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INSIDE THIS ISSUE

Surcharge Update.....2-5
 ULA Gearing up for Vulcan Launch..6
 Spinal Elements Ventana 3-D..... ..6
 Boom Supersonic Milestones.....7
 UPM Focus.....7

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Rocket Lab to Launch Hypersonic Test Vehicle for the Defense Innovation Unit

Rocket Lab announced a new mission for its suborbital launch vehicle — a 3D-printed hypersonic drone built by Australia’s Hypersonix for the U.S. Defense Department.

The mission, projected for early 2025, is funded by DoD’s Defense Innovation Unit. DIU, based in Silicon Valley, works with commercial space companies to help fill military technology needs. The suborbital mission awarded to Rocket Lab is part of DIU’s HyCat project, short for hypersonic and high-cadence testing capabilities.

“Commercial companies are forging ahead towards reusable and low-cost test vehicles,” DIU said. China and Russia are actively developing hypersonic weapons technology and the Pentagon is trying to stay ahead. DoD today has limited options to test hypersonic missiles on land and sea-based test ranges, said DIU, and using commercial suborbital launch vehicles should help DoD mature hypersonics technology.

Hypersonic missiles can travel at more than five times the speed of sound and maneuver during flight. Mach 1 is the speed of sound, which is about 767 miles per hour at sea level.

Rocket Lab specializes in orbital missions but has positioned itself to meet the Pentagon’s demand for suborbital testing of hypersonic vehicles. It designed a suborbital version of its small Electron rocket called HASTE, short for Hypersonic Accelerator Suborbital Test Electron. The first HASTE mission for the defense contractor Leidos launched in June from Rocket Lab’s Launch Complex 2 in Wallops Island, Virginia. Rocket Lab said Leidos has since booked four more HASTE missions to launch in 2024 and 2025. In a Nov. 8 news release, Rocket Lab said DIU’s mission is the seventh on its suborbital launch manifest.

DIU’s payload will be scramjet-powered hypersonic vehicle made by the Australian company Hypersonix. The 660-pound drone is about 9.8-foot-long and has a 3D-printed airframe.

“The HyCat mission will demonstrate HASTE’s ‘direct inject’ capability by deploying the Hypersonix payload during ascent, while still within Earth’s atmosphere,” said Rocket Lab. DIU issued its first HyCat solicitation in September 2022. In addition to Hypersonix and Rocket Lab, it also selected Fenix Space, a California-based startup developing a reusable tow-launch platform. Read the article [here](#).

Nickel/Cobalt & Stainless-Steel Flat Rolled Surcharges



--	Sept	Oct	Nov	Dec	Jan	Feb
15-5	0.9940	0.9599	0.9103	0.8851	*	*
17-4	1.0078	0.9737	0.9238	0.8985	*	*
17-7	1.0640	1.0218	0.9603	0.9332	*	*
201	0.7302	0.6995	0.6713	0.6614	*	*
301 7.0%	1.0392	0.9980	0.9388	0.9133	*	*
302/304/304L	1.1438	1.0995	1.0315	1.0005	*	*
304-8.5%	1.1897	1.1438	1.0713	1.0378	*	*
305	1.5177	1.4605	1.3566	1.3046	*	*
309	1.5615	1.5050	1.4019	1.3495	*	*
310	2.2303	2.1511	1.9852	1.896	*	*
316/316L	1.8112	1.7667	1.6247	1.4761	*	*
321	1.2227	1.1750	1.0978	1.0616	*	*
347	1.5322	1.4846	1.4074	1.3711	*	*
409/409 Mod	0.3169	0.2975	0.3001	0.3118	*	*
410/410S	0.3267	0.3074	0.3101	0.3217	*	*
430	0.3830	0.3647	0.3686	0.3796	*	*
439	0.3949	0.3770	0.3811	0.3918	*	*
263	8.9444	8.4765	8.9779	8.9779	8.7045	7.9101
276	10.7136	10.5559	10.5271	10.7552	9.8207	9.0944
A286	3.1591	2.9677	2.9181	2.8866	2.7438	2.5129
600	7.7083	7.2431	7.1216	6.9579	6.6048	6.0518
601	6.3922	5.9930	5.8958	5.7653	5.4831	5.0475
617	9.4894	9.1029	9.3428	9.4716	9.0559	8.1737
625	10.4959	10.1864	10.1222	10.2172	9.8207	8.9962
718	9.0635	8.7390	8.6605	8.6247	8.3341	7.8114
X-750	8.0609	7.6070	7.4798	7.3173	6.9845	6.4649
800	3.5221	3.2999	3.2300	3.1618	3.0082	2.7867
825	5.2746	5.0231	4.9678	4.9676	4.7352	4.3011
HX	7.4375	7.2075	7.1806	7.3057	6.9550	6.2032
188	9.0778	8.6075	9.9286	9.7249	9.3558	8.8538
L-605	8.8933	8.4040	10.0520	9.8839	9.5253	9.0231

*Surcharge currently not available

Thin Gauge Stainless Steel and Nickel Alloy Surcharges



--	Sept	Oct	Nov	Dec	Jan	Feb
301 7%	1.25	1.20	1.13	1.0959	*	*
302/304/304L	1.37	1.32	1.24	1.2007	*	*
304 8.5%	1.43	1.37	1.29	1.2453	*	*
305	1.82	1.75	1.63	1.5655	*	*
316L	2.17	2.12	1.95	1.7712	*	*
321	1.47	1.41	1.32	1.2739	*	*
347	1.53	1.48	1.41	1.6453	*	*
201	11.65	10.98	10.79	10.53	9.96	9.0716
600	9.25	8.69	8.55	8.35	7.93	7.2622
625	12.60	12.22	12.15	12.26	11.78	10.7954
625LCF	12.60	12.22	12.15	12.26	11.78	10.7954
718	10.88	10.47	10.39	10.35	10.00	9.3736
Alloy X	8.93	8.65	8.62	8.77	8.35	7.4439
X750	9.67	9.13	8.98	8.78	8.38	7.7578

*Surcharge currently not available

Nickel/Cobalt & Stainless-Steel Bar Surcharges



	July	Aug	Sep	Oct	Nov	Dec
316LS/316LVM	2.85	2.82	2.88	2.77	2.43	2.19
Custom 455	1.68	1.57	1.57	1.51	1.39	1.31
Custom 465	2.37	2.17	2.19	2.12	1.94	1.83
Custom 630	1.23	1.21	1.20	1.15	1.04	0.98
CCM	10.23	12.56	12.20	9.94	10.77	10.76
625	10.96	10.57	10.78	10.36	9.40	8.62
718	8.58	8.15	8.19	7.85	7.26	6.75
718CR	8.58	8.15	8.19	7.85	7.26	6.75
A286	4.25	3.98	3.99	3.84	3.52	3.28
A2861	4.25	3.98	3.99	3.84	3.52	3.28
A2862	4.25	3.98	3.99	3.84	3.52	3.28
A2867	4.25	3.98	3.99	3.84	3.52	3.28
A286R1	4.25	3.98	3.99	3.84	3.52	3.28
A286SH	4.25	3.98	3.99	3.84	3.52	3.28
Alloy X	9.01	8.65	8.86	8.50	7.66	7.00
Wasp6	10.06	10.20	10.16	9.37	8.89	8.33
L605	11.01	12.84	12.46	10.78	11.53	11.59
321	1.88	1.85	1.83	1.75	1.58	1.46
347	1.88	1.85	1.84	1.75	1.58	1.46
Greek Ascology	1.45	1.46	1.46	1.45	1.36	1.32

*Surcharge currently not available

Titanium Surcharges



Form	Grade	Q1 Surcharge	Q2 Surcharge	Q3 Surcharge	Q4 Surcharge
TISH	6AL4V	5.56	8.8	8.8	12.6
TIPL	6AL4V	3.71	5.87	5.87	6.90
TIPL	6AL4VE	4.08	6.45	6.45	10.23
TIBR	6AL4V	7.5	6.88	6.88	6.88
TIBR	6AL4VE	4.45	4.45	4.45	4.45
TICO	GR 2	8.33	8.69	8.69	8.69
TICO	GR 3	8.33	8.69	8.69	8.69
TICO	GR 4	8.33	8.69	8.69	8.69
TISH	GR 2	8.33	8.69	8.69	8.69
TISH	GR 3	8.33	8.69	8.69	8.69
TISH	GR 4	8.33	8.69	8.69	8.69

ULA Gearing Up for First Vulcan Launch



All the major components for the first Vulcan Centaur rocket are now at the launch site as United Launch Alliance prepares for a launch in late December. In a call with reporters Nov. 15, ULA Chief Executive Tory Bruno said that the Centaur upper stage for that mission, called Cert-1 by the company, arrived at Cape Canaveral on Nov. 13. Workers are now preparing the stage in a facility there before installing it atop the Vulcan booster.

Once the two stages are integrated, ULA will perform another wet dress rehearsal where both stages are loaded with propellants and go through a practice countdown. "Then we will be standing by and ready to encapsulate and then integrate our spacecraft," he said. The primary payload for Cert-1 is Astrobotic's Peregrine lunar lander, which is carrying payloads for NASA's Commercial Lunar Payload Services (CLPS) program as well as several other customers. Also on the rocket is a payload from space memorial company Celestis that will remain attached to the Centaur. Peregrine's specific requirements, including lighting conditions at its landing site and staying in contin-

uous contact with NASA's Deep Space Network, drove the launch opportunities to three instantaneous windows, the first of which is Dec. 24 at 1:49 a.m. Eastern.

Two backup windows are on Dec. 25 and 26. ULA did not disclose the times of those windows in the call, but in a Nov. 14 presentation about the CLPS program to an advisory committee, NASA's Joel Kearns said the launch windows are at 1:53 a.m. Eastern on Dec. 25 and 2:08 a.m. Eastern on Dec. 26. All three windows would set up a landing at about 3:30 a.m. Eastern Jan. 25. Bruno said preparations are on schedule to support that launch opportunity. "We're actually pacing a couple of days ahead of that," he said. "Fingers crossed."

Besides sending Peregrine on its way to the moon, ULA will test this upgraded version of the Centaur, called Centaur 5. "There will be additional maneuvers performed just to give us an opportunity to exercise the Centaur 5; really verify but mostly learn about its quirks as we go put it through its paces in preparation for missions that'll come later." A success on Cert-1 would allow the second Vulcan mission, Cert-2, to launch in the first or second quarter of 2024, Bruno said. That will carry the first Dream Chaser spacecraft for Sierra Space. The rest of the manifest for 2024 is still being coordinated, but he noted that missions for Amazon's Project Kuiper in 2024 will use the Atlas 5. ULA plans to ramp up the Vulcan launch rate to twice a month by the end of 2025 as it works to fly off a backlog of 70 launches that he said is "pretty even" between government and commercial customers.

While Bruno discussed details about the future of Vulcan, he was more circumspect about the company's future. He said in a Bloomberg interview in October that the company, a joint venture of Boeing and Lockheed Martin, could be an attractive acquisition target. "If I were buying a space business, I'd go look at ULA," he said then. Another report Nov. 13 by Ars Technica said three companies, including Blue Origin, are finalists to acquire the company. "I could never talk about or even speculate about the merger or acquisition situation," Bruno said in the call about a potential sale of ULA. "I did say that ULA is in great shape after our transformation and our full, now many years long, presence in the commercial marketplace." Read the article [here](#).

Spinal Elements Releases Ventana 3D-Printed Interbodies

Spinal Elements began full commercial launch of its Ventana 3D-printed interbody portfolio, which includes The Ventana C anterior cervical interbody system, Ventana P/T posterior lumbar interbody system, and Ventana L lateral lumbar interbody system.

The company said the Ventana portfolio features an implant architecture that maximizes bone graft volume and containment via a specialized 3D printing process. It also said the process minimizes the amount of titanium used to improve radiographic visualization.

"The Ventana family of implants have a 3D-printed architecture that allows for clear radiographic visualization during imaging. The implant

windows allow for a large amount of bone graft to be securely placed within the disc space to ensure contact with the endplates, which I believe is essential for the fusion process," Neel Anand, MD, Anand Spine Group, told the press.

Ventana's design, according to Spinal Elements, acts like a snowshoe so bone graft can come in contact with endplates and provide a broad surface to avoid implant subsidence. The family of interbodies comes in varying degrees of lordosis for sagittal balance restoration.

"The Spinal Elements team is dedicated to bringing innovative products to market that when combined with our Orbit discectomy instrument set and our fixations systems, like Karma, Overwatch or Sapphire X, they successfully work together to achieve spinal fusion," said Ron Lloyd, CEO of Spinal Elements. "Ventana represents another major milestone in our mission to redefine spinal healthcare." Read the article [here](#).

Boom Supersonic Achieves Multiple Milestones Ahead of First Flight



Boom Supersonic, which is building the world's fastest airliner, has achieved multiple milestones across the Overture airliner, Symphony engine, and XB-1 supersonic demonstrator programmes. The company also confirmed closing of an investment round, including a strategic investment from the NEOM Investment Fund (NIF). Boom's total funding to date now exceeds \$700m.

"Our goal is to bring the world closer together through faster flights," said Blake Scholl, founder and CEO of Boom Supersonic. "We're excited to collaborate with partners and investors around the globe as we work to realize our shared vision."

Announced on 24th October, the NEOM Investment Fund is the strategic investment arm of NEOM, the sustainable regional development in northwest Saudi Arabia. As part of the agreement, Boom and NIF will collaborate on opportunities to make the

Gulf region dramatically more accessible, through the power of supersonic flight.

Boom achieved key milestones towards XB-1's historic first flight, which remains on track for later this year at the Mojave Air & Space Port. After the receipt of its airworthiness certificate from the Federal Aviation Administration (FAA), XB-1 has recently successfully completed a number of integrated tests, including ground vibration mode testing, fuel system integrated testing, engine operability testing, and medium-speed taxi testing up to 90 knots. Following its Flight Readiness Review (FRR) last week, XB-1 will conduct high-speed taxi testing in final preparation for its first flight.

Boom also announced that Symphony, the Boom-developed propulsion system purpose-built for sustainable and economical supersonic flight, has successfully conducted its key 2023 engineering milestone, known as the Conceptual Design Review (CoDR). This achievement paves the way toward Symphony's first hardware rig tests planned for 2024.

In late September, Boom commemorated the "topping out" of the Overture Superfactory at the Piedmont Triad Airport in Greensboro, North Carolina, signifying the completion of the building's frame. Over the past six weeks, the company has finished the decking on the top of the structure, poured the concrete flooring, and installed the metal side wall panels. The work to complete the Overture Superfactory is now ahead of its original schedule with completion anticipated in the second quarter of 2024. Read the article [here](#).

UPM Focus: Debbie Freitag, Product Manager



For this month's edition of the UPM Focus, we wanted to shift our focus back to the product management side of our business and learn more about UPM's array of product offerings. To do so, we interviewed Debbie Freitag, Product Manager for Long Products at UPM. Freitag has been working at United Performance Metals since her former company, Vulcanium, was acquired in 2017. Before Freitag switched to supply chain, she managed the inside sales team at the Northbrook, Illinois facility.

As the Long Products Manager, Freitag focuses on all our round bar products, not limited to any one grade of metal. "I don't have one specific focus when it comes to the *type* of metal that I manage, rather, I simply focus on all our metal that comes in bar form. Some of the popular grades in bar form are A286, 625, 718, and cobalt grades," said Freitag. "These grades are very high strength, corrosion resistant, and extremely durable, making them excellent candidates for being used in items like airplane engine fasteners, gas turbines, rocket parts, and even dental implants." While Freitag mentioned that it would

be difficult to see UPM products with the naked eye, they are still essential to overall part composition. "Our products are used to create pieces that aren't necessarily seen but are still crucial to an engine or plane as a whole. For example, the smaller, miniscule fasteners and bolts of planes need to be made from our material to ensure that the plane is built safely, otherwise structural integrity could be at risk."

On the topic of bar products, Freitag said, "Most of the bar we stock today is in high demand because it fills niches so much so that you can't just call and get it off the shelf. Every metal grade in bar form is hot right now, which makes lead times incredibly long because mills can only produce so much material so fast. Longer lead times makes buying and planning for inventory much more difficult, and then having to communicate that to customers is another challenge." Freitag assured us that she is fully dedicated to satisfying customer needs.

Count on UPM for your bar product needs. To learn more about the bar products we carry at United Performance Metals click [here](#). To learn more about our FIRSTCUT+® Processing Services click [here](#).