

Visitors to Wire & Tube 2008 (March 31 to April 4 in Düsseldorf, Germany) helped celebrate the fortieth anniversary of one of that event's venerable yet innovative technologies: the original upward continuous casting method universally known simply as UPCAST®. This time-tested method for producing copper and copper alloy wire rod took center stage at Wire & Tube at an exhibit offering a close-up look at expanded UPCAST® furnaces and innovative UPCAST® technologies, along with an introduction to the technology's new standard bearer.

## UPCAST OY Expands UPCAST® Furnaces, Adds Innovations

Readers familiar with UPCAST® will already know this wire rod casting world's leading supplier of oxygen-free (OF) upward continuous casting lines. Ac-



This feature set is in large part the result of UPCAST OY's painstaking attention to careful design, which unites the process steps through an advanced, highly automated control system that allows operators to cast different copper rod sizes simultaneously while adjusting production

**Our photoblock shows three views of a modern UPCAST® line.**

ble-furnace production lines that leverage a number of important design features of UPCAST® furnaces.

Chief among these features is the large furnace volume, which ensures a long "dwell time" for the melt. Keeping the melt in contact with a deoxidizing medium as long as necessary is crucial to achieving the extremely low oxygen content (1-2 ppm) that typifies the UPCAST® process and that so dramatically improves the drawability of the rods produced. Other noteworthy design features include a lining of refractory bricks, which improves service life and assures a high-purity melt, and single- or double-loop inductors that provide the most efficient means possible of heating furnaces. Stepless power controls further reduce the specific energy consumption of these low-emission furnaces, making them decidedly eco-friendly.

method was first developed by Finland's Outokumpu Oy in 1968 and later installed during 1971 at Outokumpu's production facility in Pori, Finland. That line, replete with numerous innovations, including automatic melt transfer and alloy feeding systems – both among the latest developments in UPCAST® technology – is still in operation, said Matti Nordman, Marketing Manager at UPCAST OY, an Outokumpu Oy spin-off formed shortly after Outokumpu divested its copper business in 2005.

As the heir to UPCAST®, UPCAST OY is determined to champion the historically innovative spirit that continues to make the company the



According to Nordman, the defining features of the UPCAST® process itself continue to be flexibility, cost-efficiency, reliability, quality of the cast rod and the ability to react quickly to customer needs.

output to meet market demands on a day-to-day basis. All of the main UPCAST® process steps – cathode charging, melting, melt transfer, casting and coiling – are integrated into complete single-furnace or dou-



UPCAST OY has recently been active in updating both its single-furnace and double-furnace production lines. On the single-furnace side, the company boosted the capacity of its popular 10,000 TPA (tons per years) furnace line to a capacity of 12,000 TPA by adding a new 12-ton melting/holding furnace, a single double-loop inductor, a new 12-strand casting machine and a sophisticated carrier-type cathode charging system. According to Matti Nordman, the low investment costs associated with this new line are redefining the way copper rod manufacturers think about single-furnace lines.

Technology is meeting economy when it comes to double-line furnaces, too. Here, UPCAST OY has introduced a high-capacity 30-ton melting furnace powered by megawatt class double-loop inductors, allowing the company to boost the maximum output achievable with a double-furnace design from 30,000 to 40,000 TPA. Other equipment additions, including two 20-strand casting machines and a high-speed, portal-type cathode charging system, make it possible for users to fully utilize the new furnace's increased melting capacity

Other innovations and furnace add-ons are also expanding the already impressive flexibility of the UPCAST® system. Examples include a new universal coiler type that can handle rod diameters ranging from 8 to 25 millimeters. This coiler option slashes investment costs and increase production flexibility, especially when casting several different rod sizes. In another innovation, double-furnace users will benefit from a new alloy feeder to be used when producing rods with silver-bear-

ing or phosphor-deoxidized copper alloys. The feeder's operation is completely synchronized with a furnace's automatic melt transfer functionality and includes a feedback link to guarantee accurate chemical analysis with just minimal fluctuation.

Finally, says Matti Nordman, these and other innovations allow UPCAST OY to tailor every UPCAST® installation to a customer's specific needs, making the UPCAST® even more flexible than before. Copper rod producers, for example, can now broaden their product range to include OF copper and/or new rod diameters. Fine wire, multi-wire and enameled wire producers can use high-ductility OF copper wire rod to improve cost efficiency and produce wire rod with the finest in surface smoothness. Copper product companies can also minimize the tooling costs of their conform machines by using OF copper rod as their input material.

Readers with their own special application needs are encouraged to contact UPCAST OY for a one-on-one consultation as their earliest convenience. Those interested in a more in-depth look at UPCAST® technology and UPCAST OY's unique capabilities can learn more by visiting UPCAST OY's website at [www.upcast.com](http://www.upcast.com). ■

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Reprint from

TECHNOLOGY NEWS INTERNATIONAL

Issue 91 Year 2008

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