



▲ Warren Smith JP, Her Majesty's Lord Lieutenant of Greater Manchester, with Metalube managing director David Lee at the awards ceremony

Queen's Award presented

Warren Smith JP, Her Majesty's Lord Lieutenant of Greater Manchester, presented Metalube Ltd with a Queen's Award for Enterprise in International Trade.

The Lord Lieutenant was welcomed and thanked by Metalube's founder and managing director, David Lee, who said what a proud day it was for him and the company. Mr Lee also thanked all the Metalube

employees for their hard work and commitment to the company. He conveyed how pleased he was to welcome members of the team to Irlam from China, Brazil, India, Hong Kong and Malaysia.

The company is very much a family business with three sets of fathers and sons amongst the team working for them – and this was apparent at the presentation,

with three generations of various families there to witness the proud ceremony.

Based in Irlam, Greater Manchester, Metalube also has offices in China, India and Brazil.

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Uhing drives Antarctic research

Having seen Uhing rolling ring drives in operation at its hose manufacturers, BAS was attracted by the combination of elegant simplicity, robust performance and ease of adjustment offered by Uhing's products; vital requirements for successful long-term operations in such a remote and inaccessible location.

As part of a project to research the history and current-flow of the West Antarctic Ice Sheet and its ice streams, BAS required a winding machine capable of handling nearly two-and-a-half kilometres of 44mm diameter hot-water drilling hose which will be used to carry hot water to melt holes through the ice, allowing instruments to be left in the

sediments and ice, to measure their motion and enable researchers to better predict future sea levels.

To facilitate the layering of the hose on the winding reel, Techna specified a Uhing ARG4-60-0MCR1FLZ5X rolling ring drive assembly to be mounted on the winder.

The unit was easily incorporated into the winding machine being fabricated by ABLE Engineering. With a stroke width of almost four metres and side thrust of 2,000N, the inclusion of a load carrier on the assembly mitigates the bending and twisting moments inherent in such a large machine, increasing longevity and reducing requirements for maintenance, at typical operational temperatures



▲ Uhing ARG4-60 rolling ring drive/assembly with load carrier. Photo: Keith Makinson, BAS

between -2°C and -20°C.

After successful trials in the UK, which 'impressed and delighted' BAS engineers, the completed winder is currently on board RRS Ernest Shackleton headed for Halley Research Station. After weathering the Antarctic winter on the Ronne Ice

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Technical Article 28

Inline wire diagnosis
by Marcus Paech and
Walther Van Raemdonck,



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WCN

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Shelf it will be slowly transported, overland, to its final location on



▲ RRS Ernest Shackleton at Halley Research Station. Photo: Keith Makinson, BAS

the Rutford Ice Stream, some 500 miles away. If all goes to plan the equipment should be in place sometime in 2015/16.

Techna International has spent 40 years as the UK and Ireland distribution agent for Uhing Drives and equipment.

Joachim Uhing GmbH & Co KG will again be exhibiting at wire & tube 2014.

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On a very fast track to safety

Ormiston Wire has revealed how it successfully developed, prototyped and manufactured a vital component for the Mercedes-Benz SLR McLaren that has significantly enhanced driver and passenger safety. The company provided a custom-designed restraint for the engine block for the entire production life of the model between 2003 and 2009.

Following high-speed collision tests, it was apparent that additional restraints would be required to hold the engine block in place to ensure it did not shift into the driver and passenger compartments in the event of a collision. Ormiston was tasked with sourcing Zylon, a highly-tensile synthetic polymer material that offers a tensile strength of 5.8. The prototype was developed using stainless steel rounded ferrules and, following thorough testing, the solution was found to surpass the required specification tolerances.

A key element of the solution was Ormiston's braided wire, one of the many speciality products that the company produces. Wire braid's versatility and strength means it can be used in a wide range of applications, such as electrical conductivity and as armouring for other cables.

It is available in a wide variety of stock specifications, including



▲ The Mercedes-Benz SLR McLaren's safety was enhanced by Ormiston Wire

copper (plain and tinned), aluminium, clear PVC coated, and antenna braid, and Ormiston is renowned for providing valuable advice and support to customers in specifying and selecting which type best suits their purpose.

“Our work alongside Mercedes-Benz required us to work with a material we had not used before,” stated Mark Ormiston. “However, our experience in bespoke applications ensured we were able to efficiently and correctly specify this custom-made and innovative solution. The focus of the project from start to finish was passenger safety and we are delighted that this was wholly achieved.”

Ormiston Wire – UK

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Read all about it

Please remember that member news stories can be published on the IWMA website at any time, so submit them to info@iwma.org as part of your company's promotional campaign and they will be uploaded.

Case studies are also being included so if your company enjoys a significant business win or provides a customer with a solution to a particularly difficult problem, then the IWMA would be happy to help spread the news for you.

At the top in continuous wire galvanising

FIB Belgium has once again gained the confidence of the Dutch company Van Merksteijn International for taking up the challenge of the largest continuous wire galvanising line in the world.

This one will have the capacity to produce 9.5T/h of galvanised wires in order to feed the various stations for the manufacture of fence panels of Van Merksteijn.

FIB SA – Belgium
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Website: www.fib.be



DIARY OF WORLD CLASS WIRE & CABLE EVENTS FOR BUSINESS, TECHNOLOGY, EDUCATION & NETWORKING		
2014		
APRIL		
7-11	wire Düsseldorf 2014 <i>Düsseldorf, Germany</i> Exhibition	➔ Messe Düsseldorf GmbH Email: wire@messe-duesseldorf.de Website: www.wire.de
8	IWMA Industry Dinner & Reception <i>Congress Centre, Düsseldorf</i> Event	➔ IWMA Tel: + 44 1926 834680 Email: info@iwma.org Website: www.iwma.org
JUNE		
4	IWMA Golf Day <i>Fairhaven Golf Club, Lytham St Annes, UK</i> Event	➔ IWMA Tel: + 44 1926 834680 Email: info@iwma.org Website: www.iwma.org
SEPTEMBER		
24-27	wire China <i>Shanghai, China</i> Exhibition	➔ IWMA Tel: + 44 1926 834680 Email: info@iwma.org Website: www.iwma.org
OCTOBER		
28-30	wire India <i>Mumbai, India</i> Exhibition	➔ IWMA Tel: + 44 1926 834680 Email: info@iwma.org Website: www.iwma.org
NOVEMBER		
21	IWMA Dinner Dance <i>Royal Garden Hotel, London, UK</i> Event	➔ IWMA Tel: + 44 1926 834680 Email: info@iwma.org Website: www.iwma.org

Great strides in Europe

Stride Supplies Ltd is a distributor of high carbon spring wire in the UK. With over 30 years, experience it offers a fully comprehensive range of specifications.

2012 saw the move to larger custom-built premises, which has enabled the enhancement of stock levels for existing products and additionally has enabled Stride to extend its product range into new areas such as chrome vanadium and 17/7ph stainless.

Last year saw the continued expansion of the group by the acquisition of the

bespoke fastener manufacturer DSL Ltd, which supplies the automotive industry.

This year will see Stride further cement its position in the UK spring industry by achieving the AS9120 aerospace standard for stockist distributors. In addition, an SAP software system will be implemented to update all systems and enable the group communications to operate at the highest level of efficiency and sustainability.

Stride's suppliers are listed among the largest and most prestigious wire

and steel manufacturers across the globe and include Arcelor Mittal, KOS, Suzuki, DSR, Fox, Bridon and WDI.

The current product range includes stainless to all major specifications, high carbon steels in both galvanised and plain finishes to all major tensile ranges and specifications, as well as silicon chrome and Chrome vanadium.

Stride Supplies Ltd – UK
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Technical Sub-Committee Chairman's Report 2013-14

Focus for the TSC this year has been on the association's biennial CabWire World Conference held on 4th November in Milan, Italy.



▲ Technical Sub-Committee chairman, Peter Large

An event of this size and scope takes a lot of organising, from facilities to the paper presentations as well as promotion of the event, and is very much a cooperative effort. As for previous conferences, we had excellent partners in the major European associations of IWCEA, ACIMAF and CET as well as the WAI in the USA.

The conference benefitted from excellent facilities provided by Promos, the Milan Chamber of Commerce, and attracted a record number of delegates whose feedback has been overwhelmingly positive.

We do critically review these events and it was very pleasing to see the number of delegates over the last three conferences rising each year, with attendees from 21 different countries registering for the latest conference. This shows that what we are doing is relevant to today's wire industry and important enough for delegates to attend.

I would like to thank the conference speakers that presented a range of excellent technical papers, all of which are the product of a great deal of preparation and research. This sharing of knowledge, experience and technology is invaluable to our industry.

The conference was also enhanced by table-top exhibitors and a number of generous sponsors which enable us to keep these events affordable for delegates.

Many of our conference attendees enjoyed the opportunity to visit the world-class manufacturing plant of ORI Martin to whom we extend our thanks for their kind hospitality and excellent plant tour.

Much of this report is in the form of thanks and I must also thank my fellow TSC members Amanda Shehab, Geoff Church, Terry Robinson, Stephen Wood and John Stanaway for all their help. The event would never have got going without our office staff, Andy Lewis and Debi Coleman, who made sure that everything was perfect down to the last detail.

We are already thinking ahead to 2015 and are pleased to announce that the next CabWire World Conference will be held in Düsseldorf, Germany – a city which so many of us know as the home of the Messe Düsseldorf "wire" exhibition. With the 2014 show to be held in April, we hope to see you on the IWMA stand for a full update on arrangements for the 2015 conference.

20 years' experience

LongVision has over 20 years' experience in supplying copolymer coated steel tape, copolymer coated aluminium tape, polyester tape, alu-pet tape and copper clad aluminium (CCA). The advanced production line, highly skilled technicians, and professional management team are the core elements that enable LongVision to maintain the high quality of products and services. New technology relating to controlled jacket bond (CJB) production is one of the exceptional achievements of the research team. Patent protection for the relevant products and technologies was launched in 2009.

The wire factory, founded in 1992, has extensively engaged in the industries of both low and high carbon steel. These products have very wide applications in cable armouring, supporting, steel strength members for ACSR, fencing, bailing and packing.

In 2010, Longvision invested in two manufacturers. One is specialised

in water-blocking yarn, glass yarn, water-blocking glass yarn and polyester binder yarn; while the other specialises in mica tape and a series of flame-retardant tape. The production line has since been upgraded and advanced technology has been introduced.

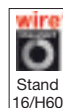
There are also several factories that are under the supervision of LongVision, such as water-blocking tape, FRP.

In addition, authorised by a number of business partners, LongVision distributes a range of associated products, including electro and hot dipped galvanised steel tape, aluminium-magnesium alloy wire, copper clad steel wire and entire cable production lines which offer customers a one-stop solution.

LongVision – China

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Quality and research



▲ Dies from Kingway

Shanghai Kingway has been concentrating on the technical research for the wire drawing industry, and quality control is monitored from the raw material stage through to the production process

to ensure each die's quality before delivery. The company is ISO 9001 and SGS certified.

The company's main products include: Polycrystalline diamond wire drawing dies (PCD wire dies); natural diamond wire drawing dies (ND wire dies); semi-finished ND/PCD wire dies; PCD dies for tin-plating; tungsten carbide wire dies (TC wire dies); bunching and stranding dies; cleaning, repolishing and recutting machines.

Shanghai Kingway Technology Group Ltd – China

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Special solutions



▲ Catering for the whole wire and cable industry

Flymca is continuously manufacturing special solutions for stranding/cabling purposes adapted to the global cable market. Its expertise range covers the complete range of machines for stranding and laying-up of conductors for the power cables field as well as for the steel ropes market. Off-shore, submarine and umbilical cables production is also part of its machines, scope of supply. The stranding technology, under

increasing development over the last years, is one of the Flymca's key areas of expertise. A huge technical knowledge helps customers to achieve their goals, together with a complete capability that goes from research and development until the final delivery, and an after-sales service going through the whole engineering, manufacturing, assembling, software, quality control as well as installation and

commissioning by experienced staff.

Among the markets that the company is involved in: the high voltage area delivering a screening line and several sets of take-ups over 100 tons with reels diameter 5m; the fibre optic market delivering an armouring line based on a 30 bobbin tubular with a bulkhead to locate the fibre optic reel; a bow cabler prepared for laying-up of control cables and insulated conductors located in reels diameter 1,600mm, with precise tension control for conductors from 4mm² to 185mm².

Sister company Flyro deals with used machinery, covering the whole wire and cable industry with a huge inventory. Special offers can be made combining used and new equipment as well as revamped solutions, modernising equipment mechanically and also using updated electrical solutions to achieve better and quicker production.

Composed of a skilled and experienced team as well as modern and large facilities, Flymca and Flyro can meet special requirements in the wire and cable industry, matching needs and budget with customised solutions.

Flymca & Flyro – Spain
Website: www.flymca.com
Website: www.flyro.es



Ultrasonic for die efficiency



▲ The 'USP Twin' from Eder Engineering

With the growing use of multi-wire drawing machines with up to 48 wires drawn on a single machine,

thousands of PCD dies are in permanent use. Sooner or later these are subject to wear, needing proper reconditioning for renewed use if drawing efficiency and economy are to be maintained at the highest possible level.

For refurbishing the growing quantity of PCD dies, a unique Ultrasonic machine, model 'USP-Twin', with two workstations, has been developed by Eder Engineering, Austria. The machine can efficiently work all die-sizes in a range from 0.05mm to 8mm diameter.

Eder has been specialising in the field since 1947 and offers a variety of leading equipment for the production and reconditioning of tungsten carbide, natural diamond and PCD dies, as well as technical assistance in the proper processing of drawing dies. All machines are supplied ready for operation and are easy to understand and operate, allowing all users complete in-house independence.

Eder Engineering GmbH – Austria
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Website: www.eder-eng.com



IWMA Chairman's Report 2013-14

2013 was another very busy year for the association with us supporting our members at the leading wire and cable exhibitions on several continents during the year.

The first exhibition of the year was Interwire organised by the Wire Association International and held at the Georgia World Congress Center.

This was followed by three exhibitions organised by our industry partner, Messe Düsseldorf.

The IWMA and a number of member companies were amongst some 250 exhibitors from 26 countries at wire Russia which was held over four days in June at the Expocentre in Moscow. A total of 10,850 trade visitors hailing from all parts of the Russian Federation travelled to Moscow to visit exhibitors at their trade fair stands and obtain and exchange information on the latest products and pioneering trends.

Russia was followed in September with the successful tenth edition of wire Southeast Asia held at the Bangkok International Trade & Exhibition Centre (BITEC), Thailand, where more than 380 international exhibitors from 30 countries showcased an impressive array of innovations and trends on high performance machinery and equipment, manufacturing and processing technologies as well as materials and accessories.

After Bangkok, it was the turn of São Paulo in Brazil from 1st to 3rd October, with the staging of wire South America 2013 for the first time at the Exposições Imigrantes Exhibition Centre with 173 exhibitors from 26 countries.

The IWMA stands were busy with enquiries at each of the shows and I am pleased to say that the association welcomes a number of new members as a result.

Our biennial CabWire World Conference was staged at the Palazzo Turati in Milan, Italy, at the beginning of November and it was a great success, with almost 200 attendees. I must make a point in

thanking the IWMA executive team of Andy Lewis and Debi Coleman for their meticulous organisational skills in bringing this event to successful conclusion, assisted by our partner associations WAI, ACIMAF, IWCEA and CET.

We, as an association, take many positives from participating in these events and we can see a continued growth in activities for the years to come. As the economic climate improves and the prospects for growth in all the emerging markets makes our members' presence at these events essential, we as an executive board will endeavour to facilitate and support our membership worldwide.



▲ Chairman Steven Rika

Our executive manager, Andy Lewis, will have completed the full two-year cycle of exhibitions after wire Düsseldorf is completed in April. He has a good understanding of what the IWMA is about and he is leading from the front by rebranding the association's corporate image and building exhibitor packages that are attractive to our members.

It is all systems go now for the build-up to wire Düsseldorf 2014. For those that will be attending, please feel free to contact Andy or Debi as they will be on hand to offer advice or assistance leading up to the show.

Later in 2014 the association looks forward again to wire China in Shanghai in September and wire and Cable India in Mumbai in India. Exhibitor packages for members for these two events will be announced soon.

Finally, thank you to all members of the IWMA executive board for their hard work and continued dedication and support to the association.

Next issue

Members: Please send us your editorials for free publication in the next WCN (or on the IWMA website at any time between editions of WCN).

One of the strictly members-only benefits of belonging to the IWMA is the facility to publish your company's editorials in WCN, both the hard copy and electronic versions, completely free of charge, and reach thousands of readers worldwide.

In addition to worldwide distribution WCN is freely distributed at all major industry trade fairs and IWMA technical events. The next important upcoming exhibitions in 2014 are wire Düsseldorf, 7th - 11th April; wire China, 24th-27th September; Wire & Cable India, 28th-30th October.

Members should also bear in mind that the IWMA website can accept editorials at any time during the year.

Providing editorials for WCN and the website can help members in many ways:

- Communicating important messages worldwide
- Attracting interest from the high number of national visitors to this year's exhibitions.
- Creating a high profile at both events
- Advising customers of personnel changes
- Announcing major new developments
- Celebrating winning of new contracts/orders
- Staying one step ahead of the competition

Please send us your editorials (not advertisements) with supporting photos to: info@iwma.org for the Autumn 2014 edition.

If marketing and public relations is not your area of responsibility please make sure that the relevant department/person is aware of this information. Thank you!

Please submit editorials by the 28th of May 2014

Zumbach presents new, high-tech length and speed measuring gauges



▲ LSV 2000 Velocimeter

Precision, speed and length measurements are critical for optimisation of continuous or quasi-continuous production processes. Proper utilisation of these measurements can lead to lower production costs and higher product quality. The ideal sensor must exceed traditional contact encoder performance, increasing reliability and accuracy while minimising maintenance requirements and material yield.

The LSV Laser Surface Velocimeters have been designed as the ideal next generation sensors for non-contact length and speed measurement. They provide precise length and velocity data quickly and reliably for both process control and cut-to-length applications.

The LSV 1000/2000 measure reliably on almost any solid surface, whether controlling processes utilising carbon steel, shiny aluminium or oily sheets, producing round wire and cable, or manufacturing paper, cardboard or tissue.

Benefits and main features:

- Zero speed, direction detection (model LSV 2000 only)

- Reduced operating and maintenance costs
- Attractive ROI, fast payback
- All-in-one system, easy integration into production processes and control environments
- Easy to operate and no re-calibration required
- Visible laser for easy alignment in the field
- Robust sensor technology for reliable operation even under harsh conditions, protection classes IP 66 and IP 67
- Fast, state-of-the-art signal processor with powerful command set for efficient system communication via serial or Ethernet interface
- Includes two trigger inputs for additional light barriers or optical switches for high precision edge detection and offset length compensation
- Hardware status signals for remote diagnostic functions available
- User-selectable full quadrature pulse output and interfacing as LAN and RS 422/232

Zumbach AG – Switzerland

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High quality for UK market

Since its formation in 1992, Rowan Cable Products has prided itself on the supply of high quality copper and aluminium wire to the UK cable market.

In an ever-changing market, Rowan has diversified from its roots as a stockist of these products into the leading integrated manufacture of copper conductors, from drawn single wire, to bunch, strand and braid.

Its accreditation to major railway and utilities companies enables expansion into this vast market, aided by investment in stranders capable of producing multi-wire diameters up to 20mm or 300mm cross section, in copper, aluminium or phosphor bronze wire.

Rowan's close relationship with client companies in the field also enables it to offer completed cables to all international norms by supplying the cores to accredited extruders and finishers.

Its extensive braiding facilities serve a range of industries through wholesale outlets and direct supply, in coil and in terminated conductors. Over braiding of cables and high pressure hoses in wire, cottons, Kevlar™ and fibre glass, allied to a quick turnaround of free issue cores, is invaluable to many customers, in fields as diverse as lighting, racing cars and the atomic energy industry.

The company has extended its service to the cable industry by supplying accurately wound material, single- or multi-end, on customers, preferred bobbins, or by short runs of fine bunch or concentric strand.

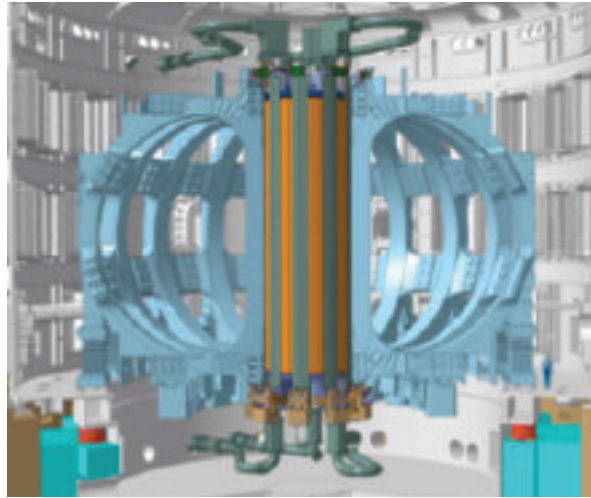
Cutting and straightening lines assist with modelling armatures for prominent filmmakers through to spark erosion electrodes.

Rowan Cable Products Ltd – UK

Email: sales@rowancable.co.uk
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Automated taping head

Ridgway Machines has won a major new contract from General Atomics, a US-based technology innovation firm that is a leader in fusion research and technology. The tape wrapping system will be used to insulate superconductor coils for the central solenoid magnet on the international nuclear fusion reactor ITER, which has been called the largest science experiment in history.



▲ New contract win for Ridgway

ITER aims to demonstrate the technical and scientific feasibility of fusion power for commercial-scale energy. The ITER tokamak machine will be one of the most complicated machines ever engineered – almost 30 metres high and weighing 23,000 tons, it will house an estimated one million components. The central solenoid will be located in the heart of the ITER tokamak, and will provide the majority of the magnetic flux change needed to initiate the plasma, generate the plasma current and maintain this current during the burn time.

The ITER organisation was formed to advance the development of hydrogen fusion as an energy source. Fusion is a safe, carbon-free energy source fuelled by abundant resources (heavy hydrogen from sea water) and can produce high levels of power.

Partners China, the European Union (EU), India, Japan, Korea, Russia and the United States will implement the project during its estimated 10-year construction and 20-year operational

phases. Construction is now well underway in Cadarache, France, and operations are expected to begin in the early 2020s.

The seven ITER members share every aspect of the project, including science, procurement, finance and staffing, with the aim that ultimately each member will have the know-how to produce its own fusion energy plant. Ridgway also provides sophisticated taping heads to insulate the Toroidal Field (TF) magnet coils supplied by the EU.

Ridgway's sales and marketing director, Andy

Clarke, said: "We are delighted to win this substantial further contract for the ITER project. We will be working in close collaboration with our customer to meet the specification and performance standards for this demanding engineering application."

Ridgway Machines Ltd – UK
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First mechatronics study ever: linear drive nut RS with electronic drive under water

For the first time ever, Joachim Uhing has implemented a combination of classical drive and electronic controller in a single project.

Until now, the engineering company had maintained a strict separation between mechanical products and electronic components. The current study combines mechanics and electronics. "With this project, we aimed at improving our internal expertise in connecting mechanics and electronics," said Wolfgang Weber, Uhing's managing director.

The Linear Drive Nut RS was chosen for the study. It is particularly resistant against sand, dust, humidity and splash water. Now it also had to prove that it was suited for underwater application. To do so, it was fitted on a plain shaft. Rolling rings translate the

shaft rotation into linear transversal feed movements.

Combined with a position sensor system, an application with the drive nut being fully immersed in water was designed. The travel starts above the water surface. The drive nut then goes under water and assumes a handling function using a solenoid.

"These are situations that benefit from the very precise positioning capabilities of the linear drive nut," said Jörg Wadehn, technical director.

The linear drive nut can be sealed with rod seals to prevent water or dirt particles from reaching its interior. In this way, it can also be operated in dirt-laden water or other liquids such as oil, which makes it a very interesting solution for companies with special hygienic

production requirements. The linear drive nut has absolutely no play even under water and operates trouble-free. With two coupled linear drive nuts, the thrust force can even be increased.

Based on the results of this study, Uhing will extend the product range by electronically controlled components and thus expand the capabilities of the products in the medium term. "The questions concerning our product range arising from the approach to mechatronics entirely depend on the environment in which the respective component is operated," says Jörg Wadehn.

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Energy-efficient rod welders

PWM, which celebrates 30 years of service to the wire and cable industry in 2014, will exhibit two of its energy-efficient rod welders on stand 9B41 at wire 2014. Visitors will be able to watch demonstrations of cold welding and see PWM's proven technology at work.

Designed and built by PWM, the P1000 and the EP500 machines offer wire and cable manufacturers a fast, cost-effective method of welding large non-ferrous rod sections 5mm to 20mm (0.197" to 0.790") diameter. Both models are energy efficient, low maintenance, and extremely simple to operate.

The P1000 hydraulic rod welder offers wire and cable manufacturers a host of time-saving design features, packed into a compact frame. Power consumption is minimal and the P1000 requires no heat, flux or fillers, so is clean, easy and safe to operate.

The sloping mechanical parts give the operator a clear view of the cold weld process, while quick release dies and an easily adjustable die setting mechanism ensure that die changeover is fast and problem-free. The P1000 has a wide capacity of 6mm to 16mm (0.236" to 0.630") copper and 6mm to 20mm (0.236" to 0.790") aluminium.

PWM's smaller electro-pneumatic EP500 rod welder, one of the company's best-selling machines, has a capacity of 5mm to 12.50mm (0.197" to 0.492") copper and 5mm to 15mm (0.197" and 0.590") aluminium.

PWM will also exhibit two portable air/hydraulic powered models, the HP100 and HP200 for wire sizes 1mm to 6.50mm (0.039" to 0.256") as well as a range of manually-operated cold welders for wire sizes 0.10mm to 5mm (0.0039" to 0.197")



▲ Proven technology from PWM

PWM Ltd – UK

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Reel good deal...



▲ IQ Reels' directors are, from left, Mr Chen Houqing, Mr Grant Latimer, Mr Bob Zhou, Mr Philip Young and Ms Wang Qiuxiang

Inosym Reels and Qunye Reels have established a joint venture company – IQ Reels.

The establishment of IQ Reels is a major milestone for Inosym and Qunye

and will ensure existing and new customers continue to receive high quality products and service through a comprehensive worldwide sales network and world-class production facilities of over 40,000m².

The quality and service of Inosym combined with the cost base and production facilities of Qunye will allow IQ Reels to offer reels, bobbins and spools to meet all markets, quality and price expectations.

IQ Reels welcomes enquires through the local Inosym agent, found through the Inosym website at www.inosym.com or directly through either www.inosym.com or www.qunyeglobe.com

Inosym – New Zealand

Website: www.inosym.com

Qunye Reels – China

Website: www.qunyeglobe.com



China and India wire shows continue to lead

Given the great success of the previous five editions, wire China 2014 will continue to lead the latest trend in China's wire and cable industry.

Organised by Messe Düsseldorf (Shanghai) Co Ltd and Shanghai Electric Cable Research Institute, the next show will be held 24th to 27th September 2014 at the Shanghai New International Expo Centre (SNIEC) and will continue to provide the wire industry with the best trade and exchange platform in China and the whole of Asia.

Similarly, Messe Düsseldorf, with its subsidiary, Messe Düsseldorf India, will be responsible for bringing in exhibitors from India and from all over the world to the fifth edition of Wire & Cable India 2014, to be held at the Mumbai Convention and Exhibition Centre, 28th to 30th October.

And, of course, as a main international industry partner of

Messe Düsseldorf, the IWMA will be at both Shanghai and Mumbai exhibitions to support our members.

Association staff will be on hand to provide on-site exhibition assistance and advice, and catering, Internet access and meeting room facilities will be available on the IWMA stand.

Excellent IWMA exhibitor packages will be available to members and will include stand space, shell scheme, carpet, furniture, lighting, fascia panel, power and stand cleaning as well as the option for additional services such as on-stand translators, audio visual equipment and local poster printing.

The association can also advise on logistical issues such as shipping of display material, hotel bookings, meet and greet service at the airport and visa invitation letters as required, all intended to take the stress out of your exhibition preparation.

Details of the exhibitor packages will be available soon, so look out for further information at www.iwma.org

wire China 2012 attracted 903 exhibitors, among which 246 were international exhibitors. The gross exhibition area reached 86,500m², and the net exhibition total area was 40,849m². During the four-day show, wire China 2012, together with Tube China 2012, attracted 33,469 visitors from 85 countries and regions, including 3,902 trade visitors from overseas, representing 11.66 per cent of total visitor numbers.

With 291 exhibitors from 25 countries covering 5,560m² of exhibition space, Wire & Cable India 2012 was the largest ever. The event featured country group exhibits from Austria, China, France, Germany, Italy and the USA. More than 10,500 visitors attended to view the latest technologies.

Wet blasting heads for Japan

Vapormatt is taking wet blasting into the North Asian market with the help of Japanese distributor A K Techno. The partnership will enable local businesses to discover equipment that will clean, degrease, descale, etch or satin polish all wire, cable and strip products with an extremely consistent surface finish. It also marks the arrival of wet blasting in Japan, with A K Techno as the exclusive distributors of Vapormatt products in the country.

A K Techno was founded in 2001 and has established itself as a specialist provider of wire production machinery and equipment. The partnership will at first see A K Techno distribute the Vapormatt Profelis, the in-line wet

▼ Vapormatt Profelis



blasting, cleaning and drying system that offers exceptionally high quality results with all wire, cable and strip products.

"The interest in Vapormatt from Japan has been fantastic, and that is absolutely down to A K Techno," said

David Clements, sales engineer for Vapormatt. "A K Techno has been very active in visiting some of the major manufacturers in the country to demonstrate what wet blasting can achieve, and because of this we have received a lot of interest from a number of potential customers. We're looking forward to a fantastic partnership with A K Techno and hope together we can meet the need for high quality wire preparation in the Japanese manufacturing industry."

Vapormatt – UK

Email: sales@vapormatt.com

Website: www.vapormatt.com

Exceeding expectations

Jiangsu Jiacheng Machinery Co Ltd, established in 2001, is a manufacturer of high-speed multi-wire drawing machines, rigid frame stranders, annealing and tinning machines, double twist bunching machines and extruders.

The company employs more than 300 workers, and its 70,000m² of

land allows it to produce a range of equipment, and develop and research new products.

Jiangsu Jiacheng strives to introduce the latest international techniques and methods and has a management policy of "excellent quality, low prices, superior

services" and of not only meeting customers' expectations but to exceeding them.

Jiangsu Jiacheng Machinery Co Ltd – China

Email: sunman1314@yahoo.com

Website: www.jsjcjx.com



Niehoff chief executive retires



▲ Heinz Rockenhäuser, left, with Arnd Kulaczewski who has succeeded him as chief executive of Niehoff

After 20 years as chief executive of the Niehoff group, Heinz Rockenhäuser retired at the end of October.

Under the leadership of Mr Rockenhäuser, Niehoff considerably expanded its market share and also

set up branches and subsidiaries in several countries.

During his time as CEO Niehoff expanded its product portfolio while the number of employees in the group worldwide increased from around 500 to 720. The company also built a new factory at the company's headquarters in Schwabach, with the first part of the plant inaugurated in 2010. Turnover also increased from €50m to €25m, consolidated in the whole Niehoff group to €50m.

Mr Rockenhäuser's successor is Arnd Kulaczewski, previously managing director (CEO) of the press builder Schuler SMG in Waghäusel, Germany.

Maschinenfabrik Niehoff GmbH
Germany
Email: info@niehoff.de
Website: www.niehoff-gmbh.info



Growing number of customers

With a growing customer database in the UK and Europe, Anglia Metal Ltd produces plain and tinned single end, multi-wire end, bunched and braiding bobbins in sizes ranging from 0.1mm to 3.5mm in various packaging types.

Producing copper wire mainly within the data, telecom, building, defence, industrial and automotive industries, Anglia discusses precise specifications with existing and potential customers and is flexible in the products it produces, always with the overriding rule that it will react to customers' needs.

As a BSI approved company, quality is the aim and Anglia's quality and technical department continues to provide assistance and guidance to ensure customer needs are met.

Anglia Metal will be exhibiting at wire Düsseldorf in hall 12, stand A34.

Anglia Metal Ltd – UK
Email: sales@angliametal.com
Website: www.angliametal.com



Extending the range

Encouraged by customers, and based on its deep technical expertise, Euroalpha has extended its range of limited-slip drawing machines to multi-wire: exclusive equipment that goes beyond the technology of similar ones currently available on the market.

D3 is the first multi-wire drawing machine ever designed with drawing capstans individually motor-driven, and up to 32 wires.

Additional drawing modules with capstans driven by high-precision gear transmission are incorporated in the frame for producing thinner wires.

Such design represents an ideal solution for cutting the negative effects of the slip, more consistent on the slower capstans, and

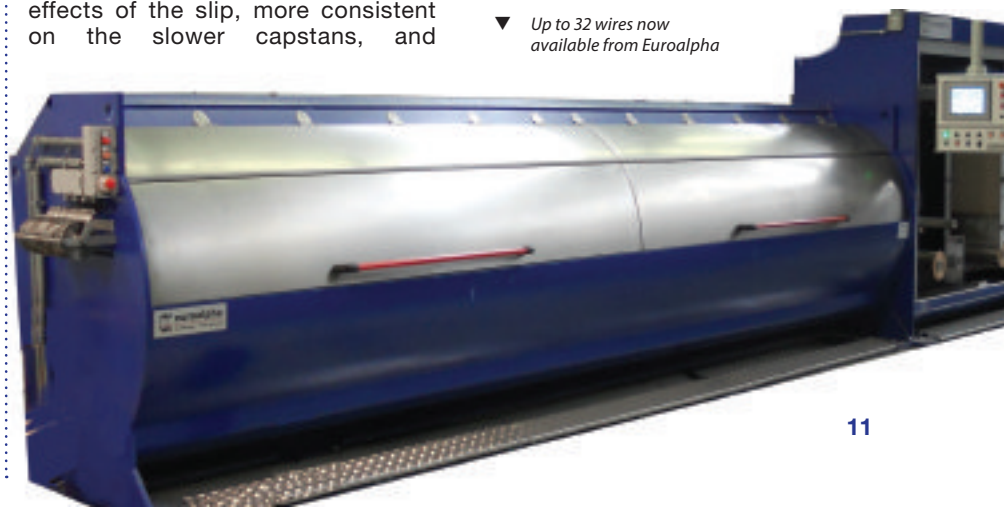
guaranteeing a rigid mechanical transmission to the faster capstans, drawing thinner sizes.

Consistent energy consumption savings, almost negligible maintenance, extreme operational flexibility (thanks to the variable elongations the same drawing machine can produce a very wide range of finished wires), reduced wire breakings, low noise level, and other important benefits of the limited-slip technology are therefore available on multi-wire drawing machines as well.

Euroalpha Srl – Italy
Email: info@euroalpha.it
Website: www.euroalpha.it



▼ Up to 32 wires now available from Euroalpha



CabWire quality in Italy

The variety and quality of technical papers at the CabWire World Conference in Milan, Italy, was the highlight for delegates attending the one-day conference.



'Innovations driving worldwide wire and cable markets' was the theme for the event, held at the Palazzo Turati in Milan on Monday, 4th November 2013.

Organised by the International Wire and Machinery Association, ACIMAF, IWCEA, CET and the WAI, the welcome was given by both Ferruccio Bellina of ACIMAF and Guilio Properzi, of Continuus Properzi SpA.

Keynote speakers were economic development specialist Professor Vitale, of Italy, who presented 'Towards a new economy: the maps of Europe and Italy'; and Philip Radbourne, of Integer Research, UK, who presented 'A review of the European wire and cable sector' to delegates.

There was also a good take-up of visitors to the table-top conference throughout the day.

More than 180 people attended the event and the gala dinner in the evening at the Palazzo Clerici,

originally the home of the rich and influential noble family of Milan Clerici.



"Well established and renowned international companies acted as both speakers and visitors to CabWire," said Andy Lewis, executive manager of the IWMA, joint organisers.

"The whole event was well attended and the feedback we have received has been both positive and praising."

Favourable reputation

Shanghai Wangxun New Material manufactures optic fibre cable, telecommunication cable, power cable, submarine cable, OPGW, control cable, signal cable and track cable. The products are also used for magnetic apparatus, cold/hot water pipe and flexible packing.

The company retains 100 per cent intellectual property rights, and has six invention patents. Further, Shanghai Wangxun was

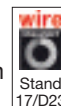
also involved in the stipulation of China's new telecommunication industry standards, TD/T723-2007 Laminated Metal Plastic Strip for Telecommunication Cable and Optic Fibre Cable.

The company has a significant market share in China, and many orders from the country's telecom operators specify that its products be used. Shanghai Wangxun enjoys a favourable reputation from five major

telecom operators: China Mobile, China Telecom, China Netcom, China Unicom and China Tietong.

The company has clients from more than 30 countries worldwide, including Europe, America and Asia.

Shanghai Wangxun New Material Co Ltd – China
Email: wangxun1@shwangxun.com
Website: www.shwangxun.com



New pay off cantilever and dancer unit

PS Costruzioni has launched a new model of its pay-off cantilever and dancer unit.



▲ New model from PS Costruzioni

This new pay-off is very sturdy and can be used for both insulated and non-insulated copper cables, while the dancer can process cables with very small sections, down to 0.15mm². It also guarantees a steady control on tension during the unwinding process (acceleration, maximum speed and deceleration).

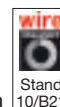
The loading and unloading of the reel pintles is fast and automatic. The operator only has to place the reel between the two pintles and select the reel diameter. Loading and unloading take place by means

of a steel platform, activated by a pneumatic cylinder.

This platform has two movements:

- vertical: for loading/unloading the spool, by means of a pneumatic cylinder
- horizontal (sideways): for easily taking out the reel from the pintles. The horizontal movements take place on bearings

PS Costruzioni – Italy
Email: ps@pscostruzioni.com
Website: www.pescostruzioni.com



Looking towards Düsseldorf



▲ wire Düsseldorf 2012. Picture: Messe Düsseldorf

Messe Düsseldorf GmbH, organiser of the forthcoming wire 2014 exhibition, the leading trade fair for the industry, has confirmed more than 1,300 companies covering some 58,000m² of rented space are booked in halls 9 to 12 and 15 to 17. That is already more than the total space booked in 2012, and the exhibition halls for wire 2014 are already full.

wire 2012 saw over 38,000 visitors converging on Düsseldorf, internationally the number one meeting place for decision makers to gather information on the latest machines, plants and products, as well as new technological innovations in the wire, cable and tube industries.

Here, exhibitors meet with their international clients and establish new contacts for future business.

Mr Friedrich-Georg Kehrer, director wire 2014, confirmed one thing that is different in 2014 is an even stronger classification of the individual exhibition areas. For example, there is the very first PTF – Plastic Tube Forum – in hall 7.1 where plastic tube manufacturers, dealers and consumers have the opportunity to present their combined competency in one special area.

There is also a shift of emphasis at wire in that, for the first time, all exhibitors in the area of mesh welding machines are consolidated together in hall 16. Around 20 companies will be presenting their latest products on roughly 2,000m². Companies there will show concentrated technological power in one exhibition hall.

The IWMA is proud to be a main international industry partner of wire and will have its usual stand number 11D26 in hall 11, ready to provide members an extensive range of services, for those exhibiting and visiting the event.

Members are welcome to visit the stand for some refreshments and a discussion with board members and staff about how membership can assist their business in the global market.

The IWMA stand will also offer members a comprehensive office service, with Internet, telephone, printing and photocopying facilities available, as well as a meeting room for those requiring a quieter environment for business discussions.

IWMA new members

Hiltex Technische Weefsels, Netherlands

Hiltex Semi Products BV developed an inner liner (tissue) for the strand annealing process avoiding metal-to-metal contact during the annealing process resulting in the best wire surface possible for process temperatures over 1,100°C (2,000°F).

DRT Impianti Srl, Italy

Last October, DRT successfully completed the commissioning of the first step in the supply of an automatic pickling house fully equipped for wire rod, and ordered

by Bedmutha Industries Limited. The plant, installed in the new factory in Dhule, India, will proceed to the second step (upgrade to full capacity) in spring 2014.

Brastec Technologies SA, Brazil

Brastec Technologies specialises in custom manufactured equipment for the wire, rope and cable industries as well as for the offshore oil and gas industries. The company manufactures rotating equipment such as planetary and rigid stranders, carousels and tensioners.

Bhansali Bright Bars (P) Ltd, India

Bhansali Bright Bars (P) Ltd, an ISO 9001:2008 certified company, manufactures and exports stainless steel bright round bars/hex and square bars/threaded bars/precision bars/machining bars as per international standards EN, DIN, JIS, ASTM, AFNOR, B.S, ASME, NACE, AISI, QQS, MILS, ASM and others.

With its state-of-art manufacturing facility having annual production capacity of 30,000m ton, Bhansali offers a wide range of product in bars, which meet the most stringent quality requirements.

COMPANY	COUNTRY	WEBSITE
Flymca & Flyro	Spain	www.flymca.com
Special Steel Wire Ropes Pvt Ltd	India	www.specialsteel.co.in
Hiltex Technische Weefsels BV	Netherlands	www.hiltex.com
Shanghai Wangxun New Material Co Ltd	China	www.shwangxun.com
CSM	Thailand	
Changzhou BE-STAR Machinery Technology Co Ltd	China	www.czbsmt.com
Dongguan Changhong Bobbin Co Ltd	China	www.chinaspool.com
JiangSu HuaWang Science & Technology Co Ltd	China	www.js-hw.cn
Jiangsu Jiacheng Machinery Co Ltd	China	www.zjgjcjx.com
Longvision (Shanghai) Cable Materials Co Ltd	China	www.longvision.com.cn
Shanghai Dielec Electrotechnics Co Ltd	China	www.jz-jt.com
Shanghai Xudong Electric Machinery Factory	China	www.shxudong.com
Shanghai Yajue Machinery Mfg Co Ltd	China	www.shdljxc.com
Shanxi Tianxiang Machinery Co Ltd	China	www.pxq.cn
Suzhou Listrong Mechanical & Electrical Co Ltd	China	www.listrong.cn
Wuxi Xinrun Industrial Furnace Co Ltd	China	www.wx-xinrun.com.cn
Zhejiang Tenlong Stainless Steel Products Co Ltd	China	www.tenglonggroup.com
Media-Holding "RusCable"	Russia	www.ruscable.ru
Wymac Development	UK	www.wymac-development.co.uk
Bhansali Bright Bars Pvt Ltd	India	www.bhansalisteel.com
DRT Impianti	Italy	www.drtpiamenti.com
Brastec Technologies SA	Brazil	www.brastec-group.com

Choice of speed and diameter

Rolf Schlicht will exhibit different versions of its electrostatic powder coating machines at wire Düsseldorf. The machine model RSC was designed to powder cables, wires, hoses and profiles evenly finely dosed and absolutely dust-free with powders like talc, stearate, varnish powder, swellable powder, graphite, etc.

In the machine there is a fully automatic and maintenance-free filter system which is not cleaned off by blowing in compressed air. Thanks to this filter system a strong and constant vacuum is generated in the machine, so that no powder will escape into the ambient atmosphere.

The machine will be manufactured to the desired extrusion speed and diameter.

Also on display will be:

Samp SpA. Rolf Schlicht offers the complete range of products and systems, including rod breakdown lines, single-wire and multi-wire drawing machines, bunching and laying-up machines, winding and unwinding solutions as well as LV, MHV and CV extrusion lines and spare parts for Samp machines and plants already installed.

Huestis air misers have been used for many years in the cable, wire and profile industry. The air wipes are of low noise, dry highly efficiently and the compressed air consumption is very low because of a special construction. Schlicht supplies the air wipes in sizes from 1.6mm to 178mm diameter.

Special sizes also in rectangular shape are available upon request. They open automatically to allow knots, splices and other oversizes to pass without stopping production or creation of damage. Due to their small size they can be mounted in any cooling line without problems.

Movacolor colour dosing. The MC-Weight hopper is designed for measuring the throughput of material in a process. Simplicity and accuracy: these are the two keywords for the MC-Weight. The unit is extremely user-friendly. The MC-Weight hopper

is normally used in combination with an extruder. It always delivers accurate dosing rates through continuous loss-in-weight measurements with closed-loop control.

Rapid Purge cleaning compound. The ready-for-use cleaning compound for extruders and injection moulding machines. Heads, tools, moulds, breaker plates, etc do not have to be dismantled.

Rolf Schlicht GmbH – Germany
Email: info@schlicht-gmbh.de
Website: www.schlicht-gmbh.de



◀ Help available on the Rolf Schlicht stand

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AEI Compounds Ltd	UK	11 D46	Fapricela Industria da Trefilaria SA	Portugal	
AESA Cortaillod	Switzerland	10 B38	FIB Belgium s.a.	Belgium	11 B62
Ajex & Turner Wire Dies Co	India	11 F02	Fine Wires Ltd	UK	
Alecosa-Aleados del Cobre SA	Spain	9 A13	Fisk Alloy Conductors BVBA	Belgium	9 F13-04
Alloy Wire International	UK	11 E28	Flymca & Flyro	Spain	10 H64
AlphaGary Corporation	USA	11 G22	FMS Force Measuring Systems AG	Switzerland	11 G20
AlphaGary Ltd	UK	11 G22	Fort Wayne Wire Die Inc	USA	12 A22
Anglia Metal Ltd	UK	12 A34	Fox Wire Ltd	UK	
Arab Co for Cable Polymers Ltd	Saudi Arabia		Foxtton Dies Ltd	UK	
Associated Engineers & Industrials Ltd	India	11 E11	Frontier Composites & Castings	Canada	
Assomac Machines Ltd	India	11 D22	Fushi Copperweld	UK	
AstroPlast, Kunststofftechnik GmbH & Co KG	Germany	11 J76	G & A Engineering Ltd	UK	
Atom Kablo Sanayi ve Ticaret AS	Turkey		G Church - Consultant	UK	
August Hildebrandt GmbH - Kabeltrommeln	Germany	12 E74	Gauder & Co SA	Belgium	10 E38
August Strecker GmbH & Co KG	Germany	10 A21	GCR Eurodraw SpA	Italy	11 A66
Balloffet SA	France	10 A18	Geca-Tapes bv	France	10 D76
Bar Products & Services Ltd	UK	11 F05	GEO Reinigungstechnik GmbH	Germany	11 A34
Barnfather Wire (Midlands) Ltd	UK		GER SA	Belgium	9 F60
Batoyle Freedom Group	UK		Golden Technologies Wire & Cable Equipment Co Ltd	China	16 B55-03
Bekaert Limited	UK	10 E62	Goodwin Machinery Ltd	UK	
Bennett Mahler Ltd	UK	16 G14	Gupta Power Infrastructure Ltd	India	
Best Machinery	Italy		Gwo-lian Machinery Industry Co	Taiwan	
Beta LaserMike Inc	UK	11 D72	H. Folke Sandelin AB	UK	10C18
Bhansali Bright Bars Pvt Ltd	India	17 E19	Häfner & Krullmann GmbH	Germany	9 A25
Bogimac nv-sa	Belgium	9 E02	Hangzhou Harbor Technology Co Ltd	China	16 B50-04
Bongard Trading GmbH & Co KG	Germany	11 A44	Hangzhou Xingguan Machinery Co Ltd	China	17 A42-01
Brastec Technologies S.A	Brazil		Hanil Machinery	South Korea	9 E34
Bridon International Ltd	UK		Hans Schmidt & Co GmbH	Germany	9 B22
British Diamond Wire Die Co Ltd	UK		Harrison Spinks Components Ltd	UK	
BWE Limited	UK	11 F26	HB Cables & Components Ltd	UK	
Cable Tapes UK Ltd	UK		Hefei Smarter Import & Export Co Ltd	China	11 D08
Calmec Precision Ltd	Canada	9 D06-04	Hempel Wire Ltd	UK	11 D18
Can-Eng Furnaces Ltd	Canada	15 B37	Hiltex Technische Weefsels BV	Netherlands	
Carl Bechem GmbH	Germany	9 F42	Holton Crest Ltd	UK	11 H39
Ceeco Bartell - Bartell Machinery Systems	Canada	9 C70	Honghui (Shanghai) International Trading Co	China	
Cemanco LC	USA		Huestis Industrial	USA	9 F05-01
CeramTec GmbH	Germany	10 F21	Huntstar Trading Ltd	UK	
Changzhou BE-STAR Machinery Technology Co Ltd	China		IBA Industrial	Belgium	10 E44
Chaplin Bros (Birmingham) Ltd	UK		ICE Wire Line Equipment Inc	Canada	11 J05
Chemetall Ltd	UK		IMI Scott Ltd	UK	
China Southern (Group) HK Ltd	Hong Kong		Inductotherm HWT (Radyne)	UK	9 B40
Cimteq Ltd	UK	11 D21	Innovites B.V.	Netherlands	11 C22
Clinton Instrument Company	USA	9 E38	Inosym Ltd	New Zealand	11 D58
Cometo di Tocchetti Pietro & C s.n.c.	Italy	10 D38	Institute of Spring Technology Ltd	UK	
Commission Brokers Inc	USA		Integer Research Ltd	UK	
Comsuc Technology Development Limited	China	16 B56-04	Interlink Import-Export Ltd	UK	
Condat Ltd	UK	10 D56	Intras Limited	UK	11 D28
Consultex Sp. z.o.o.	Poland		Itaya Europe limited	UK	16 G28
Control and Power Engineering Ltd	UK		JG Tec Ltd	UK	
Costa Machinery GmbH	Germany	11 A27	Jiangsu Gaohe Mechanical & Electro Equip. Co Ltd	China	
Crownhill Consultancy Services	UK		Jiangsu Handing Machinery Co Ltd	China	16 A46-01
CSM Engineering (Thailand) Co Ltd	Thailand		JiangSu HuaWang Science & Technology Co Ltd	China	16 B55-04
Danross Engineering	UK		Jiangsu Jiacheng Machinery Co Ltd	China	16 C58-04
Data M Sheet Metal Solutions GmbH	Germany		Jiangsu Rentian Industrial Enterprise	China	
Dongguan Changhong Bobbin Co Ltd	China		Joachim Uhing GmbH & Co KG	Germany	11 B40
Drahtwerk Waidhaus GmbH	Germany		Juli Sling Co Ltd	China	
DRT Impianti Srl	Italy		Kei Industries Ltd	India	11 H33
DSE Test Solutions A/S	Denmark	9 F31	Kelani Cables PLC	Sri Lanka	
Ducab	UAE		KIESELSTEIN International GmbH	Germany	10 E17
E Braude (London) Ltd	UK		Kiveton Park Steel Ltd	UK	11 G21
EDER Engineering GmbH	Austria	10 A40-02	Koner SpA	Italy	11 A62
Er-Bakir Elektrolitik Bakir Mamulleri AS	Turkey	10 C61	Kuwait Petroleum International Lubricants	UK	11 D25
Esteves Group	Spain	10 C72	Lamnea Bruk AB	Sweden	9 A06
Euroalpha Srl	Italy	11 A43	Leggett & Platt Wire Group	USA	9 F13-02
Eurobend SA	Greece	16 C24	LEONI Draht GmbH & Co KG	Germany	11 A40

The largest corporate membership trade association in the wire and cable industry. Exhibitors

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Longvision (Shanghai) Cable Materials Co Ltd	China	16 H60	Shanghai Kingway Technology group Ltd	China	
Lune Prozesstechnik GmbH	Germany	11 C63	Shanghai Nanyang Equipment Co Ltd	China	9 F22
Machinery International Corporation	USA		Shanghai Resources Industrial & Trading Co Ltd	China	16 B50-05
Madem SA Ind E Com de Madeiras	Brazil	12 E08	Shanghai Shenchen Wire & Cable Equip Co Ltd	China	16 C58-02
Maillefer Extrusion Oy	Finland	10 D21	Shanghai Xudong Electric Machinery Factory	China	
Maillefer SA	Switzerland	10 D21	Shanghai Wangxun New Material Co Ltd	China	17 D23
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Marldon Group Limited	UK		Shanghai Yessjet Precise Machinery Co Ltd	China	
Maschinenf. Johann Leimbach GmbH	Germany	11 B34	Shanxi Tianxiang Machinery Co Ltd	China	16 C58-03
Mathiasen Machinery Inc	USA	12 A52	Siddall & Hilton Products Ltd	UK	
Medek & Schörner GmbH	Austria	10A56-01	Siebe Engineering GmbH & Co KG	Germany	10 D22
Media-Holding "RusCable"	Russia		Sikora AG	Germany	9 A41
Meisenbach GmbH	Germany	9 C01	Simplex Rapid Srl	Italy	16 F10
Menam Stainless Wire Public Co Ltd	Thailand	11 F21	SKET Verseilmaschinenbau GmbH	Germany	10 G06
Meshtec International Co Ltd	Thailand		Smeets S.A. - Loypos	Belgium	10 G72
Metalube Limited	UK	11 G25	SMS Meer GmbH	Germany	7AB15
MGS Manufacturing Inc./C/O Northampton Machinery	UK	9 D14-07	Sneham International	India	16 G59
Microdia SA	Switzerland	11 D27	Special Steel Wire Ropes Pvt Ltd	India	
Mikrotek Machines Ltd	India	11 E06	SPL Developments Limited	UK	
Mittal Steel Kent Wire Ltd	UK	12D41	Spring Tooling Ltd	UK	16 D10
Mount Joy Wire Corporation	USA		Stanaway Wire Ltd	UK	
Nano-Diamond America Inc	USA	11 C24	Steel-Wire Europe Ltd (Capegate)	UK	9 A14
National Safety Product ZhengZhou	China		Stonepark Consultancy Ltd	UK	
NeoFil Ltd	UK		Stride Supplies Ltd	UK	
NETDA	China		Supermac Industries India Ltd	India	11 G05
Nexans Deutschland GmbH	Germany		Suzhou Listrong Mechanical & Electrical Co Ltd	China	
Niehoff Maschinenfabrik GmbH & Co KG	Germany	10 C18	T Fukase & Company Ltd	Japan	9 E34
NOTA- ZAKLAD MECHANIKI PRECYZYJNEJ	Poland		T M Associates	UK	
OMA Srl	Italy	10 A39	Techna International Ltd	UK	
OMA (UK) Ltd	UK	10 A39	Techno Commerce Ltd	UK	
Ormiston Wire Ltd	UK		Technokabel SA	Poland	10 H69
P F Consulting	UK		The Worshipful Co of Tin Plate Workers Alias Wire Workers	UK	
P W Hall Ltd	UK		Thompson & Hudson Wire Machinery	UK	
Pakistan Cables Ltd	Pakistan		TRAXIT International GmbH	Germany	9 F26
Pan Chemicals S.p.A	Italy	9 B05	Triangle Cables	Australia	
Pave Automation Design & Development	UK	12 C13	Troester GmbH & Co KG	Germany	10 F62
Permanoid Ltd	UK		U Gear Automatic Machinery Ltd	Taiwan	
Plasmait GmbH	Austria	10A56-09	UK Dies Group Ltd	UK	
Pneufarm Machines Ltd	UK		Vapormatt	UK	
Premier Cables (Pty) Ltd	Pakistan		Vinston Machinery Co Ltd	China	
Pressure Welding Machines Ltd	UK	9 B41	Warbrick International Ltd	UK	
Proton Products International Ltd	UK	11 D77	WCISA	USA	9 D14-04
PS Costruzioni Meccaniche Srl	Italy	10 B21	Weber & Scher Mfg Co Inc	USA	10 B71
QED Wire Lines Inc	Canada	12 A25	Webster & Horsfall Limited	UK	11 D32
Queins Machines GmbH	Germany	9 B06	White & Street International Ltd	UK	
Qunye Electrical Co Ltd	China	11D58	Whitelegg Machines Ltd	UK	11 G28
Rautomead Limited	UK	10 E56	Wintwire Ltd	UK	
Reber Systematic GmbH	Germany	10 H62	Wire & Cable Technology International	USA	9 D14-04
Reelex Packaging Solutions Inc	USA	9 F06	Wire & Plastic Machinery Corp	USA	9 F21-01
Report KY KB	Finland		Wire and Tube News	UK	
RG Attachments Ltd	UK	11 C26	Wire Association International Inc	USA	11 B25
RichardsApex Europe Limited	UK	9 F21-02	Wire Koerner GmbH	Germany	9F51
Ridgway Machines Ltd	UK	11 E05	Wire Lab Company	USA	10 H40
RK Umformtechnik GmbH & Co KG	Germany	12 A07	Wire Machinery Consultancy Ltd	UK	
Roblon Industry	Denmark	9 F41	Wuxi Xinrun Industrial Furnace Co Ltd	China	16B55-05
Rolf Schlicht GmbH	Germany	12 A45	Wymac Development	UK	
Rosendahl Maschinen GmbH	Austria	9 A60	XL Technologies UK Ltd	UK	
Rowan Cable Products Ltd	UK		Zephyr - One Ltd	UK	
S K Wiring Products Ltd	UK		Zhangjiagang Donghang Machinery Co Ltd	China	
SAMP SpA - Sampsistemi Division	Italy	9 C74	Zhangjiagang Sanfeng Machinery & Electric Development Co Ltd	China	
Sanfeng Machinery & Electric Development Co Ltd	China		Zhejiang Tenlong Stainless Steel Products Co Ltd	China	16 F50
Sanxin Wire Die Inc	USA		Zumbach Electronic AG	Switzerland	11 D43
Sarkuysan Elektrolitik Bakir San ve Tic	Turkey	10 H75	Zyklomat Erich Fetzer GmbH & Co KG	Germany	
Shanghai Dielec Electrotechnics Co Ltd	China				

at wire Düsseldorf 2014 are shown in blue. (Correct at time of going to press, 20th January 2014)

Working for the future

Through the IWMA Educational Trust's Travel Award scheme, the association is fully committed to providing educational opportunities within the wire and cable industry and is delighted to be awarding the "John C Hogg Travel Award" for wire 2014 to 15 individuals.

Applicants for the award scheme were recommended or sponsored by a member of the IWMA and winners are provided with free air travel, accommodation and entry to

the exhibition as well as free entry to the IWMA industry dinner.

A tour of the exhibition will also be given to the group by a member of the IWMA executive board during which they will be given the opportunity to meet key influential individuals working within the industry.

A presentation will be made by representatives of the association and exhibition organisers, Messe

Düsseldorf, at a special ceremony held on the IWMA stand during the afternoon of Wednesday, 9th April.

This year's awardees come from China, India and the UK and represent the full spectrum of the industry.



IWMA wire 2014 industry reception and dinner

Members attending the exhibition are invited to the prestigious reception and dinner, which will take place in the Süd Room 2 at the Messe Düsseldorf Congress Centre on Tuesday, 8th April 2014 from 6.15pm, enabling guests to come directly from the exhibition floor. Business attire will therefore be the dress code for the evening.

This event will be marked by a pre-dinner cocktail reception followed by a four-course dinner with wines. Every IWMA member organisation can order up to two free tickets for the dinner and purchase additional tickets subject to availability.

Ticket applications will be on a first-come, first-served basis and members are invited to book by contacting the IWMA at info@iwma.org for a form.



▲ wire Düsseldorf 2012. Picture: Messe Düsseldorf

Heading to Düsseldorf



▲ European agent John Stanaway

Leggett & Platt Wire Group will be exhibiting at wire 2014 in Düsseldorf in hall 9, stand F13-02, and senior executives of the group will be in

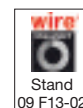
attendance, along with European agent John Stanaway.

LPWG is a wholly owned subsidiary of Leggett & Platt, Incorporated, a USA-based, Fortune 500 listed diversified manufacturer that conceives, designs and produces a broad variety of engineered components and products for customers worldwide.

In addition to the many grades of wire produced 'in-house', LPWG,

in partnership with its worldwide procurement specialist colleagues, is able to source most other grades of wire from partner mills around the world. As part of the service offered, the LPWG team handles all of the logistics, freeing its customers of the sometimes onerous burden this can entail.

Leggett & Platt – USA
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Shanghai Kechen



▲ The CETC23 from Shanghai Kechen

At wire 2014, Shanghai Kechen Wire & Cable Machinery Co Ltd will be unveiling its new and upgraded PBJ series high speed skin-foam-skin physical foaming insulation extrusion tandem line, dryer/micro loose tube secondary coating line and FTTX premise optical cable extrusion line.

The PBJ series high speed skin-foam-skin physical foaming insulation line can cover the widest product range of LAN cable Cat.5, 5e, 6 and 7, mini coaxial cable, USB 3.0, HDMI, INFINI BAND cable, QSFR, etc with the skin-foam-skin triple-layer cores.

Dry/micro loose tube secondary coating line is used for the production of normal or dry/micro loose tube and the extrusion material is PBT or modified PP.

The standard configuration of all these lines includes international brands including Siemens/Allen Bradley control system, Sikora online testers, Microdia crosshead, Zambello/SEW gear box, and SKF/NSK bearings to ensure high quality production.

The company offers a range of products including:

Extrusion lines:

- RF/CATV coaxial cable skin-foam-skin physical foaming extrusion line
- LAN/QSFR/HDMI/mini coaxial cable PE solid-stripe insulation tandem extrusion line
- LAN cable FEP/PFA solid insulation tandem extrusion line
- Sheathing extrusion line for RF/leaky coaxial/LAN/mini coaxial/railway signal cable
- FEP/X-ETFE high temperature extrusion line
- Building wire insulation extrusion line
- Control cable/electric wire high speed cable core insulation extrusion line

Cabling lines:

- Triple/double/single twist cabling
- Back twist payoffs

Welding/corrugating lines:

- For 25, 50, 90, 150 and 200mm diameter products

Auxiliary equipment:

- Payoffs/take-ups
- Dancers/accumulators
- Water troughs
- Capstans

Shanghai Kechen Wire & Cable Machinery Co Ltd – China

Email: shkcmachine@vip.163.com



Beyond the standard

Cimteq, the cable design software company, has been accredited by Investors in People (IiP) Wales for achieving the Investors in People standard and exceeding it to a Silver level. The award is in recognition of the commitment of the company to the continual development and engagement of its staff.

The IiP auditors have found Cimteq to particularly excel in providing an 'excellent culture of team-working' and has 'an effective formalisation of people management processes with an effective matrix-management approach'.

Ali Shehab, chief executive, said: "Achieving the accreditation is a clear endorsement that Cimteq is providing a world class environment for its staff to learn and develop

their skills as well as ensuring continual influence to improve the



▲ Silver level of Investors in People for Cimteq

business. People are our most valuable asset, they are the engine that drives innovation and customer service."

He added: "If you ask me if the IiP accreditation makes Cimteq a better company to buy from, then the answer is 'no'. Cimteq is already a leader in what it provides, however, IiP assures our customers, and prospective customers, that we have auditable procedures in place to ensure that Cimteq is a great place to buy from. It would also help us attract good staff and retain our existing ones in order to provide continuity and pioneering products."

Cimteq Ltd – UK

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On the ball in Brazil

Brazil may be in the news for a number of reasons – the World Cup, the Olympics – but it was the staging of the first wire South America in São Paulo that grabbed the headlines in October last year.



▲ Grand opening, wire South America 2013 and Tubotech 2013

The exhibition was held for the first time at the Exposições Imigrantes exhibition centre in São Paulo with 173 exhibitors from 26 countries taking part.

Joining them were IWMA chairman Steve Rika, executive board member Stephen Wood and executive manager Andy Lewis.

The organisers, Messe Düsseldorf and Grupo Cipa, were pleased that wire South America attracted not only international market leaders but also group stands from the United States, Italy and China.

The International Wire & Machinery Association (IWMA) was delighted to support wire South America and Mr

Rika confirmed that the trade fair had gone well: “As on other occasions, this gave us an opportunity to support the members of our association at this renowned event in São Paulo.

“wire South America – a project which is jointly organised by Messe Düsseldorf and Grupo Cipa – is still in its infancy, and we therefore found the positive response of our members very encouraging for the future. We are confident that this exhibition will become a very clear fixture in the trade fair calendar of the industry. As an industry association, we will promote the next wire South America events among our membership.”

The trade fair in São Paulo benefits from the experience previously gathered by Messe Düsseldorf through its leading international trade fair – wire, the International Wire and Cable Fair which will be held again for the 14th time at the Düsseldorf Exhibition Centre from 7th to 11th April 2014.

Brazil’s boom in the construction, automotive and consumer electronics industries has led to a marked increase in the demand for wire, cable and tube products. The approximately 15,000 trade visitors registered during the three days of wire South America and Tubotech

confirmed that there is an increasing interest in an international trade fair for these sectors on the South American continent.

Exhibitors presented their innovations covering 32,000m² of gross exhibition space in total. wire South America served as an ideal platform for presenting innovations in wire and cable manufacturing and processing to the international trade audience.



▲ The IWMA stand at wire South America 2013

The event has been an outstanding opportunity for visitors from Brazil and its neighbouring countries to obtain information on their own continent, while international exhibitors have had an ideal opportunity to present themselves to South America as an important and attractive market of the future.

The next wire South America will be held from 6th to 8th October 2015 in São Paulo.

Specialist for over 65 years

Weber & Scher Mfg Co, established in 1915, has specialised for more than 65 years in providing equipment and technology specifically to the wire and cable industry.



▲ The latest longitudinal metal tape seam welding and corrugating line from Weber & Scher

The company’s area of expertise and core business has been in the manufacture and supply of metal tape

handling and application systems. This includes the manufacture of seam welding and corrugating systems for use in the production of power cables.

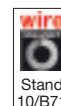
Weber & Scher has introduced its latest generation longitudinal metal tape seam welding and corrugating line for producing power cables having a longitudinally seam welded and corrugated metal tape sheath construction. This system utilises the TIG (GTAW) welding process for welding the two tape edges after being formed longitudinally around the cable core.

A critical component of this line is the welded metal sheath corrugating machine which is designed for imparting helical or annular corrugations into the welded metal

sheath in tandem with the longitudinal welding operation.

All operating parameters can be accurately set to obtain repeatable corrugating results which are critical for the purposes of product standardisation. The corrugating machine, in conjunction with the Weber & Scher cable core pay-off, metal tape supply stand, tape edge slitting system, forming and welding station, caterpillar capstan, and cable take-up, all combine to form a state-of-the-art system for producing high performance power cables.

Weber & Scher Mfg Co Inc/AFA Industries – USA
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Continuous innovation



▲ An AEI rigid stranding line

Associated Engineers & Industrials Ltd (AEI) is an experienced company specialising in the design and manufacture of rigid stranding machines, arguably the most important rotating machines in any power cable plant.

AEI stresses on continuous innovation, based on the latest product requirements and customer feedback, as absolutely essential in keeping its technology ahead of the competition. Eight out of ten renowned EHV, MV and LV cable and large overhead conductor manufacturers in South Asia use the company's rigid stranders.

The company's recent development is a new generation high-speed ASRB/E rigid strander, an integration of quality mechanical craftsmanship with new generation control systems. The intelligent stranders incorporate features such as electronic shaft synchronisation (including during power failure), individual wire break detectors, auto regulated pneumatic bobbin brakes, motorised pintles, remote diagnostics over telecom link and fully automatic floor/trolley loading devices.

AEI's unique use of perfectly balanced fork type cage rotor construction ensures superior energy

efficiency whereas use of fully enclosed gearboxes instead of belt systems ensures robust performance for years.

Based on the customer production requirements the machines are configured with suitable forming and closing heads. Prespiral sector heads have been completely redesigned for higher precision Milliken conductor for up to 3,000mm² x 500 kV EHV cables. Likewise, a trapezoidal wire (TW) head has been developed for the manufacture of new generation pre-shaped wire conductor.

Mr L S Jain, managing director and chief designer, said: "With our single focus on rigid stranders, each aspect of the machine gets full undivided attention. An otherwise considered simple sub-assembly like bobbin pintles is the result of thousands of hours of design developments."

Associated Engineers & Industrials Ltd – India
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Website: www.aeimachines.com



Tkt present paper at CabWire

Tkt Group presented a paper, 'The use of titanium dioxide in dry drawing lubricants' at CabWire 2013 in Milan, Italy.



▲ The CabWire 2013 conference in Milan, Italy

The study showed the advantages on application of a new generation lubricant 100 per cent free from titanium dioxide, Tecnolubre FM/195, through the creation of a 'comparison model', analysing the performance of lubricants created in the laboratories and which opens new perspectives in the field of tribology.

Through this research project, developed in collaboration with the Trento University, the company once again stood out as a pioneer and innovator in a synergic union between the will to provide products at the forefront in terms of performances and quality, and the need for an environmentally sustainable development in accordance with the regulations and health.

Tkt launched the lubricant Tecnolubre FM/913, the only product in the market which is 100 per cent borax and dust particles free, which opens new and ambitious scenarios in the use of sodium-based lubricants, and pressure dies K.340 and K.365, worldwide patented, allowing to combine excellent lubrication with significant savings.

These pioneering research and development activities are combined with big investments in plant

modernisation and expansion, including a new reactor for lubricants production, and a new sintering furnace for the production of drawing dies.

The new furnace is machinery designed and built for the production of borax and dust free lubricants. The new system guarantees a perfect and homogeneous soap production and allows the formation of a dust free final grain and a very low percentage of residual humidity.

The new generation sintering furnace, thanks to some technical specific characteristics, guarantees Koner drawing nibs with density and hardness superior to the standard products, and this means a longer die life on wire drawing.

Tkt Group – Italy
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Double digit growth at wire Southeast ASIA

wire Southeast ASIA reinforced its position as the leading exhibition in the region with double digit growth in visitor numbers attending the September 2013 exhibition.



▲ The IWMA stand at wire Southeast ASIA

IWMA chairman Steve Rika, accompanied by technical sub-committee chairman Peter

Large, executive board member John Cunnington and executive manager Andy Lewis, represented the IWMA member companies at the Bangkok International Trade and Exhibition Centre.

Organised by Messe Düsseldorf Asia, more than 380 international exhibitors from 30 countries showcased an impressive array of innovations and trends on high performance machinery and equipment, manufacturing and processing technologies as well as materials and accessories.

Over 6,800 visitors from 55 countries attended over the three days, a 28 per cent increase from the previous edition in 2011 – with 38 per cent of visitors coming from outside Thailand, reinforcing the importance and regional appeal of the trade exhibitions in Southeast Asia. The majority of these overseas visitors

came from India, Indonesia, Japan, Malaysia, Taiwan and Vietnam.

Southeast Asia is increasingly becoming a manufacturing and industrial hub for many global companies seeking to locate and keep in touch with available business opportunities.

Mr Rika said: “The IWMA considers wire Southeast ASIA to be an important trade exhibition for Southeast Asia as it offers a platform to connect international industry leaders with key decision makers from this region.”

International companies made up 97 per cent of the exhibitor profile with representation from eight national pavilions and country groups including Austria, China, France, Germany, Italy, Singapore, Taiwan and USA.

Maximum wiping action

Following the extrusion process, air wipes are used to remove cooling water, either droplets or films. Wiping is necessary to ensure proper operation of such equipment as spark testers, in-line printers and dimension gauges.

Marldon air wipes achieve maximum wiping action because the wipe orifice can be easily changed to the optimum diameter for efficient water removal for a given product diameter. Because this orifice is adjustable, a wide range of product sizes can be accommodated with a single wipe.

Other brands of air wipes use a fixed orifice, which is efficient for only one product diameter. Different units must then be used to optimally wipe the full range of product diameters manufactured on a single production line.

All Marldon air wipes allow the passage of lumps by use of hinging mechanisms that open to allow lumps through, and then close back when they have passed.

Marldon air wipes are constructed of durable materials, including stainless

steel, aluminium and ceramics, depending on the model.



▲ High Speed Air Wipe Model 838

High Speed Air Wipe Model 838: This is a high-speed air wipe for small products up to 8mm in diameter. Multiple air jets provide maximum wiping action. The spring-loaded upper assembly will lift allowing easy threading and the passage of lumps.

Wear-resistant ceramic inserts prolong the life of the unit and assist breaking the surface tension of water. The 838 is effective at line speeds of up to 1,000m/minute.

Adjustable Orifice Air Wipes: Marldon There are three sizes in the range, which can accommodate product diameters of up to 65mm. Made of stainless steel, they are effective at line speeds commensurate with most production line speeds.

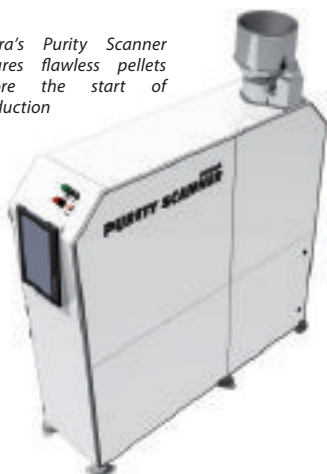
Two wheels are mounted to a sturdy support bracket; the lower wheel is stationary and the upper wheel hinged to facilitate loading and to allow the passage of lumps. Adjusting the orifice is accomplished by rotating the indexed wheels to the appropriate diameter marking on the circumference then locking them in place. Air is supplied at an “upstream” angle only to the orifice through which the cable passes to efficiently provide maximum wiping action all around the cable.

Marldon Group Ltd – UK
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New standards with the purity scanner

Contamination in the polymer compound can be a major problem in the production of high-voltage and off-shore cables in the wire and cable industry. Therefore, the usage of highly clean material is of essential importance. The challenge is the detection of contaminations which are embedded inside the pellet or granulate material. Discharges of a cable that have contaminated material can easily result in severe customer claims.

► Sikora's Purity Scanner ensures flawless pellets before the start of production



Sikora accepted the challenge of developing an intelligent system which can detect contaminations reliably and now presents its latest innovation, the Purity Scanner. The impressive system intelligently combines the advantages of an X-ray measuring system and an optical system. Thus, impurities of 50 µm in

the pellet itself and on the surface are detected. Contaminated pellets are reliably sorted out.

Not only is the use of X-ray technology for this application unique, the performance of the optical system is exceptional and exceeds previous solutions on the market. The promise is a 100 per cent inspection of the raw material used.

"It is vitally important to reliably detect impurities of 50 µm," said Dr Siegmur Lampe, head of research and development.

"Especially for high voltage and off-shore cables, the purity of raw material for insulation is crucial. Every little contamination is a potential risk for the quality," he added. The Purity Scanner, as well as testing the common AC insulating material, is also able to check DC material.

The possibility to inspect even non-transparent material is a characteristic feature of the Purity Scanner and exceeds the capabilities of optical systems. The Purity Scanner is the first system that can check pellets independently of colours for impurities due to its specially developed X-ray technology.

The progressive Purity Scanner features unique measuring technology as well as a novel transport system of the pellets within the device. The feeding of the pellets is carried out via a vibrating ramp and not via a conveyor belt.

"A conveyor belt itself can create contaminations," Dr Lampe added. "Furthermore, the material in the Purity Scanner does not come into contact with the ambient air. During the inspection, the pellets are in a hermetically sealed channel. This guarantees absolute purity."

The device is designed for a throughput of 500 kg/h. This can be increased with a grouping of Purity Scanner devices.

- John Dognazzi has been appointed as the new president of Sikora International Corporation, replacing Jeff Swinchatt, who has decided to leave for new challenges outside the wire and cable business after 14 years.

Mr Dognazzi joined Sikora three years ago and was responsible for up to 14 business territories in the US.

"We are sure that we have found a perfect successor with Mr Dognazzi," said Mr Harry Prunk, CEO of Sikora. "We are looking forward to working with Mr Dognazzi as the new president."

Mr Dognazzi is already excited about his new task. "I feel honoured to be given the possibility to lead such a successful subsidiary," he said.

Sikora AG – Germany
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Competitive advantage through radio-based wire tension control

With its radio-based RTM X42 series and a wide range of force measuring rollers, FMS offers innovative, trend-setting systems for wire tension control in stranding machines.

Since its first introduction two years ago, RTM X42 has evolved from a pure tension monitoring device to a multi-purpose control and analysis system. Its ingenious interface concept has been expanded to now provide recipe controlled operation and the processing of encoder signals.

The product family is offered in four different basic versions. A sensible

combination of these versions is possible.

- RTM X42.IO: With analogue outputs for controlling capability via a PLC
- RTM X42.PC: Tension monitoring with data processing and analysis capability
- RTM X42.MODBUS: Provides a flexible interface concept adapting to any bus system used in the machine. It allows real-time control of breaks or drives
- RTM X42.MP: Processing of encoder signals, eg for close loop control of drives and the control of the traverse guide in individual bobbins.

RTM X42 utilises force measurement rollers to capture the tension value of individual wires or strands, and then securely transmits this data from the rotating to the static portion of the machine. This all happens over a radio link and without troublesome slip rings. The RTM X42 product family offers both the machine builder and cable producer a basis for efficient cost and quality management.

FMS Force Measuring Systems AG – Switzerland
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Condat's solution to phosphatation

The preparation of the wire surface before drawing is an essential stage to optimise the manufacturing process. Generally, two processes are used: either a surface treatment with Borax directly after acid pickling of the wire, or for more technical applications, a phosphatation step before Borax or lime coating operations.

Condat now offers the solution for an effective and durable surface treatment.

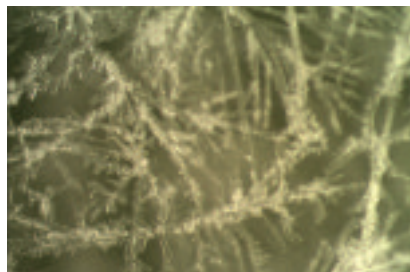
A surface treatment with borax or phosphate presents a certain number of disadvantages.

On one side, borax is now classified as toxic for reproduction and is identified by REACH as a substance of very high concern. In certain areas, the threshold authorised in the effluents can pose problems to companies. In addition, the performance of a borax surface treatment is not optimum when wire drawing speeds need to be increased.

On the other side, phosphate treatment provides a high level of performance for the wiredrawing of high carbon steels but it reveals other difficulties. The handling of dangerous reactive products (range of strong acids), the problems of controlling the exact concentration of the bath, and the

strongly irritating atmosphere for the operators, all make it a difficult operation to manage.

After several years of research, Condat has developed the solution for a simple, efficient and more



▲ Optimal crystallised coverage with VICAFIL TS 7112, here at 60 times zoom

environmentally friendly surface treatment: VICAFIL TS 7112. This product, in powder form, is simply diluted in a hot water bath and contains mineral salts classified as non-toxic.

Just as a Borax bath, the mineral salts and organic-polymers of VICAFIL TS 7112 crystallise quickly on the wire creating optimal coverage and a greater deposit weight, thus ensuring better adherence and an excellent distribution of the lubricant during the wire drawing operation.

This results in:

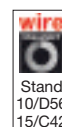
- An increase of wire drawing speeds
- A reduction of die wear
- An excellent quality of the wire surface
- A greater homogeneity of the wire's mechanical properties

Better performing than a surface treatment with borax, VICAFIL TS 7112 also presents fewer disadvantages than a phosphate treatment. Easy to handle and without usage of products classified as toxic, it makes it possible to reduce the number or the length of tanks used to carry out such treatments. In addition to these significant gains in equipment investment, VICAFIL TS 7112 also allows a reduction in the treatment and recycling of effluents.

VICAFIL TS 7112 offers remarkable results for wire drawing of the most difficult metals and on applications such as steelcord, PC wire, spring and cold heading wire.

The company will be displaying VICAFIL TS 7112 at wire Düsseldorf.

Condat Lubricants – France
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Website: www.condat.fr



Specialists in wire cleaning

GEO specialises in the production of ultrasonic cleaning lines, high pressure cleaning and rinsing jets, steam cleaning, air wipes and mechanical (brush) cleaning systems for wire strip, tube, cable, rod and similar longitudinal configurations.



▲ Multi-wire cleaning line from GEO

Today's high quality demands on the cleaning processes normally can be realised with proven GEO components, complemented by state-of-the-art systems for continuous bath monitoring, take-up and pay-off units and much more according to individual requirements.

Whether in high-speed applications, the manufacture of medical products, the contact-free cleaning of precious

metal and aluminium alloy strips for the production of precision stamped parts or the fully automatic cleaning of high-grade steel ribbon for the production of high temperature superconductors, GEO components and systems are used in a multitude of production and finishing stages. GEO's integrated cleaning systems can be placed in-line with the production line or placed off-line as a separate process.

GEO's new multi-strand ultrasonic wire cleaner is based on expertise gained over two decades of experience. Completely made of stainless steel for a long service life, particular attention has been paid to easy and straight forward operation. Cleaning, rinsing and drying are equipped with special wire guides for intelligent handling. Coming into contact with liquids is almost

impossible. The energy efficiency of the system meets the highest standards.

For less demanding applications the Primary Wire Wipe system is the right choice. The wire to be cleaned passes between two strips of absorbing tape material which move in opposite directions laterally so that a clean tape surface is continuously presented to the wire. In this way the wire does not come into contact with contaminated wipers as is the case when rags or stationary felt pads are used.

GEO's product range is completed by a wide variety of spiral brushes with metal and synthetic filaments.

GEO-Reinigungstechnik GmbH – Germany
Email: info@geo-reinigungstechnik.de
Website: www.geo-reinigungstechnik.de



Value for customers

Maillefer serves both wire and cable and pipe and tube manufacturers worldwide. The progress achieved together with customers comes not only from the supply of technology know-how and equipment solutions, but also from products with high added value. Maillefer offers a wide range of services and maintenance packages, product cost and materials saving solutions, as well as insulation cleanliness and quality improvement solutions.

With customer value targets in mind, Maillefer is expanding the wire and cable product portfolio beyond the high performance range. New products are being launched in order to fulfil the more diverse needs coming from customers who are less concerned with possessing the highest production performance available.

The different requirements and customer value demands are coming, for example, from the world's developing markets. In response, a medium voltage and a building wire insulation line have been developed. Both newcomers use the Maillefer extrusion standard, tested in more than 4,000 installations.



▲ Maillefer's new high performance screw for XLPE insulation

Different levels of improvements for existing lines are developed side by side with new technology options for uncovered market needs. Maillefer's reputation is earned by how well it meets – and exceeds – the expectations of customers and partners with the product, know-how and solutions that deliver the value they seek from their production processes. All this is done to further strengthen the

concept of delivering sustainable value to the market.

The current product families available from Maillefer are energy cables including manufacturing solutions for producing automotive, building, LV, MV, HV and EHV cables; fibre optic cable manufacturing solutions for buffering and jacketing fibre optic cables; plastic pipe manufacturing technology; solutions for producing heating and plumbing, medical, automotive, irrigation, water and gas pipes; and telecom cable making including solutions for producing telecom, LAN, coax and speciality signal cables.

Maillefer has sales and service support, production facilities, development and testing capabilities in Finland and Switzerland. Regional sales and service offices are established in China, Egypt, India, Russia and the USA. In addition Maillefer has a worldwide agent network.

Maillefer Extrusion Oy – Finland
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Website: www.maileferextrusion.com



PlasmaCleaner for continuous degreasing, surface oxide removal and pre-heating

Surface cleaning and degreasing is an important part of tube production process. Traditionally this involves wet, chemical processes that are potentially harmful to the operator and the environment. One way to turn production chemical-free is to use plasma surface cleaning, which is a dry surface treatment.

In many cable applications such as extrusion polymer coating pre-heating of the material is required together with degreasing. PlasmaCleaner can be used as an efficient and accurate preheater, surpassing the energy efficiency of a conventional induction preheater.

PlasmaCleaner is a plasma surface treatment machine designed for surface cleaning, degreasing or oxide removal on ferrous and non-ferrous wires. PlasmaCleaner can be used in conjunction with drawing, extrusion,

taping, or surface coating applications to mention a few.



▲ Plasma treatment is a dry process

Plasma cleaning and degreasing are conducted in low-pressure inert atmosphere at high temperatures, where wet lubricants evaporate and get removed through the exhaust system, leaving the wire surface dry and free of lubricants. PlasmaCleaner cannot be used for drawing soap removal, but can remove surface oxides on copper, aluminium, nickel, stainless steel and various alloys.

PlasmaCleaner can also be used for surface activation to assist better lubricant pick up in a drawing or rolling process or improvement in coating adhesion in a continuous coating process.

Plasma treatment is a dry process that requires no rinsing or drying. Plasma treated surface will exhibit a high degree of passivation, which will protect the surface by slowing down subsequent surface corrosion. A demonstration unit is available for rental. Alternatively a trial can be arranged at the Plasmait facility in Austria.

Plasmait will exhibit at wire Düsseldorf in April in the Austrian pavilion

Plasmait GmbH – Austria
Email: info@plasmait.com
Website: www.plasmait.com



New patenting furnace saves energy

At wire 2014, Wire Körner will exhibit the new series of directly heated patenting furnaces fitted with automatic furnace atmosphere control and burner with heat recuperation. With these new energy-saving furnaces, Wire Körner further expands its range of efficient and eco-friendly heat treatment plants for wire. Based on his good experience with the furnace, a German customer has already ordered an extension to the existing unit.

The first unit of this new furnace generation has been in operation for two years. Designed for a throughput of 2,000t per hour, it processes wire in diameters from 1.5 to 5.5mm. The plant expansion is expected to be commissioned in April 2014.

By implementing a wide array of innovative features, Wire Körner has increased the efficiency of patenting furnaces for wire and achieved savings on energy consumption of some eight to ten per cent compared to conventional furnaces. The very first furnace of this new generation has already been in production for more than two years.

With an innovative sensor, Wire Körner has for the first time realised a system for controlling the furnace atmosphere. Via the furnace control system the air/combustion gas ratio is set exactly within a specified range. The high control precision and stability of the gas/air ratio makes the new furnaces superior to pre-mix systems. In addition to the energy savings,



▲ Patenting furnace – side view

controlling the air/gas ratio keeps NOx emissions low and prevents decarburisation of the wire. The furnace temperature is adjusted with a precision of $\pm 2^{\circ}\text{C}$.

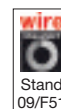
A central recuperator installed in the waste gas duct preheats the combustion air for the high-speed burners to 200 to 250°C, while reducing the waste gas temperature at the stack from 600°C down to 400 to 500°C. Already in the preheating zone Wire Körner exploits the thermal energy of the waste gas to heat up the wire entering the furnace. This reduces the energy demand for preheating.

In contrast to previously used burners, the high-speed burners employed by Wire Körner can be adjusted in several steps. This ensures that the burners consume exactly the amount of energy they need, not more.

Wire Körner has brought down heat losses via the furnace wall by optimising the layout of the wall, among others by means of insulating ceramic fibres. An additional coating ensures a long service life of the furnace wall even under conditions of high CO contents and high flow velocities. An additional, 2.5 cm-thick Microtherm® insulating layer behind the refractory brick lining brings down heat losses even further.

The furnace is directly heated. The heat is transferred into the wire by convection, at flow velocities of up to 120m/s. This provides much better energy efficiency than heating by radiation.

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2013 success for Bar

Bar Products & Services Ltd had an extraordinary 2013.

Increased sales, new international markets, further investment in machinery and new staff members all added to one of the most successful years of the company's 20-year existence.

"The last few months have seen wire strand compaction units and rope preform heads shipped to Malaysia, Austria, Mexico, Germany and Japan, further defining the wire rope industry as a major sector of our business," said Steven Rika, managing director.

New die shop equipment is being developed to improve the capacity and efficiency for the processing of thousands of dies that pass through this section of the company. This investment follows a substantial increase in CNC machinery for the precision engineering division that has seen a large increase in demand throughout the past year.

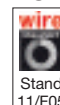
2014 will see the company exhibiting at wire 2014 in Düsseldorf which will coincide with the launch of the new website. The new design wire strand compaction units will be on show following the success of the previous design at wire 2012.

Rollers for profile wire and strand compaction have also been a major part of the company's growth this year and look set to continue in 2014.



▲ Growth looks set to continue this year for Bar Products and Services

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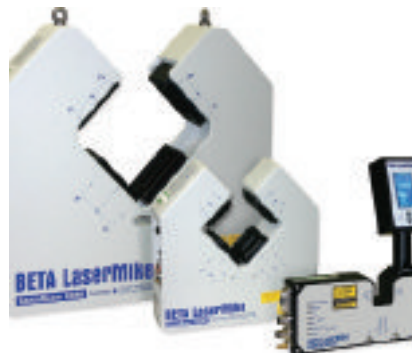
New high-speed diameter and ovality gauge series

Beta LaserMike has released its new family of high-speed AccuScan 5000 diameter and ovality gauges. This latest offering enables manufacturers to produce higher quality products in less time and with less waste.

The new dual-axis AccuScan 5000 Series gauges perform ultra-fast measurements at 2,400 scans per second per axis and provide the highest single-scan accuracy in the industry. The improvements in the single-scan calibration algorithm mean that each scan is highly accurate, providing the most reliable readings in applications such as high-speed tolerance checking of flaws, the monitoring of complex product shapes and profiles, and other challenging measurement requirements.

The high-speed tolerance checking option permits the early and highly accurate detection of lumps and necks

to eliminate costly product waste. When using the STAC (stranded, twisted, armoured and corrugated) measurement mode, AccuScan outputs accurate maximum/minimum OD or enveloped readings at a higher rate allowing for faster process control of complex cable constructions.



▲ The AccuScan family from Beta LaserMike

Beta LaserMike offers a range of AccuScan 5000 Series models to measure diameters up to 80mm (3.15"). AccuScan 5000 Series gauges support a wide range of communications protocols, including RS-232, Ethernet/IP, Ethernet TCP/IP, DeviceNet, Profibus, Profinet, analogue and digital.

An integrated air purge system keeps windows clean from dust and debris for maximum uptime and reduced maintenance. An optional ultra-bright display and operator interface enables users to easily configure and view measurement data. All AccuScan gauges are ruggedly constructed and sealed to IP 65 (NEMA 4) standards, providing effective protection in the harshest environments for long service life.

Beta LaserMike – USA
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Website: www.betalasermike.com



Five-year expansion plan

Kiveton Park Steel has begun a five-year growth plan to expand international sales both within and beyond Europe.

Initial capital investments have included the installation of a bar peeling line capable of handling bars of up to 80mm diameter. The company is also in the final stages of construction and fit out of a brand new centralised technical centre to provide full site services and continued assistance in the primary automotive market sector.

Kiveton Park Steel is externally accredited for aerospace (A/S 9100) and automotive (T/S 16949) applications in addition to the environmental standard ISO 14001.

Further investments in bar processing are planned in the coming months which will expand the company's

capabilities to process alloy, engineering and stainless steels through the complete size range, from 4mm to 80mm diameter or equivalent cross sectional area, for squares, hexagons, octagons and other special shapes.

Investments in the future also need quality in human resources, with some trainees sponsored to degree level in materials science, and other experienced industry personnel joining to strengthen technical, engineering and international sales development teams.

Kiveton Park Steel has continued to raise the company profile internationally, exhibiting at Automechanika Shanghai for the second time, and will be a repeat exhibitor at the forthcoming wire 2014 in Düsseldorf, Germany, in April.

Export trading activity has been rapidly increasing in recent years, reaching around 70 per cent of total sales, and this was recognised in 2012 with a Queen's Award for International Trade. In 2013, the company was a regional winner in the EEF Future Manufacturing Awards, for Export Development.

Kiveton Park Steel is a manufacturer of alloy, engineering and stainless steel bar and wire with an extensive range of heat treatment, drawing, grinding, peeling, chamfering, surface defect detection and ultrasonic inspection available, ideally suited to the many critical applications required in specialised engineering applications.

Kiveton Park Steel Ltd – UK
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Website: www.kpsteel.co.uk



Avoid contact!

To produce high quality wire, you need to prevent fouling or damaging of the wire during the annealing process. This is a problem for annealing companies. The solution is to avoid metal-to-metal contact.

All you need to produce the quality needed in today's demanding world is to use the ALF sleeve from Hiltex.

When the ALF sleeve is installed in the pipe through which the metal wire runs it will prevent the wire from touching the metal of the pipe and becoming distorted.

One important aspect when using ALF is the straight alignment of the pipes running through the furnace. This can be obtained by using, for instance,

counterweights attached to the end of the pipes. The weights will capture the expansion of the pipe during the annealing process in the furnace.

Hiltex Technical Textiles – The Netherlands
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Inline wire diagnosis

By Marcus Paech, Witels-Albert GmbH, Germany, and Walther Van Raemdonck, Bekaert NV, Belgium

Abstract

Wire yield point and diameter consistency are important parameters determining the final geometry of bending parts and springs. This paper introduces recent ideas and the results of trial runs for monitoring changes of these parameters during wire drawing. The so-called “inline wire diagnosis” represents a new system for classifying wire quality based on seamless verification, and allows a continuous and objective intrinsic quality assessment.

Motivation

The production of wire is defined worldwide by two parameters: quality and quantity. Quantity can be achieved simply with a high number of drawing machines and a high drawing speed. Quality and the production process depend significantly on the properties of the process material and require coordinated production equipment, dies and media. In particular the geometrical and mechanical properties of the wire and its tolerances over its length have a strong impact. Unlike quantity, there is nothing simple about producing quality.

High-tech wire and its products are subject to high requirements in terms of reject rate and achieving a defined geometry. The only way to influence these parameters positively is with properties which are constant over the wire’s length. In practice, constant properties over length are verifiable only with limitations. On wire drawing machines, for example, only the wire diameter might typically be monitored continuously.

As for the wire’s mechanical properties, directives specify quantitative parameters which

must be determined after the wire drawing process by discontinuous and destructive means in tensile tests according to DIN EN 10002. The state-of-the-art is to perform the tensile test on up to five wire offcuts or samples. The results of the tensile test are then regarded as representative of the entire reel or the entire coil and are presented to the customer or wire processor in the form of a certificate.

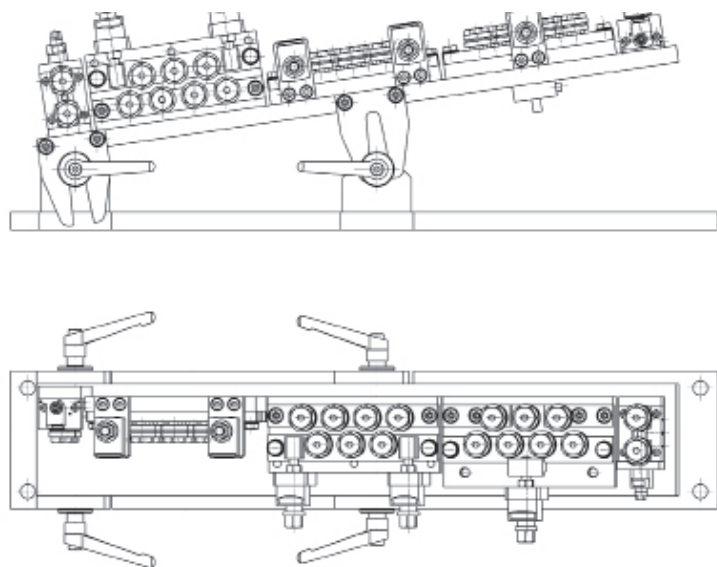
With ‘inline wire diagnosis’ it is aimed to provide an alternative certificate based on the continuous and non-destructive determination and documentation of changes to a wire’s strength over its length. Here the focus is not on a change of tensile strength R_m , which in various standards concerning the terms of delivery for long products is considered as the only relevant tension parameter, but on a change of the technical yield point $R_{p0.2}$. A change of the technical yield point is more important than tensile strength for technical and commercial

objectives because it is decisive for the elastic-plastic forming processes which follow the wire drawing process.

Process

The structure of the ‘inline wire diagnosis’ process has two levels. On a preparatory level, a process simulator uses mathematical-physical models to simulate a forming process^[1]. The process simulator carries out a variation calculation, which in effect is a repeat performance of a simulation calculation. Each simulation calculation is carried out with different discrete values of the variation parameters. The variation parameters are the wire diameter d and the technical yield point $R_{p0.2}$, ie the target values of the ‘inline wire diagnosis’.

Using the nominal value of the wire diameter and the nominal value of the technical yield point as reference, the variation limits of the variation parameters are defined by the



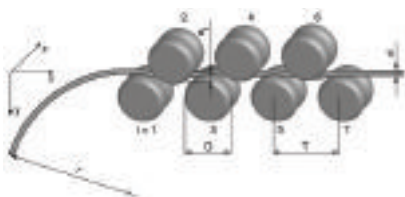
▲ Fig 1: Straightening system and diagnosis unit

permissible deviations according to the relevant directive or the relevant terms of delivery. Spring steel wire, for example, is governed by the directive DIN EN 10270-1. Each simulation calculation considers not only the data of the wire process material but also the geometrical data of a diagnosis unit which is similar in layout to a roll straightening unit. Other physical elements of the process are a straightening system upstream from the diagnosis unit (Fig 1) and a device for identifying the wire diameter.

The straightening units of the straightening system and the diagnosis unit use rolls with defined adjustability as tools for configuring the straightening processes and for configuring the diagnosis process. Fig 2 presents a number of the wire's geometrical parameters and shows by way of example the parameters of those physical elements of the process which are equipped with rolls. The adjustment a_i of the rolls i ($i = 1-7$) during the wire's pass, subjects it to elastic-plastic alternating deformations which are the basis for the change of the wire's geometrical parameters and also the basis for the diagnosis of the wire over its length. Each roll-equipped physical element of the process has an identical straightening or deformation range Δ which is defined by the pitch T (the distance between the rolls) and the diameter of the rolls D (Fig 2).

In accordance with this data, the straightening and deformation range has a permissible limit for the minimum wire diameter d_{min} and the maximum wire diameter d_{max} to be processed (equation 1).

$$d_{min} \leq \Delta \leq d_{max} \quad \text{Equation 1}$$



▲ Fig 2: Physical element of the process with parameters

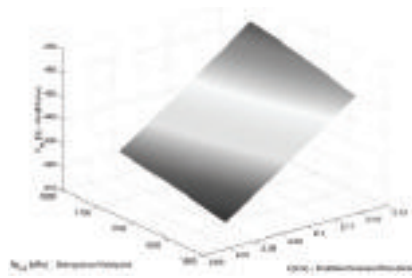
Given straightening units with a process-compatible configuration and a diagnosis unit with a process compatible configuration, then

the deformation processes will be defined by the reciprocal value of the curvature radius r or the curvature and material properties of the wire at specified actual values of the wire diameter and the technical yield point. Any impact of the curvature in the diagnosis unit is ruled out by a special adjustment method or early smoothing of the wire curvature^[2] in the straightening system upstream from the diagnosis unit. For the diagnosis unit this results in a relationship between the parameters of the wire and the target values of the inline wire diagnosis (diameter, technical yield point) and the diagnosis process parameter roll force F_{Ri} ^[3] which, uninfluenced by the curvature, is mapped by a relationship matrix as the result of the variation calculation.

Fig 3 presents by way of example a relationship matrix for a bezinal wire of grade SH with nominal diameter $d_N = 2.1\text{mm}$ and nominal yield point $R_{p0.2N} = 1700\text{MPa}$. The variation limits of the variation parameters are defined in accordance with directive DIN EN 10270-1 with equation 2 and 3.

$$2.075 \leq d_N \leq 2.125 \text{ mm} \quad \text{Equation 2}$$

$$1625 \leq R_{p0.2N} \leq 1775 \text{ MPa} \quad \text{Equation 3}$$



▲ Fig 3: Relationship matrix as a result of the variation calculation

The information content of the relationship matrix describes for discrete values of the variation parameters the relationship to the diagnosis process parameter roll force. Using the data of the relationship matrix, a functional relationship is derived on the process preparation level with the help of assessment statistics methods. For the dependence documented in Fig 3 there are the three random variables x_1 , x_2 and y . The parameters a , b_1 and b_2 in equation 4 are estimated by multiple linear regression.

$$y = a + b_1 \cdot x_1 + b_2 \cdot x_2 \quad \text{Equation 4}$$

For the estimation it is aimed to achieve a good adjustment to all the values of the random variable y . The quality of the adjustment is reflected by the degree of determination B . The closer the degree of determination to the value 1, the greater the conformance between y and ϵ . Equation 5 describes the estimation for the example according to equation 2 and 3 and Fig 3.

$$R_{p0.2} = 191688 - 11355 \cdot d + 14.4777 \cdot F_{Ri} \quad B = 0.9881 \quad \text{Equation 5}$$

On the implementation level of the process, the actual value of the wire diameter and the measured roll force thus result in the estimated value for the technical yield point $R_{p0.2}$. A continuous and non-destructive estimation of the technical yield point over the wire's length is achieved accordingly from continuous identification of the wire diameter and the roll force.

Static tests, which are performed as part of a verification process and indicate a relative error of $\pm 3\%$, document the quality of the process simulator. The error is determined from the expected value of the roll force from the simulation on the one hand and from the exact value of the roll force or the measured roller force on the other hand.

Test run

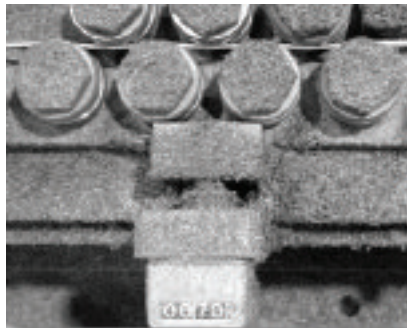
The implementation level uses a program whose user interface is shown in Fig 4. Measured parameters, eg the wire diameter and roll force, and the estimated value of the technical yield point and the wire speed are presented in the form of a table and a diagram. All data are saved in TDMS format together with verbal notes on the project.

The test run is performed at a wire speed of 5.8m/s for four finished reels on a Bekaert dry drawing machine under production conditions. The straightening system and the diagnosis unit are installed in the area of the last drawing machine block. The wire passes from the lower capstan of the last block through the straightening

system and the diagnosis unit to a deflector roller which deflects the wire onto the upper capstan.

Directly after the upper capstan the wire passes through the unit for identifying the wire diameter. The offset between the diagnosis unit and the diameter measuring device is defined and taken into account by the inline wire diagnosis. The running direction of the wire from left to right (Fig 1) enables the roll force to be measured in the diagnosis unit on the discharge side. The measuring frequency for all the previously mentioned parameters and variables equals 5kHz.

The rolls of the straightening system and the diagnosis unit are set with defined adjustments for the elastic-plastic deformation of the wire (Fig 5). The adjustment of the rolls in



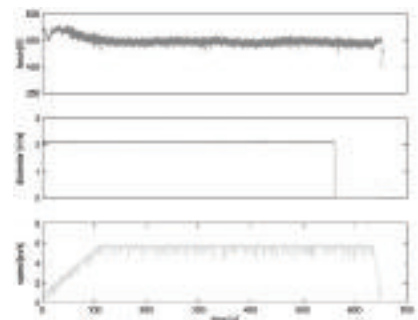
▲ Fig 5: Elastic-plastic deformation of the wire in the diagnosis unit

configuration. For example, higher numbers of turns on the lower and upper capstan will help to improve the constancy of the difference in force between drawing and back pull force, which will also be reflected in the time-related characteristic curve of the wire speed. Between the acceleration and deceleration phase, the roll force has a characteristic curve which can be used for the inline wire diagnosis. Like the roll force, the wire diameter also displays high dynamics in the area of the acceleration and deceleration phase. The causes are unknown and need to be discussed. They cannot be derived from the laser measuring principle. For this reason it should be noted that the quality of diameter measurement is hardly adaptable to the requirements of dry wire drawing under production conditions.

Wire vibrations and, above all, dirt deposits formed from eg drawing soap and coating chips have a negative effect on inline measurement of the diameter. As can be seen in Fig 6, the dirt accumulations soon cause the diameter measurement signal to show fail. The splashguard and air curtain provided by the manufacturer of the diameter measuring device do not produce an improvement which leads to a permanently reliable signal. Certainly, the maintenance recommended by the manufacturer – namely regular cleaning of the measuring windows – does help to enable the temporary use of the device, but maintenance intervals of five minutes are hardly viable for the operator of a drawing machine.

In view of these disadvantageous boundary conditions, the inline wire diagnosis test run is restricted to a

time and wire zone which is not only uninfluenced by the wire acceleration and deceleration but also based on a plausible diameter measuring signal. On the implementation level of the inline wire diagnosis, the characteristic curves of the roll force and diameter presented in Fig 6 result in a characteristic curve of the technical yield point in accordance with Fig 7. The area of the estimated value of the yield point which is highlighted in black has been evaluated and results in the assigned histogram. The standard deviation and the median of the technical yield point can be used to evaluate the wire and to compare projects or wire reels.



▲ Fig 6: Measured values of the roll force, diameter and speed of the wire

The projects or wire reels are classified on the basis of the standard deviation of the estimated value of the technical yield point and assigned to one of the following arbitrary defined quality grades: VERY GOOD, GOOD, SATISFACTORY, ADEQUATE or POOR. The class limits are illustrated by the equations 6 to 10.

$40 \leq \text{VERY GOOD} < 50 \text{ MPa}$ Equation 6

$50 \leq \text{GOOD} < 60 \text{ MPa}$ Equation 7

$60 \leq \text{SATISFACTORY} < 70 \text{ MPa}$ Equation 8

$70 \leq \text{ADEQUATE} < 80 \text{ MPa}$ Equation 9

$80 \leq \text{POOR} \leq 90 \text{ MPa}$ Equation 10

Accordingly, project #18 in Fig 7 reflects a very good constancy of the technical yield point while project #12 in Fig 8 indicates a poor level of wire quality. The standard deviation of the technical yield point in project #12 is approximately 109% greater. This is owed to accordingly large standard deviations of the wire diameter and the roll force, which in project #12 are approximately 200% and

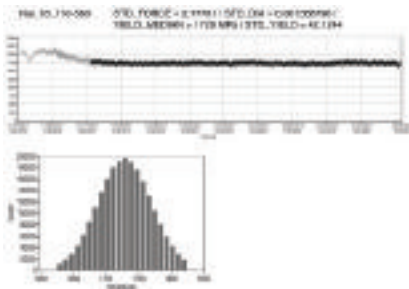


▲ Fig 4: User interface of the inline wire diagnosis program

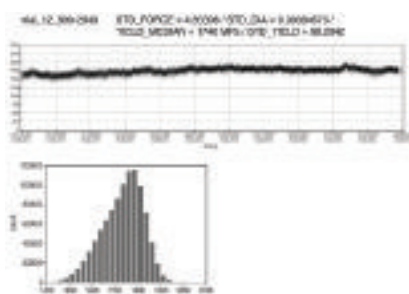
the diagnosis unit corresponds to 1.4 times the maximum elastic adjustment. This goes hand in hand with an only small change of wire curvature through deformations in the diagnosis unit, which is changed by a downstream straightening system into the desired constant residual curvature.

Fig 6 shows by way of example the characteristic curve of the parameters and variables as a function of time or wire length. During the acceleration and deceleration of the wire, the roll force displays high dynamics. This is caused by a non-constant difference in force between the drawing force and the back pull force during the acceleration and deceleration phase. It can be influenced by the drawing machine design, the drawing machine control system, the control parameters and the drawing process

approximately 75% greater than in project #18.



▲ Fig 7: Time-related characteristic and histogram of the yield point for project 18 (finished reel 4/1)



▲ Fig 8: Time-related characteristic and histogram of the yield point for project 12 (finished reel 2/1)

To assess the plausibility of the time-related characteristic of the wire diameter and the estimated value

The wire diameter determined on the wire sections before the tensile tests lies below the respective median of the wire diameter which results from the inline wire diagnosis. The results of the test run are largely confirmed by the results of the tensile test, which in all cases satisfy the directive DIN EN 10270-1. Only in project #15 (finished reel #3/2) is the technical yield point determined with the inline wire diagnosis distinctly greater than the comparative value from the tensile test. The reasons for this and for the large spectrum of standard deviations of the technical yield point from the inline wire diagnosis could not be sufficiently identified in the context of the test run. It is thought that the drawing machine and the drawing process as well as specific states of the drawing machine and the drawing process may have an influence. For example, there is a correlation between the results of the project #15 (finished reel #3/2) and a significant increase in the tensile strength as a result of a temporarily blocked capstan cooling. In this connection it should be pointed out that the purpose of the inline wire diagnosis is not to determine the actual technical yield point but to identify changes in the technical yield point.

completely independent parameter variation, and then to improve the springs' strength properties.

The research group is thus in a position to find the optimum tempering processes for other wire products and provide industry with the results, all without high expenditure of time and money. Thus, conclusions can be drawn for the design and operation of new passage tempering plants to be used in wire manufacture and for the selection of process parameters at the spring tempering stage.

The knowledge obtained (to the effect that heat treatment processes calculated in combination for wire and spring manufacture will enable shaping and strength properties to be specifically improved) is promising for improved manufacture and more accurate dimensioning of heavily loaded springs. It was proved that the hardening and tempering parameters have varying effects on yield points and ultimate tensile strength. The nominal value for the yield point under torsional stress $T_{t, zul}$ which is particularly important for the materials used in helical compression springs can be increased by up to 10% by optimally tuned wire hardening and component tempering parameters.

It is fundamentally possible to achieve reduction of maximum strength of the material to improve capacity for coiling after the wire works and then to set the desired high strength levels during the manufacture of the spring. It was also made clear that static and dynamic strength cannot be optimised simultaneously but that the heat treatment must be set at all stages to meet the use to which the spring is to be put.

Project/ Reel	BEKAERT		WITELS-ALBERT & BEKAERT					
	d [mm]	R _{0.2} [MPa]	MEDIAN d [mm]	STD d [mm]	MEDIAN F _{0.2} [N]	STD F _{0.2} [N]	MEDIAN R _{0.2} [MPa]	STD R _{0.2} [MPa]
#10/#1/1	2.099	1704	2.114	0.0952	445.7	3.51	1630	70.4
#11/#1/2	2.099	1694	2.111	0.0944	448.0	4.10	1680	75.1
#12/#2/1	2.098	1716	2.111	0.0939	453.9	4.86	1746	88.2
#14/#3/1	2.085	1699	2.109	0.0947	451.0	3.40	1737	69.9
#15/#3/2	2.094	1733	2.111	0.0928	466.0	2.54	1928	50.3
#16/#4/1	2.097	1696	2.105	0.0913	448.8	2.78	1729	42.1
#19/#4/2	2.100	1693	2.106	0.0918	448.0	2.73	1742	42.8

▲ Table 1: Tensile test (Bekaert) versus inline wire diagnosis (Witels-Albert and Bekaert)

of the technical yield point, the wire diameter is measured and tensile tests in accordance with DIN EN 10002 are performed after the test run on select wire sections of the projects and finished reels. Table 1 presents the results of the inline wire diagnosis test run along with the results of the wire diameter measurements and the tensile tests.

Conclusion

With the test stations available to the research group (developed by them) and the newly developed experimental hardening and tempering plant, it has for the first time become possible to imitate in the laboratory all the heat treatment procedures from the wire works to the finished spring, using

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- [3] Paech, M: Advanced semi-automatic straightening technology. Wire Journal International, July 2008, pp 74-79

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