UPCAST Review

UPCAST Oy is the leading supplier of upward continuous casting technology for a wide range of non-ferrous applications.

Still going strong

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Robert Daniels Principal Consultant at CRU, London:

Strong demand on copper remains unthreatened

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UPCAST® Pilot Plant:

Exploring the future with copper magnesium

Concept of upward continuous casting invented by Outokumpu

1968

What's up

Editorial

Ten years after...

Ten years ago something dramatic happened to UPCAST® technology. Since its creation in the late 60's it had resided in the realm of Outokumpu Group. This secure but also controlled existence was upset in 2005 when our parent group announced it would divest from copper business altogether. Very soon most of Outokumpu's production units became regrouped under the "Luvata" label but the fate of many technology units remained obscure. At the end some were shut down while the UPCAST® unit saw a new lease of life as a private company. Two outside investors and the unit's management team came together and established UPCAST Oy in March 2006.

It was clear from the beginning that life as a rather small private company would not be like it had been within a big metals group. On the "debit" side was the disappearance of the financial backing while on the "credit" side the removal of business constraints imposed on us. This freedom to fully control our operations has proved to be the more significant one. It allows us to diversify UPCAST® applications and to be present in any market sector at will.

Not everything changed however. Our personnel, the product and last but not least our established customer base remained unchanged. These factors formed a solid foundation on which to build a future for the newborn UPCAST Oy. And just as for us, control over one's operations is a major driving force also for our customers. A common argument to invest in an UPCAST® line is to better control both costs and quality within one's production chain.

Now at the start of a new decade it is a good moment to take a look back to assess our first ten years. Although we would like to give ourselves a fair rating it is not our judgement but yours that matters. Only if we continue to meet your evolving requirements we can expect still to be here to celebrate the passing of another decade.

Matti Nordman
Sales Director
matti.nordman@upcast.com

In the picture of the first upwards casting of silver plate we can see Seppo Pietilä, who joined Outokumpu in 1971, got quickly involved in the R&D of UPCAST® technology, and later – as an expert – commissioned several lines all over the world.

Seppo remembers how one of the pioneers of UPCAST® technology, director Mauri Rantanen, openly stated that he was not the first to urge us to start upwards casting, but rather that he was the first to say that it would not work. But it did, and over the years the technology has become widely known.

The first single-furnace copper rod line (17 mm diam. rolled into 8 mm) was delivered in 1971 to Outokumpu's own site, followed by deliveries to the USA, Greece, Thailand, Turkey and Mexico, as well as a couple of tube lines to the USA and to Germany.

Eventually the rolling mill could be removed from the process and the first 8 mm diameter soft cast Cu rod lines were delivered to Zambia and Turkey in 1991. Major improvements occurred when a dry ramming mass was introduced and the development of inductors allowed for the power output to increase to 400 kW and above.

UPCAST Oy took over the technology in 2006 and has successfully developed it further since that time. Even today, development plans are still created by carefully listening to customers and their needs, with a "we can" attitude ensuring that the wheels keep rolling.

Seppo Pietilä retired from UPCAST in 2007.

1971

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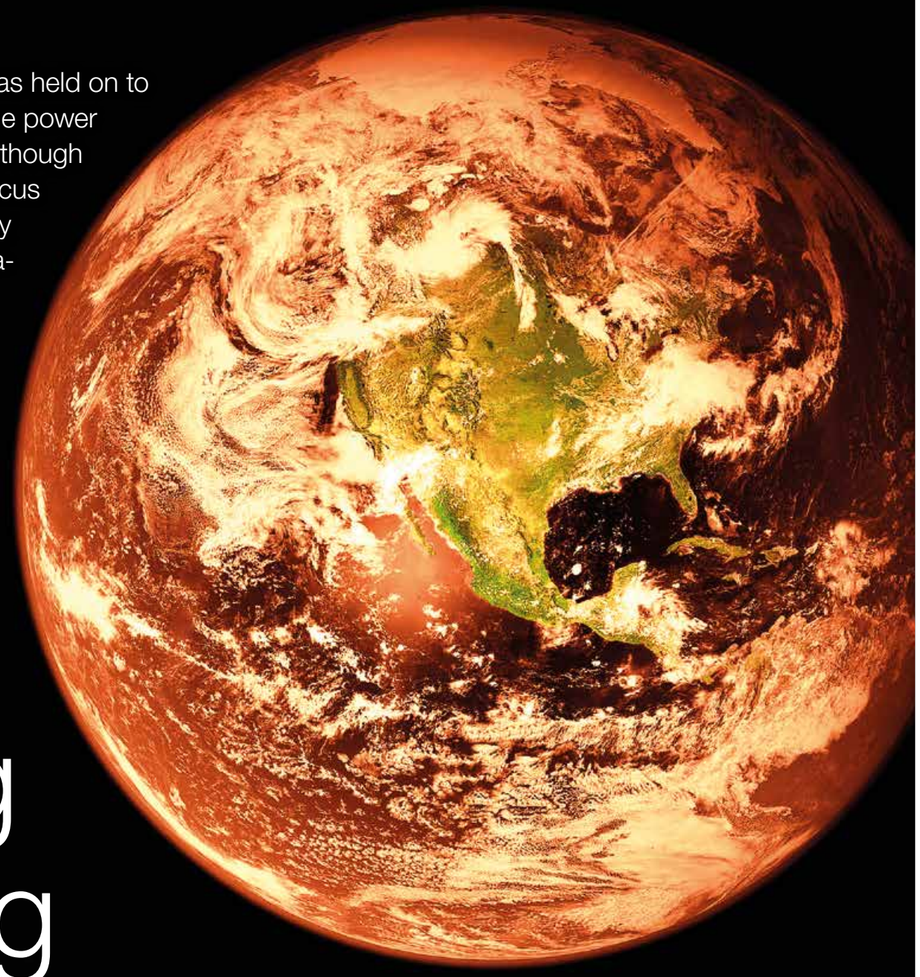
• **TEXT:** TOTTI TOISKALLIO • **PHOTOS:** UPCAST, SHUTTERSTOCK

For decades, copper has held on to its leading position in the power transmission market. Although ways of working and focus areas within the industry are changing, the fundamental demand for copper wire and cable remains unthreatened.



Still going strong

Last December the central bank of the United States of America, the Federal Reserve, decided to raise its interest rates for the first time in nine years. The decision was seen as the end of a historical era, and sign of a true turn for the better in the worldwide economy. Since the start of the global financial crisis in 2008, the cable business – among others – has been through a rough time. However, the future of the industry seems to be brightening, as the decline in copper prices is forecasted to cease in 2016–2017. As the price of copper is reflected in the turnover of companies in the industry, reaching the end of a downward slope could really make a difference.

– The average annual copper price has been falling each year since 2011. We are forecasting a further fall in the average price in 2016 and maybe again a little in 2017, but this is then expected to be the bottom of the current cycle, says **Mr. Robert Daniels**, Principal Consultant for Wire & Cable at CRU.

Although the low price is usually regarded as a negative aspect regarding the industry, Daniels also sees a positive side to it.

– A lower copper price reduces working capital requirements. In general, it is volatility that causes most problems to cable manufacturers rather than the actual level of the copper price, he says.

Daniels describes the cable industry as a slowly changing business, as many of today's products are more or less the same as they were 50 years ago. Even though challengers such as fibre optics and aluminium have stepped into the arena, copper seems to be retaining its position, dominating the wire and cable business.

– The relatively high copper price compared to aluminium has led to some substitution of copper with aluminium, primarily for power cable, as well as some winding wire and increasingly automotive wire. However, copper remains by far the most popular conductor material for wire and cable and we do not expect this to change in the near or medium term.

Strongest growth in developing countries

Due to the financial crisis, the geographical balance of the industry has changed significantly, especially in terms of growth. The cable industry has suffered the most in well-developed areas – Europe, North America, Japan, South Korea and Taiwan – while other countries have recovered much faster.

– China has been the engine of global growth for the last decade. In the last couple of years though, it has seen a slowdown in the rate of growth in wire and cable demand, and in 2015 India took over the mantle of being the fastest growing major region, says Daniels.

In the near future at least, the industry's growth will presumably follow the same pattern, seeking out and focusing on rapidly developing areas, although the difference between the growth rate in the developing and developed world will be less than it has been since 2008.

– In general, the strongest growth rates will be in the countries that are developing the fastest. As they build out their infrastructure and their manufacturing base develops, wire and cable demand will grow fast. Then, as a country matures, wire and cable demand growth rates will slow down.

Outsourced rod manufacturing

While most new wire rod installations are carried out in fast developing countries, the well-established manufacturers in Europe and North America have been changing their ways of working. Instead of producing wire rod themselves, many cable companies now tend to buy it from subcontractors.

– There is a trend for the copper rod industry to become more concentrated, and for cable manufacturers to stop making their own rod. This is because producing your own rod ties up working capital and it is quite easy to find a reliable source of good quality rod at a com-

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> Copper remains by far the most popular conductor material for wire and cable and we do not expect this to change in the near or medium term.

Who?

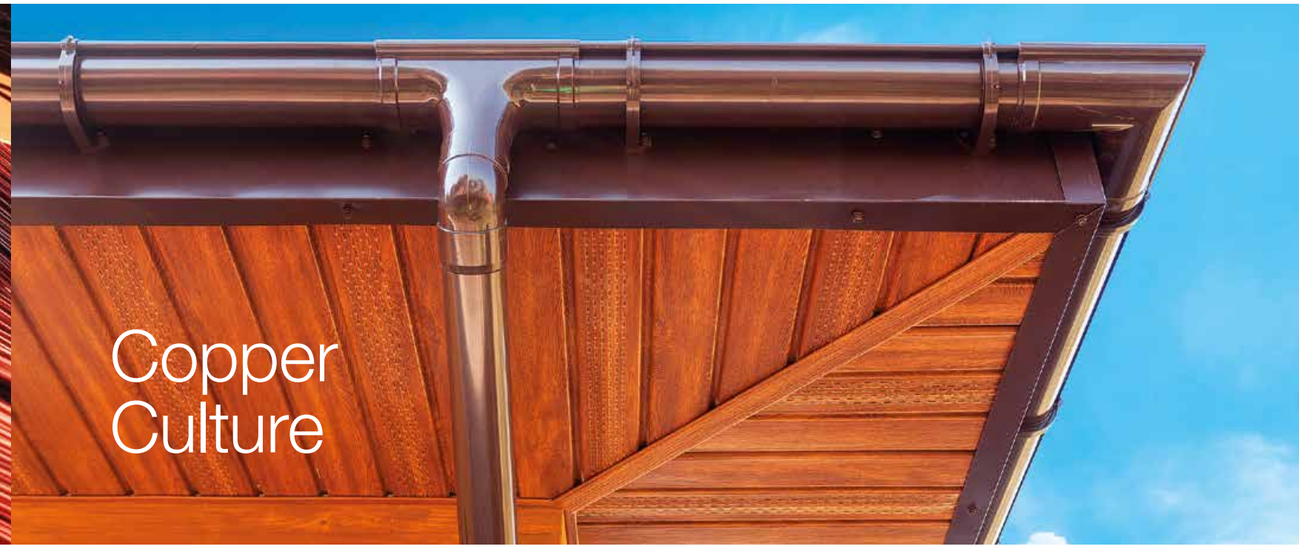
Robert Daniels
- Principal Consultant, Wire & Cable, at CRU, London
- Recognized authority on the global cable industry
- Regular conference speaker around the world
- Editor of the Wire & Cable Quarterly Market Outlook

CRU (founded 1969) is an independent company, specializing in market analysis, consultancy and events. www.crugroup.com

Delivery of first UPCAST® unit to outside customer

1972

The energy source of the future is electricity and this will need wire and cable to transmit it.



Copper Culture

petitive price in Europe and North America, Daniels says.

However, there is a great deal of variation between different countries and cultures in how business is conducted.

– In Japan and South Korea the large cable manufacturers still tend to have their own copper rod manufacturing capability. To some extent, this is a result of the fact that mergers and acquisitions are far less common in this part of the world. As for the developing world, it can sometimes be difficult to find reliable sources of good quality copper rod. Thus, cable companies here are more likely to have their own rod manufacturing facilities, particularly if they need good quality rod to draw into fine wires or for other specialist applications.

Still, the cable business in developing areas seems to follow the same rules as in Europe and North America.

– Large capacity rod mills tend to be built more by specialist rod producers rather than cable companies, although smaller specialist rod mills tend to be installed by cable companies, Daniels explains.

From overcapacity to specialist products

Nowadays we are quite dependent on electrical appliances, and as a result of ongoing digitalization different kinds of devices are present almost in every minute of our daily routines. Even though seemingly wireless technology is becoming more and more common, wire and cables are needed to support the systems.

– The energy source of the future is electricity and this will need wire and cable to transmit it. In the communications sector, demand continues to increase for more connectivity, and even wireless networks are only wireless to the nearest base station, and then cable connections are used, says Daniels.

According to Daniels, one of the biggest problems for the cable industry is overcapacity, and the fall in the markets in the developed world has increased this.

– The main challenge for the cable industry is to find a better balance between capacity and demand to improve profitability. At the moment, competition is strong and cable industry profitability is low. The best margins are in more specialist products, but by their nature these niche opportunities do not tend to provide large volumes.

– For new applications involving power cables, aluminium will be a threat, but for cables in harsh environments and for very small conductor cables copper will remain the best option, says Daniels.

First delivery of 100% in-house designed unit

1977

Our copper-colored life

Copper has been used for centuries in architecture, mainly because of its qualities as a weatherproof, durable and corrosion-resistant material. We've all seen copper covering on the roofs, doors and spires of various public and commercial buildings, but where can we find this beautiful metal in the comfort of our own home?

Copper can be found in various places in our houses. It is widely used for plumbing, valves, taps and fittings, and many building materials, such as wires, sheeting, plates and castings are often made from this precious material. Most of our daily water flows through copper pipes, with these pipes lasting for decades if properly maintained. They protect water systems from different bacteria, such as legionella, and thanks to its biostatic properties copper is a hygienic material, ideal for door handles.

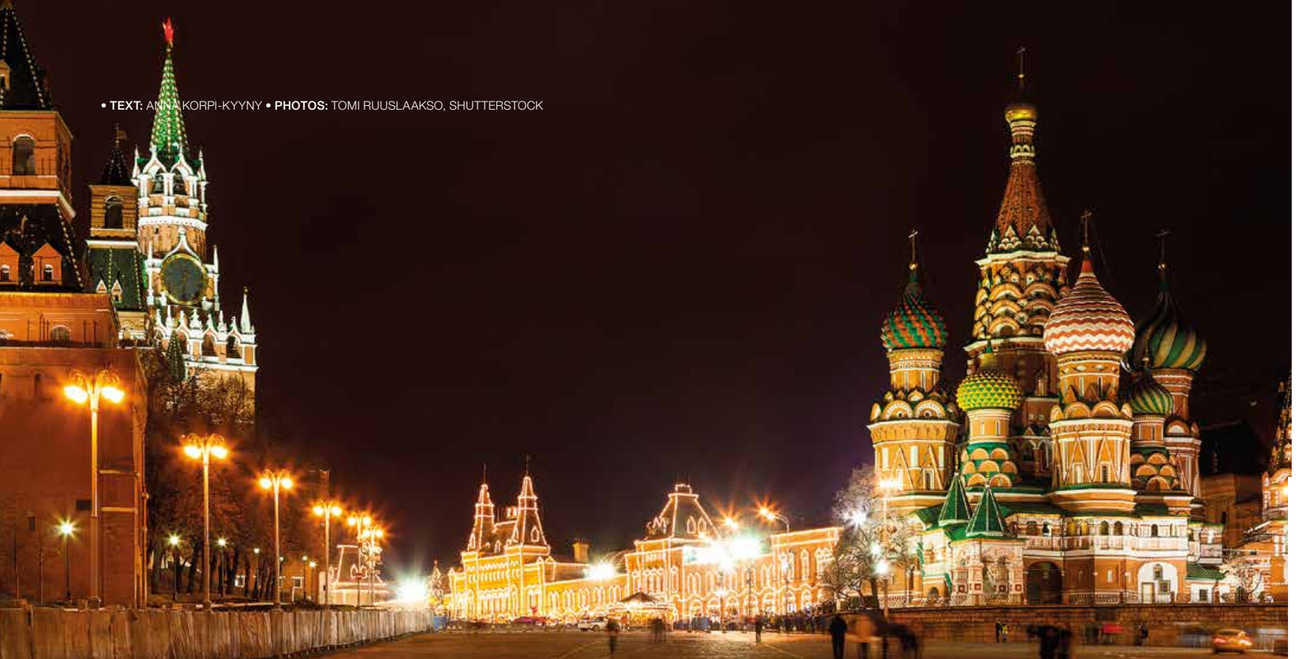
For homes, copper is a safe material: it does not melt, burn or release any toxic fumes in the event of a fire. It can be shaped, moulded or stretched and easily conducts heat and electricity. Almost all of the electric wiring you see is copper; it may be tinned or plated, but it is copper underneath. Copper is used in many private residences because of its aesthetic appeal, with outdoor uses of copper ranging from facades to doors and window frames. It ages beautifully and develops a patina as a result of natural weathering when exposed to wind and rain.

Today there are a lot of electronic appliances in our daily lives, and the chances are that the majority of them contain copper. Interesting fact: if copper is incorporated into a home appliance, it will make the motor more efficient!

And the best thing about copper? 100% of it can be recycled without any loss of its original mined quality, making it one of the most recycled metals in the world. Copper has been an important chemical element for centuries, and continues to be a high-quality material choice, not only for industrial use but for our homes too.

Copper continues to be a high-quality material choice, not only for industrial use but for our homes too.

• **TEXT:** MATIAS LUKANDER • **PHOTO:** SHUTTERSTOCK



• **TEXT:** ANNA KORPI-KYYNY • **PHOTOS:** TOMI RUUSLAAKSO, SHUTTERSTOCK

Jumping into daily life in a metropolis

Commissioning engineers at UPCAST Oy are used to packing and unpacking their suitcases multiple times a year. About a year ago **Juha Jaakola**, **Tomi Ruusulaakso** and **Ari Mätäsaho** spent 8 weeks in the centre of Moscow, with some time to get to know the city itself too.

The commissioning engineers travel around the world to make sure that UPCAST® lines are operating as they have been designed to – quality assurance at its best, including thorough training for local operators. When a new line is sold the commissioning of the line is always included, and that means a visit for both the mechanical and electrical engineers, who always work as a team. They check the equipment carefully and carry out the necessary test runs. They also provide guidance and instruction for the personnel on site so that they can operate the line after the UPCAST engineers have left. These trips normally last 4–8 weeks.

– We train the local staff well enough that they are able to maintain the equipment. Naturally, we remain available for maintenance support and will travel back to the site if needed, Jaakola explains.

On time

Upcast Oy delivered a Cu rod casting line to the company ELKAT, in Moscow, and three commissioning engineers travelled to the site – with three engineers this time because one of the mechanical engineers, Tomi Ruusulaakso, had just started and was still in his training period at the time.

– The best way to train the new people is to have them accompany the more experienced engineers for two or three commissioning trips. After this the newcomer is usually ready to take responsibility independently, says Jaakkola.

The scope of work includes the preparation of the overall commissioning schedule and weekly meetings with the factory management. However, everything starts with visits to the factory and getting to know the personnel.

– When we arrived at the factory we checked the status of the equipment installation as well as the goods delivered, and we made certain that we had everything we needed available, so that we could start the commissioning, says Mätäsaho.

50 UPCAST® units delivered worldwide

1983

At ELKAT, as at any other location, the actual work began with the start up of the furnace: while the mechanical engineer carries out the inductor assembly and ramming, the electrical engineer ensures that the connections are in place and functioning, and continues with the programming.

– We always agree beforehand who will provide training for what. The aim is that both can progress with the work as planned and scheduled, and at ELKAT this worked out fine.

Thorough training

Jaakola and Mätäsaho have carried out multiple commissioning visits together – and many problems have been solved on the way.

– With every project we face something new. If you cannot figure out the solution right away, your partner can help, even if he does not know all the details of your work. We have always managed to find a solution by brainstorming together, explains Mätäsaho.

The working language at sites is English, but every now and then the engineers will have to use various gestures and expressions, or their drawing skills.

– By drawing you can explain the operating principle of the equipment quite well. Experience definitely helps here, too, the men explain.

– For this trip I tried to learn some basic words in Russian, for example 'up', 'down', 'thank you' and 'I am sorry'. They were useful when explaining details on occasions where things were not working with English. It is important that you don't try to rush things. When we're talking about these essential details, the message has to be delivered, one way or another, says Ruusulaakso.

The personnel at ELKAT are experienced and used to working with the melt, so the training progressed very well.

– During the last week we expect some questions from the local operators and installers. That is one of our QA methods to ensure successful training, says Mätäsaho.

– At the end of the commissioning phase we monitor how the operators are coping with taking full charge of the line and we go through the final parts of the training. If we have been teaching too well, this means a few boring days for us, jokes Jaakola.

Introduction of servo-driven casting machine. Servomotor drive enables direct-to-size 8mm casting

1989

UPCAST® Casting Unit

Russian delicacies and metro journeys

All the commissioning engineers have 2–3 longer trips per year – with customers on all continents except for Australasia. For two of the three engineers Moscow was a new destination, and the men used the opportunity to learn more about metropolitan city life in the Russian capital during the evenings and weekends.

– The nearest metro station was just by the hotel, so it was very easy to get around, said the men.

The metro in Moscow is the 4th busiest system in the world, with 194 stations in total, and up to 9 million passengers daily during the working week.

– Our colleague Sergei lives in Moscow and he showed us a number of famous places on several occasions during our visit. We visited the Kremlin, Victory Park and several different museums.

– When you're in the city alone, knowing the Cyril alphabet is enough to be able to understand signs, Ruusulaakso continues.

Eight weeks in any hotel room is a long time, and therefore the men tried to minimise the time spent there.

– We made sure we had dinner out every evening. We found good restaurants and got to taste some Russian delicacies, too, says Jaakola.

– Moscow is a nice city and the people are very friendly – I made some new friends on this trip, adds Ruusulaakso.

Always something new

Since returning from Moscow the men have already been to several other places around the world. It has become very clear that in this line of work you need to be able solve problems independently, and you need patience and very good communication skills.

When the commissioning engineers are not travelling they are responding to customer inquiries, supporting the designers on new projects and carrying out casting tests at the R&D Pilot Plant.

But what is the best part of the job in their opinion?

– The best part is that you are able to take full responsibility for the work and make independent decisions on site. Every single trip is different, and even though the equipment is all very familiar, we always come across something new. That makes the job very interesting, and we can always improve and develop ourselves in our work, they answer.

Sergei Niledvin learned how to sell new technologies in University of Cambridge. As a sales representative of British laboratory equipment supplier he visited main copper product enterprises in Russia.

In 1994 Sergei joined Outokumpu Castform Oy. That time most of potential Russian customers were not familiar with OF copper rod upward casting. Sergei traveled with his colleagues to promote UPCAST® lines as a proven technology for cable factories distributed on the vast European-Asian territory. In 2006 he continued his work in the same company but under a new brand name – Upcast Oy. With support of the professional team Sergei always comes up with new ways to sell the latest developments in Cu-OF and alloys rod casting to Russian customers.

Moscow-based Sergei is married and has two children. In his spare time he swims, skies and enjoys masterpieces of the World literature.

100,000 tons of Latin American copper rod

• **TEXT:** UPCAST • **PHOTOS:** UPCAST, COLADA CONTINUA CHILENA S.A., SHUTTERSTOCK

Colada Continua Chilena S.A. is an industrial company founded in 1987 in Santiago, Chile. The owners' original plan was to provide copper rods for the domestic market in Chile, supplying to the largest wire and cable companies. If they ended up exceeding capacity, they intended to also supply copper rod to the export market.

The original capacity of the plant was 36,000 tons per year using a Contirod process. Over the years they increased the capacity of the plant up to 80,000 tons per year, but this was not enough for the growing copper rod export market. Some shareholders increased their share of the wire and cable market in Latin American through acquisitions or mergers, so Colada Continua Chilena S.A., became a major supplier in the Latin American market.

100 UPCAST® units delivered worldwide
1993

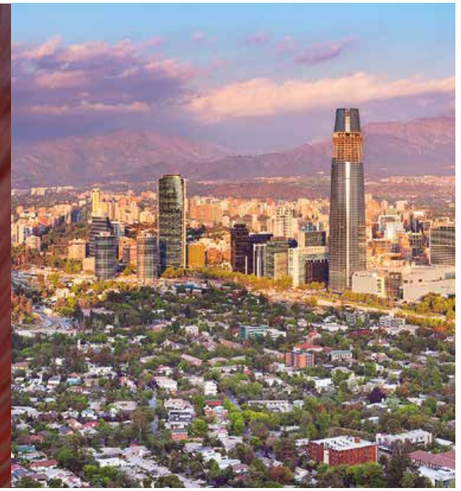
Introduction of remote diagnostics
1995

Introduction of automatic melt transfer (MF–>HF)
2001

Roberto Duralde, General Manager:

We are satisfied with the good results in terms of productivity and the quality of the copper rod.

→



> The company has always manufactured copper rod of the highest quality.

The company has always manufactured copper rod of the highest quality, therefore they must ensure that the new operation line also produces the best quality oxygen-free copper rods. The copper rods are manufactured according to the ASTM B 49 standard, from grade A copper cathodes, which correspond to highest purity cathodes.

They explored different options to increase production capacity by 25–30% from the capacity at that time, and based on the options they studied, they decided to purchase a new and original UPCAST® line.

When considering the purchase of UPCAST® line the main reasons were the advanced technology used in their design and processes, and their aftersales service, ensuring a long term relationship with this new strategic supplier.

In January 2012 we then decided to buy a new UPCAST® line with a production capacity of 20,000 tons per year of oxygen-free copper rod, with a capacity to produce different diameters, ranging from 8 to 20 mm.

They have been running the UPCAST® line for more than two years and they are satisfied with the good results in terms of productivity and the quality of the copper rod.

Colada Continua Chilena S.A. is a company recognised for its innovation and operational efficiency in its processes, achieving a capacity of 100,000 tons per year of high quality rod. Not only are they recognised as the leading supplier of copper rod in Latin America, they also supply copper rod to some countries in the Far East, with 75% of their total production being exported.

Their challenge for the future as a copper rod manufacture is to increase their productivity on a sustainable basis, continuously increasing their competitive position in all markets.

Juan Carlos "Kalle" Bodington has worked as Technical Advisor for UPCAST OY, and before that for Outokumpu Castform, since 1996. He holds an Electrical Engineering degree from USB, Venezuela, and a Master's degree on Industrial Automation from UCA, Spain. His first contact with UPCAST® technology occurred in 1987 while working as the electrical engineer in charge of the installation and commissioning (customer side) of a double furnace line for 12000 TPA. "It was love at first sight," he comments when referring to the UPCAST® line. At that time working for Phelps Dodge, his career has since then spanned through the wire and cable industries, in companies such as Alcatel and Kabelmetal Indonesia. In UPCAST he has been mainly involved in the definition of technical aspects for new projects in the Americas, as well as comissioning and technical services worldwide.

Chile

The Chilean market is very special. With a population of 17 million people, Chile is by far the biggest copper ore and refined copper producer worldwide. However, downstream industries in the copper sector are scarce, both in terms of number and size. The potential for growth in the industry is rather big. Nevertheless, there are several constraints holding back its development. First are the real factors involving troubled economies that have historically been important customers, such as Brazil, Argentina, Venezuela and China. Second is the internal uncertainty affecting both business environment and domestic consumption, with the latter representing more than 60% of GDP. Nevertheless, the biggest issues affecting Chileans' confidence (i.e. driving the internal uncertainty) are not structural but rather circumstantial and are related to political issues (drawing up a new constitution), financing conditions (unrelated to capability) and the real exchange rate (monetary policy).

New cooler/die design for much higher casting speeds | 150 units delivered worldwide

2003

The story of UPCAST OY begins and a huge amount of experience and knowledge is gathered within the new company

2006

R&D

15-ton melting furnace brings savings and even better quality

UPCAST's latest development for line hardware is a new, bigger, one-inductor 15-ton, tea pot-type melting furnace. This can replace the previous two-inductor 12-ton cylinder-type furnace for the capacity range 15,000–20,000 TPA. This new furnace brings many advantages for the customers:

– With the furnace equipped with only one inductor, even though it is bigger than the older furnace, the purchase price will be somewhat lower, says Sales Manager **Tuomas Rajaviita**.

The new furnace means new opportunities both for traditional casting lines and for lines utilizing recycled copper.

– In certain applications using recycled material we previously always offered a 3-furnace system, but now with the larger melting furnace, for specific cases a 2-furnace alternative is available. We can thus offer more possibilities for efficient use of recycled material and thereby save costs for the customer, whilst we can improve the cast quality, Tuomas elaborates.

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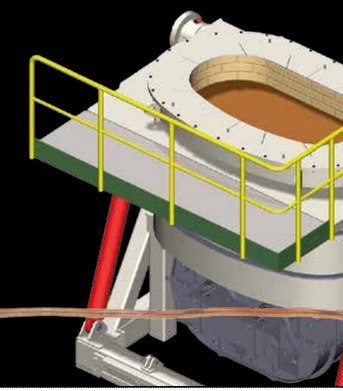
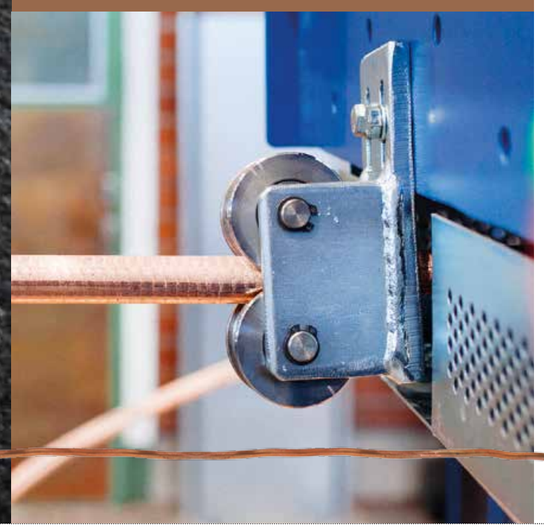
• **TEXT:** ANNA KORPI-KYYNY • **PHOTO:** UPCAST



UPCAST® Pilot Plant

Exploring the future with **copper magnesium**



> I am confident that by the end of this year we will have made significant steps in the utilisation of copper magnesium.

Upcast Oy has always been very R&D focused and active in seeking the ways to improve existing processes and at the same time studying what kind of UPCAST® casting process will fulfill the new requirements of the future.

Last year was very important for R&D people when the second casting line saw its start up at the Pilot Plant. Now in addition to traditional Cu rod and tube the development engineers in **Markku Koivisto's** team got their hands on in various Cu alloys to develop completely new upwards casting processes with alloys and further develop the ones which were already familiar from the past. One of the interesting alloys is copper magnesium (CuMg) for its good electrical conductivity and high strengths in elevated temperatures. Perfect raw material for e.g. grooved contact wire for high speed trains and for automotive connectors and wire harnesses.

UPCAST® Pilot tests

The first challenge was being able to continuously cast high quality CuMg0.5 cast rod suitable for further processing, as casting copper magnesium is a bit trickier than working with pure copper.

– We took on the challenge and in autumn 2015 we started the UPCAST® upward casting tests for the CuMg0.5 alloy. We adjusted our equipment, software and other parameters to suit the new raw material, and before the end of the year we had reached our first target and achieved a full coil of the new alloy with acceptable mechanical values and surface quality and gain structure, says Koivisto.

The next step at the Pilot Plant is to cast CuMg0.5 test coils, which will be sent to customers working with alloys. They will further process and refine the cast rod into grooved contact wire for high speed rails and to thin wire dimensions for other industrial applications.

– We will send the material this spring and after that we will be able to be certain of the high quality of the UPCAST® CuMg0.5 alloy.

Utilising copper magnesium in UPCAST® products brings new opportunities for our existing customers to widen their customer base.

– Our development has garnered a lot of interest among our customers. I am confident that by the end of this year we will have made significant steps in the utilisation of copper magnesium, Koivisto continues.

• **TEXT:** ANNA KORPI-KYYNY • **PHOTOS:** JASKA POIKONEN

UPCAST® - GREENerCAST introduced
2008

UPCAST® - SGTube introduced and a year later commissioning on the first line
2009

ASCON – revolutionary technology from ASMAG

ASMAG - serving both the tube and bar industry for decades

The core of the ASMAG group has designed and produced high performance machinery for the steel tube and non-ferrous metals industries since 1984. ASMAG has evolved from a machine supplier to a complete provider of production solutions. Combining the new ASCON Continuous Rotary Extrusion technology and many years of experience in drawing and finishing of non-ferrous metals, ASMAG now also covers the entire process for the production of copper and copper alloy flats and busbars as well as open, solid and hollow profiles, all the way from the rod to the packaging of the finished products.

Whether it is designing the plants or building the machinery, ASMAG´s emphasis is on smooth material flow, a high automation level and economical operation allowing for low production costs. This is based on efficient engineering and excellent production quality with personal attention and support. The company provides efficient, reliable and flexible after-sales service to all its in-house manufactured equipment.

ASCON continuous rotary extrusion

ASMAG has developed the revolutionary ASCON machine that transforms the cast feedstock to a plastic state by friction, in which the plasticized material finally flows through an extrusion die to form the desired semi-finished product ready for subsequent processing.

Due to the simple and rapid set-up process, different sizes and shapes of profiles can be quickly and economically produced. The subsequent drawing process is used to achieve the material strength and tolerances according to relevant standards.

The ASMAG drawing and stretching machine performs the complete finishing process extremely cost-effectively from drawing through straightening, cutting to finished lengths, stacking, weighing and packing. The entire system is easily accessible and easy to operate from one side, from the feeding of the product to its removal. The production time is reduced as all the process steps are combined and automated in one line.

> Due to the simple and rapid set-up process, different sizes and shapes of profiles can be quickly and economically produced.

The ASCON process has many advantages and benefits for customers, such as excellent production flexibility, easy to manage, scaleable production allowing for new entrants to build their market share step-by-step, a dynamic gap control device for flash management, a market-leading production range in the area of copper bars, high productivity and reliability, just to name a few.

The ASCON machine is the newest generation of Continuous Rotary Extrusion technology on the market. It is very robust and reliable, and offers a long-term cost-effective production solution.

Cast&Form

The original UPCAST® continuous casting technology allows you to cast top quality copper and copper alloy rods in the most cost-efficient way. It is a simple process with easy operation through an advanced control system. The high quality UPCAST® Cu-OF rod is ideal for all electrical applications and is the preferred feedstock for ASCON and other continuous rotary extrusion machines.

The partnership of UPCAST Oy and ASMAG GmbH, based on years of technical cooperation, has resulted in the Cast & Form process for manufacturing high-quality copper profiles, flats and busbars. By combining their experience and expertise the partners can offer a very efficient process and clear cost savings to the Cu-product manufacturers where 1 + 1 results in more than 2.

The compact C&F-process is reliable and easy to manage; it will reduce the investment costs and provide the customers with a very reliable full process with low operational costs. The continuous process guarantees a high-quality, uniform product, and innovative details support the smooth operation. The absence of harmful emissions or waste as well as energy-saving systems reduces significantly the environmental footprint of the process. All this comes with excellent after-sales customer support.

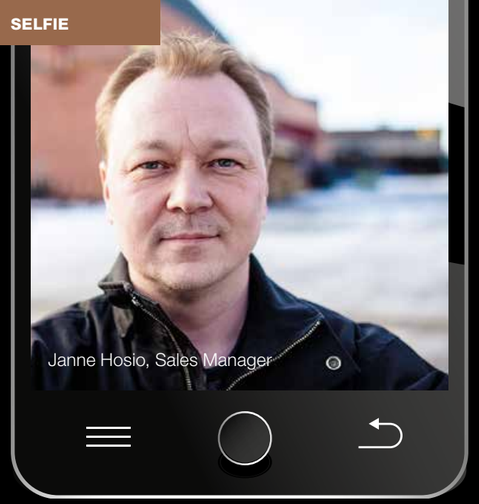
C&F profiles and busbars are produced in distinct phases: Upward Casting – Continuous Extrusion – Drawing – Straightening – Cutting – Packing.

ASMAG GmbH also recently became a minority shareholder of UPCAST Oy, which naturally brings the cooperation even closer.

• **TEXT:** HANNA-LEENA MÄKITALO • **PHOTO:** ASMAG

Delivery of the first UPCAST® Hybrid line | 200th UPCAST® unit delivered
2012

Two hybrid UPCAST® lines in operation
2013



Good feedback rewards

I had never been to Pori before coming here for the job interview in 2001. A few days later I was living in the city. The company name was different back then, but the familiar team is still around.

You often hear that people living in Pori are very introverted, but people saying that most likely have never visited Pohjanmaa, where I come from. We have an excellent working atmosphere at UPCAST, and that is one reason I have enjoyed my work and stayed for this long. The employees are given enough freedom and independence, which also, of course, brings responsibility.

I started off in electrical work as a project engineer, since my background and training was as an electrical engineer. I was responsible for on-site commissioning and electrical design. For about a year I worked in our customer support service team and since 2008 I have been in the sales department. However, being a small company and a compact team, we all carry out various tasks, myself included.

When **I am** talking with the customers, it is a huge benefit that I'm familiar with the technical aspects of our equipment. At the moment I am looking forward to getting the sales really growing for one of our recent developments – a line utilising 100% recycled material. The best reward for my work is when a project is finalized and the customer has a high quality, properly functional line. And when we get some positive feedback, it feels even better.

I get along with all kinds of people, and that's a big plus when travelling around the world. And I have travelled a lot, which means that I haven't been able to keep up with any regular hobbies. However, I do like to swim and jog whenever possible. I also have two sons, with whom I spend a lot of time when I am off duty.

• **TEXT:** ANNA KORPI-KYYNY • **PHOTOS:** JASKA POIKONEN, HANNA-LEENA MÄKITALO

Freedom to work towards development

Development Engineer Juho Kalliokoski

Juho started working at UPCAST Oy in August 2014. Before this he worked as a Technical Service Manager in a company within the steel industry in the Netherlands for more than 7 years. At UPCAST Juho's days go quickly, working primarily at the Pilot Plant carrying out various casting tests.

– I also visit customers during the commissioning phase, and sometimes also to run some casting tests in order to find out whether our creation has turned out to be beneficial for the customer. The best part of my work is its variety and that I get to spend time face to face with the customers. Seeing the process unfolding in a real environment and talking to the operators provides the best feedback and understanding, says Juho.

Lately, Juho and his colleagues have been working on finalizing the quality of the UPCAST® SGTube and improving its casting speed in order to meet the demanding requirements of various end products. Another important and exciting project underway at the moment involves casting Cu alloys and specifically, upward casting of CuMg.

– We have so much in-house development potential and we have a degree of freedom to carry out various trials, which makes the work very interesting.

When considering moving back from the Netherlands to his old hometown in Finland, the job opportunity at UPCAST Oy was not the only factor that had an effect on the decision, with his children's schooling also playing a key role.

– We wanted them to be able to start the upper grade in a Finnish school. Our decision has turned out to be the perfect one for us. The company is a really nice and relaxed place to work, and employees are encouraged to try new things without having to be afraid of failing. I have really enjoyed working at UPCAST.

Aiming for broad know-how

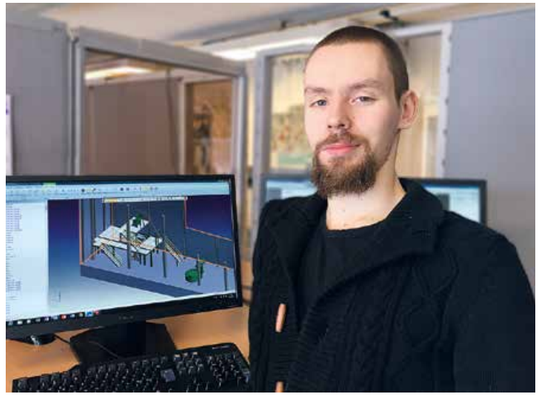
Mechanical Engineer Henri Heikkala

Henri graduated as a Mechanical Engineer (BSc) from Lapland University of Applied Sciences in 2015. He wanted to start working right away, and specifically at a technology company with international operations.

– I come from the northern part of Finland, the city of Tornio, where Outokumpu Oyj is still a major player in the steel manufacturing industry. I worked there during my studies and was not aware that UPCAST Oy has actually seamlessly continued developing the technology which was originally invented at Outokumpu. That was a pleasant surprise to hear!

From the steel industry, Henri moved to the world of copper and started working at UPCAST at the beginning of 2016. He works as a mechanical engineer and uses modern CAD tools. He moved 600 km from home and with everything going well, he already feels at home at UPCAST.

– This company is very interesting and I have been very happy with the job so far. My aim is to take on a wide range tasks and develop my skills and know-how as much as possible.



Improving instructions for customers

Documentation Engineer Taru Nummelin

Taru started working at UPCAST in January 2016. She has 15 years of experience in similar roles in the mechanical industry. The role of documentation engineer is new for the company, so Taru will also be able to influence how her job description is established. Her first task is to improve the user and maintenance instructions so that they serve the customers even better than before.

– So far I have familiarized myself with the equipment, spent a lot of time at the Pilot Plant, interviewed people and gone through the existing documentation. I can pretty much plan my work myself, which is great.

Taru is also complimentary about how the company has welcomed the new arrivals.

– This job has met all my expectations! Even though the team here is very tight, the people have accepted me very well and it was easy to slip into my role.

Possibility to use scrap in production | Increased wire rod casting speed

2015

Connecting our customers

User Meeting snapshots

WELCOME

to visit us at exhibitions:

Visit us at wire Düsseldorf
Düsseldorf
April 4–8 2016
Stand 9C06

Visit us at Tube
Düsseldorf
April 4–8 2016
Stand 6A02

UPCAST Oy celebrates 10 years!

The company is the leading supplier of upward continuous casting technology for a wide range of non-ferrous applications.

2016