GLOBAL BUSINESS

Four companies join to form direct manufacturing research

Boeing, EOS Electro Optical Systems, Evonik Industries, and MCP HEK Tooling have joined with the University of Paderborn to form the Direct Manufacturing Research Center (DMRC) in Paderborn, Germany. An agreement was signed by representatives of the companies and the university, to further the development of direct manufacturing processes and systems. This cooperation builds on the expertise of the industrial partners ranging from aerospace, material production, and equipment manufacturing, and on the research capabilities of the University of Paderborn. The DMRC is scheduled to open in fall 2008.

Direct manufacturing technology automatically builds up parts in layers, such as with a laser, based on a computer-aided design (CAD) data set. While direct manufacturing technologies are already being used to develop prototypes, only limited cases of the production of small complex parts can be found.

The industrial partners will contribute their core competencies to the research cooperation to approach these challenges in a joint effort: Boeing defines production process and system requirements from an aerospace standpoint. Evonik Industries produces polymer-based standard materials as well as material solutions tailored for direct manufacturing. EOS and MCP HEK Tooling will provide their expertise in the development of laser sinter and laser melting systems for metals and polyamides. www.boeing.com; www.eos.info; www.evonik.de; www.mcp-group.de; www.uni-paderborn.de; www.dmrc.de.

Business Conditions Report: June 2008

According to the June 2008 Precision Metalforming Association (PMA) Business Conditions Report, metalforming companies do not anticipate improvement in business conditions in the next three months. Conducted monthly, the report is an economic indicator for manufacturing, sampling 143 metalforming companies in the United States and Canada.

When asked what the trend in general economic activity will be during the next three months, metalformers expect conditions to dip slightly. Just 12% of participants report that activity will improve (down from 14% in May), 38% forecast a decline in business conditions (up from 36% in May) and 50% anticipate activity will remain unchanged (the same percentage as the previous month).

Metalforming companies also expect little change in incoming orders during the next three months. Twenty-two percent of companies predict an increase in orders (down from 24% in May), 44% anticipate no change (down from 46% last month) and 34% expect a decrease in orders (compared to 30% in May). www.pma.org/about/stats/BCreport

Quatro Composites, a leader in carbon fiber design and manufacturing, has become a technology partner in manufacturing **Insitu's** next generation autonomous Unmanned Air Systems. Insitu was able to take advantage of Quatro's specially designed and fabricated assembly and alignment tools, as well as its proprietary out-of-autoclave manufacturing processes. http://www.quatrocomposites.com/.

Kaiser Aluminum announces that its Board of Directors has approved a $19 million expansion at its Tennalum facility in Jackson, Tenn., to increase capacity and capabilities through the addition of an extrusion press, heat treat furnace, drawbench, and other ancillary equipment. The expansion will add capacity to meet anticipated future demand for cold-finished rod, bar, and related products. The Tennalum project is expected to be completed and production-ready by the end of 2009. www.kaiseraluminum.com

Global crude steel production rises by 5.8% versus 2007

World crude steel production for the 66 countries reporting to the International Iron and Steel Institute (IISI) was 119.5 million metric tons (mmt) in May. This is 5.8% higher than the same month last year.

China produced 46 mmt of crude steel in May. This is an increase of 10.5% compared to the same month in 2007. India, Japan and Korea also showed growth. Overall, Asia produced 67.6 mmt of crude steel in May

BRIEFS

Alcan Packaging, a division of **Rio Tinto Alcan**, announces that it will invest euro 17 million (approximately $27 million) in the Central European packaging market. Alcan Packaging will build a state of the art flexible packaging facility located in the Novy Bydzov area, in the Czech Republic, to supply the emergent food market. www.alcan.com

Alcoa is the recipient of a Global Innovation Award from Nissan Motor Co. for its proprietary vacuum die casting process (AVDC) and new, advanced alloys on the GT-R, Nissan's new flagship, high-performance sports sedan. The award was presented at the Nissan Global Supplier Awards ceremony held recently in Tokyo. www.alcoa.com

Allegheny Technologies Inc. expects second quarter 2008 earnings to be in the range of $1.65 to $1.67 per share, including a $0.11 per share one-time net tax benefit. ATI had previously said that it expected second quarter earnings to be somewhat higher than the $1.40 per share achieved in the first quarter 2008. www.alleghenytechnologies.com

ArcelorMittal has signed an agreement to acquire the **Mid Vol Coal Group**, located in southern West Virginia and southwestern Virginia in the Central Appalachian Coal Basin. It produced 1.5 million tons of metallurgical coking coal in 2007 and has estimated recoverable saleable reserves and resources in excess of 85 million tons. www.arcelormittal.com

CPI Aerostructures Inc. has landed one of its largest-ever contracts, a $70-million award from the **Boeing Co**. to build parts for the Air Force's A-10 Thunderbolts, attack jets manufactured decades ago by the now defunct Fairchild-Republic Co. of Farmingdale. Boeing has received a $2-billion contract to build up to 242 upgraded wings for the A-10 Warthogs. The project is expected to keep A-10s flying for another 20 years. www.CPI.com

Dow Chemical and **Rohm and Haas** announce a definitive agreement under which Dow will acquire all outstanding shares of Rohm and Haas common stock for $78 per share in cash. The acquisition will make Dow the world's leading specialty chemicals and advanced materials company. Last December, Dow announced a joint venture with **Petrochemical Industries Company of the State of Kuwait**. With the collective impact of these two deals, performance products and advanced materials will represent 69% of Dow's total sales, compared with 51% prior to these transactions. www.dow.com

General Electric Co. has acquired **Walter Engines**, a small airplane-engine company in the Czech Republic. GE plans to turn Walter Engines into a competitor against archrival **Pratt & Whitney**, the leading maker of turboprop engines. Walter Engines builds rugged propeller engines used heavily in Eastern Europe and in niche markets such as agricultural and cargo planes. www.ge.com

Kobe Steel Ltd. will shut its U.S. steel powder operations by selling Kobelco Metal Powder of America Inc. to Sweden's **Hoganas AB.** www.kobelco.co.jp

MetalTek International, Waukesha, Wis., has acquired **Meighs Castings Limited**. Meighs, which offers unique metal castings capabilities and complex alloy solutions, was purchased from **Langley Alloys Limited,** Stoke-on-Trent, England. www.metaltek.com

Novelis Inc. has been selected by **BMW** to supply aluminum sheet for the lightweight hoods of its all-new X6 crossover SUV. Novelis is the world's leading supplier of high performance aluminum sheet for automotive applications. www.novelis.com

Nucor Corp. has completed the acquisition of 50% of the stock of **Duferdofin - Nucor S.r.l.,** for a purchase price of $658 million. The company will continue to operate from its current headquarters in San Zeno (near Brescia) Italy. www.nucor.com

OAO Severstal has entered into a definitive merger agreement to acquire Esmark Inc., manufacturer and distributor of flat rolled and other steel products.

UC Rusal is investing around $50 million into the expansion of cast-house production at the Irkutsk Aluminum Smelter. The expansion is required due to the previous introduction of two new potrooms, which is to increase production capacity of the smelter by 170,000 metric ton of aluminum per annum. www.rusal.ru

Volkswagen picked Chattanooga. Tenn., over rival sites in two other states for a new U.S. assembly plant expected to create about 2000 jobs. **Volkswagen Group of America Inc**. says it will produce a new midsize sedan designed specifically for the North American consumer, with the plant aiming for a capacity of 150,000 cars a year. Volkswagen earlier this year relocated its North America headquarters from suburban Detroit to northern Virginia. www.vw.com

2008 compared to 62.4 mmt in May 2007, an 8.3% increase in crude steel production.

In Europe, Germany produced 4.1 mmt of crude steel in May, an increase of 2.6% compared to May 2007. Turkish crude steel production was 2.5 mmt, a 12% increase compared to the same month last year. Over the first five months of 2008, Turkey produced 11.7 mmt of crude steel, which is 9% more than the same period in 2007.

Brazil's crude steel production also grew in this month. In May 2008, Brazil produced 3 mmt, compared to 2.9 mmt in the same month last year, an increase of 2.8%. www.worldsteel.com

Titanium oxide single crystals build efficient solar panels

The first titanium oxide single crystals with large amounts of reactive surface that could revolutionize the way solar energy is harvested has reportedly been developed at the University of Queensland, Australia. Highly active surfaces in such crystals allow high reactivity and efficiency in devices for solar energy conversion and hydrogen production.

"Titania nanocrystals are promising materials for cost-effective solar cells, hydrogen production from splitting water, and solar decontamination of pollutants," says Prof. Max Lu. "The beauty of our technique is that it is very simple and cheap to make such materials at mild conditions. Now that the research has elucidated the conditions required, the method is like cooking in an oven, and the crystals can be applied like paints."

In addition to solar panels, the crystals could also serve to purify air and water, because the principle for converting sunlight to electricity also works to break down pollutants in water and air. This means that the crystals could be painted onto a window or a wall to purify the air in a room.

For more information: Max Lu, Australian Institute for Bioengineering and Nanotechnology, University of Queensland, Australia; http://www.aibn.uq.edu.au.

Ashland Inc. and **Sud-Chemie AG** have signed a non-binding memorandum of understanding to form a new, global joint venture to serve foundries and the metal casting industry. When final agreements are reached, each parent company will hold a 50% share of the joint venture, which is planned to be headquartered in Venlo, The Netherlands. Having begun in 1970 with the formation of the existing ASK joint venture in Hilden, Germany, a highly-successful joint venture operating in Europe, the existing relationship between Sud-Chemie and Ashland would now be significantly expanded. The new organization would unite the foundry-related sales, marketing, technology and certain manufacturing operations of both parent companies with those of ASK. www.ashland.com