

Of Mutual Interest

November 2007

Solutions for Our Service Center Marketing Partners from Outokumpu

OUTOKUMPU

Duplex Demand Spurs Historic Plate Expansion

The demand for Outokumpu's low-nickel duplex grades and individually rolled, wide and thick stainless steel plate has resulted in the largest expansion of Outokumpu's global facilities in our company's history. Outokumpu recently announced that the company will invest more than US\$1.1 billion over the next five years at the Avesta and Degerfors works in Sweden and at the hot-rolled plate facility



The Outokumpu Plate facility in New Castle will receive \$57 million for improvements over the next five years.

"We see tremendous potential in special grades and special products and this investment will yield best-in-class manufacturing capabilities for products in which we already have a very strong position," noted Mike Stateczny, Vice President of Plate Products.

Outokumpu currently holds some twenty percent of the global market share of plate mill plate and is the clear leader in duplex grade stainless deliveries with approximately 50% of the global market share. Demand for duplex grades is growing faster than that of other standard stainless grades, with an estimated annual growth of more than 20%.

"Stainless steel is important to everything that the world needs more of — clean air, clean water, alternative energy,

bio-fuels, among many other needs," Stateczny reported. He cited continuing growth opportunities for duplex and value-added tailor-made plate for tanks, pressure vessels, piping, transportation, civil engineering and architectural structures. n

at New Castle, Indiana. There will also be additional improvements at Outokumpu facilities in Germany, Italy, and China.



Of these investments about \$57 million has been earmarked for New Castle. The largest investment, \$784 million, will be made at the Avesta, Sweden works, with an additional \$257 million targeted for the Degerfors plant.

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Outokumpu is an international stainless steel 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 stainless steel and services worldwide. We are dedicated to helping our customers gain competitive advantage.

www.outokumpu.com/stainless/na

New Markets Emerge for LDX 2101®

New markets and applications continue to be identified for Outokumpu's new lean duplex, LDX 2101®, in some cases through the work of manufacturers and end-users themselves. Here are just a few examples of new markets specifying Outokumpu stainless steels.

For a New Generation of Tanks

The high cost of nickel recently pushed the Brenner Tank Company to engage in a year of research before selecting LDX 2101 over 316L for its "new generation" of cargo tanks. In a Brenner Tank news release, company VP of Sales and Marketing, John F. Cannon, cited significantly higher tensile and yield strengths, increased pitting resistance and an improved ability to sustain temperature changes, along with significant cost savings for the decision.

"When we talk about savings with lean duplex, we're literally talking about thousands of dollars per cargo tank," Cannon was quoted as saying in the release.

Brenner Tank secured a special permit from the United States Department of Transportation to use LDX 2101 for transporting chemicals and other hazardous materials. Outokumpu worked closely with Brenner Tank on the polishing of LDX 2101 to achieve a surface finish acceptable to the tank trailer industry. Brenner Tank products are used to transport a variety of

materials from chemicals to milk and other liquid foods.

For Vessel Dimple Jackets

In order to provide a pathway for heating and cooling media such as steam or water to pass around a stainless steel tank, dimple jackets are constructed on the outside of the vessels. These are used in industries ranging from pharmaceuticals to dairy products. Like cargo tanks, dimple jackets also were typically made from 316L. "With 316L, however, companies were experiencing failures due to stress corrosion cracking and thermal shock at a higher rate than they considered reasonable," said Dr. James D. Fritz,



A new generation of cargo tanks from Brenner Tank will use Outokumpu's LDX 2101 rather than 316L stainless.

Photo from Brenner Tank Company Website.

Senior Development Manager TMR Stainless, an industry consultant to Outokumpu.

Dr. Fritz was contacted by engineers at DCI, Inc., a manufacturer of stainless steel storage and processing tanks, to jointly work on a study of LDX 2101 for dimple jackets. The results of their research were presented at the 2007 NACE conference. "A lot of welding is required to assemble a dimple jacket on the outside of a vessel, so there were concerns about corrosion resistance

LDX 2101® Data Available

LDX 2101® has been added to the corrosion handbook tables found at the "Commercial Tools" section of the Outokumpu Web site at www.outokumpu.com. Service centers are encouraged to direct end-users to this information as it has proven invaluable when making material decisions.

after welding," Dr. Fritz said. "Our tests on LDX 2101 showed very good corrosion resistance, along with very good stress corrosion cracking properties and beneficial properties when it came to thermal stress or shock," Dr. Fritz pointed out. "The tests showed that LDX 2101 has superior resistance compared to 316L," he added. Since the findings were published, DCI has sold in excess of 40 vessels with dimple jackets constructed of LDX 2101.

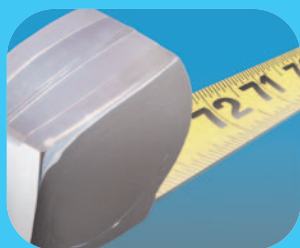
For Structural Applications

While working on the showroom for a major electronics retailer on 5th Avenue in New York City, the structural design firm, TriPyramid, selected LDX 2101 to support the store's low profile glass curtain walls. "The advantage of using LDX 2101 is that you've got much higher strength, so you can reduce the size of the structural support sections,"

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Ready for Your 72" Coil Order

For our stocking distributor partners in the 72"-wide marketplace, Outokumpu is enhancing our program to keep you competitive. We're ready for your order right now with a North American depot inventory to deliver our proven quality product from stock when you need it.



72"-wide stainless coil is available in cold and hot rolled.

Outokumpu produces 72"-wide stainless coil, both cold and hot rolled, for maximum flexibility and efficiency. We can produce up to 80" maximum width (two-meter-wide coil for European and Asian

standards). Our 304, 304L, 316 and 316L grades are available in thickness from .059 to .50 inch

to market together

and with a 2B finish product in thickness up to .25 inch. Our special grades, like LDX 2101[®], 2205 Code Plus Two[®], 253 MA[®], and 254 SMO[®] are all available from mill production. And a standard procedure at Outokumpu — regardless of grade — is holding gauge tolerances tight, so you get the weight gain you can expect for maximum value.

For more information about 72"-wide coil or any Outokumpu stainless steel coil product, call 1.800.833.8703. n

Providing Potable Water Around the Globe

Another country can now be added to the list of some 20 nations with desalination projects using stainless steel from Outokumpu: the U.S.A.

Outokumpu recently supplied 10-inch pipe in 2205 Code Plus Two[®] from our Wildwood, Florida plant to the El Paso/Fort Bliss desalination facility in Texas, now in operation. The desalination project uses newly refined and

affordable reverse osmosis techniques for the world's largest inland brackish water project to date — which will desalt some 27.5 million gallons of ground water a day and provide the area with sufficient water for growth and development for more than 50 years. "With the ongoing draught throughout much

can be far inland, permeating and blending into ground water so that it requires filtration," she added. "In El Paso, they are literally getting water out of the desert."

Pioneering Work on a Project in Saudi Arabia

Water is emerging on, if not out of, other deserts in the world with the help of Outokumpu, which continues to be the global leader in utilizing stainless for

desalination. Recently, some 10,000 tons of duplex plate in stainless grades SAF 2304[®] and 2205 Code Plus Two[®] were used to construct one of the world's largest desalination plants, for the MARAFIQ power and water utility company in Saudi Arabia. The plant was constructed by the thermal-

desalination specialist SIDEM of France, and provides 800,000 cubic meters of desalted water per day.



The MARAFIQ power and utility company in Saudi Arabia was constructed out of 10,000 tons of Outokumpu duplex plate.

Photo courtesy of SIDEM.

of the U.S., these types of projects will become more and more important," said Elisabeth Torsner, Outokumpu Vice President Market Development/Technical Coordinator. The El Paso project uses a previously unusable brackish groundwater supply to produce drinking water. "Along the U.S. coasts, sea water is actually not confined just to the sea," Ms. Torsner explained. "Brackish water

Much of the stainless was used to construct the evaporator chambers that are central to the thermal-desalination process. Outokumpu pioneered the idea of solid duplex evaporators, using different grades for different corrosion exposures in the desalination process. The duplex evaporators can be built with thinner plates, requiring less material and less welding compared to other material configurations. n

Third Year in a Row as Global Supplier of the Year to Enodis

For the third consecutive year, Outokumpu has been named “Global Commodity Supplier of the Year” by Enodis, the world’s largest manufacturer of food equipment. Recognized Enodis brands include Frymaster, Scotsman, Garland, Delfield, Kysor, and Cleveland Range.

Enodis judges its global suppliers in a variety of commodities through a detailed quarterly evaluation program that measures material quality, delivery, total value, service/relationship, and technical support. In its 2007 ratings, the top 25 suppliers to Enodis had an average quarterly score of 74. Outokumpu’s average quarterly score was significantly higher, at 90. In 2005, when Outokumpu first received the award, the company not only received the highest score of any commodity supplier, but also showed continuous improvement over four consecutive quarters.

Outokumpu supplies primarily 304-grade stainless steel to six Enodis operating companies in the United Kingdom, Canada, and Italy. The stainless, primarily in coil, is used to achieve superior performance in a wide range of high-temperature continuous cooking units including commercial steam cookers, convection and pressure steamers, steam jacketed kettles, tilting skillets/ braising pans, combination ovens/steamers, rotisseries, and cook/chill systems.

Working through four regional service centers, Outokumpu has supplied stainless to the Enodis Cleveland Range plant in Toronto, Canada for more than 20 years for the production of pressure vessels (known in the industry as kettles) and other commercial steam cooking equipment and systems. Over those 20-plus years, Outokumpu metallurgists have made adjustments in the chemistries of their 300-series

stainless steels that allow it to deep draw and spin better for the particular manufacturing processes of Cleveland Range, which spins and circular polishes cut-to-length stainless sheets and then square and circle shears them to rounds as large as 60” in diameter. [n](#)



Chuck Turack, VP/General Manager Coil Products, (center) accepts Outokumpu’s third “Global Commodity Supplier of the Year” award from Enodis.

New Markets for LDX 2101 continued from page 2

noted project consultant Catherine Houska of TMR Consultants. “The result is that the structure looks like it is made entirely from glass and the structural sections become the ‘jewelry’ details. LDX 2101 is becoming very popular with architects and they are starting to do some really amazing things with this product,” reported Houska. In some architectural applications, more corrosion resistance is necessary because of exposure to climate changes and abrasives such as road salts. “LDX 2101 is the least expensive option to get the required strength and still have the corrosion resistance adequate for most of these applications,” she added.

For Shafting Applications

Outokumpu bar products has been working to identify new

markets for the relatively new grade, LDX 2101, which is also available in bar forms. One promising market for distributors to explore is shafting applications. “Shafting is a key area for bar,” reported Mike Eberth, Outokumpu National Sales Manager for Bar Products. “There’s a lot of stainless bar that can be used, particularly in large diameters, in industrial mixers, pumps, stamping equipment, actuators, processing, and hydraulics. We are finding that LDX 2101 is a candidate for all those areas.” LDX 2101 offers corrosion resistance and higher strength — along with low nickel content (for better price stability). “In numerous bar applications there is value in replacing 304 and 316 with LDX 2101,” Eberth noted. Currently, LDX 2101 bar is produced in 1/2 “ to 4 1/2” diameter. [n](#)

Is the Stainless Car Ahead?

Automakers worldwide are working on ways to achieve higher environmental standards by reducing carbon dioxide emissions through lower fuel usage, while continuing to improve safety. One manner of reaching these goals is to reduce the overall weight of a vehicle while still maintaining its strength. And one material that could enable carmakers to succeed in this endeavor is stainless steel.

Three of the world's largest stainless steel producers, including Outokumpu, and six major auto companies have joined forces for the first time to present stainless as a viable alternative for automotive structural components. It's called the Next Generation Vehicle research project (NGV).

Through the project, new tools are being developed that can be used by carmakers to design and fabricate structural parts out of high-strength stainless steel.

By using high-strength stainless grades, such as duplex stainless steels, car parts can be made



A Volvo S40 was used in tests to demonstrate how stainless steel can reduce vehicle weight by 20 percent.

considerably thinner and lighter, with other benefits including excellent fabrication and unique hardening behavior during cold-forming processes. Using the structural design of a portion of a Volvo S40 as a benchmark, NGV engineers developed automobile designs that reduced vehicle weight by 20 percent. In crash-tests, the behavior of stainless steel was very good, although different from ordinary steel. From these test results, virtual design tools will be developed and made available to the auto industry by the end of 2007 and will be fine-tuned and promoted over the next year.

"Anything that effects the auto industry is going to be huge," said Elisabeth Torsner, Outokumpu Vice President Market Development/ Technical Coordinator. "For example, when automotive exhaust systems moved from carbon steel to stainless steel it

increased the stainless steel business by 500,000 tons a year." She noted that truck manufacturers are particularly interested in weight reduction so that their vehicles can increase payloads in relation to fuel use. n

compositions

Important Numbers

We're ready for your call to Outokumpu

SALES/COIL PRODUCTS	PHONE: 1-800-833-8703	FAX: 1-800-545-8617
SALES/PLATE PRODUCTS	PHONE: 1-800-349-0023	FAX: 1-765-529-8177
SALES/TUBULAR PRODUCTS	PHONE: 1-800-731-7473	FAX: 1-352-748-2751
SALES/BAR PRODUCTS	PHONE: 1-888-458-4600	FAX: 1-803-789-3177
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