

Of Mutual Interest

November 2006

Solutions for Our Service Center Marketing Partners from Outokumpu

OUTOKUMPU

Masters of Machining and Tooling of Bar Products



Outokumpu provides outstanding technical support for machining and welding grades.

Stainless steel is not inherently more difficult to machine, tool or weld than any other form of steel. But the special properties that make stainless steel appealing, and even essential, for numerous industrial uses can also impact mechanical factors from tool wear to chip breaking to surface quality.

As a result, Outokumpu has focused a great deal of time and research in helping customers work with stainless steels. In fact, 30 years ago this year, Outokumpu introduced a specially treated stainless for production economy: PRODEC.

Outokumpu is noted for providing outstanding technical support for

machining and welding stainless grades, a focus that continues to this day. At the November 2006 Stainless Steel World Solutions Conference (slated for Houston), Outokumpu is presenting a program on machining our proprietary Duplex LDX 2101®. And this year we are also introducing a new product with improved machining properties — 303 HST for high-speed tooling of cold-drawn 303 stainless bar under one inch.

PRODUCTION ECONOMY

Introduced in 1976, PRODEC® is a special quality of austenitic and duplex stainless steel plate and bar produced to lower the cost of machined parts with better final surface and dimensional tolerances. PRODEC offers advantages such as better chip breaking, faster machining, consistent performance, and lower scrap loss. “PRODEC bar is great with ceramic tooling and other applications where the operator develops a lot of speed,” said Mike Eberth, Regional Sales Manager, Bar Products. “Our PRODEC 316 and 304 from one to three inches is as good if not better than anything in our industry — and it is more economical.”

303 HST for High Speed Tooling

Sold through limited distribution, our new 303 HST (High Speed Tooling) bar is focused on a market niche of high-volume, high-speed-machined products using cold drawn 303 under one inch; for primarily small, intricate fittings. Outokumpu applied a revised chemistry along with new cold drawn techniques to create 303 HST, which, in addition to being easier to machine, also delivers a superior surface finish.

303 HST bar is drawn and centerless ground to 1/2 standard tolerance. It is

Contents

- Large Order for Nyby Plant 2
- U.S. Air Force Memorial Dedicated 3
- 254 SMO Project Honored 4
- Outokumpu Now Dow Jones Index Member 4

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Outokumpu is an international stainless steel and technology company. Our vision is to be the undisputed number one in stainless, with success based on operational excellence. Customers in a wide range of industries use our metal products, technologies and services worldwide. We are dedicated to helping our customers gain competitive advantage.

Continued on page 2

Outokumpu Nyby Mill Processing Large 2507 Order for Desalination Project

In what is possibly the largest order of 2507 ever to be processed at our Nyby, Sweden plant, Outokumpu is providing more than 740 metric tons of 2507 stainless steel strip to the Mukhaizna Steamflood desalination project in Oman.

The international tubing manufacturer, RathGibson, placed the order for the 2507 strip through its Janesville, Wisconsin facility. Two Outokumpu mills are supporting the project. The Avesta, Sweden mill will melt and hot roll the

material into hot rolled bands that will be shipped to Nyby, which will function as the downstream cold finishing location for the project. At Nyby, the heavy gauge

material will be cold rolled and annealed through several cycles to its final thickness and then slit to finished width. The coiled stainless is being shipped to the U.S. port at Baltimore, Maryland for delivery to RathGibson's Wisconsin facility, where it will be laser welded into tubing.



The Nyby Sweden plant is providing more than 740 metric tons of 2507 for a desalination project in Oman.

Some of the processing has now been finished at Nyby and shipments are scheduled to begin in mid-November. According to Mike Obenauf, Sales and Marketing

Manager, Coil Products, "Between November 2006 and April 2007, approximately 120 metric tons of stainless for the Oman project will be shipped each month to the U.S."

In addition, for another area of the same desalination project, our New Castle, Indiana mill is providing nearly 950 metric tons of shell plate. The desalination project's engineering firm, AquaTech, specified 2507 and 2205 Code Plus Two® for the shell plate, which was rolled at the Outokumpu plate facility in New Castle. The plate applications include feed equalization and seed recycle tanks to evaporators.

The new project comes on the heels of another major order for Outokumpu stainless for desalination projects in the Middle East. Our hot rolled plate facility in Degerfors recently received a major order for 1,750 tons of plate in our new lean duplex, LDX 2101®. This plate will be used for seawater desalination plants in Dubai and Abu Dhabi. ■



Machining Bar Products

continued from page 1

also Eddy Current tested, chamfered, and boxed. Outokumpu manufactures 303 HST in rounds from 3/16"-1" diameter and in hex from 3/16"-1".

LDX 2101®

Outokumpu's LDX 2101® was developed to offer a competitive stainless alternative to materials such as painted or color-coated carbon steel. LDX 2101 has a corrosion resistance equivalent to the 304 grade, but with a 90 percent higher

mechanical strength. LDX 2101 also contains only 1.5% nickel compared to almost five times that amount in other grades, so it offers great price stability. "Lean duplex in bar is stronger than both 304 and 303 and machines much better. It's a marvelous combination," said Lou Kern, Outokumpu Executive VP, Long Products. "And with the high price of nickel right now, LDX 2101 is also an economical grade." ■



U.S. Air Force Dedicates New Memorial

Three stainless steel spires, one soaring skyward up to a height of 270 feet, create a fitting memorial to the men and women who have served in our country's Air Force. This new U.S. Air Force Memorial, dedicated October 14, 2006 in Arlington, Virginia, was designed to evoke a flying



President Bush spoke at the U.S. Air Force Memorial dedication. Photo by Catherine Houska, TMR Consulting

spirit and the precision of the “bomb-burst” formation made famous by the U.S. Air Force Thunderbirds.

The stainless steel in the new memorial was provided by Outokumpu's plate mill in New Castle, Indiana. “The whole New Castle team was honored to be given this job and it was great to see everybody come together to make it happen,” noted Frank Alvin, Regional Sales Manager for Plate Products. “Everyone who worked with us had the confidence that we could do the job and we had the confidence, also,” added Alvin, referring to the complexity of the plate order.

“The Air Force Memorial is probably the world's most demanding public structural application for stainless steel built to date. Because of the spires' freestanding curves, ARUP (the project structural engineers), spent months doing extensive, elaborate modeling and wind tunnel testing under all possible weather conditions,” reported stainless steel project consultant Catherine Houska of TMR Consulting. “Obtaining the desired finish was also demanding. The spires needed to look

seamless and have the right level of reflectivity so that pilots aren't blinded by glare during the day,” Ms. Houska noted. “But the finish needed to provide for night time illumination as well.”

The \$30 million memorial, fifteen years in the making, is set on a ridge next to Arlington National Cemetery overlooking the Pentagon and the nation's capital. (It is also where the Wright brothers first demonstrated their airplane to the US army.) In speaking at the dedication ceremony,

President Bush stated, “Under these magnificent spires, we pay tribute to the men and women of the Air Force . . . and looking from this promontory to a place once filled with smoke and flames, we remember why we need them.”

The memorial was designed by internationally renowned architect James Ingo Freed of Pei Cobb Freed & Partners. This was one of the last major projects for Freed, who died in December 2005. Mr. Freed designed the U.S. Holocaust Memorial Museum in Washington D.C. and many other prominent structures around the world. The design required 3/4” thick, stainless steel plates in low sulfur type 316L for its corrosion performance.

The stainless steel was roller leveled and then polished, pickled and blasted with fine glass beads so the finished metal would be reminiscent of the “skin” of an airplane.



“The specifications were very tight,” Alvin recalled. The structural design took more than a year, and New Castle staff consulted with the design engineers well before the project even began — to help them

understand what was possible in terms of plate flatness, width and possible surface finishes.

One of the most daunting aspects of the design was the “damping” of the spires to make sure they didn't literally shake themselves apart in the high winds that can occur 270 feet above ground.

The damping was provided by 13 steel boxes stacked in the spires, each containing a 20-inch diameter, 2,000 lb. metal ball encased in a stainless steel shell. The balls roll within synthetic damper pads, and as the balls impact the damping pads, energy is

dissipated and structural movement is constrained.

“This memorial soars. It soars in space and in the imagination,” Air Force Secretary Michael Wynne said. “These three spires echo our values: integrity, service and excellence.” ■



The stainless steel in the U.S. Air Force Memorial was provided by Outokumpu. Photo by Catherine Houska, TMR Consulting

Outokumpu's 254 SMO® Water Treatment Project Honored

A reverse osmosis Zero Liquid Discharge water treatment project in Burbank, California utilizing Outokumpu heat-resistant Duplex grade 254 SMO® was honored as "Best Industrial Project of 2005" by the water market publication *Global Water Intelligence*. The Magnolia Power Project, equipped by Aquatech International Corp., was cited as "the most impressive technical achievement for an industrial project."

"In areas that require Zero Liquid Discharge, anything that is added to the water used in operating a power plant must be removed. And the waste water must then be delivered back into a water system as clean — or even cleaner — than it was at its source," explained Elisabeth Torsner, Outokumpu VP Market Development/Technical Coordinator. "In some cases the water cannot be returned to any source and must be completely evaporated."

Outokumpu's stainless steel grade 254 SMO® is ideal for constructing brine concentrators; "a very

corrosive environment in which the last dissolved salt and other impurities are removed," Ms. Torsner noted. "Zero Liquid Discharge systems are increasingly being viewed by companies and municipalities as an economical way of waste water treatment, now that new membrane technologies have reduced the cost," she added.

In addition the award for Desalination Project of the Year went to the world's largest desalination plant, the Ashkelon plant in Israel, which also used Outokumpu stainless in its construction. ■



A water treatment project in California utilizing 254 SMO® received a Global Water Award.

Outokumpu Becomes a Dow Jones Index Member

As of September 18, Outokumpu has been selected as a member of the Dow Jones Sustainability Indexes (DJSI). Outokumpu was among 46 companies added to the index this year, while 36 firms were deleted. The DJSI assesses some 1,200 companies globally on their economic, environmental and social performance on issues such as corporate governance, risk and crisis management, codes of conduct, environmental performance and reporting, talent attraction and retention, labor practice, corporate citizenship and social reporting.

Total assets under management in DJSI-based investment vehicles currently amount to over \$5 billion, and have increased by some 30 percent over the past year.

Outokumpu recently announced that its third quarter 2006 operating profit was better than had been indicated in the previous quarter, and that profits improved over those in the second quarter. ■

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