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PLUS

Brexit, what's next...

Counterfeit Cabling Solutions
from Pakistan Cables

CRU Review - Metallic Wire & Cable:
Time to retrieve what was lost



Newsletter of
the International Wire
& Machinery Association

Chairman's message

Dear members and friends of the IWMA

The global coronavirus pandemic has created big challenges, physical and mental, for everyone over the past year.

Though many of our members have been effectively in reserved industries, able to continue working normally, their staffing levels have fluctuated through illness and schemes intended to keep non-essential staff safe at home. No one has been truly unaffected by the disease.

And while IWMA member companies have been able to function relatively normally, the business of being in the wire and cable business, as it were, has been dramatically curtailed by the absence of the usual trade shows and other elements that keep the industry energised.

With some of this year's industry events already cancelled and the fate of others still very much in the balance, 2021 is already showing that it too will have challenges to be overcome. They might not be as great as those of last year – when many of our members will have worried they might not have a business in 2021 – but still a challenge.

The pandemic hasn't only affected manufacturing: as in many of our member-companies, IWMA staff have had to adapt to new ways of working. We have had to rethink events such as our annual industry lunch and AGM. We are also developing online training courses.

The team here has been working from home, meeting online and exploring new ways to make sure members still have access to the latest industry news, research and market analysis. In fact some of the ideas they are coming up with could well become part of the landscape of IWMA membership even after the pandemic is over. But for now, our greatest resource is our membership and I'd encourage anyone having particular problems – or indeed no problems at all, which might be more unusual – to contact us and share their experiences, or reach out through us to other members for advice.

Here in the UK the pandemic couldn't have come at a worse time, what with Brexit added to an already dark mood. Brexit has caused some members additional problems: imports and exports have in some cases been subject to strict new controls, orders have been delayed, and the borders have caused further delays on deliveries between the UK and EU nations.

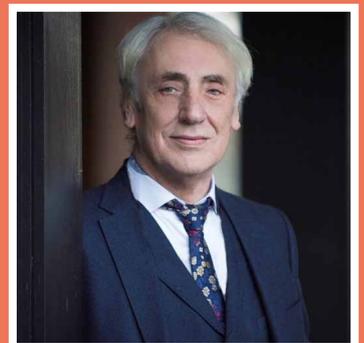
Despite all this I for one am optimistic, and the IWMA leadership agrees there are grounds for looking forward with some hope.

The end of the pandemic is starting to come into view, with infections well down and vaccine production and distribution starting to pick up speed. By the summer the possibility of infection will have reduced further and work can get back to a greater sense of normality.

Though our industry will need time to get back to how it was in early 2020, I have no doubt that whatever 2021 throws at us, we will come out of all this stronger than ever.

My very best wishes to you all, stay safe

Martin Van Der Zwan
Chairman, IWMA



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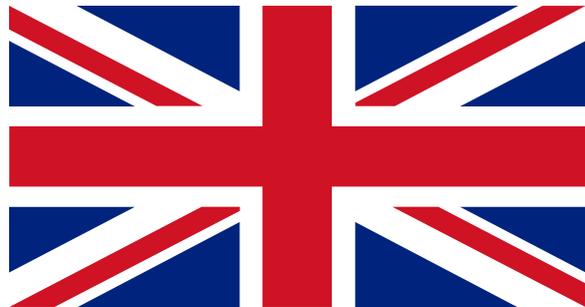
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Brexit, what's next...

You might argue that the last thing anyone really expected in 2020, as Britain headed towards its divisive UK exit from the European Union at the end of December, was an even bigger obstacle to trade than a government split from its partners of 47 years.

But the global pandemic trumped whatever the UK government had in store, decimating industry, trade, travel, retail and many other sectors as Britain, for one, saw its economy fall by more than 10 per cent.

It was a frightening year in many respects, one that put the “local” problems of Brexit into a degree of cold perspective.

Industry was actually fairly stoic in the face of global disease: a remarkably small number of IWMA members talked about their arrangements for combating Covid-19, because for the most part their status meant work continued largely as usual.

The number of IWMA members who mentioned Brexit at all in the last three years has been tiny – at least officially. Hardly any have voiced opinions for or against the split – politics, after all, is not what they are in business for.

But when asked, some have voiced their opinions, not about Brexit as a concept but about the process of divorce.

Mark Venables, MD of exotic materials supplier Alloy Wire International in Birmingham UK, told a local business magazine his Brexit strategy had been to stockpile around 200 tonnes of steel stocks in advance of the split: “Ever since Brexit, I’ve been keen for us to invest in raw materials, so we have been sitting on quite a lot of stock,” he said.

Mark Ormiston, MD of 275-year-old IWMA member-company Ormiston Wire in London, followed the same line: “We are getting in as much raw material as we can from Europe before the end of this year” he told the UK’s Guardian newspaper in early December 2020, “as possibly it will be mayhem in the next.”

And for many, it has been fairly chaotic. The problems caused by Brexit have been those of bureaucracy and detail: at the very worst time, the UK government itself went into partial pandemic lockdown and the detailed preparations for Brexit suffered accordingly.

The eventual agreement for tariff-free trading was a relief for many British companies dealing with the EU. But some might think the replacement bureaucratic barriers, delays and so-called “Brexit Charge” many companies on both sides of the Channel are imposing on customers, will cost even more over time. January trade figures showed the UK’s exports to the EU dropped by 40 per cent in January 2021, and imports dropped by 29 per cent – terrible figures, even in a pandemic.

Some UK makers have accordingly begun to expanding their horizons – aerospace suppliers have been diversifying and expanding within the industry, for example, where demand remains strong. Others have started to move beyond Europe, one such being Metalube, which last November signed with new distribution partners in Russia. This wasn’t just a Brexit matter, since Metalube is already a well-respected brand in the region, but it shows that capable UK manufacturers will do non-EU deals where possible, given the obstruction to trade that Brexit is reputedly causing.

What kind of barrier is evident in the responses to our survey among a dozen IWMA businesses in the UK and Europe, ranging from 2 to 150 employees.

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“It was a frightening year in many respects, one that put the “local” problems of Brexit into a degree of cold perspective.”

“We had huge difficulties exporting and importing goods to and from the EU,” said a frustrated David Robinson of X-L Technologies UK in Greater Manchester, which does 99 per cent of its trade with the EU. “It wasn’t possible to prepare properly as we didn’t know what type of trade deal we would end up with – Customs Union, WTO trade tariffs or somewhere in-between.”

When Brexit finally arrived on January 1, shipping volume and manpower problems and a lack of preparedness at borders led to long delays and queues. These were compounded by new surcharges and declaration fees, and hauliers adding their own extra charges to accommodate their costs and delays – adding up to 15 per cent and more increases in logistics costs.

“Lots more paperwork is now needed,” said Andy Wright, MD of Spring Tooling Ltd of Bromsgrove UK. “It started with parcels taking a long time, but that is gradually levelling off as we and the couriers get used to the additional paperwork.”

European countries have no harmonised standards either, meaning delays at various borders for different but equally-complicated reasons.

“It seems the EU and member countries can’t get their heads around the fact that trade with the UK is now the same as for any other part of the world when it comes to administration,” said another British company doing 75 per cent of its trade with the EU. “Individual EU countries are adopting their own protocols and not always working with the overall EU systems. To sell into Europe we first have to deal with the EU regulations, then with each individual EU country’s regulations.”

The impact of Brexit on business ultimately depends on the overall reach of the business you ask about it. The largest global companies see the UK and Europe as an important market, certainly, but not the overwhelming problem faced by those doing a lot of their business with the EU. The UK CEO of Prysmian Group, Llyr Roberts, suggested back in 2017 that the company had to see Brexit as: “overlying on any current market or business assumptions as we move ever closer to separation from the EU.” In other words, business as usual, but accommodating Brexit hindrances...

Brexit has actually been a secondary issue for Prysmian over the past 12 months as it undertook its multi-million-dollar merger with Global Cable and coped with the pandemic.

But Brexit covers more than just delays at the ports and extra delivery charges. The split has introduced more fundamental issues to be teased out of 50 years’ worth of EU legislation.

There are many issues concerning the split that many of those who voted enthusiastically for Brexit probably didn’t consider. What about pan-Europe projects like the power and telecoms interconnectors, for example? The UK has been part of a plan to connect the EU countries in a Europe-wide scheme to balance European energy and telecoms needs. Several cables are still in the planning stages, but with Brexit will they all go ahead as intended? Since the UK is set to import more energy than anything else in decades to come, are we resigning ourselves to power cuts and dropouts, and energy as a bargaining chip? And the end to the UK’s membership of the EU meant a similar end to agreed safety standards – or did it? Britain now no longer uses the CE mark, and manufacturers selling to the UK must follow the UK Conformity Assessed (UKCA) standard (though Northern Ireland has different rules).

This is quite a complicated way of basically changing initials, since much of the new standard will be the former CE standard with a new name.

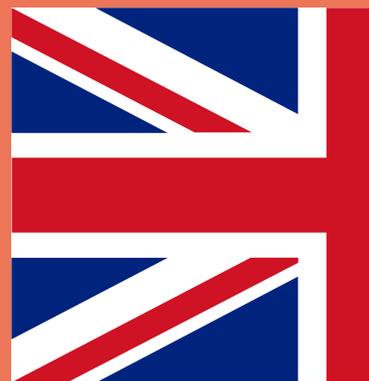
But that’s what happens, presumably, when politics and bureaucracy get to work on common-sense commonalities.

“Individual EU countries are adopting their own protocols and not always working with the overall EU systems. To sell into Europe we first have to deal with the EU regulations, then with each individual EU country’s regulations.”

“

Brexit Opportunity Knocks

By Gavin West & Julian Rosser, Smith Cooper



Not everyone sees Brexit as a bad idea: former medium-sized accountancy company of the year Smith Cooper believes Brexit can be good for those businesses able to master the initial problems. Here the company's tax and VAT specialists Gavin West and Julian Rosser suggest the split could mean opportunity knocks for willing traders...

Although reports focus on the issues faced by businesses post-Brexit, opportunities arise for companies able to overcome these difficulties – allowing them to continue trading with the EU while laying foundations for growth.

Several weeks have passed since the UK/EU Free Trade Agreement became effective. Initially welcomed for its lack of expected tariffs on the movement of goods between the UK and the EU, some companies are now starting to have unexpected issues – the increase in licenses and documentation for the movement of food products for example, and extra hidden costs when selling products to customers in the EU.

Charges to import duties can still apply (despite already having been paid in the UK) where the country of origin of the goods is outside the EU, for example goods made under licence in China or other non-EU country. Import VAT is also payable in the EU destination, as well as brokerage charges payable to couriers and freight companies. When added up, such costs can be as much as 40 per cent of the product price.

Unless companies have already implemented solutions to deal with these issues, the customer typically bears the cost.

E-commerce continues to enjoy significant growth and businesses able to optimise the customer journey can gain real advantage. One way is by taking responsibility for customs and VAT, ensuring hidden costs and reporting obligations are not passed on to the customer. By making sure customers can simply order and buy at the advertised price is likely to result in a much lower volume of customer queries and greater customer retention.

This also allows the business to take control of its supply chain, reducing the risk of goods not clearing customs due to incorrect paperwork – which in turn creates delays in orders being fulfilled and has a detrimental effect on the customer experience.

Unfortunately, implementing structures and arrangements costs money. Media reports have speculated wildly about the cost to businesses of having to register for VAT in other member states, of implementing processes and changing systems to deal with duties and customs declarations. This has led to a number of companies – especially small ones – refusing to sell to customers in the EU, and European companies likewise to the UK.

But costs do not have to be prohibitive. With careful structuring, it is possible to implement automated systems to deal with the changes and create a reporting mechanism that enables seamless UK-EU trade.

Businesses aren't necessarily required to incorporate entities in Europe or hold stock there either; operations can still be managed from the UK.

Our indirect tax team has worked with specialists to develop a complete service in this regard – solutions that can be relatively inexpensive compared to the advantages of seamless trade outside the UK.

BREXIT, Pandemics and International Trade Fairs

By Stuart Whitehill, International Trade Shows Link Ltd.

One company pleased that the pandemic is entering what is likely to be its final year of overwhelming influence, and that Brexit divisiveness is starting to settle, is International Trade Shows Link Ltd or ITSL, Messe Düsseldorf's British representative. ITSL offers British exhibitors and visitors to Messe's shows worldwide a comprehensive service to help the process go smoothly.

Here Stuart Whitehill, Director at ITSL talks about the company's plans for the rest of 2021.

For most industries, 2020 and, so far, 2021 have been pretty turbulent for UK businesses selling overseas. The slow release of Brexit details by the UK Government has been of concern to everyone involved in export.

Confusion has prompted many of us to sit through Department for International Trade or even local chamber of commerce webinars, hoping to gain insight into what a company actually needs to do to continue selling to the EU and the rest of the world.

It seems an increase in paperwork and new export documentation, with little benefit to show, are the result so far of leaving the EU. But hopefully over time, things will start to settle down as process and paperwork are streamlined.

The global pandemic was of course a massive extra problem: ITSL saw the complete decimation of the 2020 international trade fair programme, including Wire and Tube.

How wrong we were in thinking that shows in the first six months of this year would go ahead. The uncertainty of international travel, quarantine rulings and erratic flight options have led some UK businesses to hold off on organising future fair visits; some have even explored virtual exhibitions, with varying levels of success.

But with the vaccines now being distributed globally we have been looking at how companies are reacting – and we are already beginning to see bookings for Q3, Q4 and beyond.

Trade Fairs have restarted in South East Asia and the Middle East and the industry is ready to welcome visitors and exhibitors to all sorts of events.

Health and safety will continue to be taken very seriously, with Messe's hygiene measures in place for as long as necessary, but there is huge confidence that soon we will be able to attend a trade fair in person.

So here is a date for your diary. Wire and Tube Düsseldorf comes up from May 9 -13, 2022, and official registration will open this summer.

At times it has seemed like we might never be able to say that again. But now we can...

The countdown has started... Make sure you take part in wire and Tube 2022!

Dear Reader,

Finally, the time has come: Promising vaccinations are on the way, and this means that the world finally has a path out of the corona crisis within its grasp. We are also looking forward: to welcoming exhibitors and visitors back to the trade fair hall in Düsseldorf. **From 9 to 13 May 2022**, wire and Tube Düsseldorf, the leading trade fairs for the wire, cable and pipe industries, will take place once more. Use this international platform to successfully market your machines and systems, products, innovations and manufacturing concepts. As the 2020 edition was cancelled due to the pandemic, we're sure everyone will be firing on all pistons for this trade fair.

The numbers for the previous wire and Tube 2018 speak for themselves: over 72,248 professional visitors from around the world gained information on pioneering industry trends and technology from 2,683 exhibitors. These figures confirm wire and Tube Düsseldorf's international value in the wire and cable industry and in the pipe industry.

As you exhibited at the previous event in 2018, we are offering you an easy online registration option. You only need your customer and order numbers and your online ordering system password for wire or Tube 2018. If you want to reserve the same stand that you had in accordance with the previously planned event in line with the November 2019 permit (for wire/Tube Düsseldorf in March 2020), simply confirm this during the registration process. You thus renounce your claim to an additional placement proposal.

You can register now by visiting -
www.wire-tradefair.com/visit/4273/2/MPAGE62051

How it works: Click on the online registration area for previous exhibitors on either the wire.de/2330 or tube.de/2330 internet site. Enter your access code here and, just a few seconds later, the pre-filled registration form containing the data from the previous event will appear. If you have forgotten your password, please contact our hotline on **+49 211 4560 400** or onlinesupport@messe-duesseldorf.de.

Please note that we can only allot your previously reserved stand if you register within the deadline. We will take your wishes on the stand locations into account as best we can but we do state that they may change due to technical planning reasons, and we therefore cannot issue any binding confirmations before the end of the registration deadline.

Layout planning begins on 01.07.2021.

We wish to state that the product categories for wire and Tube 2022 have been revised, and differ from the layout for the previous event (2018).

Further information on the global wire and Tube events organised by Messe Düsseldorf can be found at wire.de and tube.de. Should you have any questions, please do not hesitate to contact us.

We are already looking forward to successfully collaborating with you and await your registration for wire and Tube 2022.

Yours sincerely,
The wire team and the Tube team



Dates for the 2021/2022 wire exhibitions

As a wire industry partner with Messe Düsseldorf GmbH, the IWMA attends the biggest international exhibitions and offers attending members great support through its stand at the shows and industry networking events. Visit www.iwma.org to find out more.



**8th – 10th
June
2021**

wire Russia,
Expocentre, Moscow



**31st August –
2nd September
2021**

Wire Show,
Shanghai New International
Expo Center (SNIEC)



**5th – 7th
October
2021**

wire South America,
Sao Paulo Exhibition Centre



**26th – 27th
October
2021**

Interwire 21,
Georgia World Congress
Center (GWCC)



**9th – 11th
February
2022**

wire Southeast Asia,
Bangkok International Trade
& Exhibition Centre (BITEC)



**9th – 13th
May
2022**

wire Düsseldorf,
Messe Düsseldorf



**26th – 29th
September
2022**

wire China,
Shanghai New International
Expo Centre (SNIEC)



**23rd – 25th
November
2022**

wire India, Bombay Convention
& Exhibition Centre (BCEC)

Metallic Wire & Cable: Time to retrieve what was lost



By Michael Finch, Head of Wire and Cable

In CRU's Wire and Cable team, we maintain a global Base Case scenario in which the ongoing vaccine rollouts will be effective in gradually containing Covid-19 across most major markets from Q2 onwards. More specifically, in Europe and the USA, we expect considerable lockdown easing starting in Q2. Consequently, we anticipate a modest market rebound in H2, as downside risks decrease and allow for more spending in cable end-use sectors such as automotive. Until Covid-19 is contained, we expect limited short-term disruptions in the manufacturing sector as worker infections decrease plant utilisation rates.

In terms of the eventual demand recovery, we maintain a view that it will take until 2022 for global cable consumption to exceed 2019 levels on a volume basis. This is true across all major cable types, being winding wire, power, LVE, and internal telecom/ data cable consumption. In terms of value, it will only take a year to reach 2019 levels of consumption due to the expected copper and aluminium price appreciations.

The key takeaways of CRU's recent Wire & Cable market Outlook are summarised below:

	Vaccine rollouts raise hopes across the globe	In our Base Case forecast we expect vaccine rollouts to be effective in gradually containing Covid-19 across most major markets from Q2 onwards.
	China to maintain healthy demand in 2021	After a rapid recovery in 2020, cable consumption will remain robust in 2021 as infrastructure projects materialise.
	European recovery will continue this year at varying paces	Cable producers' improving orders are expected to continue in 2021, on the back of stronger end-use demand.
	North American cable demand is a divided story	The US has remained the regional market leader, with cable demand remaining more resilient than in Mexico.
	Japan will remain NE Asia's weakest point in 2021	It will take until 2024 for the Japanese market to recover. The remaining markets will further strengthen in 2021.
	Cities and renewables drive the medium-term highlights	Urbanisation in India and the renewable energy transitions in Germany and the UK are the cable market's mid-term highlights.
	The copper to aluminium price ratio will increase in 2021	The faster expected appreciation of copper means the price ratio between two metals will reach 3.7 this year, a multi-year high.

Optical Fibre: Brighter skies ahead as market turns a corner

For almost all countries of the world, 2020 represented a period of weakened demand, price declines and squeezed margins.

It was a tough year to say the least. The Covid-19 pandemic stifled cable deployments in key telecom nations and dragged down profitability at carriers. However, a number of silver-linings have also come to surface, such as increasing investment in fixed line networks alongside more ambitious FTTH programs. These positive drivers of demand, alongside a re-balancing in China are beginning to provide optimism and suggest that the market has turned a corner in early-2021.

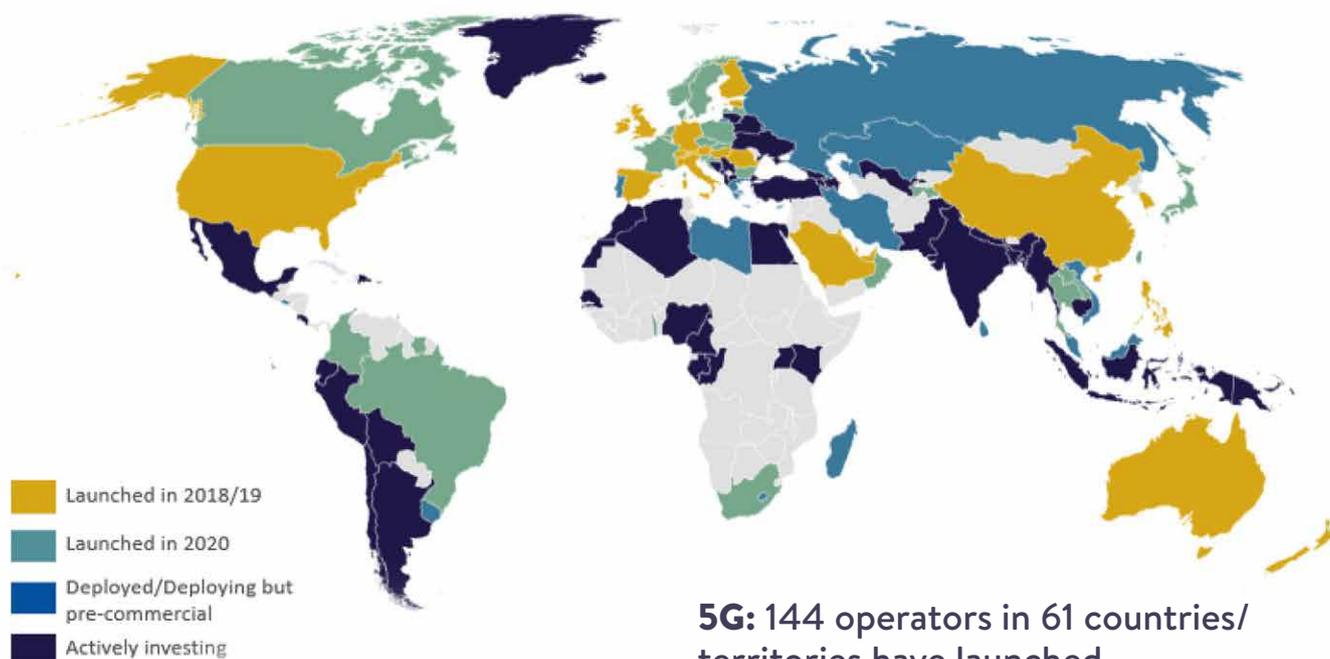
Indeed, anecdotal evidence suggests bare fibre inventory levels in China could be fast approaching zero, which alongside a return in demand growth will help stabilise the market somewhat. We have seen a strong bounce back in cable demand in India and Brazil, alongside persistent growth in deployments across the US, for example. Increased funding for fibre networks in France, as well as ambitious FTTH programs in Germany and UK will also support a recovery in European cable demand this year.

Furthermore, following on from the impressive gains in January, CRU's Global Fibre Optic Cable Index (FOCI) strengthened once more in February, hitting the all-time high of 114.2,

and suggesting global market conditions are improving at a much faster rate than in January. Much of the underlying strength can be attributed once again to North America (128.2). However, this is the first month on record where all five regions experienced expansion. The laggard being South America, which recorded just a marginal improvement at 101.9.

In terms of fibre demand drivers, despite the global pandemic, 2020 will probably be remembered as the year when the world took a leap forward in terms of 5G development. The latest GSA update in February shows 144 operators in 61 countries/territories have launched commercial 3GPP-compatible 5G services. This number was just 56 operators in 31 countries/territories at the end of 2019. Moreover, 413 operators in 131 countries/territories are actively investing in 5G networks. Among those, 65 operators are investing in Standalone (SA) 5G networks.

We cover the above and more detailed research in our Metallic Wire and Cable Market Outlook and Telecom Cables Market Outlook. Here we include demand, supply (plant by plant), trade and price forecasts for the next five years broken down by major regions and countries.



5G: 144 operators in 61 countries/territories have launched commercial 5G services

As good as new again – or even better. NIEHOFF modernization.



During the design and manufacturing of its equipment, NIEHOFF focuses on advanced technology, quality, reliability, robustness and durability. That is the reason why NIEHOFF machines that have been in operation for decades are also worth a **modernization** performed by NIEHOFF specialists.

These professionals have access to well-maintained and original documentation, and thus to all pertinent data. Because of their experience and expertise, NIEHOFF specialists can handle all customer-specific particularities. This applies practically to all NIEHOFF machines including any modifications made to them by customers. The spare parts needed for reconditioning are produced in house on cutting-edge machining centers to OEM quality, and thus meet the same high requirements as parts for new machines.

Our technicians inspect the machine or line in question on site and analyze the specific increase in efficiency, which can be achieved by a **modernization**. The measures will then be done at either the customer's site, on the shop floor at NIEHOFF facility or at a NIEHOFF subsidiary with its own manufacturing. After completion of the **modernization** measures, the machines or lines are not only "in mint condition", but often show higher productivity than before. In most cases, **modernizing** NIEHOFF machines even after decades of use is therefore worthwhile. Allow us the opportunity to evaluate your modernization needs.

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Walter-Niehoff-Strasse 2, 91126 Schwabach, Germany
Phone +49 9122 977-0/Fax +49 9122 977-155
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Manufacturing larger dimensioned strands for power cables

Niehoff's new stranding machines series ready for industrial use

Maschinenfabrik Niehoff has launched its latest developments in stranding technology – another three types of double-twist stranding machines for spool sizes up to 2000 mm. The new models D 1252, D 1602 and D 2002 are now presented by Niehoff, after having passed intensive field tests done by renowned cable manufacturers. Niehoff designed the new stranders, among others, for the manufacture of conductors with a uniform lay direction (“unilay”) and a strand cross-section of 6 mm² to 500 mm². However, cable producers have the option to manufacture also other products such as flexible control, connection and motor cables on the new double-twist stranders.

The D 1252 model was the first of this new series to be ready for use in 2018. It is a consistent further development of Niehoff's proven D 1251, being fully equipped with a new SIEMENS control and a SIEMENS HMI. To date, Niehoff has already delivered thirteen D 1252 type stranders to the wire and cable industry. The second model, the D 1602 strander, is designed for 19 wires class 2 conductors and class 5 conductors of up to 150 mm² while the third model, D 2002, being combined with an external rotating capstan type PTD 1000 can be used for all larger constructions, such as those with up to 61 wires and a maximum cross-section of 500 mm² when manufacturing aluminum conductors, and 400 mm² for copper conductors. The new stranders enable the conductors to be compacted by means of a compacting die with interval lubrication, making a compacting degree of up to 13 % possible. To ensure proper laying, all three models are equipped with a laser-controlled flange detection system (NBAT).



Fig. 1. Niehoff has already delivered thirteen D 1252 type double-twist stranders

Niehoff put great emphasis on optimizing the conductor path in the new machines. For this reason, on the one hand all rollers and capstans got large diameters, and on the other hand a straight path from the second pulley to the capstan was designed contributing additionally to a high conductor quality. Moreover, ergonomic criteria played an important role in the machine design, now making the operator's work easier and more ergonomic since the machines' working height is 1300 mm.

Like all other machines of the Niehoff D series, the new models also feature the energy-saving one bow design being absolutely successful in the field. The machine equipment of all double twist stranders additionally includes an energy efficiency class IE3 rotor drive and a controllable fan drive in the soundproof cabin. Niehoff has managed to increase production safety and to simplify maintenance for the D series even more by using wireless telemetry for all signals.

The machines are operated via a network-compatible Human Machine Interface (HMI) interface with a color touchscreen monitor called NMI (NIEHOFF Machine Interface). Consequently, operators benefit from information, instructions, maintenance advice, stored recipes and system status messages being displayed on the screen in the language of the operator.

A number of sensors monitor the quality throughout the stranding process, such as the temperature of the rotor bearings and the vibration of the rotor. The sensors enable production parameters to be recorded, documented and evaluated in accordance with Industry 4.0 allowing a continuous proof of quality. Simultaneously, this database is also suitable for proving the consistently high quality of the products e.g. in customer audits.



Fig. 2. Detail of a D 1252 type double-twist strander

Pakistan Cables - Cabling the Nation



Fahd Kamal Chinoy

Pakistan Cables Ltd has grown with Pakistan, and today its products are in every part of the country. We spoke to members of the family dynasty that has helped to shape modern Pakistan.

Counterfeit cabling is a problem around the world, but one manufacturer has come up with a simple solution: each of its cable packs contains a scratch-card, which reveals a hidden code that can be checked online to ensure the cable is indeed genuine. The manufacturer is Pakistan Cables Ltd, based in Karachi, which has a long history of innovation and public spiritedness. The anti-counterfeiting measures, for example, ran alongside a series of prominent advertisements with a public information warning that poor quality, counterfeit cable can result in fire and loss of life.

“Pakistan Cables counterfeits are sold rampantly across major electrical and hardware markets,” says CEO Fahd K Chinoy. “It’s a segment of the market that goes unchecked, so the verification system offers greater peace of mind.”

In an earlier example of public spiritedness, the company – uniquely as far as we are aware – also found a second use for its largest cable drums: as citywide artworks.

As it documents in its freely-downloadable book **A Reel on Karachi,**

www.pakistancables.com/media/20562/pcl-areelonkarachi.pdf

some of its larger drums are now art installations dotted around Karachi. The project, in 2016-17, brought together dozens of local artists: “It embodied everything we, as a company, aspire to. We wanted the reels to serve as symbols of the intertwining of industry and the society in which it operates,” explained PCL’s then-CEO, Kamal A Chinoy – younger son of the founder of the Amir S Chinoy Group, now a senior member of the family dynasty that runs Pakistan Cables and other group companies. His eldest son, Fahd, took over as the Company’s CEO in 2019. As the largest cable manufacturer in the country, Pakistan Cables has been a key national business.



Mr. Kamal A. Chinoy with a Director planting a tree





Upcoming factory at Nooriabad

“We have played an integral role in the building of modern Pakistan,” asserted Fahd K Chinoy, “Over almost seven decades, our products have been used in landmark projects in Pakistan’s buildings and institutions, and we have supplied most major government and private projects.”

Currently the company has a large contract for the 900 MW, gas-fired Bin Qasim power plant in Karachi, and it previously supplied most of the cabling for the New Islamabad International Airport and the Multan International Airport. Pakistan Cables was also the only local cable supplier for the deep-water container terminal owned by Hutchison Ports Pakistan.

“We also supply cables to new housing developments across the country – we are the preferred supplier to the corporate and builders & developers’ sectors,” explained Fahd K Chinoy. Built into the fabric of the Pakistan Cables business model are values about environment protection, education, health and social development, and an impressive list of examples shows the company reaching out to the wider community. There have been lamps for deprived mining communities, clean water projects, training centres for the differently-abled and more.

Most recently, the company joined the Karachi Relief Trust in helping communities worst-hit by the Covid-19 crisis, donating a substantial sum and running a public awareness campaign to encourage anti-Covid measures: “This has been a time for the business community to respond with a higher sense of duty,” explained Fahd K Chinoy.

The company has also planted over 40,000 trees in the urban forest that is part of its upcoming manufacturing plant at Nooriabad. A national first on an industrial estate, the forest was designed to be a self-sustaining ecosystem with an ambition to support global calls for climate change.



Inside view of the Pakistan Cables Urban Forest

In 2017, Pakistan Cables responded to Pakistan’s growing young population – almost two-thirds of the nation is under 30 – with scholarships for young engineers, helping students to fund their way through engineering and technology graduate degrees; while last year the company also organised internet-based learning sessions for university engineering students.

Founded in partnership with the British Callender’s Cable Company – BICC – in 1953, and quoted on the country’s stock exchange two years later, Pakistan Cables has exhibited steady growth through a combination of foreign affiliations and quality products, all of which bear its “trusted not to compromise” motto.

“Our affiliations have allowed us to enhance our technical support, introduce the latest technologies and management practices and respond to opportunities,” explained Kamal A Chinoy.

Other partners have included US giant General Cable (2010-2017) and current partner CTC Global, the latter leading to Pakistan Cables' introduction of CTC's Aluminium Conductor Composite Core (ACCC) cable to the region. This product carries a third more current than similarly-sized steel-core types – ideal for a home market with growing power needs.

The company's statistics are impressive, and a long list of awards and regional "firsts" litters its timeline: Pakistan's first medium-voltage cables, first XLPE cables, and so on. Pakistan Cables turns over USD 75 million a year and operates nationwide through 190 cities and towns, making it one of the country's top 25 companies. It has been the country's brand of the year twice, has many export and brand trophies and two years ago won a Pakistan consumer award. The company's general wires are in virtually every town and city in the country and the company even has a loyalty club for electricians, offering prizes to loyal repeat users.

"We supply to every active sector," explained Fahd K Chinoy. "In recent times we have been selling heavily to the textile, cement, steel, sugar, automotive and pharmaceutical industries; we tend to get a large share of whichever industry is active."

Along with this has gone a desire to keep Pakistan Cables at the cutting edge of management and technology: ISO and international product certifications; Pakistan's first maker of Low-Smoke Zero-Halogen cabling; KEMA testing, and it is the only Pakistani cable manufacturer with a multi-award-winning online store that sells directly to consumers.

Few companies are thriving in the international pandemic, however: Pakistan Cables is affected by lockdowns and a slump in construction like everyone else.

Fahd K Chinoy is upbeat: "We are cautiously optimistic there will be a quick rebound. There's currently major government emphasis on construction-driven growth, for example, with several initiatives expected to drive growth for the next five to 10 years – all strong indicators for wire and cable."

Pakistan Cables is thus investing in new equipment and technology to support this expectation, and intends to maintain its role as a key supplier. The new manufacturing unit, which will expand capacity and product lines, is expected to be ready by 2023 – the company's 70th anniversary year.

"Pakistan is an emerging market," says Fahd. "We have been historically slow in investing in power generation, transmission and distribution, which resulted in years of severe load-shedding across the country. But in recent times there has been considerable investment in power generation, and this growth will continue to drive demand for grid-related products for years to come."

The company's extensive product line, which covers low, medium and high-voltage cabling and general wiring, telecoms, automotive and even submersible cables, draws on the company's own copper rod and aluminium extrusion plants and insulation from its own PVC compounding plant. The product range even includes fully-compliant DC cables for solar power – Pakistan is hoping to grow its solar and wind generating capacity

from three to 20 per cent of the total in the current decade. The company today is very much an impressive powerhouse on several levels, and the company's origins were, in some respects, equally impressive.

Pakistan Cables was established by visionary entrepreneur Amir Sultan Chinoy, a Bombay businessman who, after his marriage in 1948 – when he was 27 – emigrated to the newly-created Pakistan and set up Pak Chemicals, Pakistan Cables and steel-pipe maker International Industries Ltd, helping in the process to pioneer the industrialisation of the new nation. The group added a new company, International Steel Ltd, in 2007.

Today the group has over 3,600 employees and annual turnover of around USD 479 million and is still headed by family members, all extensively educated in business and replete with experience gained in running group companies, all keen to maintain Amir Sultan Chinoy's guiding principles of education, development and management.

A celebrated entrepreneur who helped to establish Pakistan's modern business community, Amir S Chinoy gave back to hospitals, universities and other institutions throughout his life – something the group still maintains. He died in 1998, leaving the Chinoy dynasty of two sons – Kamal and the eldest, Mustapha, the current Pakistan Cables chairman – two daughters and 13 grandchildren, dispersed worldwide.

As for the future, more overseas sales are in the company's plans. Pakistan Cables has historically been focused on the domestic market, but in recent years has attracted a lot of international interest.

"These are still early days in our export journey," says Fahd, "but we have had considerable success in developing new markets in Africa and the Middle East, and even as far away as the Caribbean. It's our ambition to become a major exporter of wire and cable in the next five years."

On current form, it would seem foolish to bet against them.



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Mikrotek Machines Still going strong..

In the past 30 years Bangalore, India manufacturer Mikrotek has secured a strong reputation for its diamond and polycrystalline dies.

The company, founded in 1993, uses state-of-the-art machinery to create intricate, highly accurate dies and has specialised in the creation of polycrystalline dies that make drawing operations more accurate and smooth.

Mikrotek is now going a step further with the introduction of SMP dies – Special Mikrotek PC.

These specialised units use specially-chosen, high-accuracy blanks selected for their intended materials, heat generated while drawing, required surface finish and drawing speed capabilities, with the profile customised to the customer's needs.

Available for drawn sizes of 0.025-2.5mm, with standard grain sizes of 5, 10 and 25microns (and soon, 1 and 3 microns), SMP dies have a dual reduction angle to improve lubrication flow, an optimised physical construction to improve heat transfer and

reduce wear, and use only fine-grain PCD blanks, which are less expensive but as hard-wearing and accurate as TCS blanks.

The new forms offer extended life, the ability to be recut beyond the recommended size, fewer breakages and cracks across many kilometres of drawn wire and excellent roundness retention. Mikrotek dies are used by major manufacturers around the world, sales being driven by the company's continual research and development efforts.

“When it comes to cables and wires, every input component is vital,” said sales manager R Manjunath.

“The die for wire drawing is one of the smallest components in the chain, but the smaller the size, the greater its impact on the quality of the output”.

“We recognise the importance of uninterrupted production, waste-proof drawing, the speed of drawing and the resulting quality of the wire. The stability of the quality makes the die so dependable that the user can work with confidence that there will be no surprises or shocks.”



In these difficult times going through a pandemic, it is ever more important to be using the correct lubricant in the application of drawing and rolling as well as having the required technical support from the supplier.

Many manufacturing sites are considered essential and remain in operation, but like all workplaces, they are required to adhere to strict social distancing measures to keep employees safe. This can include the splitting of shifts or even the furloughing of staff to reduce the number of employees at one time. Therefore, many manufacturing sites do not have the full complement of staff and engineers to fully support operations as they would under normal circumstances.

At Q8Oils, we work closely with customers to obtain the best performance from their lubricant giving the user support, production reliability, cost savings and confidence to achieve sustainable growth.

Q8Oils QCare technical services covers all aspects of the application support, control and maintenance of lubricants for metal manufacturing applications. In addition, these services enable the customers to comply with worldwide chemical and environmental legislation.

Q8Oils is pleased to have made an important contribution to a new guide on good practice for the safe handling of metalworking fluids in the workplace, this was produced by the United Kingdom Lubricants Association (UKLA) in partnership with the Health & Safety Executive (HSE).

“The Good Practice Guidance for Managing Metalworking Fluids”, second edition has been compiled by a special advisory panel of the UKLA’s Metalworking Fluid Product Stewardship Group, the HSE, industry experts, with additional advice from experienced factory managers and medical experts. Stuart Duff, business development manager, and Matt Bloomer, technical services manager, represented Q8Oils as key members of the advisory panel of industry experts set up to compile the guide. Stuart Duff comments: “Q8Oils has long been committed to promoting the safe handling and best working practices for all our metal manufacturing products. We were delighted to share with the panel our Q8Oils Engineers Guide on managing metalworking fluids, which provided a strong foundation for developing the new guide, with additional contributions from other panel members. This is an excellent initiative and a great example of industry professionals working together to share knowledge and experience to improve safety for the benefit of emulsion end users.”

The new, second edition guide is the result of further more detailed in-depth discussions within the advisory panel on every aspect of the safe handling, maintenance and disposal of metalworking fluids. The guidelines apply for all emulsions, including drawing and rolling emulsions with additional content for neat oils. In addition to practical guidance on safe use, they highlight employers’ responsibilities under the Control of Substances Hazardous to Health (COSHH) regulations, including the requirement to record details of any fluid checks for 5 years and employee health records for 40 years.

Download the free document at: www.ukla.org.uk/wp-content/uploads/UKLA-HSE-Good-Practice-Guide-for-Safe-Handling-and-Disposal-of-Metalworking-Fluids.pdf

To find out how Q8Oils can assist you and your production in drawing, rolling and removal applications then contact us at sdu@Q8.com

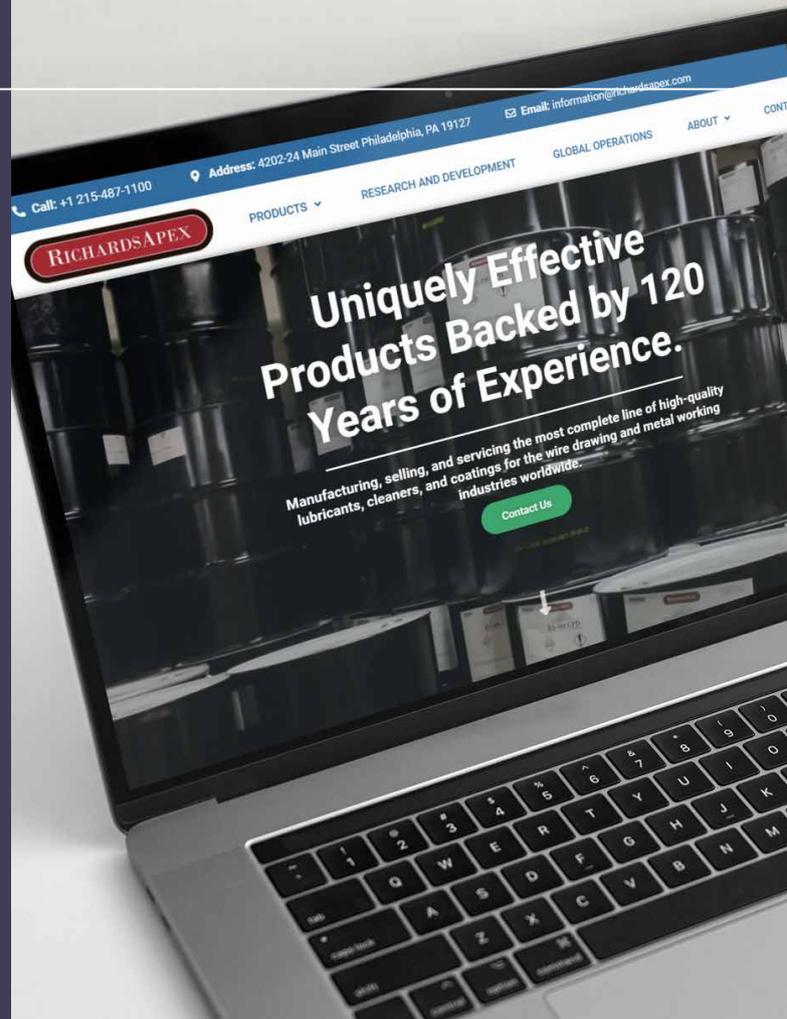
RichardsApex Inc. New Website Launch 2021

RichardsApex Inc. is excited to announce the launch of our new website! After a year of hard work by our dedicated IT Team, the new site will officially launch on January 01, 2021. The URL is www.richardsapex.com.

The goal of our new website is to provide our valued customers, prospects, and the industry we serve a more user-friendly platform to access helpful product data and information. We also hope this new site will give you a better idea of who we are, the depth of our knowledge and commitment, and our global reach. Some of the key improvements are:

- Enhanced product listings and details.
- Available on mobile platforms.
- Multiple languages with more to come.
- Easy access to industry links and information.

We thank you for your business over the years and look forward to continuing to provide our customers with quality products and service. If you have any questions, comments or feedback, please contact us at <https://www.richardsapex.com/contact/>



New WAI president welcomed, and new dates set for Interwire 2021



The global Covid-19 pandemic has caused the Wire Association International's main annual exhibition, Interwire, to be put back from May to October 26-27, 2021, once again at the Georgia World Congress Center in Atlanta.

The vote came after months of deliberation by the WAI board, the final October date offering a 22-week buffer to allow the likely increase in coronavirus vaccination to result in the relaxation of international travel restrictions to the USA.

The new format shortens the exhibition by half a day to two days, but longer exhibition hours are likely. Details will be available on the event website, www.interwire21.com. The rescheduled event is a sign of a return to business as usual for the association, which last year saw the cancellation of both the WAI Operations Summit & Wire Expo 2020 in May and its International Technical Conference in October.

Newly-appointed WAI President Thomas Heberling said of Interwire, "We are committed to producing a safe event. I'd like to encourage decision makers at all the manufacturers and suppliers to show renewed support for the industry to again meet in Atlanta."

Mr Heberling took over as president and chairman of the WAI board on January 1. In his daily life he is the well-known vice president of wire & cable manufacturing at Southwire, his employer for over three decades.

A WAI member since 2010, he has already served the association in several areas, including a crucial role as co-chair of its member relations committee from 2012–2014, reshaping the educational products serving the industry, and strengthening the value of association membership. His work was honoured with the WAI President's Award in 2017.

Heberling became a WAI Director in 2017 and has served as an executive committee liaison to multiple committees. As well as WAI president he will also act as chairman of its conference programming and executive committee liaison Oversight Committee.

He said, "I am committed to do what I can to help 2021 be a successful year for our association – which will include a successful WAI Interwire program in the fall."

The WAI is governed by a worldwide network of volunteers. Joining the new president this year executive committee members: First Vice President James R. York (Insteel Industries); Second Vice President Daniel Blais (Prysmian Group), Immediate Past President Jan Sørige (Enkotec Co Inc) and Executive Committee members Eric Bieberich (Fort Wayne Wire Die Inc) and Kurt Breischacht (SDI LaFarga Copperworks).



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New products from Bar

Bar Products and Service Ltd of Bradford UK has introduced a new strand compactor for cable sizes far smaller than those normally processed by roller-based machines.

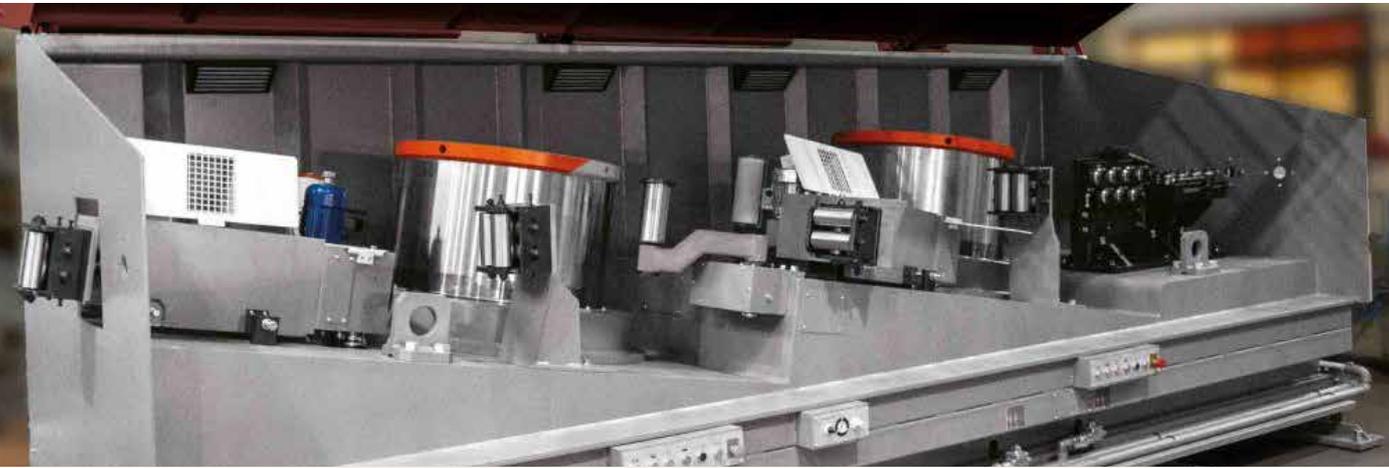
Bar's roller-compactor range can handle cable sizes up to 40mm and is sold all over the world, but the new Micro Compact roller machine covers, as it suggests, delicate cables down to only one millimetre in diameter.

Roller compaction is a popular alternative to die compaction because it causes less surface damage to strands, generates less heat and has a deeper effect on strand deformation.

The launch is already proving successful, with interest from companies worldwide, and several sales.

"Our existing range has covered the majority of sizes for compacted strand for many years," said sales director Glenn Rika-Rayne, "but very fine strands haven't really been catered for. The new machine corrects that."

The Micro Compact system is designed for simple installation, with short set-up times. More information from www.barproductsandservices.com



EJP expands holdings in international wire industry

German manufacturer EJP Machines spent 2020 expanding its holdings to reach early 2021 with a complete portfolio of machines covering wire rod to finished coil.

The Baesweiler, Westphalia company, north of Aachen, began in February 2020 by founding new company EJP Wire Technology with experienced industry figure Lothar Köppen. Köppen is managing director of the new company, which supplies machines and process technology for wire pre-treatment.

EJP also signed an agreement with Polish machine-maker Italmec to market wire drawing lines. The co-operation has been so successful that EJP has bought a substantial share in Italmec, to bring the Katowice-based company into the EJP Group. In January 2021, EJP added a shareholding in Italian company WWM Technology Srl, a specialist producer of products for welding-wire manufacture.

EJP Machines managing director Jacques Paraskevas said the expansion was a "logical step" towards becoming a complete process solution for the wire industry: "We now combine German engineering with production in Katowice, which means we can supply machines for the complete process chain of wire production.

"Through participation with Italmec and WWM, we are now one of the few suppliers producing complete plants for the entire wire process chain, and at the same time have a global sales and service network."

EJP Machines was formed in 1981 to design, produce and sell production lines for making bars, tubes and profiles. Today EJP is the only supplier of Germany-produced combined drawing machines.

The main plant in Baesweiler has 49 employees and there are subsidiaries in Poland, Italy, South Korea and China employing another 200 people.

New company EJP Wire Technology is based in Schwerte, Germany (about 140km away from Baesweiler, near Dortmund) and makes equipment for wire pre-treatment; Italmec produces drawing machines and peripheral equipment; EJP-TOSCA makes shot-blasting equipment, EJP Italia provides wire butt-welding equipment and WWM makes machines for wire welding production. Italmec makes all the company's wire-drawing machines.

Force Measuring Systems AG of Switzerland celebrates the success of an upgrade project for Leoni in Germany

Leoni – one of the world’s leading providers of products and services for energy and data management in automotive and other industries – asked Swiss engineering services company Baremo to update a large Niehaus variable reverse-rotation planetary strander at its Georgensgmünd, Germany, factory.

The 18-spool Niehaus machine, with two cages of six and 12 payoffs each, had previously been updated in various areas, including the installation of a control system.

The upgrade was designed to go a major step further by offering an increase in plant productivity by automatically controlling wire tension throughout the manufacturing process – even for very-low-tension wires in the 2N-20N range.

Leoni also wanted fast recipe management for reduced set-up time, high-grade data acquisition for consistent quality, better



machine safety by monitoring the locks on all cradles, and a simple operating procedure for machine operators and auxiliary staff.

The requirements were met with an FMS model RTMX42 telemetry system, which could provide the necessary continuous wire tension control.

The system is made up of three parts: a basic module to monitor the tension of up to 42 separate wires; a control centre to display values, recipe management and quality protocols, and a brake control unit offering automatic wire tension control.

Leoni’s Klaus Falkenberg, a senior Leoni process engineer, said: “Our goals have been achieved and the project went to our entire satisfaction.

“The co-operation with Baremo, as well as with FMS, was target-oriented and professional. We are very satisfied with the results.”

Joachim Uhing marks the 20th anniversary of one of its smallest products – the plastic-bodied Kinemax KI-6 rolling ring drive

Uhing rolling ring drives are made near Kiel in northern Germany. Well known throughout the industry, they are used in dozens of applications all over the world from food production lines to the Antarctic, where one model is used to lay cable on a large spool, outdoors, in ultra-low temperatures. The company’s largest rolling ring drives have an 80 mm shaft and a maximum sideways thrust force of 3,600Nm.

The company also recently sold its 100,000th unit of one general-use model, the RG3-15, and others have reached a similar sales volume since the company was founded in 1943.

The KI-6 offers a similar 15mm-shaft specification to the RG3-15, but is compact and weighs only 280g. The Kinemax KI-6 was introduced for short-stroke and low-force applications and found many buyers among manufacturers with light applications in tight spaces.

Kinemax KI-6 is available as the gear head or complete drive assembly, with reversal mechanisms and mounting facilities as versatile as its larger brothers. Its maximum pitch of 6mm makes it ideal for the precision spooling of lighter wires.





Left-Right Adam Shaw, Tom Mander, Mark Venables and Andrew Du Plessis (all Alloy Wire International)

New Board of Directors announced as AWI aim to maximise £3m investment

One of the UK's leading manufacturers of round, flat and profile wire has strengthened its senior management team (SMT) with three key appointments.

Alloy Wire International, which celebrates 75 years of manufacturing in 2021, has promoted Tom Mander, Andrew Du Plessis and Adam Shaw as Managing Director Designate, Technical Director and Finance Director respectively.

The trio will work with the current SMT to help the company in the next stage of its development, as it looks to maximise a £3m investment in material, new drawing machines, spooling equipment and office/factory improvements.

AWI has remained open throughout the pandemic, utilising its Emergency Manufacturing Service to supply wire to customers supporting the build of Nightingale Hospitals and other Covid-19 efforts across the world.

Mark Venables, Managing Director of Alloy Wire International, commented: "We have built an incredible business that is a world leader in the supply of exotic alloys and it is vital that we have a succession plan in place well in advance, so we can build on recent growth and take advantage of new opportunities in both the UK and overseas.

"In Tom, Andrew and Adam we have three experienced professionals who are hungry to carry on the AWI journey and have fantastic skills in their specialist areas of sales, business strategy, finance and technical and quality.

"They will continue to learn from the three existing Directors and also be encouraged to bring their own ideas and vision to the table. This is an exciting development for the business and one I hope that all of our staff, partners and customers will support." Alloy Wire International currently supplies in excess of 5000 customers involved in automotive, aerospace, defence, medical, nuclear, oil and gas and renewables.

A 60-strong range of exotic alloys, including Phynox, Inconel and Hastelloy, is available from 0.025mm (.001") to 21mm (.827") in small batches or medium/large volume – all within a three-week timeframe.

Strong demand has come from the Far East, Eastern Europe and Australia, with a number of new international sales agents appointed in Russia and Singapore to explore new opportunities. Tom Mander, Managing Director Designate, concluded:

"Despite all of the issues of Covid-19 and Brexit, we maintained strong sales and invested in ensuring we had the right levels of stock, new equipment to increase efficiencies and made plans for innovations to our service.

"These qualities are what makes AWI so special and we want to build on these as we plan for the start of the next 75 years."

For further information, please visit www.alloywire.com or follow Alloy Wire International on LinkedIn.

Characterizing HVDC Cable Joints



Land cables typically need several premanufactured joints, ready to be installed in the field. The installation length of land cables is limited by the weight of the cable and transport constraints. Cable lengths on land tend to be shorter than in submarine installations.

For submarine cables different factors limit length. They are given by the ability to extrude a quality cable continuously over long periods, as well as the testing and storage capacities. Such factors, under control of the manufacturing site, finally determine installation lengths. Therefore, it is common to install joints at the cable factory itself, using flexible joints (or factory joints).

Knowing the joint types

Because joints are a crucial part of cable constructions, their installation and insulation integrity must be ensured. Design requirements and quality assurance for extruded high voltage AC cables and joints are well established and governed by IEC standards and CIGRE recommendations. For extruded High-voltage DC cable systems, the story is different. Extruded HVDC cables are relatively a new technology, with only 20 years of service experience in comparison with the approximately 100 years for paper-oil cable systems. This puts additional demands on design, quality assurance as well as development testing for extruded HVDC cables systems.

Characterizing the DC requirements

The main difference between AC and DC cable applications is the material parameter governing the electric field distribution in the insulation system. Permittivity controls the electric field for AC, whereas conductivity controls the field for DC. Physical cleanliness (i.e. the number and size of particles in the insulation system) is as important for HVAC as it is for HVDC. A particle will increase the local electric field in the vicinity. Chemical cleanliness, which encompasses peroxide decomposition products, antioxidants and other additives intended to improve processing, becomes important for DC applications. Any addition tends to augment the conductivity of the insulation.

Characterizing both materials and processes in respect to influence on conductivity is paramount for the development of HVDC cable systems. For instance, the ability to measure the amount of peroxide decomposition products with HPLC (High Performance Liquid Chromatography) as a result of curing a particular material and linking this to measurements of the conductivity is a powerful skill. It provides information both on the insulation material used for the joint as well as the curing procedures and need for degassing that follows.

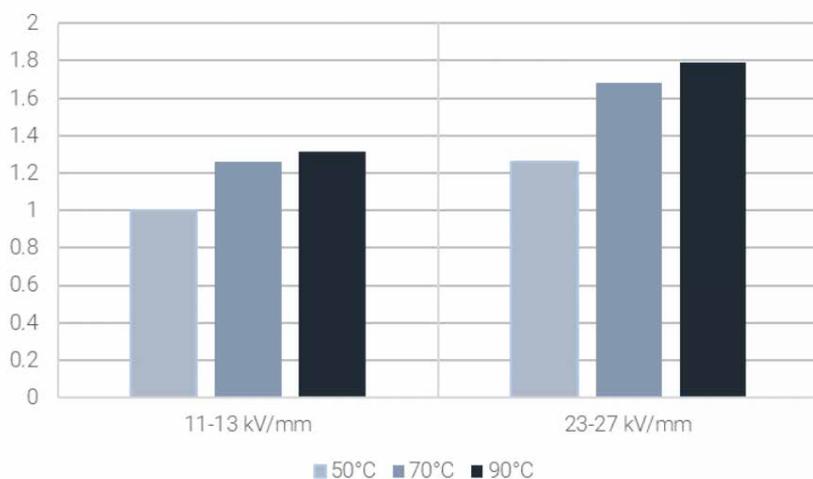


Fig. Relative conductivity in extruded cable.



Leading lubricant specialist Metalube Ltd has made a significant investment by introducing a new customer relationship management (CRM) software across its business - Salesforce.

This latest online platform is a scalable CRM system that aims to transform the business model, allowing the company to manage a 360-degree customer service channel from one dashboard. It will reduce customer response time and enable Metalube to build further its client relationships and stay competitive in a market where expectations are rising fast. Salesforce will enable Metalube to efficiently track products and orders, improve communication and anticipate the needs of customers more efficiently.

Commenting on the new system, Matthew Buffin, Commercial Manager says: "This Salesforce investment will help us to not only increase sales and reach more customers but more importantly improve our all-round customer service. The advanced analytics, reporting and forecasting features are state for the art. We are confident that they will allow us to work more efficiently across the board."

METALUBE is part of the Bishopdale Group, a private holding company for a group of industrial lubricants brands – Metalube, Molyslip and UOP. The company exports 95% of its production to over 90 countries worldwide and has offices in Manchester, Dubai, Mumbai, São Paulo and Shanghai. From its headquarters in Irlam, Manchester the company has a fully integrated lubricant manufacturing facility, including new state-of-the-art laboratories.

victoria.hunt@metalube.co.uk
07551 235389



Saving energy with networked Continuously Variable Transmissions (CVT)

By Juan Carlos González Villar, Kabel.Consult.Ing

Electric drive technology is one of the most widespread industrial technologies. Globally, electric drives convert more than 6000 TWh of electrical energy into mechanical output, an amount equivalent to approximately 27% of global power production [Source: Siemens]. This is true in Germany as well, where industrial users account for 46% of total power consumption or approximately 250 TWh (900 petajoules). Seventy percent of this falls on electric motors and electromotive systems (175 TWh or 630 petajoules) [Source: ABB].

Let's take a quick look back. In 2015, European standard EN 50598 went into effect. It defines Ecodesign requirements for electric drive systems in low-voltage electrically driven machines. Accordingly, all products that utilize an appreciable amount of electrical energy must be evaluated for their efficiency or losses, respectively. But will this relatively young European standard be the final word?

What role will conventional drive technology play in the future in the context of trends like IoT and Big Data, Industry 4.0, Industrie du Futur, Piano Nazionale Impresa 4.0, Industrial Value Chain Initiative, Industrial Internet Consortium, and Made in China 2025?

Many current innovations depend on sophisticated sensors, generation and storage of data, edge and cloud technologies, and data transmission (including 5G). Statistical and mathematical algorithms, automation, and the emerging trend of artificial intelligence (AI) play supporting roles. In other words, a large portion of the functionality and associated customer benefits are realized through software and communication. This article from Kabel.Consult.Ing discusses how intelligent digital and energetic networking of a modular split-power CVT drive system on the "mechanical train side" can provide new functionality and increased value for machine manufacturers and operators.

Introduction to CVT technology

The use of mathematical and scientifically-based methods in the process of designing complex machines was first championed by Robert Willis (1800–1875) of Cambridge University and is one of the most important accomplishments of the late industrial era. During his time, he was a new breed of "engineer scientist" because he broke from the workshop tradition that had dominated mechanical engineering and embraced mathematics, engineering education, codification of mechanical practices, and scientific principals. With this new approach to mechanical design, Robert Willis greatly influenced generations of engineers.



One of those engineers was Geoffrey Joseph Abbott, who in 1935 applied for a patent on a "mechanical continuously variable transmission". So far, more than ten million CVTs have been sold around the world for use in industrial and especially automotive applications.

In 2004, the first German KfW energy efficiency prize was awarded to a twisted cabling machine that made use of a CVT process for production of wire cable (winding and stranding process). The jury included two luminaries of international energy research: Dr. Ernst Ulrich von Weizsäcker and Dr. Eberhard Jochem. By directing braking energy back into an on-site power network, the system reduced net power consumption by approximately 20%. During subsequent years, energy regeneration units (or the intermediate voltage circuit) have become standard equipment. With newer machines, where the unwinder (generator operated) and rewinder (motor operated) are energetically-linked via an intermediate voltage circuit, energy savings are known to be in the area of 40%. In 2014, Kabel.Consult.Ing filed for patent protection of its Electronic Continuously Variable Transmission. It brings together the achievements of the first three industrial revolutions and sets the stage for the era of Industry 4.0. In formula form: Industry 1.0 + 2.0 -> fundamentals, pioneer achievements; Industry 3.0 -> semiconductor technology, PLC programming, CIM; and Industry 4.0 -> automation of intelligent behavior, programming of algorithms using statistics and mathematics.

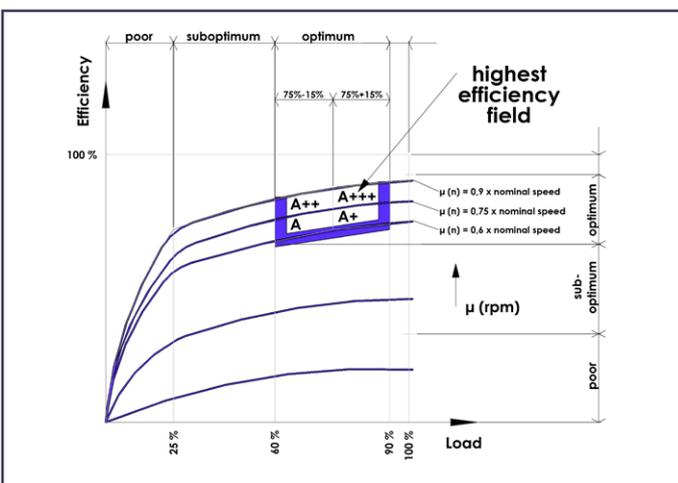
Research conducted at University of Technology Sydney and Hunan University Changsha (2018) likewise concluded that mechanical CVT drive technology is the most efficient and economical way to power large and small electric vehicles. Summary. Use of networked CVT technology can boost average efficiency of motors from well below 60% currently to 80% or even 100%, resulting in greatly increased total efficiency of motor- and generator-powered applications.

This results in minimized energy costs, maximized energy outputs, and ultimately to standardization throughout a production plant. From a macro-economic perspective, (networked) CVT technology makes a valuable contribution to “decarbonization” and lower CO2 emissions.

CVT processes have become common in high-speed applications in the cable, wire, and stranding industry (ribboning, braiding, shielding, twist stranding, binding, winding)

To remain competitive, manufacturers have for decades sought to accelerate production by continually increasing the speeds of their cable and stranding machines. Higher speeds result in tremendous centrifugal and Coriolis forces that impart tension into the rotating elements. For these reasons, engineers have until now focused on optimizing the drives. Little by little, purely mechanical drives have been replaced by electric and then mechatronic solutions. In the cable industry, twist stranding and central winding spinners are important components in this effort. Stranding machines, where twisting is accomplished with individual or group components or the cable itself, have been in vogue since at least the era of data cables (and no later than the hybrid cable era) due to their universality and variable ability to reverse direction. With twist stranding, the stranded elements are threaded through a stationary guide disc and fed to a (rotating) stranding nipple. As soon as the bound strands leave the nipple, a stranding rotor twists them together into a helix shape and guides them through a system of deflection rollers to the traversing spooling device. Theoretically, the product has reached its final condition long before the stranding rotor. This can be exploited by adding steps to the stranding process, such as filling with petroleum jelly, swelling powder, or talcum powder; insertion of insulation; longitudinal water sealing with film or tape; labeling; spinning with thread; and shielding with film, tape, or wire.

Central winding spinners are an important component of fiber optic cable stranding machines, on which the speed of an entire production line largely depends. A central winding spinner is used to twist a thread in a screw shape around the fiber optic cable. The spun material, e.g. aramid or cotton yarn, lies in the rotational axis and the cable is fed through the machine’s central opening. Next, during binding, the thread passes through a series of rollers, deflection rods, or thread guides, applying it to the cable in a helix shape. As the rotational speed of the central winding spinner increases, the cable machine’s line speed increases automatically.



Efficiency curve of a motor (Source: Kabel.Consult.Ing)

Until recently, having a refined CVT process with drive and control components optimized for the machines and parameters was decisive for boosting productivity and effectiveness of mechanical processes in cable production.

Intrinsic advantages of networked CVT drive technology

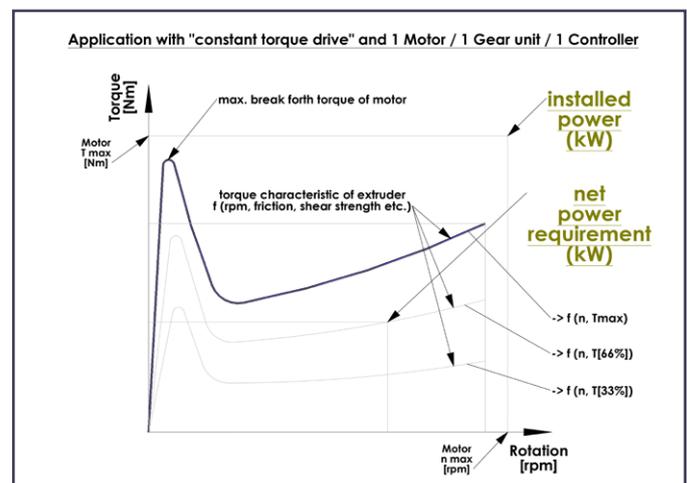
Conventional systems are characterized by “one motor, one transmission, one inverter” and follow European standard EN 50598. By contrast, a networked CVT drive consists of: at least one servo amplifier/inverter; two rotary current servo motors, rotary current asynchronous motors, or synchronous reluctance motors; and a planetary linkage via a heavy-duty timing belt. Substantially higher overall efficiency is the result. This makes it possible to use lower-output motors with reduced operating costs, leading to several intrinsic advantages:

- optimization of drive performance with a motor-driven application and therefore minimization of energy costs;
- optimization of generator output with a generator-driven application and therefore maximization of energy output;
- standardization of the drive components on an individual machine, in a single system or department, in the entire plant or company, in one industry, nationally and internationally;
- standardization of new services, products, and business models related to the IoT trend “networking and digital transformation in drive technology”;

The advantages of the overall drive system are the same as for all modularization efforts.

- For machine developers: lower development costs, economies of scale in production, multiple series of the same type, and consistent and therefore simpler assembly processes.
- For machine operators: the ability to exchange single faulty modules makes repairs fast and economical. Compatibility and reuse of components minimizes spare-part stocking expenses.
- Consistent modularity greatly increases clarity and acceptance both on the manufacturer (sales, assembly, startup, spare parts service) and user (purchasing, operation, maintenance) sides.

What role will classical mechanics and electronics play in the digital era? Networking and digital transformation, combined with business models based on new service opportunities are very important for any national economy. But solutions designed to boost sustainability of resources, energy efficiency, or the recycling economy will continue to grow in significance. Accordingly, mechanics as well as electrical, drive, and mobility technology will remain the heart of industrial production.



Typical characteristic curve from the cable industry (Source: Kabel.Consult.Ing)

Ideal-werk of Germany has introduced a butt-welding machine capable of automatically joining 14mm-24mm steel reinforcing wire.

The Lippstadt, Westphalia company's DD0 104 vertical welder offers high productivity and joint strength for the heaviest industrial uses.

The "DD" designation stands for "dual-force": the two ends of the weld are pressed strongly together during heating, forcing heat-affected material out of the weld to produce a cleaner, higher-strength joint.

The automated sequence begins with the positioning of the coil ends to be welded in a vertical jig. The wire ends are brought together, preheated and flash-welded without significant operator involvement, offering the highest possible joint tensile strength.

Even in standard versions, all the company's AS (flash butt-welding) and DD0 (dual-force) machines have hydraulic clamping to bring the wire ends together perfectly.

Machine functions can be enhanced by the addition of different annealing processes (depending on the material to be joined), deburring devices and add-ons for weld pre- and post-treatment.



Founded in 1923, Ideal is a respected manufacturer of innovative, high quality machines.

Though Ideal's main work is resistance and laser welding, the company's product range includes wire-joining machines for the welding of solid and stranded wires; wood and metal band saws for wire processing, sheet metal products and strip joining machines. The portfolio ranges from small series models up to tailor-made machines. The company has representatives in 45 countries.

Kyocera provides quality and know-how for wire industry.

Selb/Germany. Kyocera Fineceramics Precision GmbH enters the European wire market by introducing drawing tools for the wire industry. When it comes to offering solutions, Kyocera not only relies on its product's high material specification and manufacturing quality but the expertise of our personnel along with their know-how is yet a further key factor in providing unique support to our customers.

Two well-known faces in the industry offer more than just excellent experience in technical ceramics: Dieter Mangold and Egon Horn will support Kyocera's customers in any issues of the wire drawing process, whether it is the use of lubricants, the correct draft, assistance if wire breaks occur or if there is excessive wear on the ceramic parts. Through years of cooperation with a wide range of drawing machine manufacturers, the two experts have built up an impressive network in the industry.

The technology of machines and systems for wire drawing are not new and have already been established for 40 years. Thus, providing support throughout the entire process and having products such as capstans, cones, and ceramic rings that offer optimum service lives through reliable quality is highly important.

Drawing tools made of high-performance ceramics from Kyocera Fineceramics Precision GmbH can optimize production steps and ensure wear protection. This features innovation for a reliable and proven system.

Based in Selb, Germany, Kyocera Fineceramics Precision GmbH offers a broad product portfolio for various high-tech industries and branches. The company manufactures its products entirely in Germany, and with many years of experience in technical ceramics, has been a reliable partner to its customers for decades. As a part of the KYOCERA group, KPFG is well connected with other KYOCERA subsidiaries and production sites in Europe and around the world. This results in flexibility and an extensive range of materials, allowing the company to meet customer requirements quickly and agilely and offer the best solutions and components.



Permanoid senior role reshuffle

Manchester UK-based wire and cable manufacturer Permanoid Ltd has welcomed three new senior members of staff – and bid farewell to a fourth.

Wayne Butler, Permanoid’s long-serving, highly-experienced and expert commercial director, retired at the end of February after 34 years with the company, which he joined from STC Cables in Newport, Wales.

At the same time the company welcomed Oliver Hingston as the new commercial director from March 1.

Oliver joined Permanoid almost a decade ago but had been seconded to Clynder Cables for eight years, where he was managing director responsible for building Clynder into a thriving cable distribution business.

Other newcomers to established roles are new technical manager Gary Taylor and former technical manager David Clarke, who will now be operations manager.

Gary has worked for Permanoid for almost 20 years, first as purchasing manager and more recently as operations manager. Previously a process engineer for BICC Cables in the UK and USA, he has extensive knowledge of cable design, manufacturing and materials.

David is another member of staff with long experience of cable making, having been the company’s quality manager prior to becoming technical manager.

The new appointments come in the wake of Permanoid’s triennial ISO 9001:2015 recertification by BASEC. Auditors discovered only one minor case of non-conformity in a three-day review that covered all aspects of the business. The results gained strong praise from the audit team.

Setic, Portier & C2S appoint Gauder Group’s Alain Havaux,



point of contact for sourcing any services for your Setic and Pourtier equipment to serve the US & Canadian markets

Setic, Pourtier & their service department C2S has appointed the Gauder Group, Inc. company located in North Carolina, and Mr. Alain Hawaux as the new point of contact for sourcing any services for your Setic and Pourtier equipment.

Mr. Alain Hawaux has been serving his customers for many years and is fully experienced in all aspects of services for Rotating machines equipment.

The Setic & Pourtier’s C2S service division, based in France, will fully assist Gauder Group, Inc. to make sure US & Canadian customers receive the best quality service the industry deserves.

From February 1st, 2021, US & Canadian customers can direct all their communications for services, technical questions, requests for quotations and purchase orders to:

Alain Havaux
After Sales Service Manager C2S- North America.

Gauder Group, Inc.
1207 Pebble Meadows Dr.
Lewisville, NC 27023
USA.
Email: ah@setic.info or c2s@setic.info

Maschinenbau Bardowick GmbH has appointed Manchester UK-based X-L Technologies UK (xltekuk.com) as sales agent for the UK and Irish markets

Maschinenbau Bardowick – based in Bardowick, northern Germany – manufactures a range of electrostatic powder coating machinery and has an extensive range of downstream equipment for extrusion lines.

Pictured is the MB Coater, which carries a patented filter-cleaning system that prevents the area around the machine becoming contaminated with powder, allowing work to be dust-free and environment-friendly. **More information at www.mb-bardowick.de**



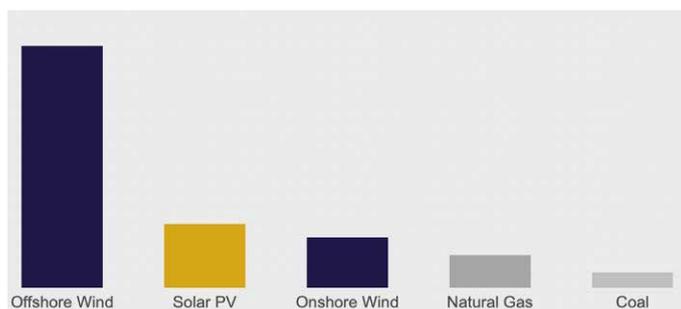
Copper prospects: green shoots, red roots

By Charlie Durant CRU Group

Covid-19 has accelerated the transition towards copper intensive sustainable energy sources and solutions. From a demand perspective, the long-term narrative for copper is dominated by the green electrification of economies. Copper demand from electric vehicles (EVs), including charging infrastructure, and a shift towards renewable power will be crucial to ensuring that global copper demand can grow through the long-term. Yet, there are significant risks surrounding the pace and manner that these markets evolve. Moreover, despite high levels of excitement, in the short to mid-term these technologies will be supportive but not transformational for the global copper market.

Short-term: EVs and renewables are not game-changers

There have been increasing calls for a 'green recovery' following the economic fallout caused by the ongoing Covid-19 pandemic. Copper seems to be an obvious potential beneficiary of this, with a high intensity of use in renewable energy and EV markets. While there has been a lot of enthusiasm about what green technologies could do for copper demand in 2021, CRU argues that it will be in the mid to long-term that we should be more excited about their impact.



Renewable energy more copper intensive than coal or gas

DATA: CRU 2020 est., Note: Intensities shown for natural gas and coal are for total copper, not wire and cable specifically

Green technologies have seen strong growth over the last two decades, albeit from a low base. Cumulative solar photovoltaic (PV), offshore wind, and onshore wind capacity has increased at 25% CAGR. China has become by far the largest single market for renewable energy, installing vast capacities. While internal

combustion engine vehicle sales dropped off sharply in 2020, EV sales bucked the trend, supported by generous subsidies in Europe and strong Chinese recovery. But we must remember that renewables remain a comparatively small part of the global energy market and EVs are still only a fraction of automotive markets.

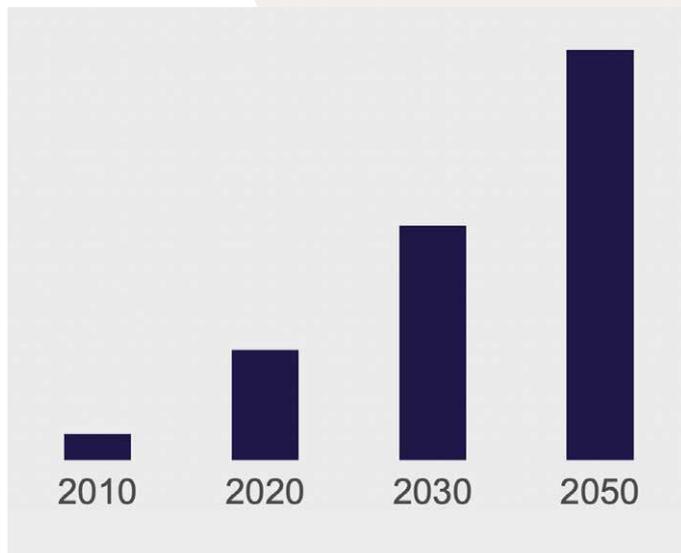
We forecast that copper cathode demand from EVs and renewables should grow by over 15% and exceed 1 Mt for the first time in 2021. However, this will only be 5% of the total copper market. While this is a positive, we should be careful not to lose sight of the impact of Covid-19; global copper demand fell by over 3% in 2020, despite positive demand growth in China. This year, green technologies will be supportive for copper demand growth but not game changing. When looking at the short-term, we should focus on how conventional drivers of copper consumption fair as the world recovers from the pandemic, rather than the promise that a green recovery could bring.

Mid-term: growth starts to take-off

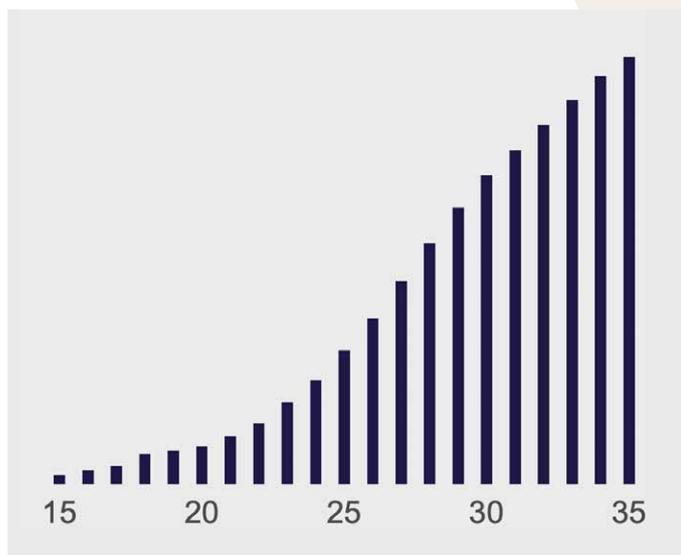
CRU forecasts EV sales will reach an inflection point in the mid-2020s when OEMs' investment comes to fruition. At this point, OEMs should have the resources, experience, and capacity to begin widespread EV production. Moreover, as part of China's 14th Five-Year Plan, the country has announced that 20% of vehicle sales are plug-in by 2025. Our bullish forecasts for global EV production drive copper use in this sector from 425,000 tonnes in 2020 to closer to 1.4 million tonnes (Mt) in 2025. However, subsidies remain a key driver of EV sales and their reduction or removal could cause significant headwinds. CRU expects that global copper demand from renewables will increase at double digit rates, taking demand from this sector to around 1.2 Mt in 2025. This will be driven by solar PV, which will form the largest part of new capacity installations. Through the mid-term, China will continue to be the largest market, accounting for about half of copper demand from renewables. It will be over the next five years when green technologies begin to have a larger impact on the copper market, that we can truly judge whether the hype surrounding copper use in these markets is justified. Globally, the pace of this growth is uncertain and there is a lack of clarity surrounding the scale and ambition of government targets and subsidies.

Long-term: significant growth expected but risks persist

Green electrification key for long-term copper demand growth



Annual copper demand from renewables



World EV copper consumption*

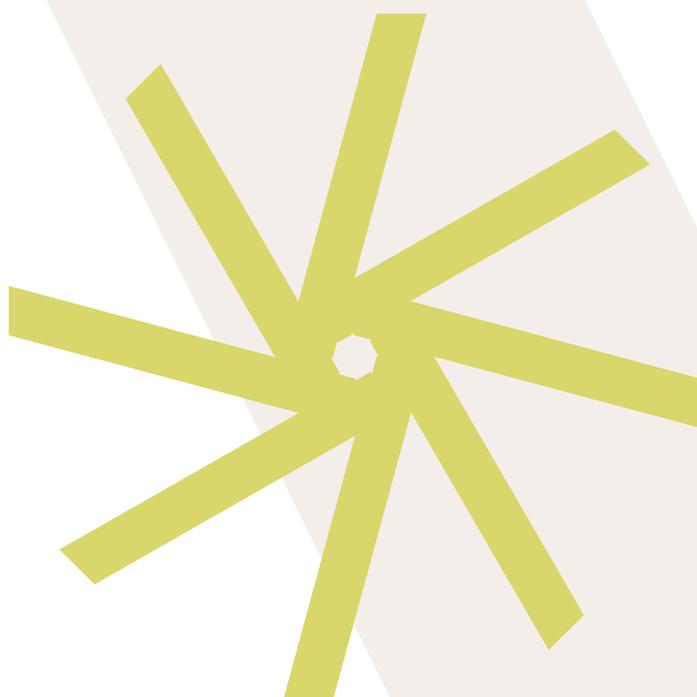
DATA: CRU, IRENA *onshore wind, offshore wind & solar PV only, EV = HEV (hybrid-electric vehicle) + PHEV (plug-in-hybrid-electric vehicle) + BEV (battery electric vehicle) + FCEV (fuel cell electric vehicle), includes charging infrastructure

While EVs will see firm growth through to 2025, it is after this that EVs and the associated infrastructure will start to have a more significant impact on copper demand. We forecast full battery electric vehicles will see a penetration rate of 34% of new sales in 2035, with even more growth after this. This could help take copper demand from the EV sector to 3.2 Mt in 2030 and 4.6 Mt in 2035.

We forecast that annual copper demand from the renewable sector could reach 1.4 Mt by 2030 and close to 2.4 Mt by 2050, with even more required for associated electrical transmission and distribution systems. Yet to put this in context, Chinese refined copper demand grew from 1.8 Mt in 2000 to over 12 Mt last year. Consequently, much of China's copper intensive infrastructure has now been built. In contrast, first use refined copper demand in the rest of the world has fallen from 12.25 Mt to under 10.5 Mt over the last two decades.

The high and volatile copper price during the last 20 years has driven a switch to competing materials. Copper use in these emerging technologies is not immune to substitution. Moreover, rapid demand growth in these markets could drive a wave of substitution elsewhere if price ratios with materials such as aluminium make retooling attractive. Miners looking for higher copper prices to support short-term cash flows or justify ambitious capital expenditure programmes may need to be careful what they wish for.

Green technologies have the potential to propel copper demand higher in the long term, supporting the copper market as Chinese infrastructure and construction markets, the largest consumers of the red metal, otherwise slow. The threat to refined demand from higher scrap use and substitution are also significant. A shift to EVs and renewables is coming, and copper will benefit from it. Yet, there are still threats, and the pace and manner with which these markets evolve is by no means clear. The path ahead for copper is not without risk.



New dates set for wire and Tube Southeast Asia as trade fairs move to 2022



The next editions of wire and Tube Southeast Asia will now be held from 9 – 11 February 2022 at BITEC, Bangkok. The move to next year from the stated September 2021 dates, will allow for optimum participation for the highly international trade fairs where in past editions more than 90 percent of exhibitors came from overseas from countries such as Austria, France, Germany, India, Japan, Korea, and United Kingdom.

It is anticipated that by next year with further easing of travel restrictions and on-going successful vaccine deployments worldwide, the landscape will provide a more optimistic backdrop for companies to do business safely and effectively at these trade fairs.

The wide international reach and top industry players who participate at wire and Tube Southeast Asia are considered to be among the hallmarks of the two trade fairs since they first started in 1997. At the last editions in 2019, international exhibitors from 29 countries participated at the trade fairs, while 45 percent of trade visitors made their way from outside Thailand.



Mr Gernot Ringling, Managing Director, Messe Düsseldorf Asia, said, “As trade fairs with a very high percentage of internationality, having re-assessed the situation, moving wire and Tube Southeast Asia to next year was deemed the most prudent and responsible decision in view of the ongoing travel restrictions and varying quarantine requirements for different countries. Following close consultation with the various industry partners, moving the trade fairs to next year was the option shared by all and believed to be in the best interest of exhibitors and visitors.”

Ms Beatrice Ho, Project Director, Messe Düsseldorf Asia, added: “The two trade fairs bring together a truly international community from the wire, cable, tube and pipe sectors for networking and sourcing. For the planning certainty of our exhibitors, visitors and service providers, and to fulfil expectations for a dynamic business platform, all efforts will now focus on the successful staging of wire and Tube Southeast Asia 2022. With renewed confidence and optimism, we are looking forward to welcoming all participants in-person next year.”

wire and Tube Southeast Asia 2022 will be held alongside GIFA and METEC Southeast Asia, which will stage their inaugural editions. As countries look to get their economies back on track and invest in new growth areas, the synergies between the four trade fairs will continue to drive growth across a range of industry sectors in Southeast Asia, from building and construction, iron and steel production, logistics, transportation, and more.

The wire and Tube Southeast Asia team will reach out to all industry partners, confirmed exhibitors and participants regarding event logistics and planning. Participants may also contact wire@mda.com.sg or tube@mda.com.sg for immediate assistance.

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Australia	Kyocera Fineceramics Precision GmbH	Guidetti srl
Australasian Wire Industry Association	AFH-Antriebstechnik GmbH	Koner SpA
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EDER Engineering GmbH	CeramTec GmbH	O.M.A. Srl
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iwma.org



Wellington House, Starley Way,
Birmingham International Park,
Solihull, B37 7HB, UK

Tel: +44 (0)121 781 7367
Email: info@iwma.org