a surveillance state."

▶ Congress versus the White House on wiretapping-without-warrant

Many Americans and others who expected the results of the mid-term congressional elections of 2007 to mean a rougher time for President George W Bush are puzzled. How is it that the narrow but decisive Democratic victory has done so little to cramp the style of the headstrong Republican in the White House? Of particular interest to our industry, why has the opposition party shown itself so ineffective in the matter of the US telecoms which shared subscriber information with the government, in violation of laws governing confidentiality?

In fact, Democrats in the new and old Congress, both, have tried earnestly to get the telecoms – and, by extension, the President – to explain themselves. There was, and there continues to be, sentiment in favour of retroactive immunity for the telecoms among lawmakers of both parties. The real question is why the Democrats' effort to obtain relevant information has produced so little.

To recap, on 2nd October 2007, the Energy and Commerce Committee of the US House of Representatives, which has jurisdiction over the telecommunications industry, sent letters to three major domestic carriers – AT&T, Qwest, Verizon – requesting disclosure of the extent to which they shared data on the calling and Internet habits of private citizens with federal intelligence agencies. The committee already had an inquiry under way into such domestic surveillance efforts as the wiretapping-without-warrant programme of the National Security Agency.

A member of the committee – Edward J Markey, of Massachusetts – had pressed the Federal Communications Commission in the matter for more than a year. The US Communications Act prohibits telecom carriers from disclosing proprietary customer information without customer approval, absent a court order or other administrative order. In September, Mr Markey urged the FCC chairman to open an inquiry into allegations that the telecoms cooperated with government requests for data by illegally sharing such information.

"As reports about government intelligence agencies running roughshod over telecommunications privacy laws continue to surface," Mr Markey said, "I have grown more and more concerned that the rights of consumers are being lost in the shuffle." Mr Markey's renewed effort came as the Republican administration pushed Congress to confer immunity on the telecoms in lawsuits charging them with invasion of privacy. House Democrats tied their consideration of such relief to full government disclosure about the programme that the telecoms are charged with aiding. The administration has resisted subpoenas for such information.

* Ellen Nakashima of the *Washington Post* noted the specificity of the questions put by the lawmakers to the telecoms. Had the carriers been asked to provide customer information without [an administrative subpoena] or approval from a special court under the Foreign Intelligence Surveillance Act? If so, who asked them for the data? Did the firms object? Are they currently providing any information to the government without a FISA order? Have they ever been asked to install equipment on their network to intercept Internet traffic or to send such information to third parties?

Ms Nakashima also said the committee wanted to know whether telecoms gave details on their customers' 'communities of interest,' or networks of people with whom they were in contact. According to the Electronic Frontier Foundation – a San Francisco-based non-profit committed to the preservation of free speech rights in the digital age – the Federal Bureau of Investigation (FBI) circumvented established procedure to obtain such data. ('Telecoms Pressed on Surveillance,' 3rd October)

▶ Mr Bush to Congress: Grant liability protection to cooperating telecoms, or face my veto

The Democrat-sponsored initiative outlined above is clearly a good-faith effort to obtain the facts needed for an informed debate on the culpability, if any, of the telecoms which cooperated with the government. It falls well within the scope of the oversight function assigned to the Congress by the US Constitution. But the administration apparently believes that a simple declaration supplies all the information Congress could possibly need or want: to wit, telecom snooping is essential to the government's post-9/11 counterterrorism programme.

Mr Bush, pushing hard for immunity from civil suits for the telecoms, on 10th October warned Congress that unless it confers that protection retroactively he would not sign any new bill into law. His argument is that multi-billion dollar lawsuits arising from the once-secret eavesdropping programme could bankrupt the telecoms, whose cooperation with the government signifies patriotism rather than betrayal of their customers' trust. To be sure, the Democrats are reaping the results of the hasty concessions they made shortly before Congress adjourned for vacation last August. Fearful of the charge of softness on terrorism, and despite grave misgivings about the scope of the eavesdropping power of the executive branch, lawmakers of both parties enacted the changes to the terrorism-surveillance programme requested by the President – to be effective for the six months to February 2008.



The prospect of the lapse of these provisions this February drove Mr Bush, in October 2007, to yet another ringing assertion that curbs on his power amount to nothing less than complicity with the powers of darkness. Making his meaning clear despite the murky Presidential diction, he said: "The problem is, the threat to America is not going to expire in February. So Congress must make a choice. Will they keep the intelligence gap closed by making this law permanent, or will they limit our ability – collect this intelligence and keep us safe, staying a step ahead of the terrorists who want to attack us?" While Mr Bush, along with the rest of us, awaits his answer, we might consider another question: How much longer will the mere mention of 9/11 suffice to silence not only the dissenter but also the honest seeker of reliable information?

- ✱ The two companies said that the French-American venture, set to launch in April, will generate an estimated \$1.5 billion a year in revenue in its first phase. Under the deal signed in October, this first phase will cover all transatlantic flights among Air France and Delta hubs, as well as all flights operated by both carriers between London-Heathrow and the United States.
- ✱ Boeing Co said on 3rd January that it had delivered 441 planes in 2007, nearly 10% more than in 2006. Chicago-based Boeing, which had predicted it would deliver 440 to 445 planes in the year, made 112 deliveries in the fourth quarter. Its rival Airbus SAS had projected delivery of 450 to 460 planes in 2007, and as of 30th November had delivered 410 planes. At the final tally, Airbus is expected to have met its projection. In 2006, Airbus delivered 434 planes; Boeing, 398.

Aerospace

- ✱ As airlines manoeuvre for position under the new Open Skies agreement on airline service between the US and Europe, Air France-KLM and Delta Air Lines Inc have formed a joint venture that will enable them to share profits and eventually up to \$8 billion in annual revenue on transatlantic routes.

Airbus is also expected to come out ahead of Boeing on orders for 2007. Boeing said that, as of 18th December, it had booked 1,213 orders. Airbus, which was set to release its information for last year in mid-January, reported 1,204 orders as of the end of November. This total beats the Toulouse, France-based company's own record of 1,111 orders, set in 2005.

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Britain overtakes the US as top World Bank donor

The decline in the value of the dollar vis-à-vis European currencies has dealt another blow to the United States, if a largely symbolic one. For the first time, the US has been superseded – by Britain – as the biggest donor to the World Bank.

Traditionally, the power to choose the bank's president and chart its policies goes with the position. Bank officials meeting in Berlin, Germany, in December said the change in ranking was due at least in part to currency swings. But, because the US could have ensured its hold on the top spot by raising its contribution to the bank, the ceding of primacy was apparently a willed act.

The motive behind the unprecedented self-demotion is less clear. The bank's current president, Robert B Zoellick, an American appointed by President George W Bush, chose both to stick with the currency-fluctuation motif and to shift the focus away from it. "The US is stretching, Britain is stretching," he said in a conference call with reporters; then he noted that Britain 'has the advantage of a stronger currency, the pound.'

'Stretching' refers to the impulse behind a record total of \$25.1 billion pledged to aid the world's poorest countries,

despite widespread misgivings about the bank's direction and leadership under Mr Zoellick's contentious predecessor, Paul D Wolfowitz. Another Bush appointee, Mr Wolfowitz left in July 2007 after a bitter dispute about his ethics that roiled the bank membership and threatened relations with aid officials, particularly Europeans.

In less than six months' time, Mr Zoellick appears to have redeemed the US in the eyes of the World Bank community, at least. Big pledges from Britain (\$4.2 billion) and Germany (\$2.2 billion) indicate that he has succeeded in healing the rift with Europe. German officials, especially, are warm in their praise for the former diplomat and trade negotiator.

The decision by Mr Zoellick to skip the bank negotiations in Berlin to attend a United Nations meeting on climate change, in Bali, is suggestive. Among his accomplishments is to have obtained pledges of donations from China and Egypt, nations that were once recipients of World Bank aid.

Could Mr Zoellick have persuaded his sponsor in the White House that the work of the 185-member bank is more important than the perquisites of the top spot?

Dorothy Fabian
USA Editor

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Reducing energy the Sampsistemi way!

Increasing market globalisation and the arrival of countries with enormous potential on the wire and cable manufacturing scene – particularly China and India – have forced producers to rethink company processes in an attempt to boost productivity, rationalise and reposition manufacturing programmes, and lower fixed costs and overheads.

Over recent years, Sampsistemi has focused on researching and developing new solutions and ways of reducing the amount of energy used in wire and cable manufacture, not only for first and multi-wire drawing lines, but also for high-speed bunching lines.

Developing new products whilst continuously improving existing technology is currently the main strategy pursued at Sampsistemi.

In particular, recent innovations include limited-slip multi-motor rod breakdown machines for copper, aluminium and alloys of the same; dual-motor multi-wire drawing machines with up to 56-wire solutions; and twin double-twist bunchers, engineered with either single or dual motors.

In terms of bettering consolidated products, Sampsistemi has recently optimised drawing line gear transmissions; developed new high-performance systems for its double-twist bunchers; and engineered innovative annealers, incorporating wire cooling and drying systems.

Other significant innovations for heavy duty drawing applications include the development of new electronic control and gear transmission systems, with



▲ Significant innovations from Sampsistemi

performance rates of up to 99%; a fully-submerged drawing die holder; and special-profile capstans to enhance finished wire quality.

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technology at a glance

Drawing on its wide experience and customer-oriented philosophy, PS Costruzioni has designed and manufactured a fully automatic double head spooling line, PS 1000/22-B.



Full story inside

Serindgamma has been producing washing-salting and pickling plants for wires and bands since 1977, and is specialised in cleaning machines in line with mechanical as well as chemical operations.



Full story inside

Super-size cables for Iraq

CMS (Cable Management Supplies) Ltd went that extra mile, literally, when it recently supplied the UK's Ministry of Defence with fibre optic cables for use in Iraq.

Whereas CMS customers typically order fibre in lengths of 250m to 500m, the MoD required lengths of from two kilometres up to eight and ten kilometres.

The fibre will be used to extend Army communications and reconstruct civilian networks in Iraq.



▲ CMS went – literally – the extra mile!

CMS is able to handle fibre orders of any size from small custom-made lengths and assemblies to large bulk requirements.

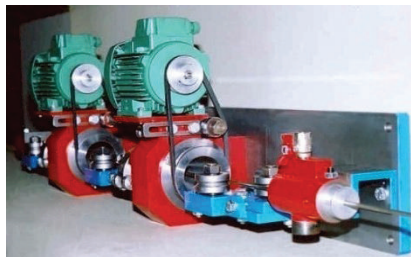
Most cables can be delivered the next working day, before 1pm, at no extra charge on orders of more than £100.

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Rod and wire dry cleaning , in-line at high-speed

Decalub has developed a steel rod and wire dry cleaning system, called Smooth-Brush (SB), which operates in-line with a wire drawing machine.

The SB system provides an extra-clean product by transversal high-speed fine brushing all around the wire circumference with automatically controlled brush pressure, and ensures unchanged rod/wire physical properties with no residual stress induced.



▲ Rod/wire cleaning by the SB brushing system

Development of the rod and wire SB cleaning system eliminates the most costly parameters in wire drawing process, including elimination of acid and wet pre-coating chemicals, providing significant downstream benefits and substantial process savings.

Suitable for use where the surface finish is of great importance, the system offers consistency and can benefit demanding applications including plating wire, CO₂ welding wire and H/C wires where the ductility is a focus, particularly in production of spring wire, bead wire, PC strand wire, etc.

Brush bristles penetration is adjustable to automatically maintain surface micro-roughness from 10 to 25 microns, pre-selected at will.

In applications with rod, the system provides transversal micro-roughing which is ideal for lubricant pick up during drawing, enabling even plastic deformation and a uniform metal flow within the die at all practical speeds.

This eliminates the need for wet pre-coating chemicals in the drawing process.

In wire cleaning applications, the system's smooth abrading capability is used to clean drawn wire from lubricant residual enabling wire in-line polishing, metallic and plastic coatings, painting, etc.

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New double head spooling line from PS Costruzioni

Drawing on its wide experience and customer-oriented philosophy, PS Costruzioni has designed and manufactured a fully automatic double head spooling line, PS 1000/22-B.

The company's engineers have created this line in order to satisfy a growing demand from cable companies in need of spooling big size flat and round cables.

The line can spool cables with a minimum diameter of 6mm/0.23" up to a maximum diameter of 22mm/0.86" and can be used with several spool sizes from 450mm/17.73" up to 1,000mm/39.40". Maximum linear speed is 400m/1,312.32ft per minute, according to the type of cable.



▲ The new PS 1000/22-B from PS Costruzioni

Since both solid and delicate cables should be wound in spools, the best solution is to use two dancers (one for solid cables and one for delicate ones). In doing so, the pull on the cable can be perfectly checked.

The PS 1000/22-B has a modular structure, comprising some basic units and additional ones which can be added according to the customers' requirements.

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WIRE COILING SYSTEMS





New wire marker from Spectrum

Spectrum Technologies has launched the Nova™ 880 ultra high speed UV laser wire marker, which joins the existing range of Capris® UV laser wire marking products.

The Nova 880 is the highest speed wire marker developed to date by Spectrum, with performance substantially greater even than the benchmark Capris 100, which has been the mainstay of the aerospace industry for the past decade or more.

Nova 880 represents a quantum leap in performance in UV solid state laser wire markers. It uses a new high power UV laser and optical system based on Spectrum's proprietary Longbow™ UV solid state laser to achieve marking speeds up to double those of the current top of the range marker, the Capris 60-200.

Overall system throughput and productivity is increased by up to 90% compared to the C60-200, depending on job make up.

Nova also heralds the introduction of a brand new overall system design with new wire handling and auto-mation

systems that introduce further substantial gains in performance and capabilities.

Nova is available as either a manual system or with fully automated wire handling for selecting and loading wires. The new auto select and load (ASL) system doubles the number of wires that can be handled automatically from the previous 16 to 32 wires or cables. The wire loading times have also been slashed, offering even greater productivity.

Recent industry reports have stated that future production of aircraft faces the prospect of being constrained by manufacturing capacity. Nova has been developed in anticipation of this issue and in response to demand from industry for a very high speed marker for high volume aerospace wire harness manufacturing applications. The Nova marker also excels in extreme applications – marking very long wire codes and long wires with continuous close pitched wire codes, such as required by military aircraft applications.

After consultation with key customers Spectrum's engineering and development

team launched the Nova development in mid-2006 to meet the requirement for a system with increased capacity. A full prototype system has been under development with thorough Beta testing carried out on-site at Spectrum. The system has been carefully designed to reduce risks associated with new technology, minimising the time to market.

Following a successful test phase Nova has now been released into production with the first batch of units currently in manufacture. Spectrum has also signed up the launch customer with the first unit due for delivery before the end of the year.

The system is in full compliance with the latest international standards for aerospace wire marking such as SAE AS5649. It also complies fully with other key standards such as AS50881 and major OEM standards.

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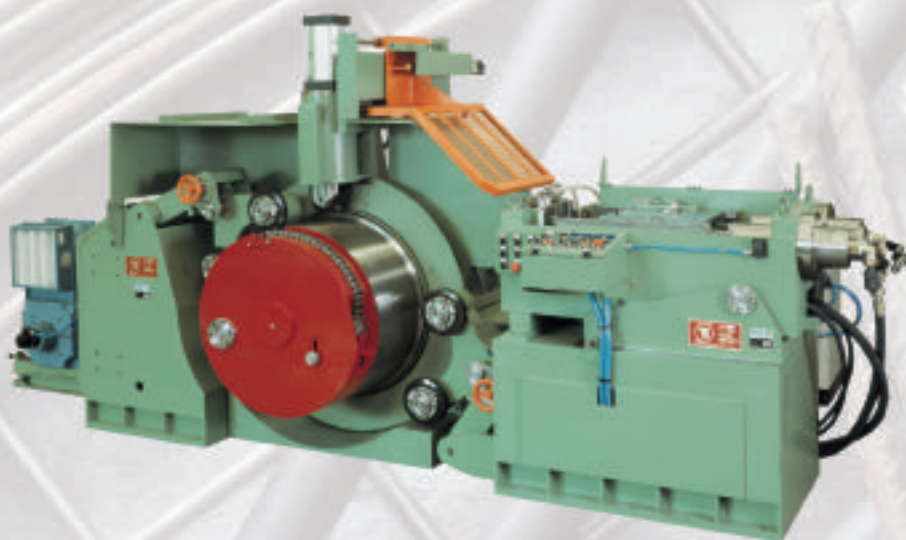
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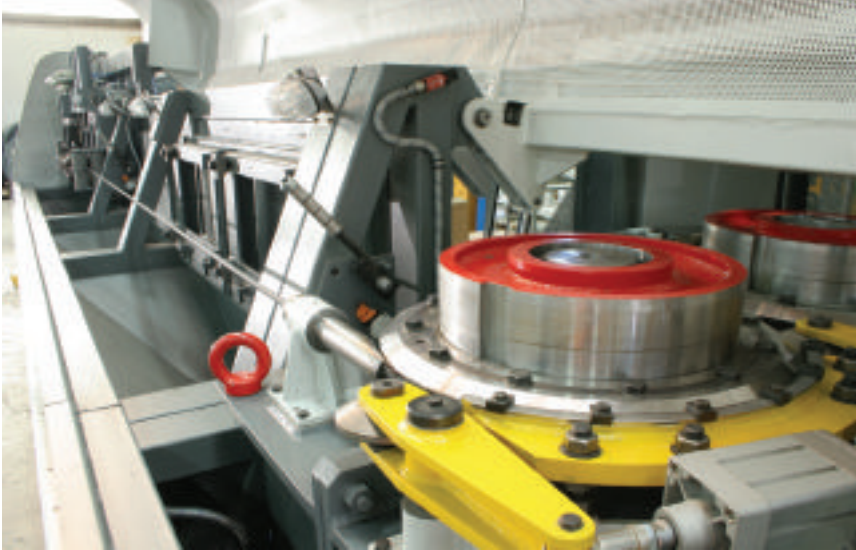


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New wire machinery division for Eurolls



▲ New division is going from strength-to-strength

Eurolls SpA, Italy, has further strengthened its position by forming the Eurolls Wire Machinery Division.

This division has rapidly acquired an important role as a single source for the supply of highly efficient/technologically advanced wire production and processing equipment such as advanced fully automatic lattice girder production lines for either standard or special electro-welded structures, new equipment and/or components for the production of high resistant/high yield reinforcements etc.

It is in the sector of high resistant/high yield reinforcement production that Eurolls Wire Machinery Division has developed its new high speed combined cold rolling/stretching lines – LGV2V – which are currently operating in various plants in Europe. The heart of this high performance line is an innovative dual capstan bull block designed to operate efficiently in conjunction with both the traditional Eurolls cold rolling cassettes, for the production of cold rolled wire, as well as wire stretching panels, for production of high resistant/high yield reinforcements.

Two totally different reinforcement products satisfy the different and stringent quality/mechanical parameters as imposed by the latest European codes.

The new high speed combined cold rolling/stretching line LGV2V has also been designed with particular emphasis placed

on the ease of rod threading, eg presence of motorised feeding rolls, self-threading bull block capstans etc, so important when operating with large diameter entry material required for the production of the top end reinforcements, independent on whether cold rolled wire or stretched material.

To ensure a correct rod feed into such a line, a new continuous horizontal hot rolled rod coil pay-off system has also been developed.

This system is the perfect complement to the high speed cold rolling/stretching line, LGV2V, because it guarantees a continuous rod feed that is not affected by the dimension/diameter of the rod coil or the time required to properly weld the successive entry rod coils.

The concept of total flexibility/high efficiency has also been extended to the collection system which permits the formation of different formats of the cold rolled wire/stretched material.

For this reason the line has been designed to efficiently produce – at high speed – both straightened and cut bars as well as precision laid strapped coils (layer to layer wire) with fully automatic spoolers with up to 5 ton capacity.

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Nexans' range extended

Nexans has further extended its Buflex range of polyurethane sheathed reeling energy cables with the addition of Buflex X'Prem, designed to boost the performance and durability of cranes operating at high speeds of up to 150 metres/minute.

Buflex X'Prem's new design greatly improves the cable in terms of traction and durability, without needing to increase its size. The thinner and lightweight polyurethane sheath enables it to offer similar performance to standard rubber sheathed reeling cables, but within a smaller overall diameter and enhanced abrasion resistance. This enables crane operators and OEMs to utilise smaller motorised reels to achieve equal or superior productivity.

Buflex X'Prem is available in both a low-voltage, yellow version, for applications up to 1kV, such as in the general industrial crane market and a medium-voltage, red or black, version for applications from 6kV to 20kV in ports and terminals.

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'What if' is reality in cable stranding and compacting

What if you only used diamond on the working surface of a die?

What if it became possible to make a Tungsten Carbide die with a composite surface layer of extremely fine grain Polycrystalline Diamond (PCD) on the working profile?

The cost would be a bit more than the plain Tungsten Carbide die, but for compacting and stranding operations, the cable would now see a PCD die, with all the benefits of greatly improved surface finish and greatly improved wear resistance.

Now the 'what if' is real – thanks to Sanxin Wire Die. The dies are called Nano-PCD Composites. The obvious applications are Cable Stranding and Compacting operations.

Nano-PCD dies are readily available in diameters from 3mm to 60mm. In compacting and stranding operations, they are capable of processing 10 to 15 times the tonnage of the product, compared with Tungsten Carbide dies. Result – the cables stay within physical and electrical specification for much longer during production and the surface finish is clearly superior.

Now you can easily justify using diamond dies for longer life and better finish, in diameters where previously you could not even think of using diamond.

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Zwick – covering all the extremes

laserXtens – Zwick's latest strain measurement system – has successfully been used for applications in temperature chambers where materials are typically exposed to temperatures from -70 to

+250°C whilst being subjected to tensile or compressive loads.

Such tests are very important for the automotive industry where the measurement of both axial and transverse strain is often required.

laserXtens measures bi-axial strain without any specimen contact and without the need to attach any marks to the specimen. Part of the specimen surface is illuminated using the principle of laser speckle interferometry.

As the specimen is subjected to load, the reflected speckle pattern is tracked by two digital cameras, and highly advanced real-time software algorithms convert this data directly into strain.

The tests carried out in the temperature chamber revealed that this measurement technology was not adversely affected by the thin layer of frost which had formed on the specimen. The speckle pattern was easily detected and could be tracked during the tests.

temperature chamber so laserXtens offers significant benefits in terms of its ease of use. Meeting class 1 of ISO 9513 (class B2-ASTM E83), the extensometer remains outside the testing environment and measures strain up to failure.

Zwick believes that this device will revolutionise the measurement of strain on specimens under environmental conditions.

Zwick GmbH & Co KG – Germany
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Website: www.zwick.de

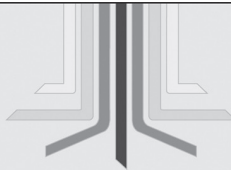


▲ Extreme temperatures tested the new strain measurement system

Only a window is required in order for laserXtens to 'see' the specimen inside the



... the most important source of information in the wire and cable industry ...

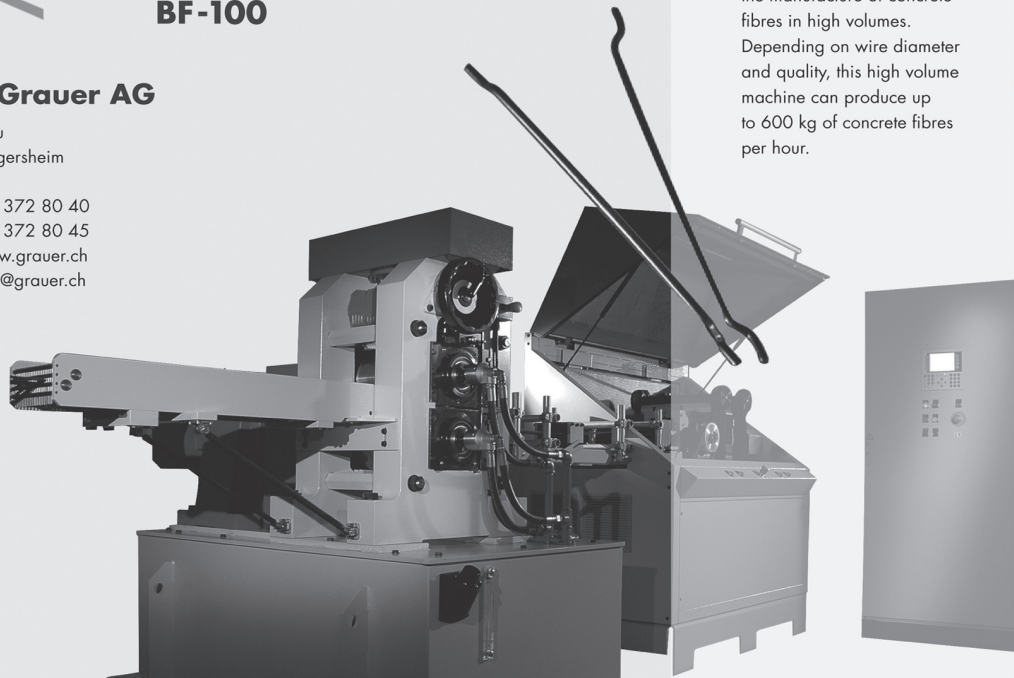


Concrete Fibres Machine BF-100

Rudolf Grauer AG

Maschinenbau
CH-9113 Degersheim
Switzerland
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Fax +41 71 372 80 45
Internet: www.grauer.ch
E-Mail: info@grauer.ch

Quality System
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The concrete fibres machine BF-100 is designed for the manufacture of concrete fibres in high volumes. Depending on wire diameter and quality, this high volume machine can produce up to 600 kg of concrete fibres per hour.

Visit us at wire Düsseldorf, Stand 10 F 20/40

Draka Comteq's new fibre coating technology

Draka Comteq has launched its latest innovation in fibre coating technology – ColorLockXS.

The optical fibre technology, cabling, connectivity solutions and network engineering services company's new product became available on Draka Comteq's flagship bend-insensitive fibre, BendBrightXS from January.

BendBrightXS, the first true bend-insensitive fibre introduced in 2006, has gained significant momentum in the marketplace as it meets the most stringent fibre bending standards while maintaining backwards compatibility with existing fibre infrastructure.

The newest enhancement, ColorLockXS, improves fibre micro-bending performance as well as strip-ability, while adding new vibrant colours integrated into the fibre coating.

Unlike other fibres, BendBrightXS is an all-glass fibre using proven and industry-accepted materials and technology, eliminating splicing concerns or special procedures for connectivity.

Micro-bending improvement with ColorLockXS coating on BendBrightXS means that the fibre is resistant to kink-losses, a key metric for fibre performance in tight bends required in FTTx applications.

Kink-loss can be described as partial bends (up to 45 degrees) of the optical fibre at radii as small as 2mm. Typical

losses for BendBrightXS in such a situation are less than 0.1dB, even at a 2mm radius, which represents up to a hundred times improvement.

Draka Comteq – Netherlands

Fax: +31 40 2923 866

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Website: www.drakacomteq.com

It's all there in glorious colour!

A new brochure from Teknor Apex explains how designers, processors, and OEMs benefit from this custom compounder's diverse thermoplastic technologies and its international supply capabilities.

The colourful 12-page publication reports that Teknor Apex draws on a database of 40,000 formulations and uses manufacturing capacity on three continents to supply compounds that already comply with key international standards.

One special capability cited is that of providing identical compounds to globalised customers with multiple plant locations. Details on the following broad compounding groups are presented, including many product ranges in each group and the markets served:

- Vinyl; thermoplastic elastomers (TPEs); engineered thermoplastics (ETPs); colourants; speciality compounding.

The brochure is available via email or by visiting the website.

Teknor Apex Company – USA

Email: info@teknorapex.com

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Website: www.teknorapex.com

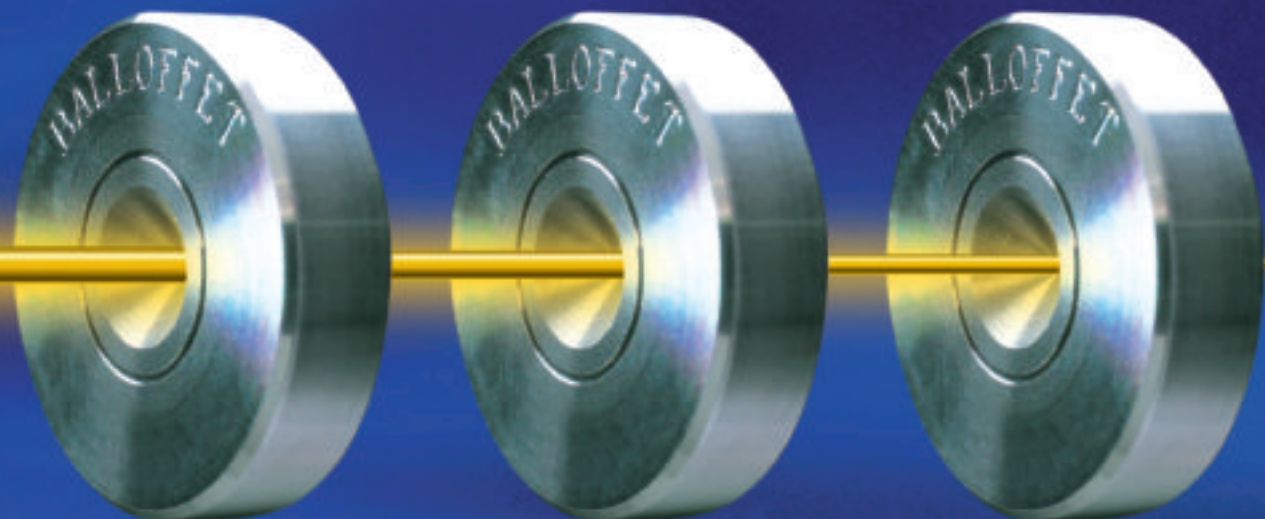
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Three-year programme for new C-frame metal spot welders

Sonobond Ultrasonics' new C-frame metal spot welders are now available for applications outside the auto industry.

The initial development of these welders was part of an advanced technology programme sponsored by Ford Motor Company, and partly funded by a grant from the National Institute of Standards and Technology. This three-year programme cost an estimated \$8,910,000 and was designed to develop ultrasonic

metal welding technology for use in the mass production of lower-weight, aluminium automobile bodies for better fuel economy.

In developing the C-frame ultrasonic metal welders, Sonobond has created units that permit more travel between the tip and anvil and have a deeper throat.

The welders can also be operated by a robotic arm. The arm positions the welder

at the desired weld locations, while the automotive parts to be joined are held stationary in a fixture.

Sonobond then built a second, bigger C-frame to accommodate even larger automotive parts.

This second model, the WeldMaster™ C-Frame II, has two ultrasonic heads. One head powers the welding tip, while the other powers the anvil.

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Ultrasonic vibration is introduced from both sides of the weldment. This reduces the weld energy and weld time required in making a weld to about half that needed for a single head.

It also dramatically reduces the tendency towards tip sticking of aluminium parts, as well as deformation of the part welded.

Each of the new spot welders is supplied with Sonobond's micro-processor-controlled 2,500 watt power supply. The units can be bench-mounted or adapted for robot operation.

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Strong research and development

Shanghai Wangxun Optic Fiber Co Ltd, China, specialises in high quality shielding layer tapes, coated steel tapes, coated aluminium tapes, coated copper tapes and coated stainless steel tapes for all kinds of communication cables, submarine cables, OPGW, power cables and programme cables.

With a strong research and development team, Wangxun has developed the equipment independently, and achieved many patents.

Shanghai Wangxun Optic Fiber Co Ltd – China
Fax: +86 21 6490 5520
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wangxun1@shwangxun.com
Website: www.shwangxun.com



Washing and pickling plants for 30 years

Serindgamma has been producing washing-salting and pickling plants for wires and bands since 1977 and is specialised in cleaning machines in line with mechanical as well as chemical operations.

Serindgamma machines are entirely manufactured in the factory situated in Magenta, Milan, Italy.

The company is a strong believer in flexibility.

The flexibility of the technical departments to study and manufacture customised solutions, using deeply tested technology in order to solve all the problems linked to wire and cable production.

This flexibility has seen the company's turnover increase every year, and for it to increase the number of customers worldwide.

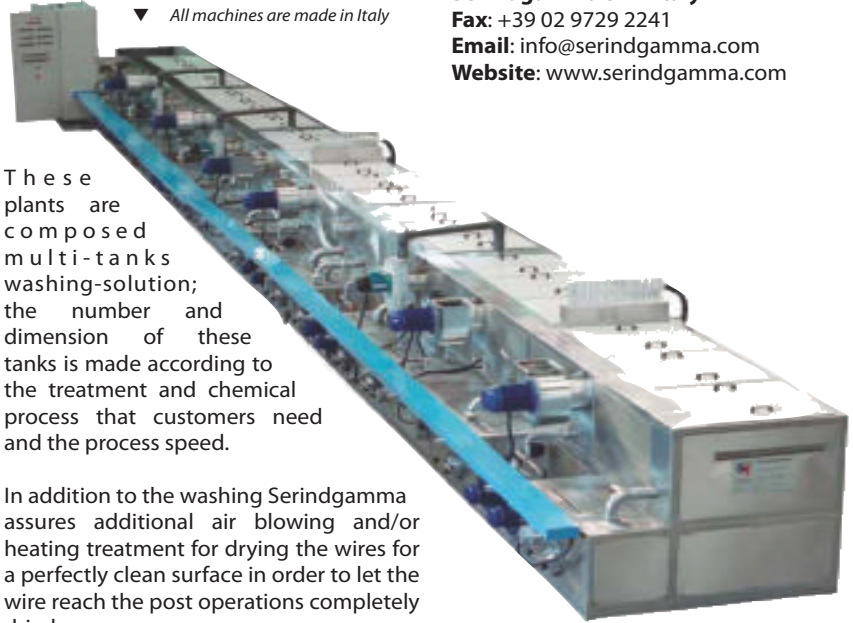
These plants are normally equipped with ultrasounds of the latest generation, controlled by micro-processors that work

with several frequencies for cleaning at the same time both aluminium and stainless steel wires without any risk of damaging the surface.

These machines are able to treat up to 26 wires in line with a production speed up to 30m/minute.

Serindgamma Srl – Italy
Fax: +39 02 9729 2241
Email: info@serindgamma.com
Website: www.serindgamma.com

▼ All machines are made in Italy



These plants are composed multi-tanks washing-solution; the number and dimension of these tanks is made according to the treatment and chemical process that customers need and the process speed.

In addition to the washing Serindgamma assures additional air blowing and/or heating treatment for drying the wires for a perfectly clean surface in order to let the wire reach the post operations completely dried.

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Fibre lasers leading the way

Dr Tony Hoult, of the SPI Lasers applications laboratory, is challenging the perception of the capabilities of near infrared lasers using state-of-art fibre lasers.

Areas such as plastic welding for the medical and mobile phone industries, scribing and cutting polymers for the automotive industry and ablation of thin films for the photovoltaic industry are showing excellent results when processed with a fibre laser.

One of the most recent examples of the more surprising results produced by the applications lab is plastic welding, something not thought to be suitable for either the high brightness of fibre lasers or the beam characteristics. However, when tested by the applications lab, a careful manipulation of the laser beam has made it very easy to produce welds in polymers that are efficient, precise and time saving.

Other examples include cutting polymers for the automotive industry, scribing and cutting alumina, and cutting and micro-machining of silicon. Also of real interest is the laser ablation of thin films for the photovoltaic industry.



In this case, using very high laser frequencies up to 500kHz for thin film removal produces very precise material removal. This means that the base material, be it glass, plastics or silicon, remains untouched when processed by one of the SPI lasers.

These results come on the back of an announcement from the applications laboratory in September that when cutting silicon using a 200W CW-M 1070nm fibre laser, cutting speeds of

▲ Dr Tony Hoult at the Rofin Station

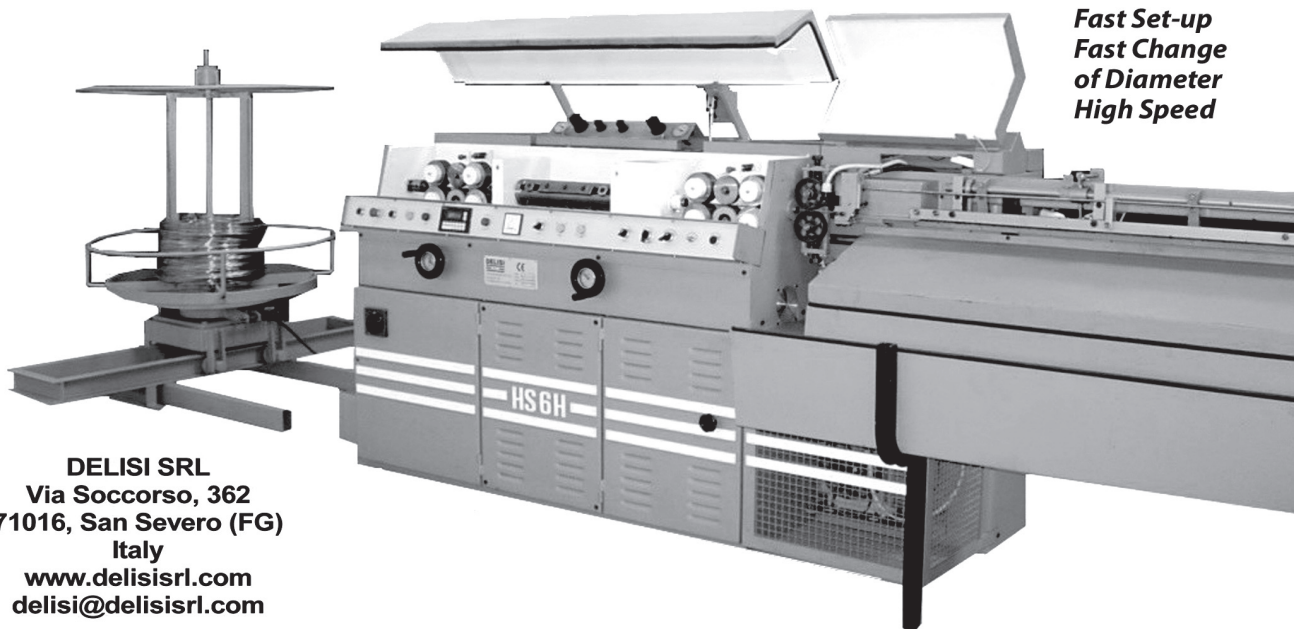
up to 6m/min on 200µm polycrystalline silicon were readily achieved.

SPI Lasers is expecting the results produced by the applications lab to continue to expand the perceived capabilities of the fibre lasers.

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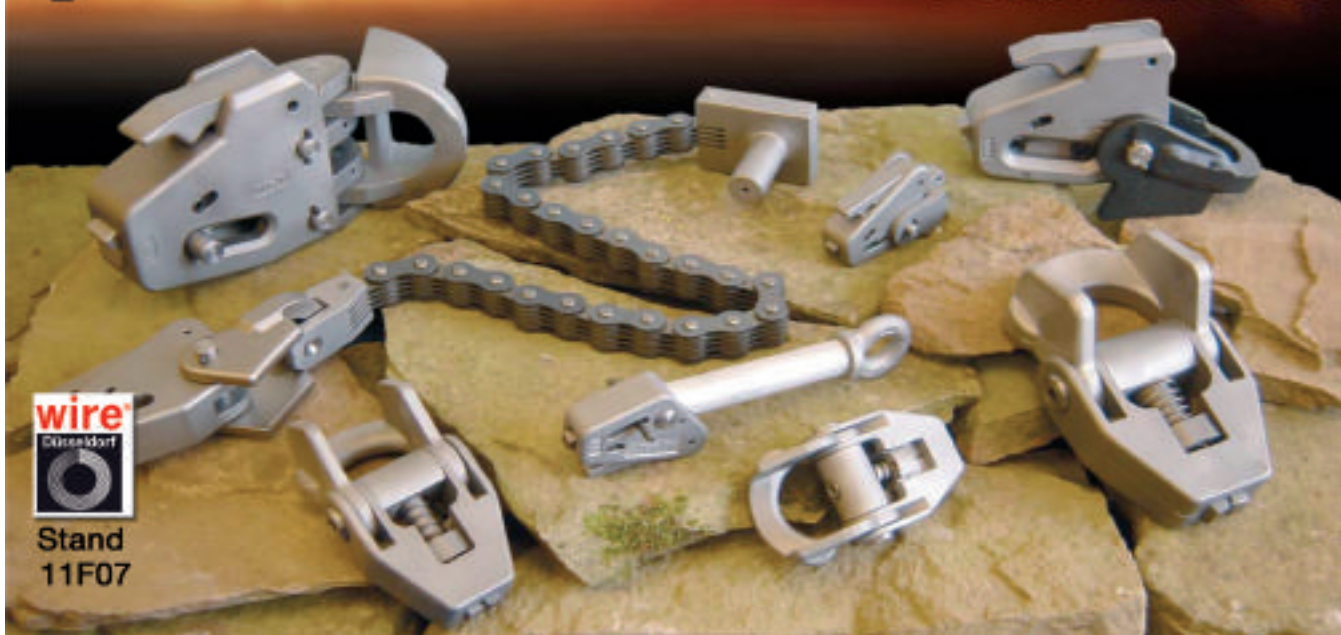
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Producing machinery since 1925



▲ Vitari makes machinery for making wire coat hangers

Since 1925, Vitari SpA has been designing and manufacturing machinery for the wire industry at Valbrembo, near Bergamo, Italy.

Now part of the Eurolls Group, the company benefits from an extensive research and development programme.

Vitari manufactures a large range of machines, starting from the automatic wire straightening and cutting-off machines with relevant chamfering

machines, machines for manufacturing nails, chains, chain link fencing, hexagonal wire mesh for gabions, barbed wire, dress-hangers etc and all ancillary machines.

A particular importance is kept for the barbed wire making machines that can produce all kinds of galvanised or plastic-coated mild steel wire (mod BVM) and reverse-twist barbed wire (mod BVR).

They are high productivity machines, sound-proofed and with all required safety devices. They are also equipped with a centralised automatic lubrication system. These machines are placed vertically for ease of access for set-up and maintenance.

The company also produces machinery for making wire coat-hangers.

The wire is introduced into the machine by means of rotating bushes, or by means of a set of rollers in case of plastic-coated wire. Two pairs of rollers make the wire run into the dress-hanger moulding unit. The wire length is variable depending on the type of wire and coat-hanger to make.

The moulding operation consists of wire being cut to the preset length, bending, hook moulding and coat-hanger ejection. The produced coat-hangers are collected on a special inclined bar. By changing the tooling the user can produce different shapes of wire coat-hangers.

... and a new range

Vitari has a range of new automatic wire straightening and cutting-off machines for wires from $\varnothing 2.0$ to 10mm, with feeding speed electronically variable from 30 to 200 m/minute.

The main characteristics are:

- The bar length measuring is made by an encoder
- The wire cutting is by a brushless servomotor
- The collecting bench of machine mod NR222 is modular, composed by elements of a cutting bench of 3-6-9-12 metres and is equipped with a movable stopping device with display showing the bar length and the operator can move it manually get a more exact bar length

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New sensor is result of alliance between Renishaw and Faro

The strategic alliance between Faro Technologies Inc, a well-known company in portable computer-aided measurement arms and laser trackers, and Renishaw has produced the Faro Sensor, an advanced probe for measurement arms that increases under productivity and confidence in results.

“What makes the Faro Sensor probe unique is that data is taken only when in contact with the part, unlike other probes that keep collecting points even when the hard probe leaves the work piece,” Faro president and CEO Jay Freeland said.

Exclusively developed for the Quantum FaroArm, the Faro Sensor is a contact-sensing rigid probe that functions as three sensors in one to offer hard probe, touch trigger and scanning capability.

To operate, users simply guide the Sensor along the surface of the object to be measured. Points are measured as soon as the probe contacts the surface, eliminating the need to press capture buttons, as with other probes.

The Quantum’s laptop computer simultaneously illustrates the 3D measurements on-screen and records all of the data. It creates a 3D ‘blueprint’ of a part or machine component, making it an all-in-one portable tool for performing inspections, tool certification, CAD-to-Part analysis, and reverse engineering.

Drawing on Renishaw’s metrology expertise, the innovative sensing technology within the Faro Sensor is also easy to use and significantly reduces complexity of the measuring process by minimising operator influence; it is designed for durability to endure day-to-day use in tough industrial environments, and is equipped with a range of styli that allow it to accurately probe intricate and hard-to-reach features.

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Email: ukingdom@faro-europe.com **Website:** www.faro.com/uk

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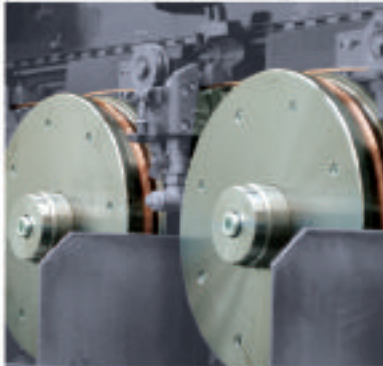


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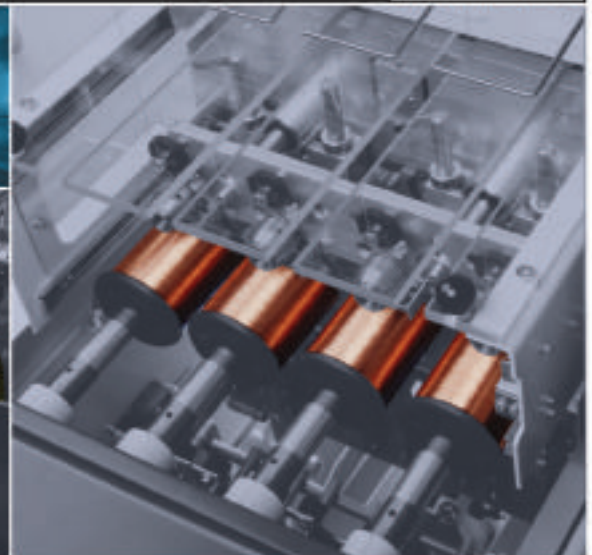


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Quality all the way from Sikora

Quality combined with minimised failure and cost is demanded more and more in the market of measurement and control suppliers to the wire, cable and hose markets.

It is not surprising that special attention is paid to quality management systems of companies.

Sikora recognises the necessity of standardised operating processes and continuously works on an optimisation of its business process. Just in time for its 20th anniversary, Sikora is also celebrating 20 years of ISO 9001 recognition.

Since 1993 the technology company has been certified according to DIN EN ISO 9001 and practices quality management to perfection.

The company management is committed to the principles of the programme and the primary responsibility for daily oversight is the quality control manager, Ulrich Gwinner.

For 14 years he has controlled and managed the quality system – with notable success.

“With the improvement of our operational sequences we meet legal demands and simultaneously aim at a systematic increase of customer satisfaction,” he said. “Moreover, with the ISO-certification our market position can be further strengthened and extended.”

Gwinner continuously analyses the business processes in the different departments of the company in cooperation with the company management and employees.

For the continuous improvement of quality, internal and external employee training is provided numerous times during the year.

The company's cooperation with machine manufacturers and customers worldwide is vitally important.

“The success of sustained quality management contains clear and transparent processes. That is to say a process oriented leadership, flat hierarchies and a good communication,” added Gwinner.



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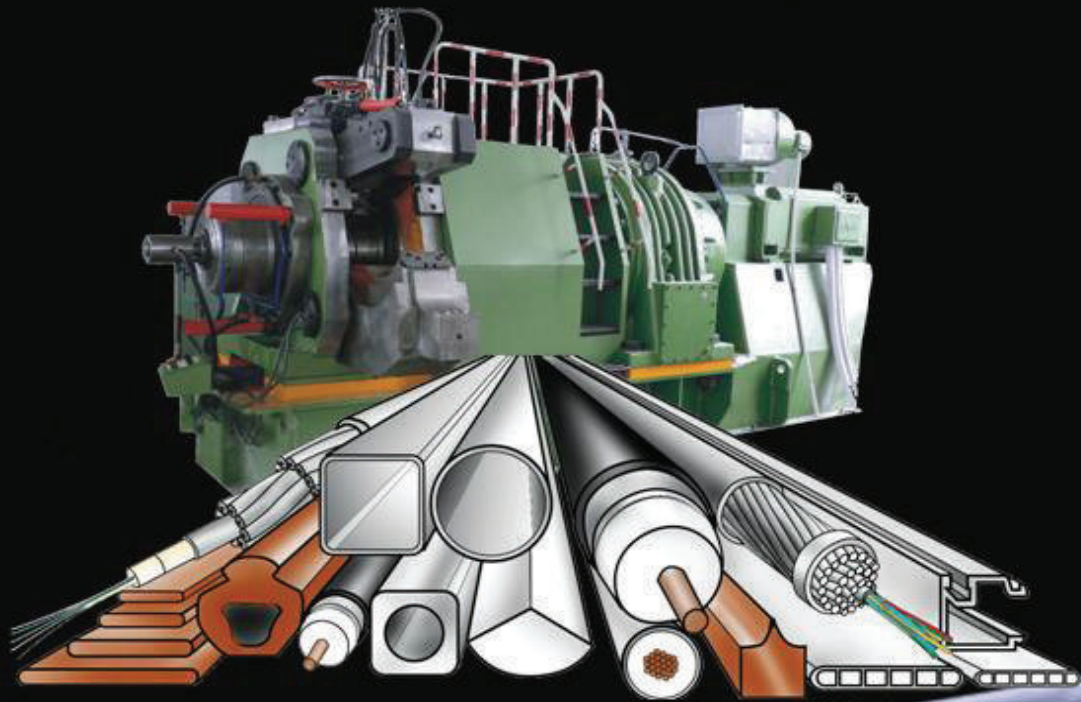
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New all-round device for resistance measurement from Resistomat

Resistance measurement and Resistomat[®] are terms that belong together.

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More than 40 years of knowledge and experience in the field of resistance measurement went into the development of this measurement device that combines precision, as well as easy handling and system integration.

The instrument measures resistances in the range of 2,0000 mΩ up to 200,00 kΩ with an accuracy of 0.03% rdg, while resolution in the smallest range reaches 0.1 μΩ.

An especially developed measurement input protection allows the

measurement of inductive samples such as electric motors and transformers, as well as coils with iron core.

Autorange, temperature compensation of the test sample, cable fraction detection and thermo-voltage compensation are self-evident.

For the integration to fully automatic test stations the instrument features a PLC and RS232/USB interface.

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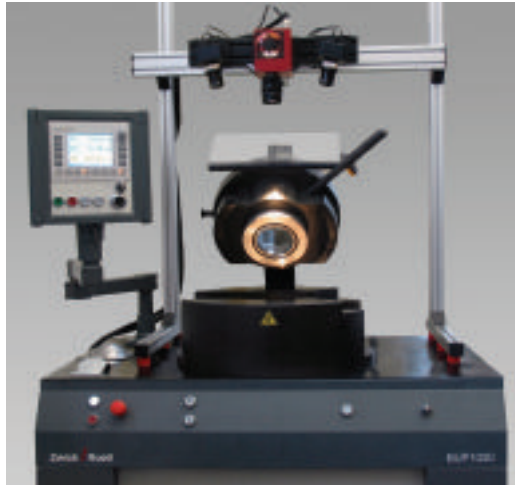
1,000 kN for testing mechanical deformation

At its October trade fair in Germany last year, Zwick introduced a new testing machine for evaluating the mechanical deformation of sheet metals.

The new hydraulic BUP 1000 machine addresses the latest requirements of the steel industry, especially for use in new automotive applications where higher tensile strength combined with high formability has become more and more important.

Forming behaviour has to be characterised, both for the modelling of newly developed products, and for quality assurance/production control.

The machine can be used to determine the forming limit curve (FLC) and, with drawing forces up to 1,000kN and a punch diameter of 100mm, meets the latest requirements of ISO 12004.



▲ New sheet metal testing machine from Zwick for drawing forces up to 1,000 kN

Building on Zwick's global lead in automated test equipment, the system uses digital PLC technology enabling the test to be controlled from either the force or punch displacement measurement channel.

The advantage is that standard tests can be easily carried out, and in addition, the large punch displacement and wide speed range offers a range of useful applications including small scale simulations of the complete forming process.

Data acquisition is under the full control of Zwick's standard hardware platform test control electronics whilst data is processed and analysed, and organised through the testXpert® software.

With its remote control capability of the function display unit, and the hydraulic operation of the tool head aiding the insertion and removal of test specimens, the system offers significant and powerful benefits.

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New thread rolling machine

Danish-based Enkotec A/S will officially release its latest technological innovation, the thread rolling machine type TA01, at wire Düsseldorf.

The TA01 has been designed for making screw shank or annular nail profiles with a working area of Ø1.8-4.2 x 32-105 mm nail length and a profile height of 27-75 mm.

At the end of 2007, Enkotec's long-standing Italian customer, Trafileria-Punteria Ghezzi SNC, finished field-testing the TA01 and, totally satisfied with its performance, decided to buy the machine.

The idea behind the Enkotec thread rolling machine was to develop an efficient machine offering real competitive advantages, just like the high-speed Enkotec rotary nail machine, and capable of running in-line in a nail manufacturing line or as a standalone machine.

One of the innovative features of the new TA01 is the very accurate insertion principle. A specially designed nail injector, located in the transition between the feeding screw and the tooling, allows straightening up and guiding the nails into

the profiling tooling in an upright position. The constant quantity of nails engaged and the precise insertion of the nails into the tooling make it possible to obtain a very high and uniform profiling quality.

The new nail insertion principle contributes to making it possible to profile the nails at a speed of up to 2,500 nails per minute, without affecting the production stability, no matter whether the profile chosen is screw shank or annular. The actual production speed is dependant on the nail type, the profile type, and the feeding rate from the vibratory parts-feeder bowl, which is supplied as standard with the machine.

In order to ensure high production efficiency, the TA01 has been designed to allow quick and easy tooling changeovers, so that it only takes approx. 30 minutes to change tooling.

The TA01 is controlled from a user friendly touch screen on the control panel, where it is possible to choose the nail type (screw shank or annular), and from which the machine can be started and stopped, initialised, adjusted and monitored.

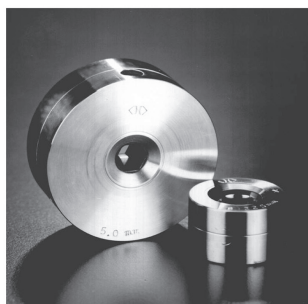


▲ The new TA01 from Enkotec

The machine includes covers over the process zone and around the circular feeder, which protects the user and reduces the noise level to approx. 87 dBA.

The TA01 is equipped with a connection to exhaust ventilation, which makes it possible to exhaust dust from the process zone or from the ejection area.

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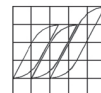
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Institute buys testing system from Zwick Roell

The Forschungszentrum Karlsruhe is one of the biggest science and engineering research institutions in Europe and funded jointly by the Federal Republic of Germany and the state of Baden-Wuerttemberg.

The Forschungszentrum Karlsruhe is investigating the concept of characterisation of irradiated material by instrumented indentation.

For this reason they purchased a ZHU0.2/Z2.5 modular testing system from the Zwick Roell Group to assist them in their quest to investigate the material's mechanical properties after irradiation and to understand the irradiation damage mechanisms. Zwick was the only manufacturer who could provide a solution for this unique application.

The ZHU0.2/Z2.5 has a load range of 2-200N, and a displacement measuring resolution of 0.02µm. The system is equipped with a fully automated X/Y table and Rockwell and Vickers indenters.



▲ Operator using the indentation tester in a hot cell

The indentation can be viewed through a microscope fitted with a CCD camera.

The Zwick ZHU0.2/Z2.5 is installed in a gas tight hot cell with 200mm lead / 500mm lead glass shielding. It carries out multi-stage indentation tests (load/unload) with

different holding times. Neural networks then evaluate the correlation between this test data and the parameters of a viscoplastic material model, normally acquired from tensile tests.

The unique operation of the indentation tester allows it to carry out precision loading cycles up to various forces and displacements with predetermined holding times during each cycle.

TestXpert®, Zwick's software platform for materials testing, is used to control the machine and obtain the synchronised force and indentation data. This data is then stored in a special format and transmitted to the neural network system to determine the material properties such as Young's Modulus, Yield and ultimate tensile strength as well as hardening coefficients.

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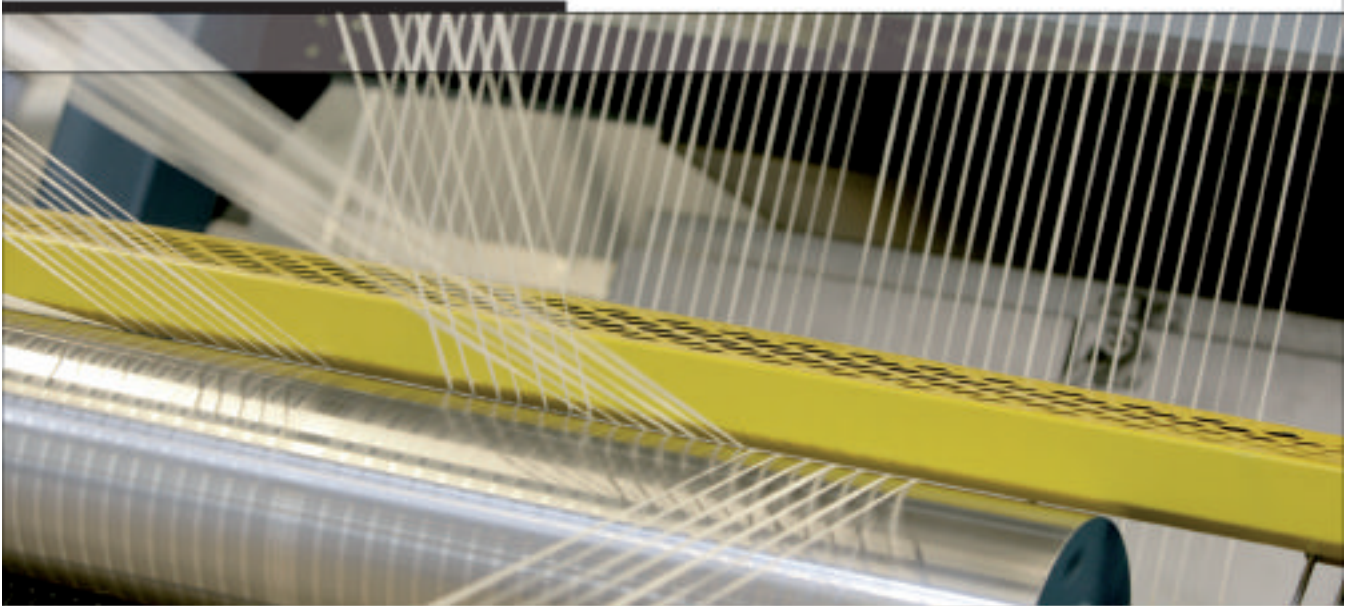
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Complete systems from Mario Di Maio

Mario Di Maio manufactures complete systems and machines for the metal wire process.

Square section wire rolling in continuous condition is provided through wire rolling trains that avoid unevenness and difficulty faced with the traditional multi-groove rolling mill systems, basing on a more sophisticated mechanical structure and an accurate electronic control of the working speeds.

Wire rolling trains could be supplied as 8 or 12-passage models, in three different series, in accordance to the dimension of the bar to be rolled, for a max dimension of 16mm.

For wire drawing, the square wire – once processed with the rolling mill – is then reduced to the desired diameter through the multi-pass wire drawing machines that can perform at a very high working

speed. The company's MDM T12NFS multi-pass drawing machine combines a 300m/minute speed and the possibility to draw – without breakages – a 0.12mm diameter wire, thanks to its accurate electronic control pulling system.

Reduction of a round wire to a flat rectangular strip – as requested for different uses in the industry – needs a high precision flattening rolling mill.

The MDM LSF105X70 model – provided with coils – is an interesting machine of compact dimensions. Double coils are electronically adjustable, with automatic pulling control – speed and winding pitch. It provides a high max rolling mill

of 200m/minute, widia rings on the rolls and roll cooling system also allow you to obtain very thin thickness (0.05 mm) with absolute precision.

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New polymer from DSM

Royal DSM has developed a new polymer which extends the portfolio for high performance engineering thermoplastics.

The polymer, described as PA4T, has been developed by DSM Engineering Plastics, the inventor in high performance polyamides with Stanyl® 46.

The new polymer will answer to market trends for miniaturisation and convergence of electronic devices like mobile phones and computers.

It will assist automakers in continued weight reduction efforts for better fuel efficiency and lower costs.

PA4T exhibits an exciting and unique balance of properties including excellent dimensional stability, compatibility with lead free soldering, high stiffness and mechanical strength at elevated temperatures, high melting point, and excellent processability in terms of flow and processing window.

DSM has filed patents on the new polymer, developed compounds and held initial investigative trials with market leaders for various end uses.

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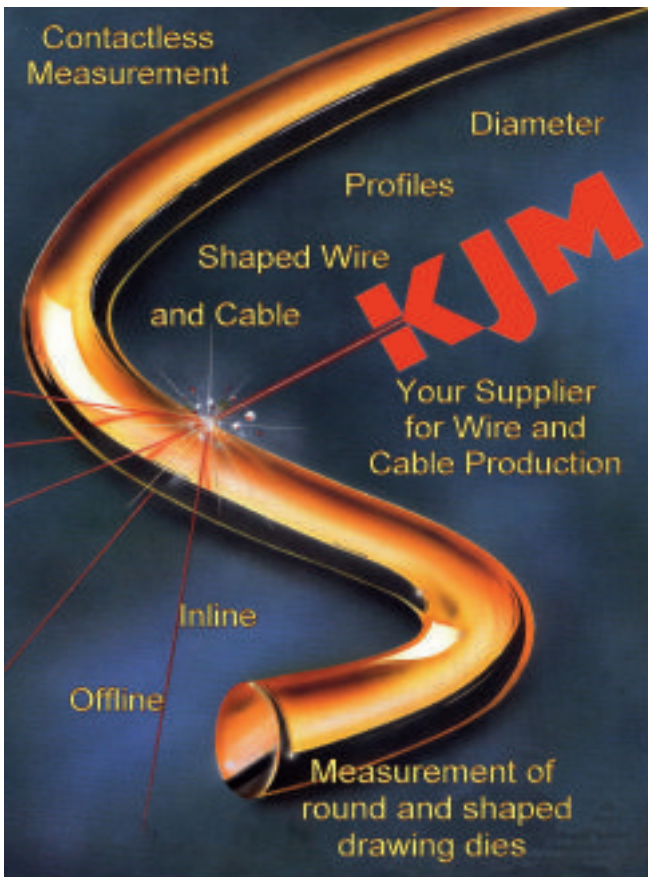
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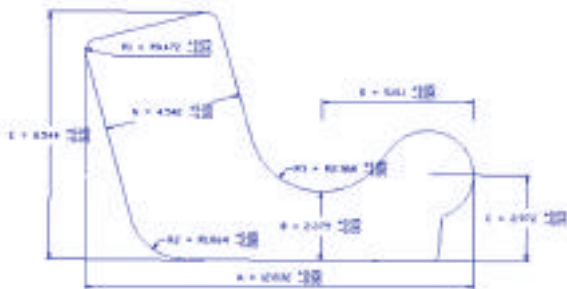
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Testing, testing – SIF has the answers

Test equipment is used both in the manufacturing industry and laboratories belonging to certification and research institutions.

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▲ SIF offers solutions to problems

acquisition of data in order to improve continuously the quality of the product and organisation; acquisition of test data in order to draw test reports up.

This is why it often occurs that manufacturers make use of the same suppliers that certification bodies or research institutes do, and the other way around.

SIF MDC, Measuring Devices Control, relies on the broad experience, which has been gained for the past 30 years, especially related to the production of special equipment and systems and their problem solving.

Traditional intervention is mainly addressed to the production of equipment for the electric wire field, both for labs and manufacture. SIF has great experience and has always delivered high quality, perfectly performing and greatly reliable products.

What is the difference between lab equipment and test systems?

The approach to the design of the equipment. It is mainly based on a deep analysis on what a standard prescribes to have all elements related to the test. The introduction of improvements related to standards, such as operator-friendly ecology of the equipment (power saving); to cut on tests and save time on reducing time between a test and the other; repeatability and dependability trough time, by means of high quality material; low maintenance, which reduces costs and simplifies its use and management; it is practical to calibrate and simple to certify.

High technology is aimed at assessing advantages and benefits; improving system performance by introducing forms and test programmable cycles to speed up and simplify the process and avoid operator's mistakes; acquiring data from the test, this will be used to fill out reports or to document R&D; interfacing with test systems trough software; offering online after sale assistance, via the Internet.

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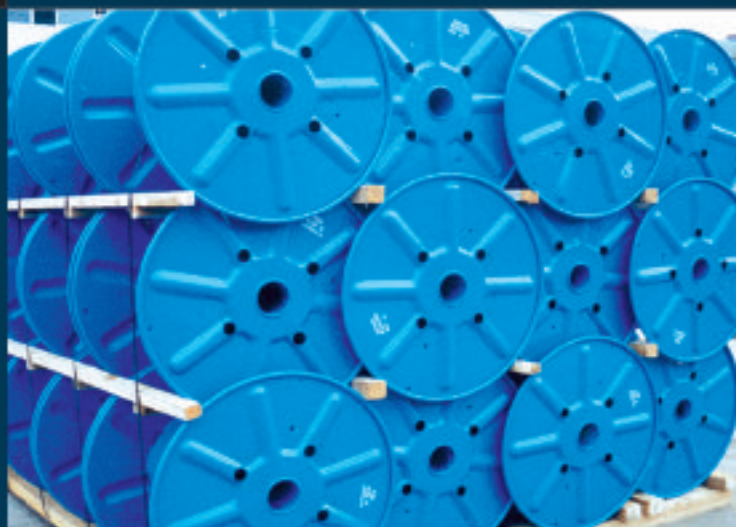
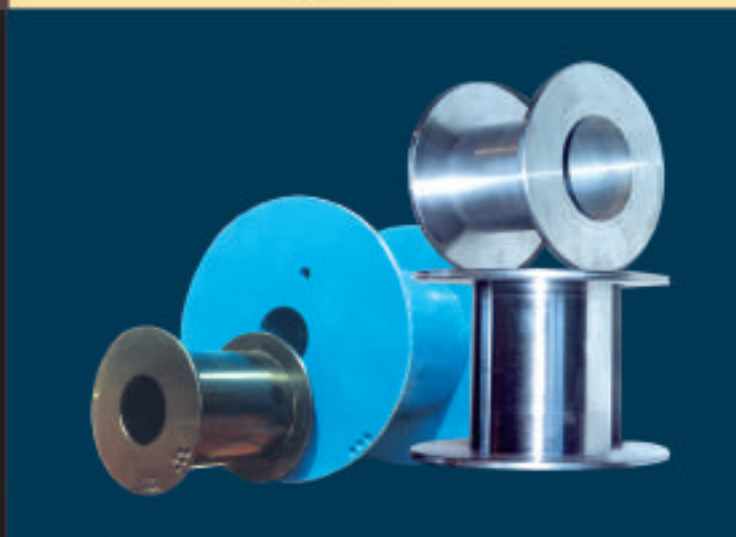
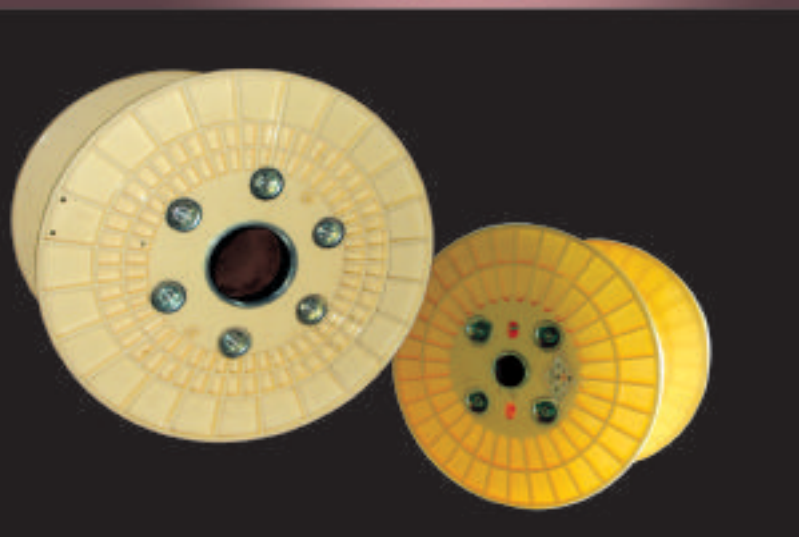
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Neuer Aufwickellinie mit Doppelkopf von PS Costruzioni

Auf seine umfangreiche Erfahrung und kundenorientierte Philosophie zurückgreifend, hat PS Costruzioni eine vollautomatische Aufwickellinie mit Doppelkopf, PS 1000/22-B, entwickelt und gefertigt.

Die Ingenieure von PS Costruzioni haben diese Linie kreiert um die zunehmenden Anfragen von Kabelunternehmen zu bedienen, die eine Spulenaufwickellösung für große, flache und runde Kabel benötigen, nach zu kommen.

Diese Strasse kann Kabel mit einem Mindestdurchmesser von 6mm/0,23 Zoll bis zu einem Höchstdurchmesser von 22mm/0,86 Zoll aufspulen und dabei verschiedene Spulengrößen von 450mm/17,73 Zoll bis 1.000mm/39,40 Zoll einsetzen. Die höchste Lineargeschwindigkeit entspricht 400m/1.312,32 Fuß pro Minute, je nach Kabeltyp.

Da auf den Spulen sowohl robuste wie empfindliche Kabel gewickelt werden sollen, besteht die beste Lösung in zwei Tänzerrollen (eine für robuste und eine für empfindliche Kabel). Damit kann der Zug beim Kabel perfekt überprüft werden.

PS 1000/22-B verfügt, wie alle anderen Verpackungsstraßen des Unternehmens, über eine Modulstruktur. Vorhanden sind einige Grundeinheiten und einige zusätzliche Einheiten, die je nach Kundenwunsch hinzugefügt werden können.



▲ Die neue PS 1000/22-B von PS Costruzioni

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Neue Technologie zur Glasfaserummantelung von Draka Comteq

Draka Comteq hat seine jüngste Innovation in der Technologie der Glasfaserummantelung – ColorLockXS – auf den Markt gebracht.

Das neue Produkt des in Glasfasertechnologie, Verkabelung, Anschlusslösungen und Netzwerkengineering-Dienstleistungen spezialisierten Unternehmens, ist seit Januar auf der BendBrightXS erhältlich, dem Spitzenprodukt von Draka Comteq, das unempfindlich gegenüber Biegungen ist.

BendBrightXS, die 2006 eingeführte Glasfaser, die als erste tatsächlich unempfindlich ist gegenüber Biegungen, hat im Markt beträchtlich an Boden gewonnen, da sie die strengsten Standards für Glasfaserbiegung erfüllt, während gleichzeitig die Rückkompatibilität mit den

vorhandenen Glasfaserinfrastrukturen erhalten bleibt.

Diese ColorLockXS genannte Neuigkeit, erhöht die Leistung des Glasfaser-Mikrobiegeverhaltens sowie das Abstreifen, während neue in der Glasfaserummantelung integrierte kräftige Farben hinzugefügt werden.

Im Gegensatz zu anderen Glasfasern ist BendBrightXS eine komplett aus Glas bestehende Faser, die aus Materialien und einer von der Industrie konsolidierten und angenommen Technologie ist, wobei Spleißungen bzw. Sonderverfahren für die Konnektivität eliminiert werden.

Die Verbesserung des Mikrobiegeverhaltens mit der ColorLockXS-Ummantelung bedeutet, daß die

Glasfaser gegenüber Knickverlusten beständig ist, ein Schlüsselmaßstab für die Glasfaserleistung in engen Biegungen, die bei FTTx-Anwendungen erforderlich sind.

Der Knickverlust kann als Teilbiegungen des Lichtwellenleiters beschrieben werden (bis zu 45 Grad) bei einem Radius von gerade einmal 2mm.

Typische Verluste für BendBrightXS in einer derartigen Situation liegen unter 0,1dB, ebenfalls bei einem Radius von bis 2mm, das stellt eine hundertfache Verbesserung dar.

Draka Comteq – Niederlande

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Institut erwirbt Prüfsystem von Zwick Roell

Das Forschungszentrum Karlsruhe ist eines der größten natur- und ingenieurwissenschaftlichen Forschungseinrichtungen in Europa und wird von der Bundesrepublik Deutschland und dem Land Baden-Württemberg gemeinsam getragen.

Das Forschungszentrum Karlsruhe untersucht das Konzept der Charakterisierung von bestrahltem Material durch die Instrumentierte Eindringprüfung.

Zu diesem Zweck haben sie ein modulares Härteprüfsystem, Typ ZHU0.2/Z2.5 von der Zwick Roell Gruppe erworben, das die Wissenschaftler bei der Untersuchung der Materialeigenschaften nach der Bestrahlung und der Auswirkungen der Bestrahlungs-Schadmechanismen unterstützen wird. Zwick war der einzige Hersteller, der eine Lösung für diese einzigartige Anwendung anbieten konnte.

Die ZHU0.2/Z2.5 hat einen Kraftbereich von 2 bis 200N und eine Verdrängungsmessgenauigkeit von 0,02µm. Das System ist mit einem vollautomatischen X/Y-Tisch ausgestattet sowie mit einem Rockwell-



▲ Bediener benutzt Eindringprüfgeräts in einer Wärmeezelle

und einem Vickers-Eindringkörper. Der Eindruck kann durch ein Mikroskop betrachtet werden, das mit einer CCD-Kamera ausgerüstet ist.

Die ZHU0.2/Z2.5 von Zwick wurde in einer gasfesten heißen Zelle mit 200mm / 500mm Bleiglasschutz installiert. Sie führt mehrstufige Eindringprüfungen (Last/ohne Last) mit verschiedenen

Haltezeiten aus. Neurale Netzwerke bewerten die Korrelation zwischen diesen Prüfdaten und den Parametern eines viskoplastischen Werkstoffmodells, die normalerweise aus Zugprüfungen gewonnen werden.

Die einzigartige Funktionsweise des Eindringprüfgeräts ermöglicht hochgenaue Lastzyklen bis zu unterschiedlichen Kräften und Verdrängungen mit vorgegebenen Haltezeiten bei jedem Zyklus. testXpert®, die Prüfsoftwareplattform von Zwick für Werkstoffprüfungen, wird zur Steuerung des Geräts und zur Ermittlung der synchronisierten Kraft- und Eindringungsdaten verwendet. Diese Daten werden dann in einem speziellen Format gespeichert und an ein neuronales Netzwerk übertragen, um die Materialeigenschaften wie Young's Modulus, Eindringweg, Zugfestigkeit sowie weitere Verfestigungskoeffizienten zu bestimmen.

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Faserlaser zeigen den Weg

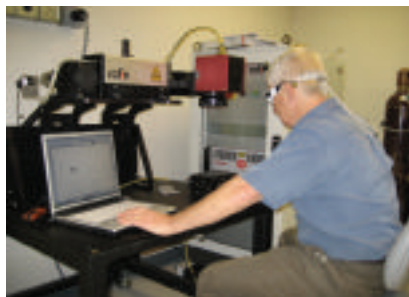
Dr Tony Hoult, vom SPI Lasers Anwendungslabor, stellt eine Herausforderung hinsichtlich der Erkenntnis der Fähigkeiten von nahen Infrarot-Lasern dar, mit Einsatz von Faserlasern nach dem neusten Stand der Technik.

Sektoren wie z. B. Kunststoffschweißen für die Medizin- und Mobiltelefonindustrie, Anzeichnen und Schneiden von Polymeren für die Automobilindustrie und Ablation von Dünnschichten für die Photovoltaikindustrie, zeigen hervorragende Ergebnisse wenn sie mit Faserlaser verarbeitet werden.

SPI erwartet in der nahen Zukunft weitere Ergebnisse für den Faserlaser.

Eines der allerneuesten Beispiele der überraschendsten Ergebnisse, die durch das Anwendungslabor erzeugt werden, ist das Kunststoffschweißen. Man hat das Schweißen von Kunststoffen wegen der hohen Helligkeit der Faserlaser sowie der Strahlmerkmale als ungeeignet angesehen.

Dennoch erwies sich durch eine vom Anwendungslabor durchgeführte Prüfung, daß eine schonende Bearbeitung des Laserstrahlens es sehr vereinfacht, Schweißungen in Polymeren zu erzeugen, die effizient, genau und zeitsparend sind. Diese Art Kunststoffschweißungen



▲ Dr Tony Hoult in der Refin Station

werden gebräuchlich in der Medizin- und Mobiltelefonindustrie vorgenommen.

Andere Beispiele umfassen das Schneiden von Polymeren für die Automobilindustrie, das Anzeichnen und Schneiden von Aluminiumoxid sowie das Schneiden und die Mikrobearbeitung von Silizium. Von besonderem Interesse ist auch die Laserablation von Dünnschichten für die Photovoltaikindustrie. In diesem Fall wird eine sehr genaue Materialbeseitigung erzielt durch die Anwendung sehr hoher bis zu 500kHz Laserfrequenzen zur Beseitigung der Dünnschichten. Das bedeutet, daß das Grundmaterial - unabhängig davon ob es sich dabei um Glas, Kunststoff oder Silizium handelt - unberührt bleibt, wenn es durch einen der SPI-Laser verarbeitet wird.

Diese Ergebnisse folgen einer September 2007 bekannt gegebenen Mitteilung vom Anwendungslabor, nach der beim Schneiden von Silizium mit Anwendung eines 200W CW-M 1070nm Faserlaser, Schneidgeschwindigkeiten bis zu 6m/min bei 200µm Polykristallin-Silizium leicht erreicht wurden. Das war ebenfalls eine überraschende neue Applikation für Faserlaser.

SPI Lasers wartet auf die vom Anwendungslabor erzielten Ergebnisse, um die aufgenommenen Fähigkeiten der Faserlaser zu erweitern, da das Anwendungslabor für Forderungen an den Machbarkeitsnachweisen offen steht.

Vorrichtungs- und Komponentenhersteller, akademische Institute und Systemintegrierer aus der ganzen Welt sind aktiv dabei zusammen mit SPI an deren eigenen spezifischen Applikationsversuchen zu arbeiten. Jede Anfrage wird Fall für Fall für zulassungsrelevante Studien bewertet und, wenn sie genehmigt werden, den Bewerbern kostenlos zur Verfügung gestellt.

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Новая двухшпиндельная линия намотки от «ПС коструциони»

Руководствуясь своим большим опытом и концепцией ориентации на нужды потребителя, компания «ПС коструциони» (PS Costruzioni) разработала и выпустила полностью автоматизированную двухшпиндельную линию намотки PS 1000/22-B.

Инженеры компании создали эту линию с целью удовлетворения растущего спроса со стороны производителей кабельной продукции на оборудование, обеспечивающее намотку плоских и круглых кабелей крупного сечения.

Линия обеспечивает намотку кабеля диаметром от 6 мм (0,23 дюйма) до 22 мм (0,86 дюйма) и может использоваться с катушками нескольких типоразмеров – от 450 мм (17,73 дюйма) до 1000 мм (39,40 дюйма). Максимальная линейная скорость PS 1000/22-B составляет 400 метров (1312,32 фута) в минуту в зависимости от типа кабеля.

Поскольку необходимо осуществлять намотку как жестких, так и гибких кабелей, оптимальным решением является использование двух натяжных валиков (одного для жесткого кабеля, а другого – для гибкого кабеля). При этом обеспечивается возможность тщательного контроля натяжения кабеля.

Как и все выпускаемые компанией упаковочные линии, PS 1000/22-B имеет модульную конструкцию: к поставке предлагаются отдельные базовые модули, а также ряд



▲ Новая линия PS 1000/22-B компании «ПС коструциони»

дополнительных модулей, которые могут устанавливаться в соответствии с требованиями заказчиков.

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Новая технология нанесения защитного покрытия оптоволоконна от компании «Драка комтек»

Компания «Драка комтек» (Draka Comteq) приступила к производству защитного покрытия оптоволоконна по новейшей технологии – ColorLockXS.

Новое решение компании, занимающейся технологиями оптоволоконна, кабельными системами, решениями по подключению, а также разработкой и обслуживанием сетей, стало с января месяца применяться при производстве флагманского продукта «Драка комтек» – нечувствительного к перегибу волокна BendBrightXS.

BendBrightXS, первое действительно нечувствительное к перегибу волокно, представленное в 2006 году, получило широкое признание на рынке благодаря тому, что оно соответствует самым жестким стандартам на перегиб волокна и при этом

сохраняет обратную совместимость с существующей инфраструктурой оптоволоконных сетей.

Последняя новинка, ColorLockXS, повышает устойчивость оптоволоконна к микроизгибам, а также облегчает снятие верхнего слоя и дает возможность использовать яркие красители для окраски защитного покрытия оптоволоконна. В отличие от других волокон, BendBrightXS представляет собой цельностеклянное волокно, которое производится только с использованием испытанных и принятых в отрасли материалов и технологий, исключая проблемы при сращивании или специальные процедуры при соединении.

Повышение устойчивости к появлению микроизгибов при использовании покрытия ColorLockXS на волокне

BendBrightXS означает, что волокно устойчиво к потерям на изгибах, что является важным показателем эксплуатационных характеристик волокна при наличии многократных изгибов с малым радиусом, что требуется при развертывании сетей «волокно до любого места» (FTTx). Потери при изгибах можно представить как потери при частичных изгибах оптического волокна (до 45 градусов) с малыми радиусами до 2 мм. Типичные потери для волокна BendBrightXS в такой ситуации составляют менее 0,1 дБ даже при радиусе изгиба в 2 мм, что означает почти стократное улучшение стандартных значений.

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Научно-исследовательский институт покупает испытательный комплекс у компании «Цвик Рёлль»

«Ф ор ш у н г с ц е н т р у м» (Forschungszentrum) в Карлсруэ является одним из самых больших научно-исследовательских институтов в Европе, финансируемым совместно властями Федеративной Республики Германии и земли Баден-Вюртемберг. «Форшунгсцентрум» в Карлсруэ изучает концепцию определения характеристик облученного вещества методом инструментированных испытаний на твердость вдавливанием. С этой целью институт закупил у «Цвик Рёлль груп» (Zwick Roell Group) модульную испытательную установку ZHU0.2/Z2.5, которая поможет изучить механические свойства подвергнутого облучению вещества и понять разрушающие механизмы облучения. Компания «Цвик» оказалась единственным производителем, который смог представить решение для такого уникального применения.

Диапазон нагрузок ZHU0.2/Z2.5 варьируется от 2 до 200 Н, а разрешающая способность измерения деформации равна 0,02 мкм. Система снабжена полностью автоматизированным двухкоординатным столом и инденторами для определения твердости по Роквеллу и Виккерсу. Отпечаток можно изучить с помощью



▲ Оператор работает с прибором для определения твердости вдавливанием в горячей камере

микроскопа, снабженного камерой на ПЗС. Устройство ZHU0.2/Z2.5 компании «Цвик» смонтировано в герметичной горячей камере, оборудованной защитой из 200-мм слоя свинца и 500-мм свинцового стекла. С помощью устройства проводится многоступенчатое определение твердости вдавливанием (с нагрузкой и без нагрузки) с различным временем выдержки. Затем нейронные сети проводят оценку корреляции между данными этих испытаний и параметрами вязкопластической модели вещества, обычно получаемыми

при испытаниях на растяжение. Уникальные возможности прибора для определения твердости вдавливанием позволяют точно выполнять циклы нагружения с различными уровнями усилия и деформации при заранее определенном времени выдержки в течение каждого цикла.

Для управления прибором и получения синхронизированных данных об усилии и деформации используется собственная программная платформа компании «Цвик» для испытаний материалов – TestXpert®. Эти данные затем сохраняются в особом формате и передаются в нейронную сеть для определения свойств материала, таких как модуль продольной упругости, пластическая деформация и предел прочности на растяжение, а также коэффициенты упрочнения.

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Всё вместе и в полном цвете!



▲ Новая брошюра компании «Текнор эйпекс»

В новой брошюре компании «Текнор эйпекс» (Teknor Apex) рассказывается, каким образом разнообразные технологии термопластики и возможности, которыми обладает этот производитель компаундов на заказ в осуществлении поставок по всему миру, могут быть использованы разработчиками, технологами и изготовителями комплектного оборудования.

Цветное 12-страничное издание сообщает, что для поставки компаундов, соответствие которых основным международным стандартам уже подтверждено, компания «Текнор эйпекс» опирается на базу данных, содержащую 40000 рецептов, и использует производственные мощности на трех континентах. Среди перечисленных особых возможностей – поставка идентичных компаундов транснациональным заказчикам, производства которых расположены в разных местах.

Представлена подробная информация о следующих основных группах компаундов с указанием широкого спектра продукции в каждой группе и их использования по отраслям: Винил; термопластичные эластомеры (ТРЕ); инженерные термопластики (ЕТР); красители; специализированные компаунды.

Брошюру можно получить по электронной почте или на сайте www.teknorapex.com/about_us.html

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HEARL HEATON

Nouvelle ligne de bobinage automatique à deux têtes de PS Costruzioni

Reposant sur leur vaste expérience et sur leur philosophie au service du client, la société PS Costruzioni a récemment conçu et réalisé une ligne de bobinage à double tête complètement automatique, le modèle PS 1000/22-B.

En effet, les techniciens de la société ont créé cette ligne dans le but de répondre à la demande croissante des fabricants de câbles nécessitant de bobines de câbles plats et ronds de grandes dimensions.

La ligne peut bobiner des câbles ayant un diamètre minimum de 6mm (0,23 pouces) jusqu'à un maximum de 22mm (0,86 pouces) et peut être utilisée avec des bobines de différentes dimensions allant de 450mm (17,73 pouces) jusqu'à 1 000mm. (39,40 pouces). Sa vitesse linéaire maximum est égale à 400m (1 312,32 pieds) par minute en fonction du type de câble.

Étant donné qu'il faut enrouler des câbles résistants et des câbles délicats, la meilleure solution consiste à utiliser deux rouleaux fous (un pour les câbles résistants et un pour les câbles délicats). De cette façon, la traction du câble peut être parfaitement contrôlée.

Le système PS 1000/22-B, comme la totalité des lignes d'emballage de la société, présente une structure modulaire, des unités de base et des unités additionnelles, pouvant être ajoutées en fonction des exigences du client.



▲ La nouvelle ligne de bobinage PS 1000/22-B de PS Costruzioni

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Nouvelle technologie de revêtement de fibres de Draka Comteq

Draka Comteq a lancé sa dernière innovation dans la technologie de revêtement des fibres – ColorLockXS.

Le nouveau produit de la société spécialisée dans la technologie des fibres optiques, dans le câblage, et dans les solutions de connectivité et les services techniques de réseau, est commercialisé depuis janvier comme BendBrightXS, produit de pointe de Draka Comteq utilisé pour les fibres insensibles à la courbure.

BendBrightXS, la première fibre vraiment insensible à la courbure introduite en 2006, a gagné du terrain sur le marché étant donné qu'elle répond aux normes de pliage des fibres les plus strictes tout en maintenant la retrocompatibilité avec l'infrastructure de la fibre existant déjà.

Le dernier perfectionnement dénommé ColorLockXS améliore les performances de microcourbure de la fibre ainsi que sa capacité de stripage, tout en intégrant de nouvelles couleurs brillantes dans le revêtement de la fibre.

Contrairement à d'autres fibres, BendBrightXS est une fibre de verre composite utilisant des matériaux et une technologie éprouvés et acceptés par l'industrie, éliminant les soucis de l'épissurage et des opérations spécifiques pour la connectivité.

L'amélioration des microcourbures avec le revêtement ColorLockXS dans la fibre BendBrightXS permet d'obtenir une fibre résistante aux pertes dues aux déformations, une mesure de référence

en ce qui concerne les performances des fibres dans les courbes étroites requises dans les applications FTTx.

Les pertes dues aux déformations peuvent être décrites comme des courbures partielles (jusqu'à 45 degrés) de la fibre optique avec des rayons de 2mm.

Les pertes typiques pour la fibre BendBrightXS dans cette situation sont inférieures à 0,1dB, y compris avec des rayons de 2mm, ce qui représente une énorme amélioration.

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Institut achète système d'essai de Zwick Roell

Le Forschungszentrum Karlsruhe est l'un des majeurs instituts de recherche scientifique et d'ingénierie en Europe et conjointement fondé par la République Fédérale d'Allemagne et la région de Baden-Wuerttemberg.

L'institut Forschungszentrum Karlsruhe examine actuellement le concept de caractérisation des substances irradiées par indentation instrumentée. Pour cette raison l'institut a acheté un système d'essai modulaire ZHU0.2/Z2.5 du groupe Zwick Roell comme support à l'étude des propriétés mécaniques du matériau après l'irradiation et pour comprendre les mécanismes des dommages d'irradiation. Zwick était le seul fabricant en mesure de fournir une solution pour cette application unique en son genre.

Le ZHU0.2/Z2.5 est caractérisé par une capacité de chargement de 2 à 200N, et une précision de mesure du déplacement de 0,02µm. Le système est équipé d'une table X/Y entièrement automatisée et de goujons d'indentation Rockwell et Vickers. L'indentation peut être observée à travers un microscope équipé d'une caméra à dispositif à transfert de charge.



▲ Opérateur utilisant le testeur d'indentation dans une cellule chaude

Le système ZHU0.2/Z2.5 de Zwick est installé dans une cellule chaude étanche aux gaz pourvue d'un blindage de verre au plomb de 200mm/500mm. Le système est conçu pour effectuer des essais d'indentation à plusieurs étages (chargement/déchargement) avec des temps d'attente différents. Ensuite, les réseaux neuronaux évaluent la corrélation

entre les données de cet essai et les paramètres d'un modèle de matériau viscoplastique, normalement saisi des essais de traction.

Le fonctionnement particulier du testeur d'indentation permet d'effectuer des cycles de chargement de précision jusqu'à plusieurs puissances et déplacements et avec des temps d'attente prédéterminés durant chaque cycle.

La plate-forme logiciel TestXpert® pour l'essai des matériaux de Zwick est utilisée pour le contrôle de la machine et obtenir la force synchronisée et les données d'indentation. Ces données sont ensuite mémorisées dans un format spécifique et transmises au système de réseau neuronal pour déterminer les propriétés du matériau telles que le Module de Young, le rendement, la résistance à l'allongement et la résistance à la traction et les coefficients de durcissement.

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Lasers à fibre marchant en tête

M. Tony Hoults du laboratoire d'applications de SPI Lasers a lancé un défi à la perception des capacités des lasers proche infrarouge en utilisant des lasers à fibres optiques d'avant-garde.

Les applications de lasers à fibres optiques obtiennent d'excellents résultats dans des secteurs tels que le soudage des plastiques pour l'industrie médicale et de la téléphonie mobile, le traçage et le coupage des polymères pour l'industrie automobile et l'ablation des films minces pour l'industrie photovoltaïque.

Le laboratoire SPI espère obtenir des résultats supplémentaires avec les lasers à fibres optiques dans le futur proche.

L'un des exemples les plus récents des résultats les plus surprenants obtenus par le laboratoire d'applications est représenté par les soudages des plastiques. Le soudage des plastiques n'était pas considéré adéquat à la luminosité élevée des lasers à fibres optiques ni pour les caractéristiques du faisceau.

Toutefois, durant l'essai effectué par le laboratoire d'applications, une méticuleuse manipulation du faisceau laser a permis de réaliser avec facilité des soudures efficaces, précises et rapides des polymères. Ces types de soudures de



▲ M.Tony Hoults à Rofin Station

plastiques sont communément réalisés pour les industries médicales et de la téléphonie mobile.

D'autres exemples comprennent le coupage de polymères pour l'industrie automobile, le traçage et le coupage de l'oxyde d'aluminium ainsi que le coupage et le micro-usinage du silicium. L'ablation laser de films minces s'avère également très intéressante pour l'industrie photovoltaïque. Dans ce cas, en utilisant des fréquences laser très élevées jusqu'à 500kHz pour l'ablation de films minces, l'élimination de matériau est extrêmement précise. Cela signifie que le matériau de base, qu'il s'agisse de verre, de plastique ou de silicium, reste intact lorsqu'il est traité par un des lasers de SPI.

Ces résultats ont été publiés dans une

annonce du laboratoire d'applications paru en septembre dernier, selon lesquels des vitesses de coupage arrivant jusqu'à 6m/min avec le silicium polycristallin de 200µm ont été aisément atteintes en coupant du silicium et en utilisant un laser à fibres optiques de 200W CW-M 1070nm, ce qui a également représenté une application inédite pour les lasers à fibres optiques.

La société SPI Lasers espère que les résultats obtenus par le laboratoire d'applications continuent à développer les capacités observées des lasers à fibres optiques, le laboratoire d'applications étant ouvert pour les requêtes de démonstrations de faisabilité supplémentaires.

Les fabricants de dispositifs et de composants, les instituts académiques et les intégrateurs de systèmes de par le monde sont activement encouragés à travailler avec SPI sur leurs essais d'application spécifiques. Chaque requête est évaluée chaque cas pour la maquette de principe et, si approuvée, elle est fournie au demandeur gratuitement.

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Nuova linea di bobinatura a due teste di PS Costruzioni

Basandosi sulla vasta esperienza e sulla filosofia del servizio orientato al cliente, la società PS Costruzioni ha recentemente progettato e realizzato una linea di bobinatura a due teste completamente automatica, modello PS 1000/22-B.

Infatti i tecnici della società hanno creato questa linea allo scopo di soddisfare la crescente richiesta dei fabbricanti di cavi che necessitano di bobine di cavi piatti e tondi di grandi dimensioni.

La linea può bobinare cavi del diametro minimo di 6mm (0,23 pollici) fino ad un massimo di 22mm (0,86 pollici) e può essere utilizzata con bobine di diverse dimensioni che vanno da 450mm (17,73 pollici) a 1.000mm (39,40 pollici). La sua velocità lineare massima è pari a 400m (1.312,32 piedi) al minuto, secondo il tipo di cavo.

Data la necessità di avvolgere cavi resistenti e cavi delicati, la migliore soluzione consiste nell'utilizzare due rulli folli (uno per i cavi resistenti e uno per i cavi delicati).

In questo modo, la trazione del cavo può essere perfettamente controllata.

Il sistema PS 1000/22-B, come tutte le linee di imballaggio prodotte dalla società, presenta una struttura modulare, delle unità di base e alcune supplementari che possono essere aggiunte in funzione delle esigenze del cliente.



▲ La nuova PS 1000/22-B di PS Costruzioni

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Nuova tecnologia di rivestimento di fibre di Draka Comteq

Draka Comteq ha lanciato ColorLockXS, sua ultima innovazione nella tecnologia di rivestimento delle fibre.

Il nuovo prodotto della società specializzata nelle tecnologie delle fibre ottiche, nel cablaggio e nelle soluzioni di connettività e servizi tecnici di rete, è commercializzato dal mese di gennaio come BendBrightXS, prodotto di punta di Draka Comteq utilizzato per le fibre non sensibili alla piegatura.

BendBrightXS, la prima fibra non sensibile alla piegatura introdotta nel 2006, ha guadagnato terreno sul mercato, poiché è conforme alle norme più rigorose relative alla piegatura delle fibre, mantenendo

contemporaneamente la retro-compatibilità con la struttura della fibra esistente.

L'ultimo perfezionamento denominato ColorLockXS migliora le prestazioni di micro-piegatura nonché la capacità di strippaggio, integrando nuovi colori brillanti nel rivestimento della fibra.

Contrariamente ad altre fibre, BendBrightXS è una fibra di vetro che utilizza materiali e tecnologia consolidati e accettati dall'industria, eliminando così il problema delle giunzioni e di particolari procedure di connettività.

Il miglioramento delle micro-piegature con il rivestimento ColorLockXS nella

fibra BendBrightXS consente di ottenere una fibra resistente alle perdite dovute alle pieghe, una misura di riferimento per le prestazioni delle fibre richieste nelle applicazioni FTTx.

Le perdite dovute alle pieghe possono essere descritte come piegature parziali (fino a 45 gradi) della fibra ottica con raggi di 2mm. Le perdite tipiche per la fibra BendBrightXS in questa situazione sono inferiori a 0,1dB, anche con raggi di 2mm, il che rappresenta un enorme miglioramento.

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Istituto acquista sistema di prova da Zwick Roell

Forschungszentrum Karlsruhe è uno dei maggiori istituti di ricerca scientifica e d'ingegneria in Europa ed è stato fondato congiuntamente dalla Repubblica Federale Tedesca e dalla regione del Baden-Wuerttemberg.

L'istituto Forschungszentrum Karlsruhe sta ora esaminando il concetto di caratterizzazione delle sostanze irradiate mediante indentazione strumentale. Per questa ragione l'istituto ha acquistato un sistema di prova modulare ZHU0.2/Z2.5 del gruppo Zwick Roell come supporto allo studio delle proprietà meccaniche del materiale dopo l'irradiazione e per comprendere i meccanismi dei danni provati dall'irradiazione. Zwick era l'unico fabbricante in grado fornire una soluzione per quest'applicazione unica del genere.

Il ZHU0.2/Z2.5 è caratterizzato da una capacità di caricamento da 2 a 200N, e una precisione di misurazione dello spostamento di 0,02µm. Il sistema è equipaggiato con una tavola X/Y completamente automatizzata e con indentatori Rockwell e Vickers. L'indentazione può essere osservata



▲ Utilizzo del tester d'indentazione in una cellula calda da parte di un operatore

attraverso un microscopio equipaggiato con una telecamera CCD.

Il sistema ZHU0.2/Z2.5 di Zwick è installato in una cella calda a tenuta di gas provvista di una protezione di vetro al piombo di 200mm/500mm. Il sistema è progettato per effettuare prove di indentazione a più stadi (caricamento/scaricamento)

con tempi di attesa diversi. Quindi, le reti neurali valutano la correlazione fra i dati di questa prova ed i parametri di un modello di materiale viscoplastico, normalmente acquisito dalle prove di trazione.

Il funzionamento particolare del tester d'indentazione consente di effettuare cicli di caricamento di precisione fino a varie potenze e spostamenti e con i tempi d'attesa predeterminati durante ciascun ciclo. La piattaforma software TestXpert® per la prova dei materiali di Zwick è utilizzata per il controllo della macchina e per ottenere i dati della forza sincronizzata ed d'indentazione.

Questi dati vengono quindi memorizzati in un formato speciale e trasmessi al sistema di rete neurale per determinare le proprietà del materiale quali il Modulo di Young, il rendimento, la resistenza all'allungamento e i coefficienti di indurimento.

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Laser a fibre ottiche in testa

Tony Hoults del laboratorio di applicazioni di SPI Lasers ha lanciato una sfida alla percezione delle capacità dei laser ad infrarosso vicino utilizzando laser a fibre ottiche avanzati.

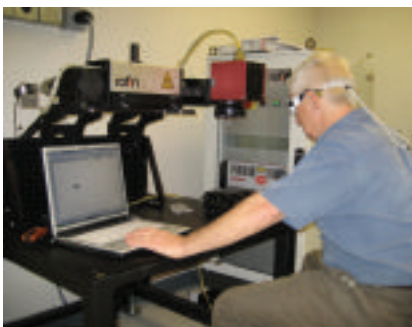
Le applicazioni di laser a fibre ottiche ottengono eccellenti risultati in settori quali la saldatura della plastica per l'industria medica e della telefonia mobile, la tracciatura e il taglio dei polimeri per l'industria automobilistica e l'ablazione degli strati sottili per l'industria fotovoltaica.

Il laboratorio SPI auspica di ottenere risultati supplementari con i laser a fibre ottiche nel prossimo futuro.

Uno degli esempi più recenti dei risultati più sorprendenti ottenuti dal laboratorio di applicazioni è rappresentato dalla saldatura della plastica.

La saldatura della plastica non era considerata adeguata all'elevata luminosità dei laser a fibre ottiche né alle caratteristiche del raggio.

Tuttavia, durante la prova effettuata dal laboratorio di applicazioni, una meticolosa manipolazione del raggio laser ha consentito di realizzare con facilità delle saldature efficaci, precise e rapide dei polimeri. Questi tipi di saldature vengono



▲ Tony Hoults a Refin Station

comunemente realizzati dalle industrie mediche e della telefonia mobile.

Altri esempi comprendono il taglio dei polimeri da parte dell'industria automobilistica, la tracciatura e il taglio di ossido d'alluminio e il taglio e la microlavorazione del silicio.

L'ablazione laser degli strati sottili è di notevole interesse per l'industria fotovoltaica. In questo caso, utilizzando frequenze laser molto elevate fino a 500kHz per l'ablazione di strati sottili, l'eliminazione di materiali è estremamente precisa. Ciò significa che il materiale di base, si tratti di vetro, plastica o silicio, resta intatto quando trattato da un laser di SPI.

Questi risultati che sono stati pubblicati in un annuncio del laboratorio di applicazioni apparso in settembre 2007, secondo cui sarebbero state raggiunte facilmente velocità di taglio fino a 6m/min con il silicio policristallino di 200µm tagliando del silicio e utilizzando un laser a fibre ottiche di 200W CW-M 1070nm, rappresentano un'applicazione inedita per i laser a fibre ottiche.

La società SPI Lasers auspica che i risultati ottenuti dal laboratorio di applicazioni continui a sviluppare le capacità notate nei laser a fibre ottiche, essendo il laboratorio di applicazioni aperto per richieste di ulteriori dimostrazioni di fattibilità.

I fabbricanti di dispositivi e componenti, gli istituti accademici e gli integratori di sistemi di tutto il mondo sono attivamente incoraggiati a collaborare con SPI sulle loro specifiche prove applicative.

Ciascuna richiesta viene valutata caso per caso per lo schema d'impostazione e, se approvata, viene fornita gratuitamente ai richiedenti.

SPI Lasers – Regno Unito

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Nueva línea de bobinado de doble cabeza de PS Costruzioni

Gracias a su vasta experiencia y a su enfoque orientado al cliente, PS Costruzioni ha diseñado y producido una línea de bobinado de dos cabezas completamente automática, el modelo PS 1000/22-B.

Los ingenieros de la compañía han proyectado esta línea para responder a la creciente demanda de los productores de cables que necesitan bobinar cables planos y redondos de grandes dimensiones.

Esta nueva línea permite bobinar cables de un diámetro mínimo de 6mm (0,23 pulgadas) hasta un diámetro máximo de 22mm (0,86 pulgadas) y se puede usar con bobinas de varias dimensiones, desde 450mm (17,73 pulgadas) hasta 1.000mm (39,40 pulgadas). Su velocidad lineal máxima es 400m (1.312,32 pies) por minuto, según el tipo de cable.

Para poder enrollar en bobinas tanto cables resistentes como cables delicados, la mejor solución es usar dos rodillos tensores (uno para cables resistentes y otro para cables delicados). De esta manera, se puede controlar perfectamente el tiro del cable.

La línea PS 1000/22-B, como todas las líneas de embalaje de la compañía, presenta una estructura modular; hay algunas unidades de base y otras que se pueden añadir de acuerdo con los requisitos de los clientes.

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▲ La nueva PS 1000/22-B de PS Costruzioni

Nueva tecnología de revestimiento de fibra Draka Comteq

Draka Comteq ha presentado su última innovación en tecnología de revestimiento de fibra ColorLockXS.

Draka Comteq, dedicada al desarrollo de fibras ópticas, cableados, soluciones de conectividad y servicios de diseño de redes, puso en venta en enero este nuevo producto, aplicándolo a la fibra insensible a los doblados BendBrightXS, producto principal de la empresa.

BendBrightXS, la primera fibra efectivamente insensible a los doblados presentada en 2006, ha obtenido un éxito significativo en el mercado porque cumple las normas más severas en materia de doblado de fibra, manteniendo la compatibilidad con

versiones anteriores de la infraestructura de fibra existente.

Esta última novedad, ColorLockXS, mejora las prestaciones de microcurvatura de la fibra y su capacidad de pelado, añadiendo también colores fuertes y brillantes integrados en el revestimiento de la fibra.

A diferencia de otras fibras, BendBrightXS es una fibra toda de vidrio que utiliza materiales y tecnología probados y aceptados por la industria y que elimina problemas de empalme y procesos especiales de conectividad.

La mejora en microcurvaturas conseguida con el revestimiento ColorLockXS en la fibra BendBrightXS permite obtener

una fibra resistente a pérdidas debidas a retorcimientos, una medida de referencia para las prestaciones de la fibra en curvaturas estrechas requeridas en aplicaciones FTTx.

Las pérdidas por retorcimiento pueden ser descritas como curvaturas parciales (de hasta 45 grados) de la fibra óptica con radios de hasta 2mm.

Las pérdidas típicas de BendBrightXS en esta situación son inferiores a 0,1dB, incluso con un radio de 2mm, lo que representa una mejora de hasta cien veces.

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Un instituto compra el sistema de prueba de Zwick Roell

El Forschungszentrum Karlsruhe es uno de los mayores institutos europeos de investigación científica y de proyecto fundado conjuntamente por la República Federal Alemana y el estado de Baden-Wuerttemberg.

El instituto Forschungszentrum Karlsruhe está investigando el principio que caracteriza a los materiales irradiados por medio de la indentación instrumentada. Por esta razón, el instituto ha comprado un sistema de prueba modular ZHU0.2/Z2.5 del grupo Zwick Roell para estudiar las propiedades mecánicas del material después de irradiarlos y para comprender cómo les afecta la irradiación los mecanismos de daño debido a la irradiación. Zwick era el único fabricante que podía ofrecer una solución para esta aplicación tan especial.

El ZHU0.2/Z2.5 está caracterizado por una capacidad de carga de 2 a 200N y una precisión de medida de desplazamiento de 0,02µm. El sistema está equipado con una tabla X/Y completamente automatizada e indentadores para pruebas Rockwell y Vickers.



▲ Operador que usa el probador de indentación en la celda caliente

La indentación puede ser visualizada a través de un microscopio equipado con cámara CCD.

El ZHU0.2/Z2.5 de Zwick está instalado en una celda caliente estanca al gas con pantalla de vidrio de plomo de 200mm/500mm. Permite realizar

pruebas de indentación multietapa (carga/descarga) con varios tiempos de retención. Luego, redes neurales evalúan la correlación entre estos datos de prueba y los parámetros de un modelo de material viscoplastico, normalmente tomados de pruebas de tracción.

El funcionamiento peculiar del probador de indentación permite realizar ciclos de carga de precisión aplicando varias fuerzas y desplazamientos, y con tiempos de retención predeterminados durante cada ciclo. La plataforma software TestXpert® para la prueba de materiales de Zwick es utilizada para controlar la máquina y obtener los datos de fuerza sincronizada e indentación. A continuación, estos datos son almacenados en un formato especial y transmitidos al sistema de red neural para determinar las propiedades del material como el módulo de Young, la deformación, el límite de resistencia a la tracción y los coeficientes de dureza.

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Láseres de fibra óptica en cabeza

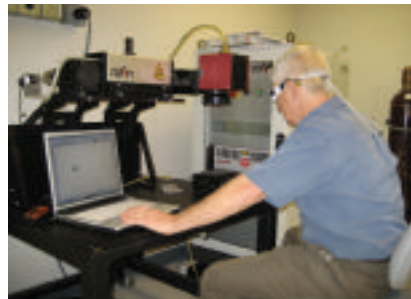
Tony Houtt, del laboratorio de aplicaciones de SPI Lasers, está desafiando la percepción de las capacidades de los láseres casi infrarrojo usando láseres de fibra óptica de vanguardia.

La aplicación de láseres de fibra óptica en sectores como los de la soldadura de plástico para la industria médica y de telefonía móvil, del trazado y corte de polímeros para la industria automotriz y de la separación de películas finas para la industria fotovoltaica está dando resultados excelentes.

SPI espera obtener más resultados con los láseres de fibra óptica más adelante.

Uno de los ejemplos más recientes de los resultados más sorprendentes obtenidos por el laboratorio de aplicaciones es la soldadura de plástico. Se pensaba que la soldadura de plástico no era apropiada debido a la elevada brillantez de los láseres de fibra óptica o las características del haz.

Sin embargo, durante las pruebas del laboratorio de aplicaciones, una atenta manipulación del haz láser ha permitido realizar fácilmente soldaduras de polímeros eficientes, precisas y rápidas. Estos tipos de soldadura de plástico son realizados corrientemente para la industria médica y de telefonía móvil.



▲ Tony Houtt en Rofin Station

Otros ejemplos incluyen el corte de polímeros para la industria automotriz, el trazado y corte de alúmina, y el corte y micro mecanizado de silicio. De gran interés es también la separación láser de películas finas para la industria fotovoltaica. En este caso, usando frecuencias láser muy altas de hasta 500kHz es posible quitar películas finas de material con gran precisión. Esto significa que el material de base, ya sea vidrio, plástico o silicio, queda intacto cuando es procesado por uno de los láseres de SPI.

“Esta es la primera vez en el sector de los láseres que se consiguen frecuencias de repetición tan altas con estos tipos de láseres, lo cual aporta un grado de control y sofisticación totalmente nuevo a una amplia gama de procesos de mecanizado y estructuración de superficies que requieren un grado de precisión muy alto,

a un coste comparable al de un láser de marcado industrial” dijo Houtt.

Estos resultados, fueron divulgados después de que el laboratorio de aplicaciones declarara en septiembre 2007 que, cortando silicio con un láser de fibra óptica de 200W CW-M 1070nm, habían conseguido llegar fácilmente a velocidades de corte de hasta 6m/min. con silicio policristalino de 200µm. Se trata también de una aplicación nueva de los láseres de fibra óptica asombrosa.

SPI Lasers espera que los resultados obtenidos por el laboratorio de aplicaciones continúen aumentando las capacidades de los láseres de fibra óptica, ya que el laboratorio de aplicaciones está dispuesto a efectuar más pruebas de factibilidad.

Los fabricantes de dispositivos y componentes, los institutos académicos y los integradores de sistemas de todo el mundo son encorajados activamente a trabajar con SPI sobre sus propias pruebas específicas aplicativas. Cada demanda es evaluada caso por casos para la prueba de factibilidad y, si es aceptada, es provista sin costes.

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ACM AB 9 E40

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Advaris 10 B22

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AEI Compounds Ltd 11 F02

AEI Compounds Ltd, in Kent, UK, has introduced two new moisture crosslinkable, zero halogen, fire retardant compounds – CT06/30:CT06/81A and CT06/91:CT06/81A. These compounds were primarily developed for building wire applications meeting such specifications as BS7211. As a consequence of the excellent range of properties they have, in many instances, been approved for insulation and sheathing applications other than building wire, such as cabling for shipboard and mass transit systems and nuclear power facilities.

This new generation of compounds advances the technology beyond AEI's already well established crosslinkable, zero halogen compounds SX538, SX559 and SX545 with notable property improvements.

Resulting from extensive research to identify a beneficial blend of polyolefin resins and efficient compatible filler systems, these new compounds have the following significant aspects: readily processable; excellent mechanical properties; excellent electrical properties.

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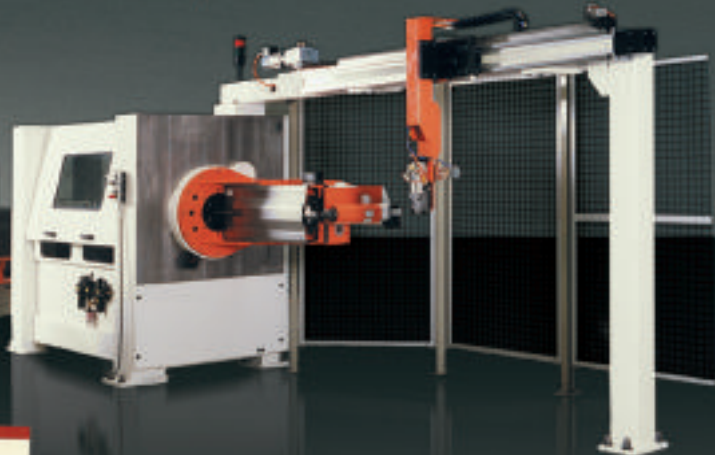
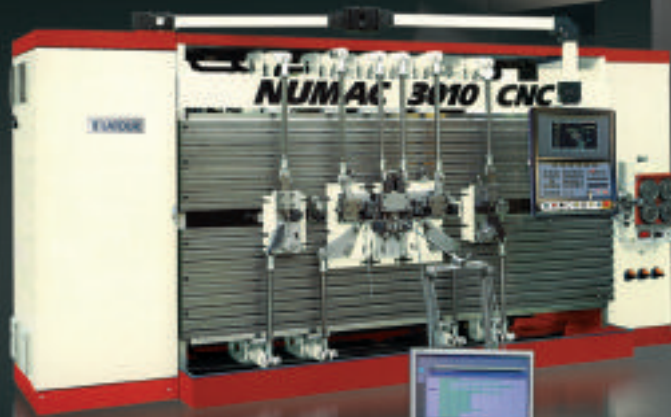


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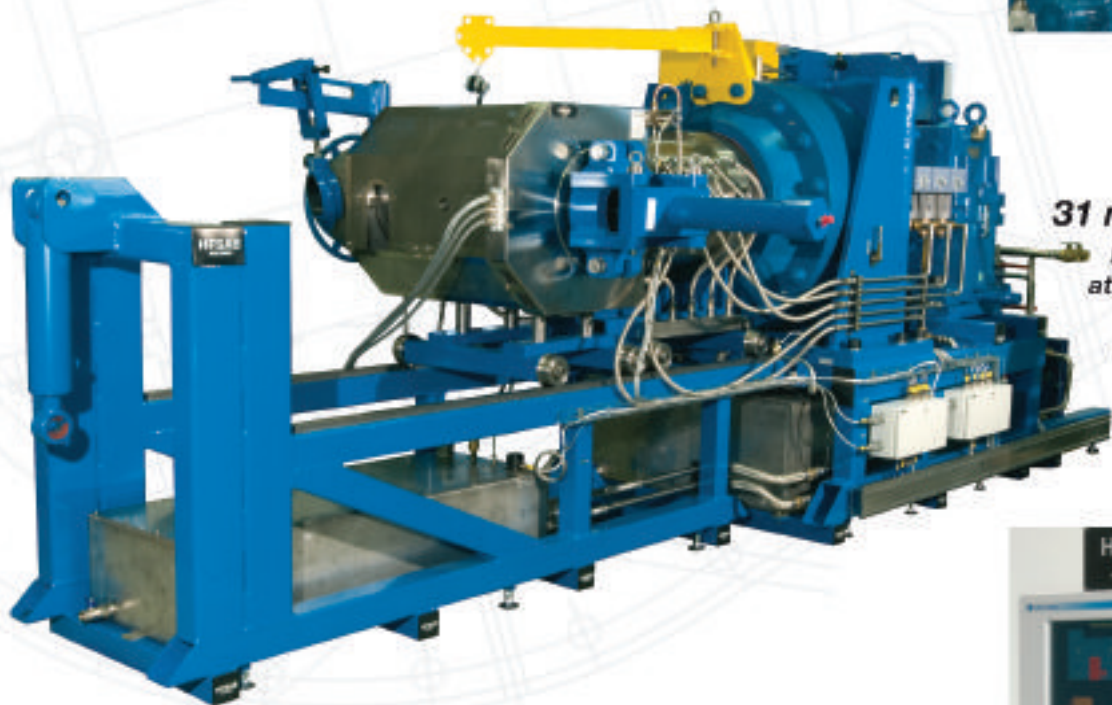
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31 March-04 April

Agir Technologies 10 G56

New Mouton machines, from Agir Technologies, will be introduced at wire 2008. Two new machines for the automatic working of tungsten carbide dies will be exhibited. The TCLD-C-CNC works and automatically repairs the working cone of the dies, and the TCLD-B-CNC automatically works the cylindrical bearing of the dies. Also being introduced in Düsseldorf will be the new SH, a small machine dedicated to the lapping of diameters from 0.20 to 2mm on a length of more than 10mm. This machine manages its working cycles thanks to a programmable PLC. It can be used to recondition tungsten carbide dies by increasing the existing

diameter. Agir will also be showing off the new wire shaving machine, TR 02, for ferrous and non-ferrous wires, as well as the small automatic grinding machine, MI 110.

Agir Technologies, thanks to Mouton Products, produces tungsten carbide tools for wire and cable manufacturing and other wire transformation, including wire drawing dies (round, shaped, pressure); drawing dies and plugs; cable extrusion tools; straightening tools; wire-guides; tools for welding rods and plated wires.

Agir Technologies – France
Fax: +33 38051 8136
Email: ferret@agir-technologies.com
Website: www.agir-technologies.com



▲ New introductions at wire 2008

AIM Inc 11 A25

AIM will demonstrate 2008 innovations in wire bending technology. Modular equipment powered with the latest in automation technology suitable for companies that grow with their markets. New engineering designs and software innovations are 'married' to the company's 2008 releases unmatched for the industry and distinguished for their ingenuity.

Simple programming, advanced tools, graphic simulation with collision detection and production estimation that has never been seen before.



▲ Ingenuity from AIM

AIM offers 2D and 3D CNC large and small bending capabilities with wire capacities up to 16 mm (5/8") with two years limited warranty.

AIM Inc – USA
Fax: +1 630 458 0730
Email: info@aimmachines.com
Website: www.aimmachines.com

Ajex & Turner Wire Dies Co 11 G02

Ajex & Turner India will introduce two models of ultrasonic polishing machines with and without grinder.

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31th March-4th April 2008
Booth 14B44

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Verseilmaschinenbau GmbH

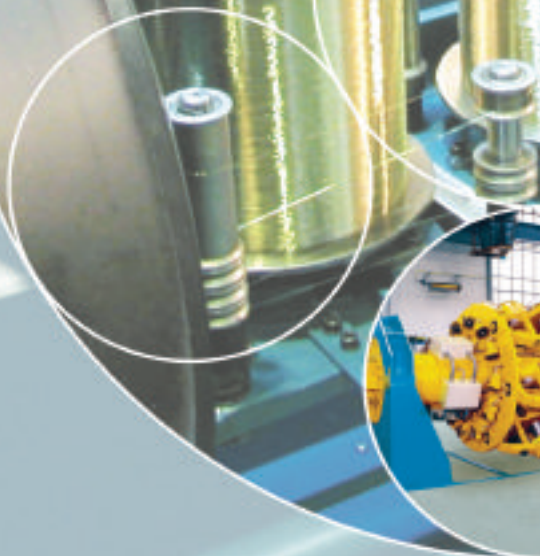
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Phone: + 49 (0) 391 40558-0, Fax: + 49 (0) 391 40558-15
e-mail: info@SKETVMB.de, Internet: www.SKETVMB.de
VAT No. DE183571337

31 March-04 April



These two models are very economical and easy to operate for polishing and regrinding of diamond and PCD dies in sizes ranging from 0.100mm to 3.5mm.

These machines ensure consistency and perform the correct geometry, while the oscillating die table provides a smooth and perfect blending of angles. The diamond grinding wheel is set to the exact angle required, from 0-30 degrees, and grinding is carried out simply by pulling the rotating head carrying the working needle near to the grinding wheel.

The ultrasonic generator offers continuous power of up to 300 watts and the ultrasonic frequency output can be varied to needs, indicated by a digital display on the generator panel.



▲ Two new models from Ajax & Turner

The spring-loaded die pressure system provides accurate weight balancing. The SAU 250 machines are supplied fully ready for operation, complete with a set of standard accessories and spares.

Ajex & Turner Wire Dies Co – India

Fax: +91 1127 452640

Email: ajex@ndf.vsnl.net.in

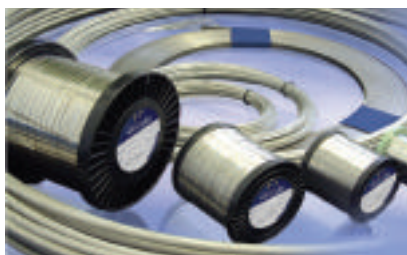
Website: www.ajexdiamond.com

Alloy Wire International Ltd
11 E28

A total combined experience of more than 200 years gives Alloy Wire International a competitive edge in the challenging nickel and cobalt alloys field.

The size range of wire is from 20.00mm (0.787") to as fine as 25 micron (0.001"). Additionally, the company supplies flat wire, strip and profiles with all forms being supplied in coil, on spools or in straight cut lengths.

Each employee is a shareholder of the company, which firmly believes that people are the most important asset a company can have.



▲ Combined experience of more than 200 years from Alloy Wire

The innovative staff possess the technical skills to develop and construct much of its

own machinery, some of which has been built with particular customers' requirements in mind.

Over the past few years, Alloy Wire has invested heavily in new machinery such as electronic measuring equipment, mechanical testing, die making and state-of-the-art annealing equipment.

Alloy Wire International Ltd
– UK

Fax: +44 1384 410074

Email: sales@alloywire.com

Website: www.alloywire.com



Welcome to visit CANDOR Sweden AB at Wire 2008 in Düsseldorf March 31st - April 4th

Equipment and chemicals for plating and cleaning of wire

News:

Now both equipment and chemicals in the same company!

Candor Sweden AB acquired the wire equipment department from Outokumpu Fabrication Technologies / WTT AB.



High speed multi wire plating lines for bronze, copper, nickel, chromium and zinc on ferrous- and non-ferrous wire.

New:

New design for nickel plating on stainless spring wire.



High speed single wire plating lines for tin, copper, nickel, silver and zinc on ferrous- and non-ferrous wire.

New:

Equipment for galvanized staple wire and chemicals.



Single and multi wire plants for degreasing and pickling.

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ALMT Corp 14 A31

ALMT will be presenting its inspiring latest technological advances for wire drawing.

ALMTCorp - Japan
Fax: +81 6645 90532
Email: info@allied-material.co.jp
Website: www.allied-material.co.jp

Angeli Srl 11 H32

Angeli will present the new vertical drop rotary skin model AV-TZ for automatic coiling of wire skein, strapped in two points.



▲ 50 years into the past at Angeli

Visitors will also see winding machines, watch videos, and have explanations about all machines for the wire industry that Angeli has produced during the last 50 years.

Angeli Srl - Italy
Fax: +39 0546 28852
Email: info@angelisnc.com
Website: www.angelisnc.com

A Appiani srl 11 G32

A Appiani srl is an ISO 9001:2000 worldwide manufacturer and supplier of high quality and cost competitive steel reels for the cable and wire industry. Since 1962 the company has been making itself known on the international market by offering solutions according to either international recognised standards or to customers' own requirements.

A comprehensive range of reels and drums will be showcased at wire 2008, including spools for steel-cord, hose-wire and sawing wire, now produced with a brand new CN welding machine for top quality products, pressed and structural reels, machined and dynamically balanced reels for wire drawing, equipment for reels and coil handling and composite ABS-steel reels for process. In addition, a complementary line of take-apart reels (hydraulic, mechanic, pneumatic), tilting units and machines for spool reconditioning is also available.

A Appiani srl - Italy
Fax: +39 030 938 2425
Email: drebessi@appiani.reels.it
Website: www.appiani.reels.it

ATE Applicazioni Termo Elettroniche Srl 11 C77

The company, which was founded in 1987 by combining in-depth experience in the fields of industrial electronics, static energy conversion and electric heating for various industrial applications, has become

31 March-04 April

renowned as a qualified manufacturer of induction heating systems. Specialisation, innovation, continuous investment in research and state-of-the-art technology, quality applied to the whole process from internal organisation to customer service.

These are the underlying and guiding principles of ATE Applicazioni Termo Elettroniche's business.

The main types of ATE induction heating systems are:

- heating plant and thermal treatment of wires, bars, tubes and steel strips
- melting furnaces for ferrous and non-ferrous metals and precious alloys

▼ *Heating systems from ATE*



- induction heating systems for welding
- induction heating systems for hot assembling

ATE – Italy
Fax: +39 0444 562373
Email: info@ate.it
Website: www.ate.it

AWM 11 A22

Traditionally known as a dynamic and innovative company, AWM will be presenting its revolutionary automatic plant for the production of electro-welded lattice girders, the 'Girderflex 350'.

AWM has been developing lattice girder technology for years, but the main point of this brand new model is the possibility to automatically change the diameter of longitudinal wires and diagonals, as well as the lattice girder height. The whole process takes only few seconds and does not require any manual adjustment, thanks to a totally automated system.

The main destination of this plant is the pre-cast industry, which typically needs different types of girders in a quick sequence.



▲ *The new 'Girderflex 350'*

Once the girders have been produced, they can be automatically positioned on the production line by means of a set of robotised pliers. Up to now, pre-cast companies had to cut to measure ready-made girders, producing as a consequence a great amount of scrap and facing quite high costs. Furthermore they had to keep large stocks of the whole variety of girder types at their disposal, ready to be used according to their needs.

Although semi-automatic systems to cut girders have been used for years, the traditional method appears now obsolete compared to the new 'Girderflex 350', which eliminates stocking and scrap costs and reduces the labour requirement.

AWM – Italy
Fax: +39 0432 791939
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B & B Compounds Srl 9 F09-04

B & B Compounds, which has been producing wire and cable compounds since 1972, recently developed a new range of high-flame retardant, low smoke, eco-compounds (FREC) to pass (IEC 332.3 cat a, b, c) using the most compatible polymers and additives listed in the REACH (Registration Evaluation and Authorisation of Chemicals).

These PVC compounds are not only lead and heavy metal free but also Antimony free to

meet the stringent smoke density ASTM E622 requirements with very low halogen content (< 12%).

The wide range of these compounds, completely interchangeable in terms of processability with traditional lead compounds includes UL/CSA - VDE and CEI grades (TM3 -YM4 - T13- Y17- Y18), even with a thickness below 0,2. Today's demanding market is using these compounds for low voltage cables, data transmission and bus cables, robotics, patch cords and welding cables - especially when they also include oil and gasoline resistance, together with flame retardancy.



▲ New range on show

This result could be improved thanks to the cooperation with research and development resources of the Chemical department of Salerno University. The latest developments are a wide range of Thermoplastic elastomers PVC + Tpu; (VIPUR) and PVC + Nbr (VIGUM); and 100% Poliurethane Polyether compounds (AITANE) together with co-polyester elastomers, BILL TREL). Recent developments will be described at the 'John Hogg Travel Award 2008', organised by the International Wire and Machinery Association (IWMA) in Düsseldorf on 1st April during the show.

B & B Compounds has recently confirmed the agreement with Alphagay for the exclusive distribution in Italy of Megolon Halogen-free compounds, flame retardant compounds and Esseti Plast for tailor-made Masterbatches for the wire and cable industry.

B & B Compounds Srl - Italy
Fax: +39 0823 584971
Email: info@bebcompounds.com
Website: www.bebcompounds.com

Besel Basim San Tic Ltd Sti 12 E61

Besel is based in Istanbul, Turkey, and has manufactured and marketed laminated insulating tapes for the cable industry for more than 30 years. Since its foundation, the company has undergone steady development; increasing its production capacity and broadening its product range by adding coated insulating tapes, non-wovens, mica tapes, glass woven tapes, pp foamed tapes, plastic raw materials and plain aluminium foils to its stock list.

Besel produces aluminium foil, aluminium tapes, copper foils, polyester films and laminations and coatings of all film and foil materials for cable, HVAC and the packaging industry.

Besel Basim San Tic Ltd Sti - Turkey
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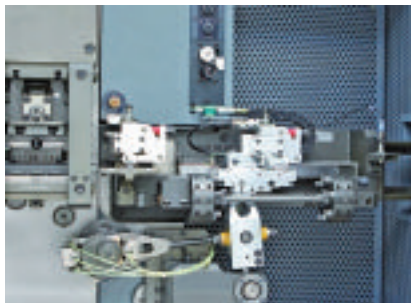


31 March-04 April

**Otto Bihler
Maschinenfabrik GmbH
& Co KG
10 F18**

BihlerTEC, the machine tool specialist, presented its latest development at a recent in-house exhibition. The Bihler bushing machine provides easy handling and the highest precision.

Designed for the manufacture of cylindrical, straight bushes and flanged bushes, the RM40B can produce these without problems in inner diameters from 6-18mm, and up to a maximum of 40mm long. The machine speed is infinitely adjustable and varies, subject to the type of bush. If the speed, for flanged bushes (collared bushes), is at 250 1/min, it climbs to 400 1/min for cylindrical, straight bushes.



▲ The new Bihler bushing machine

Bihler offers the RM 40B as a cost-effective complete package which consists of a compact basic machine, standard accessories and clearly arranged tool components. The basic machine corresponds to the model RM 40K, but the number of drive positions is reduced to 12. The standard accessories include a mechanical gripper feed with hydraulic clamping, the BRA-II-75 strip straightener, a 70 kN 12mm stroke two-point eccentric press, two positively-controlled normal slide units with a nominal force of 30 kN and 25mm stroke, a central mandrel with 30 kN nominal force and 50mm stroke, a 60 kN transverse press with 35mm stroke, a rotary table drive and user and personnel protection.

The RM 40B tooling consists of three components: the basic tooling – two sets of tool fixtures and the active parts (tool changeover parts). The latter is to be manufactured by the customer, but Bihler can supply the respective tool blanks. To achieve the fastest possible tool changeover times (partly less than 10 minutes), the second set of tool fixtures can be pre-equipped for another bush type. The rapid-change tooling system to be handled via a switch also adds to extremely short re-tooling times.

Otto Bihler Maschinenfabrik GmbH & Co KG – Germany
Fax: + 49 8368 18258
Email: info@bihler.de
Website: www.bihler.de

**Böllinghaus
GmbH & Co KG
12 A16**

Based in Germany and Portugal, Böllinghaus' range includes flat bars, square bars and hexagonal bars, as well as special shapes, all supplied in a wide range of grades, including stainless steel grades and heat resisting grades.

Böllinghaus GmbH & Co KG – Germany
Fax: +49 2191 93 9840
Email: delvalle@boellinghaus.de
Website: www.boellinghaus.de

**Bongard Trading
GmbH & Co KG
11 C66**

Bongard has more than 1,200 second-hand machines in stock to cover all different applications for the production of steel wire, flat wire, power cable, data cable and communication cable.

Bongard is also offering equipment directly from previous owners' factory sites. The equipment can be purchased in 'as is condition' or 'function tested' or 'mechanically >>>

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and electrically refurbished and modernised' from the highly qualified Bongard team. The company, which has more than 20,000m² of storage space and a site in the USA, organises the complete handling of dismantling, transport, shipment, customs and commissioning of complete manufacturing plants. Bongard is also looking for good surplus machinery and plants.

Bongard Trading GmbH & Co KG
- Germany
Fax: +49 2378 915300
Email: info@bongard.de
Website: www.bongard.de

Boockmann GmbH
9 C32

Boockmann GmbH, Germany, will present the new generation of Helicord machines,

which now use stronger motors and a larger application zone for treatment of larger wire and cable diameters, and a motorised looping unit for easier handling of the device.

The Helicord technique uses a tension and speed controlled string or cord wrapped around a wire, strand or cable.

It gives a multiple 360° contact under controlled friction with constantly renewed cord and guarantees reliable surface preparation.

Controlled friction and speed difference of string and wire permit prediction of parameters and calculation of results.

The Helicord process offers a wide range of applications, including wiping off metal fines, spikes and particles of wire and strands to avoid pollution of following production steps; achieve pinhole free thin extruded insulation; avoid blow-ups after

the extruder; increase average breakdown and partial discharge inception voltage and to reduce bit faults; improve adhesion of insulation to conductor.

Boockmann GmbH - Germany
Fax: +49 9708 571
Email: info@boockmann.com
Website: www.boockmann.com

Boxy Group
10 F55

Boxy Group – including Boxy SpA, Italy, and Mossberg Reel LLC, USA – offers a complete range of steel reels and drums for the wire and cable industry.

This includes fully machined reels for copper wire drawing, resistant reels for steel wire drawing, one-way shipping reels, forged reels, heavy-duty reels and large cable drums.

The company's production includes special equipment for reel handling, such as take-apart reels (in a variety of types: hydraulic, mechanic, pneumatic, as well as easy to handle by a single mechanical operation), tilting units (again, of the electromechanical -built-in or floor mounted, as well as hydraulic or pneumatic models), mechanical reel lifters and coil lifters.

The company is certified ISO 9001:2000.

Boxy SpA - Italy
Fax: +39 030 957 244
Email: boxy@boxy.com
Website: www.boxy.com

Mossberg Reel LLC - USA
Fax: +1 401 334 3541
Email: info@mossberg-reel.com
Website: www.mossberg-reel.com

E Braude (London) Ltd
11 E32

Braude is a UK-based specialist manufacturer of non-corrodable heating and cooling equipment for the highly corrosive liquids found typically in pickling, plating, anodising and other chemical processing operations.

All products are manufactured from high integrity chemically inert fluoropolymers ('Teflon™', for example), and have been designed to ensure long life in aggressive solutions. They are all manufactured to the highest quality standards. Braude is an ISO 9001 registered company.

Braude manufactures the Nautilus range of tank heaters and Jet Stream external heating and cooling systems which are particularly suitable for larger scale pickling and processing operations.

The Nautilus tank heater consists of a fluoropolymer element mounted on a strong

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tank heaters

external heating systems

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BRAUDE

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www.braude.co.uk · sales@braude.co.uk

31 March-04 April

polymer frame for good chemical resistance. The heater is immersed at a suitable location within the process tank and easily connected to the heating source by means of sturdy flexible connections.

The Jet Stream is a complete system comprising non-corrodable fluoropolymer heating/cooling element, external tank, re-circulation pumps and controllers for temperature and system operation.

It is ideal for arduous heavy industrial pickling and process applications where the heat exchanger requires protection from damage by the workload, as found for example in the steel, tube, wire and galvanising industries.

Both systems are suitable for use with steam, hot water, and in some cases thermal fluid. The element can also be used with chilled water for cooling applications. Each heat exchanger is made to suit the tank in which it will be installed and Braude calculates the size of each unit based on information supplied by the end user.

Other Braude products include the Polaris non-corrodable electric immersion tank heaters, Thermaster, Levelmaster and Tankmaster range of temperature and liquid level controllers sealed to IP65.

Braude also produces a range of self-priming chemical service pumps, suitable for use

with highly corrosive solutions such as hydrochloric, hydrofluoric and sulphuric acids – with flow rates up to 35m³/hr.

E Braude (London) Ltd – UK
Fax: +44 1252 875281
Email: info@braude.co.uk
Website: www.braude.co.uk

Burk 12 C60

Burk Machinery has developed new machines to complement its range of machines to work tungsten carbide, natural diamond and PCD dies.

▼ *New machines from Burk*



The new BHSM 07 is a robust, easy to operate horizontal grinder, complete with the Siemens SPS – one of the best control systems on the market today.

Another new development is a fully automatic grinding, polishing and calibrating machine with two working-stations.

Burk will also be presenting a wire polishing machine to work natural diamond and PCD-dies of bigger diameters.

Burk – Germany
Fax: +49 2776 911602
Email: dieterburk@t-online.de

Buss AG 9 C48

Buss AG has gained its reputation for compounding equipment serving the wire and cable industry. Precise temperature control, uniform shear mixing and optimum dispersion are key features of the oscillating screw kneader technology.

At wire 2008, Buss will be introducing its newest technology for the first time at a dedicated wire and cable fair. The Buss MX Kneader is a technological milestone in high grade cable compound production. >>>

It's a simple fact, the quality of the raw material used affects the quality of the finished product. Beneke Wire is known for outstanding cold heading quality. If you're working with aluminium wire, you should be working with Beneke. We offer...

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CHRIS WHEATLEY / Swansea, South Wales
 Tel: +44 1269843027 / chris@cjwiretech.com

<<< The new MX design is a development of the universal Buss MKS kneader but now with four flight screws – as used in the already well-proven quantec® kneader for PVC compounding.

It has a redesigned kneading chamber with greater volume and individually optimised process zones. Furthermore, the mixing effect has been intensified while at the same time reducing specific energy consumption by about 15%. As a direct result of these improvements, the melt temperature rise as a function of screw speed is significantly less than before, enabling screw speeds up to 750rpm to be realised.

Production trials with the new MX technology have seen improvements in product quality, specifically dispersion, and throughput up to 2.5 times higher than the MKS kneader of equivalent dimension.

Apart from reduced floor space, this brings users considerable savings not only in initial investment costs but also in operating costs thanks to lower power consumption.

The MX technology focuses on the highly filled applications namely, flame retardant compounds, semi-conductive compounds and masterbatches.

Clearly, one of the most rapidly expanding areas in cable compounds is the non-halogen flame retardant and Buss will be aiming to retain its primary position in this demanding application.

Buss AG – Switzerland
Fax: +41 61 825 6688
Email: info@coperion.com
Website: www.coperion.com

BWE Ltd
11 F26

BWE Ltd has been manufacturing Conform™ and Conklad™ continuous extrusions machines for more than 30 years. In 1976, BWE was awarded the original Conform patent licence from the inventors of the process (UKAEA). BWE has since supplied many machines for a wide range of different applications in the global non-ferrous and wire and cable industries.

BWE has recently secured contracts for a range of small to large machines for copper applications such as rectangular wire (magnet wire), lightning conductors, bus bars, trolley wire and other sections to customers in



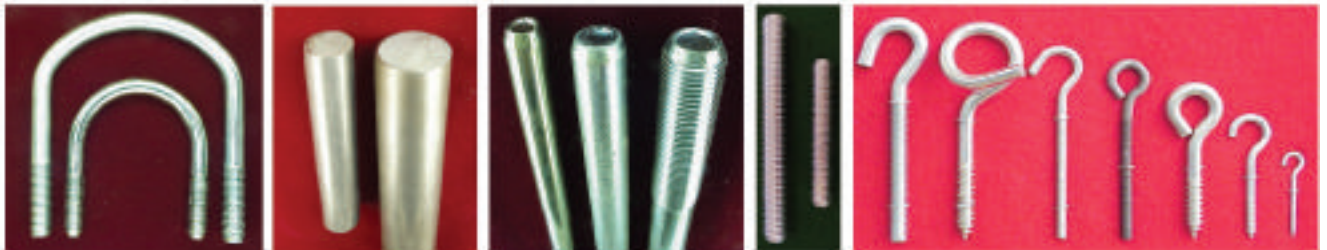
▲ BWE's new factory in Pu Dong, China

Europe, the Far East and the Middle East. Additionally, two large SheathEx™ machines (sheathing of high voltage power cables) and a Conklad 350 machine for ACSR applications, were supplied to three new Chinese customers in 2007.

BWE Shanghai Ltd was established in 1995 and has been very successful in manufacturing cold pressure welders. In 2002, BWE Shanghai Ltd opened its new modern factory in Pu Dong and has since supplied a number of Conform machines to the Chinese domestic market.

The company is now pleased to offer Conform machines built by BWE Shanghai Ltd to world markets at much reduced prices. These machines will be manufactured and assembled in China, under the supervision of BWE UK specialists and all machines will be >>>

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sales@WwyneWireDie.com

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Shanghai, China
86-21-6876-5529
sales@fwwdshanghai.com

Asia
Metro Manila, Philippines
63-43-405-5555
sales@fwwdasia.com

Canada
London, Ontario
(519) 658-3030
sales@AdvancedWireDie.com

Europe
Frankfurt, Germany
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sales@fortekGmbH.com

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Our Tools for Wafios N 90

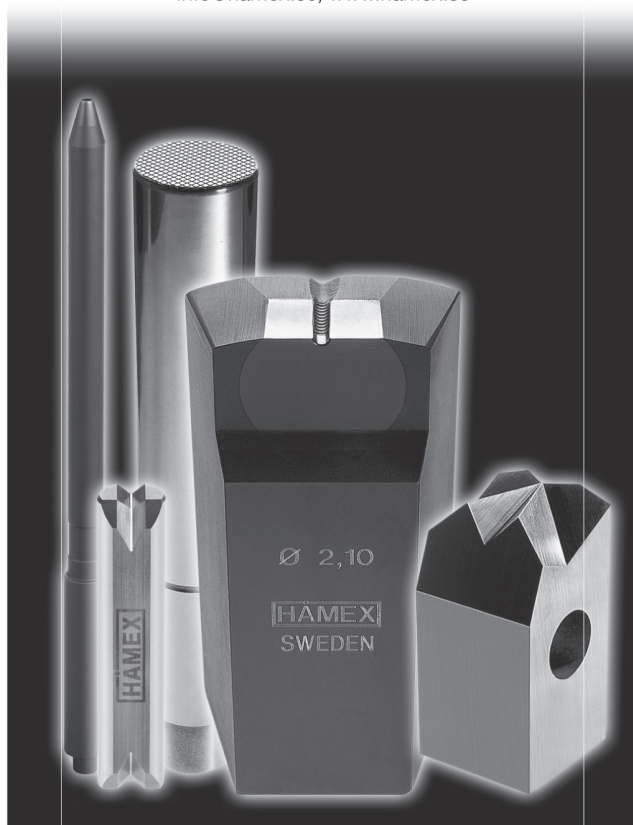
In the search for optimal results, more and more nail manufacturers are changing to Håmex. Håmex tools are the key to high precision, long life and low costs.

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HÅMEX

Håmex Hårdmetallverktyg AB

Box 1117, SE-581 11 Linköping, Sweden
Phone +46-13-357650, Fax +46-13-357660
info@hamex.se, www.hamex.se



<<<

subject to final inspection and CE certification in the UK. Standard design features a planetary gearbox to ensure long bearing life. To maintain high manufacturing standards, some equipment such as heat exchangers and hydraulic pumps, will be of European origin.

Initially, BWE will begin to offer and supply its popular Conform 315 machine, for small copper and aluminium applications. Other machines in the BWE range will follow in the future. BWE's new and unique developments such as the successful 'induction heated tooling system' will be available as options. Ancillary items that complete the line can be supplied by the customer or purchased as an option from BWE.

Conform, Conklad and SheathEx are registered trade marks of BWE Ltd.

BWE Ltd - UK

Fax: +44 1233 630670

Email: kevinbennett@bwe.co.uk

Website: www.bwe.co.uk

Caber Impianti Srl 13 D30

Caber Impianti manufactures scroll, tunnel and bolting machines to clean metal wire and wire rod.

Caber make the double bolting machine – a washing machine made of two rotative bolters – in many different sizes. The first one performs a washing cycle with detergents and water, and rinsing at precise times.

Once complete, the bolting machine reverses the rotation direction, unloading components in the second bolter at pre-set times. Times are set via an operating panel.



▲ The double bolting machine from Caber Impianti

Caber also supplies box-lifting systems, components weighing systems and other peripherals.

Caber Impianti Srl - Italy

Fax: +39 0362 804094

Email: info@caberimpianti.it

Website: www.caberimpianti.it

Candor AB 10 B72

Founded in 1946, Candor specialises in processes and equipment for the surface treatment and metal finishing industry.

Candor supplies both single and multi-strand systems for ferrous and non-ferrous materials and all plants are tailor-made upon customer request.

>>>

Art Of Cable Packing...

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Automatic cable coiling line for multi wire cables diameter from 5mm up 15mm with 2.5 coils (100meters length) per minute line capacity



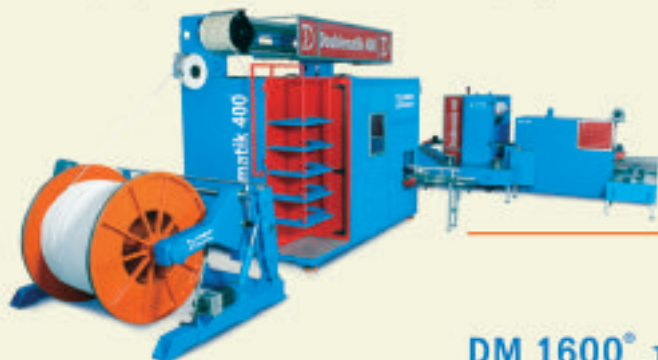
Coilmatik 280[®]

Automatic cable coiling line for single wire cables diameter from 2mm up 6mm with 3-4 coils (100meters length) per minute line capacity



Doublematik 400[®]

Automatic spool or coil packing line for single or multi cores cables diameter from 2.5mm up to 14mm with two spool (100meters length) and coils per minute line capacity.



Reelmatik 350[®]

Automatic spool winding line for multi cores flat or round cable diameter from 2.5mm up to 14mm with two spool (100meters length) per minute line capacity.



DM 1600[®] Take up / Pay off

560-1600mm reel size.
Up to 2500kg lifting capacity.
Hydraulic lifting.
Motorized pintle movement.
A.C Servo winding and traverse.



GRANULATOR 600[®] Soft PVC Compounding Machine

The best compounding machine for soft PVC compounds with 600-1000kg per hour output capacity



<<< Candor's strength is in its flexibility to provide any design the customer requests due to new developments, production needs, surface requirements and space problems etc. The company has supplied more than 300 plants to more than 25 countries in all surface related treatments like:

Plating – for plating of brass, copper, chromium, nickel, silver, tin and zinc on ferrous and non-ferrous wire.

Cleaning – single and multi-strand cleaning systems with alkaline or acidic bipolar electrolytic degreasing and ultrasonic cleaning or combination of both technologies.

Pickling – single and multi-strand acid pickling lines using hydrochloric or sulphuric acid in line with hot dip galvanising, phosphating and electroplating.

Candojet HW – patented high speed hot water cleaning system for high wire speeds.

Copperjet – high speed copper coating unit for CO₂ welding wire using Inhibitor E1.

Bead wire – high speed bronze coating for automotive industry.

Candor Sweden AB – Sweden
Fax: +46 1112 6312
Email: info@candorsweden.com
Website: www.candorsweden.com

Can-Eng Furnaces Ltd 14 D34

Can-Eng Furnaces is a leading designer and manufacturer of industrial heat treating equipment.

▼ *Can-Eng will showcase latest developments*



Can-Eng will be showcasing its latest developments in heat treating technology for the thermal processing of wire and fasteners. Can-Eng's mesh belt furnace systems are field-proven leaders in reliability, fuel-efficiency and production uptime. Standard capacities range from 100kg/hr to 3,300kg/hr. Processes available include clean hardening, light case carburising and carbonitriding, austempering, and martempering.

The company can deliver any or all of the components of a fully integrated and automated system including furnaces, ovens, quenches, washing systems, atmosphere generators, material handling, feeding and other components. Can-Eng Furnaces has the depth of experience to custom engineer heat treating equipment for the most demanding applications.

Can-Eng Furnaces Ltd – Canada
Fax: +1 905 356-1817
Email: furnaces@can-eng.com
Website: www.can-eng.com

CEA Welding 11 A31

TR9, N3, N12 and SQ120 butt welders, especially designed for wire drawing mills for joining steel, brass, aluminium and copper >>>

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+44 (0) 1664 502222

Please visit us at Wire 2008 Düsseldorf - Stand F09-04, Hall 9



▲ Butt welders from CEA

Jaws opening and closing is by means of foot pedals in the TR9 only, whilst it is operated by manual levers in N3, N12 and SQ120. Upon request all models of this series can be supplied with a grinding wheel, whilst an illuminated magnifying glass is available for the N3 only.

CEA Welding – Italy
Fax: +39 0341 422646
Email: info@ceaweld.com
Website: www.cea-welding.it

Cecco Bartell Products 11 J16

Cecco Bartell will introduce its most recent innovations and will highlight the wide range of its products, including systems for data and telephone cable group twinning – with and without backtwist – OPGW lines, planetary stranders, armouring lines, rotating equipment for low, medium, high and extra high voltage cables, and custom designed machines for the oil supply industry.

Cecco Bartell continues to develop patented innovative solutions to enable the cable industry to overcome current problems, including high speed side loading double twist machines, up to 300mm²; modularised roll form unit, producing 150mm² compact

aluminium at 240m/min; high speed Orbistrand rigid strander machine; backtwist high speed data cable twinning; high performance OPGW stranders; new high speed strip armouring lines, with 300mm² wide coil width; new bow design, for data cable, which reduces cable tension, prevent product damage and improve productivity; high speed telephone group twinners, with automatic loading running at 4,000tpm.

Cecco Bartell Products – USA
Fax: +1 906 669 2218
Email: info@ceecobartell.com
Website: www.ceecobartell.com

Cenith ND-TEQ GmbH 12 A64

Based on creativity and experience, Cenith produces systems for integrated fully automatic test processes for non-destructive material testing. Research and development, production and assembly are all under one roof, a combination which makes the company highly flexible and allowing a quick response time to customers' requirements.

Overview of specialist areas:
 Research and development, production and assembly of eddy current testing systems, >>>

<<< rods, are recommended for non-heavy duty applications. The N3, TR9 and N12 models are standard supplied with the annealing function and four wheel trolley, whilst SQ120, equipped with an electronic welding control, can be also provided upon request with annealing function and trolley for mobility.

 <p>LESMA MACHINERY AMERICA, INC e-mail: sales@lesma-america.com www.lesma-america.com</p>	<p>O.M. LESMA SpA EURODRAW ENERGY e-mail: omlesma@omlesma.com www.omlesma.com</p>	<p>LESMA MACHINERY GERMANY GMBH e-mail: lesma.germany@t-online.de www.lesma-germany.com</p>
	<p style="text-align: center;">wire Düsseldorf</p>  <p style="text-align: center;">31 March - 04 April 2008 Düsseldorf, Germany</p>	
<p>Non-Ferrous Wire Drawing Machinery Rod Breakdown Lines Single & Twin Wire Drawing Intermediate & Multiwire Spoolers & Coilers, Annealers</p>		<p>Double Twist Stranders, Single Twist Stranders Tubular Stranders, Rigid Cage Stranders Drum Twisters, Planetary Stranders Bow Stranders, Single & Group Twinners Pay-Offs - Take-Ups, Taping - Binding Heads</p>
		
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▲ Cenith produces systems for integrated fully automatic test processes

test coils and probes for highly accurate error analysis; customer-specific construction sizes and special solutions; equipment design (combination of fine mechanical engineering, electronics, firmware/software); mechanical special equipment design (for inclusion in existing production lines); Cenith technology application areas; Eddy current testing on transverse, longitudinal and spot errors on bars and endless material (circumference and sections); weld seam testing on pipes (circumference and sections); Eddy current testing on individual parts; hardness testing on individual parts; magnetisation through permanent or electric yokes; de-magnetisation; colour marking for identification purposes.

Services include Etalon production; ground section production; analysis via microscope and sample bar testing.

Cenith ND-TEQ GmbH – Germany
Fax: +49 7552 405 8816
Email: info@cenith.com
Website: www.cenith.com

Cerrini Srl 10 F39

Cerrini manufactures complete insulation and sheathing lines for:

- silane energy low power cables with multi-component gravimeter-liquid dosing system
- silane energy medium power cables with multi-component gravimeter-liquid dosing system
- rubber or XLPE sheaths with continuous steam or gas vulcanisation for low/medium power cables
- automotive wires with colour change system – completely automatically
- building wires (lines up to 1,500 m/min) completely automatically
- thermoplastic low voltage cables
- mono and multi-conductors and cables-round and flats
- telephone cables (2,500m/min) PVC-PE-PFE-PFA



▲ Complete lines from Cerrini

- silicone cables
- special and high temperature cables
- optical fibre
- coaxial, LAN and MICROLAN cables with physical expansion (nitrogen)
- FEP cables with physical expansion (nitrogen)

The company operates from three bases in Italy – Castellanza where administration, technical direction and production units are, a production site in Brugherio and the research and development section at Busto Arsizio.

Cerrini Srl – Italy
Fax: +39 0331 678062
Email: info@cerrini.it
Website: www.cerrini.it

WIRE 2008 - STAND 9F60

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Our extensive range of round and shaped profile dies are used by most of the major wire, tube and rod manufacturers throughout the world.



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Our Compaction systems and rollers are designed and manufactured to give the user leading edge technology; for the production of compacted wire rope.



TOOLING

BAR Products & Services produce a range of tooling, including Tube Plugs, Cutters, Wear Parts, Extrusion Dies and Tips, and many custom made machine parts.



EXTRUSION TOOLING

We manufacture round and shaped profile extrusion tips and dies as standard or to customer's specifications, along with all associated tooling consumables.

ANCILLARY EQUIPMENT

Alongside our primary product range of dies, rolls, compaction systems and tooling – we supply a number of additional items, which support these products to provide a full and comprehensive service.

Tel: +44 (0) 1274 693 249 Fax: +44 (0) 1274 693 254
 Email: enquiries@barproductsandservices.com
 www.barproductsandservices.com

31 March-04 April

Cimteq Ltd 11 E06

Cimteq is a supplier of cable design software to the wire and cable industry. The company's flagship product, CableBuilder, allows cable manufacturers to take a new approach to cable design that results in a more efficient design process.

Since 1998, Cimteq has focused on the development and delivery of knowledge-based design software to provide cable producing companies with a solution to speed up their design process, reduce quotation lead time and improve customer service.

Over the years, Cimteq's customer base has expanded to include Europe, North and South America, the Middle East and Africa.

It is not a surprise that CableBuilder was received so well internationally. The application was developed with the aid of cable design and sales departments from different countries with different cultures and working practices.

Today's CableBuilder is a feature rich application with the flexibility to model any cable construction in any working environment.

Looking forwards to the next 10 years, Cimteq plans to continue to deliver CableBuilder as its flagship product and all the required services to implement and support it.

Cimteq Ltd – UK
Fax: +44 1978 667 005
Email: amanda.shehab@cimteq.com
Website: www.cimteq.com

Clinton Instrument Company 9 E40

Clinton Instrument Company will be displaying the new AC30AR/BD-A418 mains frequency spark test unit for the first time in Europe. This 30KV unit was designed for larger cables that require elevated test voltages. Fully CE approved and Profibus-ready, the AC-30AR offers ease of string-up and reduced shipping costs due to a smaller cubic requirement.

The new electrode design allows the operator to move the cable horizontally into a split electrode that places half of the beads on each side of the cable.

The electrode is supported off the rear of the unit, assuring no path to ground should water enter the high voltage section.



▲ New spark tester from Clinton

All electronics and high voltage generation are located in the rear of the machine for protection from stray water damage.

Operator controls are housed in a small enclosure that can easily be remotely rack-mounted and connected via a RS-485 cable, allowing flexible and convenient placement of the electrode in the wire line. Optional Profibus, Ethernet and Analogue modules allow for easy connection to line control systems; contact connection points for simple rewind line configurations are accessible as well.



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<<< In addition, the Clinton TST-W/BRC-W wireless spark test unit for installation in twinning and cabling machines will be demonstrated in a functioning model of a twinner. This unit allows for testing stranded wire inside of a double twist stranding machine, requiring only 24 V DC within the machine.

The communication of test voltage, voltage regulation and fault announcement is handled via a reliable wireless system that is approved for use in most countries worldwide.

The proven HF15 high frequency and DC10/20 direct current spark test units will be shown in various configurations.

Clinton Instrument Company – USA
Fax: +1 860 669 3825
Email: info@clintoninstrument.com
Website: www.clintoninstrument.com



▲ Colorant Chromatics – a new range of dispersed pigments

In order to be compliant with the RoHS and REACH directives and solve some of the inherent problems with the current ranges of dispersed pigments for PTFE, Colorant Chromatics is introducing a new range of dispersed pigments for the coloration of PTFE fine powder.

This new range of naphtha-based dispersed pigments is formulated with heavy metal-free pigments and offers the following advantages: Improved homogeneity and easy dispersible colors; better batch-to-batch color consistency through improved production procedure; thin fluid dispersions with light thixotropic character; stable and homogeneous dispersions without or hardly without settling; if necessary, very easy

to homogenise (through shaking); no re-agglomeration of the pigments (small particle size < 5µm); spreads uniformly into the PTFE powder (similar surface tension of dispersion and PTFE powder); less fumes and smelling during sinter process (no organic additives); less or no staining of the machinery and surroundings; end product surface smoother and glossier.

Dispersed pigment products have been formulated in compliance with the European Directive 2002/95/EC – Restriction of the use of certain hazardous substances, RoHS.

Colorant Chromatics AG – Switzerland
Fax: +41 41 741 0102
Email: international@colorantchromatics.com
Website: www.colorantchromatics.com

Colorant Chromatics AG 11 J15

PTFE is used in wire insulation and jacketing applications, film and tube production where at least two or three of the following properties are required: high temperature stability, chemical resistance, electrical properties at thin gauges, non-flammable, UV inert and low adhesion.

Collari Edore 11 J31

Collari Edore's coil winder model AU180SPE and static decoiler model SV2 is a simple to use machine for turn to turn winding of normal or coated ductile wires, annealed or zinc plated iron, copper, zinc aluminium, with diameters up to 5mm.

Coil dimensions (standard pick up coil) are: outer diameter maximum 340mm, inner >>>

Galvanized Steel Strands and Cable Armouring Wire ASTM, IEC, BS Standard



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Visit TBE in Hall 14, stand number 14A35 to view our multibend technology at the wire and Tube show in Dusseldorf. This new development is available from 2mm to 10mm.

This is a unique development which can incorporate multiform and multibend technology, giving low cost tooling, fast set up times, super flexibility and high production rates. Also, we will be exhibiting our latest computer and software technology which has recently been significantly enhanced.

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Mount Joy Wire Corporation is a manufacturer of high quality tempered Carbon Steel & Chrome Silicon wire used in a variety of applications. Our process of heat treating wire and quenching in oil creates the most consistent microstructure in the industry. Tempered wire types include brush wire, spring wire, cable core wire, flat wire, shaped wire and lay wire. Finishes include bright (scaleless), tinted and black.

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- Shaped
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- Electro-galvanized
- Tinned
- Rocket
- Low Carbon

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<<< diameter 200mm, coil width 150mm and weight up to 50kg. The machine is equipped with wire-guide pitch electronic adjustment, simply by setting the desired pitch directly on a special keyboard. This system makes the machine extremely flexible and rapid for winding any diameter of wire with maximum precision.



▲ Simple to use

The winding stops when the desired coiled wire numbers of layers is reached, and already positioned for the next coil. An automatic pneumatic system extracts from the winding drum the finished bounded coil and carries it out for easy removal.

The coil winder is combined with the unwinder-static decoiler model SV2 that is easily and suitably combined with all coil winder models in the range, and with other equipment.

Collari Edore - Italy
Fax: +39 051 977022
Email: info@collarimacchine.it
Website: www.collarimacchine.it

Compomec Cable Machinery 10 A43

Compomec provides large scale machinery and services for the cable manufacturing industry.

The company provides a full selection of metallic and non-metallic tape application equipment such as pay-offs, accumulators, extension accessories, folding tools and stations, and corrugation. Compomec also provides pay-offs and take-ups for the extrusion and stranding processes. The latest innovations will be introduced during the show.

For the tape application segment, Compomec has developed off-line tape extension system called the MaxiPad™ concept. This different way of doing tape extensions enables manufacturing of cables without extension process (welding) during the batch.

The basic idea is to make tape extensions in an off-line process from where the preset tape lengths are moved to the extrusion processes – tape lengths more than 10km are available. In addition to the many advantages of the MaxiPad™ concept, the tape scrap can also be minimised due to the off-line method. However, conventional on-line machinery also exists.

For the pay-offs and take-ups segment, Compomec has developed the traversing fibre pay-off called ComPo™ family, which enables bigger fibre reel unwinding in the fibre optic cable processes.

Compomec Cable Machinery - Finland
Fax: +358 5476 1877
Email: info@compomec.fi
Website: www.compomec.fi

CommScope BiMetals 10 A07

CommScope BiMetals product offering consists of copper clad steel – 3 to 34 AWG, 21%, 30% and 40% conductivities; copper clad aluminium – 1/0 to 34 AWG, 10% and 15% conductivities and single-end and multi-end Fine Wire.

CommScope BiMetals - USA
Fax: +1 704 883 8011
Email: bimetals@commscope.com
Website: www.commscope.com

Condat Lubricants 10 D56

Condat will display its extensive range of lubricants covering all the industrial needs in the field of rod wire, cold rolling, wire drawing, drawing of bars and tubes as well as cold heading with brand names as famous as:



▲ Whole range on display

- Vicafil®: the largest range of lubricants for all wire drawing applications
- Steelskin®: specific high tech dry lubricants range
- Lubrinox®: specialised oil range for stainless steel applications
- Steagel®: grease and paste for all applications
- Condatub: special range for steel tube and bar applications
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- Power cable drumtwisters
- Telephone cable drumtwisters
- Armouring lines
- Bow twister machines
- Skip stranders
- Pay-offs and take-ups
 - Q portal traversing design
 - Q bridge type design
 - Q column-type design
 - Q caliper-type design
- Rewinding lines
- Belt-type caterpillar capstans
- Single- and double-disc capstans
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- Extrugliss®: dual purpose oil range for cold heading applications

Condat will present its unique dry lubricant technology called 'Pellet', a dust free lubricant range which provides one of the lowest soap consumptions available on the market.

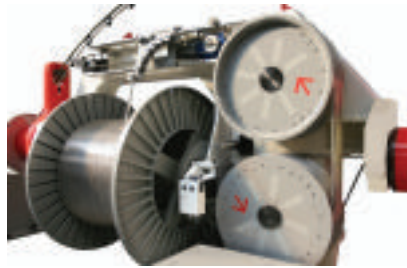
Condat's newest lubricants conform with the most recent European legislations and constraints (REACH).

Also on show will be the first environment friendly alternative to zinc phosphate coatings for cold heading with its Vicafil® & Extrugliss® product lines.

Condat AS – France
Fax: +33 47807 3885
Email: info@condat.fr
Website: www.condat.fr

Construcciones Mecánicas Caballé SA 11 G65

With more than 50 years' experience in the manufacture and design of rotating machinery for the production of power, LAN, telecommunication, optical fibre and control cables, as well as steel ropes, Caballé provides



▲ *Wide array of machinery from Caballé*
the cable industry with a wide array of stranding and cabling machinery, developing new equipment for the manufacture of high quality products.

The company's portfolio includes the following equipment for:

- Power cables: double twist stranders, rigid stranders, drum twisters, single twist stranders, bow skip stranders, tubular stranders, planetary stranders and SZ stranders
- Telecom and LAN cables: double twist pairing-quadding machines, single twist cabling lines, group twisters, drum twisters, shielding-jelly filling-sheathing lines, SZ stranders
- Steel ropes: double twist stranders, tubular stranders, planetary stranders, bow skip stranders
- Ancillary equipment: pay-offs, take-ups, capstans, caterpillars, taping machines, binders

The company will be showing the new range of double twist stranders to manufacture compacted conductors of copper and aluminium up to 400mm², and the latest design of tubular closers up to 1,250mm for steel ropes.

Construcciones Mecánicas Caballé SA – Spain
Fax: +34 93399 0008
Email: caballe@cmcaballe.es
Website: www.cmcaballe.es

Continuous-Properti 11 G40

Continuous-Properti provides the industry with complete production lines, from furnaces to double wire rod coilers. The company features its Properti CCR continuous casting and rolling system and technology for wire rod, especially designed for the production of aluminium and copper wire rod, the latter being produced as starting material, using either copper cathodes or 100% low quality copper scrap.

A particular Properti track and belt type casting machine is dedicated to the production of non-ferrous ingots. With a relative recent addition of a wire machinery division, the company provides customers with a wide range of machines of new design for high

>>>

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Buttwelding Machines

Welding Ranges

Wire mm dia.

Steel: 0.10-40

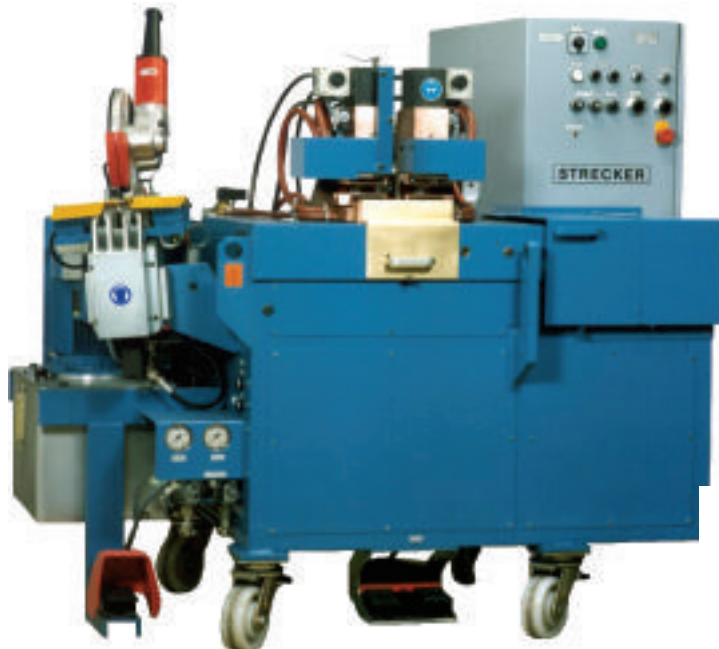
Copper: 0.10-30

Aluminium: 0.80-34

Stranded mm²

Copper: 0.08-1200

Aluminium: 1.50-1200



Visit us at
wire Düsseldorf 2008
Germany
March 31 - April 04, 2008
Hall 10 • Stand 10A21



AUGUST STRECKER GmbH & Co. KG

PO Box 1337, D-65533 Limburg/Lahn, Germany

Tel.: +49 6431 96 10-0 • Fax: +49 6431 44221

E-mail: strecker@strecker-limburg.de

Internet: www.strecker-limburg.de

<<< carbon steel wires and cables and special stranders for flat copper wires. Its 'MegaLogos' high carbon steel drawing machine, characterised by an ergonomic horizontal 1,270mm diameter capstan, really is a machine for the future.

Continuus Properzi – Italy
Fax: +39 02 58 310482
Email: hq@properzi.com
Website: www.properzi.com

Coremo Ocmea Srl 9 F64

Coremo Ocmea manufactures a wide range of brakes and clutches which are used extensively in the wire and cable industry worldwide.

Products in Düsseldorf will include caliper disc brakes, low inertia brakes and clutches, radial drum brakes and air cooled brakes, including the new EL caliper which allows side mounting of the brake without additional mounting brackets on big wire stranders and cable laying-up machines.

Coremo Ocmea Srl – Italy
Fax: +39 02 4881940
Email: coremo@ocmea.it
Website: www.ocmea.it

DCM Industries Inc 09 F05-04

DCM Industries Inc has again led the way in developing test solutions for the LAN cable industry.

The Alien Crosstalk option to the DCM model CMS-2XLD cable measuring system enables cable producers to accurately test production cables according to the new Augmented CAT 6 cabling standards.

As a result of this innovation, DCM has received new CMS-2XLD orders from China, Korea, Japan, Taiwan and the United States.

DCM Industries, Inc – USA
Fax: +1 510 670 7212
Email: dcmsales@dcmindustries.com
Website: www.dcmindustries.com

Decalub 10 E72

Decalub will be highlighting its DCCD process and equipment for acid-free steel rod cleaning and in-line dry preparation at virtually zero energy consumption in applications including spring wire, high-tensile rope wire, bead wire,


PC strand wire, CO₂ welding wire, Al clad wire, plating wire and collated nail wire.

Visitors will be able to gain information on the following items: Acid-free rod cleaning; in-line dry preparation and wire full film lubrication (physical separation at wire/die interface), offer a total saving of 50-64% in production of H/C wire, enabling 5.5mm diameter 0.85%C bare rod to be drawn directly with an output of 2.2 ton/hour – by DCCD system.

Lubricant viscosity control (LVC) revolutionises wire lubrication and enables drawing at virtually no speed limitation. LVC is a unique dry coating process performing a hard lubricant coat for H/C spring wire and a light water soluble coat for plating wire, enabling 'frictionless' drawing with die wear of 0.20micron/ton of wire drawn.

Pre-coating chemicals are completely eliminated for all H/C and L/C applications including 0.88%C mechanically descaled bare rod. Spring wire is drawn at 18ms (3,600ft/min) – by LVC/PDH system

Wire cleaning: Drawn wire in smooth bright finish for 'plating' quality, in-line, at 12ms (2,400ft/min). Hermetically sealed 'zero emission' system, operating with a wide variety of environmentally friendly cleaning mediums containing the new rust preventive additives, supplies clean and polished wire of reflective appearance – by PWC system >>>



**From Wire To Steel Wool
And Beyond ...**

Booth No. 13E29

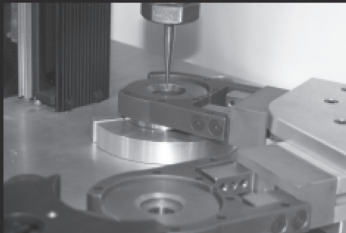
EHT

EHT
Am Promigberg 20
D-01108 Dresden
Germany

Tel.: +49 (0) 3 51 8 85 01 - 42
 Fax: +49 (0) 3 51 8 85 01 - 33
 email: dresden@eht.de
 Internet: www.eht.de

DIE FLEX XA

THE NEXT GENERATION OF DIE EQUIPMENT



Die Quip's new Die Flex XA is the next generation of die finishing machinery that can do the work of 3 polishing or sizing heads.

Robotic die changing and removable magazines give it the flexibility to work the angle, bearing or both without handling dies. Touchscreen control is easy to use and quick to learn.

See the Die Flex XA at our stand D906-01 during Wire 08

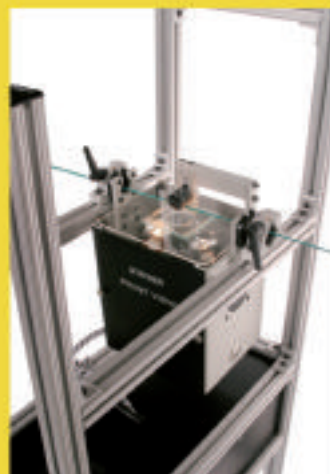
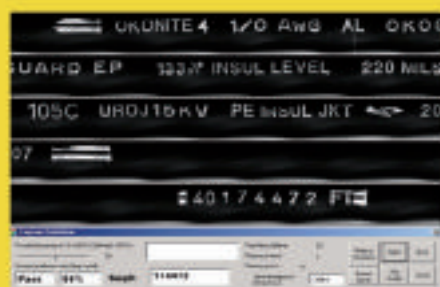
DIE QUIP CORPORATION

5360 Enterprise Blvd. Bethel Park, PA 15102 USA
 412/833-1662 ● FAX 412/835-6474
www.DieQuip.com

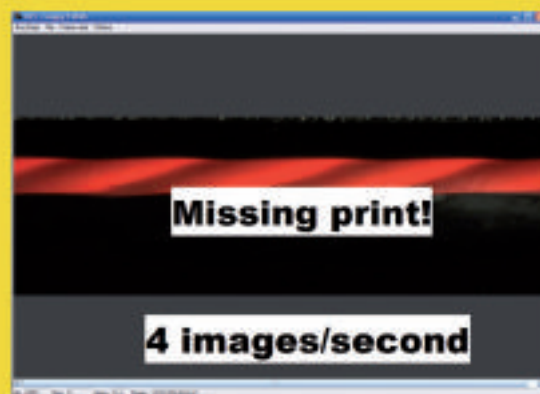
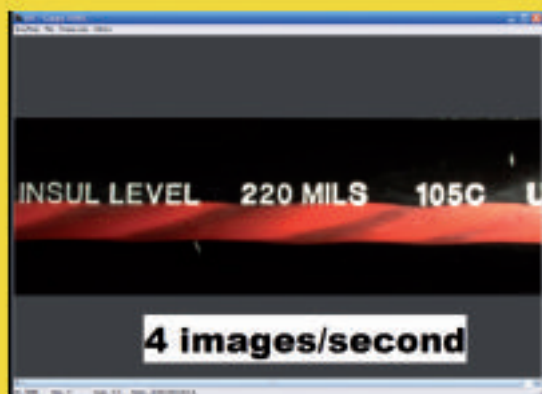
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Taymer International Inc. +1 905 479 2614

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Wire/rod cleaning: In-line with drawing machine, completely dry process, without speed limitation, permits production of bright wire from mechanically descaled rod – by BH system. Wire cleaning and polishing: Drawn wire in bright finish for 'plating' quality, in-line, at high-speed – by BH+PWC system. Rod/wire dry cleaning: Transversal smooth brushing provides clean scale-free rod/wire with adjustable micro-roughness (10-20 microns), automatically controlled – by SB system.

Decalub – France
Fax: +33 1 60 20 20
Email: info@decalub.com
Website: www.decalub.com



▲ The model HS6H with hydraulic and flying shear cut for wires from 1.5 to 6mm

Slackening three bolts, changing the straightening unit and tightening three bolts, the new diameter is programmed. The spinner works at lower speed as the jaws have longer contact with the wire with the results being an increase in production and reduced noise.

An electronic programmer and one or three lines of pneumatically tiltable arms can be supplied with the rod collection bed.

99 different lengths and 99 different quantities can be programmed and collected separately in one of the lines, without stopping the machine and giving the operator the possibility to empty the lower line of tilting arms.

Delisi Srl – Italy
Fax: +39 0882 333236
Email: delisi@delisirl.com
Website: www.delisi.com

DEM Srl 11 H27

DEM wire rolling technology – now part of the EVG & GCR Eurodraw group – specialises in cold rolling processes and offers a complete range of machines for cold wire deformation by rolling from round wire to profile shaped wire, from round wire to smooth wire or from round wire to ribbed wire. Offering a complete range of micro rolling cassettes, rolling cassettes, rolling stands with two, three and four rolls (driven or undriven) DEM can cover any range of product size from 0.5mm²-1,200mm² with production speeds from 1m/sec to 30m/sec.

Highlights of the year are the new high-rigidity PWR profile wire rolling stand for high-precision profile wire rolled sections from 1mm²-150mm², the new high-speed RWR ribbed wire rolling line for high-productivity of ribbed straight bars from 1.2m-15m in length with speeds up to 10m/sec and the new user-friendly CLF micro rolling cassette for the production of carbon steel, stainless steel and flux cored wires. DEM is also proud to announce it is now an EVG & GCR Eurodraw company.

DEM Srl – Italy
Fax: +39 0432 655484
Email: dem@demills.com
Website: www.demills.com

Delisi Srl 10 H24

Founded in 1955, Delisi produces automatic straightening and cutting machines for smooth and ribbed wires from 1 to 20mm in diameter. The most important characteristics of Delisi machines are the versatility and bespoke services.

The first improvement is when a new diameter must be prepared. The grooves of the rolls are positioned, with a handwheel, at the new diameter that must be worked.

powder tech RS Electrostatic powder coating



- Electrostatic powder gun up to 100 kV
- Dust free powder coating up to 500 m/min
- Talc, stearate, swellable powder, graphite, lac powder etc.
- Drying of compressed air
- Autom. 90 l powder loader
- Inline-Operation

**WIRE 2008
HALL 12
Stand 12A35**

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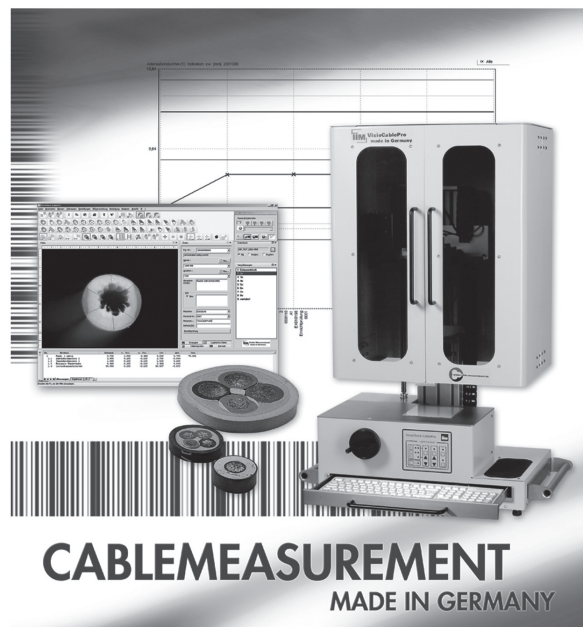


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GROUP

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in the **Eurolls Group stand**



Hall 11 - Stand D40

31 March - 4 April 2008
Düsseldorf, Germany

Special WIRE - Eurolls Group

Looking forward to welcoming you

Renato Ralzi
President Eurolis Group



Elisabetta Gironda
Sales Director Eurolis



Giampaolo Bozzetto
Dco Bergamo Plants



Giampaolo Adiletta
Vice President
Team Meccanica



Mario Vitari
Managing Director VCM



Vittorio Mion
Sales Director Vitari



Pasquale Bussola
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Federico Bussola
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Rino Mapelli
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Ricardo Henrique
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Business Development
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Special WIRE - Eurolis Group

908 sqm of advanced technologies



THE POWER OF REAL...

A 908 sqm two-storey stand for the best welcoming of guests and visitors.

The emotionally amazing impact of the showcase, introducing the latest innovations set on the ground, is reproduced also on the second floor: 10 comfortable meeting rooms with balcony give a striking overview of the products from the top.

... AND VIRTUAL WORLD

20 LCD displays provide a complete journey into and around Eurolls Group galaxy: facilities and plants, technologies and processes, lines and machines are reproduced by graphic design and 3D virtual tours.

JOINED IN A GREAT DESIGN WORK.

Projects and designs will be highlighted by laser shows projected on big screen. The hospitality area is characterized by two glass installations, showing an innovative and spectacular design (we would not tell you more, to keep suspense high!).



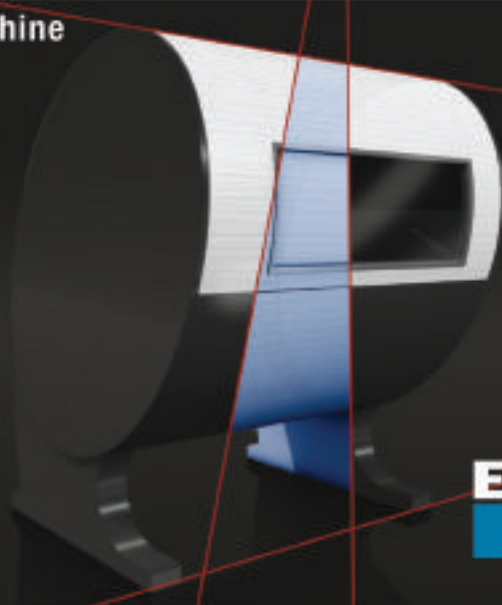
EUROLLS
GROUP

www.eurolls.com

Wire trade fair 2008: preview.

THE WIRE TRADE FAIR 2008 IS AN OPPORTUNITY THAT SHALL NOT BE MISSED BY THE ONES WHO INTEND TO CHECK THE HIGH QUALITY AND PERFORMANCE STANDARDS OF EUROLLS GROUP LATEST INNOVATIONS, WHICH ARE THE RESULT OF A REMARKABLE AND STEADY ACTIVITY OF ENGINEERING, RESEARCH AND DEVELOPMENT.

Steel fiber machine



EUROLLS



Bow Twister

Semi-automatic side trolley loading system for spools $\phi = 1250 \div 2000$ mm



**CORTINOVIS
MACHINERY**



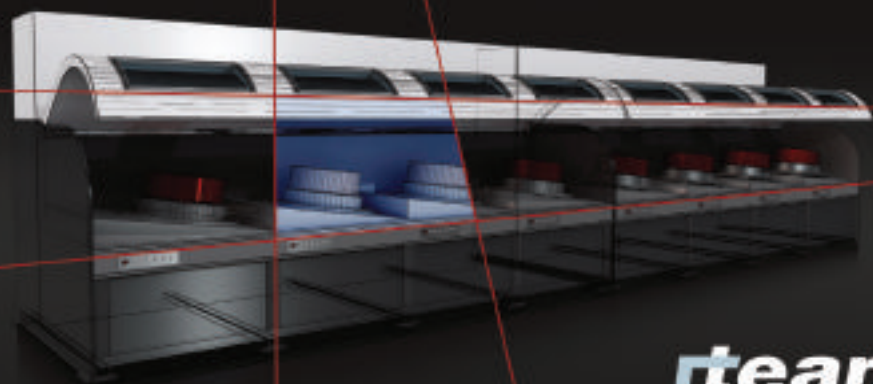
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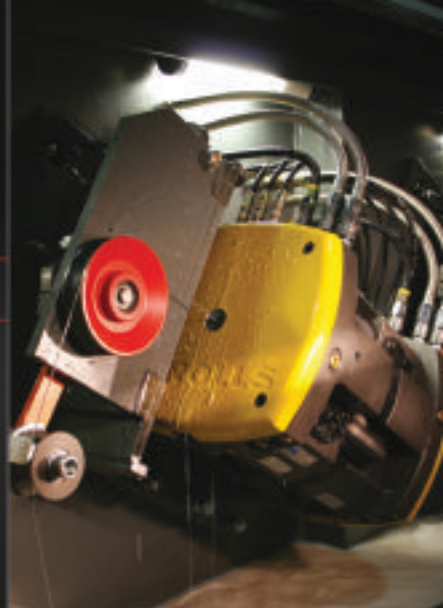
Special WIRE - Eurolls Group

New multipass rolling machine

New patented hi-tech solution

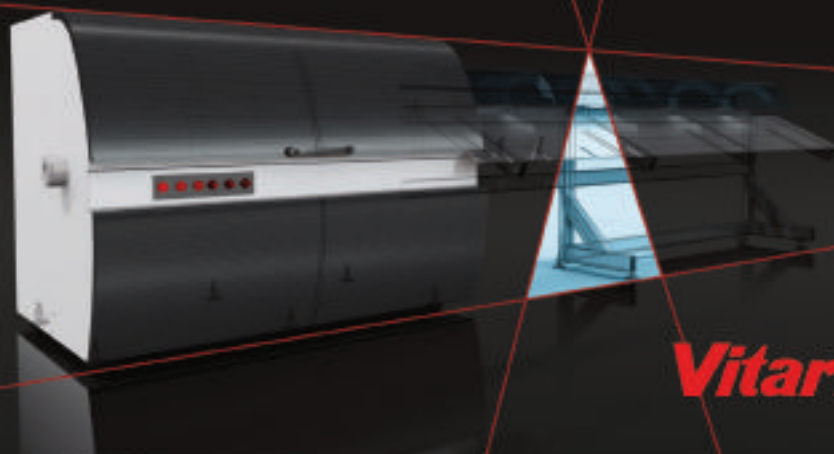


team
meccanica spa



Bar straightening and cutting line

100% electronic control system

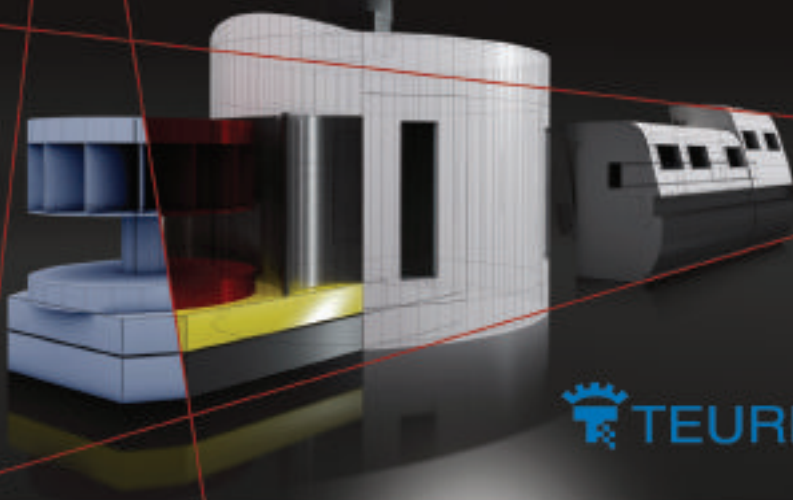


Vitari 



Stretching/rolling line

With layer-to-layer vertical automatic spooler



 **TEUREMA**



Die Quip 9 D06-01

Die Quip produces the highest quality die finishing equipment, tooling, training and die design for the wire bar, and tube drawing industry.

Dies produced to the correctly designed geometry will last longer, run at higher speeds and produce better quality wire, bar or tube.

The line includes the largest size range of equipment that can hold from 1" to 12" (25-305mm) outside diameters with automatic, semi-automatic and manual machines to fit the polishing or re-cutting needs of every mill.

The latest machine is the Die Flex XA which is an automated angle polishing and sizing machine that cycles dies from a pre-loaded magazine into the working chuck.

After polishing or sizing, the robotic arm places the worked dies back into the magazine for additional processing or into a collection bin.

The unique removable magazine allows for multiple magazines to be loaded or to set up a new die size while the machine is running. The magazines can be flipped up or down



▲ The Die Flex XA

to size the bearing from either direction to produce the desired bearing geometry. A fully loaded machine will run unattended for 1 to 1½ hours, dramatically reducing overhead while boosting throughput.

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

The DS/2 Die Saver is the perfect multi-purpose machine for reworking wire dies because of its easy-to-use two mode grinding and polishing systems.

Along with die finishing equipment Die Quip carries a complete line of die measuring products which includes plug gauges, internal micrometers, visual inspection and die profiling systems.

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

Dimac Srl 14 C12

Dimac will exhibit two new inspection machines.



▲ New machines from Dimac

STRONG TECHNOLOGY –
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Hydraulic cable cutters

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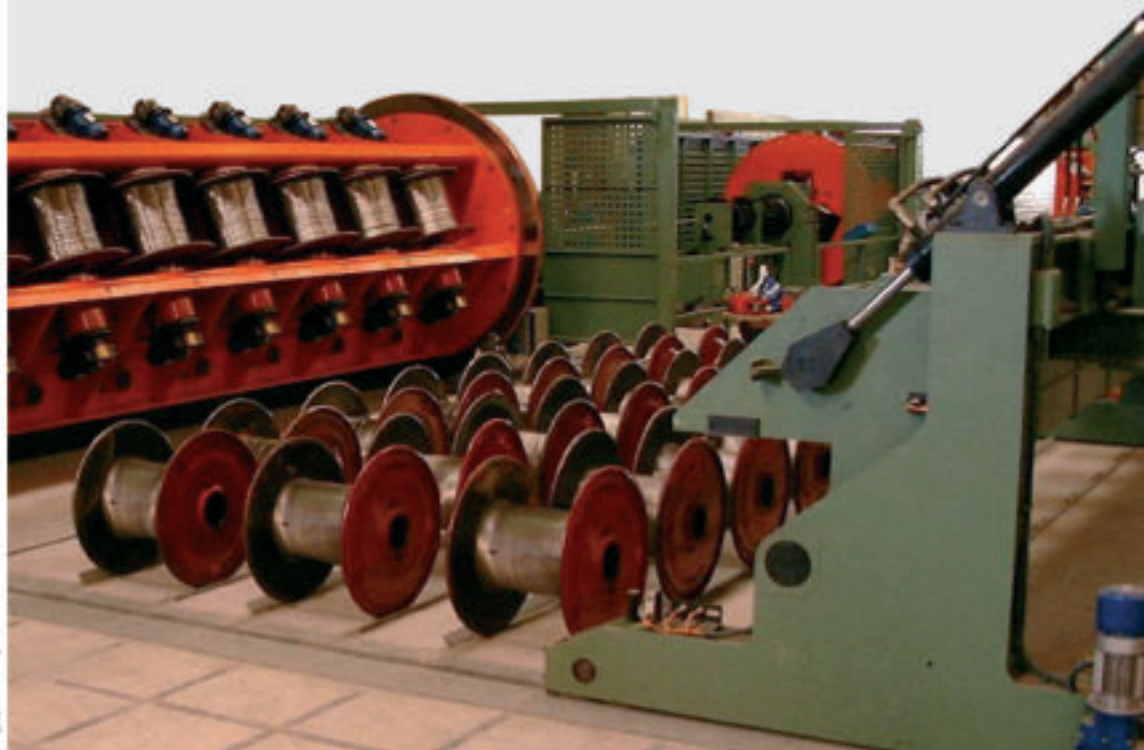
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<<< The MCV4, a fully automatic 100% sorting machine for fasteners and other mechanical components, is setting the new frontier in inspection technologies by proposing innovative solutions in terms of modularity, detection capability and performances:

- wider feed dial with continuous or stepping rotation
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- vertical camera for head inspection
- recess depth measurement stations
- single or double Eddy current station for crack detection
- heat treatment presence detection
- Extreme flexibility for the analysis of a vast range of parts, from small and short screws to large bolts with long shank, with changeover times reduced to the minimum

Sorting rates of up to 50%-100% higher compared to traditional sorting machines are possible when typically slow inspections are required, such as 360° rotation for multiple image capturing or crack detection.

Innovative programming functions are also available like the 'SuperGewinde' software tool, to detect extremely small thread defects.

Dimac srl – Italy
Fax: +39 0131 890624
Email: info@dimacsrl.com
Website: www.dimacsrl.com

DSE 9 F31

DSE will be exhibiting the latest version of its TD300 tangent delta tester and tangent delta technology.

Also on display will be the new and unique DSE HVC flex, high voltage continuity in line tester, which has 360° surface coverage, spark control, easy maintenance and production reliability.

For more than 25 years, DSE has focused on developing and selling first-class instruments for the wire industry, becoming the market leader within tangent delta TgD and high voltage continuity tester.

The TD 300 tangent delta tester automatically calculates the TgD values for the wire sample, completing a full curve within a few minutes. The simple operation makes it an ideal tool for achieving the right quality and for controlling the processes.

TD 9000 tangent delta tester is a high-positioned laboratory tester for precise and simultaneous measurement of up to eight samples with different dimensions.

HVC 360 high voltage continuity tester is used for testing any type of wire insulation. The

product range includes four standard models (HVC Basic, HVC360 Flexible, HVC360 PF for rectangular wire, and HVC HVC360 advanced).

DSE A/S – Denmark
Fax: +45 7561 5895
Email: wip@dse.dk
Website: www.dse.dk

Dynamex Corporation 11 C26

Dynamex Corporation of Carson, California, USA, will exhibit revolutionary auto-splicing tape pay-off for longitudinal taping at the extruder. These machines perform unattended automatic splices at full line speeds up to 400m/min. They can run mylar, PE, AL/mylar, paper, water-blocking and have become the standard in many companies producing COAX, CAT cable and building wire.

Dynamex also offers high-speed single twist cablers, single-twist bunchers, driven pay-offs, multi-position overhung shaft, shaftless, neutralising, and also take-ups, dancers and electric traverses.

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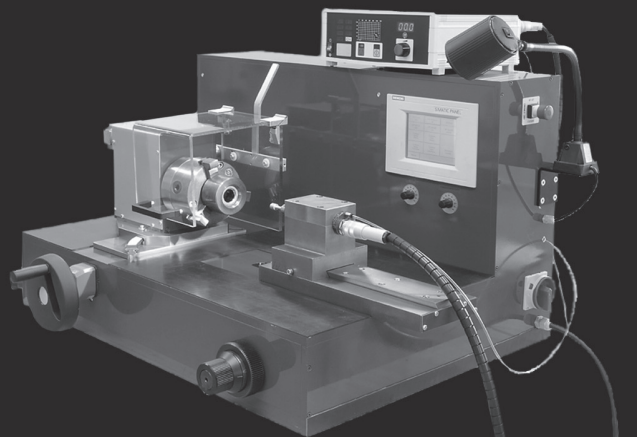
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Free product catalog and brush sample

Easydur Italiana 10 E10

The results of 20 years of research and development in testing equipment for quality control and measurement will be introduced at *wire 2008* by Easydur Italiana.

During the last 12 months, the company has been developing new software, now based on Windows XP and Excel.



▲ 20 years' research and development from Easydur

The new system is based on more cards (for control axis + cell readers) connected in Canbus to realise displacement to force or to position with feedback speed of 1,000 Hz.

Another new development is the fatigue test machine for springs. All the instruments can work online, accessed by touch screen. Instruments are suitable for automatic plants too, with loading-100% production control-sorting.

The company has also maintained a range of products from simple models to manual operation, all with digital panels. Easydur's vision system, mounted on board of the machine, is able to measure and correct both the length and the diameters coil by coil, for compression or traction springs. This is also the case for the Multivision model for the shaped geometric measurements.

The company also has a new hardness tester – the Integral till 3000Kg – with camera, which has an automatic test cycle for Brinell, Rockwell and Vickers tests.

Easydur Italiana – Italy
Fax: +39 0332 206710
Email: info@easydur.com
Website: www.easydur.com



▲ Formed more than 60 years ago

steel, aluminium and copper alloy industries. Formed more than 60 years ago, Ebner has subsidiaries in China and the USA.

Ebner's philosophy places great value on research and development, in-house engineering and fabrication, installation and commissioning using its own specialists. It also guarantees a rapid response to customer's needs. Between 5 and 8% of the company's turnover is invested each year in research and development, which is led by a team of 30 specialists dedicated to ongoing development of production facilities and process technologies.

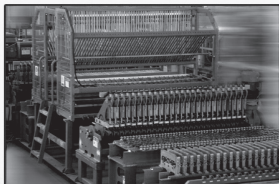
With its own engineers working on mechanical design, gas and control engineering, electrical engineering, automation and visualisation systems, Ebner is flexible regarding customers' needs and increasing quality standards. >>>

Ebner Industriehofenbau 10 A40

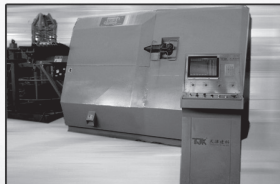
Ebner Industriehofenbau, Austria, manufactures advanced, cost-effective and environmentally friendly heat treatment facilities for the

TJK 建科机械 JIANKE MECHANICAL

China's largest manufacturer for wire & rebar machinery



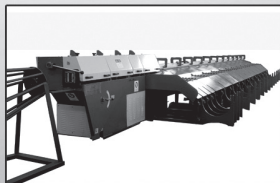
CNC wire mesh welding machine



stirrup benders



Wire girder welding machine



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global manufacturer, local supplier

CommScope's BiMetals division offers the wire industry's highest level of service and quality copper clad aluminum and copper clad steel products worldwide. Backed by strong R&D, CommScope combines technical expertise and global manufacturing capabilities to deliver industry-leading solutions to customers around the world.

- Global presence – CommScope, Inc. has manufacturing operations on five continents serving more than 130 countries
- Strength in depth – NC to Nevada, Belgium to Brazil, Ireland to Australia.
- Global resource – High quality and exceptional service anywhere in the world



Copper Clad Aluminum
& Copper Clad Steel

125 CommScope Way • Statesville, NC (USA) 28625
Tel 704.883.8015 • bimetals@commscope.com

<<< The company can also ensure that all new heat treatment facilities already take into consideration the latest developments and knowledge gained during the commissioning of furnace facilities.

Many components for a facility are manufactured at different Ebner sites. However, key components are manufactured exclusively at the headquarters in Austria. If it is necessary to have components manufactured by sub-contractors or cooperation partners then a quality supervisor is present on-site for the full duration of the fabrication process.

Specialists in the installation and commissioning department guarantee the smooth and timely completion of each furnace facility, as well as professional startup to prove new equipment achieves the performance guarantees specified in the contract.

Ebner Industrieofenbau – Austria
Fax: +43 732 67 4971
Email: info@ebner.cc
Website: www.ebner.cc

Eder Engineering GmbH
10 A40

Eder Engineering is celebrating its 60th anniversary this year – and marking it with



▲ A warm welcome awaits at Eder Engineering

a look back at its past achievements. Some examples of Eder's work are:

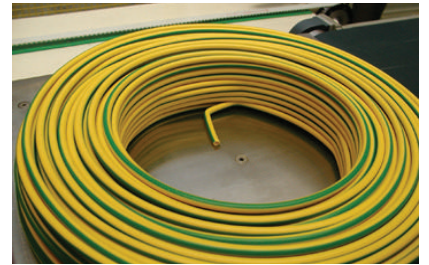
- 1968 – first PCD (compax) die-tools
- 1970 – first ultrasonic die working equipment with up to 600W power (USP-110)
- 1974 – dicamat EDM equipment to drill and shape PCD dies without needing laser
- 1976 – swivelling die turntable invention – allowing mirror-polishing of PCD dies
- 1980 – first HGM wire type sizing/polishing unit with unique speed of 900 strokes/minute
- 1988 – first PCD compacting die-tools – supplied to the Siemens Cable Group
- 2000 – design of the EDDS-system for marking of dies and to protect property rights

- 2006 – USP-TWIN: first ultrasonic die working machine offering two workstations to cut processing time and double output, while being handled by one only operator

Eder Engineering GmbH – Austria
Fax: +43 1367 494949
Email: office@eder-eng.com
Website: www.eder-eng.com

EFAF
12 A51

EFAF will exhibit two different types of automatic coiling lines, with the permission of the lines' future buyers.



▲ EFAF manufactures machines that can package coiled cable without strapping >>>

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<<< The Mautomatic 260 automatic coiling machine is suitable for the packaging of coils of cable with section from 1.5 to 6mm², automatically labelled in cardboard boxes. The displayed version, sold to United Cable Industries Company, Jordan, will be equipped for the manufacture of rigid or flexible cable in thermoshrink film, without the need to strap the coil, thanks to a special device designed by EFAF that allows the tail to be placed under the coil, keeping a perfectly cylindrical shape.

The company's MAC 520 automatic coiler is designed for the packaging of cable with section from 2 to 25mm² in coils, with toroidal strapping and thermoshrink film.

EFAF – Italy
Fax: +39 0583 981678
Email: efaf@efaf.it
Website: www.efaf.it

EHT Maschinensysteme GmbH & Co KG 13 E29

Since 2004, EHT has continued to extend the options of the Steel Wool Machine concept Wool Master to fulfil the requests of customers and further improve the performance of the machine. Some of the recent developments include:

- knife holders (short version) to provide an easier handling and a faster change of knives
- internal cooled wire guides and an increase in cooling efficiency of the grooved wire wheels
- centralised lubrication system to reduce oil change intervals and down times, to increase the lifetime of the gear boxes and to maintain a constant temperature level
- pay-off system to prevent the axial turning of the wire during operation

EHT Maschinensysteme GmbH & Co KG – Germany
Fax: +49 351 88501 33
Email: info@eht.de
Website: www.eht.de

Enkotec A/S 14 F01

Enkotec presents its latest breaking technology, the TA01 thread rolling machine, which is specially designed for making screw shank or annular nail profiles with a production speed of up to 2,500 nails per minute. The working area of the TA01 is Ø1.8-4.2 x 32-105mm nail length with a profile height of 27-75mm.



▲ New technology from Enkotec

Apart from the high production capacity, the TA01 machine incorporates numerous advantages such as high-quality output, high stability, quick tooling changeovers, simple adjustments, and low noise level.

The machine is supplied with a vibratory bowl, a cooling system, and a connection to exhaust ventilation.

Visitors to the booth will also see the NI01 high-speed nail machine, capable of producing 1,500 nails per minute of dimensions Ø2.4-3.84 x 50-90mm. The NI01 and the NH01, both belonging to the company's latest nail machine series, feature a PLC control system and touch screen operator interface, which is easy to navigate and allows quick setup of nail parameters.

The new machine models include many other benefits, including a redesigned drive system, a sturdier cutting unit, a strengthened tooling system, and a simplified die ring design, resulting in increased tooling life and user friendliness. The new type of die ring is also available for use in earlier version Enkotec machine models.

The last exhibit is the Enkotec flexible nail machine, type NE01, for Ø2.0-3.4 x 50-90mm nails. The NE01 is designed for smaller batches requiring frequent and quick tooling changeovers, without compromising the output – as much as 1,000 nails per minute.

Enkotec A/S – Denmark
Fax: +45 86 52 4199
Email: info@enkotec.dk
Website: www.enkotec.com

Er-Bakir Elektrolitik Mamulleri AS 10 C61

Er-Bakir produces stranded, bunched, multi ends and mono copper wires bare, tinned, as well as nickel coated.

The company has an annual production capacity of more than 110,000 tons of copper rod and 85,000 tons of copper wire.

The company has made a great commitment to quality, with certification in ISO/TS 16949, ISO 9002, ISO 14001 (Environmental Management System Certificate) and OHSAS 18001 (Job and Worker Health Management System Certificate) certifications.

Er-Bakir Elektrolitik Mamulleri AS – Turkey
Fax: +90 258 371 2194
Email: serikoglu@erbakir.com.tr
Website: www.erbakir.com.tr

Essebi Srl 14 D12

Essebi will exhibit its 5-die 5-blow machine SB 506, cutting wire diameter 0.8mm, for the manufacture of special parts.

The new 6-die Header AM 614 will also be shown, capable of cutting wire diameters of 0.17mm. The main characteristic of this machine is the fully automatic set up: a part of the extra table for the pre-adjustment of the die-holder and of the punch holder.

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underground cable. From competitive initial cost and ease of installation to long, dependable service life.

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**Please visit us at WIRE 2008
Stand A40, Hall 9**

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*Electric Power Research Institute

<<< A computer controls 18 motors for the quick set up of the punches, of the ejection cams and of the ejection levers.

Essebi Srl – Italy
Fax: +39 02 94 000 74
Email: sales@essebi-machinery.com
Website: www.essebi-machinery.com

Euroalpha Srl 12 C51

Euroalpha is an innovative company that is in the market of wire drawing equipment for non-ferrous materials, specialising in wire drawing equipment for copper, aluminium and aluminium alloys.

Euroalpha designs and manufactures rod breakdown machines, multi-wire lines, intermediate lines, dynamic and static spoolers, automatic spoolers, static coilers and automatic coilers, re-spooling automatic lines, single and double automatic pay-off for coil, pointing and stringing machines and tilting units for reels.

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Eurolls 11 D40

Since 1925, Vitari SpA has been designing and manufacturing machinery for the wire industry at Valbrembo, near Bergamo, Italy.

Now part of the Eurolls Group, the company benefits from an extensive research and development programme.



▲ Vitari makes machinery for making wire coat hangers

Vitari manufactures a large range of machines, starting from the automatic wire straightening and cutting-off machines with relevant chamfering machines, machines for manufacturing nails, chains, chain link fencing, hexagonal wire mesh for gabions, barbed wire, dress-hangers etc and all ancillary machines.

A particular importance is kept for the barbed wire making machines that can produce all kinds of galvanised or plastic-coated mild steel wire (mod BVM) and reverse-twist barbed wire (mod BVR).

They are high productivity machines, sound-proofed and with all required safety devices. They are also equipped with a centralised automatic lubrication system. These machines are placed vertically for ease of access for set-up and maintenance.

The company also produces machinery for making wire coat hangers.

The wire is introduced into the machine by means of rotating bushes, or by means of a set of rollers in case of plastic-coated wire. Two pairs of rollers make the wire run into the dress-hanger moulding unit. The wire length is variable depending on the type of wire and dress-hanger to make.

The moulding operation consists of wire being cut to the preset length, bending, hook moulding and dress-hanger ejection. The produced dress-hangers are collected on a special inclined bar.

By changing the tooling the user can produce a different shape of dress-hangers.

Eurolls – Italy
Fax: +39 0432 79650 1821
Email: info@eurolls.com
Website: www.eurolls.com

EuroWire Magazine 11 D28

EuroWire, the only magazine published simultaneously in six languages: English, German, Russian, French, Italian and Spanish, is the most widely read and universally acceptable industry magazine available, with a worldwide circulation of more than 16,000.

Published six times a year, EuroWire provides corporate and industry news, product and technology features, industry links (including www.wirefirst.com) as well as high quality technical articles.

Its website (www.read-eurowire.com) gives information about forthcoming events and advance notice of editorial features.

Editorial information can be sent in via the handy on-line form. Free copies of the January and March issues will be available at the stand.

EuroWire – UK
Fax: +44 1926 314755
Email: eurowire@intras.co.uk
Website: www.read-eurowire.com

Fainplast-Farotti Industrie Plastiche srl 12 D04

Fainplast srl is introducing a new thermoplastic halogen free and flame retardant compound for general purpose wire and cable applications.

HAX HF200 has been specially designed to meet cable manufacturers' demand for high extrusion speed and volumetric output whilst maintaining good mechanical-thermal properties, and optimum flame retardancy.

It can be processed using extruders with either low or high compression screws (halogen free or PVC type), and it can be used for the production of low voltage power, signal and control cables.

It complies with the requirements of CEI 20-11 M1, VDE 0207 Part 24 type HM2, VDE 0250 Part 215 type HM5, BS 7655 type LTS1 and LTS3.

It has also been tested as insulation material with a wall thickness of about 1mm, which has passed the single cable fire test according to the specifications set by the IEC 60332-1.

The product benefits compared to other benchmark FRNC compounds are summarised below:

- higher extrusion line speeds
- value for money
- ability to process the product at higher melt temperatures, leading to a lower screw torque in the extruder which allows significant energy saving



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31 March-04 April

<<<

- improved flame retardancy properties: LOI (Limiting Oxygen Index) value $\geq 35\%$
- reduced die drool or plate out, which is the undesirable accumulation of material on the open face of a die
- smooth and shiny surface finish
- improved mechanical properties: Tensile strength at break > 11 N/mm²; Elongation at break $> 150\%$
- good water and oil resistance

Fainplast research and development group is currently working on developing a HFFR compound with the same processability and functionality as HAX HF 200 but with improved thermal resistance.

Fainplast srl – Italy

Fax: +39 0736 403807

Email: info@fainplast.com

Website: www.fainplast.com

Femutec Engineering GmbH 13 A34

Femutec Engineering GmbH, a provider of software and services in the area of bulk metal forming, will present the new application of the powerful all-in-one solution for bulk metal forming simulation, Simufact.forming 8.1.

Simufact.forming 8.1 will come with three highlights: The modified and optimised Windows Graphical User Interface represents the easiest to use solution, which meets perfectly the requirements of the shop floor environment.

The high-speed explicit solver technology of MSC.Dytran will complete the standard Finite Element method of MSC.Marc. And this gives amazing simulation speed up for complex cold forgings which can be presented, as well as the latest version of Femutec's project and data management-system.

Project management is a cornerstone of professional and effective process simulation.

Femutec Engineering GmbH – Germany

Fax: +49 40790 16222

Email: office@femutec.de

Website: www.femutec.de

Fenn Technologies 9 F09 01

Fenn Technologies' metal forming solution division is a global supplier of metal forming machinery.

Established more than 100 years ago, it has a solid reputation and customer base, built on decades of engineering and machine building experience.

The extensive range includes rolling mills, wire flattening and shaping lines, turks heads,



▲ Fenn Technologies is a global supplier

capstans, spoolers, wire and tube machinery, drawbenches, swaging machines and feed units, impact cut-off machines, tube end forming machines and torin CNC spring coiling machines.

The company recognises a growth in the industry for total metal forming solutions, not just a piece of machinery, and in this regard is positioned to offer technical, process and engineering expertise to provide the best solution that fits a company's needs.

Fenn Technologies – USA

Fax: +1 860 667 4667

Email: mcdiv@fenn.spx.com

Website: www.fenntech.com

Fil-Tec Inc 9 F09-3

Fil-Tec Inc offers a complete line of performance yarns for application in power cables, copper and fibre optic telecom and speciality cables.

Products on display include: Binder yarns with water blocking, non-wicking, flame retardant/low smoke finishes; core yarns; ripcords; filler yarns; marker yarns; fibreglass reinforcement yarns, and the newest product, dry core yarn.

Water swellable binder and core (wrap around the FRP) yarns offer the following benefits: Very low dust, extends life of bearings and other moving parts of the equipment; less downtime due to mechanical maintenance related to SAP dust problems; less clean up time; cleaner working environment for the operator.

Fil-Tec's technology produces a water swellable binder with higher yield, giving lower cost per kilometre of cable produced. It also produces a package that offers: Excellent integrity and balance; can run at 5,000 rpm without unwanted vibration; more metres per package giving longer runs without a break and a more efficient stranding process overall.

>>>

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<<< A number of swell factors affords design engineers the flexibility to choose the size yarn and swell factor that best suits the cable.

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Fine International 9 F22

Fine International Corporation is a worldwide supplier of wire and cable machinery,

who will be showing a fully operational skin-foam-skin extrusion line.

Components of the line include an 800mm O frame pintle powered pay-off with a 3m vertical dancer tension control system (350mm root diameter aluminium sheaves).

A 1,200mm belt wrap style input capstan with AC servo drive control accurately feeds the bare conductor. A special Boockmann Helicord cleaning system will also be included on the line.

An induction pre-heater provides conductor heating. The main extruder is a 65mm,

40:1 L/D design with Fine's proprietary gas injection screw. The nitrogen gas is metered using Model N2-400 PreciseFlow system.

The two skin coats are applied via two 25mm, 24:1 L/D vertical extruders. The triple layer crosshead includes a pneumatic actuated bypass valve. The water cooling trough is all stainless steel construction and incorporates a Sikora capacitance and XY diameter gauging system.

A main 1,200mm belt wrap capstan provides the main pull force and then leads into a 630mm pintle take-up also with a 3m dancer tension control system.

The operator control panel incorporates discrete temperature controllers and touchscreen operator interface.



▲ 1,800mm portal floor traversing take-up

Also on display will be a 16 carrier braider with 150 RPM operational speed and a 1,800mm portal floor traversing take-up.

Fine will also highlight the materials (tapes/conductors) and cable products divisions.

Fine International Corporation – USA
Fax: +1 732 933 4005
Email: sales@fineinternational.com
Website: www.fineinternational.com

FisherTech 12 E37

A much wider range of wire and cable termination requirements and production needs can now be met with Fisher-Tech's line of Injected Metal Assembly (IMA) systems. These wire and cable termination systems can cast zinc alloy terminations with a volume as large as to 65cm³ (4 in³) or as small as 10cm³ (0.6 in³) directly onto wires, cables and ropes up to 10mm (3/8 in) in diameter.

FisherTech's cable termination systems also meet specific production requirements: manual operation for low volume production

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31 March-04 April

needs, semi-automatic for moderate volume production and fully automatic for integration into current production lines. The high capacity AM51 opens up new application opportunities with its maximum shot size up to 4 in³ (65cm³) and cable diameters to 10mm (3/8 in).



▲ FisherTech - meeting specific production requirements

The AM91 entry-level, manually operated system is designed for small to mid-size cable terminations with a maximum shot size of 0.6 in³ (10cm³) on wires and cables to ¼ inch (6mm).

The AM46 IMA system, with the same casting capacity as the AM 91, can be configured for semi-automatic operation.

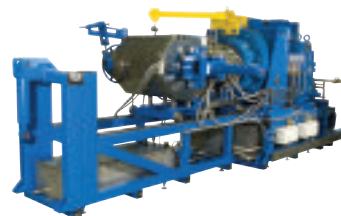
FisherTech's cable termination systems form and join any shaped termination directly to single wire, multi-strand cable, flexible shafting, or wire rope with or without a fibre core in a single operation. The process eliminates use of pre-manufactured fittings and conventional assembly methods. Termination quality and productivity are increased, while manufacturing costs are reduced.

Pull-off strength is greater than that of the wire or cable. FisherTech's tooling ensures close tolerance, part-to-part consistency, and the net shape, flash-free terminations are ready-to-use. Zinc alloy exhibits high strength, dimensional stability and load bearing characteristics, with mechanical properties similar to low carbon steel. High fluidity allows casting of complex, intricate detail, and the alloy is fully recyclable.

FisherTech - Canada
Fax: +1 705 748 6312
Email: info@fishertech.com
Website: www.fishercast.com

Folke Sandelin AB
9 E38

H Folke Sandelin AB is the sole supplier of Hansson-Robertson continuous lead extruder.



▲ Extruder improved in all aspects

The extruder has been improved upon in all aspects, especially the control systems. It is now fully automated in its start and operation and is extremely reliable and accurate, something that ensures closer tolerances and lead savings.

The latest design lead extruder is a horizontal, fully automatic, floor standing unit that eliminates the need for a large and expensive foundation pit and is also very easy to maintain. The equipment is often used to continuously extrude long length cables for over three weeks, which equals around 600 tons of lead alloy, to a very high accuracy. Further lead extruder development is constantly ongoing.

H Folke Sandelin AB - Sweden
Fax: +46 141 20 36 39
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- Wear, weather, fats & oils, solvents resistant elastic compounds
- Research & Development supports to tailor performance according to the customer needs

31 March-04 April

Fortuna Federn 14 B23

Fortuna Federn is an established, family owned manufacturer of spring making machinery and equipment.

At the wire 2008 show in Düsseldorf it will present most of its production range.



▲ The COM 16 CNC SE from Fortuna Federn

On display will be the COM-16 CNC hydraulic servo controlled spring making machine. This cost effective and reliable machine can take wires up to 16mm in diameter.

The re-designed WIM CNC servo controlled lathe coilers have the newest CNC control system for the production of cylindrical and conical compression.

Extension and torsion springs will be presented through several model sizes, starting from 0.80mm to 20mm in wire diameter. This is the biggest selling product line.

The ever-popular OBW and MPK spring looping machines have also been re-designed for easier setting-up processes.

Fortuna Federn GmbH – Austria
Fax: +43 3465 3704
Email: info@fortunafedern.com
Website: www.fortunafedern.com

Mario Frigerio SpA 11 J65

A new production programme will be the highlight of the Mario Frigerio SpA stand.

The success of the company, which has a complete range of wire drawing machines, coilers, spoolers, PC strand lines, pay-offs and take-ups for treatment lines, comes from a strong customer service base.

Frigeo, the non-ferrous division, will also be at the booth, highlighting the skills in the production of drawing equipment for copper, aluminium and alloys.



▲ Don't miss out on the Mario Frigerio stand at wire 2008

Mario Frigerio will also be representing Cabmach SA. Cabmach, with a team of experienced people in this field, will be entirely dedicated to producing a full range of bunching and stranding equipment, both for ferrous and non-ferrous products.

Mario Frigerio – Italy
Fax: +39 0341 368385
Email: info@mariofrigerio.it
Website: www.mariofrigerio.it

Froma Srl 10 H38

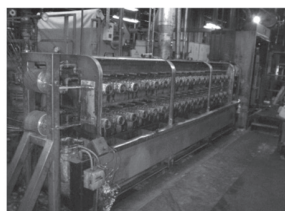
Froma's main activity consists of planning and building special production lines, devised to meet each customer's specific requests and needs. In particular, Froma is specialised in the realisation of automatic welding machines for electro-welded mesh



SUPPLY ON DEMAND



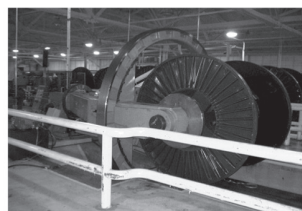
HALL 9 STAND F21



WRD832 Niehoff 16 Wire Drawing Line



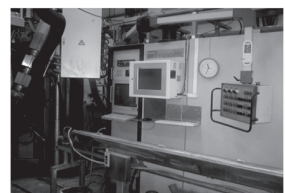
EXPL151 30mm Maillefer Premises Tight Buffer Line



CBR833 2.5m Ceeco Drum Twister



TKU954 Nokia Maillefer EKP100 Dual Take up



EXPL304 Rosendahl Skin Foam Insulation Line



CBR956 Setic 1250mm D.T. Buncher

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Made in Germany has a name



HENRICH
GERMANY

Henrich GmbH, a German industrial location that boasts a tradition, has been ranking high among competent suppliers of equipment to the wire and cable making industry on an international scale. The range of products comprises drawing machines for non-ferrous metal such as rod breakdown, intermediate, fine and ultra-fine wire drawing machines, multiwire drawing machines, continuous resistance annealers, as well as spoolers, barrel coilers and bundlepacker. Henrich is committed to complete tailor-made customer service, preventive maintenance, equipment upgrade and all conventional service, worldwide.

Henrich Maschinenfabrik GmbH

P.O.B. 1362, 35745 Herborn, Germany

Phone: +49 (0) 2772 506-0, Fax: +49 (0) 2772 506-196

E-Mail: henrich-gmbh@henrich.net, Internet: www.henrich.net



31 March - 04 April 2008
Düsseldorf, Germany
www.wire.de, See you at
Hall 11, Booth No. 11A44

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31 March-04 April



▲ 1158-2B automatic line to produce a dishwasher upper basket

panels, working from coils or bars with widths from 800mm to 3,000mm; automatic bending-welding machines to produce flat or three-dimensional rectangular rings with or without mid-reinforcing bars from round and flat wire; automatic welding machines for grids; special bending and welding machines for supermarket trolleys and equipment; hydraulic presses and toolings to bend and weld wire baskets and containers; special transfer lines, made up of welding machines to produce flat mesh panels, forming presses, welders and complementary machines to manufacture complex wire products, such as dishwasher baskets.

Froma Srl – Italy
Fax: + 39 0341 581226
Email: froma-srl@iol.it
Website: www.froma.it

FSP-one SAS 12 A66

FSP-one produces and sells speciality conductors, and will stress its most recent development:

- Green6®, presented during wire 2006, is developing strongly and reveals itself as the best new RoHs alloy to replace the classical ones such as Cadmium copper. Green6® is already used in high technology markets such as Geophysics, IT, and qualified by the aircraft industries (Starts early 2008).
- NPCCA (nickel plated copper-clad aluminium) and SPCCA (silver plated copper-clad aluminium) have been especially developed for the aircraft industry.

This new generation of conductors are available as standard industrial products and are already used by Airbus in the A380 jumbo. Other Airbus programmes will use the same conductors in the near future. The CCA conductors offer a competitive advantage compared to the classical copper conductors, allowing you to save more than twice the weight of cable, whilst keeping equivalent performances.

These performances are now moving to other applications such as automotive.

FSP-one has had a presence in Asia for more than 15 years and is a recognised partner on the Asian markets.

FSP-one took the decision to start a local production at the end of 2007 at Hi-Tech Wires Asia (HWA), located in Vietnam. The company is manufacturing the speciality conductors of FSP-one but also the EDM wires of its mother company, Thermocompact.

Through these examples, FSP-one shows its goals to be a dynamic and innovative company ready to go with its customers and the markets to provide the best service, quality and efficiency.

FSP-one SAS – France
Fax: +33 478 32 39 19
Email: info@fsp-one.com
Website: www.fsp-one.com

Gabarro SA 10 D40

Since forming in 1920, Gabarro has steadily increased its product range and now includes:

Bright wires: Sizes from Ø2.4mm - Ø14mm. Tensile, finishing and presentation: upon customer request. Applications: Automotive components and equipments, kitchen utensils

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31 March-04 April

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<<<

and appliances, home accessories, electrical household appliances (dish washers, oven racks/grills), retail and in-store appliances (trolleys, shelves, basket containers), promotional items and supports (displays), heat/cold appliances and device components (air conditioning, freezers, ovens).

Annealed wires: Sizes from Ø1.8mm - Ø4.6mm. Tensile, finishing and presentation: upon customer request. Applications: Mainly addressing the fast growing and highly dynamic waste and recycling industry in low/high tensile baling processes for paper, cardboard and plastic wastes.

White annealed wire: Sizes from Ø2.4mm - Ø14mm. Production under inert atmosphere available for specific applications.

Profiles: Triangle, twister, etc. Sizes upon customer request

For some time now, Gabarro has been committed to developing and using non-polluting, zero-environmental impact production processes.

Beside this, Gabarro has been able to gain a competitive edge through a unique customer-focused and interpersonal relationship-based business approach, while abiding by the highest product quality standard.

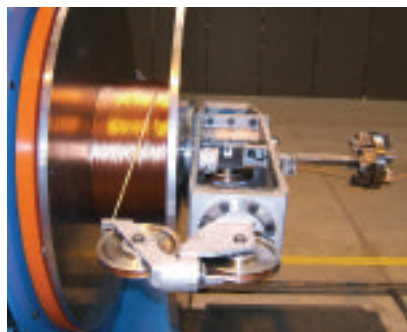
Gabarro SA – Spain
Fax: +34 93202 1887
Email: customerservice@gabarro.eu
Website: www.gabarro.biz

Gauder Group 10 E38

If you are looking for a technologically advanced rotating machines specialist, Gauder Group is the ideal answer for a one-stop integrated solution.

Gauder Group has superb machinery with its Pourtier high voltage cable machines and Setic LAN cable equipment.

This will be highlighted on the booth with the Pourtier COS1200-2, the new multi-wire concentric strander for stranding, screening or armouring (SWA) of power cable speeds up to 500rpm while keeping a short line



▲ The new COS 1200-2 from Gauder Group

length (equivalent to a rigid strander) and a motorised tension control which enables strand/cord resistance optimisation.

Also on the booth, the new 'jumbo' CH 300 compacting head for the production of compacted cables with sections from 50-3,000m² and rollers with 300mm diameter.

Setic will exhibit a cost-effective triple twist line for the production of high quality pairs for cat 6/6e/7 LAN cables up to 6,000 TPM. The line is composed of a double twist pairing machine TP 560 – specifically designed for high-speed top performance pairing and assembling of insulated conductors and high quality pairs production, coupled with the specific DHD TT 560 pay-off.

Gauder will demonstrate its re-sale equipment possibilities through the 'Gauder Group Explorer', dedicated software on several wide plasma screens while the opportunity to visit the stock of equipment in the Belgian premises is available for free.

Gauder Group – Belgium
Fax: +32 4 367 87 98
Email: gauder@gaudergroup.com
Website: www.gaudergroup.com

Ger SA 9 F60

Ger SA from Belgium, supplies second-hand wire and cable machinery, and acts as exclusive representatives of Hüttner Maschinen, Germany, which has been making new machinery since October 2007.



▲ Second-hand wire and cable machinery from Ger Hüttner Maschinen, apart from its wide range of static coilers and down-coiling lines, also specialises in the manufacture of rolling mill equipment and filtering/cleaning systems for technical liquids, such as drawing emulsions.

Ger SA – Belgium
Fax: +32 87 260 201
Email: ger@ger.be
Website: www.ger.be

Gimax Group srl 10 B18

Gimax will be exhibiting a selection of its respooling machines and drum packers.

31 March-04 April

Customers who visit the booth will be able to see the fully digital Robobina, a totally automatic respooling line for welding wire, designed to run solid and tubular wire on plastic spools, fibre spools as well as on wire baskets.

The Robobina is one of the most advanced automated respooling lines and is equipped with Gimax's patented system to adapt automatically to any tolerances in the wire diameter when precision layer winding onto wire baskets or plastic spools. The Robobina can run at speeds in excess of 35 metres per second and does not require the presence of an operator during normal operation (one operator or supervisor can control up to five machines).

The new model INF-4 drum packer will be another highlight of the show – the Gimax line to coil wire into 'no twist' drums has been updated and made much more compact (the dancer and electrical cabinet have now been incorporated within the machine itself making for an extremely compact unit), but the main feature is the line speed. The drum packer is capable of running with MIG at a speed of 30 metres/second and can also reach high speeds with stainless steel (16 to 20 metres/second), tubular and aluminium wire.



▲ Gimax's range of respooling machines

The line can also be equipped with a video system to monitor main parts of the line (including the interior of the drum while coiling is in progress).

The Polidigital will also be present in two examples. A new 'compact' version of the fully digital semi-automatic spooler which has a greatly reduced footprint, and also the 'coil' version, updated and redesigned to handle most types and sizes of spools/coils and wire. This machine represents the maximum in flexibility that the market can offer, with a capability of running 0.5 up to 45-50kg spools of steel wire, as well as spoolless coils and is capable of handling wire with diameters ranging from 0.6 up to 5mm.

Gimax will also have details about the new fully automatic spooler for small 1kg (2lb) spools. This new line is destined to be launched onto the market towards the middle of 2008.

Gimax Group srl – Italy
Fax: +39 0444 5360 71
Email: sales@gimaxgroup.com
Website: www.gimaxgroup.com

Goodwin Machinery Ltd 9 C36

Goodwin Machinery has now moved to new premises in Bolton and has continued to expand on its already buoyant used machinery business.

Goodwin will show pictures and film shows of many of its recent machinery

projects from inception to complete refurbishment, painting and test running prior to dispatch.

Representatives on the stand will be happy to discuss the comprehensive range of re-sale machinery and the many other services available, including removals, installations and plant valuations.

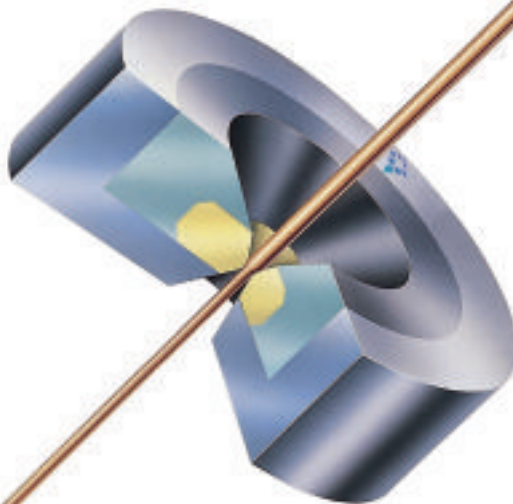
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URL <http://www.allied-material.co.jp/e/>

Håmex Hårdmetallverktyg AB 10 F75

Håmex will show its complete range of exchangeable tungsten carbide inserts for dies and cutters. These eliminate the need for regrinding and allow replacements instead of the tools having to be scrapped.

The patented dies have a rotatable and exchangeable insert of tungsten carbide with up to three profiles. Changing from one profile to another can be done very quickly, which allows three nail dimensions to be manufactured with minimum set-up times.

The cutters have an exchangeable insert with two cutting profiles. When worn to a certain level, the insert is turned 90 degrees to a new cutting profile. When both cutting sides are worn out, a new insert can be fitted to the holder.

The complete programme of tungsten carbide tools for nail manufacturing also consists of cutters for Enkotec machines and chisel feeders, cutters, punches and wire guides for Wafios N90 machines.

Håmex Hårdmetallverktyg AB – Sweden

Fax: +46 13 357660

Email: info@hamex.se

Website: www.hamex.se

Hasemann Maschinen 11 A39

Since 1987 Hasemann Maschinen has specialised in the worldwide purchase and supply of highest quality used machinery for the processing and treatment of steel and non-ferrous products, such as semi-finished bright steel bars, tubes and wires.

Founder Dieter Hasemann, who still has an advisory role, has more than 35 years' experience in the business. Since 2007, Ms Andrea Hasemann and Mr Ingo Dierkes have run the company. Mr Dierkes handles purchasing and sales, while Ms Hasemann continues to be responsible for office administration.

Hasemann Maschinen – Germany

Fax: +49 2131 792620

Email: info@hasemann-maschinen.de

Website: www.hasemann-maschinen.de

Ideal-Werk, Clifford Welding Systems Ltd 11 H06, 11 H05

Ideal-Werk, of Germany, and Clifford Welding Systems, of South Africa, who supply welding

machines to the wire industry will be jointly exhibiting at the show.

Ideal-Werk will present a wire mesh welding machine, type GA0 516, having a portal width of 1.60m for the production of industrial mesh, eg display articles.

The design of the machine is made to assure high flexibility and short change-over times. High welding performance and utmost flexibility offers the customer a considerable reduction of welding cost and down times.

Ideal will also show various models of butt welding machines for solid wires and strands, for all kinds of ferrous and non-ferrous material used in wire drawing mills, for cable manufacturing and in the wire working industry.

Ideal and Clifford Welding Systems will demonstrate their NC jig welding machine type Versaweld CSR 050 which is used for the flexible production of small and medium quantities of wire products within jig frames.

Clifford will also demonstrate its capability in the reinforcement and off-coil line wire and crosswire mesh production line areas.

The company manufactures a comprehensive range of mesh production machines covering high production reinforcing lines,

wire
Hall 10
Booth
10H38

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31 March-04 April

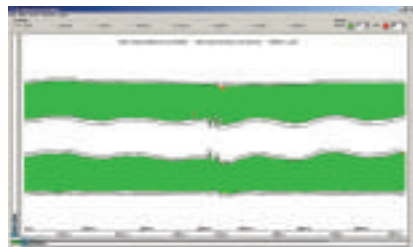
heavy quick change engineering mesh lines and precision off coil light mesh lines.

Ideal-Werk – Germany
Fax: +49 2941 206 30113
Email: info@ideal-werk.com
Website: www.ideal-werk.com

Clifford Welding Systems (Pty) Ltd – South Africa
Fax: +27 3335 53434
Email: info@cliffeng.com
Website: www.cliffeng.com

IPEC Ltd 11 F05

Independent Power Engineering Consultants (IPEC) will be exhibiting an enhanced version of the UltraSense cable insulation monitor. This 16 channel monitor is unique in providing 100% coverage of the critical interface between the inner semi-conductor layer and the insulation of HV and EHV polymer insulated power cable.



▲ A zoomed view on the data analysis screen of a cable joint in an HV cable

These measurements bring early information for process engineers and operators of the key dimensional parameters of the cross-linked cable, as well as generating a comprehensive quality record for each reel of production.

The UltraSense monitor has been designed for cables between 100kV and 750kV with an OD between 50mm and 160mm. The equipment provides accurate measurements of all three wall thicknesses at 16 points around the cable as well as providing true eccentricity and ovality measurements for the cable as a whole. A powerful feature of the system is the ability to detect and alarm on thinning or missing layers. Alarms can be set for voids and inclusions in the insulation as well as fall-ins and protrusions of the semi-conductor layers.

All this data is logged at preset intervals along the length of a cable run. The operator or process engineer can make an off-line analysis either during production or after production is completed. The data analysis software has a powerful zoom facility that enables the inspection of the cable structure millimetre by millimetre in order to fault-find during production process or in the event of a partial discharge failure in post-production test.

IPEC Ltd – UK
Fax: +44 161 226 0046
Email: info@ipec.co.uk
Website: www.ipec.co.uk

Isolmax Srl 13 F44

Isolmax specialises in the manufacture of thermoplastic materials and fibreglass. It has worked for customers using Teflon, nylon, lexan, PVC, glass epoxy, polyester glass and many other materials.

The company is used to working to a high quality on more complicated projects, particularly for wire drawing machines (for copper), producing flanges for coils and plates

for the annealing furnaces in thermosetting materials. Fibreglass is a much better material because of its durability, performance, cost, heat resistance and dielectric strength.

The company also produces other components in fibreglass and thermoplastic material for other applications like driving chains, tubes, pulleys, plates, bushes and pipes etc.

Isolmax Srl – Italy
Fax: +39 02 9216 2288
Email: info@isolmaxsrl.it
Website: www.isolmaxsrl.it

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 sales@qedwire.com

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Fax: +1 450-458-0200
 www.qedwire.com

31 March-04 April

WTM
Wire Technology & Machinery

Wire Technology Machinery

W.T.M s.r.l.
Via Austria, 12 - 35127 Padova - ITALY
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Fax (+39) 049.8705599
www.wtmachinery.com
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- Caterpillars and capstans for round and flat wire with small and medium size diameter;
- Cable peeling machines for large diameters;
- Special and customised equipment on demand.

LOI Italmimpianti 10 A61

LOI Italmimpianti produces major furnace plants for the steel, aluminium and automobile industries.

The company's bell-type annealing systems, in particular, have become established in the market. They offer the greatest possible flexibility at the lowest investment costs. The maximum useful diameters of present-day systems exceed 4,600mm, and the useful stacking heights are 5,400mm. This means that regardless of the coil dimensions, individual batches up to 90 metric tons per pedestal can be annealed efficiently and economically.



▲ Major furnace plants from LOI Italmimpianti

Continuous roller hearth furnaces with a protective-gas atmosphere are very popular especially among rolled-wire producers with very high annual output.

They are easy to operate, do not require high room height, and turn out material of excellent quality.

LOI Italmimpianti Multi-Cycle Furnaces (MCF) embody the roller-hearth technology and process combined with the flexibility of a bell-type annealing system. They are operated with a reactive atmosphere.

LOI Italmimpianti Srl – Italy
Fax: +39 011 9945661
Email: sales@italiainpianti.com
Website: www.italiainpianti.com

IWE Spulen und Handling GmbH 10 E22

IWE develops system solutions for all applications in close cooperation with the leading companies of drawing and cable machines.

Every IWE-reel and handling system is the result of extensive research and many years' experience.

IWE is your partner for a complete range of steel reels and reel handling technology, as well as total equipment for the manufacturing of wire coils.

The range includes:

- high speed drawing and annealing and machine reels markets such as Geophysics, IT, and qualified by the aircraft industries (Starts early 2008).
- twisting and bunching reels, shipping reels (including dismountable construction)
- process reels with smooth internal flanges for rotating operations, process reels with toroidal segments
- pallets upon request, collapsible take-apart reels for very high speeds, heavy duty mechanical or motorised reel tilters
- handling systems, coil lifters, lifting tackles and other lifting devices
- lifting tilters

IWE Spulen und Handling GmbH – Germany

Fax: +49 9568 854 44
Email: info@iwe-reels.com
Website: www.iwe-reels.com

Kamatech SNC 17 B31

Kamatech will be displaying its all electronic vertical spring and grinder machines.

Vertical spring end grinders have four grinding spindles installed, and the one pictured is a double head machine with electronic press unit in the middle.

This is complete with Ø660mm of wheels.

Kamatech SNC – Italy
Fax: +39 0342 691 043
Email: info@kamatech.it
Website: www.kamatech.it

Kingwin Precision Co Ltd 14 F51

Kingwin Precision Co Ltd manufactures and distributes special, high quality forming tools for fastener manufacturers worldwide.

The main products include pin, punch, piercing, square, hexagon, 6-lobe, spline and 12-point punches, customised punches, transfer fingers, feed rollers, sleeve and tungsten carbide die and trimming dies.

Kingwin Precision Co Ltd – Taiwan
Fax: +886 7696 6666
Email: tsaiding@hotmail.com
Website: www.vy.com.tw

31 March-04 April

Ernst Koch GmbH & Co KG 10 F22

OTA technology enables straight-line drawing without dancers and/or tuner rolls, making it fully automatic with reproducible back pull.

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▲ Special features from Koch

Special features of Koch's KGT 47 include:

- drawing block diameter 1,200 mm
- pulling force up to 90,000 N
- high-efficient planetary gear box
- user friendly design
- low noise level

Ernst Koch GmbH & Co KG – Germany Fax: +49 2372 985 167
Email: sales@koch-ihmert.de **Website:** www.koch-ihmert.de

Kurre Spezialmaschinenbau GmbH 9 C47

Kurre will present several new highly developed technical concepts which they are currently working on.

Kurre Spezialmaschinenbau GmbH – Germany
Fax: +49 4498 9250 50
Email: info@kurre.net **Website:** www.kurre.net

Paul Leibinger GmbH & Co KG 9 F55



▲ New model from Paul Leibinger

The new model JET3 of the Leibinger inkjet series extends the range of inkjet printers in the high end area. Besides a number of technical innovations, some of the well known standard features such as the automatic nozzle seal and the printing with pigmented ink are also part of this new JET3. >>>

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and cold heading

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e-mail : info@condat.fr - Internet : www.condat.fr

<<< The new developments are the large coloured touch screen display which visibly reflects the Windows surface. It is easy to handle and with the new hardware and software it offers different kinds of interfaces like USB, Ethernet and a SD-card slot for the individual memory expansion. External equipment such as keyboard or USB-Stick for data transfer can be connected.

Individual graphics and fonts can be easily made by the use of the graphic and font editor. It prints up to 5 rows with 32 drops and can be optimised to the product size and amount of information. The new technology also offers a remote maintenance for the JET3.

Paul Leibinger GmbH & Co KG
Fax: +49 7461 9286 199
Email: info@leibinger-group.com
Website: www.leibinger-group.com

Leyer & Kiwus Ultraschall und Lasertechnik GmbH
10 E26

It is anniversary time for Leyer & Kiwus who not only celebrate 20 years of taking part in wire Düsseldorf, but also 20 years of manufacturing diamond die drilling laser systems.

Leyer & Kiwus GmbH, Germany, presents the highest quality level in this very special field of laser micro-processing.

The machines are able to work 100% automatic over one shift, without any operator. All drawing dies are handled automatically. The diamond thickness and the position can be measured and the created drawing profile will be cut by the latest generation diode pumped laser.

Maintenance-free, ultra stable against mechanical and thermal variations and with the highest peak power, the laser systems drill perfect drawing dies from 0.007mm up to 3.5mm diameter. The drilled diamond surface is extremely smooth.

Leyer & Kiwus Ultraschall- und Lasertechnik GmbH – Germany
Fax: +49 2415 13202
Email: info@leyer-kiwus.de
Website: www.leyer-kiwus.de

LongVision (Shanghai) Cable Materials Co Ltd
13 A95

LongVision (Shanghai) Cable Materials Co Ltd is a raw materials supplier which has been

specialising in the cable and fibre optic cable industry for more than 10 years. Longvision was originally a manufacturer of high quality plastic coated steel tape and plastic coated aluminium tape.

The business now extends to galvanised steel tape, galvanised steel wire, galvanised steel strand wire, FRP rod, water blocking tape, alu-pet tape and polyester tape.

LongVision (Shanghai) Cable Materials Co Ltd – China
Fax: +86 21 6495 1452
Email: wangwei007@longvision.com.cn
Website: www.longvision.com.cn

Lubrimetal SpA
10 G62

Lubrimetal has two sites – one in Italy and one in India under the company name Peddington Lubrimetal Pvt Ltd.

As well as wire 2008 coinciding with the company's 50th anniversary, Lubrimetal will also be displaying a new range of boron free lubricants and coatings.

The well-known trademarks Lubrifil®, Lubriol®, Steelfor® and Fosfil® are synonymous with top performance and quality.

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...machinery for the cable, conductor & pipeline industries

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with large tape capacity

Wrapping machines for RTP and S RTP

Typical operator's control screen

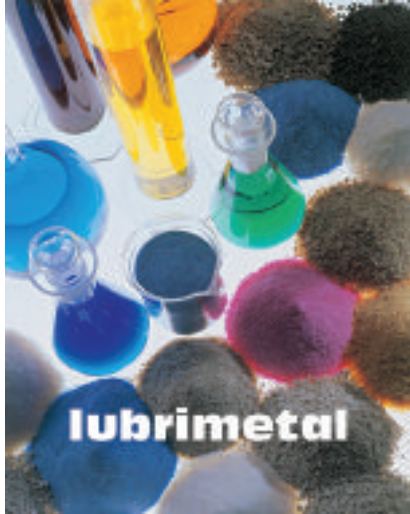
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 Contact us on...
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 sales@ridgwayeng.com
 www.ridgwayeng.com



31 March-04 April

Drawing lubricants for ferrous metals (low, medium, high carbon steel, stainless steel) include calcium-based lubricants; sodium-based lubricants; borax free lubricants; other dry lubricants; emulsifiable oils and greases for wire wet drawing.

Drawing lubricants for non-ferrous metals (copper, aluminium, yellow alloys, gold, etc) include emulsifiable oils for wire wet drawing; oils and greases.



▲ 50th anniversary for Lubrimental

Products for metal surface treatments are acid pickling inhibitors; phosphating agents; pre-drawing salts coatings and carriers (Steelfor range); borax free pre-drawing carriers; anti-corrosive agents and dewatering fluids; wiping agents for galvanised wire (charcoal); additives for copper coating.

Lubricants and other chemical compounds for metalworking are cold heading and extrusion; metal-machining; vibro-finishing and other treatments.

Equipment for wire treatments are rotating die holders; mechanical descalers (simpler and vertical); spiral brushes from the Helix range.

Lubrimental – Italy
Fax: +39 0341 422386
Email: info@lubrimental.com
Website: www.lubrimental.com

Lukas Anlagenbau GmbH
12 B61

Lukas Anlagenbau will introduce its high speed taping line, equipped with two taping heads as well as sintering oven, take-up and pay-off.

The machine is suitable for operating PTFE-, Polyester-, and Kapton Tapes.

Lukas Anlagenbau GmbH – Germany
Fax: +49 9651 930299
Email: lukas.voh@lukas-anlagenbau.de
Website: www.lukas-anlagenbau.de

M+E Macchine + Engineering Srl
10 H43

M+E Macchine + Engineering Srl specialises in the design and manufacture of pay-offs and take-ups for steel and stainless steel wires in coils or on spools for annealing, patenting, galvanising, oil tempering and other in-line processes. The company also manufactures wet drawing machines for steel and stainless steel wire complete with horizontal or vertical axis spoolers.

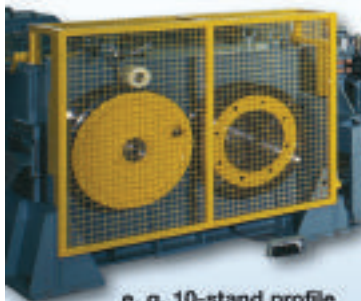
M+E machines are individually designed and manufactured to satisfy customer demand. Each machine is made up of a combination of standard sub-assemblies which guarantees advanced technical quality and competitive prices. Long experience in the evolution of these products over many years has produced the most sophisticated technology, offering reliability and efficiency in operation for customers worldwide, making M+E the



Machines and facilities for forming and processing of wire



Stand 11A 54



e. g. 10-stand profile rolling mill WSN112

- Line speed 500 m/min
- Product tolerances +/-0,003 mm
- Minimized setup times by recipe use



- Project planning
- Supply
- Installation
- Training
- Service

- Unwinding
- Profile drawing
- Cleaning
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31 March-04 April



▲ Spool take-up frame with double accumulation capstan for non-stop operation

<<< best qualified supplier of such equipment, covering a wire range from 0.015 to 25mm.

The M+E production range consists of:

Pay-offs from stationary spools or carriers; rotating pay-off turntables for spools or carriers; horizontal or vertical spool pay-off frames (option: double accumulation capstan); rotating capstan take-up frames for carriers (option: spiral laying, wire skinpass, dual size capstan); stationary capstan take-up frames for carriers (option: pattern laying, accumulation device, dual size capstan); horizontal or vertical spool take-up frames (option: double accumulation capstan); pay-offs and take-ups for bead-wire and steel

cord; wet drawing machines (for ultra-fine wire, saw wire, steel cord, spring wire, rope wire, staple and clips wire) complete with traditional horizontal or vertical spoolers or the newly developed series of full automatic spoolers with no operator's intervention.

M+E Macchine + Engineering Srl – Italy

Fax: +39 0341 80 6002

Email: info@meitaly.it

Website: www.meitaly.it

Magnetic Analysis Corp 7 C36

Magnetic Analysis Corp will feature the new MultiMac™ at wire 2008.

The Windows® based multi-mode MultiMac eddy current tester operates with encircling/sector test coils to detect short surface defects, and/or with rotary test probes to detect long, seam type surface defects. The new multi-mode capability incorporates all of the best features of MAC's individual encircling coil and rotary probe instruments into one unit.

MAC's Echomac® ultrasonic FD-4 electronics with rotary transducers will also be exhibited. The FD-4, with up to 32 independent test

channels, is suitable for any combination of longitudinal and transverse flaw detection.

The new MultiMac includes up to eight test channels, and a wide selection of test parameters and special circuits to enhance signal-to-noise ratio. Building on the successful Echohunter® software graphics, the instrument's Test Screen displays one channel, and the Multi-Screen provides a simultaneous display of 1 to 8 channels.

The Test Screen provides all the information needed to set up and operate MultiMac. Both screens display simultaneous polar and linear modes and all test parameters, including thresholds.

Each channel on the MultiMac can be individually configured with different frequencies and different channel modes. For example, 'differential' mode is used to detect short weld-line defects, while 'absolute' mode is appropriate for long, continuous surface flaws and open welds. A choice of three thresholds per channel – All Phase, Sector, or Chord – can be mapped to any of eight outputs, independently configurable for time or distance delay and normal reject or latched mode.

With these features, MultiMac can be used to test a wide variety of non-magnetic products, or inspect magnetic material by using Direct Current saturation systems. A special configuration of channels, based on flux >>>

The leading name in Induction Wire Processing Technology

Whether your requirement is for a major turnkey system, or to upgrade an existing wire processing line, Radyne has proven technology and the applications knowledge to improve your heat treatment process, delivering long term benefits and real cost savings.

Radyne sets the standard for induction heating technology when applied to the production of spring steel wire including SAE 9254 and 55QSiV to international QT standards.

- High Speed (1.5 and 3 tonnes/hour) continuous running spring wire lines
- Non-polluting, no oil quench
- No combustible fuels used
- In-line wire annealing systems
- Multi-wire furnace technology

For more information on how Radyne products can assist you in making a premium quality cost effective product, please contact Inductotherm HWT to speak with a Radyne Applications Engineer Tel: +44 (0)1256 335533 Fax: +44 (0)1256 467224 E-mail: info@ihwtech.co.uk www.inductotherm-hwt.co.uk

INDUCTOTHERM GROUP Leading Manufacturers of Melting, Thermal Processing & Production Systems for The Metals & Materials Industry Worldwide



▲ New MultiMac™ at Magnetic Analysis

leakage phenomenon, provides detection of very small subsurface steel inclusions in copper or aluminum rod. Test speeds for the MultiMac can range from one fpm up to several thousand fpm. MultiMac offers end-suppression circuitry with optional optical sensor to prevent false signals from leading and trailing ends.

The MultiMac offers enhanced recording capability and remote access through in-plant networks or the Internet. Featuring user-configurable reports, data output can include customer and product information, defect

location, time, amplitude, and phase. Reports can be stored locally on a network server or on a flash memory device using the USB port.

Operator interface for the Windows-based system is by use of a keyboard and mouse. The all-inclusive model, designed for demanding plant environments, consists of a sealed, heavy-duty cabinet with a built-in 17" monitor, air conditioner and pull-out keyboard. Other smaller models can be supplied with the pull-out keyboard, an air conditioner and separate, optional monitor.

Magnetic Analysis Corp – USA
Fax: +1 914 699 9837
Email: info@mac-ndt.com
Website: www.mac-ndt.com

Maillefer SA 10 D21

An improved island set-up will allow visitors to discover Maillefer innovations from all angles with extrusion solutions for energy, telecom and fibre optics on display, along with tube and pipe applications for tube visitors.

Show highlights include the latest extrusion technology, innovation in CV lines, and high-speed datacom wire and cable manufacturing.

In energy applications, you can discover the latest designs from building, automotive to high speed MV cable manufacturing and optimum curing for CV lines. Solutions like NCC, post-heating, and splice box allow the CV lines to provide top performance and high quality product. innovations will be revealed with the programme for rubber extrusion.

For telecom, the subject will focus on recent configurations for multi-layer striped LAN constructions as well as solutions for micro-coax cable.

OEL lines are used in every step of loose tube fibre optic cable production. The OEL 40, 41, 70 and 60 lines represent, respectively, solutions for tight buffering, secondary coating, SZ stranding and jacketing.

Improved cooling is a key feature of the latest MXC extruders. The processing window is ever larger, thanks to generation three axial air cooling. Cooling capacity has grown by more than 30% to include materials like EDPM and EPR, areas otherwise covered by liquid cooled machines.

The MXC will be paired with a completely new Cinegran system for material feed measurement and control. Learn how the system uses optical technology to provide immediate feedback on volume input. It is very reactive, even during start-up phases and speed transitions.

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- **Options**
Regular readers and international subscribers may also purchase an annual e-subscription to receive all 6 editions of EuroWire magazine (including full technical articles) sent direct to their inbox with every issue.





31 March-04 April

During the week-long exhibition, technical presentations are made on request at the Maillefer stand. A list of topics to be presented by the specialists will be available at the welcome desk.

Maillefer SA – Switzerland
Fax: +41 21 691 2143
Email: info@maillefer.net
Website: www.mailleferextrusion.com

Manassero & C Srl 14 E47

Manassero & C srl deals in used cold forming equipment for the fastener industry. Active buyers of single machines, a complete department or entire plants, the company has a high-quality inventory of a large number of machines.



▲ Machines can be seen in operation in the warehouse

The machines most commonly in stock include: Nedschroef, Sacma, Ingramatic, Carlo Salvi, E W Menn, Streicher, Hilgeland, Saspj, Nutap, Asahi Sunac, Taihei, Sakamura, Nakashimada and National Machinery. Machines can be inspected in the company's warehouse while still in operation.

Manassero & C Srl – Italy
Fax: +39 011 521 6446
Email: manassero@fastwebnet.it
Website: www.manassero.eu

Mathiasen Machinery Inc 12 A22

Mathiasen Machinery buys and sells used wire and cable machinery internationally, serving both the ferrous and non-ferrous industry. Mathiasen's booth will display pictures and details of a wide variety of second hand machinery stored in the company's warehouses.

The company is also asking customers to take along surplus machinery lists and pictures for evaluation. Mathiasen also offers plant liquidations, appraisals, auctions, consulting, rebuilding, warehousing and consignments.

Mathiasen Machinery Inc – USA
Fax: +1 860 873 8866
Email: info@mathiasen-machinery.com
Website: www.mathiasen-machinery.com

Medek & Schörner GmbH 10 A40

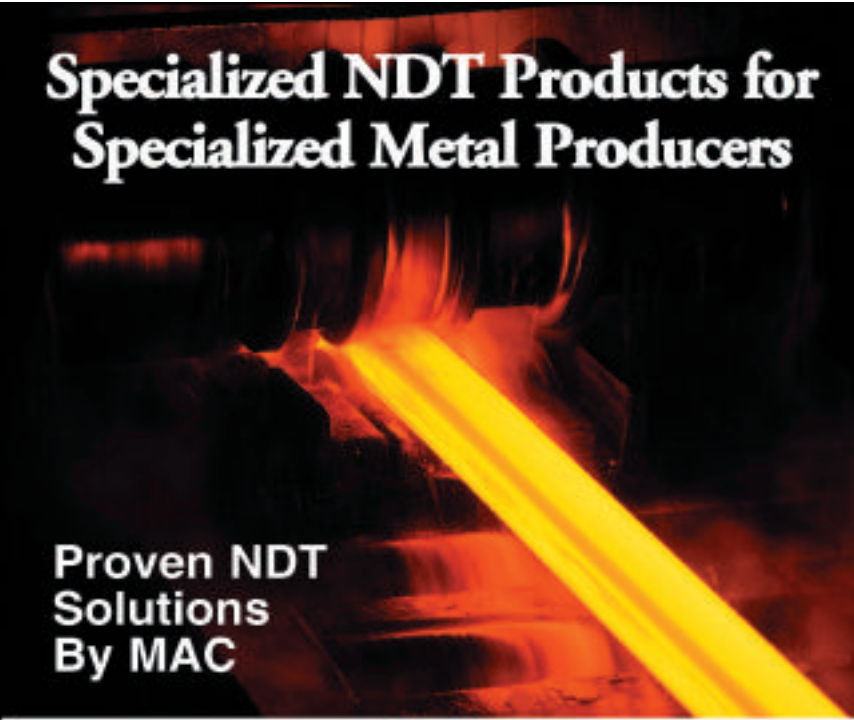
Medek & Schörner will present the following state-of-the-art cable marking machines at wire Düsseldorf 2008: Cable marking machines: High quality gravure printers (LAN cables, control cables etc) for speeds up to 1,200m/min; embossing meter markers/hot foil sequential meter markers for highest accuracy of length measurement (power cables, telecommunication cables,

optical fibre cables, etc); high performance ring markers for speeds up to 2,500m/min (telephone wires, switchboard wires, automotive cables, LAN cables).

The capacity of any system can be significantly increased quickly and easily by exchanging individual components. New components from Medek & Schörner are always compatible – even if a system has already been in operation for many years.

Cable marking machines from Medek & Schörner are also particularly serviceable, >>>

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have worked with thousands of metal producers with specialized requirements. We've developed workable, cost-effective answers for them, using MAC eddy current, ultrasonic or flux leakage inspection equipment and systems.

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www.mac-ndt.com

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TO THE ORIGIN OF PERFECT SHAPES

20-60 mm a brass hollow profiles
They are produced with a 1250 MT extrusion press
direct with 164.5 t piercer.

50-65 mm a copper pipes
They are produced with a 1600 MT direct extrusion
press featuring a 152 t piercer.

20-70 mm a copper and brass pipes
12-60 mm a copper and brass hollow profiles
They are produced with a 1840 MT extrusion press
direct with 200 t piercer.

4-80 mm a brass solid bars with a 3000 MT indirect
extrusion press.

06-100 mm a copper and brass solid bars
They are produced with a 3500 MN indirect extrusion
press.

60-397 mm a pipes in bronze alloys
20-150 mm a bars in bronze alloys
They are produced with a 5500 MT direct/indirect
extrusion press featuring a 1125 t piercer.

5-120 mm a solid bars in brass alloy produced with a
5500 MT indirect extrusion press.

5-140 mm a brass solid bars
They are produced with a 6000 MT indirect extrusion
press.

These are only a few examples of the different types
of presses that Prezezi Extrusion has built for its
customers.

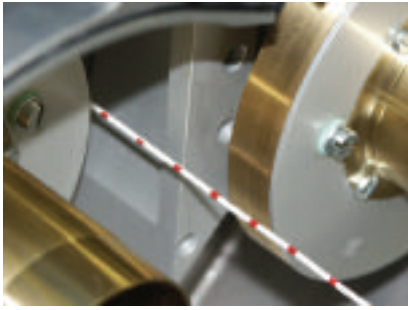


WE MAKE BIG MACHINES TO PRODUCE PERFECT SHAPES

Thanks to the long experience of our designers and the use of highly sophisticated programs, we carry out and supply solid, reliable extrusion presses for brass, copper, bronze and other alloys, with extreme simplicity of use in order to optimise operating performances. We offer various levels of control: only for the press, for the entire extrusion line. We can also perform complete mechanical, hydraulic, electrical revamping operations.

Get in touch with us, we will be very proud to become your partner!

31 March-04 April



▲ State-of-the-art from Medek & Schörner

<<< as a result of which operating staff are able to carry out maintenance and reliable operation of the machines without the need for service engineers from the machine manufacturer.

Optical fibre coating systems: Top speed optical fibre processing systems; optical fibre colour coding up to 3,000m/min; ring marking of optical fibres; tight buffering up to 1,300m/min; fibre ribbon production with excellent ribbon planarity and for speeds up to 1,000m/min.

Medek & Schörner developed its concept for coating optical fibres with ultra-violet hardening inks in close cooperation with companies in the cable industry. The concept with the soft curing UV irradiator system has already proved its worth in numerous applications throughout the world.

Each optical fibre coating line is equipped with the Medek & Schörner designed M550 high performance soft curing UV irradiators.

This gives perfect curing results with minimum energy load for fibre and ink; permanent irradiation control; automatic adjustment for the actual curing demand, compensates bulb aging and quartz tube deterioration; and optimised energy consumption compared to rival products (30% less).

Medek & Schörner GmbH – Austria

Fax: +43 1982 7296

Email: m+s@medek.at

Website: www.medek.at

Mikrotek Machines Ltd 11 D22

Mikrotek Machines' range includes natural diamond dies, mono diamond dies, polycrystalline diamond solid enamelling dies with TC and diamond insert, tungsten carbide dies, die reconditioning and refurbishing services, diamond die working equipment, tungsten carbide die working equipment, die inspection microscopes, ultrasonic cleaners, measuring pin sets, micron diamond powders and paste and extrusion tooling.

Mikrotek Machines Ltd – India

Fax: +91 80236 21769

Email: mmmmm@vsnl.com

Website: www.mikrotekind.com

Mobac GmbH 10 D10

Mobac will exhibit its latest machine for motorised and tension controlled tangential pay-offs.

This pay-off-unit is executed with tension- and rpm-control and it will be able to pay off single wire, multi-wire, insulated wire and flat material.



▲ Motorised and tension controlled tangential pay-offs from Mobac

The control function is done by dancer arm, sensor and frequency inverter and there are machines for spool sizes Ø560/630, Ø630/800 and Ø800/1000 available with line speeds possible up to 350m/min.

These machines are used to pay-off material:

- to be guided in an extrusion line
- to be guided in bunching machines and stranders
- and to lead wire into machines for the wire-article production. A tension range from 12 N to 100 N is adjustable by Potentiometer.

Mobac GmbH – Germany

Fax: +49 431 650511

Email: mobac@t-online.de

Website: www.mobac.de

Montorfano sas 10 H56

Formed in 1965, Montorfano sas manufactures bending machines for metal wires, bars, profiles, electric heaters and tubes.

The new model 2008 Coil, to be introduced during wire 2008, is the simple to use and even maintains the most important features of its eldest sisters.

It's a double head reversible machine which operates at the same time on the two, guaranteeing extraordinary precision

>>>

Müller



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e-Mail: info@kfm-mueller.de

visit us at wire 2008 stand 9A22
march 31 - april 4

wire lubricants and coatings



Hall 10
Stand G 62

A circular logo with a laurel wreath border. Inside the wreath, the number '50' is prominently displayed in a large, bold font, with the word 'YEARS' written in a smaller font directly below it.

50
YEARS



lubrimetal
www.lubrimetal.com

31 March-04 April

←←←
for repeatability and shape. The standard machine is formed by two reversible bending units, assembled on their longitudinal movement chart; one central unit for the piece manipulation to clamp it and to realise tri-dimensional bending.

The standard machine can be added to the main modular unit with wire advancing from the coil with the traction system. It's a simple system that takes advantage of the run of the right movement unit.

The modular motorised advancing unit allows the wire advancing, but at much higher speed. It is required when the cycle time must be as short as possible.

The revolver straightener group (modular) is extremely important when you change the diameter of the wire you are working with often. The chamfering unit (modular) works the piece heads (chamfering, trimming, holding), while the adopted 'method' allows perfect chamferings without slavers.

Butt welding. This unit affects the butt welding of the frames formed in plan or tri-dimensional.

The butt welding can be affected without slavers or swellings if the chamfering operation is affected before the butt welding. When the machine has to work without the butt welding, the operation is automatically removed.

The second cutting unit (modular) has two functions: Piece cutting when the machine works with the single head method (for the manufacture of small pieces when it is necessary to work with a single head); when the piece configuration allows it, the machine can produce double pieces formed at the same time with the right and the left bending units. In this case the 'second cutting unit' cuts the two pieces before they are unloaded.

The result is a double production, and/or the production of one right and one left piece at the same time. Other modular units include stamp and /or marking unit; radius calibration unit; small bars automatic loader; automatic centring for electric heaters; extra bending unit; special tools; net connection; MONCAM automatic programming.

Montorfano sas - Italy
Fax: +39 031 716598
Email: bendingmachines@montorfano.net
Website: www.montorfano.net

Neptco Inc
9 E41

Neptco manufactures a wide range of flexible and rigid strength elements for fibre optic cables, as well as multi-ply shielding tape

laminates; low-smoke shielding tapes; heat seal and pressure-sensitive coated films and laminates; foil-free edged tapes; screening tapes; separator tapes; barrier/binder tapes; slit films; and printed marker identification tapes.

New products include water blocking tapes and yarns, and non-woven, semi-conductive power cable tapes. Brand names include: Lightline®, Fiberbundle®, Flexline®, Araline®, and InstantDry® strength members and Firefite®, High-Draw®, Slicktape®, AquaBlok® and Powerline® tapes.

Araline, the newest offering in semi-rigid strength members, combines tensile strength with enhanced flexibility for extremely small diameter cables, and is suitable for many fibre-to-the-home applications.

Since 1953, Neptco has engineered materials for commercial, industrial and military applications, including advanced polymeric coatings and laminates of film, foil, fibre, paper, and non-wovens. Neptco offers contract manufacturing and product design services, with in-house capabilities for coating, laminating, printing, slitting and weaving at its ISO 9001:2000 certified plants.

Neptco Inc - USA
Fax: +1 401 722 6378
Email: neptco@neptco.com
Website: www.neptco.com



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NOVEMBER 9 TO 12, 2008

SUBMITTAL REQUIREMENTS

If your work is of interest to the worldwide wire and cable industry, then it should be presented at the IWCS Conference™, organized by the International Wire & Cable Symposium, Inc. Past article topics have included cable, fiber and conductor design, new cable materials, processing and manufacturing developments, network demands, assembly and installation techniques, cable components, connectivity, market studies, testing and standards.

Abstracts are invited from industry or academic professionals, from any geographic location, who are engaged in the wire and cable industry. Acceptance of abstracts will be based on originality, content, applicability, market interest and clarity. Papers submitted on accepted abstracts will be published in the 57th IWCS Conference™ proceedings. All authors will present their work, in either oral or poster presentation, at the IWCS Symposium portion of the 2008 conference. For academic and/or research papers, a special peer review procedure is available for a post-conference publication. In addition, the following awards will be given: Outstanding Technical Paper, Outstanding Poster Paper and Best Presentation. IWCS also invites papers on topics of interest to the wire and cable industry, but which do not meet the originality conditions, with those papers similarly being presented and included in the proceedings of the conference.

COMPONENTS OF THE IWCS CONFERENCE

In addition to the papers presented in the IWCS Symposium portion of the conference, there are many other components to the conference that make it the world's premier venue for exchange of new and original wire and cable industry technological and trends. These components include the following:

Plenary Session: Featuring speeches by distinguished business and technological leaders in the worldwide wire and cable industry as well as presentation of awards for Outstanding Technical paper, Outstanding Poster Paper and Best Presentation from the 2007 conference.

Executive Forum: Important presentations by key industry analysts and market experts, panel discussions on topical business aspects of the industry, a keynote speaker and networking opportunities for industry executives and senior leaders for around the world.

Focus Suppliers' Exhibition™: An exhibit of more than 120 of the world's leading suppliers of materials, accessories and machinery used for making wire and cable.

Professional Development Courses: A certification program featuring required Core courses (offered annually) and Elective courses selected from a series of more advanced topics (offered approximately every two years). Courses offered last year are shown below, with each of the Core courses bearing the 101 designation.

New Product Presentation: An opportunity for industry suppliers to report on new commercial products in the areas of materials, accessories and machinery used to make wire and cable.

Networking Opportunities: In the hotels, the hallways, restaurants and the company events.

**ABSTRACTS MUST BE SUBMITTED THROUGH THE IWCS WEBSITE,
WWW.IWCS.ORG**

FURTHER INFORMATION AT:

International Wire & Cable Symposium, Inc.

Telephone: +1-732-389-0990; or Patricia "Pat" Hudak at phudak@iwcs.org

31 March-04 April

Nevatia Steel and Alloys 11 D69



▲ Stainless steel wires for a wide range of uses

Nevatia Steel & Alloys Pvt Ltd, an ISO-9001 accredited company, manufactures stainless steel wires. With the addition of new facilities this year, total capacity has been increased to 9,000mt per year.

The company exports 90 per cent of its products to more than 35 countries, including Argentina, Australia, Austria, Canada, France, Germany, Italy, Korea, Poland, Turkey, UK and the USA.

They are made in a variety of grades and sizes, ranging from 0.10mm to 10.0mm diameter,

having demanding applications in making round springs, screws, nails, sieves, wire mesh, fasteners, staples, wall ties, kitchenware, EPQ for baskets and trolleys, filler wire and electrodes.

They are also used diversely in automotive, marine, petrochemical, food and the paper industries. Products include: stainless steel wires for usage in braiding, knitting and weaving; cold heading; redrawing; spring manufacture; electro-polish application; free cutting and welding; general purpose, i.e. staples, chains, filters, scrubbers, wall ties; stainless steel wire rods; stainless steel bright round bars.

Nevatia Steel & Alloys Pvt Limited – India

Fax: +91 22 24931336

Email: sales@nevatiasteel.com

Website: www.nevatiasteel.com

Newtech Srl 9 B75

Based in the north of Italy, Newtech designs and manufactures machinery for magnet wire production. The company's new space-saving Mate enamelling lines are completely



▲ Newtech range – designed for 'plug and play'

automatic, giving high speeds and excellent performance, and designed for 'plug and play' operations avoiding expensive down time. Installation time is minimal and has been reduced to a few days for commissioning and start up.

Production range consists of several models of machinery, all of them single line: Mate H 10- 25/2, (range 0.10- 0.25mm); Mate H20-50/2, (range 0.20-0.50mm); Mate H 30-100/2, (range 0.30-1.00mm); Mate H 50-120/2, (range 0.50-1.20mm); Mate V70-220/2, >>>



machinery for electrical cables

Solutions for Cable Industry

Stranders

Bunchers

Coiling machines

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Rod Breakdown machines

Rubber and CV lines

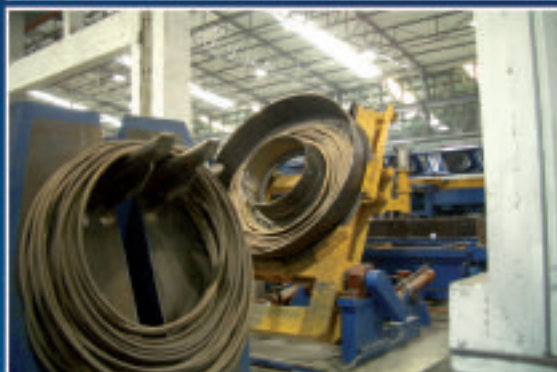
Insulation and Sheathing lines



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31 March-04 April

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(range 0.71-2.20mm); Mate V100-300/2, (range 1.00-3.00mm); Mate V150-400/2, (range 1.50-4.00mm); Mate V200- 500/2, (range 2.00 - 5.00mm); R 40 /2, (range rect wires up to 40mm²); R 64 /2, (range rect wires up to 64mm²).

Newtech Srl - Italy

Fax: + 39 0321 442466

Email: info@newtechco.191.it

Website: www.newtech-web.com

Nexans Deutschland Industries GmbH & Co 9 C41

With energy cables as its core, Nexans offers an extensive range of cables (copper, aluminium and optical fibre) and cabling systems. The group's strategy is focused on infrastructure, industrial and construction markets.

Nexans develops solutions for industry sectors such as shipbuilding, oil and gas, nuclear, automotive, electronics, aeronautics, handling and automation and includes an offering dedicated to public and private (local area) telecommunications networks. With an industrial presence in more than 30 countries and commercial activities worldwide, Nexans employs 21,000 people and had sales in 2006 of €7.5 billion.

Nexans Germany benefits from being fully integrated into the Nexans Group with its excellent opportunities to use the available synergies in all corporate fields. This not only applies to worldwide projects but also to research and development, the exchange of know how, and other areas.

Development, design and production of special machinery for cable and pipe manufacturing have a long tradition in Nexans. The starting point for this important business line was the development of the universal welding machine UNIWEMA® more than five decades ago.

A whole family of machines for a great variety of products was created on the basis of this technology. Today, Nexans' business group 'production lines and technology' offers both a range of machinery and products for applications in cable (micro tubes for optical ground wires, high voltage cable, high frequency cable, submarine cable) and pipe production.

Nexans also presents its business-group 'bare conductors' - a major supplier of bare, tin-plated, silver-plated and nickel-plated conductors for cables. Moreover the two production-units manufacture bare wires out of oxygen-free copper and copper-silver alloys especially designed for mechanical applications.

Nexans Deutschland Industries GmbH & Co KG - Germany

Fax: +49 511 676 3777

Email: uniwema.tech@nexans.com

Website: www.nexans.de

Maschinenfabrik Niehoff GmbH & Co KG 10 C18

Niehoff will unveil a complete new annealing and pre-heating technology for the inline production of data and telephone wires.

This technology realised in an MT200 data and telephone wire drawing line with integrated R170 inductive continuous annealer offers higher product quality at lower operating cost.

Another new product is the opto-electronic traversing device which works with two laser control systems.

A D631 double twist bunching machine will be equipped with it. The bobbins are filled perfectly, and the bunches can be payed off at very high speeds with no risk of being damaged. >>>>

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Wardwell Europe GmbH
Berlin / Germany
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www.wardwell.com

31 March-04 April



▲ MMH type multi-wire drawing machine with integrated RM type continuous annealer

Niehoff will also present:

- MT200 data and telephone wire drawing machine with integrated RI170 continuous annealer
- MMH multi-wire drawing machine with RM type continuous annealer
- D631 double twist bunching line with new opto-electronic auto traversing system
- newly designed high speed bobbin winding machine DSA with CS630 spool pay-offs for multi-wire bundles
- double twist strander DSI631 with back twist pay-off ARD630 and longitudinal tape pay-off ALB600
- 24-carrier high speed braiding machine BMV24 with a BAS800 take-up and pay-off unit

Maschinenfabrik Niehoff GmbH & Co KG – Germany
Fax: +49 9122 977 155
Email: info@niehoff.de
Website: www.niehoff.de

Nova Srl
11 A69

Nova specialises in machine engineering, design and manufacture for the wire and cable industries. The company's range of products includes: double twist bunching machine, double twist stranding machine, double twist pairing and quadding machine, pay-off, take-up, rewinding line, taping head, rigid cage stranding machine, planetary machine, tubular machine, caterpillar and tension equaliser.

Nova Srl – Italy
Fax: +39 039 6985321
Email: nova@novait.it
Website: www.novait.it

Nowofol Kunststoffprodukte GmbH & Co KG
12 C56

Nowofol manufactures mono-oriented Polypropylene films in solid, foamed or co-extruded versions (flat-die-extrusion).

These films are mainly used for strapping tapes, tear tapes, handles, separating foils,

bunching and insulating of electric cables, decorative ribbons, labels and banding tapes. This is in addition to special film qualities (mono-oriented, un-oriented and co-extruded) out of Polypropylene and other Polyolefins for membranes in loudspeakers, tennis rackets, film processing, and reinforcement-strips for plastic covers.

The production programme includes fluoroplastic films out of ETFE, THV, PVDF, PFA and FEP, which are sold under the trade name Nowoflon®. These are used in roofing construction, solar collectors, photovoltaic industry, chemical tubes, aircraft industry and much more high technical applications.

On display will be a variety of following film tapes for the electric cable industry:

- polypropylene film mono-oriented, compacted in a thickness range from 25-100 microns
- polypropylene film mono-oriented, foamed in a thickness range from 80-300 microns
- polypropylene film un-oriented, foamed, soft in a thickness range from 200-500 microns

These film tapes will be wound either as pads or as traverse wound spools in various slitting widths.

The minimum slitting width is 8mm, the core inside diameters are 76 or 152mm, the outside diameters of the spools depend on the slitting width (max 500 or 600 mm for pads and 380mm for traverse wound spools).

Nowofol Kunststoffprodukte GmbH & Co KG – Germany
Fax: +49 8662 660250
Email: info@nowofol.de
Website: www.nowofol.de

OMA Srl
10 A17

With 50 years' experience, OMA Srl can call itself a specialist in the manufacturing of braiding machines for wire or yarn reinforcement, as well as automatic and semi-automatic winding machines, pay-off and take-up units, yarn and wire spiralling machines, wrapping/unwrapping machines and complete lines for rigid or flexible mandrel large bore rubber hoses.

OMA will provide full information on its wide range of hi-tech machinery, share ideas and discuss any new products or developments.

OMA will show, in particular, the new braiding machine type 24/1-170 M/EC, with the new OMA bobbin type 170 M (diameter 75 x 176mm), ideal for braiding a wide variety of wire and textile products, for round, tubular or flat braid. The 170 braiders will be available with a wide number of carriers: from 3 to 120. This new braider size represents the best compromise between the braiders type 140 and 190 in terms of speed and carriers



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<<<

capacity, allowing high production rates, low number of bobbin changes and reduced machine downtime.

OMA will also display the braiding machine type 16/104 HCM/C, designed to satisfy each customer's needs in terms of flexibility, reliability and speed. Its main applications are wire and cable, such as coaxial, antenna, computer, etc; shielding of wire and cables; catheters and medical products; small reinforced products; glass and composite fibre products.

The company will also present the new carrier type 140FT/PG on a 16/1-140 FT/EC braiding machine, the ideal combination for aramid and polyester yarn for thermoplastic and rubber hoses reinforcement.

OMA Srl - Italy
Fax: +39 039 608 4571
Email: oma@omabraid.it
Website: www.omabraid.com

OM Lesmo SpA 11 A28

OM Lesmo has recently delivered the largest double twist strander in the market, suitable for take-up reels up to Ø2,500mm, to obtain strands up to 61 wires for low and medium voltage. This is a new alternative to the conventional stranders.

Advantages are higher productivity, shorter loading times, improved overall efficiency and, above all, quicker return on the investment.

OM Lesmo has produced double twist stranders for more than 30 years. In the last 15 years this type of machine has been used for up to 37-wire strands.

Now, with an original and dedicated approach, the new machine has the following general specification:

- technology: double twist with external capstan (single twist process)
- take-up reel: up to Ø2,500 mm flange
- max number of wires: 61
- max cross section of the obtained products: 500mm² Aluminium, 240mm² Copper
- suitable for low and medium voltage products

The performance of the machine is remarkable: the real working speed is 300 to 600 twists per minute, the production speed can reach 120m/min, and the time to reload the take-up reel is 10 minutes.

OM Lesmo - Italy
Fax: +39 039 6981148
Email: omlesmo@omlesmo.com
Website: www.omlesmo.com

OMR Srl 10 C63

OMR will present a new series of motorised creels and automatic winding machines for wire winding prior to the braiding process.

The machine features a new control system permitting simple management and uncountable adjusting possibilities with 100 programmes which can be memorised.

All can be connected to a computer to set and unload the production data by RS232 serial line and the interface for connection to an external modem for guide assistance.

OMR srl - Italy
Fax: +39 03536 0354
Email: info@omr-srl.com
Website: www.omr-srl.com

Otomec Srl 11 B28

Otomec manufactures customised cleaning and plating plants for the wire, cable and strips industry.

Clean wire is vital to improve drawing speed and final quality level, while an electro-plated surface (zinc-tin-nickel-brass-silver) is required to match the high-level standards for wire and strip technology, like extended life to corrosion, improved power transmission, and facilitated lubrication.

This also helps with cost-saving procedures such as forming final products (springs, rivets, buckets etc) directly from plated material.

Through a wide range of machines, sized to perform small volumes of products as well as large outputs, single or multi-strand, reel to reel, speed up to 20m/sec, Otomec is able to provide you with the necessary equipment.

Of particular interest are:

- Model OTO 5 - patented modular, multi-functional plant for in-line preparation of iron wire rod
- Model OTO4 - complete plant for the electro-plating of steel and non-ferrous wire
- Model OTO'FF LINE - reel to reel or basket plant for copper, brass, stainless steel, carbon steel, superconductor, alloys, fine tubes
- Model OTO2 - in-line coppering of 5mm maximum wire - speed up to 20m/sec

Otomec Srl - Italy
Fax: +39 0341 660249
Email: service@otomec.it
Website: www.otomec.it

31 March-04 April

Paganoni (Mario Nava SpA) 10 C71

Paganoni is acknowledged globally for the following products:

Kerblack® - a coating based on chrome oxide

Wolside® - a coating based on special tungsten carbides

Kersint® - sintered ceramics based on zirconium oxide-based components and other special mineral compounds

Nicksint® - a coating based on nickel

These are special solutions by Paganoni (Mario Nava SpA), a specialist in wear resistant coatings on mechanical parts for drawing machines since 1975.

The exceptional wear-resistance of materials allows drawing of any kind of metal wire, ferrous and non-ferrous, with excellent results in terms of life and quality of the end product.

In 2007, Paganoni, a division of Mario Nava SpA, purchased a new manufacturing building: a brand new hall in Annone Brianza, a few kilometres from the headquarters in Bosisio Parini. The new installation boasts a covered surface of 3,000m².

Paganoni (Mario Nava Spa) - Italy

Fax: +39 031 876 210

Email: info@paganoni.it

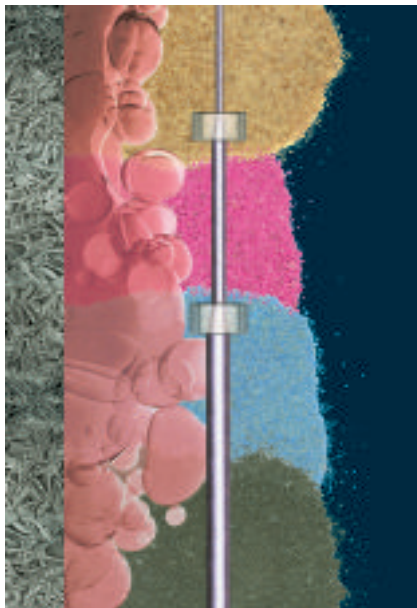
Website: www.paganoni.it

Pan Chemicals 9 E32

Pan Chemicals produce special drawing lubricants and coatings for ferrous-non ferrous and stainless steel wire and equipment for the wire industry.

The production programme includes:

- Dry drawing lubricants for low carbon steel wire, plating quality wire, welding wire, CHQ, high carbon steel wire, drawing after galvanising and high alloyed steel
- Wet drawing lubricants: Soluble lubricants, neat oils and greases
- Products for surface treatment: Phosphate coatings, non reactive pre-coatings, precoatings for stainless steel
- Auxiliary products for: Degreasing, surface treatment, pickling of stainless steel, special applications



▲ Special drawing lubricants and coatings from Pan Chemicals



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31 March-04 April



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Pan Chemicals SpA – Italy

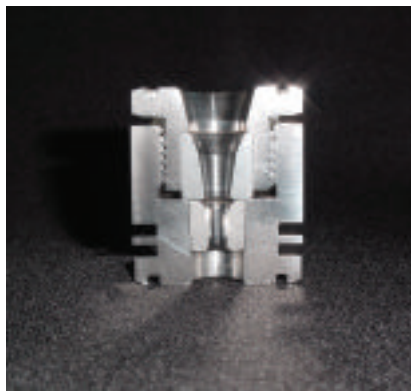
Fax: +39 0359 77488

Email: info@panchemical.com

Website: www.panchemical.com

Paramount Die Company 10 D37

Paramount will be exhibiting its full line of wire drawing die inserts and insert holder systems. Wire die inserts are used in reusable holders and eliminate conventional steel casings. A wide range of inserts will be exhibited covering diameters from 0.20 to 38.00mm.



▲ Wire drawing die inserts from Paramount

Both ParaLoc and ParaCase insert holders will be exhibited covering virtually all die box sizes in both pressure and non-pressure applications. Also exhibited will be new insert designs for large diameter wire and bar drawing.

Paramount Die Company – USA

Fax: +1 410 272 6559

Email: sales@paradie.com

Website: www.paradie.com

Pentre Group 9 E25

Pentre Group, incorporating Hearl Heaton, offers both machinery manufacturers and the wire and cable producers a large selection of reels, drums and associated handling ancillaries from a single source.

The company provides designs, manufactures and supplies on an international basis, a comprehensive range of high speed – steel and plastic ABS process reels, plywood, MDF and cardboard reels, wholly moulded plastic spools, formers, steel and wooden – shipping reels and drums.



▲ Reels and drums from the Pentre Group

Pentre's whole operation is focused on developing technically advanced processing solutions for today's new modern and high-speed wire and cable manufacturing plants, including those incorporating the latest robotic handling systems.

Pentre's process reels and drums range in flange diameter from 100mm (3.9") to specialist drums weighing up to 40 tons, (which have been designed to carry 260 tons of umbilical cable) and complement a comprehensive range of fully machined and dynamically balanced, precision steel reels.

Pentre Group – UK

Fax: +44 1924 400 803

Email: info@hearlheaton.co.uk

Website: www.pentre.dk

Phifer Incorporated 10 A37

Phifer Incorporated manufactures aluminium round wire for a wide variety of applications. With some of the most diverse capabilities in the industry, can produce custom aluminium round wire from numerous alloys in diameters from 0.11mm-11.1mm.



▲ Range of diameters of aluminium wire

Phifer aluminium wire, 0.127mm, 0.16mm, 0.254mm and 0.32mm (0.005", 0.0063", 0.0100" and 0.0126") are used all over the world as coaxial cable braid shielding, shipboard cable armouring and hose braiding.

Other applications include, but are not limited to, weaving wire, industrial knitting, tea bag staples and semiconductor bonding. Newer products include copper clad aluminium, low carbon steel and bronze wire 0.127mm-0.50mm (0.005"-0.020").

Available packages for fine diameter wires include multi-end braider bobbins and numerous returnable and disposable spools 0.34kg-14kg (0.75lb-30lb).

Phifer aluminium wire is also offered in larger diameters 0.81mm-11.1mm (0.032" to 0.4375") for use in wire forms, food packaging clips, automotive molding reinforcement, vacuum metallising and more.

Innovative machinery has expanded and improved Phifer's selection, especially for manufacturers of rivets, staples and other fasteners.

Chemical processing and cleaning is offered for improved appearance and enhanced performance. Packages include coils and stem carriers from 14kg-680kg (0.032" to 0.4375"), fiberboard drums, and over 40 spools and reels.

Phifer Incorporated is ISO registered and employs a large international sales staff fluent in many languages. Phifer exports to more than 100 countries and holds the Presidential 'E' and 'E-Star' awards for export excellence.



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MAUTOMATIC 300 EVOLUTION
MAUTOMATIC 350 EVOLUTION
MAUTOMATIC BOX MATIC

High productivity automatic coiling lines suitable for flexible and non-flexible/rigid cables, with the option of packaging the coils with thermo-shrinking film, cardboard boxes or both. The line MAUTOMATIC 350 EVOLUTION also allows the packaging of multi-conductor cables up to 8,5 mm (0,335") diameter as well as flat cables.

The line feed can be made either from flyer pay-off or from a driven pay-off. The cable passes through the length measuring device and then through a spark tester for the insulation quality control: if the spark tester detects a defect, the coil is automatically expelled from the production cycle, while the packaging operation restarts immediately.

After passing through the spark tester, the cable proceeds to the coiling head where there is a traversing unit for winding the cable.

The feeding of the cable under the winding core and the cutting at the pre-set lengths, the extraction of the coil from the coiling head and the subsequent movement of the coil to the strapping unit, to the packaging station with thermo-shrinking film or to the automatic boxing station are all sequenced in automatic mode.

All these lines are comprised of standard component parts that can be easily configured according to the specific requests of the client and the availability of space in the plant. It is possible to add further accessories in order to obtain personalized and tailored plant configurations according to the individual client's expectations.



MAUTOMATIC 400 EVOLUTION
MAUTOMATIC 500 EVOLUTION
MAUTOMATIC 620 EVOLUTION

Automatic coiling lines suitable for flexible and non-flexible/rigid cables up to 30 mm – 1,181" O.D. (maximum cross section 95 sqmm-0,147 sq.inch.).

A self-alignment driven pay-off feeds the horizontal or vertical accumulator (with accumulation capacity of 80 m-262' or 110 m-361').

The cable then passes to the lamp and neck down detector, length measuring device and spark tester.

Coil can be strapped with diametrical strap or two/four toroidal straps and then moved to the packaging stations where it is thermo-shrink wrapped, labelled and palletized. The palletizer places the coils on the pallet taking into due consideration the best stability of the load and filling of the pallet's surface.

Special Improvement for MAUTOMATIC 400 EVOLUTION: thanks to a special device designed by EFAT the cable tail is placed under the coil by keeping the perfect cylindrical shape avoiding in this way the strapping operation.

MAC

MAC is the automatic coiler designed in order to satisfy the requirements of small and large cable producer companies that have to package many different types of cables in small quantities. The wire can be supplied to the line with a flyer pay-off or a portal pay-off with vertical accumulator.

At the exit of the coiler there are three possibilities:

- Toroidal or diametrical manual strapping machine;
- Diametrical automatic strapping machine;
- Automatic packaging with thermo shrinking film.

It is also possible to insert in the line customers existing pay-off units or thermo shrinking stations. The electronic system is control by a Siemens S7 PLC with a Siemens Touch Screen. The Automatic Coiler MAC 400 is very compact. In fact, the dimensions are 2220 mm x 1910 mm x 2400 mm covering a space not much more than 4 m².





31 March-04 April



Manufacturing and corporate offices are in Tuscaloosa, Alabama, USA, and warehousing/sales offices operate in California, Florida and Italy.

Phifer Incorporated – USA
Fax: +1 205 759 4450
Email: info@phifer.com
Website: www.phifer.com

Pressure Welding Machines 9 B41

British manufacturer PWM, which designs and manufactures high performance cold welding equipment and dies for the world market, will exhibit its full range of manual and powered welders. Visitors will be able to view the cold weld technique and try out the machines for themselves.



▲ Try your hand at cold welding, thanks to PWM

PWM manufactures machines for a variety of applications, with the range including small hand-held, manual machines, bench-mounted and portable trolley-mounted models and large, freestanding rod welders. Clean, 'green' and economical to operate, all PWM welders use the multiple upset technique to effect a fast, reliable weld on non-ferrous materials, without heat, flux or fillers. No fumes are generated, no set-up time is required and the weld created is stronger than the parent material.

PWM will present upgraded versions of its best-selling HP100 and HP200 welders. Equipped with ergonomically designed trolleys with sloping platforms to give the operator a clear view of the weld area, these portable air/hydraulic powered machines provide an effortless weld on copper/aluminium wire and strip from 1.00 to 6.50mm diameter. The head of the HP100 model can be detached from the trolley, enabling welding to take place where

space is very limited. Power consumption is minimal: the machines only require a supply of compressed air. A new automatic version of the HP100 will be launched at the show.

PWM's hand-held, manually operated models, the M10, M25 and M30, are all comfortable to hold and simple to use. With capacities ranging from 0.10mm to 1.80mm, these machines are ideal for welding wire quickly in confined spaces. Larger manually operated models on show will include the durable bench-mounted BM10 and BM30, and the M101, a versatile machine which can be bench-mounted or supplied with a trolley, enabling it to be wheeled directly to the weld

location. A pneumatic version of the M101, the P101, is also available.

Large capacity rod welders include the powerful electro/pneumatic EP500, with a capacity of 5.00 to 12.50mm copper and 5.00 to 15mm aluminium, and the compact pneumatic P1000, capable of welding rod sections up to 16.00mm copper and 20.00mm aluminium. Power consumption is minimal and these machines are dependable and easy to operate.

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Propack SpA 13 A70

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Propack SpA - Italy
Fax: +39 011 950 7808
Email: export@propackgroup.com
Website: www.propackgroup.com

Proton Products Europe NV 11 D77

Proton Products will exhibit its entire range of instrumentation and machinery including high frequency induction wire pre-heaters, models PH160, PH300 and PH450, laser diameter measuring equipment, capacitance monitors, spark testers and laser non-contact cable length measuring equipment.

For integration into modern lines, all equipment is now available with either profIBUS or deviceNET Comms.

The inteliSENS laser doppler non-contact length measuring unit will be demonstrated and exemplary case studies that resulted into material savings selected from more than 1,000 units installed at major cable factories in Europe, Russia and the Middle East will be highlighted by Proton personnel.

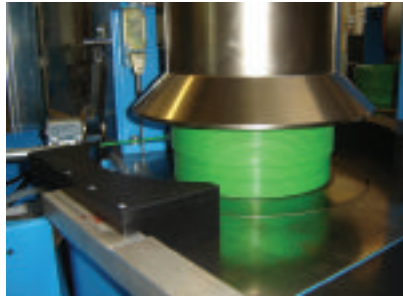
Proton Products Europe NV - Belgium
Fax: +32 52466 313
Email: d.buelens@protonproducts.com
Website: www.protonproducts.com

PS Costruzioni Meccaniche srl 10 B21

PS automatic coil winding lines can work as either a slave to the extruder (online) or as an autonomous final station.

By using a selector-switch you can choose either the first or the second system.

PS automatic coiling lines are equipped with strapping machines, thermo-shrinking tunnels, boxing machines, stackers and palletisers.



▲ *Designing and manufacturing packaging plants since 1960*

A breakdown of the lines includes:

PS 470/16: Suitable for flexible cables from 5mm (0.20") up to 16mm (0.63") diameter; solid cables from 5mm (0.20") up to 10mm (0.39") diameter with a production of 3.5 coils 100m (328.08ft) long per minute. It can also wind flat cables and can be equipped with automatic tension control for telephone cables.

PS 600/25: Suitable for flexible cables from 8mm (0.32") up to 25mm (0.99") diameter; solid cables from 8mm (0.32") up to 20mm (0.79") diameter with a production of 2.5-3 coils 100m (328.08ft) long per minute. >>>

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MATE V 100-300	(1,00 - 3,00 mm)
MATE V 150-400	(1,50 - 4,00 mm)
MATE V 200-500	(2,00 - 5,00 mm)
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31 March-04 April

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PS 750/30: Suitable for flexible cables from 8mm (0.32") up to 30mm (1.18 in) diameter with a production of 2.5 coils 100m (328,08ft) long per minute.

PS Costruzioni Meccaniche has been designing and manufacturing wire and cable packaging plants since 1960.

PS Costruzioni Meccaniche srl – Italy
Fax: +39 039 6898769
Email: ps@pscostruzioni.com
Website: www.pscostruzioni.com

QED Wire Lines Inc 12 A53

QED specialises in equipment for heat-treating, cleaning and coating of steel wire. Custom designed and built, the high speed lines are for galvanising, Galfan®, patenting, annealing, tire cord and bead and oil tempering processes.

Combining innovative design concepts with more than 25 years' experience, the company has developed a range of products and equipment that is both technologically advanced and dependable.

The FastHeat™ Fluidbed offers increased furnace efficiency with a newly developed 'production proportional algorithm' on PLC controlled furnaces.

The algorithm provides tighter control of fluidisation rates in proportion to changing production loads.

This latest development compliments an already excellent furnace package that leads the industry in design and reliability.

QED provides high speed cleaning and de-scaling solutions with its HighTurbulence® pickling system. Constructed of quality composite materials, this fumeless system provides an environmentally friendly replacement for older baths.

The patented special nozzle configuration produces highly turbulent acid throughout the processing tray that greatly accelerates the pickling process, permitting much shorter immersion lengths.

The multiple stage design uses the acid more efficiently, resulting in lower acid and waste treatment costs.

Together with energy efficient ceramic lined immersion burner galvanising furnaces, QED offers advanced wiping systems.

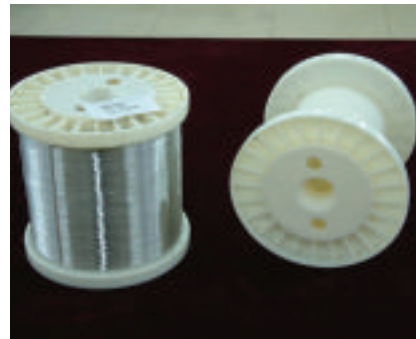
Both vertical pad wiping and the latest generation Nitrogen wiping systems are available in modular units, assuring high wire speeds and production flexibility.

QED Wire Lines Inc – Canada
Fax: +1 450 458 0200
Email: sales@qedwire.com
Website: www.qedwire.com

Qinhuangdao Yanda-Guohai Stainless Steel Co Ltd 13 A68

Qinhuangdao Yanda-Guohai Stainless Steel Co Ltd is a leading Chinese manufacturer of stainless steel wire.

The company can supply stainless steel wire of 300 series, 400 series and 200 series ranging in diameter from 0.14mm to 5.0mm.



▲ Stainless steel wire

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3



4



5

1

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3

23 Wet drawing machine

4

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6

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Email: jstl@vip.163.com

cellphone: 0086-13905264693

website: www.jsjintai.cn



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31 March-04 April

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Yanda-Guohai's products are available for weaving, knitting, re-drawing, braiding and welding. The most common used alloy is 304, 304L, 316, 316L, 308, 308L, 309.

Qinhuangdao Yanda-Guohai Stainless Steel Co Ltd – China
Fax: +86 335 850 1152
Email: renaliu@yandaguohai.com
Website: www.yandaguohai.com

Queins & Co GmbH 9 B04

Queins and Co manufactures a range of new machines for tubular stranders; rigid stranders: disc-type design; rigid stranders: fork-type design; rigid stranders: fast-loading design, by rows; planetary stranders; power cable drum twisters; telephone cable drum twisters; armouring lines; bow twister machines; skip stranders; pay-offs and take-ups.

In addition to this, the company also manufactures rewinding lines; belt-type caterpillar capstans; single and double-disc capstans; rotating caterpillar capstans for drum twister lines; taping heads for plastic and steel tapes; transposed wire machines and Kevlar serving lines. The company also provides reconditioned stranding machines, extrusion lines, sheathing lines, drawing equipment and PVC compounding plants.

Queins & Co GmbH – Germany
Fax: +49 2472 3014
Email: info@queins.com
Website: www.queins.com

Radyne IHWT 9 C26

Radyne specialises in providing innovative and cost effective solutions for a wide variety of wire processing applications.

These can be major turnkey wire production systems or the basic upgrading of an existing wire processing line.

Radyne has the proven technology and the applications knowledge to improve your heat treatment process, setting the standard for induction heating technology when applied to the production of spring steel wire including SAE 9254 and 55CrSiV to international standards.

Visitors to the Radyne stand will have an opportunity to discuss the latest high speed, continuous running spring wire lines. These are designed to produce up to 3 tonnes/hour meeting stringent environmental standards with no oil quenching and no combustible fuels.

Radyne IHWT – UK
Fax: +44 1256337715
Email: sales@ihwtech.co.uk
Website: www.ihwtech.co.uk

Rautomead Ltd 10 E56

Continuous casting technology specialist, Rautomead Limited, of Scotland, will be promoting technology for continuous casting of copper magnesium alloy rods and EDM brass wire.

Trolley Wire for high speed trains: Rautomead graphite furnace technology offers specific advantages for the manufacture of large diameter high quality copper magnesium wire rods.

Copper-magnesium, with its balance of good electrical conductivity and high tensile strength, is the preferred material for overhead wires and cables for high-speed trains in many countries. Rautomead machines have been used for many years in Europe for the manufacture of copper magnesium rods.

Electric discharge machine wire: In addition to copper-magnesium trolley wire production, Rautomead will also be demonstrating its capabilities in the manufacture of brass EDM wire rod casting technologies.

The company has always specialised in technology that achieves near-net-shape in the casting process, thereby eliminating



▲ Rautomead – promoting technology

some of the intermediate process steps associated with traditional manufacturing routes and reducing manufacturing costs.

In the case of EDM wire, 60:40 brass may be cast at 8.0mm diameter for drawing and processing to finished wires.

Rautomead will also be promoting standard casting technology for the manufacture of high quality CuOF wire rod 8.0 – 30mm diameter, 3,000-30,000 tons per year.

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Website: www.rautomead.com

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31 March-04 April

Ravni Technologies 12 D60

The new MD20-X straightening and cutting machine from Ravni Technologies cuts within a range of 1.8-6mm and variable speed from 30-130m per minute.

All the functions are on a user friendly panel which follows the different stages of the production process in detail. Each module has its own motorised system with one electronic speed variator.

The first feeding module includes the lubrication of the wire. The lubricant is recovered and recycled thanks to a full integrated device. It makes the straightening operation easier, and the wire surface cleaner and increase the tools life.



▲ The MD20-X

An independent encoder measures the lengths and the tolerance level is +/-0.3mm over 3 metres.

This machine has a special feature which checks the length of the cut bars and discards any bar that doesn't correspond to the given requirements. Thus, meshes never have wires that are too short.

Four motors are installed on the MD20-X, and the spinner is moved with a servo-motor. The frame of the machine is in two parts. The upper table is put on special devices to suppress the vibrations and the noise level.

As with all Ravni machines, the MD20-X is fitted with a fast tool changer. The preset straightening tools allows time savings and wire at every diameter change.

Ravni Technologies - France
Fax: +33 477 90 5865
Email: info@ravni.com
Website: www.ravni.com

Redies Srl 12 B16

Redies Srl has been producing carbide and diamond dies (both natural and synthetic), as well as the machines and accessories for die working, for more than 25 years. The company is attentive to customers' needs and the choosing of different qualities of diamond blanks and carbide die nibs.



▲ Redies have been producing dies for more than 25 years

Particular attention is paid to the product qualities and to the die checking instruments. The laboratory is equipped to satisfy the most exacting requirements of the market, all expertly handled by the company's technicians.

Redies Srl - Italy
Fax: +39 0362 852078
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Website: www.redies.com

Reelx Packaging Solutions Inc 9 F06

Reelx Packaging Solutions will display its complete line of Reelx coiling equipment and ancillary equipment such as pay-offs, accumulators, and spooling machines will be on display via video screen.

Based upon a series of United States' and foreign patents that cover the equipment for making Reelx coils, the packaging elements of the Reelx package, and the Reelx coil itself, the system has proved popular, economical and an effective alternate to reels and spools for more than 25 years.



▲ Tangle-free wire packaging from Reelx

While originally only used for communication cables, Reelx and Reelx II packagers are now used instead of reels and spools in a variety of wire and cable products including LAN, CATV, signal and alarm, and fibre optic cables, hook-up wires, and many other constructions.

isolmax CONTACT
Mr Andrea Pilati
Mobile +39 338 890038

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31 March-04 April



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Rex Máquinas e Equipamentos Ltda 14 E39

Rex Máquinas develops a wide range of installations for heat treatments and supplies induction heaters, melting furnaces, industrial washers, loading systems and auxiliary equipment, including processing supervising systems and a range of furnaces for the aluminium industry.

Rex Maquinas also maintains technological partners in Europe, including companies in the furnaces industry.



▲ Brazilians Rex Máquinas e Equipamentos are heading for Düsseldorf

Those partnerships include Inserterc for aluminium, a company based in Spain; for forging and melting, it is Asp dpt Aces, located in France.

In Switzerland Rex maintains partnership with Codere S/A, which develops furnaces of the latest technology, and also in Switzerland with Econox, a manufacturer of control and atmosphere systems, probes and carbon potential controllers.

Rex Máquinas e Equipamentos Ltda – Brazil

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Website: www.rexmaquinas.com.br

Richards Apex Inc 9 F15-02

RichardsApex manufactures lubricants for wire drawing and hot rolling applications, with a range of products that include semi-synthetic and synthetic compounds for wet drawing of non-ferrous and ferrous wire.

Also available are protective coatings, cleaners, corrosion inhibitors, and oil form lubricants for all non-ferrous and ferrous alloys in both wire and tube applications.

Its core products are manufactured in the USA, Europe and Australia. More production capabilities are planned to go on line in 2008 in other strategically identified locations. With more than 105 years of history, RichardsApex has an established global sales network to service its customers.

Richards Apex Inc – USA

Fax: +1 215 487 3090

Email: sales@richardsapex.com

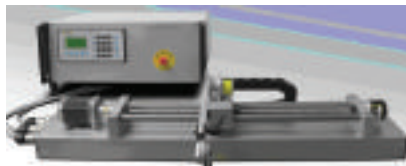
Website: www.richardsapex.com

Rigon Instruments Sas 9 F74

Rigon Instruments offers the whole range of enamelled wire testing equipment – thermal, chemical, electrical and mechanical test according to the relevant international regulations and customer requirements.

The company is displaying the latest of its automatic tangent delta tester mod TD1, capable of testing the whole range of round and strip wire in the same test block.

The main features are linear and logarithmic scale, single point measurement, multi-languages, comparisons, up to five tangent delta value calculation. There is also the computerised in-line high voltage continuity covering tester, which includes a surface smoothness control for heavy sizes. This apparatus allows tests from the beginning to end of the entire production for the presence of leakage in the insulation, pin hole and the uniformity of enamel applied on conductors.



▲ Automatic traverse system

The last development is the automatic traverse system that allows automatic wind up of any kind of reels, cables, magnet wire or optical fibres.

Rigon Instruments Sas – Italy

Fax: +39 01124 80012

Email: rigon@rigon.it

Website: www.rigon.it

Roblon A/S 9 9F41

An extremely flexible glass strength member and a high-speed server will be among the new products officially launched by cable solutions company Roblon.



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31 March-04 April



Roblon designers and developers will be among the Danish company's team at wire 2008, during which it will launch the new Roblon Glass Flex Strand strength member.

Extremely flexible, soft and wear-resistant, Roblon Glass Flex Strand strength member for optical fibre cables is suitable for use in servers and stranding machines.

A water-blocking version for dry optical fibre cables, Roblon WB Glass Flex Strand, will also be released in the spring.

The new Roblon HSLT will also be officially launched at the show. A combined high-speed, low-tension server which strands aramid and glass yarns around cable centres, it operates at speeds of up to 400 rpm.

The two new products will be showcased alongside other products from Roblon's cable machinery and industrial fibre range.

The industrial fibre product range includes glass and aramid strength members, standard and water-blocking binder yarns, tapes and ripcords.



▲ *New launches from Roblon*

The range of machinery for high-speed, high-precision cable production includes servers, binders, pay-offs and winders.

Roblon A/S – Denmark

Fax: +45 9620 3399

Email: info@roblon.com

Website: www.roblon.com

**Rosendahl
and Nextrom
9 A74**

Rosendahl and Nextrom are leading global suppliers of hi-tech wire, cable and fibre manufacturing solutions.

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▲ *First class products*

know-how and state-of-the-art technology in close cooperation with customers and product suppliers.

At wire 2008 in Düsseldorf they will present the latest advancements and technology highlights, including the latest extrusion, SZ stranding and metal tape forming technology for the production of energy and telecom cables.

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Email: info@rosendahlaustria.com

Website: www.rosendahlaustria.com

Nextrom OY – Finland

Fax: +358 95025 3003

Email: info@rosendahlaustria.com

Website: www.rosendahlaustria.com

**SAS Engineering
and Planning Srl
9 C56**

SAS Engineering & Planning's combined drawing line means technological value, reliability and ease of use.

The lines are equipped with twin cams, hydraulic carriages and hydraulic flying shears which make the lines able to work at a very high speed while maximum accuracy is guaranteed, in a working range from Ø 5mm up to 45mm.

The SAS combined drawing machine can be supplied complete with the most advanced accessories in order to obtain a totally automated line: pay-off group, pre-straightening device, chamfering machine, bundle strapping, weighing and handling: everything managed automatically.

The company takes customers through each stage of the process, while technical staff can provide instructions and solve problems worldwide.

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ACIMAF

HALL 11/STAND F21

The ACIMAF was founded in Brescia, Italy, in 1987 for the purpose of promoting the image of Italian technology in the sector of machines and products for the wire and cable manufacturing industry:

It is a non-profit voluntary association and plays an important international role of cooperation in improving the location and organisation of the major wire and cable trade fairs.

The ACIMAF also makes proposals and works constructively to improve coordination between its member companies and the Italian Trade Commission (ICE) and promotes marketing activity aimed at penetrating the markets of the more profitable geographical regions.

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Internet: www.acimaf.com



EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
Aeroel S.r.l.	09	B55
ASA-RT. S.r.l.		F74
Carlo Banfi S.p.A.		A76
Coremo Ocmea S.p.A.		F64
Danielli & C. Officine Meccaniche S.p.A.		A21
Eurotekn Industriale S.r.l.		B74
Cesare Galdabini S.p.A.		C75
Gloser S.r.l. Marketing & Technology		B75
H.T. Ceram S.r.l. H.T. Ceram Group		C51
Macchine Speciali S.r.l.		B48
New Tech S.r.l.		B75
Nuova Steelcom S.r.l.		B05
O.C.N. Officine Carpenterie Nerboni S.p.A.		C57
Pan Chemicals S.p.A.		E32
Samp S.p.A.		C74
SAS Engineering and Planning S.r.l.		C56
Sicme Italia Impianti S.r.l.		B14
Sictra S.r.l.		E60
SIF S.a.s.		C76
Acciaierie Valbruna S.p.A.		B05
Wardwell Italy		C42

EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
Beri Enrico	10	D28
Boffi S.p.A.		H67
Boxy S.p.A.		F55
Cerrini S.r.l.		F39
Cometo di Tocchetti Enrico & C. S.n.c.		D38
Delisi S.r.l.		H24
Federico Dick S.a.s.		F67
Easydur Italiana		E10
EFFEGIDI International S.p.A.		F65
Eldes S.n.c.		D28
Froma S.r.l.		H38
Gimax S.r.l.		B18
I.L.E.S. S.r.l.		E18
Ital S.r.l.		A22
Lariodesk Informazioni		D28
Lubrimetal S.p.A.		G62
Mazzoleni Trafflerie Bergamasche S.p.A.		C62
ME.P.LA S.r.l. Metallurgica Prodotti Laminati		D28
Metallurgica Invernizzi e Mutazzi S.p.A.		D28
Montorfano S.a.s.		H58
M + E Macchine + Engineering S.r.l.		H43
O.M.A. S.r.l. High Tech System		A17
OMD Officina Meccanica Domaso S.p.A.		E18
O.M.R. S.r.l.		C63
Paganoni	C71	
PS Costruzioni Meccaniche S.r.l.	B21	
Rodacciai S.p.A.	E37	
Sirio Wire S.r.l.	H43	
Tenova LOI Italimpianti	A61	
TFA Filinox S.p.A.	E09	
Officina Meccanica Trinca Colonel S.n.c.	A71	

EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
ACIMAF	11	F21
Alpaplastic S.n.c.		G57
Altec S.r.l.		H25
Angeli di Casadio Nerio & C. S.n.c.		H32
A. Appiani S.r.l.		G32
ATE Applicazioni Termoelettriche S.r.l.		C77
A.W.M. S.p.A. Automatic Wire Machines		A22
Cabmach		J85
CB Trafilati Acciai S.p.A.		D62
CEA Costruzioni Elettromeccaniche Annettoni S.p.A.		A31
Cogne Acciai Speciali S.p.A.		J25
Collari Edore		J31
Continuus-Properti S.p.A.		G40
Corbellini S.p.A.		D53
Cortinovis Machinery S.p.A.		G39
DEM Costruzioni Speciali S.r.l.		H27
E.E.I. Equipaggiamenti Elettronici Industriali S.r.l.		C77
Euroalls S.p.A.		D40
F.A.R. S.p.A. -Steelgroup-		D62
F.C. Automazioni di Cattaneo Ferruccio		D55
Frigeo		J65
Mario Frigerio S.p.A.		J65
GCR Eurodraw S.p.A.		A66
GEM S.r.l.		C18
Ghislanzoni Umberto S.r.l.		A43
I.T.A. S.p.A. Industria Trafilati Acciai		D62
Koner S.p.A.		A62
R. Lisciani Trafilerie S.r.l.		C74
Mario Frigerio		J65
Metallurgica Alta Brianza S.p.A.		D62
Novacciai S.r.l.		J25
Nova S.r.l.		A69
O.M.L. S.r.l.		J59
O.M.Lesmo S.p.A. Eurodraw Energy		A28
O.M.SA. S.r.l.		B21
Otomec S.r.l.		B28
Polifibra S.p.A.		A65
Progress Maschinen & Automation AG		B74
Rizzardi S.r.l.		J40
R.T.P. Paganoni S.r.l.		C21
Saxim S.r.l.		E77
Siel Sistemi S.r.l.		B66
S.P.S. S.p.A.		F26
Team Meccanica S.p.A.		G43
Tecna S.p.A.		B77
Tecniche Nuove S.p.A.	H01	
Tecnosider S.r.l.	A62	
Tecnovo S.r.l.	A62	
Teknodiam S.r.l.	A62	
T.M.I. S.r.l.	B22	
Trafco S.r.l.	J72	
Trafilerie San Paolo S.r.l.	B56	
Tramev S.r.l.	B54	
Travar S.p.A.	D58	
Varo S.r.l.	A43	
Vitari S.p.A.	D54	
Welding Wire Machineries S.r.l.	J39	
W.T.M. S.r.l.	E77	

EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
Acciai Speciali Zorzetto S.r.l.	12	C17
Trafilerie Brambilla S.p.A.		B60
Colata Continua Italiana S.p.A.		B52
Colata Continua Pisana		B52
Carlo Colombo S.p.A.		B52
Crosspolimeri S.p.A.		D35
EFAP - Engineering Future Automazione Flessibile S.r.l.		A51
EME Elettromeccanica Erbeso S.p.A.		D51
Euroalpha S.r.l.		C51
FA, IN Plast-Farotti Industrie Plastiche S.r.l.		D04
Gauss Magneti S.r.l.		D51
Lucchini S.p.A.		C37
Matter S.r.l.		D51
Nuova Tecno Tau S.r.l.		D77

EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
OMAS S.r.l.	11	C35
OMCG S.p.A.		D05
O.R.I. Martin S.p.A.		A23
Panatex S.r.l.		D03
Redies S.r.l.		B16
Solvay Padanaplast S.p.A.		B53
Trafileria Lariana S.p.A.		B14
Trafilix S.p.A.		D51
Van-Dies di Vanossi & C. S.a.s.		D51
VLPA. S.r.l.		D71

EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
Area Sistemi S.r.l.	13	D52
Aspe S.a.s. di Pipitone Loris & C.		F24
A.T.R. S.p.A.		B66
Auserpolimeri S.r.l.		B78
Caber Impianti S.r.l.		D30
Carbodies S.r.l.		D24
Carlo Salvi S.p.A.		E02
Cemsa S.p.A.		B84
Champs S.r.l.		F21
Condoroil Impianti S.r.l.		D87
Diamil S.r.l.		A51
Officina Meccanica Guarienti S.r.l.		B70
L.F.P. S.r.l. Industria Filo Patentato		C51
Imas S.r.l.		F17
Ingramatic S.p.A.		A18
ISOLMAX S.r.l.		F44
M.D.M. S.r.l.		A21
M.E.P. S.p.A. Macchine Elettroniche Piegatrici		A46
Nuova Sima S.r.l.		B78
OAM Open Automation Machinery S.r.l.		F27
ORT ITALIA S.p.A.		E22
Oscam S.p.A.		C96
Promills S.r.l.		B83
Propagroup S.r.l.		A70
Remer S.r.l.		B34
Sacma Limbiate S.p.A.		A18
Sala Punzoni S.r.l.		E18
Schnell S.p.A.		C82
Scleros S.p.A.		A51
Tecno Impianti S.r.l.		E17
Trafileria Lecchese S.r.l.		C55
Trafileria A. Mauri & Figli S.p.A.		F88
Trafileria Manzoni S.r.l.		B52
wiredrawing.net		D83

EXHIBITOR HALL STAND

EXHIBITOR	HALL	STAND
Agibi Progetti S.r.l.	14	A58
Anconesi S.r.l.		D11
Officina Meccanica F.lli Angossi Ugo e Olindo S.n.c.		A58
Bobbio S.r.l.		A48
Camfart Mole Abrasive S.r.l.		C27
Comtech S.r.l.		C52
C.P.A. S.r.l.		E15
Dimac S.r.l.		C12
Enco Tecnologie S.r.l.		E49
Essebi S.r.l.		D12
Flav L. Mazzacchera S.p.A.		A42
Hascon Engineering S.p.A.		D31
Iman Pack S.p.A.		D16
LS.I. S.r.l.		F36
Kamatech S.n.c.		D31
Manassero & C. S.r.l.		E47
Microdur S.r.l.		F28
Microstudio S.a.s.		A57
Mole Abrasivi Ermoli S.r.l.		D31
Rolling Tools S.r.l.		C05
Simplex Rapid S.r.l.	A32	
S.M.A.R.T. S.r.l.	F19	
T.L.M. S.r.l.	D24	
Unimatic Engineering S.r.l.	A01	

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31 March-04 April

SMS Meer 7A C21

SMS Meer will be showcasing its wide repertoire of products and services in plant construction.

This ranges from integrated solutions, including mechanical, electrical and automation systems, to high-performance individual machines, as well as economical modernisations.

Visitors will have the opportunity to take part in discussions and multimedia presentations so as to obtain an insight into plants and process technologies from the areas of wire rod mills.

In the field of wire rod mills the focus will be on FRS® technology (Flexible Reduction and Sizing) and CCT® cooling (Controlled Cooling Technology), which have both been developed by SMS Meer. They enable efficient production of wire rod and ultra-fine microstructure.

Furthermore, the visitors will also get to know the restructured Service Central Department of SMS Meer. With its vast product range and concentrated expertise, the company offers tailor-made service solutions to its customers all around the globe, thereby ensuring the high added value of the plants throughout their life cycle.

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Website: www.sms-meer.com

H A Schlatter AG 11 A06

H A Schlatter, a manufacturer of comprehensive systems for the production of welded wire mesh for reinforcing, industrial mesh, wire products as well as plants to produce woven wire mesh, will present innovative solutions that increase profitability and improve the production process by shorter set-up times and an increased automation degree.

A highly flexible plant type Superflex for the production of standard and engineered wire mesh will be on the stand.



▲ Schlatter's welded wire mesh

This latest generation of the Superflex family automatically aligns its compact welding units to the dimension of the following mesh type.

Also the adjustment of the cross wire feeder is highly automated.

Also on display will be a welding plant of System MG900 for the production of industrial mesh. This is equipped with auto adjusting components. A handling robot is used for the stacking of the welded mesh panels.

Potential customers can also find out about the spare parts service, field service, repair service, help desk performance and training courses for efficient operation of Schlatter plants.

The product range includes: Resistance welding plants for reinforcing wire mesh, System MG200 and System MG300; industrial wire mesh and fence mesh, System MG600, System MG700 and System MG900; flexible CNC-controlled welding centres, System Posiweld; wire butt welders; wire straightening and cutting devices and cold rolling lines.

H A Schlatter AG – Switzerland
Fax: +41 1 730 94 76
Email: hans.balmer@schlatter.ch
Website: www.schlatter.ch

Schwer & Kopka GmbH 14 D02

A new series of process monitoring terminals for the metal forming industry will be the highlight of the Schwer + Kopka stand.

The German process monitoring specialist presents the new line as a complement to its existing range of well proven compact monitoring units.

All models offer fully automatic mode of operation and are easy to operate. At the same time, installation efforts are significantly reduced.

The new series consists of three models with different types of indicators and visual displays. The base model SK 1-100 in fact has completely eliminated all operational controls and offers the highest possible quality monitoring performance without any type of operation or operator interference.

This 'black box' type of system is accompanied by two other models. The SK1-300 offers a 3.5" black and white touch screen, while the SK 1-700 comprises a 7.5" full colour touch screen display.

Both systems feature an entirely new approach to visualising process data and to communicating with the machine operator.

Rather than displaying an error message when the machine is stopped due to a process



▲ Vital role in metal forming industry

fault, or highlighting poor settings of the monitoring parameters, the system suggests remedial countermeasures and guides the operator through possible improvements.

A second highlight will include the new functions added to the company's shop floor data networking system SK-go!®. Among these will be a new job scheduler which allows to view on-line the work load on each machine, and to re-schedule jobs by simple drag-and-drop commands, and an expanded module for documenting tool consumption.

Schwer & Kopka – Germany
Fax: +49 751 47758
Email: info@sk-gmbh.de
Website: www.schwer-kopka.de

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For 20 years AWM has been manufacturing high-technology machines for the processing of reinforcement steel, such as:

- ✳ Standard and special mesh welding machines
- ✳ High-speed wire straightening and cutting machines
- ✳ Lattice girder machines
- ✳ Cold rolling lines
- ✳ Automatic mesh cutting and bending machines
- ✳ Special machines for tunnel reinforcement production

Just ask us!

31 March-04 April

Siebe Engineering GmbH 10 D22

Siebe extrusion lines cover a wide range of solid or physical foamed cables, such as:

- telephone cables / LAN cables (CAT 5 and more)
- mini-/standard COAX cables
- RF cables (50 OHM)
- CATV cables (75 + 50 OHM)
- special cables.

Siebe also offers upgrading and refitment of existing extrusion lines. This includes main and co-extruders (materials: PE, PP, PVC, PA, PUR, PET, fluoro-plastics, special plastics), foam extruders, gas-injection device, electrical cabinets and process-control-system (SPS).

They are usable as all-in-one extrusion lines, ie cable insulation (0.10mm² up to 90mm²); sheathing up to 50mm outside diameter; for all types of polymers including fluor- and HFFR-materials.



▲ Extrusion lines from Siebe

Siebe also constructs a complete line according to individual requirements.

Further highlights of the Siebe Engineering programme are: Software furnishing optimised production parameters for coaxial cable types; software giving hints for a new extrusion line concept according to a planned range of products.

Siebe Engineering GmbH – Germany
Fax: +49 2683 300333
Email: info@siebe.de
Website: www.siebe.de

SIF MDC 9 C76

SIF MDC developed its own range of equipment for the electrical cable industry, both for laboratory and production applications. Its policy of 'innovation in the tradition' guarantees the customer will receive equipment with a high technological content and with characteristics, which have distinguished SIF MDC for years.

SIF will be presenting innovative solutions for tests in fire conditions:

Fire resistance test apparatus in accordance with IEC 60331-11/IEC 60331-21 standard; device for shocks production, unique solution



▲ SIF has its own range of equipment for the electrical cable company

in accordance with IEC 60331-12/-13 standard; vertical cabin in accordance with IEC 60332-3-10 standard; new data acquisition and interface software for complete system for dielectric strength tests; innovative samples preparer and socket punch for tests in accordance with IEC 60811-1-1 standard; new spark tester STM with innovative solutions and software for remote control; new pre-heater and automatic temperature measurement system with remote command.

SIF MDC – Italy
Fax: +39 35 258 011
Email: info@sifmdc.com
Website: www.sifmdc.com

Sikora AG 9 A41

Sikora will present a wide variety of successful products and technological innovations.

With the new Centreview 8000, for a sovereign 8-point-eccentricity, 4-axis-diameter and 8-point ovality measurement Sikora is



▲ Innovative Sikora

showcasing a remarkably flexible measuring device. Other highlights include the newly developed Virtual 2000, an intelligent control concept and the X-Ray 8000 NXT, for the measurement of MV-, HV- and EHV-cables in CCV- and VCV-lines.

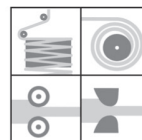
The presentation of the pioneering diameter gauges of the Laser 2000 series as well as the X-Ray 2000 models for a precise measurement of the wall thickness, diameter, ovality and eccentricity, Sikora round off its programme for the future.

Sikora AG
– Germany
Fax: +49 421 489 0090
Email: sales@sikora.net
Website: www.sikora.com

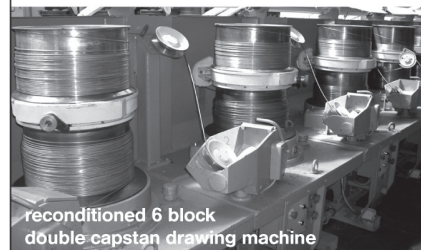
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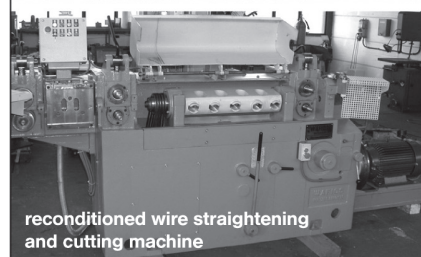
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reconditioned 6 block double-capstan drawing machine



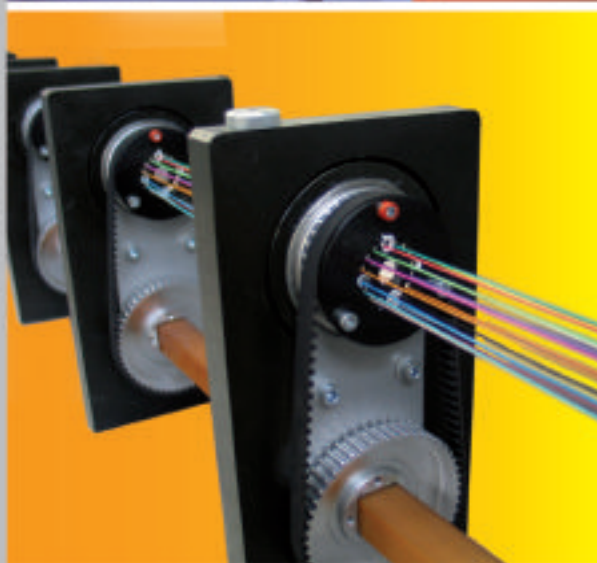
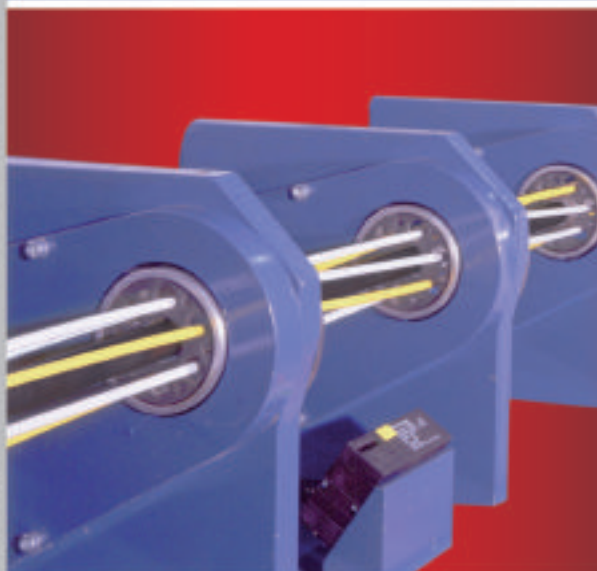
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 booth 11 C 66 · 31 March - 04 April 2008

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DTSZ-Strander

The patented DTSZ is equipped with lay plates, driven by an offset elastic torsion bar. A minimal reversal time enables a shorter reversal length – a perfect choice for the production of fiber optic- and small sized power cables, up to 5 x 16 mm².

SSZ-Strander

The lay plate strander SSZ, is driven by an offset metal drive bar, for precise stranding to the shortest reversal length. The SSZ is shaped for large size fiber optic- and power cables up to 5 x 35 mm².

The full range of Rosendahl stranders are available for the production of:

- Power cables
- Optical fiber cables
- Telephone cables
- Special cables
- Selected control & signal cables
- Screening of power cables

High Quality Product Engineering for - Extrusion, Optical Fiber, SZ-Stranding, Forming-Welding and Corrugation Technology.



31 March-04 April

Sirio Wire Srl 10 H43

Sirio Wire designs, builds and installs equipment for the chemical and electrochemical treatment of the wire, and will display pictures and film of their most recent supply.



▲ Film and pictures from Sirio Wire

This will include the recent supply of three fumeless HCl pickling, rinsing, fluxing baths and dryers for galvanising lines of 30 wires at DV160 and DV200 for an English customer; electrolytic pickling (H2SO4) baths at DV240 for a Russian customer; different ultrasonic and electrolytic cleaning lines for stainless steel, aluminium, oil tempered and high carbon steel wires; bronze coating line for 16 bead wires working until 500 m/min; three complete electro-phosphating lines for high or low carbon wire; plating lines (zinc, copper, nickel, tin); coating baths monowire in line with the drawing machine or multiple wire in line with the furnace; electrical dryer; tanks, scrubber and fumes exhaust.

Sirio Wire Srl – Italy
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Email: info@siriowire.it
Website: www.siriowire.it

Skako Comessa 14 D21

Skako Comessa develops, produces and sells vibratory feeders and conveyors to activate, transport and separate all kind of bulk solids.

The storage feeder type FV is used for continuous and weight-specific charging of materials for: Hardening and annealing furnaces, preparation machines, packaging machines, electro-plating machines, melting furnaces, machines for quality control, separating plants and washing machines.

The furnace feeding systems are an important part of many industrial processes eg for the automatic and weight guaranteed feeding of belt-, annealing - and tempering furnaces, discharge of industrial washing and drying machines, feeding and discharge of industrial electroplating and surface treatment lines.

Controlled, automatic and weight guaranteed feeding of bulk material ensures a steady

product quality, optimised efficiency of the downstream equipment to be fed as well as reproduceable and traceable production parameters.

According to the permanent plc-operator control (if required self-adjustment) with constant target/actual – capacity-comparison and automatic supervision of the feeding cruise of FVE-feeder and the CCE-vibration trough (if required self-adjustment) a fully automatic, absolute consistent and equable furnace feeding of all kind of bulk material will be guaranteed.

To complete the programme there is the Skako Comessa lift and tipping system TILDE to empty all sizes of transport boxes into the feeders.

Skako Comessa – Germany
Fax: +49 2364 106072
Email: skako_comessa@t-online.de
Website: www.skakocomessa.com

Société Nouvelle de Tréfilerie Normande 11 J61

Société Nouvelle de Tréfilerie Normande (SNTN) produces of high quality low carbon steel wire in bright mild steel with gauges ranging from 2mm up to 16mm (0.078' up to 0.630'), smooth and indented galvanised steel wire from 2mm up to 12mm (0.07' up to 0.472') and special steel wire core for copper-cladding process with the latest technology.

Redrawn steel wire is used in numerous and diverse industries such as supermarket equipment, automotive industry, electrical appliances, DIY, furniture, agriculture and building construction.

With Flashwire®, Galvaflash®, Prezinc® and steel wire core for copper-cladding process, SNTN provides customers with high quality standards of redrawn steel wire in coils (from

500 kg up to 3000 kg), in bars (up to 6 metres long) and in welded mesh panels. Flashwire is designed to meet the most stringent production requirement by providing optimal wire surface quality (for chrome, nickel finish) and fully adapted for 2D/3D CNC wire bending machines: the wire is dead cast, no helix and offers uniform mechanical properties.

Galvaflash, a shiny galvanised steel wire, is manufactured by SNTN through an innovative and patented in-line galvanising process, allowing an homogeneity of the zinc coating concentricity, an excellent weldability with good protection between spots of solder, as well as good forming and bending properties.

Prezinc 500 is dedicated for agriculture, building construction and the wine industry.

This is a corrugated galvanised steel wire that provides effective protection against concrete fatigue and corrosion, avoiding cracking and ruptures in the concrete.

Steel wire core for copper-cladding processes are suitable for electronic compounds (resistors, diodes), telecommunications, lighting applications (light bulb filaments), resistance elements leads, a redrawn wire for high temperature conductors. The result is a low cost and light weight alternative to using copper.

SNTN SAS – France
Fax: +33 232 60 6560
Email: export@sntn.com
Website: www.sntn.com

Solvay Specialty Polymers 12 B53

The wire and cable market has demanding requirements – from the need to prevent the risk of fire in telecommunication applications, to hydrolytic stability, chemical resistance and high temperature performance in speciality cable applications. >>>

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31 March-04 April



Solvay Specialty Polymers can provide materials with outstanding performance to guarantee all the standards required.

In the company portfolio there are fluoropolymers and crosslinkable LSOH technopolymers to cover all the needs of this market.

Fluoropolymers deliver more stable electrical performance when exposed to thermal cycling and humidity than traditional wire and cable polymers, while technopolymers show good mechanical, thermal and flame retardant properties.

Solvay Specialty Polymers' family of fluoromaterials, Hyflon®, Halar®, Solef® and Hylar® also has a unique balance of the highest chemical resistance, extreme temperature performance, and high mechanical and flex strength.

This, along with a tailored processability, makes them a natural choice for cable designers to meet their demanding requirements in diverse markets such as automotive, avionics/military, consumer electronics, as well as oil and gas.

Solvay's long lists of patents include innovative technologies from cross-linkable PVDF to a foaming and smoke suppressant packages.

In telecommunications, two of the most important factors in cable design are electrical and signal performance.

The dissipation factor, dielectric constant and dielectric strength of the polymer selected for insulation determines the cable's ability to transmit an electrical current or signal.

But not all fluoromaterials provide equivalent performance. The Hyflon F series such as MFA 1041 offers enhanced electrical performance over FEP as it is more crystalline, thus imparting a lower dissipation factor.

From the fire safety side, fluoropolymers offer the highest fire protection for fire codes in Europe, USA, and the developing codes in Asia.

In high occupancy buildings such as a school or hospital where a higher level of fire safety is desired the Construction Product Directive B1 class is the best option. The B1 classification cannot be met without fluoropolymers.

Algoflon® PTFE is used in high frequency telecommunications, automotive, and aerospace applications. Where increased flexibility with chemical resistance and high temperatures is required, Tecnoflon FKM fluoroelastomers are an ideal choice for power cables, appliance wire, electrical interconnect solutions, and as a replacement for silicone elastomers.

The technopolymer portfolio offers Cogegum® GFR/325, a new reference for single and multicore H07ZZ and fire resistant cables, and Cogegum GFR/340, which is used for heat resistant flame retardant cables, thanks to its high thermo mechanical resistance.

It allows high flexibility, high extrusion speed on conventional extrusion lines and fast ambient curing.

Other materials are Cogenum GFR/365, a new generation of cross-linkable LSOH compound for sheathing and insulation purposes, used in applications like railway rolling stock, off-shore platforms and shipboard wiring and Polidimme® G/450, an extra flexible elastomer-based crosslinkable compound, 'ambient curing' and environment-friendly for power, special and very flexible cable insulation and sheathing, used in industrial, immersion water pump, EPDM and EPR cables.

Solvay Specialty Polymers – USA

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Website: www.solef.com

**August Strecker GmbH & Co KG
10 A21**

For 75 years August Strecker GmbH & Co KG in Limburg, Germany, has been manufacturing butt welding machines for the wire and cable industry.



▲ The Type 3a slewable butt welding machine, mounted on a column

An example of the wide-spread production programme includes electric butt welders for ripped bars, as well as other steel grades up to high carbon steel or alloyed steel, suitable for joining the ends of hanging wire coils.

There are different machine executions which allow easy mobility of the welder.

In case there is only one work station for welding in the line, there are two options:

- To weld re-bars at special horizontal pay-offs it is possible to use a slewable welder fixed to a column (see picture)

- To weld steel with high carbon content at horizontal pay-offs there are butt welding machines movable on flange wheels and rails

However, if there are several welding stations along the line of a horizontal pay-off, it is recommended to consider having a butt welding machine with a platform parallel to the line, as well as on the platform itself, both motions on flange wheels in matching rails.

Here the welder can be brought close to coil rings, eg wire ends to be joined, and out of the line, again after the welding process.

For not having to straighten the wire ends prior to welding, the welders' design allows hydraulic clamping of the material in the coil radius.

Depending on the requirements of the individual steel quality, the machines can be equipped with different annealing options, eg programmable microprocessor-controls for stepless adjustment of capacities and times for welding and annealing, etc.

**August Strecker GmbH & Co KG
– Germany**


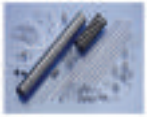
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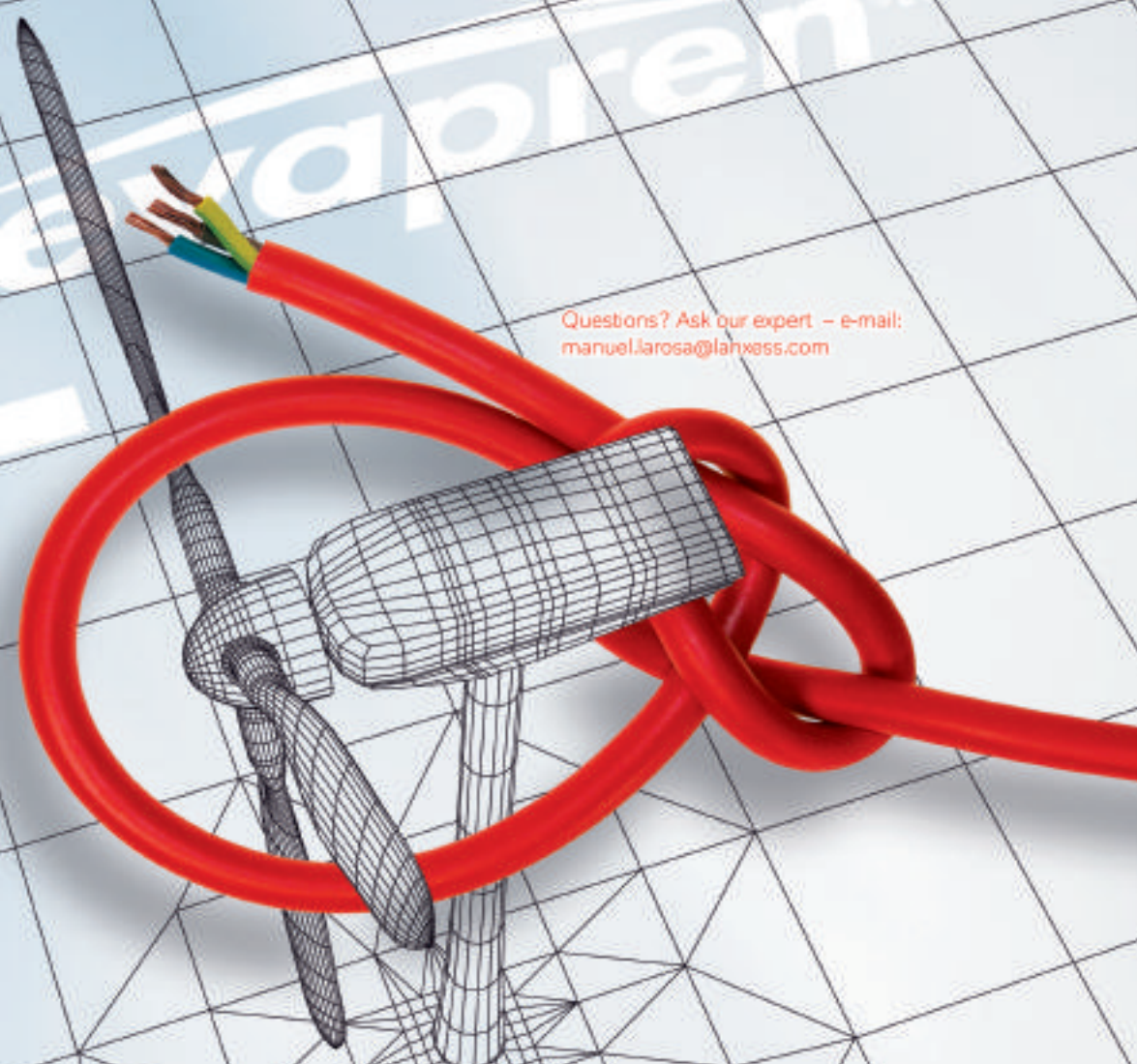
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manuel.jarosa@lanxess.com



31 March-04 April

Streicher Maschinenbau GmbH 13 A29

Streicher will be presenting its automatic tapping machine, Top-Cut 16D.

The machine is suitable for the efficient fully automatic tapping of nuts within the dimensional range M5-M16. It was specially designed for automotive industry suppliers. All types of standard nuts, flange nuts and round nuts can be tapped. The machine is equipped with two spindles that operate according to the overrun principle.

The machine excels with a large output quantity, but guarantees a high thread precision of 6H for each nut tapped. The total indicated run-out (tir) is less than 0.1mm. The maximum output quantity is 17,520 pcs/h for standard nuts and 11,090 pcs/h for flange nuts.

The permanent electronic monitoring of the work sequence and torque measuring ensures compliance with the highest quality standards around the clock. For reasons of safety, and in order to keep the machines as compact as possible, the protective hood encloses the work area as well as the complete infeed section.

Streicher Maschinenbau GmbH – Germany
Fax: +49 7543 605140
Email: m.streicher@streicher-maschinen.de
Website: www.streicher-maschinen.de

Taymer Industries Inc 9 D06-04

Taymer Industries has been designing and building marking equipment for the wire and cable industry for more than 40 years, and today's range includes hot foil printers, indent printers, contact printers, ink jet printer solutions, sinter printers and laser printers.

Customers choose Taymer hot foil printers to solve common printing challenges, including: Very durable marking on PE, HDPE, XLPE, Nylon and Teflon; bright, high contrast white printing on dark cable jackets; highly accurate length measurement and sequential numbering; simple operation and easy to change printing colors; low maintenance costs.

At wire 2008, Taymer will be exhibiting the HF 2000 hot foil printer, the workhorse of the North American outdoor cable industry. The HF 2000 is used continuously at 150m/min in 24x7 facilities throughout the world and is designed for hot foil printing in either one metre or two foot print intervals.

Taymer's simultaneous top and bottom hot foil printer, the HF 3000 is becoming increasingly popular with both power cable manufacturers and fibre optic cable manufacturers as cable users' needs evolve.



▲ The HF 3000

The company will also be exhibiting its newly developed print verification system for the wire and cable industry, the Print View 1400 as well as the PV SnapShot 4500. The Print View 1400 uses pattern matching algorithms to automatically inspect and verify print quality. The PV SnapShot 4500 shows a section of the legend at speeds up to 1,500m per minute.

The Print View can optionally include OCR software to proactively tell the user when the printer is producing scrap.

Taymer designs and manufactures contact length measurement systems, including The Length Rite 1200. The Length Rite includes interfacing to marking equipment, ensuring that the right length is being printed on the users' product.

If you are a wire harness manufacturer or cable assembly fabricator please ask about the Stamp Marker 1000, the Continuous Marker 6000 and new Laser Printer to improve productivity in your plant.

Taymer Industries Inc – Canada
Fax: +1 905 479 2636
Email: info@taymer.com
Website: www.taymer.com

Tecno Impianti 13 E17

Italy-based Tecno Impianti Srl designs and manufactures cold rolling lines for the construction industry and wire drawing machinery for the fasteners industry.

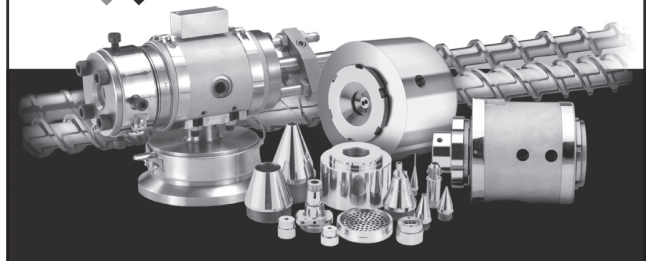
For the construction industry, at wire 2008 it will exhibit a cold rolling line for smooth and ribbed wire for diameters from 4.0 to 12.0mm. The line is equipped with two rolling/profiling cassettes, vertical bullblock and double vertical spooler. >>>

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31 March-04 April



All cold rolling lines have variable-speed drives with AC motors and are complete with uncoiler with two tilting coil-holding arms, descaling machine, lubricant dispenser.

Tecno Impianti can also supply the peripheral equipment, such as butt-welding unit, fixed and collapsible reels, metal strapping units and coil tilting units.

For the fasteners industry, it will also exhibit some wire drawing machines which are used for working in-line with cold heading machines. Thanks to the many advantages they bring to fasteners manufacturers, they have become very popular among customers.

For this sector the company also manufactures power-driven uncoilers for medium-big diameters, feeding/pre-straightening units, wire pointing machines, wire drawing bullblocks and coil compacting units.

Tecno Impianti Srl – Italy
Fax: +39 0341 604289
Email: info@tecnoimpianti-italy.com
Website: www.tecnoimpianti-italy.com



▲ Whole range of machinery on display

Additionally, wire-drawing machines (rod breakdown one or two wires, intermediary); multi-wire drawing machines; double-twist machines; cable stranding lines; complete extrusion lines for different types of cables; complete CV lines.

Machinery including pay-off, take-up stands, caterpillars, capstans, cooling systems, accumulators and auxiliary equipment will also be on display.

Tecnocable SA – Spain
Fax: +34 933 306 517
Email: info@tecnocable.es
Website: www.tecnocable.es

Tecnocable SA
11 B53

Tecnocable – an internationally acknowledged manufacturer of complete rod breakdown lines, bunchers, stranders, cable extrusion lines, CV lines and machinery for the cable and wire industry – will again be exhibiting at Düsseldorf this year.

Machinery on display will include:

A horizontal extruder of 100mm screw diameter, model 10025 ACLH. The machine with 'Knödler' gearbox incorporating 4 AC motors with 130kW total power, controlled by frequency variator providing a variable screw speed up to 100rpm.

This type of extruder drive – introduced in 2004 – considerably increases the machine performance. Screw for specialised compounds with output capacity 410 kg of compound d = 1.5.

Teijin Aramid
9 C39

Teijin Aramid is the pioneer in reinforcement technology for fibre optic. Being a global supplier of aramid fibre, with the brands Twaron®, Technora®, Teijinconex® and Sulfron®, the company invested in the cable area when it was formed 20 years ago.

Fibre optic reinforcement is a primary application area. In-depth knowledge about the causes of damage to fibre optic cables has resulted in a number of protective solutions with Twaron and Technora. Bending, stretching and mechanical stress are the most eye catching threats.

Worldwide markets are served by a global sales and marketing network. Teijin Aramid is a member of the Teijin Group, a company with a strong commitment to fibres.

Main Teijin Aramid sales offices are located in USA, Brazil, China, Japan and Russia.

Teijin Aramid BV – Netherlands
Fax: +31 26 366 5230
Email: optical-fiber-cables@teijinaramid.com
Website: www.teijinaramid.com

Teknor Apex
9 F05-03

Outstanding flame performance is the key property of Teknor Apex's Fireguard® range of highly flame retardant, low-smoke PVC-based compounds for plenum applications.

These products have the capability of meeting jacketing requirements for both Class B1 and Class B2 cables as defined in the European Union's Construction Products Directive. Now Fireguard compounds are available to cable manufacturers from the IMCD Group, which represents the Vinyl Division throughout Europe.



▲ Outstanding performance from Teknor Apex

Fireguard compounds meet and exceed all applicable UL requirements pertaining to applications in copper and fibre optic plenum cables used in commercial buildings. RoHS-compliant formulations are available for all relevant applications.



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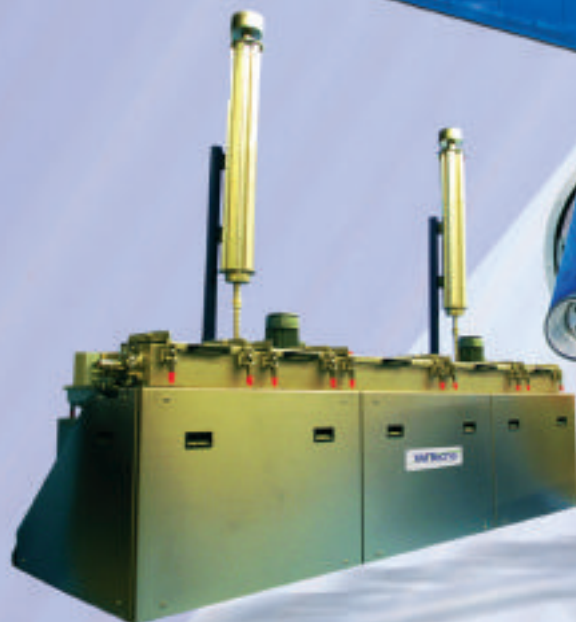
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31 March-04 April



Among recently developed series of RoHS-compliant compounds are:

- Dual-use Fireguard compounds for cable with up to 200 pairs. These plenum compounds are the first RoHS-compliant Fireguard products for both insulation and jacketing in up to 200-pair Category 3 cables, permitting a single-compound system.
- Enhanced-performance Fireguard compounds. Among the new plenum jacketing compounds are two series for cables that have fluoropolymer (FEP) insulation, one formulated for 4-pair Category 6 applications and the other for 4-pair 10-gigabyte LAN cables and coaxial cables; and a third series for 10 gigabyte cables that have hybrid (fluoro-polymer plus polyolefin) insulation, as well as for fibre optic cables.

Teknor Apex – USA

Fax: +1 401 729 0166

Email: info@teknorapex.com

Website: www.teknorapex.com

TKT Group 11 A 62

The companies that form the TKT group – Tecno, Koner Dies, Tecnosider and Teknodiam – have been operating in the wire manufacturing industry since 1945.

They form a closely integrated operating unit, the only supplier in the world that offers a full range of services and products to the wire manufacturing industry.

The TKT group works together with its customers who benefit from the highly specialised technical expertise of each company.

Koner Dies:

Research, technological development and thorough, updated knowledge of production specifications have enabled Koner to achieve excellent results in the manufacture of high-quality tungsten carbide dies.

Koner specialises in the supply of rough and finished dies and offers complete technology for die manufacture and grinding.

Koner guarantees high die precision due to exact inspection of concentricity and finishing, and rigorous quality control.

Products include tungsten carbide nibs for wire drawing, tungsten carbide drawing dies, pressure dies, tungsten carbide wire guides, bushes, rings and dies, machinery and equipment for grinding tungsten carbide and natural and synthetic diamond drawing dies.

Tecno:

Tecno has been producing lubricants and chemical products for the wire manufacturing and metal working industry since 1945.

Tecno provides full and prompt technical assistance from start to finish, and will research and develop special lubricants and products.

Efficient quality control means that performance and reliability is always guaranteed.

Products include tecnolubre powder lubricants for dry drawing, sintek oils and liquid compounds for wet drawing, tecnofix pastes, greases and compounds for wire drawing, tecnoline products for preparing wire rods and wires for drawing, tecnolam products for wire rod and wire rolling, and tecnolux products for cleaning and degreasing wire.

Tecosider:

Tecosider has been operating for many years in the steel wire drawing industry and its extensive knowledge of the market allows them to be present in an advisory capacity in the production world, enabling them to find practical solutions based on actual experience.

Tecosider has designed a new series of pulling in dogs named TEK for easier and better wire drawing.

The guiding principle, as with existing Tecnosider pulling in dogs, is as always to produce an extremely tough instrument, given the heavy duty working conditions under which they are normally used.

Special features of the new model include versatility and ease of use – they have been designed for working on both the left and the right hand side; both pincers open simultaneously and easily when the lever is operated. The clamps are both fitted with special guides; rapid and easy replacement of clamps; the wire inserted in the clamps runs inside the pincer and when necessary can come out of the rear of the pincer through a specially drilled guide. This makes it possible to insert a length of wire into the pincer long enough to tighten the clamps on a perfectly intact part of the wire. This is important because it prevents working on the part which the sharpener has worked on, which can easily break because it is very fragile and cause the operation to be repeated and valuable production time lost.

Teknodiam:

The clean, precise and constant profiles of the working parts (cone and cylinder) required for correct wire drawing are secured by high precision grinding to guarantee wire quality, long die life and high machine performance.

Teknodiam produces drawing dies, shaped dies, wire extrusion nipples, component part dies, in natural diamond and mono or polycrystalline diamond. Customers are provided with a reliable and prompt reconditioning service for worn dies. The drawing angles and the length of the cylindrical part are ground to the exact measurements requested, maintaining correct die geometry. The clean, precise and constant profiles of the working parts (cone and cylinder) required for correct wire drawing are secured by high precision grinding to guarantee wire quality, long die life and high machine performance.

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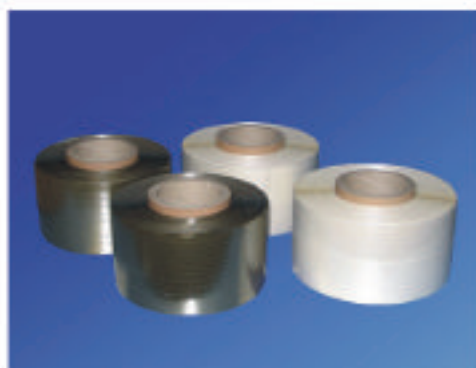
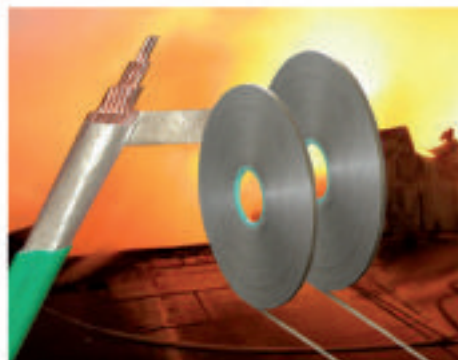
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Firwo[®] Mica Tape offers outstanding fire resisting properties even exposed to high temperature of 1100[°]C. We can make fast delivery of our quality mica tape both in pads and spools.

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- ◆ Superior fire resistance up to 1100[°]C
- ◆ Outstanding dielectric strength at high temperature
- ◆ Non-toxic under high temperature
- ◆ Perfect flexibility and tensile strength, suitable for high speed wrapping



Phlogopite Mica Tape

Phlogopite Mica Tape is compliant with IEC371-3-8. The fire resistance is up to 900[°]C and suitable for the application of ordinary fire resistant wire and cable.

Calcined Muscovite Mica Tape

Calcined Muscovite Mica Tape is compliant with IEC371-3-8. The fire resistance is up to 900[°]C with excellent flexibility and superior high voltage insulation property, especially suitable for the application of ordinary fire resistant wire and cable with small conductors.

Synthetic Mica Tape

Synthetic Mica Tape is compliant with IEC371-3-8. The fire resistance is up to 1100[°]C and suitable for wire and cable requiring special fire resisting performance.

PAMICA is a specialized manufacturer of mica tape applied for fire resistant wire and cable. Its valued customer are convinced its ISO9001:2000&ISO14001:2004 certified operation because it offers the expertise and volume production they need. It has a R&D team with 15 members and can accommodate OEM/ODM requirements of its clients.



REGISTRATION NO.: 03081006 REGISTRATION NO.: 0512188

ISO14001:2004



ISO9001:2000

31 March-04 April

Trafco Srl 11 J72

With more than 40 years' experience in the field of rolling and drawing non-ferrous metals and power cable production, Trafco has always succeeded in introducing new technology into the design, construction and reconditioning of its range of machinery and equipment for the manufacture of all types of wire, cable, flat wire rope.

The company exports 90% of its production to the Middle East, Africa, Latin America and Europe.

Important results have been achieved in large projects for the implementation of new turnkey plants, where the client is provided with a feasibility study and then the supply and installation of the plant, commissioning, personnel training and technical assistance for maintenance and the supply of all spare parts.

Trafco is currently working on innovative developments for cable production.

Trafco Srl – Italy
Fax: +39 0124 48700
Email: info@trafcomachinery.com
Website: www.trafcomachinery.com

Travar Spa 11 D58

For the last ten years, Travar has been developing innovative multi-wire drawing technology for fine wires in aluminium and aluminium alloys.

The technology features the following characteristics:

Up to 8 wires drawn simultaneously; high speed and productivity, possibility of drawing superfine wires with diameter from 0.18mm to 0.80mm; accurate thermal treatments adapted to customers' needs; wide choice of reels: DIN 630, DIN 800, DIN 250, etc.

During these ten years Travar has also acquired a good knowledge of the problems concerning the changes from copper cables to aluminium cables.

Work has already begun on the construction of a new plant in Calabria, Italy, with production due to begin in September this year, allowing Travar to offer production in single and multi-wires:

Single wire production: diameter from 0.80mm to 20mm; with a capacity of 9,000 tons each year. On multi-wire production, the site will be capable of 8 or 16 wires in diameters of 0.14-0.08mm and up to 9,000 tons a year.

In this plant Travar will offer its wide range of aluminium alloys for mechanical and electrical applications.

Three of them are increasingly used for electrical applications:

- 1310 AlFeMg: the aluminium alloy for flexible cables as cables for automotive industry
- 6101 AlMgSi: the aluminium alloy for screening of telecommunication cables
- 1370 Al 99,7: the aluminium for power cables

Travar Spa – Italy
Fax: +39 030 611 1308
Email: info@travar.com
Website: www.travar.com

August Neuhoff Traxit International 9 F26

Traxit International provides the wire drawing industry with a complete range of lubricants to suit all types of wire for all applications.

From simple beginnings in 1881 in Schwelm, Germany, August Neuhoff, the owner of the Traxit International brand, has grown to be one of the two largest lubricant producers in the world. Operating from its manufacturing bases in Germany and China, its lubricants are sold throughout the world with our own companies, agents or representatives in more than 150 countries.



▲ Lubricants to the industry

With more than 200 different formulations in the product range, Traxit is able to guarantee the right product for all your needs, whether general or specialised.

Traxit has a range of products for the following wire applications: Carbon wire (LC and HC and high tensile), stainless steel wire (alloy and Ni-plated); welding, stick electrode and flux cord wire; PSC wire;



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- Up to 56-wire multiwire drawing lines
- Bunching machines
- Extrusion lines for telecom, energy and automotive cables
- Dry or wet drawing lines for ferrous wires
- Precision layer rewinding lines for welding wires



BM 800
Double-twist bunching machine



AUTOMAG
Precision layer rewinding line



MT 500
Aluminum wire rod break-down machine



info@sampsistemi.com
www.sampsistemi.com

31 March-04 April



copper alloy wire (brass and bronze); Alu-clad wire (HC wire); cold heading quality wire (SS and carbon steel); welded mesh; dry lubricants for direct water cooled machines; galvanised LC and HC wire; coatings for the pre-treatment of the wire. Its lubricants are at the highest level of quality and constantly updated to ensure the maximum possible levels of environmental and health friendliness.

Currently Traxit is working towards the removal of borax and all boron compounds from its complete product range, as it is anticipated that this will be added to the European list of Toxic Substances with effect from 2009.

Traxit already has available coatings and dry lubricants free of any boron compounds. It is very important that products are free of any boron and not just the borax (sodium pentaborate decahydrate) content. The boron-free wet coatings (eg ZEL 520 and ZEL 585) ensure less humidity pick up, high and soft crystal roughness; while boron-free dry lubricants have at least the same properties as traditional boron containing lubricants, but additionally offer the following improvements:

Longer die life; higher drawing speeds; reduced wire breaks; reduced drawing temperatures; Sodium-based lubricants with less moisture pick up.

The main sodium based lubricants in the range are SL 808, V 10 B, V 15 SEC, C 815. All coatings and lubricants are suitable for use with single and pressure dies.

For more information and discussion, please visit the company at wire 2008 in Düsseldorf on stand 9 F26.

August Neuhoff Traxit International - Germany
Fax: +49 23369 19101
Email: info@traxit.de
Website: www.traxit-international.com

Officina Meccanica Trinca Colonel Silvio & Figlio Sergio Snc 10 A71

Established in 1940, Trinca manufactures weaving machines and special equipment for the production of technical fabrics.

Trinca has achieved completely electronically driven looms, equipped with patented bandrapier weft insertion system and patented electronically controlled dobby, ensuring suitable weaving for:

Metal wire fabrics; synthetic fabrics as felts, forming, press, dryer and filter fabrics;

architectonical fabrics, crimped grids and sieves; carpets with natural fibres; technical single/multi-layer fabrics with closed edges, made with shuttle equipped looms.

Further Trinca weaving equipment includes: Pre-assembled, electronically driven conversion kits for rebuilding existing mechanically driven looms by converting them into electronically controlled machines; new warping machines; special weft pre-spoolers; edge spot welding and edge tucker devices; weft change and feeding devices for 2-4 and 8 positions; wire pre-crimping machines and uncoiling swift reels.

Officina Meccanica Trinca Colonel Silvio & Figlio Sergio Snc - Italy
Fax: +39 031 390307
Email: info@trinca.it
Website: www.trinca.it

Troester GmbH & Co KG 10 F62

Troester supplies complete extrusion lines and machines for the cable industry worldwide and its name is synonymous with technological advancement, quality and reliability. Engineers develop efficient machines with a long service life. Simple operation and maintenance is a standard for



Roll Pointing Machines

Stand 10A29

Quality made in Germany since 1885

Typ NOWA-5
FRIEDR. KROLLMANN

Typ DWU 210

Typ DWU 210

Roll Pointing Machines are used to produce drawing points on round, square, flat and similar profiles.

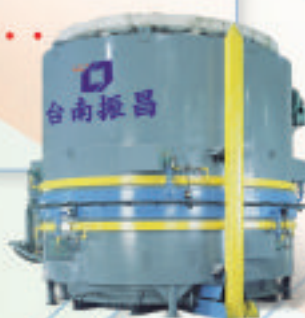
The DWU machines can also be fitted with a pair of vertical rollers and with a straightening device. The machines can be equipped with a shear for wire and with a special shear for flat material.

The combined machines are provided with a welding unit and grinder. Execution and calibration of rollers can be designed in accordance with the customer's requirements.

POB 4064 · D-58750 Altena · Germany · Tel. +49 (0) 23 52 / 95 59-0 · Fax +49 (0) 23 52 / 5 08 22 · www.krollmann.de



C H I N



主要產品

- 一、輥輪連續式或批次式球化退火爐 Continuous roller or batch annealing furnace
- 二、退火爐(鐘罩式、BP式、坑式) Annealing furnace (Bell-shaped type, BP type, Pit type)
- 三、鋁合金用熱處理爐(T4, T6) Aluminum alloy heat treatment furnace (T4, T6)
- 四、銅合金真空退火爐 Copper alloy vacuum annealing furnace
- 五、不銹鋼線直線式固溶化退火爐 Stainless wire linear type solution annealing furnace
- 六、連續式高溫燒結爐及銅焊爐 Continuous type high temperature sintering furnace and brazing furnace
- 七、坑式滲碳淬火爐 Pit type heat treatment furnace
- 八、AX, DX, NX, RX氣體變成爐 AX, DX, NX, RX atmosphere gas generating furnace

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TEL: 886-6-253 3019~20

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31 March-04 April



every machine. Extensive in-house development guarantees the latest production technology in various fields of application.

Troester GmbH & Co KG – Germany

Fax: +49 511 864028

Email: info@troester.de

Website: www.troester.de

**Joachim Uhing KG
GmbH & Co
11 B40**

Uhing has developed the AVS traversing width controller that, without using any interference-prone optical sensors, automatically corrects winding flaws in the particularly critical reversing area operating.

The traversing system used is the well-known Uhing rolling ring drive featuring pneumatically controlled reversing triggered by a controller. As soon as the AVS detects a dent or bulge in the reversal area, it stores the traversing system position and the type of flaw. In the next traversing strokes, the controller will correct this flaw by adapting the traversing width. The result is an optimally wound coil that can be further processed without problems.

The AVS traversing width controller stores parameters for up to 10 different coil types. It is suited for coils with straight or conical flanges and cylindrical or conical cores.

Uhing will showcase the newly developed sizes ELIII 10-22 of the Easylock fast-action clamping system that allows high torques to be transferred to coils and foil rolls on plain shafts. The customer can now choose from lighter and more ergonomic clamping modules in the 10-30mm diameter range. As a novelty in the rolling ring drive sector, Uhing also presents the RGK 15, an attractively priced rolling ring drive specially suited for simple winding tasks.

Joachim Uhing KG GmbH & Co – Germany

Fax: +49 4347 906 40

Email: sales@uhing.com

Website: www.uhing.com

**Ultimation Machines Ltd
11 G28**

Ultimation Machines will be displaying the latest developments in the range of two axis wire forming machines, suitable for the manufacture of supermarket shelving, and point of purchase displays.

The latest models include the umw-65 2 axis wire forming and welding machine, suitable for a range of 2.00–8.00mm. Also on display will be the ucw-65 automatic cross wire welding machine, designed for the automatic welding of cross support wires into frames used in the manufacture of refrigerator/oven shelves and air filter frames.

The machine incorporates a wire feed unit for the crosswires and a frame magazine, which can be loaded directly from any umw-65 model or manually by hand.

All ultimat models feature a 'closed die' forming and cutting system, giving a high quality square, burr free cut and butt weld. Options include a secondary bend head for high speed production of complex wire forms and automatic part unloading systems, tooling for flat and shaped wire, as well as round wire.

Ultimation Machines Limited – UK

Fax: +44 1306 713182

Email: sales@ultimat.com

Website: www.ultimat.com

**Unimatic Engineering Srl
14 A01**

Unimatic, formed more than 40 years ago, are designers and builders of operating units and machines to work cold forging parts, and thread checking machines.

Unimatic Engineering Srl – Italy

Fax: +39 606 7045

Email: farace.andrea@virgilio.it

Website: www.unimatic.it

**Upcast OY
9 C06**

The upward continuous casting method, better known as the Upcast® system, was originally innovated and developed by Outokumpu in the late 1960s for the production of oxygen-free (OF) copper and copper alloy wire rod.



▲ Full range of single and double casting lines from Upcast

Since the start-up of the first production line in 1971 more than 170 other Upcast® units have been delivered worldwide, establishing itself as the leading production method in its line of business.

Today the Upcast® legacy is carried on under the banner of a new independent company, Upcast OY, who will exhibit its full range of single and double furnace casting lines. Several interesting, new developments have been introduced to the Upcast® system.

Among these are: Output from the single-furnace system extended up to 12,000tpa capacity; output from double furnace system extended up to 40,000tpa capacity; a new double-loop type inductor doubling the available power range together with a marked decrease in specific power consumption; a transistor converter type stepless power control system offering reduced specific power consumption, increased inductor lifetime and the elimination of harmonic resonance effects; a 'universal' type coiler handling a wide range of rod sizes.

These, together with a number of other new features to be presented, will offer the user of an Upcast® system improved economics and reliability without compromising the all-important rod quality.

Upcast OY – Finland

Fax: +358 207 577 401

Email: info@upcast.com

Website: www.upcast.com

**WCISA
9 D14-03**

Rock-It Cargo Fairs and Exhibitions are once again the official recommended freight forwarder for exhibiting WCISA members and WCISA North American pavilion exhibitors at wire 2008.

"ACID-FREE PROCESS FOR STEEL ROD CLEANING & SURFACE PREPARATION"

"New Way to Draw Steel Wire in the 21st Century"

WIRE 2008 Stand 10 E72

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- 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)
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- Up to 8 times longer die life
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- Greatly improved wire ductility

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Bill Langworthy, vice president is the contact for shipping instructions, guidelines and quotations.

WCISA - USA
Fax: +1 330 864 5298
Email: info@wcisaonline.org
Website: www.wcisaonline.org

Welding Wire Machineries Srl 11 J39

For the past 10 years, Welding Wire Machineries has been supplying high tech machines for the wire industry.

Rymer Engineering

**Manufacturers of the
"Microwelder"™
Wire Resistance
Butt Welding Machines
Models EH & SG:
Range covers 0.30 - 9.5mm dia**

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MATERIALS SHAPES & SIZES**

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MODEL "SG"



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Rymer Engineering
 Heber Street Works, Keighley,
 West Yorkshire BD21 5JU, UK
 Tel: +44 (0) 1535 665335



▲ High tech from WWM

Specialised in machines for the welding wire production, WWM has now completed its range with the fully automatic re-spooling line, 'Extramatic'.

First presented at wire 2006 in Düsseldorf, a large number of units have been delivered to major companies producing ferrous and non-ferrous MIG wires.

Extramatic is designed for high speed precision layer winding of MIG welding wires onto plastic or metal spools, as CO₂, FCW, stainless steel and aluminium alloy wires. Diameter range is from 0.80-1.60mm. Both operations of 'spool loading from feeder' and 'wire fixing on the spool' are automatic. Wire is then wound automatically without any intervention of the operator. A rayed compacting plate winds the first layer.

Extramatic sets itself according to wire diameter and spool size. At winding end, which is based on either kg or m, the machine cuts the wire and fixes it on the spool edge, then subsequently unloads the full spool to a collecting conveyor. The re-spooling unit fits a 55 spool feeder (metallic or plastic spools).

Extramatic's key features are winding wire on a single axis to stop vibrations of wire and increase precision layer performance and perform very short spool exchange. Extramatic runs at 35m/sec constant speed with acceleration/deceleration ramp shorter than 15 seconds.

Electronics are managed by Siemens Industrial Personal Computer operating under Windows 2000 professional ambient and 12" TFT display for setting.

Welding Wire Machiners Srl - Italy
Fax: +39 049 950 0682
Email: salesdept@wwmsrl.com
Website: www.wwmsrl.com

Well Gain Cable Systems (Shanghai) Ltd 13 B88

Well Gain Cable Systems has 20 years' experience in supplying machinery for the wire and cable industry.

All machines are manufactured in China and the range includes Cu rod upward continuous casting line, rod break down machine and wire drawing machines, rigid strand, planetary strand, cage strand,

drum twister, extrusion lines, CCV line for up to 35kV cables, testing equipment, compounding machines for PVC and LSHF materials etc.

Well Gain Cable Systems (Shanghai) Ltd - China
Fax: +86 21341 40438
Email: info@wellgaincable.com
Website: www.wellgaincable.com

Windak AB 9 A63

Established in 1993 in Stockholm, Sweden, Windak's core business is high speed efficient packaging equipment for spools and coils.

The company's extensive experience with customers' packaging applications ranges from building wire, coaxial, CAT products and fibre optic cable.

Windak will display the latest dual head spooler model SW6 for 165mm spools, the preferred choice for all major cable producers in the USA.



▲ High speed and efficient Windak

Windak has an extensive range of spooling and coiling models, including the breakthrough Envirowind™ large coiling package. Its range of pay-off and take-up equipment has been extended, including new models of the popular tire drive design.

Windak office locations are Sweden, USA, Australia, Estonia and Russia.

Windak AB - Sweden
Fax: +46 85803 8955
Email: info@windak.se
Website: www.windak.se

Wire & Cable ASIA 11 D28

Wire & Cable ASIA Magazine - the only trade publication published in English and Chinese languages and circulated to over 8,900 readers across North and South East Asia.

Wire & Cable ASIA allows Western companies unprecedented access to one of the largest and fastest growing markets to date.



31 March-04 April

The magazine provides up-to-date technical and corporate news relating to the Asian market bringing the latest business developments to our readers.

Wire & Cable ASIA – UK
Fax: +44 1926 314755
Email: info@intras.co.uk
Website: www.intras.co.uk

Wire & Plastic Machinery Corporation 9 F21

For 20 years Wire & Plastic Machinery has provided a wide range of high quality used equipment to the wire and cable industry. Specialising in the non-ferrous and fibre optic cable industry, equipment is available for the following applications: Loose tube fibre optic cable; LAN tight buffered cables; OPGW; telephone cables; building wire; energy cables; rod breakdown to fine wire drawing machines.

Wire & Plastic will display photographs of selected equipment recently purchased, or that has been rebuilt, and specialists will be available to assist in selecting the most suitable equipment.

Wire & Plastic Machinery Corporation – USA
Fax: +1 860 589 5707
Email: sales@wireandplastic.com
Website: www.wireandplastic.com

Wire Association International, Wire Journal International 11 B25

The WAI will display the association's publications, products and services, including Wire Journal International, The Wire Journal International 2008 Reference Guide and a range of association technical books, reports and DVDs/videos. News about the WAI's International Technical Conference to be held 19th-23rd October 2008, in Monterrey, Mexico, as well as information for WAI membership opportunities, its chapter network and WAI's internet site (www.wirenet.org) will also be available.

This also includes stand availability for Wire Expo 2008 (7th-11th June 2008) in Pittsburgh, and Interwire 2009 (25th-30th April 2009) in Cleveland, Ohio, USA, the Americas' largest trade show for the wire and cable industry, which will be co-located with the International Fastener & Precision Formed Parts Manufacturing Exposition and Conference (IFE).

Wire Association International and Wire Journal – USA
Fax: +1 203 453 8384
Email: info@wirenet.org
Website: www.wirenet.org

Wire Lab Company 10 H40

Wire Lab Company manufactures the most comprehensive line of mechanical descaling machinery available to steel wire producers.

Such a wide variety of models allows customers to put in place the Wilco mechanical descaling system which most closely matches their wire drawing requirements with consideration given for machinery investment, maintenance cost, cost for any consumable items and overall quality requirement of the finished wire product.



▲ Comprehensive line of mechanical descaling machinery

Simple-to-use, basic mechanical descaling systems (Model 920 Air Jet and Model 1030 water jet descalers) are well suited for producers of industrial quality wire products where emphasis is on maintaining the lowest possible overall production cost.

More feature-rich Wilco descaling systems allow customers to use wire rods of various qualities with the objective being producing a consistently cleaned wire rod suitable for making into higher quality wire products. These Wilco descaling systems (model 1250 and model 1750 automatic wire brush descalers) incorporate the Wilco automatic rod brushing machine into the process. Eight circular wire brushes are positioned around the rod circumference to aggressively clean the rod surface of secondary scale and red rust which are detrimental to producing high quality wire products.

More specialised Wilco descaling systems (model 1060 descaling system with lubricant pre-coating and model LRD scale breaker for large diameter rods) satisfy the needs of more specialised producers. The model 1060 applies lubricant pre-coating compounds in the final stage of the mechanical descaling process. Manufacturers of high carbon wire and those working with very high finishing speeds benefit from the increased lubrication established by the pre-coating compound. The Wilco large rod scale breaker (Model LRD) is designed for processing larger diameter rods up to 19mm in diameter. Sheave offset is controlled by hydraulics, thereby allowing simple straight-through string up of the scale breaker.

Wire Lab Company represents Cym Materiales, an established manufacturer of shot blasting machinery.

Cym manufactures coil (batch-type) and strand (in-line) shot blasting systems at facilities in Argentina and Brazil.

Wire Lab Company – USA
Fax: +1 216 433 0007
Email: e-mail@wirelab.com
Website: www.wirelab.com

Witels-Albert GmbH 9 E39

Witels-Albert will be presenting both new and proven solutions from its range of straightener, roll, guide, feed and pre-former products.

With the motto of 'the future of success', the company will turn the spotlight onto engineering solutions for straightening applications. Visitors to the stand can see the new products in action.

This also gives visitors the opportunity to learn more about the latest ideas from the world of wire, tube, rope and cable production, and to familiarise themselves with what Witels-Albert has to offer.

Witels-Albert GmbH – Germany
Fax: +49 30 723 988 88
Email: info@witels-albert.com
Website: www.witels-albert.com

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• Wire Drawing •
Tube Drawing • Wire Ropes

Kuwait Petroleum International Lubricants
Email: export@q8oils.com
Stand No. 11D25

Wyrepak Industries Inc 09 E36

Wyrepak will display its line of rotating cap and brush assemblies designed to pay off wire at line speeds up to 3,000 feet per minute.

If more tension is needed, the line of manual and electronic tension capstans can be added. Also featured will be the company's expanded line of guide pulleys.

Wyrepak Industries Inc – USA
Fax: +1 860 632 5775
Email: info@wyrepakind.com
Website: www.wyrepakind.com

Videx Machinery Ltd 13 A65

The VEM-15/30 hand feed cold former that will be demonstrated extruding the ends of pre-cut steel bars is part of a line of cold formers for small production batches with one or two stations.

The operator feeds the bar into the machine until reaching a positive stop when the grippers close on the bar and the stopper retracts.



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Email: mwalters@keirmfg.com



▲ The VA20/20-ESS for thread rolling of hi-tensile fasteners

The machine heads or extrudes the part and the grippers open. VEM models are available with a heading force of 15 tons to 150 tons and strokes up to 200mm.

Also on display will be the fully automatic M-24 (1") u-bolt machine, working from wire coil, model VAS-35-BBQ, with the new adjustable bending die. The thread range is from M-12 to M-24 in mild steel or stainless steel, giving production rates of 70 bent bolts and 140 straight studs per minute.

The VAS-35-DBQ is equipped with hydraulic clamping of the threading dies and a process control system that also controls the cut-off length. The machine is equipped with a hand magazine. A planetary dual-spindle thread roller with a closed structure, model VA-20/20-ESS, for straightening and thread rolling of hi-tensile fasteners performs two rolling operations, one after the other, and can be used for straightening and threading or dual threading of fasteners. The machine is equipped with a 'controlled introduction' system, for rolling lap-free threads on any material hardness. Other features include hydraulic clamping of the thread rolling dies and quick set-up features. Thread range up to M-16. Production speed up to 640 PPM.

Chamfer cutting machine, model VCM, demo unit will show the new Videx chamfer machine capacity and flexibility. Videx will demonstrate a dual spindle chamfer and turn machine which is servo controlled and operated.

Videx Ltd – Israel
Fax: +972 3 536 4802
Email: videx@videx.co.il
Website: www.videx.co.il

Yield Management Corporation 9 D14-04

Yield Management Corporation, Massachusetts, USA, has introduced a new spool run out detector for tubular stranding and planetary cable machines. The new model optically monitors individual spool rotation and can initiate a machine stop within 8 rotations of the barrel after a spool has stopped rotating.

The new model detects both empty spools and broken wire and can significantly reduced finished goods scrap while increasing

productivity. The system can be expanded to accommodate any number of spools.

Yield Management Corporation – USA
Fax: +1 413 283 7778
Email: sales@yieldmanagementcorp.com
Website: www.yieldmanagementcorp.com

Zumbach Electronic AG 11 D43

Zumbach will present many new developments and products.



▲ Variety of the numerous successfully operating ODEX® measuring system

- Sensors: the advanced ODEX® 10 concentricity and diameter gauge for wire extrusion is an extremely accurate and advanced sensor, insensitive to environmental conditions. A fully non-contact, based on magnetic and laser technology
- New laser based diameter gauges for very big cables and profiles
- 3-axis laser diameter gauges with incorporated fault detection
- Ethernet TCP/IP enabled diameter gauges for direct networking without the need for external processors
- New ultrasonic scanners of the novel UMAC® for wall thickness measurement provide quick and easy adaptation to cable diameters and space-saving integration
- Data acquisition, processing and display units (processors)
- A full programme of USYS processors, ranging from the low-cost basic model up to the high-end multi-sensor processor/controller
- All USYS processors are extremely user-friendly, safe, stable and flexible for extension and upgrading
- Complete measuring and control systems, including new systems for full process monitoring and control will be shown, such as: Rayex, the new line of x-ray wall thickness eccentricity systems for CV lines. The main new features are: very economic pricing, advanced hard and software with easy operation and powerful control functions and data acquisition
- Wallmaster, wall thickness and eccentricity systems for cable jackets and dialcal option for fully automatic calibration and control
- Cellmaster®, Jacketmaster and Multiline systems for extrusion and wire-drawing based on the new USYS line

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



31 March-04 April

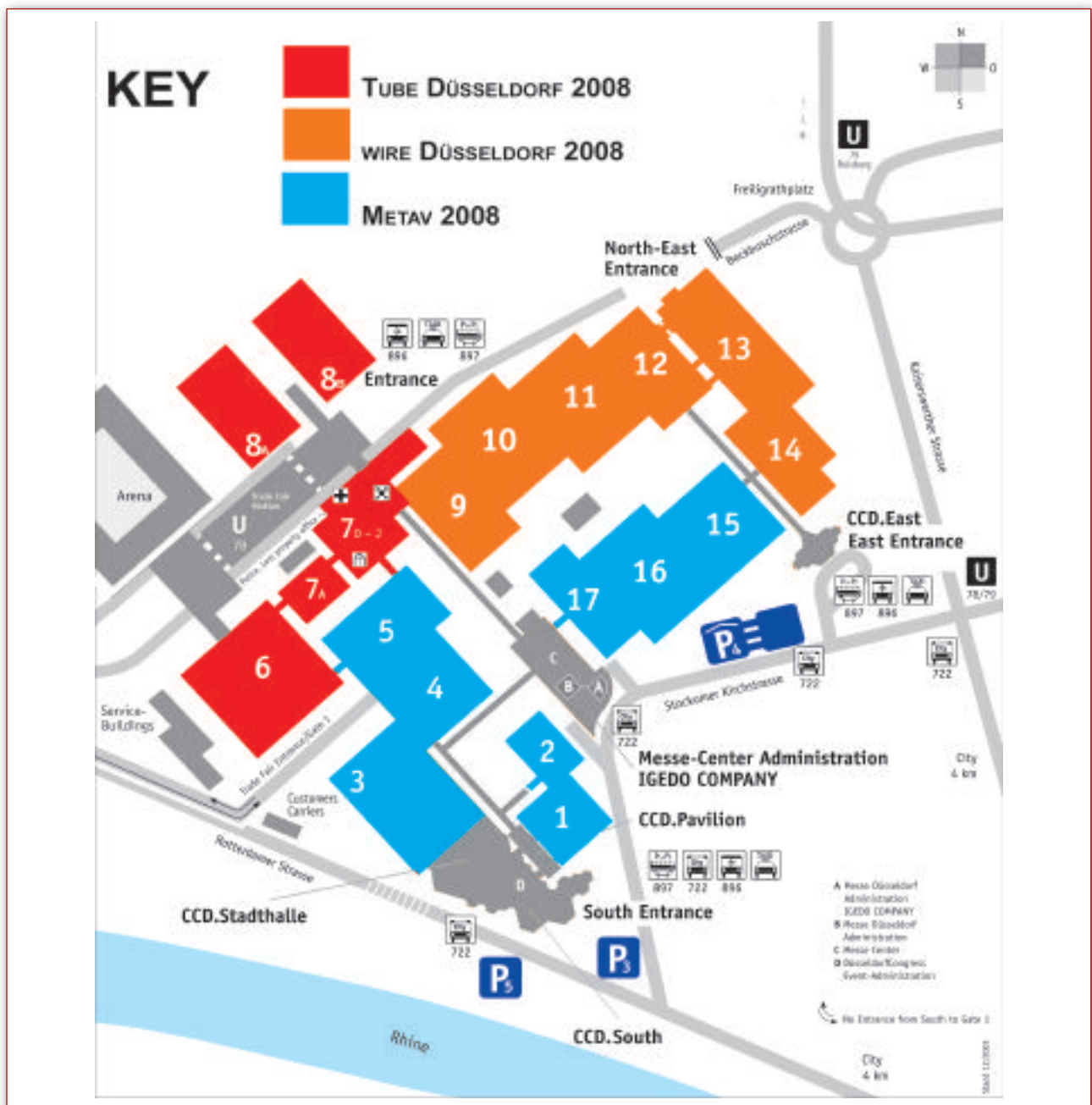
Meet the staff of EuroWire

Staff from EuroWire magazine – the only trade publication published in six languages – will be pleased to meet you during wire 2008 in Düsseldorf. The magazine, circulated to more than 16,000 readers in 89 countries worldwide, is an ideal marketing tool for your business.

EuroWire provides up-to-date technical and corporate news relating to the wire and cable industry, bringing the latest business developments to its readers. This is your chance to meet the people behind the magazine, whether you wish to discuss advertising, promotion or editorial for your company.

You can meet the members of the team at Stand 11 D28.

EuroWire – UK Fax: +44 1926 314755 Email: intras@intras.co.uk Website: www.read-eurowire.com





The super products!

The ever expanding requirements of fire safety and environmental protection call for new materials all the time, and they appear.

Scarcely is an innovative fluoropolymer inducted into the pantheon of fire-retardant materials than another compound promises enhancement.

It is nothing less than remarkable how accustomed we have become to the periodic arrival of new vigilante materials; and how dependably — almost how casually — they deliver.

Consider a term in common use: 'flame-retardant wire or cable.' Then consider the definition of flame-retardant wire or cable: 'an electrical conductor capable of maintaining integrity when exposed to open-flame temperatures of 1,000° F without propagating a fire or resulting in falling burning particles or generating large volumes of smoke.'

That is the profile of a super product.

The exhaustive work of invention and testing has yielded a conductor (or multiple conductors) covered by a layer of primary insulation; then by a layer of silicone rubber; then by a layer, or more than one, of glass fibre.

There follows another layer of silicone rubber, itself covered by braided asbestos impregnated with a material to curb swelling. Or, the second layer of silicone rubber may be wrapped with asbestos tape which is then covered by a layer of elastomeric material. The experimentation, for ever-higher values of fire-retardancy, never stops.

We take products like these for granted because we can. Those who have made their careers in a category of the wire and cable industry uniquely responsible for the preservation of life and property enable us to do so.



Research and develop . . . not to get burned

For the purposes of fire prevention and in order to achieve objectives ensuring people's safety and asset protection, a number of laws, decrees and regulations have been introduced in order for engineers, manufacturers, technicians and users to execute, according to their own responsibilities.

Electrical cables are among the structural elements which need to satisfy fire resistance requirements. In particular, their behaviour has been analysed under fire conditions and reference standards have been established through the development of international norms.

These standards specify the relevant test apparatus to be used to simulate fire conditions in order to test and analyse reactions of the electrical cables as if they were in their working condition.

This apparatus gives cable manufacturers the possibility to test their product and ensure it complies with international standards so that it can be implemented where such requirements are necessary.

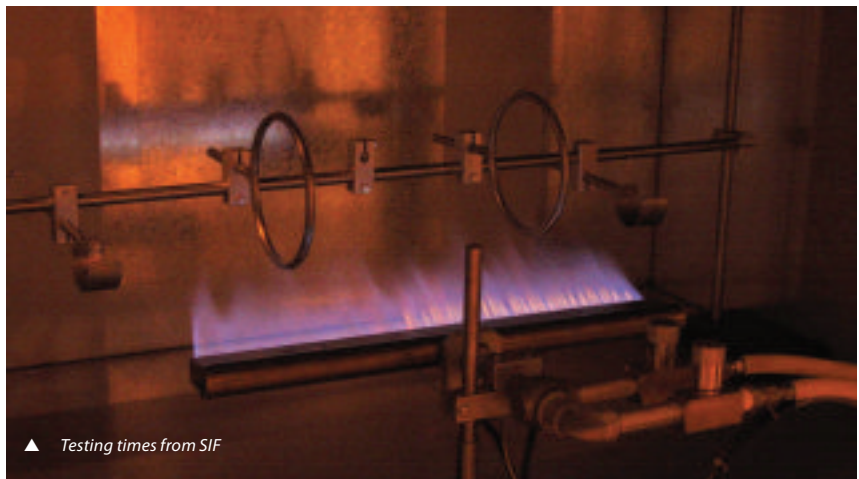
In particular, these tests focus on no flame spread; no fire spread; low emission of toxic smoke and gases and fire resistance.

Test for no flame spread: The scope is to evaluate the resistance to flame spread by an external source for a single cable, installed in the most unfavourable position i.e. in vertical position. The insulating material burns but the flame should not spread more than 55cm from the point the flame is applied to the single cable. Reference standard: IEC 60332-1-1.

Test for no fire spread: The scope is to evaluate the resistance to fire spread by an external source for bunched cable, installed in the most unfavourable position (i.e. in vertical position). Different types of tests have been planned as fire resistance depends on a series of factors such as the quality of the bunch non-metallic material (thus potentially combustible), the bunched cables configuration and the location of ignition source(s). Reference standard: IEC 60332-3-10.

Low emission of toxic smoke and gases: "Smoke and gases evolved from burning materials are responsible for more than 70% of deaths during fires," (British Medical Journal).

Test of smoke density: the scope is testing that smoke evolved during the combustion of electrical cables still allow a good visibility in the room where bunched cables are installed and for the time necessary for evacuation.



▲ Testing times from SIF

Measurement of the amount of corrosive gases: Verify that the amount of halogen acid gases from the cable non-metallic material does not exceed the relevant standard values. Verify that gases evolved during the combustion of the cables have a level of toxicity low enough to allow evacuation without significant physiological damage to people. Reference standard: IEC 60754-1 / IEC 60754-2 / IEC 61034-1.

Test of fire resistance: Scope of the test is to evaluate the cable ability to keep operating in the designated manner

under fire conditions for the time necessary until fire brigade intervene. The insulating material can be damaged but the cable needs to keep working for at least 90 minutes under the flame at a temperature of 850°C. Different kinds of tests have been planned with additional external stresses; for example, the mechanical shock test and one with water spray. Reference standard: IEC 60331-11.

SIF MDC – Italy

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Email: info@sifmdc.com

Website: www.sifmdc.com

HFFR compounds with superior fire retardancy properties

The flame resistance of halogen free compounds for cable applications is commonly measured by the highest Limiting Oxygen Index (LOI value), which is perhaps, the most economical and precise quality control test of combustible materials.

This technique measures the minimum percentage of oxygen in the test atmosphere that is required to marginally support combustion, and generally, a higher LOI value gives better flame retardant performance.

Fainplast has recently developed two new HFFR compounds – HAX HF 4522 and HAX HF 3941 – which have been specifically designed for those cable applications requiring the ability to meet the more stringent fire test specifications.

HAX HF 4522, which passes the pressure test at 80°C has an experimental LOI value greater than 45%. This high LOI value makes this material a good sheathing candidate for those cables required to pass the fire test performed on cable bundles.

The second compound, HAX HF 3941, has been formulated for those applications requiring superior thermal and flame retardant properties. Effectively, it does pass the pressure test at 90°C (blade penetration < 50%) and exhibits a LOI value greater than 40%, which guarantees a self-extinguishing behaviour under certain fire conditions.

Fainplast srl – Italy

Email: info@fainplast.com

Fax: +39 0736 403807

Website: www.fainplast.com

Understanding China and the growth regio



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By Dorothy Fabian

The world of the 21st Century will be shaped by the 'Big Three' – China, America, and Europe – and signs are strong that China has no intention of letting itself be eclipsed by the other two. Already strong, the People's Republic of China is getting stronger all the time, a trend with immense significance for the countries in its geopolitical force field.

Some China-watchers hold that the country is intent on regaining its position as the world's Middle Kingdom – an impulse with roots in ancient history. Possibly; but, if so, there is nothing old-world about China's pursuit of its objective, and no hint of isolationism in its method. While it prudently concedes trouble-spots like the Middle East to the US, China has been faster than any other big power to grasp the possibilities of globalisation, and to act on them.

Today, China operates in the West with as much ease as in the East. It has cut major resource and investment deals in countries from Canada to Cuba to Venezuela. Not content to secure energy supplies in Africa, it is also heavily invested in the financial sector of that growth region.

Tens of thousands of Chinese engineers are deployed in works projects across the globe. And the overseas involvement does not come at the expense of the home front. While other nations' economies struggle to expand even a little, China's chronic problem with its economy is to avoid a shift from rapid growth to overheating.

Closer to home, China has a concentrated comfort zone in the Greater Chinese Co-Prosperty Sphere, within which some 35 million ethnic Chinese live and work in the rising economies of East Asia. Not to neglect its Southeast Asian neighbours, China has slashed tariffs on their goods and increased its loans in the region. This local collegiality has generated broader benefits. Trade within the China-centered triangle of India-Japan-Australia now surpasses trans-Pacific trade.

In another development of very great potential for the entire Pacific Rim, Asian countries plan to launch their own regional monetary fund. When it is formed, China and the countries in its orbit will have declared an end to their reliance on the US-sponsored International Monetary Fund with its Western-style qualifications for loan applicants.

A striking aspect of China's ascendancy is the extent to which small Asian nation-states, instead of seeking to slow the Chinese rise, are rallying toward their big neighbour. Everyone loves a winner, especially if it helps the economy even as it gratifies Asian cultural pride; and economic growth is the No 1

concern in countries from Thailand to Indonesia to Korea. Not only is China the acknowledged leader of this pack, it also has towering stature among the 'Stans' of Central Asia – countries like oil-rich Kazakhstan as well as microstates like Kyrgyzstan and Tajikistan, whose contribution to the Chinese project is less immediate. But China Inc, like any well-diversified investor, can afford to wait.

Meanwhile, the Shanghai Cooperation Organisation (SCO), the economic co-operation and mutual security confederation founded in 2001, is in place.

Taken together, its full members (China, Russia, four 'Stans') and observer members (India, Iran, Mongolia, Pakistan) comprise not only the world's biggest producer and consumer of energy, but also its biggest economic and military power. The SCO has introduced measures to improve the flow of goods in the region, and a long-term objective is the establishment of a free trade area within the membership.

Can anything stop China from going up, up, up – and pulling its friends along with it? Well, yes. For all its coiled strength, vaulting ambition, and boundless energy, China can be knocked seriously off-course – and by dangers other than the obvious ones that come of building too much, too fast.

As any reader of the business pages of a current newspaper will know, the US is in difficulties, stemming from unwise loans in the housing sector and intensified by the weak dollar and fears about the extent of losses facing banks as the sub-prime-mortgage crisis spreads. American manufacturers are suffering. But Asian exporters are feeling the pain, chief among them the Chinese.

Last year, China overtook Canada as the largest exporter to the United States. But year-over-year growth in Chinese exports to the US slowed sharply in the autumn. November's gain of just 7% from the same month in 2006 only slightly exceeded the appreciation of the Chinese yuan against the American dollar over the same period, suggesting stagnation in the actual volume of Chinese goods entering the United States. For 'the countries around China' – Japan, Malaysia, Thailand, Australia, Bangladesh, Sri Lanka, Cambodia, Indonesia – exports to the US dropped in actual dollar terms in November.

China is a member of the 'Big Three.' As such, it is in a three-legged race, with all that that signifies of mutual dependency – for better and for worse.

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New molybdate smoke suppressant for PVC

By J Ken Walker, Wai-Kwong Ho, of Sherwin-Williams Chemicals

1. Introduction

Polyvinyl chloride, PVC, is an inherently flame retardant polymer and is often used in applications requiring low flame spread.

For some applications, the National Fire Protection Association (NFPA) has also established rigorous smoke standards. For plenum rated PVC jacketing, communication cable must pass NFPA 262, the Steiner Tunnel Test.

To qualify for use, flame spread must not exceed 5 feet. In addition, peak smoke must not exceed 0.5 units and the average smoke throughout the test must be below 0.15 units.

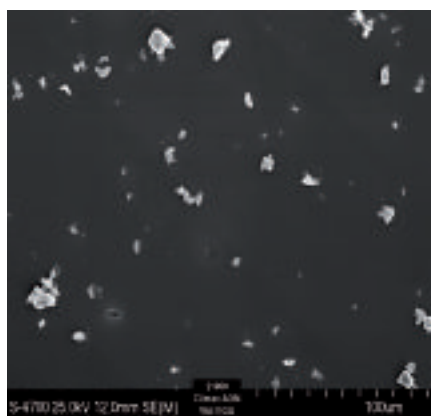
Inorganic molybdates are the industry standard for smoke suppression in PVC. This is due to the inherent capability of molybdates to promote char formation.¹⁻³

The most widely recognised molybdate chemistry for smoke suppression in PVC is ammonium octamolybdate, AOM. Because of the high cost of molybdenum and high percentage of molybdenum in AOM (61% based on molybdenum oxide) PVC manufacturers are looking for new technology to increase the efficiency of smoke suppression additives.

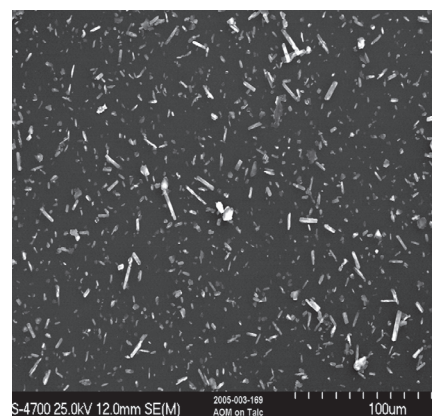
Ammonium octamolybdate is reported to exist in two isomeric forms, designated as alpha or beta. Typically, the α is the form found commercially. This is manufactured by the partial thermal decomposition of ammonium dimolybdate, ADM according to the reaction:



AOM has also been manufactured by acidification of an ADM solution.⁴⁻⁵



▲ Figure 1: SEM of Climax WA AOM



▲ Figure 2: SEM of Kengard STA

According to the patent literature, changes in processing conditions can affect the crystal structure. A new isomer, (designated X-AOM) has been reported with improved smoke suppression characteristics.⁵

In addition to pure molybdate chemicals, several engineered smoke suppressants (KEMGARD) are manufactured and sold by the Sherwin-Williams Chemicals Group. These are typically based on zinc and calcium molybdates, and are prepared by precipitation in the presence of an inert core.⁶⁻⁷

The general concept of these engineered materials is that precipitation onto the surface of an inert mineral will increase the surface area of the active chemistry and reduce the total demand for molybdenum in the PVC compound.

In light of the escalating price of molybdenum in the marketplace, engineered smoke suppressants obviously become more attractive.

In this work we report on the development of a new engineered smoke suppressant technology based on AOM chemistry.

We have found that the precipitation of AOM in the presence of mineral extenders can produce a new high surface area AOM smoke suppressant. The high surface area significantly increases the smoke suppression performance over a standard ammonium octamolybdate.

This advancement, which combines Sherwin-Williams surface treatment technology and AOM chemistry represents a significant advancement in AOM based smoke suppression.

2. Materials

In this study several commercial AOM smoke suppressants were examined. These were also jet milled for further size reduction and were included in our testing. Table 1 shows the particle size and surface area of the control materials tested.

High surface area AOM, Kengard STA, was prepared by reaction of ammonium dimolybdate and molybdenum oxide in the presence of an inert talc. The process is described in an applied US patent.⁸

	Average Particle Size (D50)	BET Surface Area
Climax A20171	0.68 micron	2.9m ² /gm
Climax WA011GA	3.26	1.6
HC Starck 02F001	0.68	2.7

▲ **Table 1:** Particle size and surface area of commercial AOMs

Talc	Kemgard STA	Climax AOM WA	Climax AOM A2	Talc + Climax AOM WA
13.0 m ² /gm	7.0 m ² /gm	1.6 m ² /gm	2.9 m ² /gm	5.1 m ² /gm

▲ **Table 2:** BET surface area measurements

Several inert fillers commonly used in PVC compound were examined. Not all fillers promoted the formation of high surface area AOM. In this work, we describe only the results obtained with a talc filler.

X-ray diffraction was carried out on KG-StA and commercial AOM. The AOM in KG-StA and that in the commercial material was indistinguishable. SEM analysis did indicate a difference in particle shape and morphology for KG-StA and commercial AOM. *Figure 1* shows an SEM image of a commercial AOM WA from Climax. *Figure 2* shows the structure of Kemgard STA. In the commercial material, the AOM is found in the form of irregularly shaped agglomerates. However, in the KG-StA samples, the AOM is found in the form of distinct rods.

Based on the SEM micrographs, it appears that the precipitation of ammonium octamolybdate in the presence of talc promotes the formation of rods rather than agglomerates. How the presence of talc influences the morphology of AOM, thermodynamically or kinetically, is not yet understood.

As measured by the BET method, the rod-like structure of AOM in Kemgard STA has higher surface area than the commercial materials. The surface area values of the various AOM products are shown in *Table 2*.

The surface area of a blended material can be considered an additive property. For example, a blend of talc and Climax AOM WA is calculated as a weighted average of the individual components, as shown in *equation 1*.

$$\text{Talc + AOMWA} = 0.3 * (13.8) \text{ m}^2/\text{gm} + 0.7 * (1.6) \text{ m}^2/\text{gm} = 5.26 \text{ m}^2/\text{gm}$$

Equation (1)

The calculated value of 5.26 m²/g compares favorably with the experimentally determined value of 5.1 m²/g.

For KG-StA, the experimentally determined BET surface area was 7.0 m²/gm. Using the same rule of mixing, the contribution from the surface modified AOM is calculated to be equivalent to 4.09 m²/gm, as shown in *equation 2*.

$$\text{STA AOM} = [7.0 \text{ m}^2/\text{gm} - (0.3 * 13.8 \text{ m}^2/\text{gm})] / 0.7 = 4.09 \text{ m}^2/\text{gm}$$

Equation (2)

Therefore, the ammonium octamolybdate of KG STA is determined to have a surface area 1.5 to 2.5 times higher than the two commercial grades of AOM.

One technique of increasing surface area is by reducing the particle size via mechanical milling. Although this is a common practice, there is a diminishing rate of return as controlled by energy cost, stability of product and material integrity during processing. Both grades of commercial Climax AOM were jet milled and compared to the KG STA in *Table 3*.

Jet milling failed to decrease the particle size or increase the surface area of Climax AOM A2. However, with the larger particle Climax AOM WA, jet milling did produce considerable improvements in both surface area and particle size.

Nevertheless, the surface area of the twice jet milled AOM-WA was still 10% lower than the calculated value for KG-StA. The higher AOM surface area of KG-StA is expected to result in greater effectiveness of smoke suppression. Char formation in PVC is catalysed by molybdate; therefore higher surface area should produce higher char yield.

3. Test Methods

3.1 ASTM E662 NBS Smoke Chamber

The release of smoke generated by the combustion of plastic materials can be determined using the National Bureau of Standards (NBS) smoke chamber method, standardised in the United States as ASTM E662.

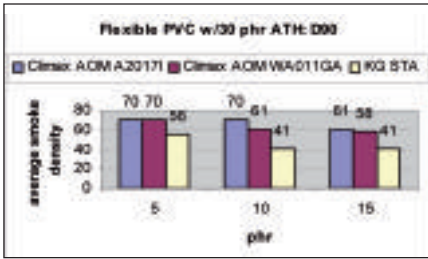
This test was originally developed to determine the smoke generating characteristics of plastic materials used in aircraft construction.

▼ **Table 3:** Surface area and particle size measurements

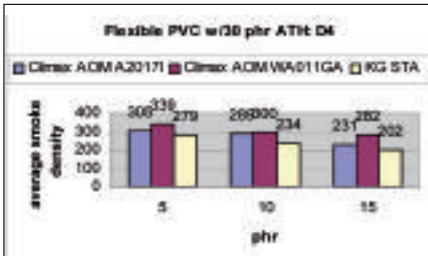
	Kemgard STA	Climax AOM WA	Climax WA (2 passes)	Climax AOM A2	Climax A2 (1 pass)
BET (m²/gm)	7.0	1.6	3.7	2.9	2.9
PSD D50 (micron)	2.74	3.26	0.71	0.68	0.57

▼ **Table 4:** Flexible PVC formulations

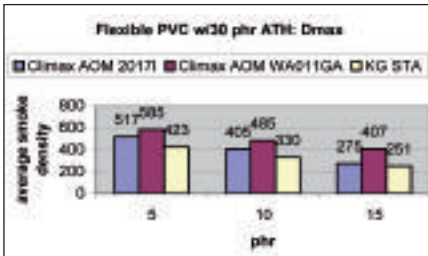
Oxyvinyl 240F	100	100
Halstab H-695	7	7
Sb₂O₃	3	3
Micral 9400	30	60
Santicizer 2148	20	20
Uniplex FRP-45	20	20



▲ Figure 3: Ninety second NBS smoke density for KG-STA and commercial AOM



▲ Figure 4: Four minute NBS smoke density for KG-STA and commercial AOM



▲ Figure 5: Maximum smoke density for KG-STA and commercial AOM

The NBS smoke chamber measures smoke density accumulated when a specimen of specified form and thickness is exposed to a radiant heat source of 25 kW/m².

Depending on the application, either the maximum smoke density or the smoke density at a set time (usually 4 minutes) can be specified.

The test can be run with or without the application of a pilot flame (flaming and smouldering mode, respectively). In this work, all tests were run in the flaming mode.

3.2 ASTM E1354 Cone Calorimeter

The cone calorimeter is a laboratory instrument that measures combustibility and smoke generation of materials under a wide range of conditions.

For building materials that must pass the expensive E-84 Steiner Tunnel test, the cone calorimeter is often used as a screening test. While no single fixed irradiance test can predict performance in the large-scale tunnel test, the cone calorimeter test is widely recognised as a useful development tool.

In the cone calorimeter test, described by ASTM E1354, a square sample of

100mm x 100mm (4 x 4 in) is exposed to the radiant flux of an electric heater. The heater has the shape of a truncated cone (hence the name of the instrument) and is capable of providing heat fluxes in the range of 10-110 kW/m², but most typically from 50-75 kW/m². This is two to three times the heat flux used in the NBS smoke chamber.

The cone calorimeter can measure key material fire performance characteristics that have been used in fire modelling. Smoke generation, is continuously measured using a laser beam in the exhaust duct. The log of the intensity is used to calculate an extinction coefficient, which is a measure of the smoke in the air stream.

Integration of the extinction coefficient versus time is combined with the total volume of combustion products to give the total smoke parameter. Normalised for the surface area of the sample, the units on total smoke are m²/m².

In this work, cone calorimeter testing was performed at both Polymer Diagnostics, in Avon Lake, Ohio, US, and at the College of William and Mary, under the direction of Professor William Starnes.

4. Results

4.1 NBS Smoke

Two model flexible PVC formulae were selected for a comparison of the prototype Kemgard STA with commercial AOM. In one formula, aluminum trihydrate was added at a 30 phr level. In the other formula, the ATH level was 60 phr. The base formulae are shown in Table 4.

Product comparisons were done at 5, 10 and 15 phr total AOM. Talc levels were adjusted to maintain a fixed total filler level.

Figures 3-5 present the smoke density as a function of use level for various compounds. D90 corresponds to the smoke density at 90 seconds. D4 corresponds to the smoke density at 4 minutes and Dmax represents the maximum smoke density achieved during the test.

The data clearly demonstrate that at all use levels and all times, the KG-STA far exceeds the performance of Climax WA 011GA. The performance of KG-STA is also superior to that of the best commercial sample, Climax A20171, again at all levels and all times.

In terms of maximum smoke density, KG-STA shows the greatest performance advantage at the lower use levels. In fact, the performance of KG-STA at 5 phr is comparable to the performance of the best commercial AOM at 10 phr.

This is a remarkable result and suggests a far more efficient use of the AOM chemistry. Figures 6-8 present the NBS smoke results obtained in the higher (60 phr) ATH containing formula.

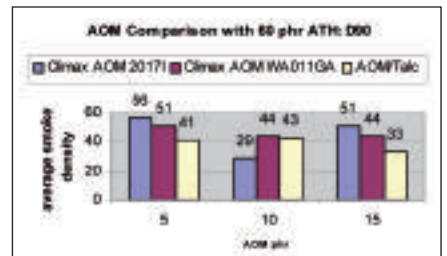
Again, the smoke density is shown as a function of use level for the various compounds. As in the previous system, comparisons were done at 5, 10 and 15 phr total AOM, with talc levels adjusted to maintain fixed total filler content.

Figure 6 shows the 90 second smoke, Figure 7 shows the smoke development at 4 minutes and Figure 8 shows the maximum smoke development for the various compounds.

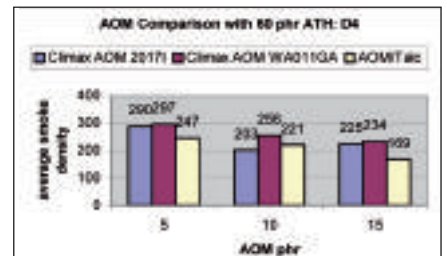
Similar to the low ATH system, the data again demonstrate that at all use levels and all times, the KG-STA far exceeds the performance of Climax WA 011GA.

Comparing just these two systems, the performance KG-STA at 5 phr is superior to that of the WA 011GA at 10 phr. This is true at all times of the test.

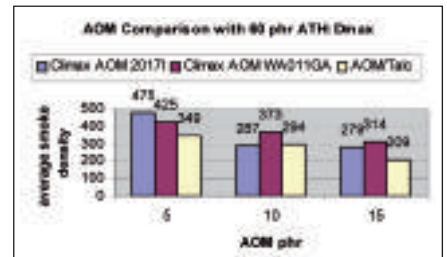
KG-STA also demonstrated performance superior to the smaller particle size commercial sample, A20171 at both the 5 phr and 15 phr levels. At 10 phr, the performance was comparable.



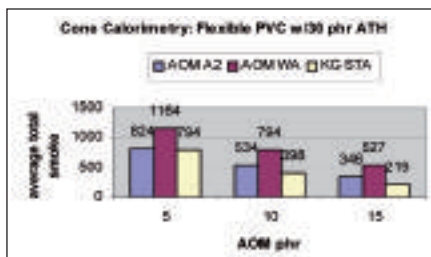
▲ Figure 6: Ninety second NBS smoke density for KG-STA and commercial AOM



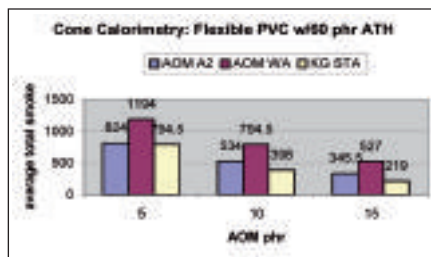
▲ Figure 7: Four minute NBS smoke density for KG-STA and commercial AOM



▲ Figure 8: Maximum smoke density for KG-STA and commercial AOM



▲ **Figure 9:** Total smoke for KG-STA and commercial AOM at 30 phr ATH and 70 kW/m²



▲ **Figure 10:** Total smoke for KG-STA and commercial AOM at 60 phr ATH and 70 kW/m²

Based on these results, it was concluded that KG-STA demonstrated a far more efficient use of the AOM chemistry in two different flexible PVC formulas and at different use levels.

4.2 Cone Calorimeter

The smoke suppression effectiveness of KG-STA and the two commercial AOM samples were further compared using cone calorimeter testing (ASTM E-1354).

The same two model flexible PVC formulas (Table 3, shown earlier) were used in this study. Product comparisons were again conducted at 5, 10 and 15 phr total AOM with talc levels adjusted to maintain a fixed total filler level. All cone calorimeter testing was conducted at an irradiance of 70 kW/m².

Figures 9 and 10 present the total smoke generated from combustion of the various PVC samples as a function of use level.

The results paralleled those obtained with the NBS smoke chamber. In the 30 phr ATH system, KG-STA far exceeds the performance of Climax WA 011GA at all use levels.

The total smoke achieved with 5 phr KG-STA was virtually the same as that obtained with Climax WA 011GA at 10 phr. KG-STA also outperformed the best commercial AOM, Climax A2017I.

In this case, the total smoke obtained with 10 phr KG-STA was nearly identical to that obtained with 15 phr of Climax A2017I.

Nearly identical performance advantages were observed in the 60 phr ATH system. The performance of KG-STA again far exceeds the performance of Climax WA 011GA at all use levels.

The total smoke numbers with 5 phr KG-STA were comparable to those obtained with Climax WA 011GA at 10 phr.

Significantly, the total smoke obtained with 10 phr KG-STA was nearly the same as that obtained with 15 phr of Climax A2017I. Both the Cone Calorimeter and NBS Smoke results demonstrate that in flexible PVC,

KG-STA offers performance advantages over commercial AOM. Depending on the system, it appears that the use of KG-STA allows for the reduction of 25% to 50% total AOM while retaining equal or better smoke suppression.

This could be a very significant benefit to compounders of low smoke flexible PVC.

5. Conclusions

To meet the stringent smoke requirements of NFPA 262, PVC plenum jacket compound requires the use of smoke suppressants.

A number of molybdate-based materials have been utilised to suppress smoke. These molybdate-based additives function in the condensed phase by enhancing char formation.

Sherwin-Williams Chemicals has developed a process for the precipitation of high surface area AOM.

The presence of certain talc fillers influences the morphology of the precipitated AOM and promotes the formation of high surface area product.

NBS and cone calorimeter testing have demonstrated a performance enhancement associated with increased molybdate surface area.

Data suggests that when compared with conventional AOM, Kemgard STA can be used at equal loading with enhanced performance or at reduced levels with equivalent performance.

With molybdenum prices at an all-time high, the ability to reduce use level by control of particle size and morphology represents a significant technical achievement. ■

6. Acknowledgements

The authors would like to thank Mr Charlie Simpson and Dave Klimovich for their technical assistance.

7. References

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Neuer Rauchunterdrücker aus Molybdän für PVC

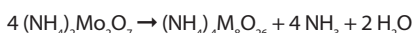
Von J Ken Walker, Wai-Kwong Ho, Sherwin-Williams Chemicals

1. Einleitung

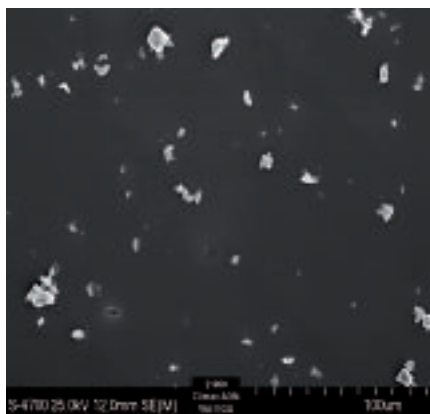
Polyvinylchlorid, PVC, ist ein inhärent flammhemmendes Polymer und wird oft bei Anwendungen eingesetzt, bei denen geringe Flammenausbreitungen gefordert sind. Bei einigen Anwendungen hat die amerikanische Gesellschaft für Brandverhütung, die National Fire Protection Association (NFPA), auch strenge Rauchstandards eingeführt. Für die plenum-eingestufte PVC-Ummantelung, müssen Kommunikationskabel NFPA 262, den Steiner Tunnel Test, bestehen. Um sich für den Gebrauch zu qualifizieren, darf die Flammenausbreitung 5 Fuß nicht überschreiten. Darüber hinaus, darf der Höchstwert des Rauchs nicht 0,5 Maßeinheiten überschreiten, während der durchschnittliche Rauchwert im Laufe des Tests unter 0,15 Maßeinheiten sein muß.

Anorganische Molybdäne sind der Industriestandard für Rauchunterdrückung in PVC. Hervorragend wird dies durch die inhärente Fähigkeit des Molybdäns, die Bildung künstlicher Kohle (char) zu fördern.¹⁻³ Die sehr verbreitete und anerkannteste Molybdänchemie für Rauchunterdrückung in PVC ist Ammonium-Oktanmolybdän, ammonium octamolybdate - AOM. Wegen der hohen Kosten des Molybdäns und des hohen Prozentsatzes an Molybdän in AOM (61% basierend auf Molybdänoxid) suchen PVC-Hersteller neue Technologien, um die Effizienz der rauchunterdrückenden Additive zu erhöhen.

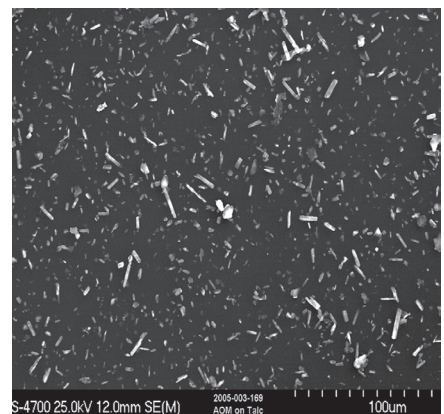
Es wird berichtet, daß Ammonium-Oktanmolybdän in zwei isomeren Formen existiert, die als Alpha oder Beta bezeichnet werden. In der Regel ist „a“ die handelsübliche Form. Sie wird durch die teilweise thermische Zersetzung von Ammonium-Dimolybdän, ADM, erzeugt, entsprechend der Reaktion:



AOM wurde auch durch die Ansäuerung einer ADM- Lösung erzeugt.^{4,5}



▲ Bild 1: REM von Climax WA AOM



▲ Bild 2: REM von Kemgard STA

Gemäß der Patentschrift, können Änderungen bei den Verfahrensbedingungen die Kristallstruktur beeinflussen. Über ein neues (X-AOM genannter) Isomer mit erhöhten Rauchunterdrückungsmerkmalen wurde berichtet.⁵

Neben den reinen Molybdänchemikalien, werden verschiedene spezifische Rauchunterdrücker (KEMGARD) von der Sherwin-Williams Chemicals Group hergestellt und verkauft. Sie basieren in der Regel auf Zink- und Kalzium-Molybdän, und werden durch die Fällung bei Vorhandensein eines Inertkerns vorbereitet.^{6,7} Das allgemeine Konzept dieser spezifisch entwickelten Materialien liegt darin, daß die Fällung auf der Oberfläche eines Inertminerals, die Oberfläche der aktiven Chemie erhöht und den Gesamtbedarf an Molybdän im PVC-Compound reduziert.

Angesichts der steigenden Preise des Molybdäns im Markt, werden natürlich spezifische Rauchunterdrücker immer interessanter. In dieser Studie wird von der Entwicklung einer neuen Technologie zur spezifischen Rauchunterdrückung berichtet, die auf der AOM-Chemie basiert. Wir haben herausgefunden, daß die Fällung von AOM bei Vorhandensein von Mineralfüllmittel einen neuen Großoberflächen-AOM-

Rauchunterdrücker erzeugen kann. Durch die Großoberfläche wird die Leistung der Rauchunterdrückung gegenüber einem standardmäßigen Ammonium-Oktanmolybdän wesentlich erhöht. Dieser Fortschritt, der die Technologie der Oberflächenbehandlung von Sherwin-Williams mit der AOM-Chemie kombiniert, stellt einen wichtigen Fortschritt für die AOM-basierte Rauchunterdrückung dar.

2. Materialien

In dieser Studie wurden mehrere handelsübliche AOM-Rauchunterdrücker untersucht. Diese wurden auch durch eine Strahlmühle, für eine weitere Größenreduzierung feinerkleinert und in unsere Prüfung integriert. *Tabelle 1* zeigt die Teilchengröße und die Oberfläche der getesteten Prüfmateriale. Großoberflächen-AOM, Kemgard STA, wurde durch die Reaktion von Ammonium-Dimolybdän und Molybdän-Oxid bei Vorhandensein eines Inertalkum vorbereitet. Das Verfahren ist in einem in Amerika angemeldeten Patent beschrieben.⁸

Untersucht wurden mehrere Inertfüller, die im allgemeinen bei PVC-Compounds eingesetzt werden.

	Durchschnittliche Teilchengröße (D50)	BET-Oberflä
Climax A2017I	0.68 mikron	2.9m ² /gm
Climax WA011GA	3.26	1.6
HC Starck 02F001	0.68	2.7

▲ **Tabelle 1:** Teilchengröße und Oberfläche der handelsüblichen AOM

Talkum	Kemgard STA	Climax AOM WA	Climax AOM A2	Talkum + Climax AOM WA
13.0 m ² /gm	7.0 m ² /gm	1.6 m ² /gm	2.9 m ² /gm	5.1 m ² /gm

▲ **Tabelle 2:** Messungen der BET-Oberfläche

Nicht alle Füllmittel bewirkten die Bildung von Großoberflächen-AOM. In dieser Studie sind nur jene Ergebnisse beschrieben, die mit einem Talkumfüller erzielt wurden. Die Röntgenstrahlenbrechung wurde auf KG-STA und handelsüblichen AOM durchgeführt. Das AOM in KG-STA und jenes im handelsüblichen Material waren nicht zu unterscheiden. Die REM-Analyse (Analyse im Rasterelektronenmikroskop) zeigte einen Unterschied bei der Teilchenform und -morphologie zwischen KG-STA und handelsüblichem AOM. *Bild 1* zeigt das REM-Bild eines handelsüblichen AOM WA von Climax. *Bild 2* zeigt die Struktur von Kemgard STA. Im handelsüblichen Material wird AOM in der Form unregelmäßig geformter Agglomerate vorgefunden. Dennoch wird das AOM in den KG-STA-Proben in der Form getrennter Stäbe vorgefunden.

Basierend auf den REM-Mikrodiagramme, erscheint es, als daß die Fällung von Ammonium-Oktanmolybdän bei Vorhandensein von Talkum eher die Bildung von Stäben statt die von Agglomeraten fördert. Wie das Vorhandensein von Talkum die Morphologie des AOM beeinflusst - thermodynamisch oder kinetisch - wurde noch nicht verstanden. Entsprechend einer Messung durch die BET-Methode, weist die stabähnliche Struktur von AOM in Kemgard STA eine größere Oberfläche im Vergleich zu handelsüblichen Materialien auf. Die Oberflächenwerte der verschiedenen AOM-Produkte sind in der *Tabelle 2* dargestellt.

Die Oberfläche eines vermischten Materials kann als Additionsvermögen betrachtet werden. Zum Beispiel wird eine Vermischung von Talkum und Climax-AOM WA als gewichteter Mittelwert der einzelnen Komponente errechnet, wie in der *Gleichung 1* dargestellt.

$$\text{Talkum + AOM WA} = 0.3 * (13.8) \text{ m}^2/\text{gm} + 0.7 * (1.6) \text{ m}^2/\text{gm} = 5.26 \text{ m}^2/\text{gm}$$

Gleichung 1

Der errechnete Wert von 5,26m²/g zeigte einen günstigen Vergleich mit dem probeweise festgelegten Wert von 5,1m²/g. Für KG-STA entsprach die probeweise festgelegte BET-Oberfläche 7,0m²/gm. Mit Einsatz der selben Vermischungsregel wird errechnet, daß der Beitrag des oberflächenmodifizierten AOM 4,09m²/gm entspricht, wie in der *Gleichung 2* dargestellt.

$$\text{STA AOM} = [7,0 \text{ m}^2/\text{gm} - (0,3 * 13,8 \text{ m}^2/\text{gm})] / 0,7 = 4.09 \text{ m}^2/\text{gm}$$

Gleichung 2

Demzufolge wird festgelegt, daß das Ammonium-Oktanmolybdän von KG STA eine Oberfläche aufweist, die 1,5 bis 2,5 Mal größer ist als die der zwei handelsüblichen Klassen von AOM.

Eine Technik zur Oberflächenerhöhung liegt darin, die Teilchengröße durch mechanisches Mahlen zu reduzieren. Obwohl diese Praxis üblich ist, ergibt sich eine reduzierte Rendite abhängig von Energiekosten, Produktstabilität und Materialunversehrtheit während der Verarbeitung. Die beiden handelsüblichen Klassen Climax AOM wurden durch eine Strahlmühle feinerzkleinert und mit KG STA in der *Tabelle 3* verglichen.

Die Feinerzkleinerung durch Strahlmühle bewirkte weder eine Reduzierung der Teilchengröße noch eine Oberflächenvergrößerung von Climax AOM A2. Jedoch erzeugt die Feinerzkleinerung durch Strahlmühle mit dem größeren Teilchen Climax AOM WA, eine beträchtliche Verbesserung, sowohl hinsichtlich der Oberfläche wie der Teilchengröße. Dennoch lag die Oberfläche des zweimal durch Strahlmühle feinerzkleinerten AOM-WA immer noch 10% unter dem für KG-STA errechneten Wert.

Es wird erwartet, daß die größere AOM-Oberfläche von KG-STA eine höhere Wirksamkeit der Rauchunterdrückung zur Folge haben wird. Die Bildung künstlicher Kohle in PVC wird durch Molybdän katalysiert; demzufolge sollte eine größere Oberfläche eine höhere Menge an künstlicher Kohle erzeugen.

3. Prüfmethoden

3.1 ASTM E662 - NBS Rauchkammer

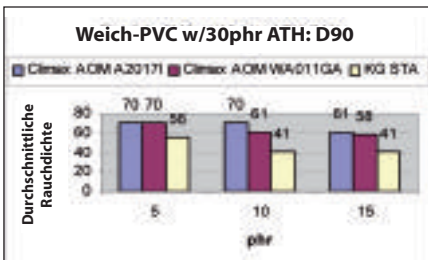
Der durch das Brennen von Kunststoffmaterialien freigesetzte Rauch kann durch die Rauchkammermethode vom National Bureau of Standards (NBS) festgelegt werden, die in den Vereinigten Staaten als ASTM E662 standardisiert ist.

▼ **Tabelle 3:** Messungen der Oberfläche und Teilchengröße

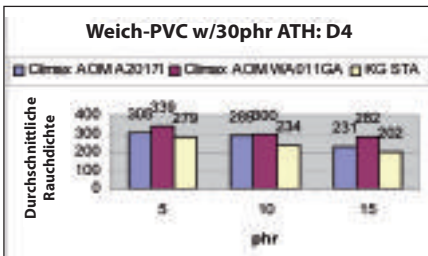
	Kemgard STA	Climax AOM WA	Climax WA (2 Durchgänge)	Climax AOM A2	Climax A2 (1 Durchgang)
BET (m²/gm)	7.0	1.6	3.7	2.9	2.9
PSD D50 (mikron)	2.74	3.26	0.71	0.68	0.57

▼ **Tabelle 4:** Formulierungen zu Weich-PVC

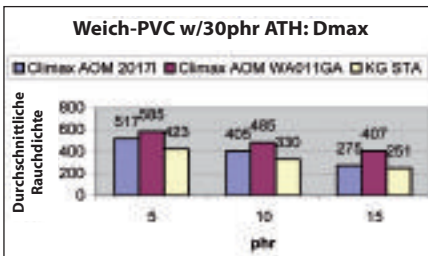
Oxyvinyl 240F	100	100
Halstab H-695	7	7
Sb₂O₃	3	3
Micral 9400	30	60
Santicizer 2148	20	20
Uniplex FRP-45	20	20



▲ Bild 3: NBS-Rauchdichte bei 90 Sekunden für KG-STA und handelsüblichen AOM



▲ Bild 4: NBS-Rauchdichte bei 4 Minuten für KG-STA und handelsüblichen AOM



▲ Bild 5: Höchste Rauchdichte für KG-STA und handelsüblichen AOM

Dieser Test wurde ursprünglich entwickelt, um die vom Rauch erzeugten Merkmale der im Flugzeugbau eingesetzten Kunststoffmaterialien zu bestimmen. Die NBS-Rauchkammer mißt die Rauchdichte, die gesammelt wird wenn eine Probe angegebener Form und Dicke einer Strahlungswärmequelle von 25kW/m² ausgesetzt wird.

Je nach Anwendung kann die höchste Rauchdichte oder die Rauchdichte zu einer angesetzten Zeit (in der Regel, 4 Minuten) festgelegt werden. Die Prüfung kann mit oder ohne Anwendung einer Pilotflamme durchgeführt werden (bzw. Flammenverbrennung- und Schwelbrand-Modus). In dieser Studie wurden alle Tests im Flammenverbrennung-Modus durchgeführt.

3.2 ASTM E1354 Cone-Kalorimeter

Der Cone-Kalorimeter ist ein Laborinstrument, das die Brennbarkeit und Raucherzeugung der Materialien unter einer großen Auswahl an Bedingungen mißt.

Für Baumaterial, das den aufwendigen E-84 Steiner Tunnel Test bestehen muß, wird oft der Cone-Kalorimeter als Vortest eingesetzt.

Während kein einzeln fester Einstrahlungstest die Leistung im umfangreichen Tunnel Test vorhersagen kann, wird der Cone-Kalorimeter Test verbreitet als nützliche Entwicklungsvorrichtung anerkannt.

In dem durch ASTM E1354 beschriebenen Cone-Kalorimeter-Test, wird ein vierkantiges 100mm x 100mm (4 x 4 Zoll) Probestück dem Strahlfluß eines elektrischen Erwärmers ausgesetzt.

Der Erwärmer hat die Form eines abgeschnittenen Konus (daher der Name "cone" des Geräts) und kann Wärmeflüsse zwischen 10 und 110kW/m² liefern, jedoch liegen die typischsten Werte zwischen 50 und 75kW/m². Das entspricht zwei bis drei Mal dem Wärmefluß, der in der NBS-Rauchkammer benutzt wird.

Der Cone-Kalorimeter kann die Eigenschaften hinsichtlich des Brandverhaltens von Schlüsselmaterialien messen, die bei der Brandmodellierung eingesetzt wurden. Die Raucherzeugung wird kontinuierlich anhand eines Laserstrahls im Abgasrohr gemessen. Der aufgezeichnete Wert der Intensität wird benutzt, um einen Extinktionskoeffizienten zu errechnen, der eine Messung des Rauchs im Luftstrom darstellt.

Die Integration des Extinktionskoeffizienten gegenüber der Zeit, wird mit dem Gesamtvolumen der Brennpunkte kombiniert, um den Gesamtrauchwert zu liefern. Die Maßeinheiten gegenüber dem Gesamtrauch, für die Oberfläche der Probe normiert, sind in m²/m² ausgedrückt.

In dieser Studie wurden die Cone-Kalorimeter-Prüfungen bei Polymer Diagnostics, in Avon Lake, Ohio, USA, und im College of William and Mary, unter der Leitung von Professor William Starnes durchgeführt.

4. Ergebnisse

4.1 NBS-Rauch

Zwei unterschiedliche Weich-PVC-Formeln wurden ausgewählt, um den Prototyp Kemgard STA mit dem handelsüblichen AOM zu vergleichen. In einer Formel wurde Aluminiumtrihydrat bei einem 30phr Niveau hinzugefügt.

In der anderen Formel, lag das ATH-Niveau bei 60phr. Die Grundformeln sind in der Tabelle 4 beschrieben.

Die Produktvergleiche wurden bei 5, 10 und 15phr Gesamt-AOM durchgeführt. Die Talkumstufen wurden angepaßt, um einen festen gesamten Füllmittelstand einzuhalten.

In den Bildern 3-5 ist die Rauchdichte abhängig von der Einsatzstufe für die verschiedenen Compounds beschrieben. D90 entspricht dem Rauchniveau bei 90 Sekunden.

D4 entspricht der Rauchdichte bei 4 Minuten und Dmax stellt die höchste Rauchdichte dar, die während des Tests erreicht wurde.

Die Angaben beweisen deutlich, daß bei allen Einsatzstufen und zu allen Zeiten, KG-STA die Leistung von Climax WA 011GA weit übertrifft.

Die Leistung von KG-STA ist darüber hinaus hinsichtlich aller Einsatzstufen und zu allen Zeiten jener der besten handelsüblichen Proben - Climax A2017I - erneut überlegen.

In Bezug auf die höchste Rauchdichte, zeigt KG-STA den höchsten Leistungsvorteil bei den niedrigsten Einsatzstufen.

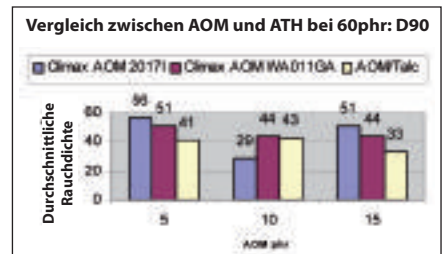
In der Tat ist die Leistung von KG-STA bei 5phr mit der Leistung des besten handelsüblichen AOM bei 10phr vergleichbar. Das ist ein hervorragendes Ergebnis und weist auf einen viel leistungsfähigeren Einsatz der AOM-Chemie hin.

In den Bildern 6-8 werden die NBS-Rauchergebnisse beschrieben, die in der höheren (60phr) ATH-enthaltenden Formel erzielt werden.

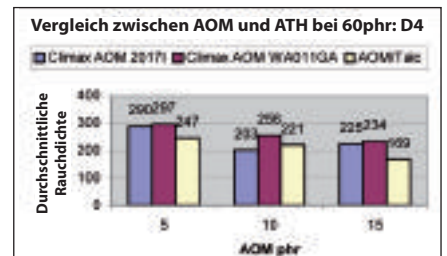
Hier wird ebenfalls gezeigt, daß die Rauchdichte abhängig von der Einsatzstufe für die verschiedenen Compounds ist.

Wie im vorherigen System, wurden Vergleiche bei 5, 10 und 15phr Gesamt-AOM durchgeführt, mit angepaßten Talkumstufen, um einen festen gesamten Füllmittelgehalt einzuhalten.

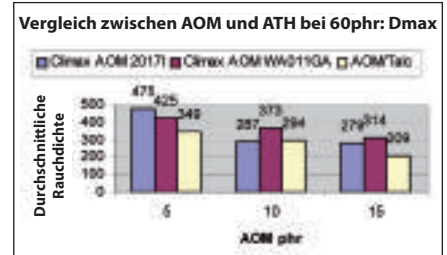
Bild 6 zeigt den 90-Sekunden-Rauch, Bild 7 zeigt die Raucherzeugung bei 4 Minuten und Bild 8 die höchste Raucherzeugung für die verschiedenen Compounds.



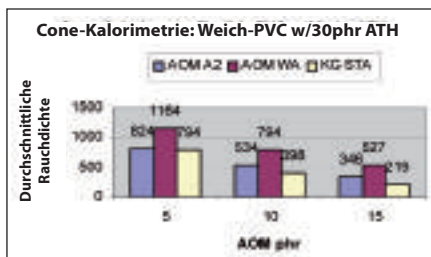
▲ Bild 6: NBS-Rauchdichte bei 90 Sekunden für KG-STA und handelsüblichen AOM



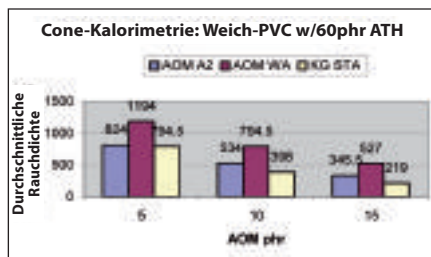
▲ Bild 7: NBS-Rauchdichte bei 4 Minuten für KG-STA und handelsüblichen AOM



▲ Bild 8: Höchste Rauchdichte für KG-STA und handelsüblichen AOM



▲ **Bild 9:** Gesamtrauch für KG-StA und handelsüblichen AOM bei 30phr ATH und 70 kW/m²



▲ **Bild 10:** Gesamtrauch für KG-StA und handelsüblichen AOM bei 60phr ATH und 70kW/m²

Ähnlich wie beim System des niedrigen ATH, beweisen die Angaben nochmals deutlich, daß bei allen Einsatzstufen und zu allen Zeiten, KG-StA die Leistungen von Climax WA 011GA weit übertrifft. Wenn lediglich diese beiden Systeme verglichen werden, ist die Leistung von KG-StA bei 5phr jener der WA 011GA bei 10phr überlegen.

Dies trifft bei allen Zeiten des Tests zu. Es wurde auch bewiesen, daß die Leistung von KG-StA jener der handelsüblichen Probe mit kleinster Teilchengröße, A20171, überlegen ist, sowohl bei den 5phr wie bei den 15phr Stufen. Bei 10phr war die Leistung vergleichbar.

Basierend auf diesen Ergebnissen wurde gefolgert, daß KG-StA einen leistungsfähigeren Einsatz der AOM-Chemie in zwei verschiedenen Formeln für Weich-PVC und bei unterschiedlichen Einsatzstufen beweist.

4.2 Cone-Kalorimeter

Die Wirksamkeit der Rauchunterdrückung von KG-StA und den zwei handelsüblichen AOM-Proben wurden weiter, unter Verwendung der Prüfung des Cone-Kalorimeters (ASTM E-1354) verglichen. Dieselben zwei Formeln Weich-PVC (Tabelle 4, zuvor erwähnt) wurden in dieser Studie angewandt. Es wurden nochmals Produktvergleiche bei 5, 10 und 15phr Gesamt-AOM durchgeführt, mit geänderten Talkumstufen, um einen festen gesamten Füllmittelstand einzuhalten. Alle Cone-Kalorimeterprüfungen wurden bei einer Einstrahlung von 70kW/m² durchgeführt.

Bild 9 und 10 zeigen den Gesamtrauch, der durch die Verbrennung verschiedener PVC-Proben je nach Einsatzstufe erzeugt wird. Die Ergebnisse entsprachen denen, die mit der NBS-Rauchkammer erzielt wurden. Im 30phr ATH-System, hat KG-StA die Leistung von Climax WA 011GA bei allen Einsatzstufen weit übertroffen. Der mit 5phr KG-StA erzielte Gesamtrauch war praktisch derselbe, der mit Climax WA 011GA bei 10phr erreicht wurde. KG-StA hat auch den besten handelsüblichen AOM, Climax A20171, übertroffen. In diesem Fall war der mit 10phr KG-StA erzielte Gesamtrauch fast dem mit 15phr von Climax A20171 erzielten gleich.

Im 60phr ATH-System wurden fast identische Leistungsvorteile beobachtet. Die Leistung von KG-StA übertraf nochmals deutlich die Leistung von Climax WA 011GA bei allen Einsatzstufen.

Die mit 5phr KG-StA erzielten Gesamtrauchwerte waren vergleichbar mit jenen, die mit Climax WA 011GA bei 10phr erreicht wurden. Es ist bemerkenswert, daß der mit 10phr KG-StA erzielte Gesamtrauch fast dem mit 15phr von Climax A20171 erzielten, gleicht.

Sowohl die Ergebnisse des Cone-Kalorimeter wie jene des NBS-Rauchs haben bewiesen, daß bei Weich-PVC, KG-StA Leistungsvorteile im Vergleich zu handelsüblichen AOM bietet.

Abhängig vom System, scheint es daß der Einsatz von KG-StA die Reduzierung von 25% auf 50% Gesamt-AOM ermöglicht, wobei eine gleiche oder bessere Rauchunterdrückung bewahrt wird. Das könnte einen sehr wichtigen Vorteil für die Compounds von raucharmem Weich-PVC darstellen.

5. Schlussfolgerungen

Um die strengen Anforderungen von NFPA 262 zu erfüllen, ist beim Compound der PVC-Ummantelung des Typs Plenum der Einsatz von Rauchunterdrückern erforderlich. Eine Anzahl an molybdänbasierten Materialien wurde eingesetzt, um Rauch zu unterdrücken.

Diese molybdänbasierten Additive wirken in der kondensierten Phase, indem die Bildung der künstlichen Kohle erhöht wird.

Sherwin-Williams Chemicals hat ein Verfahren für die Fällung von AOM mit Großoberflächen entwickelt. Das Vorhandensein von bestimmten Talkumfüllstoffen beeinflusst die Morphologie der gefällten AOM und fordert die Bildung eines Produkts mit Großoberfläche.

NBS- und Cone-Kalorimeterprüfungen haben eine Erhöhung der Leistung mit gesteigerter Molybdän-Oberfläche bewiesen.

Die Angaben weisen darauf hin, daß bei einem Vergleich mit herkömmlichen AOM, Kemgard STA bei einer gleichen Belastung mit erhöhter Leistung oder bei reduzierten Stufen mit gleichwertiger Leistung eingesetzt werden kann.

Mit den Preisen von Molybdän auf einem Allzeithoch, stellt die Fähigkeit einer Reduzierung der Einsatzstufe anhand der Prüfung von Teilchengröße und Morphologie ein wichtiges technisches Ergebnis dar. ■

6. Danksagung

Die Autoren möchten Charlie Simpson und Dave Klimovich für deren technische Unterstützung danken.

7. Literatur

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Новая молибдатная противодымная присадка для ПВХ

Дж. Кен Уокер, Вай-Квонг Хо (компания «Шервин-Вильямс кемикалз»)

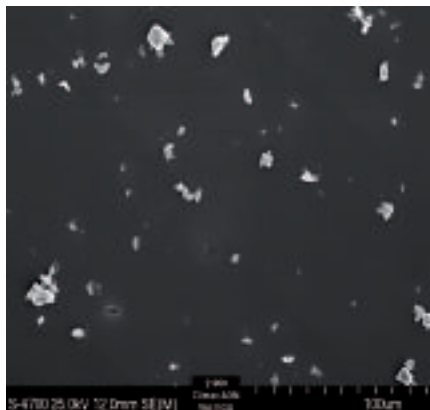
1. Введение

Поливинилхлорид (ПВХ) по своей природе является не поддерживающим горения полимером и нередко используется там, где требуется обеспечить замедленное распространение пламени. Для некоторых областей применения Национальная ассоциация пожарной безопасности (НАПБ) также установила жесткие стандарты дымовыделения. Кабель связи с ПВХ оболочкой, сертифицированной для использования в воздуховодах, должен успешно пройти испытания в туннеле Штейнера в соответствии с методикой НАПБ 262. Для получения разрешения на использование кабеля поверхностное распространение пламени не должно превышать 1,52 м, максимальная оптическая плотность дыма не должна превышать 0,5 единицы, а средняя величина оптической плотности за время проведения испытаний должна быть менее 0,15 единицы.

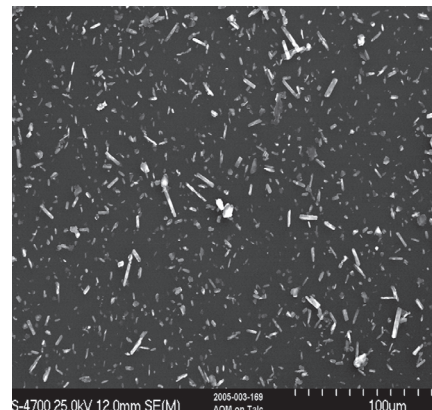
Неорганические молибдаты стандартно используются в промышленности для уменьшения количества дыма, выделяемого при горении изделий из ПВХ. При этом используется присущее молибдатам свойство способствовать процессу обугливания^[1-3]. Среди химических веществ на основе молибдатов, которые используются для уменьшения дымления ПВХ, наибольшим признанием пользуется октамолибдат аммония (ОМА). Высокая стоимость молибдена и большое процентное содержание молибдена в ОМА (61 % в пересчете на окись молибдена) являются причиной того, что производители ПВХ стремятся найти новую технологию для увеличения эффективности противодымных добавок. Известно, что октамолибдат аммония существует в форме двух изомеров, обозначаемых как альфа- и бета-изомеры. Обычно на рынке к продаже предлагаются альфа-изомеры. Они производятся путем частичного термического разложения димолибдата аммония (ДМА) при проведении следующей реакции:



ОМА также производится путем добавления кислоты в раствор ДМА^[4-5]:



▲ Рис. 1. Микроснимок присадки WA OMA компании «Клаймекс», сделанный с помощью РЭМ



▲ Рис. 2. Микроснимок KEMGARD STA, сделанный с помощью РЭМ



Как описывается в патентной литературе, изменения в условиях реакции могут оказывать влияние на кристаллическую структуру. Имеются сведения о получении нового изомера (получившего обозначение X-ОМА), который обладает улучшенными противодымными характеристиками.^[5]

Кроме химически чистых молибдатов, компания «Шервин-Вильямс кемикалз групп» (Sherwin-Williams Chemicals Group) выпускает и продает под торговой маркой KEMGARD несколько синтетических добавок, препятствующих выделению дыма. Эти добавки в основном выпускаются на основе молибдатов цинка и кальция и получаются путем осаждения на инертную основу^[6-7]. Общая концепция этих разработок состоит в том, что осаждение на поверхность инертного минерала должно увеличить удельную площадь поверхности активного вещества и уменьшить необходимое количество молибдена в пластике ПВХ. В свете роста цен на молибден на рынке синтетические противодымные присадки, естественно, становятся более привлекательными. В настоящей работе авторы сообщают о разработке новой технологии получения противодымных присадок на основе ОМА. Авторы выявили, что осаждение ОМА в присутствии минеральных наполнителей приводит к получению новой синтетической противодымной

присадки на основе ОМА с большой удельной поверхностью. Высокоразвитая удельная поверхность существенно улучшает противодымные характеристики по сравнению с обычным октамолибдатом аммония. Такое усовершенствование, сочетающее технологию подготовки поверхности от компании «Шервин-Вильямс» и использование химических свойств ОМА, представляет собой значительный шаг вперед в разработке противодымных присадок на основе ОМА.

2. Исследуемые материалы

В рамках данной работы были исследованы несколько промышленно выпускаемых противодымных присадок на основе ОМА. Присадки предварительно измельчались в вихревой мельнице для дополнительного уменьшения размера частиц и изучались в таком виде. В таблице 1 указаны размеры частиц и удельная поверхность исследуемых материалов. ОМА с большой удельной площадью, KEMGARD STA, был получен в результате реакции димолибдата аммония и окиси молибдена в присутствии инертного талька. Процесс описан в заявке на патент США.^[8]

Были изучены несколько инертных наполнителей, обычно используемых в ПВХ пластике. Не все наполнители

	Средний размер частиц (D50)	Удельная поверхность по БЭТ
A20171 компании «Клаймекс»	0.68 Микрон	2.9 м ² /г
WA011GA компании «Клаймекс»	3.26	1.6
02F001 компании «Эйч-си старк»	0.68	2.7

▲ Таблица 1. Размерность частиц и удельная поверхность промышленно выпускаемых ОМА

Тальк	Kemgard STA	ОМА марки WA компании «Клаймекс»	ОМА марки A2 компании «Клаймекс»	Тальк + ОМА марки WA компании «Клаймекс»
13.0 м ² /г	7.0 м ² /г	1.6 м ² /г	2.9 м ² /г	5.1 м ² /г

▲ Таблица 2. Измерение удельной поверхности по методу БЭТ

способствовали образованию ОМА с большой удельной поверхностью. В данной работе авторы приводят только результаты, полученные с применением в качестве наполнителя талька.

Kemgard STA и промышленно выпускаемый ОМА исследовались методом рентгенодифракции. ОМА в Kemgard STA и в промышленно выпускаемом материале были неразличимы. Однако, анализ при помощи растрового электронного микроскопа (РЭМ) выявил различие в размерах и морфологии частиц между Kemgard STA и промышленно выпускаемым ОМА. На рис. 1 представлено полученное при помощи РЭМ изображение ОМА марки WA, выпускаемого в промышленных масштабах компанией «Клаймекс» (Climax). На рис. 2 представлена структура Kemgard STA. В промышленно выпускаемом материале ОМА присутствует в виде агломератов неправильной формы. В то же время в образцах Kemgard STA ОМА присутствует в виде отчетливо различимых стержневидных структур.

При изучении микроснимков, сделанных с помощью РЭМ, видно, что осаждение октамолибдата аммония в присутствии талька вызывает образование стержневидных структур, а не агломератов. Определить, каким образом присутствие талька влияет на морфологию ОМА, термодинамически или кинетически, пока не представляется возможным. Измерение по методу Брунауэра, Эммета и Теллера (БЭТ) показало, что удельная поверхность стержневидных структур ОМА в образцах Kemgard STA больше, чем в промышленно выпускаемых материалах. Значения

удельной поверхности различных образцов ОМА приводятся в таблице 2. Удельная поверхность смеси материалов может рассматриваться как аддитивное свойство. Например, величина удельной поверхности смеси талька и ОМА марки WA компании «Клаймекс» рассчитывается как средневзвешенное отдельных компонентов согласно уравнению (1).

$$\text{Тальк + ОМА WA} = 0,3 * (13,8) \text{ м}^2/\text{г} + 0,7 * (1,6) \text{ м}^2/\text{г} = 5,26 \text{ м}^2/\text{г}$$

Уравнение (1)

Расчетная величина 5,26 м²/г хорошо коррелирует с экспериментально определенной величиной 5,1 м²/г. Удельная поверхность для Kemgard STA, определенная экспериментально методом БЭТ, составила 7,0 м²/г. Часть, приходящаяся на поверхность модифицированный ОМА, рассчитывается с использованием того же правила смешивания и равняется 4,09 м²/г согласно уравнению (2).

$$\text{ОМА STA} = [7,0 \text{ м}^2/\text{г} - (0,3 * 13,8 \text{ м}^2/\text{г})] / 0,7 = 4,09 \text{ м}^2/\text{г}$$

Уравнение (2)

Таким образом, нами определено, что удельная поверхность октамолибдата аммония в Kemgard STA в 1,5 – 2,5 раза больше, чем в двух промышленно выпускаемых марках ОМА. Один из способов увеличения удельной поверхности заключается в уменьшении размера частиц путем механического перемалывания. Хотя это и является общепринятым способом, коэффициент его эффективности снижается в зависимости от энергетических затрат, устойчивости продукта и целостности

материала при обработке. Обе марки промышленно выпускаемого ОМА компании «Клаймекс» были подвергнуты размалыванию в вихревой мельнице, а также сравнительному анализу с Kemgard STA (см. таблицу 3).

С помощью измельчения в вихревой мельнице уменьшить размер частиц или увеличить удельную поверхность ОМА марки A2 компании «Клаймекс» не удалось. Однако при размалывании в вихревой мельнице образца ОМА марки A2 компании «Клаймекс» с частицами большего размера все же были получены существенно лучшие результаты, как по удельной площади поверхности, так и по размеру частиц. Тем не менее, удельная поверхность ОМА марки WA, дважды измельченного в вихревой мельнице, была на 10 % меньше расчетной величины для Kemgard STA. Большая удельная поверхность Kemgard STA, предположительно, должна повысить эффективность подавления дымовыделения. Молибдат служит катализатором при обугливания ПВХ; таким образом, увеличение удельной поверхности должно привести к формированию большего обугленного участка.

3. Методы испытаний

3.1 Испытания в дымовой камере НБС по методике АСТМ Е662

Оптическая плотность дыма, выделяющегося при горении пластических материалов, может быть определена с использованием дымовой камеры Национального бюро стандартов (НБС) по методике, нормированной в США в соответствии с документом АСТМ Е662. Этот тест был изначально разработан для определения параметров дымовыделения пластических материалов, используемых в самолетостроении.

В дымовой камере НБС производится измерение оптической плотности дыма, выделяющегося тогда, когда образец определенной формы и толщины подвергается воздействию источника теплового излучения интенсивностью 25 кВт/м². В зависимости от области применения обеспечивается измерение максимальной оптической плотности дыма или оптической плотности дыма через определенное время (обычно 4 минуты). Испытания можно проводить с

▼ Таблица 3. Измерение удельной поверхности и размера частиц

	Kemgard STA	ОМА марки WA компании «Клаймекс»	марки WA компании «Клаймекс» (2 прохода)	ОМА марки A2 компании «Клаймекс»	A2 компании «Клаймекс» (1 проход)
БЭТ (м ² /г)	7.0	1.6	3.7	2.9	2.9
Гранулометрический состав D ₅₀ (микрон)	2.74	3.26	0.71	0.68	0.57

▼ Таблица 4. Состав ПВХ пластикатов

Oxyvinyl 240F	100	100
Halstab H-695	7	7
Sb ₂ O ₃	3	3
Micral 9400	30	60
Santicizer 2148	20	20
Uniplex FRP-45	20	20



▲ Рис. 3. Плотность дыма по методу НБС для Ketgard STA и промышленно выпускаемого OMA с интервалом в сто частей компаунда



▲ Рис. 4. Плотность дыма по методу НБС для Ketgard STA и промышленно выпускаемого OMA с интервалом в четыре минуты



▲ Рис. 5. Максимальная плотность дыма для Ketgard STA и промышленно выпускаемого OMA

использованием или без использования запальной горелки (в режиме пламенного горения и, соответственно, тления). В рамках данной работы, все испытания проводились в режиме пламенного горения.

3.2 Испытания с использованием конусного калориметра по методике ASTM E1354

Конусный калориметр представляет собой лабораторный прибор, измеряющий горючесть и дымовыделение материалов в различных условиях. Испытание с использованием конусного калориметра часто используется в качестве испытания для предварительного отбора строительных материалов, которые должны проходить дорогостоящие испытания в туннеле Штейнера по методике E-84. Хотя ни одно испытание с фиксированной поверхностной плотностью потока излучения не позволяет прогнозировать результаты широкомасштабного испытания в туннеле, тест с использованием конусного калориметра получил широкое признание в качестве удобного инструментального средства проведения исследований. При проведении теста с использованием конусного калориметра, описанного в стандарте ASTM E1354, образец квадратного сечения размером

100 мм x 100 мм (4 x 4 дюйма) подвергается воздействию потока излучения от электронагревателя. Нагреватель выполнен в виде усеченного конуса (отсюда и название прибора) и способен излучать тепловые потоки в пределах 10-110 кВт/м², однако обычно используются потоки интенсивностью 50-75 кВт/м². Это в два-три раза превышает тепловой поток, используемый в дымовой камере НБС.

Конусный калориметр позволяет измерять основные характеристики пожаростойкости, используемые при моделировании условий возгорания. Дымовыделение непрерывно измеряется при помощи лазерного луча в вытяжном канале. Полученные значения интенсивности дымовыделения используются для расчета коэффициента ослабления, который показывает количество дыма в воздушном потоке. Интегрирование коэффициента ослабления в функции времени в сочетании с общим объемом продуктов горения определяет основные параметры дыма. При приведении к удельной поверхности площади испытуемого образца общая задымленность измеряется в м²/м². В рамках данной работы испытания с использованием конусного калориметра выполнялись в компании «Полимер дайгностикс» (Polymer Diagnostics) в Эйвон Лейк, (шт. Огайо, США) и в Колледже Уильяма и Мэри (College of William and Mary) под руководством профессора Уильяма Старнеса (William Starnes).

4. Результаты испытаний

4.1 Испытания в дымовой камере НБС

Для сравнения опытного образца Ketgard STA с промышленно выпускаемым OMA были выбраны две типовые смеси пластика ПВХ. В состав одной смеси был добавлен тригидрат алюминия (ТГА) в количестве 30 весовых частей на сто частей компаунда. В другой смеси концентрация ТГА составляла 60 весовых частей на сто частей компаунда. Состав базовых смесей указан в таблице 4. Сравнительный анализ продуктов проводился при общем количестве OMA 5, 10 и 15 весовых частей на сто частей компаунда. Количество добавляемого талька подбиралось таким образом, чтобы обеспечить одинаковый общий уровень наполнителя.

На рисунках 3-5 представлены значения оптической плотности дыма для компаундов с различным уровнем добавок. D90 соответствует плотности дыма через 90 секунд, D4 соответствует плотности дыма через 4 минуты, и D_{max} представляет максимальное значение оптической плотности дыма, полученное во время испытаний. Представленные данные наглядно свидетельствуют о том, что для компаундов с любым уровнем добавок в любой момент времени Ketgard STA значительно превосходит показатели добавки марки WA 011GA компании «Клаймекс». Показатели

Kemgard STA также выше, чем у лучшего промышленно выпускаемого образца A20171 компании «Клаймекс», причем тоже для всех уровней добавок и в любой момент времени. Kemgard STA показывает лучшие результаты по максимальному значению плотности дыма при низких уровнях добавок. Более того, показатели Kemgard STA при внесении 5 весовых частей сопоставимы с показателями лучшего промышленно выпускаемого OMA при внесении 10 весовых частей. Это – замечательный результат, свидетельствующий о гораздо более эффективном использовании химических свойств OMA.

На рисунках 6-8 представлены результаты испытаний в дымовой камере НБС, полученные для смеси с более высоким содержанием ТГА (60 весовых частей на сто частей компаунда). В этом случае значения плотности дыма также представлены как функция уровня содержания добавок в различных компаундах. Как и ранее, сравнительный анализ проводился при общем количестве OMA 5, 10 и 15 весовых частей на сто частей компаунда, при этом содержание талька менялось таким образом, чтобы обеспечить одинаковое общее содержание наполнителя. На рис. 6 показан уровень задымления через 90



▲ Рис. 6. Плотность дыма по методу НБС для Ketgard STA и промышленно выпускаемого OMA с интервалом в девяносто секунд



▲ Рис. 7. Плотность дыма по методу НБС для Ketgard STA и промышленно выпускаемого OMA с интервалом в четыре минуты



▲ Рис. 8. Максимальная плотность дыма для Ketgard STA и промышленно выпускаемого OMA



▲ Рис. 9. Общий уровень задымления для Kemgard STA и промышленно выпускаемого OMA при внесении 30 весовых частей ТГА и тепловом излучении 70 кВт/м²



▲ Рис. 10. Общий уровень задымления для Kemgard STA и промышленно выпускаемого OMA при внесении 60 весовых частей ТГА и тепловом излучении 70 кВт/м²

секунд, на рис. 7 – уровень задымления через 4 минуты, а на рис. 8 – максимальный уровень задымления для различных компаундов.

Так же, как и в случае с компаундами с низким содержанием ТГА, данные свидетельствуют, что при всех уровнях концентрации и в любой момент времени Kemgard STA намного превосходит эксплуатационные показатели присадки марки WA 011GA компании «Клаймекс». Сравнительный анализ лишь этих двух присадок показывает, что показатели Kemgard STA с концентрацией в 5 весовых частей превосходят показатели WA 011GA при концентрации в 10 весовых частей. Это справедливо на любом этапе испытаний. Kemgard STA также продемонстрировал лучшие эксплуатационные характеристики, чем промышленно выпускаемый образец A2017I с меньшим размером частиц как при концентрации в 5 весовых частей, так и 15 весовых частей. При концентрации в 10 весовых частей показатели были сопоставимыми. На основании этих результатов было сделано заключение, что Kemgard STA продемонстрировал гораздо более эффективное использование химических свойств OMA в двух различных смесях для производства ПВХ пластиката и при различных концентрациях.

4.2 Испытания с использованием конусного калориметра

Эффективность дымоподавления присадки Kemgard STA и двух образцов промышленно выпускаемого OMA сравнивалась также при испытании с использованием конусного калориметра (по методике ASTM E-1354). При этом использовались те же две смеси для ПВХ пластиката (см. таблицу 3 выше). Сравнительный анализ образцов также проводился при общем количестве OMA 5, 10 и 15 весовых частей на сто частей компаунда, а количество добавляемого талька подбиралось таким образом, чтобы поддерживать одинаковый общий уровень наполнителя. Все испытания с использованием конусного калориметра проводились при уровне излучения 70 кВт/м². На рис. 9 и 10 представлены данные по общему уровню задымления, полученные при горении различных образцов ПВХ при разных концентрациях добавок. Результаты соответствуют данным, полученным при проведении испытаний в дымовой камере НБС. При

уровне ТГА, равном 30 весовым частям на сто частей компаунда, показатели Kemgard STA значительно превосходят показатели WA 011GA компании «Клаймекс» при всех уровнях концентрации. Значение общего задымления, полученное для Kemgard STA при концентрации, равной 5 весовым частям, было практически таким же, как для WA 011GA компании «Клаймекс» при концентрации в 10 весовых частей. Kemgard STA также превзошел лучший промышленно выпускаемый OMA марки A2017I компании «Клаймекс». В этом случае общее задымление при использовании Kemgard STA при концентрации, равной 10 весовым частям, было почти идентично значению, полученному при использовании A2017I компании «Клаймекс» при концентрации в 15 весовых частей.

Практически такое же преимущество наблюдалось и при испытании смеси с концентрацией ТГА на уровне 60 весовых частей. Показатели Kemgard STA также намного превосходят показатели присадки WA 011GA компании «Клаймекс» при всех уровнях концентрации. Данные по общему уровню задымленности для Kemgard STA при концентрации, равной 5 весовым частям, были сопоставимы с соответствующими данными, полученными для WA 011GA компании «Клаймекс» при концентрации в 10 весовых частей. Примечательно, что значение общей задымленности, полученное для Kemgard STA при концентрации, равной 10 весовым частям, было практически таким же, что и для присадки A2017I компании «Клаймекс» при концентрации, равной 15 весовым частям.

Результаты испытаний как с использованием конусного калориметра, так и в дымовой камере НБС свидетельствуют о том, что применение Kemgard STA в ПВХ пластикатах дает преимущество в эксплуатационных показателях перед промышленно выпускаемым OMA. Представляется, что в зависимости от смеси использование Kemgard STA позволяет сократить общий расход OMA в пределах от 25 % до 50 % при получении такого же или большего эффекта дымоподавления. Это могло бы стать очень существенным преимуществом для производителей малодымных ПВХ пластикатов.

5. Выводы

Для того чтобы обеспечить соблюдение жестких требований стандарта НАПБ 262, ПВХ компаунд для изготовления оболочки кабелей, устанавливаемых в воздуховодах, должен содержать противодымные присадки. Для уменьшения дымоудаления используется большое количество материалов на основе молибдатов. Указанные молибдатные присадки работают в конденсированной фазе, стимулируя образование обугленного участка.

Компания «Шервин-Вильямс кемикалз» разработала процесс осаждения OMA с высокоразвитой удельной поверхностью. Присутствие определенных тальковых наполнителей влияет на морфологию осажденного OMA и способствует образованию вещества с большой удельной поверхностью. Испытания по методу НБС и с использованием конусного калориметра продемонстрировали улучшение эксплуатационных характеристик, связанное с увеличением удельной поверхности молибдата. Эти данные предполагают, что, по сравнению с обычными OMA, Kemgard STA может использоваться с лучшими результатами при одинаковой концентрации или с теми же результатами при меньшей концентрации. Учитывая то, что цены на молибден сейчас высоки как никогда, возможность снизить уровень его использования путем контроля размера частиц и морфологии представляет собой значительное техническое достижение.

6. Выражение признательности

Авторы выражают благодарность г-дам Чарли Симпсону (Charlie Simpson) и Дейву Климовичу (Dave Klimovich) за оказанную техническую поддержку. ■

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Nouveau suppresseur de fumées au molybdate pour PVC

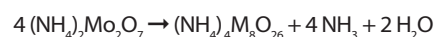
Par J Ken Walker, Wai-Kwong Ho, de Sherwin-Williams Chemicals

1. Introduction

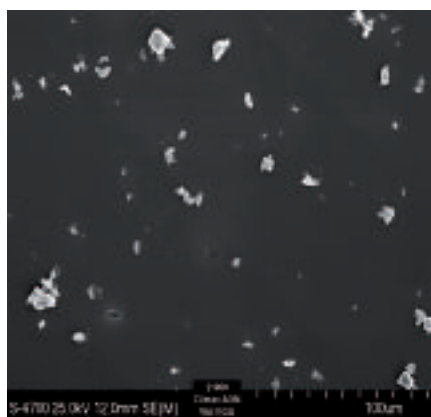
Le polychlorure de vinyle (PVC) est par nature un polymère retardeur de flamme souvent utilisé dans les applications exigeant un faible taux de propagation de la flamme. La NFPA (Association Nationale de Protection contre l'Incendie) a également établi des normes rigoureuses en matière de fumées pour certaines applications. Dans le cas de gainages en PVC du type plénum, les câbles de télécommunication doivent passer le test du Tunnel Steiner (norme NFPA 262). Pour obtenir la qualification pour l'utilisation, la propagation de la flamme ne doit pas dépasser 5 pieds. En outre, la valeur maximale des fumées ne doit pas être supérieure à 0,5 unités et la valeur moyenne des fumées produites au cours du test doit être inférieure à 0,15 unités.

Les molybdates inorganiques sont des composés standard en ce qui concerne la suppression des fumées dans le PVC. Cela est dû à une capacité intrinsèque des molybdates de favoriser la formation de résidu charbonneux¹⁻³. Le composé chimique à base de molybdate le plus amplement reconnu pour la suppression des fumées dans le PVC est l'octamolybdate d'ammonium (AOM). Du fait du coût élevé du molybdène et du pourcentage élevé de molybdène présent dans le AOM (61% basé sur l'oxyde de molybdène), les fabricants de PVC sont à la recherche d'une nouvelle technologie pour augmenter l'efficacité des suppresseurs de fumée.

L'octamolybdate d'ammonium existe sous deux formes isomériques dénommées alpha et bêta. En général, l'alpha est la forme disponible sur le marché. Elle est produite à travers la décomposition thermique partielle du dimolybdate d'ammonium (ADM) selon la réaction suivante:



L'AOM a été également obtenu par acidification à partir d'une solution de ADM⁴⁻⁵

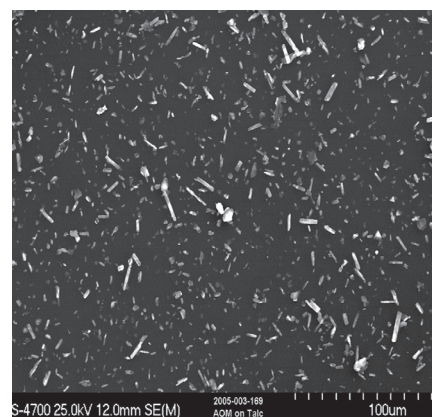


▲ Figure 1: Analyse par microscopie électronique à balayage de surface (SEM) du Climax WA AOM



Selon la littérature des brevets, les changements dans les conditions de traitement peuvent influencer la structure cristalline. Il a été découvert un nouvel isomère (dénommé X-AOM) offrant des caractéristiques de suppression des fumées améliorées⁵. En plus des molybdates purs, le groupe Sherwin-Williams Chemicals produit et commercialise plusieurs suppresseurs de fumée spécifiques (KEMGARD). Généralement basés sur les molybdates de zinc et de calcium, ces produits sont préparés par précipitation en présence d'un noyau inerte⁶⁻⁷. Le principe général de ces matériaux spécifiques est que la précipitation sur la surface d'un minéral inerte va accroître la surface de la chimie active et réduit la demande totale de molybdène dans le composé de PVC.

En considérant le prix croissant du molybdène sur le marché, les suppresseurs de fumée spécifiques deviennent évidemment de plus en plus intéressants. Le présent article porte sur le développement d'une nouvelle technologie spécifique pour la suppression des fumées basée sur la chimie de l'AOM. Il a été découvert que la précipitation d'AOM en présence de charge minérale permet de produire un nouveau suppresseur



▲ Figure 2: Analyse par microscopie électronique à balayage de surface (SEM) du Kemgard STA

de fumée à base de AOM à grande surface. La grande surface augmente considérablement les performances anti-fumée par rapport à l'octamolybdate d'ammonium traditionnel. Ce progrès qui associe la technologie de traitement de surface de Sherwin-Williams et la chimie de l'AOM représente un développement significatif dans la suppression des fumées basée sur l'AOM.

2. Matériaux

Cette étude a analysé plusieurs suppresseurs de fumée à base de AOM commercial. Ces derniers ont été broyés finement pour en réduire davantage les dimensions et ont été inclus dans le test. Le tableau 1 montre les dimensions des particules et la surface des matériaux de contrôle soumis au test. L'AOM à grande surface, (Kemgard STA), a été préparé par réaction entre le dimolybdate d'ammonium et l'oxyde de molybdène en présence d'un talc inerte. Le processus est décrit dans un brevet déposé aux États-Unis⁸.

Plusieurs matériaux inertes de bourrage normalement utilisés dans les composés de PVC ont été examinés.

	Dimensions moyennes particules (D50)	Surface BET
Climax A20171	0.68 micron	2.9m ² /gm
Climax WA011GA	3.26	1.6
HC Starck 02F001	0.68	2.7

▲ **Tableau 1:** Dimensions des particules et surface des AOMs commerciaux

Talc	Kemgard STA	Climax AOM WA	Climax AOM A2	Talc + Climax AOM WA
13.0 m ² /gm	7.0 m ² /gm	1.6 m ² /gm	2.9 m ² /gm	5.1 m ² /gm

▲ **Tableau 2:** Mesures BET de la surface

Les matériaux de bourrage n'ont pas tous favorisé la formation d'AOM à grande surface. Cette étude illustre uniquement les résultats obtenus avec un matériau de bourrage à base de talc.

La diffraction à rayons X a été effectuée sur le KG-STA et sur l'AOM commercial. L'AOM du KG-STA et celui présent dans le matériau commercial ne présentaient aucune différence. L'analyse SEM (analyse par microscopie électronique à balayage de surface) a indiqué une différence de forme et de morphologie entre les particules du KG-STA et de l'AOM commercial.

La *Figure 1* montre une image SEM d'un AOM WA commercial de Climax. La *Figure 2* représente la structure du Kemgard STA. Dans le matériau commercial, l'AOM se présente sous la forme d'agglomérés de forme irrégulière. Toutefois, dans les échantillons KG-STA, l'AOM se présente sous la forme de baguettes distinctes.

La micrographie SEM a montré que la précipitation de l'octamolybdate d'ammonium en présence de talc favorise la formation de baguettes plutôt que d'agglomérés. Comment la présence de talc influence thermodynamiquement et cinétiquement la morphologie de l'AOM reste encore incompréhensible.

D'après les mesures effectuées en utilisant la méthode BET, la structure à baguettes de l'AOM dans le Kemgard STA présente une surface plus étendue par rapport aux matériaux commerciaux. Les valeurs référées à la surface des différents produits à base d'AOM sont illustrées au *Tableau 2*.

La surface d'un matériau mélangé peut être considérée une propriété de l'additif. Par exemple un mélange de talc et d'AOM WA Climax est calculé comme une moyenne pondérée de composants individuels, comme illustré à l'*équation 1*.

$$\text{Talc} + \text{AOM WA} = 0,3 * (13,8) \text{ m}^2/\text{gm} + 0,7 * (1,6) \text{ m}^2/\text{gm} = 5,26 \text{ m}^2/\text{gm}$$

Équation⁽¹⁾

La valeur calculée de 5,26m²/g s'élève environ à 5,1m²/g déterminé expérimentalement.

Pour le KG-STA, la surface BET déterminée expérimentalement était égale à 7,0m²/gm. En utilisant la même méthode de mélange, la contribution de l'AOM avec la surface modifiée résulte égale à 4,09m²/gm, comme l'illustre l'*équation 2*.

$$\text{STA AOM} = [7,0 \text{ m}^2/\text{gm} - (0,3 * 13,8 \text{ m}^2/\text{gm})] / 0,7 = 4,09 \text{ m}^2/\text{gm}$$

Équation⁽²⁾

Il s'ensuit que l'octamolybdate d'ammonium du KG STA présente une surface de 1,5 à 2,5 fois plus élevée que les deux qualités commerciales d'AOM.

Une technique d'accroissement de la surface consiste à réduire les dimensions des particules au moyen du broyage mécanique.

Bien qu'il s'agisse d'une pratique commune, il y a un taux de rendement réduit qui dépend des coûts de l'énergie, de la stabilité du produit et de l'intégrité du matériau durant le processus. Les deux qualités d'AOM Climax commerciaux ont été broyées et comparées avec le KG STA du *Tableau 3*.

Le broyage n'a entraîné aucune réduction des dimensions des particules ni aucune augmentation de la surface de l'AOM A2 Climax. Toutefois, avec les particules de dimensions supérieures de l'AOM WA Climax, le processus de broyage a montré des améliorations considérables du point de vue de la surface et des dimensions des particules.

Cependant, la surface de l'AOM-WA broyé deux fois était encore 10% inférieure à la valeur calculée pour le KG-STA.

La surface AOM plus étendue du KG-STA devrait être plus efficace dans la suppression des fumées.

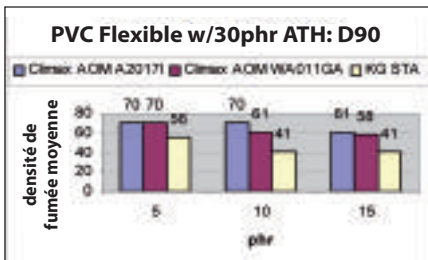
La formation de résidu carbonneux dans le PVC est catalysée par le molybdate; par conséquent une surface supérieure devrait entraîner une concentration majeure dans la transformation du résidu carbonneux.

▼ **Tableau 3:** Mesures de la surface et des dimensions des particules

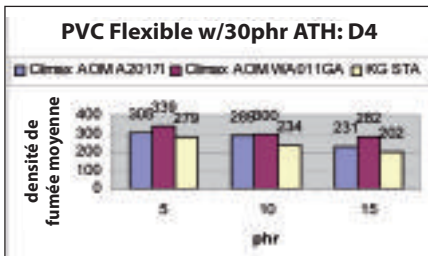
	Kemgard STA	Climax AOM WA	Climax WA (2 pas)	Climax AOM A2	Climax A2 (1 pas)
BET (m²/gm)	7.0	1.6	3.7	2.9	2.9
PSD D50 (micron)	2.74	3.26	0.71	0.68	0.57

▼ **Tableau 4:** Formulations du PVC flexible

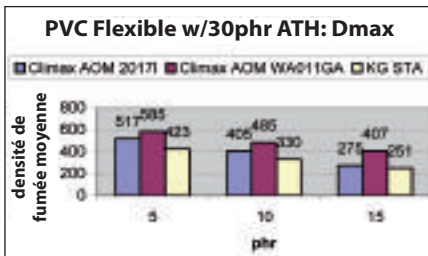
Oxyvinyl 240F	100	100
Halstab H-695	7	7
Sb₂O₃	3	3
Micral 9400	30	60
Santicizer 2148	20	20
Uniplex FRP-45	20	20



▲ **Figure 3:** Densité de fumée NBS à 90 secondes pour le KG-STA et le AOM commercial



▲ **Figure 4:** Densité de fumée NBS à 4 minutes pour le KG-STA et le AOM commercial



▲ **Figure 5:** Densité de fumée max pour le KG-STA et le AOM commercial

3. Méthodes d'essai

3.1 Chambre à fumées NBS (ASTM E662)

La libération de fumées générées par la combustion de matériaux plastiques peut être déterminée en utilisant la méthode à la chambre à fumée NBS (National Bureau of Standards) standardisée aux Etats-Unis comme norme ASTM E662. Cet essai a été initialement développé pour déterminer les caractéristiques de génération des fumées des matériaux plastiques utilisés dans la construction des aéronefs.

La chambre à fumées NBS mesure la densité des fumées accumulées lorsqu'un échantillon caractérisé par une forme et une épaisseur spécifiques est exposé à une source de chaleur rayonnante de 25kW/m². La densité de fumée maximale ou la densité de fumée à un temps donné (généralement 4 minutes) peut être spécifiée en fonction de l'application. L'essai peut être effectué avec ou sans l'application d'une flamme pilote (respectivement mode flambant et du feu couvant). Dans cette étude les essais ont été effectués avec le mode flambant.

3.2 Calorimètre à cône (ASTM E1354)

Le calorimètre à cône est un instrument de laboratoire mesurant la combustibilité et la

génération de fumées des matériaux dans une vaste gamme de conditions. Pour les matériaux de construction devant passer le test coûteux du Tunnel Steiner E-84, souvent l'on utilise le calorimètre à cône comme essai préliminaire. Alors qu'aucun essai d'irradiation fixe peut prévoir les performances dans l'essai du tunnel à grande échelle, l'essai avec le calorimètre à cône est amplement reconnu comme étant un instrument utile de développement.

Dans l'essai avec le calorimètre à cône, décrit par la norme ASTM E1354, un échantillon carré de 100mm x 100mm (4 x 4 pouces) est exposé à un flux énergétique d'un radiateur électrique. Le radiateur présente la forme d'un cône tronqué (d'où le nom de l'instrument) et peut générer des flux thermiques allant de 10 à 110kW/m², mais plus généralement allant de 50 à 75kW/m², c'est-à-dire de deux à trois fois le flux thermique utilisé dans la chambre à fumée NBS. Le calorimètre à cône permet de mesurer les caractéristiques du comportement au feu de matériaux clés utilisés dans la modélisation des incendies.

La génération de fumées est constamment mesurée en utilisant un rayon laser dans le conduit d'échappement.

L'enregistrement de l'intensité est utilisé pour calculer un coefficient d'extinction étant un paramètre de mesure des fumées dans le courant d'air. L'intégration du coefficient d'extinction par rapport au temps est combinée avec le volume total des produits de combustion pour obtenir le paramètre des fumées total. Les unités sur la fumée totale, normalisées pour la surface de l'échantillon, sont exprimées en m²/m².

Pour le présent travail, l'essai avec le calorimètre à cône a été effectué auprès de Polymer Diagnostics, Avon Lake, Ohio, États-Unis, et dans le College of William and Mary, sous la direction du Professeur William Starnes.

4. Résultats

4.1 Chambre à fumée NBS

Deux formules différentes de PVC flexible ont été sélectionnées pour effectuer la comparaison entre le prototype Kengard STA et l'AOM commercial. Dans une formule, le trihydrate d'aluminium a été ajouté à un niveau de 30phr. Dans l'autre formule, la concentration de ATH était de 60phr. Les formules de base sont illustrées au Tableau 4.

Les comparaisons des produits ont été effectuées à 5, 10 et 15phr d'AOM total. Les niveaux de talc ont été ajustés pour maintenir un niveau global stable de la substance de remplissage.

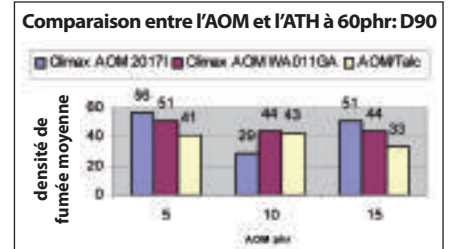
Les Figures 3-5 représentent la densité de fumée comme fonction de la concentration des différents composés utilisés. D90 correspond au niveau de fumée à 90 secondes.

D4 correspond à la densité de fumée à 4 minutes et Dmax représente la densité de fumée maximale atteinte durant l'essai.

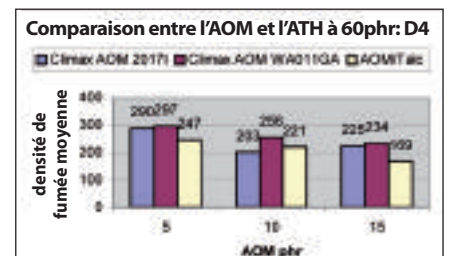
Les données montrent clairement qu'à toutes les concentrations et à tous les intervalles de temps, le KG-STA dépasse considérablement les performances de WA 011GA Climax. En outre, les performances de KG-STA sont supérieures à celles du meilleur échantillon commercial, A20171 Climax, encore à toutes les concentrations et à tous les intervalles de temps.

En termes de densité de fumée maximale, le KG-STA montre les meilleures performances avec les concentrations les plus réduites. En effet, les performances du KG-STA à 5phr sont comparables aux performances du meilleur AOM commercial à 10phr. Il s'agit-là d'un résultat important et il suggère une utilisation encore plus efficace de la chimie du AOM.

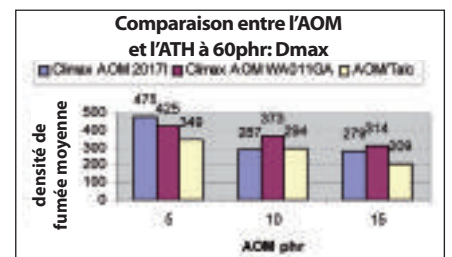
Les Figures 6-8 présentent les résultats de la chambre à fumée NBS obtenus avec la formule contenant la quantité de ATH la plus élevée (60phr).



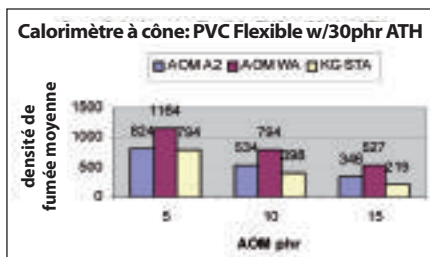
▲ **Figure 6:** Densité de fumée NBS à 90 secondes pour le KG-STA et le AOM commercial



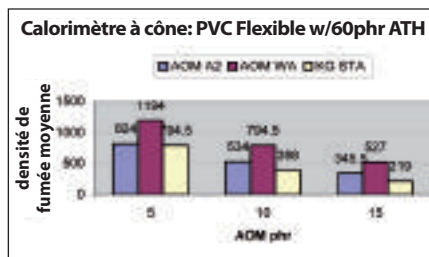
▲ **Figure 7:** Densité de fumée NBS à 4 minutes pour le KG-STA et le AOM commercial



▲ **Figure 8:** Densité de fumée max pour le KG-STA et le AOM commercial



▲ **Figure 9:** Fumées totales référées au KG-STA et à l'AOM commercial à 30phr ATH et 70k/W/m²



▲ **Figure 10:** Fumées totales référées au KG-STA et à l'AOM commercial à 60phr ATH et 70k/W/m²

De nouveau, la densité des fumées est exprimée comme fonction de la concentration des différents composés. Comme dans le cas du système précédent, les comparaisons ont été effectuées à 5, 10 et 15phr total AOM, avec des niveaux de talc ajustés pour maintenir un contenu de substance de remplissage fixe. La Figure 6 montre la fumée à 90 secondes, la Figure 7 montre le développement de la fumée à 4 minutes et la Figure 8 montre le développement de fumée maximum pour les différents composés.

Pareillement au système à contenu de ATH réduit, les données montrent encore qu'à toutes les concentrations et à tous les intervalles de temps, le KG-STA dépasse considérablement les performances de WA 011GA Climax. En comparant uniquement ces deux systèmes, les performances KG-STA à 5phr sont supérieures à celles de WA 011GA à 10phr. Cela est vrai à tout moment de l'essai. Le KG-STA a également démontré des performances supérieures à celles de l'échantillon commercial avec des particules de dimensions inférieures, le A20171, aux niveaux 5phr et 15phr. À 10phr, les performances étaient comparables.

Sur la base de ces résultats, il a été conclu que le KG-STA démontrait une utilisation beaucoup plus efficace que celle de la chimie AOM en deux différentes formules du PVC flexible et avec différentes concentrations.

4.2 Calorimètre à cône

L'efficacité de la suppression des fumées du KG-STA et des deux échantillons commerciaux de AOM a été davantage comparée en utilisant l'essai avec le calorimètre à cône (ASTM E-1354). Dans la présente étude les deux mêmes formules de PVC flexible (Tableau 4, montré précédemment) ont été utilisées. Les comparaisons des produits ont été de nouveau effectuées à 5, 10 et 15phr de AOM total, avec des quantités de talc ajustés pour maintenir fixe le contenu total de la substance de remplissage. Les essais avec le calorimètre à cône ont été effectués à une irradiation de 70kW/m².

Les Figures 9 et 10 présentent les fumées totales générées par la combustion de différents échantillons de PVC comme fonction de la concentration des

composés. Les résultats étaient analogues à ceux obtenus avec la chambre à fumée NBS. Dans le système ATH de 30phr, le KG-STA a considérablement dépassé les performances du WA 011GA Climax avec toute concentration. Les fumées totales obtenues avec 5phr de KG-STA étaient pratiquement les mêmes que celles obtenues avec 10phr de WA 011GA Climax. Le KG-STA a également surpassé les performances du meilleur AOM commercial, le A20171 Climax. Dans ce cas, les fumées totales obtenues avec 10phr de KG-STA étaient quasiment identiques à celles obtenues avec 15phr de A20171 Climax.

Des avantages presque identiques du point de vue des performances ont été remarqués dans le système de ATH à 60phr. Les performances de KG-STA surpassent encore de façon significative les performances du WA 011GA Climax à tous les niveaux d'utilisation. Les valeurs totales des fumées obtenues avec 5phr de KG-STA étaient comparables avec celles obtenues avec 10phr de WA 011GA Climax. De toute évidence, les fumées totales obtenues avec 10phr de KG-STA étaient quasiment identiques à celles obtenues avec 15phr de A20171 Climax.

Les résultats du calorimètre à cône et celles de la chambre à fumée NBS démontrent que dans le PVC flexible, le KG-STA offre des avantages en termes de performances supérieurs à ceux de l'AOM commercial. En fonction du système appliqué il apparaît que l'utilisation du KG-STA permet une réduction de 25% à 50% de l'AOM total tout en conservant une suppression des fumées égale ou meilleure. Ce résultat pourrait représenter un avantage significatif pour les formulateurs de PVC flexible à faible émission de fumées.

5. Conclusions

Afin de répondre aux strictes spécifications en matière de fumées imposées par la norme NFPA 262, le composé de la gaine du type plénum de PVC exige l'utilisation de suppresseurs de fumée. Un certain nombre de matériaux basés sur le molybdate a été utilisé pour la suppression des fumées.

Ces derniers agissent durant la phase condensée en augmentant la formation de résidu charbonneux.

La société Sherwin-Williams Chemicals a développé un processus pour la précipitation de l'AOM à grande surface. La présence de certaines substances de remplissage au talc influence la morphologie de l'AOM précipité et favorise la formation d'un produit avec une surface étendue. Les essais effectués avec la méthode NBS et avec le calorimètre à cône ont démontré une amélioration des performances associée avec une augmentation de la surface du molybdate. Les données suggèrent que lors de la comparaison avec l'AOM conventionnel, le Kemgard STA peut être utilisé à égalité de chargement avec des performances améliorées ou à des niveaux réduits avec des performances équivalentes. En prenant en considération les prix élevés sans précédent du molybdène, la capacité de réduire la concentration en variant les dimensions des particules et la morphologie, représente un résultat technique significatif. ■

6. Remerciements

Les auteurs désirent remercier M. Charlie Simpson et M. Dave Klimovich pour leur assistance technique.

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Nuovo soppressore di fumo al molibdato per PVC

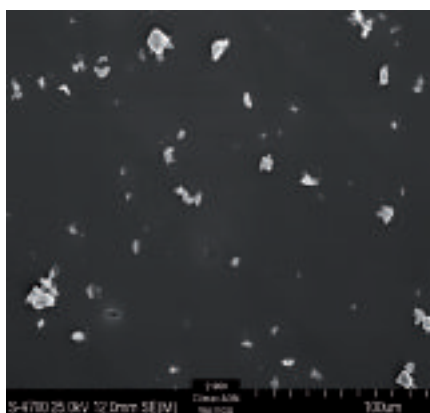
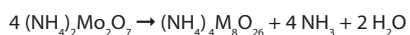
A cura di J Ken Walker, Wai-Kwong Ho, di Sherwin-Williams Chemicals

1. Introduzione

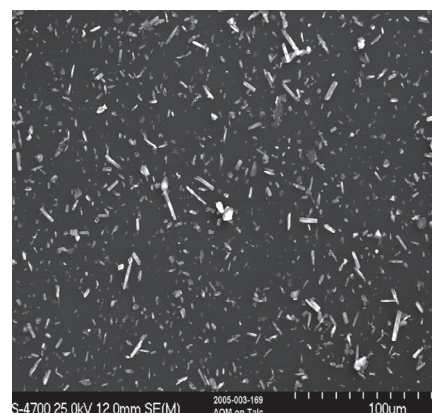
Il cloruro di polivinile (PVC) è un polimero intrinsecamente ignifugo ed è spesso utilizzato in applicazioni che richiedono una propagazione limitata della fiamma. Per alcune applicazioni, l'associazione nazionale statunitense di prevenzione incendi (NFPA) ha inoltre emanato delle norme rigorose in materia di fumo. Per quanto riguarda i rivestimenti in PVC del tipo plenum, i cavi di comunicazione devono superare il test del Tunnel di Steiner (norma NFPA 262). Per ottenere la classificazione per l'utilizzo, la propagazione della fiamma non deve superare 5 piedi. Inoltre, il valore massimo del fumo non deve essere superiore a 0,5 unità e il valore medio del fumo prodotto nel corso del test deve essere inferiore a 0,15 unità.

I molibdati inorganici sono composti standard per quanto riguarda la soppressione dei fumi nel PVC. Ciò è dovuto all'intrinseca capacità dei molibdati di favorire la formazione del residuo carbonioso¹⁻³. Il composto chimico a base di molibdato maggiormente riconosciuto per quanto riguarda la soppressione dei fumi nel PVC è l'octamolibdato d'ammonio (AOM). Dato l'elevato costo del molibdeno e l'elevata percentuale di molibdeno presente nell'AOM (61% basato su ossido di molibdeno), i produttori di PVC sono alla ricerca di una nuova tecnologia per aumentare l'efficacia degli additivi antifumo.

L'octamolibdato d'ammonio esiste in due forme isomeriche designate come alfa e beta. Generalmente, l'alfa è la forma disponibile sul mercato, prodotta mediante la decomposizione termica parziale del dimolibdato d'ammonio (ADM) secondo la reazione indicata qui di seguito:



▲ Figura 1: SEM del Climax WA AOM



▲ Figura 2: SEM del Kemgard STA

L'AOM è stato inoltre ottenuto mediante acidificazione a partire da una soluzione di ADM⁴⁻⁵



Secondo la letteratura brevettuale, eventuali variazioni delle condizioni di trattamento possono influenzare la struttura cristallina. E' stata segnalata la scoperta di un nuovo isomero (denominato X-AOM) che offre delle migliori caratteristiche di soppressione dei fumi⁵. Oltre ai molibdati puri, il gruppo Sherwin-Williams Chemicals produce e commercializza vari soppressori di fumo specifici (KEMGARD). Generalmente basati sui molibdati di zinco e di calcio, questi prodotti sono preparati mediante precipitazione in presenza di un nucleo inerte⁶⁻⁷.

Il principio generale di questi materiali progettati specificamente è che la precipitazione sulla superficie di un minerale inerte aumenta la superficie della chimica attiva e riduce la richiesta complessiva di molibdeno nel composto di PVC.

Considerando il prezzo crescente del molibdeno sul mercato, i soppressori di

fumo specifici diventano evidentemente sempre più interessanti. Il presente articolo descrive lo sviluppo di una nuova tecnologia specifica per la soppressione dei fumi basata sulla chimica dell'AOM. E' stato scoperto che la precipitazione dell'AOM in presenza di carica minerale può produrre un nuovo soppressore di fumo a base di AOM a superficie estesa.

Una superficie estesa aumenta notevolmente le prestazioni antifumo rispetto all'octamolibdato d'ammonio tradizionale. Questo progresso che combina la tecnologia del trattamento superficiale di Sherwin-Williams e la chimica dell'AOM rappresenta uno sviluppo indicativo per quanto riguarda la soppressione dei fumi basata sull'AOM.

2. Materiali

Il presente studio ha analizzato numerosi soppressori di fumo a base di AOM commerciale. Questi sono stati frantumati mediante mulino a getto per ridurre ulteriormente le dimensioni e sono stati inclusi nel test.

	Dimensioni medie delle particelle (D50)	Superficie BET
Climax A20171	0.68 micron	2.9m ² /gm
Climax WA011GA	3.26	1.6
HC Starck 02F001	0.68	2.7

▲ **Tabella 1:** Dimensioni delle particelle e superficie degli AOM commerciali.

Talco	Kemgard STA	Climax AOM WA	Climax AOM A2	Talco + Climax AOM WA
13.0 m ² /gm	7.0 m ² /gm	1.6 m ² /gm	2.9 m ² /gm	5.1 m ² /gm

▲ **Tabella 2:** Misurazioni BET della superficie.

La *tabella 1* evidenzia le dimensioni delle particelle e la superficie dei materiali di controllo sottoposti al test.

L'AOM a superficie estesa, (Kemgard STA), è stato preparato mediante reazione fra il dimolibdato d'ammonio e l'ossido di molibdeno in presenza di un talco inerte. Il processo è descritto in un brevetto depositato negli Stati Uniti.⁸

Sono stati esaminati numerosi materiali inerti di riempimento normalmente utilizzati nei composti di PVC. Non tutti i materiali di riempimento hanno favorito la formazione di AOM a superficie estesa. Il presente studio illustra esclusivamente i risultati ottenuti con un materiale di riempimento a base di talco.

E' stata inoltre eseguita la diffrazione a raggi X sul KG-STA e sull'AOM commerciale. L'AOM del KG-STA e quello presente nel materiale commerciale non presentavano alcuna differenza. L'analisi SEM (analisi al microscopio elettronico a scansione) ha indicato una differenza di forma e di morfologia fra le particelle del KG-STA e dell'AOM commerciale.

La *Figura 1* mostra un'immagine SEM di un AOM WA commerciale di Climax.

La *Figura 2* rappresenta la struttura del Kemgard STA. Nel materiale commerciale, l'AOM si presenta sotto forma di agglomerati di forma irregolare. Tuttavia, nei campioni KG-STA, l'AOM si presenta sotto forma di asticelle distinte.

La micrografia SEM ha evidenziato che la precipitazione dell'octamolibdato d'ammonio in presenza di talco, favorisce la formazione di asticelle piuttosto che d'agglomerati. Tuttavia, come la presenza di talco influenzi termodinamicamente e cineticamente la morfologia dell'AOM resta ancora incomprensibile.

Dalle misurazioni effettuate utilizzando il metodo BET, la struttura ad asticelle dell'AOM nel Kemgard STA presenta una superficie più estesa rispetto ai materiali commerciali.

I valori riferiti alla superficie dei diversi prodotti a base di AOM sono illustrati sulla *Tabella 2*.

La superficie di un materiale miscelato può essere considerata una proprietà dell'additivo. Ad esempio una miscela di talco e di AOM WA Climax è calcolata come media ponderata di componenti singoli, come indicato dall'equazione 1.

$$\text{Talco} + \text{AOM WA} = 0,3 * (13,8) \text{ m}^2/\text{gm} + 0,7 * (1,6) \text{ m}^2/\text{gm} = 5,26 \text{ m}^2/\text{gm}$$

Equazione⁽¹⁾

▼ **Tabella 3:** Misurazioni della superficie e delle dimensioni delle particelle.

	Kemgard STA	Climax AOM WA	Climax WA (2 passi)	Climax AOM A2	Climax A2 (1 passi)
BET (m²/gm)	7.0	1.6	3.7	2.9	2.9
PSD D50 (micron)	2.74	3.26	0.71	0.68	0.57

▼ **Tabella 4:** Formulazioni del PVC flessibile.

Oxyvinyl 240F	100	100
Halstab H-695	7	7
Sb₂O₃	3	3
Micral 9400	30	60
Santicizer 2148	20	20
Uniplex FRP-45	20	20

Il valore calcolato di 5,26m²/g si aggira attorno al valore di 5,1m²/g determinato sperimentalmente.

Per il KG-STA, la superficie BET determinata sperimentalmente era pari a 7,0m²/gm. Utilizzando lo stesso metodo di mescolatura, il contributo dell'AOM con la superficie modificata risulta pari a 4,09m²/gm, come illustrato dall'equazione 2.

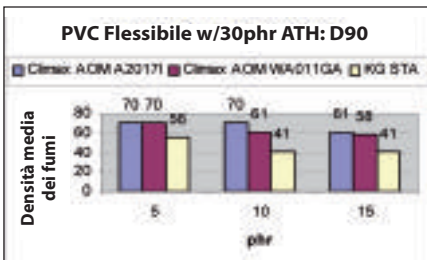
$$\text{STA AOM} = [7,0 \text{ m}^2/\text{gm} - (0,3 * 13,8 \text{ m}^2/\text{gm})] / 0,7 = 4,09 \text{ m}^2/\text{gm}$$

Equazione⁽²⁾

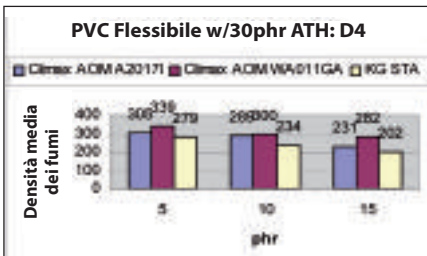
Ne consegue che l'octamolibdato d'ammonio del KG STA presenta una superficie da 1,5 a 2,5 volte superiore rispetto alle due qualità commerciali di AOM.

Una tecnica di accrescimento della superficie consiste nel ridurre le dimensioni delle particelle mediante la frantumazione meccanica. Sebbene si tratti di una pratica corrente, vi è una diminuzione del rendimento che dipende dai costi dell'energia, dalla stabilità del prodotto e dall'integrità del materiale durante il processo. Le due qualità di AOM Climax commerciali sono state frantumate con il mulino a getto e comparate con il KG STA della *Tabella 3*.

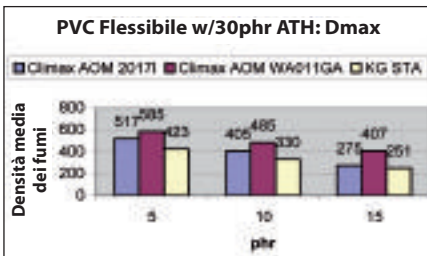
La frantumazione non ha comportato alcuna riduzione delle dimensioni delle particelle né alcun aumento della superficie dell'AOM A2 Climax. Tuttavia, con le particelle AOM WA Climax di dimensioni superiori, il processo di frantumazione ha evidenziato notevoli miglioramenti dal punto di vista della superficie e delle dimensioni delle particelle.



▲ **Figura 3:** Densità dei fumi NBS a 90 secondi per il KG-STA e l'AOM commerciale.



▲ **Figura 4:** Densità dei fumi NBS a 4 minuti per il KG-STA e l'AOM commerciale.



▲ **Figura 5:** Densità massima del fumo per il KG-STA e l'AOM commerciale.

Ciò nonostante, la superficie dell'AOM-WA frantumato con il mulino a getto due volte risultava ancora del 10% inferiore al valore calcolato per il KG-STA.

La superficie AOM più estesa del KG-STA dovrebbe risultare maggiormente efficace nella soppressione dei fumi. La formazione di residuo carbonioso nel PVC è catalizzata dal molibdato; di conseguenza una superficie maggiore dovrebbe determinare un rendimento maggiore nella trasformazione del residuo carbonioso.

3. Metodi di prova

3.1 Camera NBS (ASTM E662)

Il rilascio di fumi generati dalla combustione di materiali plastici può essere determinato utilizzando il metodo della camera NBS (National Bureau of Standards) standardizzato negli Stati Uniti come norma ASTM E662. Questa prova è stata inizialmente sviluppata per determinare le caratteristiche della generazione di fumi dei materiali plastici utilizzati nella costruzione di aeromobili.

La camera NBS misura la densità dei fumi accumulati quando un campione caratterizzato da una forma e da uno

spessore specifici viene esposto ad una sorgente di calore radiante 25kW/m². La densità massima di fumo o la densità di fumo ad un determinato tempo (generalmente 4 minuti) può essere specificata in funzione dell'applicazione. La prova può essere effettuata con o senza l'applicazione di una fiamma pilota (rispettivamente combustione con fiamma e senza fiamma). Nel presente studio le prove sono state eseguite con il metodo della combustione con fiamma.

3.2 Calorimetro a cono (ASTM E1354)

Il calorimetro a cono è uno strumento di laboratorio che misura la combustibilità e la generazione di fumi di materiali in una vasta gamma di condizioni. Nel caso di materiali da costruzione che devono superare il costoso test del Tunnel di Steiner E-84, spesso si utilizza il calorimetro a cono come prova preliminare.

Se da un lato nessun test d'irradiazione fisso può prevedere le prestazioni nella prova del tunnel su vasta scala, la prova condotta con il calorimetro a cono è ampiamente riconosciuta come utile strumento di sviluppo.

Nella prova con il calorimetro a cono, descritta dalla norma ASTM E1354, un campione quadrato di 100mm x 100mm (4 x 4 pollici) viene esposto al flusso radiante di un radiatore elettrico.

Il radiatore presenta la forma di un cono tronco (da cui il nome dello strumento) e può generare flussi termici da 10 a 110kW/m², ma più tipicamente da 50 a 75kW/m², ovvero da due a tre volte il flusso termico utilizzato nella camera NBS.

Il calorimetro a cono consente di misurare le caratteristiche delle prestazioni antincendio di materiali chiave utilizzati nella modellizzazione di propagazione degli incendi. La generazione di fumi è costantemente misurata utilizzando un raggio laser nel condotto di scarico.

La registrazione dell'intensità è utilizzata per calcolare un coefficiente di estinzione che costituisce un parametro di misurazione dei fumi nelle correnti d'aria. L'integrazione del coefficiente di estinzione rispetto al tempo viene combinata con il volume totale dei prodotti di combustione per ottenere il parametro dei fumi complessivi.

Le unità rispetto ai fumi complessivi, normalizzate per la superficie del campione, sono espresse in m²/m².

Per il presente studio, la prova con il calorimetro a cono è stata effettuata presso il Polymer Diagnostics, Avon Lake, Ohio, Stati Uniti, e nel College of William and Mary, sotto la direzione del Professor William Starnes.

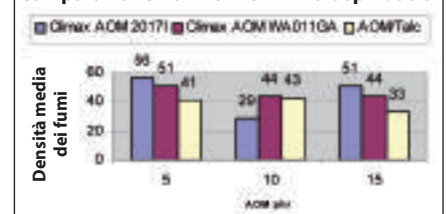
4. Risultati

4.1 Camera a fumi NBS

Sono state selezionate due diverse formule di PVC flessibile per eseguire la comparazione fra il prototipo Kemgard STA e l'AOM commerciale. In una formula, è stato aggiunto il triidrato di alluminio ad un livello di 30phr. Nell'altra formula, la concentrazione di ATH era di 60phr. Le formule di base sono illustrate nella Tabella 4. Le comparazioni dei prodotti sono state effettuate a 5, 10 e 15 pphr di AOM totale. I livelli di talco sono stati adattati per mantenere il materiale di riempimento ad un livello complessivo stabile.

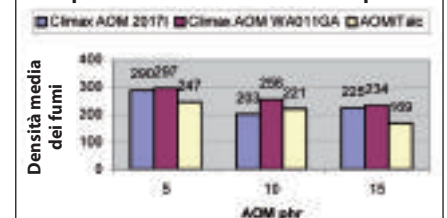
Le Figure 3-5 rappresentano la densità del fumo come funzione della concentrazione dei diversi composti utilizzati. D90 corrisponde al livello di fumo a 90 secondi. D4 rappresenta la massima densità di fumo raggiunta durante la prova. I dati evidenziano chiaramente che con tutte le concentrazioni e in tutti gli intervalli di tempo, il KG-STA supera di gran lunga le prestazioni del WA 011GA Climax. Inoltre, le prestazioni del KG-STA sono superiori a quelle del migliore campione commerciale, A2017I Climax, ancora con qualsiasi concentrazione e in qualsiasi intervallo di tempo.

Comparazione fra l'AOM e l'ATH a 60phr: D90



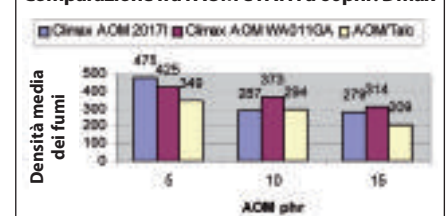
▲ **Figura 6:** Densità del fumo NBS a 90 secondi per il KG-STA e l'AOM commerciale.

Comparazione fra l'AOM e l'ATH a 60phr: D4

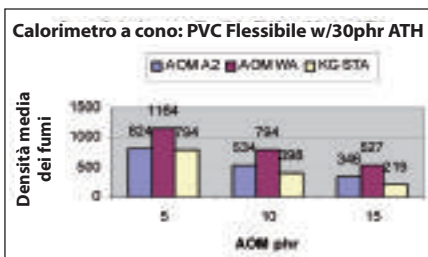


▲ **Figura 7:** Densità del fumo NBS a 4 minuti per il KG-STA e l'AOM commerciale.

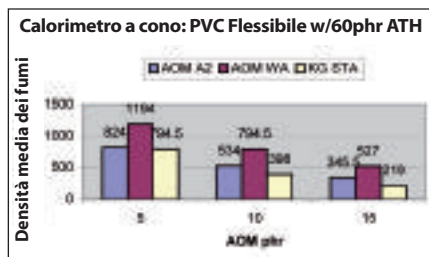
Comparazione fra l'AOM e l'ATH a 60phr: Dmax



▲ **Figura 8:** Densità massima del fumo per il KG-STA e l'AOM commerciale.



▲ **Figura 9:** Fumi totali riferiti al KG-STA e l'AOM commerciale a 30phr ATH e 70kW/m².



▲ **Figura 10:** Fumi totali riferiti al KG-STA e all'AOM commerciale a 60phr ATH e 70kW/m².

In termini di massima densità di fumo, il KG-STA mostra le migliori prestazioni alle concentrazioni inferiori. In effetti le prestazioni del KG-STA a 5phr sono paragonabili alle prestazioni del migliore AOM commerciale a 10phr. Si tratta di un risultato importante e suggerisce un utilizzo di gran lunga più efficace della chimica dell'AOM.

Le Figure 6-8 illustrano i risultati della camera NBS ottenuti con la formula contenente la quantità di ATH più elevata (60phr). Nuovamente, la densità dei fumi è espressa come funzione della concentrazione dei vari composti. Come nel caso del sistema precedente, le comparazioni sono state effettuate a 5, 10 e 15phr AOM totale, con livelli di talco adattati per mantenere stabile il contenuto del materiale di riempimento. La Figura 6 evidenzia il fumo a 90 secondi, la Figura 7 mostra lo sviluppo del fumo a 4 minuti e la Figura 8 mostra lo sviluppo massimo del fumo per i diversi composti.

Analogamente al sistema con contenuto ridotto di ATH, i dati evidenziano nuovamente che con qualsiasi concentrazione e in qualsiasi intervallo di tempo il KG-STA supera notevolmente le prestazioni del Climax WA 011GA. Paragonando solamente questi due sistemi, le prestazioni KG-STA a 5phr risultano superiori a quelle di WA 011GA a 10phr. Ciò vale in qualsiasi momento della prova. Il KG-STA ha inoltre dimostrato prestazioni superiori a quelle del campione commerciale con particelle di dimensioni inferiori, il A2017I, ai livelli 5phr e 15phr. A 10phr, le prestazioni erano comparabili.

Sulla base di questi risultati, si è concluso che il KG-STA dimostrava un utilizzo molto più efficace rispetto a quello della chimica AOM in due diverse formule del PVC flessibile e con diverse concentrazioni.

4.2 Calorimetro a cono

L'efficacia della soppressione dei fumi del KG-STA e dei due campioni commerciali di AOM è stata ulteriormente comparata utilizzando la prova con il calorimetro a cono (ASTM E-1354). Nel presente studio sono state utilizzate le medesime due formule di PVC flessibile (Tabella 4, illustrata precedentemente).

Sono state ancora effettuate comparazioni dei prodotti a 5, 10 e 15phr dell'AOM totale, con quantità di talco modificate per mantenere stabile il contenuto totale del materiale di riempimento. Le prove effettuate con il calorimetro a cono sono state effettuate ad una irradiazione di 70kW/m².

Le Figure 9 e 10 presentano i fumi totali generati dalla combustione di diversi campioni di PVC come funzione della concentrazione dei composti. I risultati si sono dimostrati analoghi a quelli ottenuti con la camera NBS.

Nel sistema ATH di 30phr, il KG-STA ha superato di gran lunga le prestazioni del WA 011GA Climax a qualsiasi concentrazione. I fumi totali ottenuti con 5phr di KG-STA erano praticamente gli stessi di quelli ottenuti con 10phr di WA 011GA Climax.

Il KG-STA ha inoltre superato le prestazioni del migliore AOM commerciale, il A2017I Climax. In questo caso, i fumi totali ottenuti con 10phr di KG-STA erano quasi identici a quelli ottenuti con 15phr di A2017I Climax.

Vantaggi quasi identici dal punto di vista delle prestazioni sono stati rilevati nel sistema di ATH a 60phr. Le prestazioni del KG-STA nuovamente superano di molto le prestazioni del WA 011GA Climax a qualsiasi concentrazione.

I valori totali dei fumi ottenuti con 5phr di KG-STA erano comparabili con quelli ottenuti con 10phr di WA 011GA Climax. Evidentemente, i fumi totali ottenuti con 10phr di KG-STA erano quasi identici a quelli ottenuti con 15phr de A2017I Climax.

I risultati del calorimetro a cono e quelli della camera NBS dimostrano che nel PVC flessibile, il KG-STA offre vantaggi in termini di prestazioni superiori a quelli dell'AOM commerciale. A seconda del sistema applicato, sembra che l'utilizzo del KG-STA permette una riduzione dal 25% al 50% dell'AOM totale, mantenendo se non migliorando la soppressione dei fumi. Questo risultato potrebbe rappresentare un vantaggio significativo per i formulatori di PVC flessibile a bassa emissione di fumi.

5. Conclusioni

Allo scopo di conformarsi alle rigorose specifiche in materia di fumi imposte dalla norma NFPA 262, il composto della guaina di PVC del tipo plenum richiede l'utilizzo di soppressori di fumo. Per la soppressione dei fumi è stato utilizzato un certo numero di materiali a base di molibdato. Questi materiali agiscono durante la fase condensata aumentando la formazione del residuo carbonioso.

La società Sherwin-Williams Chemicals ha sviluppato un processo per la precipitazione dell'AOM con superficie estesa. La presenza di alcuni materiali di riempimento al talco influenza la morfologia dell'AOM precipitato e favorisce la formazione di un prodotto con una superficie estesa. Le prove effettuate con il metodo NBS e con il calorimetro a cono hanno dimostrato un miglioramento delle prestazioni associate ad un aumento della superficie del molibdato. I dati suggeriscono che al momento della comparazione con l'AOM tradizionale, il Kemgard STA può essere utilizzato a parità di caricamento con prestazioni migliorate o a livelli ridotti con prestazioni equivalenti. Considerando i prezzi sempre più elevati del molibdeno, la capacità di ridurre la concentrazione variando le dimensioni delle particelle e la morfologia rappresenta un risultato tecnico significativo. ■

6. Ringraziamenti

Gli autori desiderano ringraziare Charlie Simpson e Dave Klimovich per l'assistenza tecnica prestata.

7. Referenze

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Nuevo supresor de humo a base de molibdato para PVC

Por J Ken Walker, Wai-Kwong Ho, de Sherwin-Williams Chemicals

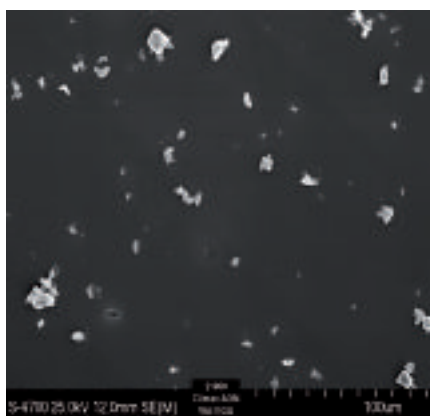
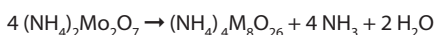
1. Introducción

El policloruro de vinilo o PVC es un polímero inherentemente resistente a la combustión que se usa a menudo en aplicaciones donde se requiere baja propagación de la llama. La NFPA (National Fire Protection Association) ha establecido normas rigurosas en materia de humos para algunas aplicaciones. En caso de cubiertas de PVC tipo plenum, el cable de comunicación debe superar la prueba del túnel de Steiner (norma NFPA 262). Para obtener la clasificación de uso, la propagación de la llama no debe exceder los 5 pies. Además, la producción máxima de humo no debe superar las 0,5 unidades y el promedio del humo producido durante toda la prueba debe ser inferior a 0,15 unidades.

Los molibdatos inorgánicos son compuestos estándares a nivel industrial para la supresión del humo en el PVC. Esto se debe a la capacidad inherente que tienen los molibdatos para favorecer la formación del char (residuo carbonoso)¹⁻³. Entre los molibdatos, el octamolibdato de amonio (más adelante AOM, acrónimo del término inglés) es el más usado para la supresión del humo en el PVC.

Debido al alto coste del molibdeno y el alto porcentaje de molibdeno en el AOM (61% basado en óxido de molibdeno), los productores están buscando una nueva tecnología para aumentar la eficiencia de los aditivos supresores de humos.

El octamolibdato de amonio existe en dos formas isoméricas, denominadas alfa y beta. Normalmente, la forma "α" es la que se encuentra en comercio. Ésta se produce por descomposición térmica del dimolibdato de amonio (ADM) según la reacción:



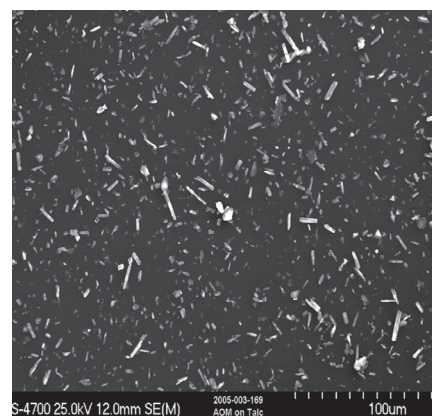
▲ Figura 1: SEM del WA AOM Climax

El AOM puede ser producido también por acidificación de una solución de ADM⁴⁻⁵.



Según se ilustra en la patente, los cambios de las condiciones de procesamiento pueden afectar a la estructura cristalina. Se ha presentado un nuevo isómero (denominado X-AOM) que ofrece características de supresión del humo mejoradas⁶. Además de los molibdatos puros, el grupo Sherwin-Williams Chemicals produce y comercializa varios supresores de humo especiales (KEMGARD). Estos se basan principalmente en molibdatos de zinc y calcio, y se preparan por precipitación en presencia de un núcleo inerte⁶⁻⁷. El principio general seguido por estos materiales modificados es que su precipitación en la superficie de un mineral inerte aumenta el área superficial de la química activa y reduce la demanda total de molibdeno en el compuesto de PVC.

Tomando en consideración el continuo incremento del precio de mercado del molibdeno, estos los supresores de humo resultan obviamente más atractivos. En este estudio se ilustrará el desarrollo



▲ Figura 2: SEM del Kemgard STA

de una nueva tecnología diseñada especialmente para mejorar la supresión del humo, basada en la química del AOM. Se ha verificado que la precipitación del AOM en presencia de extensores minerales permite producir un nuevo supresor de humo a base de AOM de mayor área superficial. Un área superficial más amplia aumenta significativamente las prestaciones de supresión de humo respecto al octamolibdato de amonio convencional. Este adelanto, que combina la tecnología de tratamiento superficial de Sherwin-Williams con la química del AOM, representa un avance significativo en la supresión de humo basada en el AOM.

2. Materiales

En este estudio se han examinado varios supresores de humo a base de AOM comercial. Han sido pulverizados muy finamente con molino de chorro (jet mill) para reducir aún más su tamaño, y han sido incluidos en las pruebas.

La *Tabla 1* muestra el tamaño de las partículas y el área superficial de los materiales de control probados.

	Tamaño medio de las partículas (D50)	Área superficial BET
A20171 Climax	0.68 micrón	2.9m ² /gm
WA011GA Climax	3.26	1.6
HC Starck 02F001	0.68	2.7

▲ **Tabla 1:** Tamaño de las partículas y área superficial de los AOMs comerciales

Talc	Kemgard STA	AOM WA Climax	AOM A2 Climax	Talco + AOM WA Climax
13.0 m ² /gm	7.0 m ² /gm	1.6 m ² /gm	2.9 m ² /gm	5.1 m ² /gm

▲ **Tabla 2:** Mediciones BET del área superficial

El AOM de amplia área superficial (Kemgard STA) ha sido preparado por reacción entre el dimolibdato de amonio y el óxido de molibdeno en presencia de un talco inerte. El proceso está descrito en una patente americana aplicada⁸.

Se han examinado varias cargas inertes usadas normalmente en los compuestos de PVC. No todas las cargas favorecían la formación de AOM de amplia área superficial. En este trabajo se describen solamente los resultados obtenidos con una carga inerte a base de talco.

Se han analizado con difracción de rayos X el KG-STA y el AOM comercial. El AOM del KG-STA y el del material comercial no mostraban diferencias. El análisis SEM (microscopía de barrido electrónico) ha dejado ver una diferencia de forma y de morfología entre las partículas del KG-STA y del AOM comercial. La *Figura 1* muestra una imagen SEM de un AOM-WA comercial de Climax. La *Figura 2* muestra la estructura del Kemgard STA. En el material comercial, el AOM se presenta en forma de aglomerados de forma irregular. Sin embargo, en las muestras de KG-STA, el AOM se presenta en forma de palitos separados.

En base a las micrografías SEM, se puede ver que la precipitación de octamolibdato de amonio en presencia de talco favorece la formación de palitos en lugar de aglomerados. No se sabe todavía cómo influencia la presencia del talco a la morfología del AOM desde el punto de vista termodinámico y cinético.

Según las mediciones con el método BET, la estructura en forma de palitos del AOM en el Kemgard STA presenta un área superficial mayor respecto a la de los materiales comerciales. Los valores del área superficial de los productos a base de AOM están ilustrados en la *Tabla 2*.

El área superficial de un material mezclado puede ser considerada propiedad del aditivo. Por ejemplo, una mezcla de talco y AOM-WA Climax es calculada como promedio ponderado de los distintos componentes, como se ilustra en la ecuación 1.

$$\text{Talco} + \text{AOMWA} = 0,3 * (13,8) \text{ m}^2/\text{gm} + 0,7 * (1,6) \text{ m}^2/\text{gm} = 5,26 \text{ m}^2/\text{gm}$$

Ecuación⁽¹⁾

El valor obtenido 5,26m²/g se acerca favorablemente al valor 5,1m²/g determinado experimentalmente. Para el KG-STA, el área superficial BET determinada experimentalmente era 7,0m²/gm. Usando el mismo método de mezclado, el aporte del AOM con superficie modificada calculado es 4,09m²/gm, como se ilustra en la *ecuación 2*.

$$\text{STA AOM} = [7,0 \text{ m}^2/\text{gm} - (0,3 * 13,8 \text{ m}^2/\text{gm})] / 0,7 = 4,09 \text{ m}^2/\text{gm}$$

Ecuación⁽²⁾

Por lo tanto, el octamolibdato de amonio del KG STA presenta un área superficial de 1,5 a 2,5 veces mayor que las dos calidades comerciales de AOM.

Una técnica para aumentar el área superficial es reducir el tamaño de las partículas por medio de molido mecánico.

Aunque sea una práctica corriente, hay un provecho reducido que depende de los costes de energía, estabilidad del producto e integridad del material durante el procesamiento. Los dos tipos de AOM Climax comerciales han sido pulverizados muy finamente con molino de chorro (jet mill) y comparados con el KG-STA en la *Tabla 3*.

El proceso de pulverización no ha generado una disminución del tamaño de las partículas ni un aumento del área superficial del AOM-A2 Climax. Sin embargo, con las partículas más grandes del AOM-WA Climax, el proceso de pulverización ha producido mejoras considerables tanto del área superficial como del tamaño de las partículas. A pesar de todo, el área superficial del AOM-WA pulverizado dos veces resulta todavía un 10% inferior al valor calculado para el KG-STA.

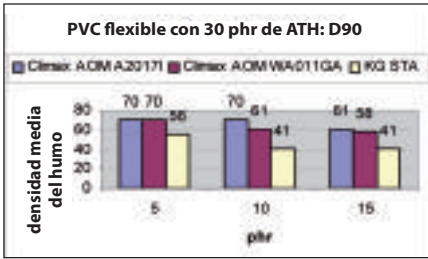
Se espera que un área superficial mayor del AOM del KG-STA ofrezca mayor eficacia de supresión de humo. La formación de char en el PVC es catalizada por el molibdato; por lo tanto, un área superficial mayor debería producir un rendimiento más elevado en la transformación del char.

▼ **Tabla 3:** Mediciones del área superficial y del tamaño de las partículas

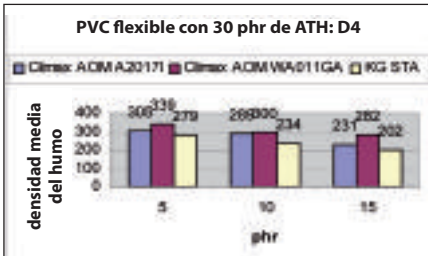
	Kemgard STA	AOM WA Climax	WA Climax (2 pasos)	AOM A2 Climax	A2 Climax (1 paso)
BET (m²/gm)	7.0	1.6	3.7	2.9	2.9
PSD D50 (micrones)	2.74	3.26	0.71	0.68	0.57

▼ **Tabla 4:** Fórmulas del PVC flexible

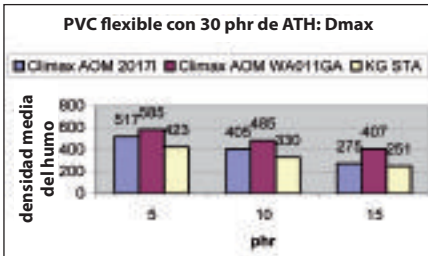
Oxyvinyl 240F	100	100
Halstab H-695	7	7
Sb₂O₃	3	3
Micral 9400	30	60
Santicizer 2148	20	20
Uniplex FRP-45	20	20



▲ **Figura 3:** Densidad del humo NBS después de noventa segundos para el KG-STA y el AOM comercial



▲ **Figura 4:** Densidad del humo NBS después de cuatro minutos para el KG-STA y el AOM comercial



▲ **Figura 5:** Densidad del humo máxima para el KG-STA y el AOM comercial

3. Métodos de prueba

3.1 Cámara del humo NBS (ASTM E662)

La emisión de humo generado por la combustión de materiales plásticos puede ser determinada usando el método del organismo estadounidense de estándares NBS (National Bureau of Standards), normalizado en los Estados Unidos como norma ASTM E662. Este ensayo fue desarrollado originalmente para determinar las características del humo generado por los materiales plásticos usados en la construcción de aviones.

La cámara de humo NBS mide la densidad del humo acumulado cuando una muestra de forma y espesor especificados está expuesta a una fuente de calor radiante de 25kW/m². Según la aplicación, se pueden especificar la densidad máxima del humo o la densidad del humo después de un periodo de tiempo determinado (normalmente 4 minutos). La prueba se puede realizar con o sin usar una llama piloto (modo con llama o sin llama, respectivamente). En este trabajo todos los ensayos han sido realizados en el modo con llama.

3.2 Calorímetro de cono (ASTM E1354)

El calorímetro de cono es un instrumento de laboratorio que mide la combustibilidad

y la generación de humo de materiales en una amplia gama de condiciones. Para los materiales de construcción que deben superar el costoso ensayo del túnel de Steiner se usa a menudo el calorímetro de cono como prueba preliminar. Aunque ningún ensayo de irradiación fija puede predecir las prestaciones durante el ensayo de túnel a gran escala, el ensayo con calorímetro de cono es reconocido ampliamente como instrumento de desarrollo útil.

En el ensayo con calorímetro de cono, descrito por la norma ASTM E1354, una muestra cuadrada de 100mm x 100mm (4 x 4 pulgadas) es expuesta al flujo radiante de un calentador eléctrico.

El calentador tiene forma de cono truncado (del cual toma el nombre el instrumento) y puede generar flujos de calor de entre 10 y 110kW/m², normalmente de 50 a 75kW/m². Este valor es de dos a tres veces mayor que el flujo de calor usado en la cámara de humo NBS.

El calorímetro de cono permite medir las características de las prestaciones frente al fuego de materiales clave usados para el modelado de incendios. La generación de humo es medida continuamente usando un haz láser en el conducto de escape. El valor registrado de la intensidad se usa para calcular un coeficiente de extinción, que es el parámetro de medición del humo en el flujo de aire.

La integración del coeficiente de extinción frente al tiempo es combinado con el volumen total de los productos de combustión para obtener el parámetro de medición del humo total. Normalizadas para el área superficial de la muestra, las unidades de medida del humo total son m³/m².

En este trabajo, el ensayo con calorímetro de cono ha sido realizado por Polymer Diagnostics, Avon Lake, Ohio, EE.UU., y en el College of William and Mary, bajo la dirección del Profesor William Starnes.

4. Resultados

4.1 Cámara de humo NBS

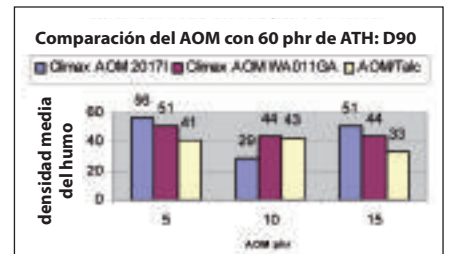
Se han seleccionado dos fórmulas diferentes de PVC flexible para comparar el prototipo Kemgard STA con el AOM comercial. En una fórmula se ha agregado 30 phr de trihidrato de aluminio (ATH). En la otra fórmula, la concentración de ATH era 60 phr. Las fórmulas de base se ilustran en la *Tabla 4*.

Las comparaciones de los productos se han realizado con 5, 10 y 15 phr de AOM total. Las cantidades de talco han sido ajustadas para mantener fijo el nivel total de carga inerte.

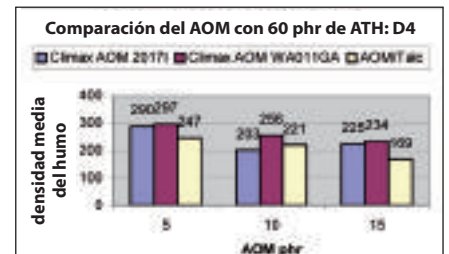
Las *Figuras 3-5* muestran la densidad del humo en función de la concentración de los componentes. D90 corresponde al nivel de humo después de 90 segundos. D4 corresponde a la densidad del humo después de 4 minutos y Dmax representa la densidad de humo máxima alcanzada durante el ensayo.

Los datos muestran claramente que, con todas las concentraciones y en todos los intervalos de tiempo, el KG-STA supera ampliamente las prestaciones del WA 011GA Climax. De nuevo, las prestaciones del KG-STA también son superiores a las de la mejor muestra comercial, A20171 Climax, con cualquier concentración y en cualquier intervalo de tiempo. En términos de densidad de humo máxima, el KG-STA ofrece sus mejores prestaciones con las menores concentraciones. De hecho, las prestaciones del KG-STA a 5 phr pueden ser comparadas a las prestaciones del mejor AOM comercial a 10 phr. Se trata de un resultado importante y sugiere un uso mucho más eficiente de la química del AOM.

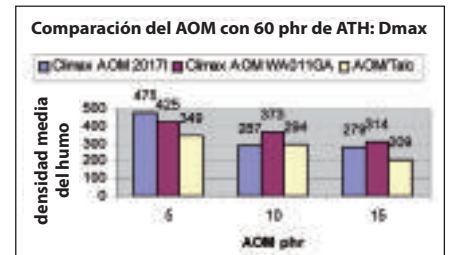
Las *Figuras 6-8* presentan los resultados de la cámara de humo NBS obtenidos con la fórmula que contenía la cantidad de ATH más alta (60 phr). De nuevo, se ilustra la densidad del humo en función de la concentración de los componentes.



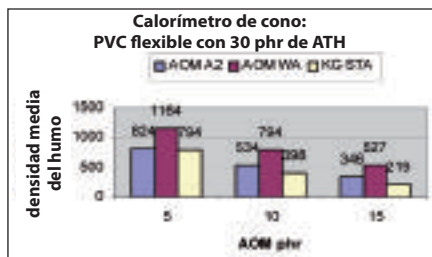
▲ **Figura 6:** Densidad del humo NBS después de noventa segundos para el KG-STA y el AOM comercial



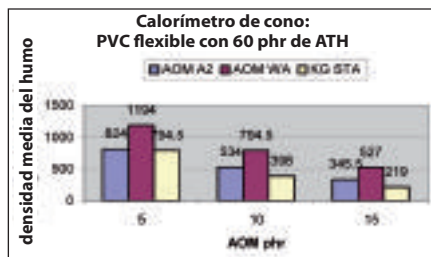
▲ **Figura 7:** Densidad del humo NBS después de cuatro minutos para el KG-STA y el AOM comercial



▲ **Figura 8:** Densidad del humo máxima para el KG-STA y el AOM comercial



▲ **Figura 9:** Humo total para el KG-STA y el AOM comercial a 30 phr de ATH y 70k/W/m²



▲ **Figura 10:** Humo total para el KG-STA y el AOM comercial a 60 phr de ATH y 70k/W/m²

Como en el sistema anterior, las comparaciones han sido realizadas con 5, 10 y 15 phr de AOM total, con cantidades de talco ajustadas para mantener fijo el contenido total de carga inerte. La *Figura 6* muestra el humo después de 90 segundos, la *Figura 7* muestra el desarrollo del humo después de 4 minutos y la *Figura 8* muestra el desarrollo máximo del humo de los distintos compuestos.

Al igual que en el sistema con contenido de ATH más bajo, los datos muestran nuevamente que, con cualquier concentración y en cualquier intervalo de tiempo, el KG-STA supera con creces las prestaciones del WA 011GA Climax.

Comparando solamente estos dos sistemas, las prestaciones del KG-STA a 5 phr son superiores a las del WA 011GA a 10 phr. Esto es así en cualquier momento del ensayo. El KG-STA ha ofrecido también prestaciones superiores respecto a la muestra comercial con partículas de tamaño inferior, el A2017I, tanto a 5 phr como a 15 phr. A 10 phr, las prestaciones fueron similares.

En base a estos resultados, se ha podido concluir que en el KG-STA era mucho más eficiente la química del AOM en dos fórmulas de PVC flexible diferentes y con diferentes concentraciones.

4.2 Calorímetro de cono

La eficacia de la supresión del humo del KG-STA y de las dos muestras de AOM comercial ha sido comparada también realizando el ensayo con calorímetro de cono (ASTM E-1354). Para el estudio se han usado las mismas dos fórmulas de PVC flexible (*Tabla 4*, ilustrada arriba).

Las comparaciones han sido realizadas también con 5, 10 y 15 phr de AOM total, con cantidades de talco ajustadas para mantener fijo el contenido total de carga inerte. Todo el ensayo ha sido realizado con el calorímetro de cono con flujo calorífico de 70kW/m².

Las *Figuras 9* y *10* muestran el humo total generado por la combustión de las muestras de PVC en función de la concentración de los componentes. Los resultados han sido similares a los obtenidos en la cámara de humo NBS.

En el sistema con contenido de ATH de 30 phr, el KG-STA ha superado ampliamente las prestaciones del WA 011GA Climax con cualquier concentración. El humo total alcanzado con 5 phr de KG-STA ha sido prácticamente el mismo obtenido con 10 phr de WA 011GA Climax. El KG-STA ha superado también las prestaciones del mejor AOM comercial, el A2017I Climax.

En este caso, el humo total obtenido con 10 phr de KG-STA ha sido casi idéntico al obtenido con 15 phr de A2017I Climax.

En el sistema con contenido de ATH de 60 phr se han observado casi las mismas ventajas en las prestaciones. De nuevo, las prestaciones del KG-STA superan ampliamente las prestaciones del WA 011GA Climax con cualquier concentración. Los valores del humo total con 5 phr de KG-STA han resultado similares a los obtenidos con 10 phr de WA 011GA Climax. Significativamente, el humo total obtenido con 10 phr de KG-STA ha sido casi idéntico al obtenido con 15 phr de A2017I Climax.

Tanto los resultados obtenidos con el calorímetro de cono como los de la cámara de humo NBS demuestran que en el PVC flexible, el KG-STA ofrece prestaciones ventajosas respecto al AOM comercial. Dependiendo del sistema aplicado, se observa que el uso de KG-STA permite reducir de un 25% a un 50% el AOM total, sin variar o incluso mejorando la supresión del humo. Esto puede representar un beneficio significativo para los productores de PVC flexible de baja emisión de humo.

5. Conclusiones

Para cumplir los exigentes requisitos de humo de la norma NFPA 262, el compuesto de revestimiento tipo plenum de PVC requiere el uso de supresores del humo.

Se han utilizado varios materiales a base de molibdato para limitar la emisión de humo. Estos aditivos a base de molibdato funcionan en la fase condensada mejorando la formación de char. Sherwin-Williams Chemicals ha desarrollado un proceso para la precipitación del AOM de amplia área superficial.

La presencia de ciertas cargas inertes a base de talco influencia la morfología del AOM precipitado y favorece la formación de un producto de mayor área superficial. Las pruebas con el método NBS y con calorímetro de cono han revelado una mejora de las prestaciones asociada al aumento del área superficial del molibdato.

Los datos indican que, al compararlo con el AOM convencional, el Kemgard STA puede ser usado en cantidades iguales obteniendo prestaciones mejores o en cantidades menores con prestaciones equivalentes.

Con los precios del molibdeno cada vez más altos, la posibilidad de reducir la concentración variando el tamaño y la morfología de las partículas representa un resultado técnico significativo. ■

6. Agradecimientos

Los autores quieren agradecer a Charlie Simpson y Dave Klimovich por su asistencia técnica.

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* Front cover courtesy of AIM Inc. Machine shown is the 3D CNC Double Head Bender, Model AFM-3D10-T.

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