



**UNITED  
PERFORMANCE METALS**

QUALITY SOLUTIONS. TRUSTED PARTNERS.

AN ONI COMPANY



# The UPM Market Informer

## GE Ships Marine Gas Turbine for US Navy

GE’s Marine Solutions has shipped a LM2500 marine gas turbine propulsion module that will help power the United States Navy’s 75th DDG *Arleigh Burke*-class destroyer *Jack H. Lucas* (DDG 125).

Shipbuilder Huntington Ingalls Industries’ Ingalls Shipbuilding division will construct this new destroyer with U.S. Navy Flight III upgrades incorporated. Each DDG destroyer features GE LM2500 marine gas turbines in a combined gas turbine and gas turbine configuration (COGAG).

“Since 1991—for just the U.S. Navy’s DDG program alone—GE has delivered nearly 300 of our reliable LM2500 marine gas turbines. We used state-of-the-art engine technology, made in the U.S., to proudly support the world’s most advanced surface combatants,” said GE’s Brian Bolsinger, Vice President, Marine Operations, Evendale, Ohio.

GE’s strong industrial presence in Ohio includes its engine manufacturing facility just north of metropolitan Cincinnati in Evendale, OH. According to United States Senator Sherrod Brown (Ohio), “Ohio manufacturing supports local jobs and our national security, and GE’s continued commitment to investing in Ohio speaks to the strength of Ohio workers.”

## Stainless Steel Surcharges to Rise in February

According to a recent post in *American Metal Market*, Stainless steel surcharges are poised to increase across the board in February for all Type 201, 304, 316 and 430 stainless steel products following declines in January. The gains are being driven by higher nickel, copper, iron and molybdenum prices, offset by flat chrome and manganese pricing. Page 4 of this newsletter provides surcharge information that may be useful when making your purchasing decisions. Contact [sales@upmet.com](mailto:sales@upmet.com) for more information.

### Inside this issue

- GE Marine Solutions ..... 1
- February Surcharge Rise ..... 1
- Industrial Production Peak..... 2
- Metal Tires for Mars ..... 2
- GE Plant Solutions for Mexico ..... 3
- UPM’s New 6kw Fiber Laser..... 3
- Surcharge Update ..... 4

### Hot Off the Press

- Watch a video on UPM’s new 6kw Fiber laser on our website: [www.upmet.com/videos](http://www.upmet.com/videos)

## U.S. Hits New Peak in Industrial Production

Lost amid the other good news involving the manufacturing sector is the revelation the United States has reached a new peak in industrial production. Michael Hicks, a Ball State University economist and director of the university's Center for Business and Economic Research, says the economy reached this new peak in December.

IP initially peaked in 2007, before the economic crisis reduced production by nearly 15 percent through the trough in 2009. A second peak was reached in 2015, before productivity again dipped.

"Other measures tell the same story. Inflation-adjusted manufacturing GDP will peak in fourth-quarter 2017, both in dollar and quantity index measures," Hicks says.

"Importantly, new data on value-added manufacturing offers an even more interesting insight into America's manu-

facturing strength.

The value-added calculation is a measure of production that subtracts all the goods used in the process. By employing this across all U.S. manufacturing, it omits the spending by factories on imported parts. "That number is at a record high right now, a full decade after the start of the Great Recession," Hicks says.

Better yet, Hicks doesn't see any sign that the trend will be reversing itself soon, nor is there any reason to think there's a cap to productivity growth. "There's nothing signaling we're going to be derailed. There is constant change in demand for goods, but I don't think there's anything out there that generally argues that there's going to be a change," he says. *Source: Metal Center News*

## Metal Tires for Mars: 'Shape Memory' Could Help Rovers Roll



A good tire means a lot when the nearest roadside assistance is 34 million miles (55 million kilometers) away. For future rovers that will explore the surface of Mars, NASA scientists have created a tire that contains no air, can handle the rugged Martian terrain, and may even have applications on Earth for trucks and off-road vehicles.

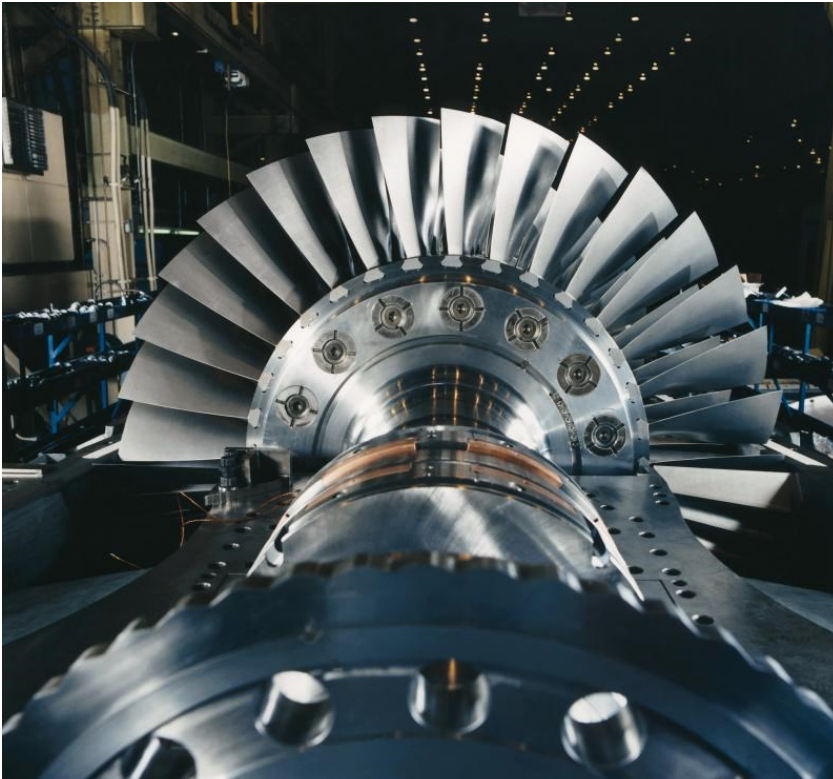
The new tire is made of "shape memory alloy" composed of nickel and titanium. These alloys bend and twist like other metals (in materials science parlance, they are ductile rather than brittle). What makes them different is their atomic structure, which tends to resume its original shape after the alloy is bent, stressed or deformed.

The idea for the tire came from a meeting between Santo Padula, a NASA materials scientist at NASA's Glenn Research Center, and Colin Creager, a NASA engineer at Glenn who was working on how to make a Mars-ready tire for a rover. NASA's Curiosity rover had rigid wheels that sustained damage in 2013 from rolling on the rough terrain, even though the rover doesn't move very fast.

Ordinarily, when metal like steel is bent, the bonds between atoms are stretched. "If you overstretch (the metal), the bonds break," Padula told Space.com. "You've exceeded the elastic limit of that bond. Think of when you had a slinky as a kid, and stretched it too much." An overstretched slinky, he said, won't return to its former shape.

The alloy works because its arrangement of nickel and titanium atoms requires the least amount of energy out of any alternative arrangement, so the atoms naturally fall back into that arrangement, he said. It takes energy to stretch or bend a shape memory alloy, but once that energy is no longer being applied, the atoms fall back to their original positions.

While the new tires won't be on the next NASA rover going to Mars—the Mars 2020 rover—they are a part of a new rover design proposal. *For more on this story, go to [www.space.com](http://www.space.com)*



## GE to Provide Plant Services Solutions for 907MW Norte III Project in Mexico

GE Power Services has won a contract of over \$330 million for a consortium formed by Macquarie Capital and Technit to provide total plant service solutions for the 907MW Norte III combined-cycle power plant in Mexico. Under Multi-year-agreements (MYA), GE has agreed to provide total services solutions for the power plant for a period of 25 years.

The Norte III power plant is located about 30KM south of the US-Mexico border in Ciudad Juarez in Chihuahua State. As per the terms of the agreement, GE will deploy its Fleet360 platform of total plant solutions for the power plant which runs on four GE 7F.04 gas turbines and two Toshiba steam turbines.

GE will also be deploying its Predix-based Asset Performance Management (APM) and Operations Optimization (OO) software applications for the plant. These solutions will apply advanced data analytics to foresee and minimize unplanned downtime, and boost productivity of the power plant.

GE Power Services global operation & maintenance (O&M) business general manager Terrence Schoenborn said, "Our total power plant service solution provides greatly improved risk mitigation while offering capacity and efficiency guarantees tailored to meet the Macquarie—Technit Consortium's needs.

The Norte III plant is anticipated to meet the power consumption needs of over 500,000 houses upon its completion. About 2,000 workers are expected to be used during the peak construction phase of the project. *Source: Energy Business Review*

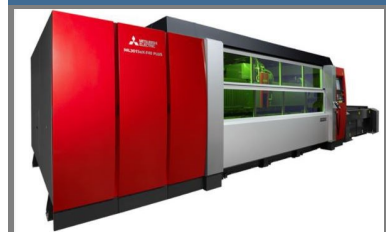
## UPM Introduces New 6kw Fiber Laser

United Performance Metals has installed a new 6kw fiber laser in the company's Cincinnati, Ohio headquarters. The new fiber laser's high-speed processing accuracy offers superior finish and will reduce lead times by cutting metal three times faster than traditional CO2 lasers. The fiber laser also features non-clamping edges for better sheet utilization and tighter tolerances.

"The new fiber laser takes our service to the next level with speed, precision and performance," commented Ryan Getz, Laser Cell leader. "The technology in our new fiber laser offers superior cutting quality for continuous production that's a real game-changer for our customers."

To accompany this equipment, UPM has installed a new 48" Arku leveler and 36" Timesaver. This equipment ensures gently deburred, flat and stress-free parts. Watch the company's new video on the 6kw fiber laser here:

<http://bit.ly/2DOcDb6>





## Surcharge Totals November 2017—April 2018

### Air Astana Takes Delivery of First Airbus A321neo Powered by Pratt & Whitney Geared Turbofan™ Engines

Pratt & Whitney, a division of United Technologies Corp. and Air Astana, the award-winning Kazakh flag carrier, have celebrated delivery of the airline's first Airbus A321neo aircraft. The aircraft, powered by Pratt & Whitney Geared Turbofan™ (GTF) engines, arrived at the airline's hub in Almaty, Kazakhstan on December 30 and is scheduled to start passenger service on January 16th.

"As part of the A320neo family introduction, Air Astana is delighted to take delivery of Pratt & Whitney geared turbofan engines. We expect to take delivery of 17 GTF-powered A320neo family aircraft between now and 2020, which represent the latest in clean, fuel-efficient engine technology, and we look forward to a long and mutually beneficial relationship with Pratt & Whitney," said Peter Foster, president and CEO of Air Astana.

Air Astana operates several aircraft powered by Pratt & Whitney and its joint venture International Aero Engines.

Grades	Nov	Dec	Jan	Feb	Mar	Apr
15-5	0.4642	0.4931	0.4524	0.4861	*	*
15-7	0.6040	0.6391	0.5998	0.6970	*	*
17-4	0.4665	0.4929	0.4513	0.4829	*	*
17-7	0.5304	0.5714	0.5101	0.5609	*	*
201	0.4618	0.4840	0.4336	0.4665	*	*
301 7.0%	0.5270	0.5667	0.5054	0.5551	*	*
302/304/304L	0.5731	0.6191	0.5511	0.6066	*	*
304-8.5%	0.5904	0.6293	0.5694	0.6280	*	*
305	0.7176	0.7883	0.7022	0.7820	*	*
309	0.7581	0.8290	0.7336	0.8131	*	*
310	1.0237	1.1380	1.0080	1.1297	*	*
316/316L	0.7485	0.8054	0.7460	0.8643	*	*
316LS/316LVM	1.0200	1.0700	1.0500	*	*	*
317L	0.8707	0.9333	0.8705	1.0197	*	*
321	0.5960	0.6481	0.5784	0.6401	*	*
347	0.8636	0.9578	0.8881	0.9497	*	*
409/409 Mod	0.2119	0.2080	0.1925	0.2003	*	*
410/410S	0.2207	0.2169	0.1995	0.2072	*	*
430	0.2729	0.2693	0.2399	0.2473	*	*
434	0.3213	0.3172	0.2923	0.3185	*	*
439	0.2842	0.2806	0.2485	0.2557	*	*
440A	0.2729	0.2693	0.2399	0.2473	*	*
2205	0.7249	0.7519	0.7020	0.8158	*	*
263	6.9385	7.2440	7.3977	7.4595	7.8741	8.7194
276	3.0924	3.7369	4.0000	4.1660	4.4784	4.4253
A286	0.8173	1.0129	1.1153	1.1137	1.2366	1.1441
330	0.9940	1.2534	1.3875	1.3971	1.5744	1.4251
400	1.8355	2.3819	2.5286	2.5921	2.9235	2.7200
455	0.6300	0.6600	0.6300	*	*	*
465	0.7300	0.7700	0.7400	*	*	*
600	1.9040	2.4417	2.6449	2.6794	3.0531	2.7863
601	1.7112	2.1522	2.3569	2.3837	2.6895	2.4443
617	5.0551	5.5215	5.7249	5.7558	6.1427	6.5170
625	3.7601	4.3039	4.5371	4.5376	5.0202	4.8678
718	3.8595	4.2751	4.4623	4.4733	5.0118	4.8374
X-750	2.4711	2.9940	3.1960	3.2293	3.6314	3.3689
825	1.3987	1.7295	1.8948	1.8995	2.0984	1.9619
HX	2.0604	2.5118	2.7158	2.7218	2.9709	2.8885
188	13.7700	14.1200	15.9200	*	*	*
CCM	22.7200	23.0500	27.7100	*	*	*
L-605	16.8000	17.2000	19.5400	*	*	*

\*Surcharge currently not available