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APRIL 2024

THE UPM MARKET INFORMER



INSIDE THIS ISSUE

- Surcharge Update.....2-5
- Sierra Space Spacecraft.....6
- Stryker Joint Replacement.....6
- SpaceX Starship Rocket.....7
- UPM Focus.....7

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Lockheed Martin Eyes Growth in Satellite Business Through Partnerships

Lockheed Martin is looking to team up with more commercial space companies as it aims to stay ahead of the curve in areas like intelligence, surveillance, communications, and small satellites, a senior executive said March 19. “We’re looking for strategic partners,” said Robert Lightfoot, president of Lockheed Martin Space. “We’re interested in talking with anyone who has an advantage in those areas from a space perspective.” Lightfoot spoke with SpaceNews at the Satellite 2024 conference.

The \$67 billion aerospace and defense giant wants to work with commercial companies with expertise in intelligence and surveillance payloads, as well as communications payloads for satellites, as it looks to meet growing government demand for resilient space-based capabilities. Lightfoot highlighted partnerships Lockheed has already forged through venture investments in companies like launch provider ABL Space; positioning, navigation and timing startup Xona Space Systems, and small satellite manufacturer Terran Orbital.

Lockheed Martin on March 1 put forth a proposal to acquire Terran Orbital, though Lightfoot did not comment on the status of the deal. He did, however, emphasize Lockheed Martin’s major push to grow its small and medium satellite business. The company uses Terran Orbital’s satellite buses to build small satellites for the U.S. Space Force as part of the Space Development Agency’s proliferated mesh network of satellites in low Earth orbit.

Lockheed Martin’s internal R&D division is funding small satellite technology demonstrations. The latest, called Pony Express 2, launched two small satellites this month to test mesh networking in orbit. “What we’re hearing from the customer is that they need data faster, they need resiliency in space,” Lightfoot said, referring to the U.S. government’s demands. Testing new tech via small satellite demos, he said, allows Lockheed Martin to address potential issues and mitigate technical risks before large-scale government contracts come into play. A case in point is the Space Force’s current pursuit of a more compact and lower-cost version of the Global Positioning System satellites. “We’re looking to collaborate with partners on this project,” Lightfoot added.

A growing focus on partnerships represents a shift for Lockheed Martin, traditionally a prime contractor that mostly works with commercial entities acting as subcontractors on its projects. Lightfoot said the company is open to collaborating with commercial firms in a supporting role as well. “We don’t always have to be the prime,” he said. Read the article [here](#).

Nickel/Cobalt & Stainless-Steel Flat Rolled Surcharges



--	Jan '24	Feb '24	Mar '24	Apr '24	May '24	Jun '24
15-5	0.8828	0.8570	0.8493	0.8714	*	*
17-4	0.8957	0.8689	0.8610	0.8836	*	*
17-7	0.9085	0.8720	0.8644	0.9023	*	*
201	0.6608	0.6299	0.6262	0.6347	*	*
301 7.0%	0.8901	0.8536	0.8460	0.8815	*	*
302/304/304L	0.9701	0.9316	0.9234	0.9647	*	*
304-8.5%	1.0038	0.9647	0.9563	1.0044	*	*
305	1.2463	1.2031	1.1927	1.2696	*	*
309	1.2901	1.2437	1.2335	1.3112	*	*
310	1.7875	1.7319	1.7177	1.8533	*	*
316/316L	1.4247	1.4454	1.4281	1.5034	*	*
321	1.0245	0.9860	0.9772	1.0292	*	*
347	1.3339	1.2954	1.2867	1.3388	*	*
409/409 Mod	0.3390	0.3157	0.3118	0.2885	*	*
410/410S	0.3487	0.3248	0.3209	0.2977	*	*
430	0.4052	0.3769	0.3733	0.3513	*	*
439	0.4170	0.3879	0.3843	0.3628	*	*
263	8.7045	7.9101	7.5289	7.4378	7.1872	7.2037
276	9.8207	9.0944	8.2179	8.2185	8.3632	8.4690
A286	2.7438	2.5129	2.3167	2.2714	2.2421	2.2549
600	6.6048	6.0518	5.5351	5.2968	5.1756	5.2453
601	5.4831	5.0475	4.6399	4.4546	4.3571	4.4003
617	9.0559	8.1737	7.6002	7.5183	7.4124	7.4565
625	9.8207	8.9962	8.3243	8.2410	8.2697	8.3298
718	8.3341	7.8114	7.3599	7.2377	7.1970	7.2408
X-750	6.9845	6.4649	5.9800	5.7573	5.6430	5.7073
800	3.0082	2.7867	2.5825	2.4995	2.4442	2.4550
825	4.7352	4.3011	3.9414	3.8727	3.8560	3.8810
Alloy X	6.9550	6.2032	5.6145	5.5787	5.6251	5.6762
188	9.3558	8.8538	9.0730	8.8891	8.2433	8.2733
L-605	9.5253	9.0231	9.4004	9.2428	8.4775	8.4870

*Surcharge currently not available

Thin Gauge Stainless Steel and Nickel Alloy Surcharges



--	Jan '24	Feb '24	Mar '24	Apr '24	May '24	June '24
301 7%	1.0681	1.0243	1.0152	1.0578	*	*
302/304/304L	1.1642	1.1179	1.1081	1.1609	*	*
304 8.5%	1.2046	1.1577	1.1475	1.2053	*	*
305	1.4956	1.4437	1.4313	1.5235	*	*
316L	1.7096	1.7345	1.7137	1.8042	*	*
321	1.2294	1.1832	1.1727	1.2351	*	*
347	1.6006	1.5545	1.5441	1.6066	*	*
201	9.96	9.0716	8.2428	7.8586	7.6654	7.8060
600	7.93	7.2622	6.6421	6.3562	6.2108	6.2943
625	11.78	10.7954	9.9892	9.8893	9.9237	9.9958
625LCF	11.78	10.7954	9.9892	9.8893	9.9237	9.9958
718	10.00	9.3736	8.8320	8.6852	8.6365	8.6889
Alloy X	8.35	7.4439	6.7374	6.6944	6.7502	6.8115
X750	8.38	7.7578	7.1760	6.9087	6.7716	6.8487

*Surcharge currently not available

Nickel/Cobalt & Stainless-Steel Bar Surcharges



	Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24	Apr '24
316LS/316LVM	2.77	2.43	2.19	2.25	2.26	2.27	2.36
Custom 455	1.51	1.39	1.31	1.33	1.29	1.30	1.34
Custom 465	2.12	1.94	1.83	1.85	1.83	1.84	1.91
Custom 630	1.15	1.04	0.98	1.01	0.98	0.99	1.01
CCM	9.94	10.77	10.76	10.16	12.30	12.30	11.93
625	10.36	9.40	8.62	8.69	8.84	8.86	9.31
718	7.85	7.26	6.75	6.71	6.70	6.69	7.06
718CR	7.85	7.26	6.75	6.71	6.70	6.69	7.06
A286	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A2861	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A2862	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A2867	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A286R1	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A286SH	3.84	3.52	3.28	3.27	3.25	3.27	3.44
Alloy X	8.50	7.66	7.00	7.11	7.32	7.37	7.70
Wasp6	9.37	8.89	8.33	8.16	8.58	8.64	8.98
L605	10.78	11.53	11.59	10.95	12.46	12.54	12.40
321	1.75	1.58	1.46	1.47	1.43	1.44	1.50
347	1.75	1.58	1.46	1.47	1.43	1.45	1.50
Greek Ascoloy	1.45	1.36	1.32	1.34	1.32	1.33	1.34

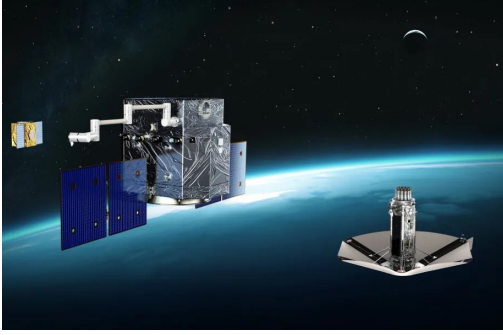
*Surcharge currently not available

Titanium Surcharges



Form	Grade	Q1 2024 Surcharge	Q2 2024 Surcharge
TI - SHEET	6AL4V	8.23	7.82
TI - PLATE	6AL4V	8.08	6.52
TI - PLATE	6AL4VE	7.28	4.18
TI - COIL	GR 2	8.70	8.92
TI - COIL	GR 3	8.70	8.92
TI - COIL	GR 4	8.70	8.92
TI - SHEET	GR 2	8.70	8.92
TI - SHEET	GR 3	8.70	8.92
TI - SHEET	GR 4	8.70	8.92
TI - BAR	6AL4V	5.45	6.02
TI - BAR	6AL4VE	5.45	6.02

Sierra Space Developing Dual-Use Spacecraft with Military Potential



After recently winning a major contract to build military satellites, Sierra Space is aiming to capture a larger share of the national security market in new sectors like in-orbit services and transportation. Sierra Space is perhaps best known for developing Dream Chaser, a reusable spaceplane designed to ferry cargo and supplies to the International Space Station, and for partnering with Blue Origin on the construction of a commercially developed space station. But the company also is gaining traction in the national security space business, with \$1.3 billion worth of defense-related orders, Erik Daehler, Sierra Space's vice president of orbital systems and services, told SpaceNews.

Daehler, who previously worked at defense contractors Lockheed Martin and Boeing, is overseeing the transition of Sierra Space's orbital vehicle technologies from their civil and commercial roots into militarized configurations to support defense operations. The company's \$1.3 billion defense backlog includes a \$740 million deal announced in January to produce 18 missile-tracking

satellites for the U.S. Space Force's next-generation missile-tracking satellite network built by the Space Development Agency. Other orders are from undisclosed defense customers, Daehler said. "We have active contracts with major acquisition organizations."

Formed in 2021 as a spinout from Sierra Nevada Corporation, Sierra Space has tried to carve out a niche as a so-called new space company that serves both commercial and government customers. The company is eyeing the emerging market for "space access, mobility and logistics" services, known as SAML, which has \$40 million earmarked for it in the Space Force's 2025 budget proposal. To meet the military's anticipated need for SAML services, Sierra Space has designed a satellite equipped for precision rendezvous and close-proximity operations around other spacecraft. The company is pitching this vehicle to the Space Force as a way to provide in-orbit services like refueling and maintenance of military satellites.

Sierra Space is also developing a return capsule that can transport cargo from space and land safely back on Earth. In partnership with the U.S. Transportation Command, the company is studying how this vehicle could enable quick point-to-point delivery of supplies and equipment to support military operations or humanitarian relief efforts around the globe. To support development of these space vehicles aimed at the defense market, Sierra Space established a specialized test lab in Florida to design, build and put the new technologies through their paces. The company is headquartered in Louisville, Colorado.

The concept for Sierra Space's in-orbit servicing vehicle, named Spectre, arose from the need to automate maintenance functions at the International Space Station that are currently performed by astronauts or cosmonauts, work that will be taken over by robotic systems on future commercial space stations, Daehler said. The idea of a return capsule, named Ghost, that can transport cargo from space and land safely back on Earth, came about after customers that want to operate on the future commercial space station asked for a capability to develop technology in space and send it back to the ground for tests and inspections, he said. "It's designed for about 250 to 700 kilograms of capacity." Read the full article [here](#).

Stryker's Next Head of Joint Replacement Talks about New Revision



Katherine Truppi will take the helm of Stryker's joint replacement business at the end of the month after current president Don Payerle retires. Truppi has worked for Stryker for more than 20 years, most recently as general manager for the company's hip business unit.

At the American Academy of Orthopaedic Surgeons meeting in February, Stryker launched its Triathlon Hinge knee replacement, designed for revision surgeries, and new features for its Mako surgical robot. MedTech Dive caught up with Truppi to talk about the new role and trends in joint replacement.

MEDTECH DIVE: Tell me about your career with Stryker.

KATHERINE TRUPPI: I started 20 years ago with another division of Stryker, our endo division in the operating room. And that was fantastic because it was a lot of time with surgeon customers and understanding their world. It lit a passion for me to think about our customers and what we do every day.

I then went into joint replacement, where I had different marketing and sales roles. I spent just over six years leading a couple of our joint replacement sales teams in Europe across nine different countries. Then I came back and had the opportunity to lead our hip organization over the last few years, which led me to this role.

What are you expecting joint replacement to look like over the next five years?

We see it from a market perspective, that steady state pre-pandemic levels, but certainly we're seeing some demographic shifts happening as well. The baby boomer generation is coming into this age where joint replacement may be a consideration for them.

People want to maintain their lifestyles, maintain their mobility, go on that vacation and play their pickleball — there's a lot of desire to remain active and that certainly is driving interest in the types of products that we offer. If we go back decades, it was a treatment to keep people mobile around the house. Now the desire to keep those high activity levels going and for folks to live their life and maintain their mobility is a big driver. Read the full interview [here](#).

SpaceX Fires Up Starship Rocket Ahead of 4th Test Flight



SpaceX's next Starship vehicle has breathed fire ahead of its coming test flight. A 165-foot-tall (50 meters) Starship upper stage just fired up all six of its Raptor engines in a full-duration "static fire" test at SpaceX's Starbase site in South Texas, the company announced today (March 25). Static fires, in which engines are briefly lit while a vehicle remains anchored to the pad, are common prelaunch tests. SpaceX conducted this one to prep for the fourth Starship test flight, which could take place as soon as early May.

SpaceX is still analyzing data from the third Starship flight, which launched from Starbase on March 14. The 400-foot-tall (122 m) megarocket — which consists of the upper stage, known as Ship, and the huge Super Heavy first-stage booster — performed quite well on that test mission, according to SpaceX.

For example, both stages aced their ascent burns, and Super Heavy conducted a successful "boostback" burn to get in position for a splashdown in the Gulf of Mexico. The booster's landing burn didn't go according to plan, however, and it ended up breaking apart about 1,650 feet (500 m) above the waves.

Ship flew for about 50 minutes and notched a number of milestones, including successfully opening and closing its payload door. But the craft broke apart during its reentry to Earth's atmosphere, so it didn't splash down in the Indian Ocean as planned.

Starship's first two test flights, in April 2023 and November 2023, ended after just four minutes and eight minutes, respectively.

SpaceX aims to conduct six or more Starship test flights this year, in an effort to get the fully reusable vehicle up and running and fast as possible.

But the timing of flights is not entirely up to the company; there are regulatory hurdles to clear as well, chiefly the securing of launch licenses from the U.S. Federal Aviation Administration. The FAA is currently overseeing the investigation into what happened on Starship's third flight, and it's unclear when that work will be done. Read the article [here](#).

UPM Product Focus: What is Cobalt Chrome Molybdenum?



United Performance Metals offers a wide array of specialty metal products and solutions that serve a number of industries pushing innovation forward every day. The solutions we provide range from materials to value-added services and beyond. For this month's edition of the Market Informer, we chose to highlight one of the products we offer: Cobalt Chrome Molybdenum (CCM) round bar, and its unique end-uses.

Like many of the materials UPM stocks, CCM is known for being exceptionally resistant to corrosion and extreme temperatures. It maintains its structural integrity and shape under very high stress conditions (high temperatures, for example) and does not succumb to corrosive environments. These properties make CCM an excellent choice for aerospace and

medical applications, both of which UPM support.

Aerospace applications of CCM round bar include engine parts, landing gear, and turbine blades. Other grades of UPM material, primarily our stainless steel products, are utilized in the aerospace sector and these specific applications, but CCM round bar's toughness and temperature resistance would make it a viable option in this area. At UPM, the medical industry is where most of our CCM round bar product can be seen by end-users.

Since CCM is very biocompatible, implants for knee, shoulder, and hip replacements are key uses of the material. It has a high fatigue life, making it an excellent choice for medical implants for joints that require repetitive movements, like your knees and hips. CCM's corrosion resistance and stress-tolerances also make it able to withstand sterilization processes, which are crucial for medical applications such as implant and prosthetic technology. Additionally, CCM's load bearing ability make it a top choice for applications like knee replacements. Some other medical applications of CCM include: spinal rods, cages, and disc replacements, fracture fixation, and acetabular caps.

CCM, specifically round bar, is an essential alloy when thinking of the advancement of medical implant technology and a staple when discussing corrosion-resistant materials. It has numerous applications across numerous industries, making it diverse yet reliable. To learn more about UPM's CCM offerings, please visit our [product page](#). To request a quote for CCM, please click [here](#).