



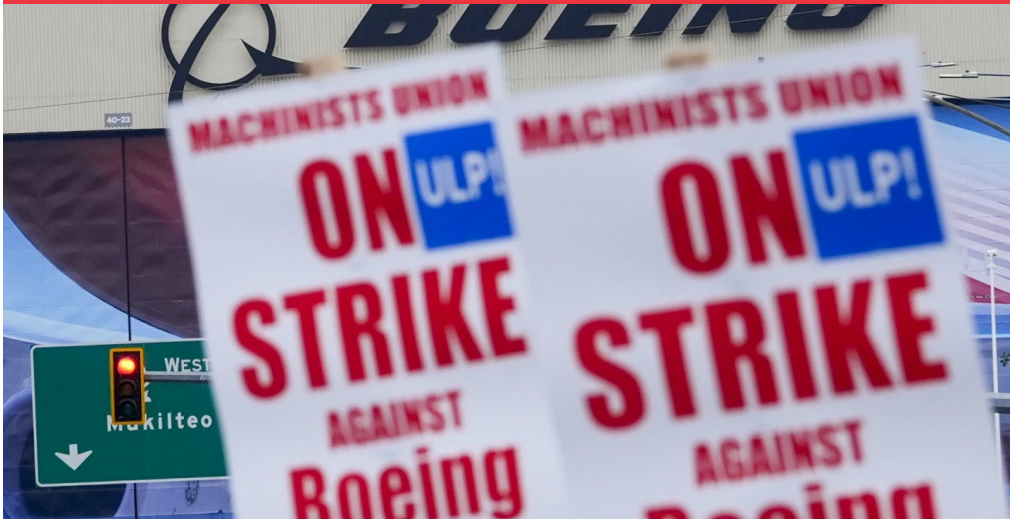
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OCTOBER 2024

THE UPM MARKET INFORMER



INSIDE THIS ISSUE

- Surcharge Update.....2-5
- AI in Manufacturing.....6
- Rolls-Royce EP Business.....6
- Renishaw New AM Printer.....6
- UPM Focus.....7

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Boeing’s ‘Final’ 30% Pay Hike Offer Isn’t Good Enough, Union Says

Boeing said Monday it made a “best and final offer” to striking machinists that includes bigger raises and larger bonuses, but the workers’ union said the proposal isn’t good enough and there won’t be a ratification vote before Boeing’s deadline at the end of the week. The union complained that Boeing publicized its latest offer to 33,000 striking workers without first bargaining with union negotiators.

“Boeing does not get to decide when or if you vote,” leaders of the International Association of Machinists and Aerospace Workers district 751 told members Monday night. “The company has refused to meet for further discussion; therefore, we will not be voting” on Friday, as Boeing insisted. Boeing said that after two days of talks last week with federal mediators failed to produce an agreement, “we presented a best and final offer that made significant improvements and addresses feedback from the union and our employees.” The new offer is more generous than the one that was overwhelmingly rejected earlier this month. The company said the offer includes pay raises of 30% over four years, up from 25% in the first proposal. The union originally demanded 40% over three years. The new offer — and labeling it a final one — demonstrates Boeing’s eagerness to end the strike that began Sept. 13. The company introduced rolling furloughs of non-unionized employees last week to cut costs during the strike.

The strikers face their own financial pressure to return to work. They received their final paychecks last week and will lose company-provided health insurance at the end of the month, according to Boeing. The company said its new offer is contingent on members of the machinists’ union in the Pacific Northwest ratifying the contract by late Friday night, when the strike will be a little over two weeks old. The union, which represents factory workers who assemble some of the company’s best-selling planes, waited several hours before pushing back Monday night. “This proposal does not go far enough to address your concerns, and Boeing has missed the mark with this proposal,” the union told members. The group added that it will survey members about the new offer.

Boeing’s latest offer includes upfront pay raises of 12% plus three annual raises of 6% each. It would double the size of ratification bonuses to \$6,000. It also would keep annual bonuses based on productivity. In the rejected contract, Boeing sought to replace those payouts with new contributions to retirement accounts. Boeing said average annual pay for machinists would rise from \$75,608 now to \$111,155 at the end of the four-year contract.

The new offer would not restore a traditional pension plan that Boeing eliminated about a decade ago. Striking workers cited pay and pensions as reasons why they voted 94.6% against the company’s previous offer. Boeing also renewed a promise to build its next new airline plane in the Seattle area—if that project starts in the next four years. That was a key provision for union leaders, who recommended adoption of the original contract offer, but one that seemed less persuasive to rank-and-file members. Please click [here](#) to read the full story.

Nickel/Cobalt & Stainless-Steel Flat Rolled Surcharges



| -- | Jul '24 | Aug '24 | Sept '24 | Oct '24 | Nov '24 | Dec '24 |
|--------------|---------|---------|----------|---------|---------|---------|
| 15-5 | 0.9410 | 0.8851 | 0.8477 | 0.8573 | * | * |
| 17-4 | 0.9540 | 0.8976 | 0.8599 | 0.8696 | * | * |
| 17-7 | 0.9570 | 0.8844 | 0.8502 | 0.8588 | * | * |
| 201 | 0.6762 | 0.6435 | 0.6271 | 0.6304 | * | * |
| 301 7.0% | 0.9319 | 0.8619 | 0.8292 | 0.8374 | * | * |
| 302/304/304L | 1.0253 | 0.9453 | 0.9079 | 0.9173 | * | * |
| 304-8.5% | 1.0656 | 0.9805 | 0.9409 | 0.9509 | * | * |
| 305 | 1.3537 | 1.2336 | 1.1776 | 1.1917 | * | * |
| 309 | 1.3992 | 1.2791 | 1.2231 | 1.2372 | * | * |
| 310 | 1.9885 | 1.7984 | 1.7097 | 1.7320 | * | * |
| 316/316L | 1.6406 | 1.5340 | 1.4536 | 1.4681 | * | * |
| 321 | 1.0926 | 1.0025 | 0.9605 | 0.9711 | * | * |
| 347 | 1.4022 | 1.3121 | 1.2701 | 1.2807 | * | * |
| 409/409 Mod | 0.2872 | 0.2872 | 0.2872 | 0.2872 | * | * |
| 410/410S | 0.2972 | 0.2972 | 0.2972 | 0.2972 | * | * |
| 430 | 0.3556 | 0.3556 | 0.3556 | 0.3556 | * | * |
| 439 | 0.3683 | 0.3683 | 0.3683 | 0.3683 | * | * |
| 263 | 7.5222 | 7.7369 | 8.1174 | 7.4431 | 7.0858 | 6.8385 |
| 276 | 8.8325 | 9.0886 | 9.9294 | 9.5647 | 9.1005 | 8.7629 |
| A286 | 2.3887 | 2.4877 | 2.7088 | 2.4501 | 2.2944 | 2.2537 |
| 600 | 5.7004 | 6.0009 | 6.5626 | 5.7464 | 5.0647 | 5.2362 |
| 601 | 4.7578 | 4.9957 | 5.4508 | 4.8029 | 4.4458 | 4.3988 |
| 617 | 7.8179 | 8.0628 | 8.6323 | 7.9955 | 7.5783 | 7.3297 |
| 625 | 8.7005 | 8.9518 | 9.6282 | 9.0710 | 8.6425 | 8.4413 |
| 718 | 7.5559 | 7.7691 | 8.2477 | 7.7123 | 7.3737 | 7.2765 |
| X-750 | 6.1339 | 6.4162 | 6.9448 | 6.1772 | 5.7535 | 5.6978 |
| 800 | 2.6283 | 2.7505 | 2.9928 | 2.6548 | 2.4714 | 2.4473 |
| 825 | 4.1142 | 4.2785 | 4.6712 | 4.2831 | 4.0233 | 3.9281 |
| Alloy X | 5.9659 | 6.1674 | 6.7538 | 6.3432 | 5.9894 | 5.7883 |
| 188 | 8.4554 | 8.5847 | 8.3965 | 8.0026 | 7.8815 | 7.6273 |
| L-605 | 8.6063 | 8.6954 | 8.3402 | 7.9910 | 7.9367 | 7.6366 |

*Surcharge currently not available

Thin Gauge Stainless Steel and Nickel Alloy Surcharges



| -- | Jul '24 | Aug '24 | Sept '24 | Oct '24 | Nov '24 | Dec '24 |
|--------------|---------|---------|----------|---------|---------|---------|
| 301 7% | 1.1182 | 1.0342 | .9950 | 1.0048 | * | * |
| 302/304/304L | 1.2303 | 1.1343 | 1.0894 | 1.1007 | * | * |
| 304 8.5% | 1.2787 | 1.1766 | 1.1290 | 1.1410 | * | * |
| 305 | 1.6244 | 1.4803 | 1.4131 | 1.4300 | * | * |
| 316L | 1.9687 | 1.8408 | 1.7443 | 1.7617 | * | * |
| 321 | 1.3110 | 1.2029 | 1.1525 | 1.1652 | * | * |
| 347 | 1.6825 | 1.5744 | 1.5240 | 1.5367 | * | * |
| 201 | 8.5373 | 9.0187 | 9.8935 | 8.5862 | 7.8636 | 7.7684 |
| 600 | 6.8405 | 7.2011 | 7.8751 | 6.8957 | 6.3546 | 6.2835 |
| 625 | 10.4406 | 10.7422 | 11.5539 | 10.8853 | 10.3711 | 10.1296 |
| 625LCF | 10.4406 | 10.7422 | 11.5539 | 10.8853 | 10.3711 | 10.1296 |
| 718 | 9.0671 | 9.3229 | 9.8972 | 9.2548 | 8.8485 | 8.7319 |
| Alloy X | 7.1591 | 7.4009 | 9.7410 | 7.6118 | 8.5030 | 6.9459 |
| X750 | 7.3607 | 7.6994 | 8.3337 | 7.4126 | 6.9042 | 6.8373 |

*Surcharge currently not available

Nickel/Cobalt & Stainless-Steel Bar Surcharges



| -- | Jul '24 | Aug '24 | Sept '24 | Oct '24 | Nov '24 | Dec '24 |
|--------------|---------|---------|----------|---------|---------|---------|
| 15-5 | 0.9410 | 0.8851 | 0.8477 | 0.8573 | * | * |
| 17-4 | 0.9540 | 0.8976 | 0.8599 | 0.8696 | * | * |
| 17-7 | 0.9570 | 0.8844 | 0.8502 | 0.8588 | * | * |
| 201 | 0.6762 | 0.6435 | 0.6271 | 0.6304 | * | * |
| 301 7.0% | 0.9319 | 0.8619 | 0.8292 | 0.8374 | * | * |
| 302/304/304L | 1.0253 | 0.9453 | 0.9079 | 0.9173 | * | * |
| 304-8.5% | 1.0656 | 0.9805 | 0.9409 | 0.9509 | * | * |
| 305 | 1.3537 | 1.2336 | 1.1776 | 1.1917 | * | * |
| 309 | 1.3992 | 1.2791 | 1.2231 | 1.2372 | * | * |
| 310 | 1.9885 | 1.7984 | 1.7097 | 1.7320 | * | * |
| 316/316L | 1.6406 | 1.5340 | 1.4536 | 1.4681 | * | * |
| 321 | 1.0926 | 1.0025 | 0.9605 | 0.9711 | * | * |
| 347 | 1.4022 | 1.3121 | 1.2701 | 1.2807 | * | * |
| 409/409 Mod | 0.2872 | 0.2872 | 0.2872 | 0.2872 | * | * |
| 410/410S | 0.2972 | 0.2972 | 0.2972 | 0.2972 | * | * |
| 430 | 0.3556 | 0.3556 | 0.3556 | 0.3556 | * | * |
| 439 | 0.3683 | 0.3683 | 0.3683 | 0.3683 | * | * |
| 263 | 7.5222 | 7.7369 | 8.1174 | 7.4431 | 7.0858 | 6.8385 |
| 276 | 8.8325 | 9.0886 | 9.9294 | 9.5647 | 9.1005 | 8.7629 |
| A286 | 2.3887 | 2.4877 | 2.7088 | 2.4501 | 2.2944 | 2.2537 |
| 600 | 5.7004 | 6.0009 | 6.5626 | 5.7464 | 5.0647 | 5.2362 |
| 601 | 4.7578 | 4.9957 | 5.4508 | 4.8029 | 4.4458 | 4.3988 |
| 617 | 7.8179 | 8.0628 | 8.6323 | 7.9955 | 7.5783 | 7.3297 |
| 625 | 8.7005 | 8.9518 | 9.6282 | 9.0710 | 8.6425 | 8.4413 |
| 718 | 7.5559 | 7.7691 | 8.2477 | 7.7123 | 7.3737 | 7.2765 |
| X-750 | 6.1339 | 6.4162 | 6.9448 | 6.1772 | 5.7535 | 5.6978 |
| 800 | 2.6283 | 2.7505 | 2.9928 | 2.6548 | 2.4714 | 2.4473 |
| 825 | 4.1142 | 4.2785 | 4.6712 | 4.2831 | 4.0233 | 3.9281 |
| Alloy X | 5.9659 | 6.1674 | 6.7538 | 6.3432 | 5.9894 | 5.7883 |
| 188 | 8.4554 | 8.5847 | 8.3965 | 8.0026 | 7.8815 | 7.6273 |
| L-605 | 8.6063 | 8.6954 | 8.3402 | 7.9910 | 7.9367 | 7.6366 |

*Surcharge currently not available

Titanium Surcharges



| Form | Grade | Q1 2024 Surcharge | Q2 2024 Surcharge | Q3 2024 Surcharge | Q4 2024 Surcharge |
|------------|--------|-------------------|-------------------|-------------------|-------------------|
| TI - SHEET | 6AL4V | 8.23 | 7.82 | 6.36 | 5.67 |
| TI - PLATE | 6AL4V | 8.08 | 6.52 | 5.30 | 4.72 |
| TI - PLATE | 6AL4VE | 7.28 | 4.18 | 3.62 | 3.38 |
| TI - COIL | GR 2 | 8.70 | 8.92 | 8.92 | 8.92 |
| TI - COIL | GR 3 | 8.70 | 8.92 | 8.92 | 8.92 |
| TI - COIL | GR 4 | 8.70 | 8.92 | 8.92 | 8.92 |
| TI - SHEET | GR 2 | 8.70 | 8.92 | 8.92 | 8.92 |
| TI - SHEET | GR 3 | 8.70 | 8.92 | 8.92 | 8.92 |
| TI - SHEET | GR 4 | 8.70 | 8.92 | 8.92 | 8.92 |
| TI - BAR | 6AL4V | 5.45 | 8.09** | 7.76** | 7.35 |
| TI - BAR | 6AL4VE | 5.45 | 8.09** | 7.76** | 7.35 |

** Updated to correct processing error when first published

The Revolutionary Role of AI in the Manufacturing Sector



AI-driven technology is increasingly finding its way into the manufacturing industry, enhancing the effectiveness of 3D simulation software. Digital twin-based 3D simulations are boosting efficiency throughout factory operations. This technology creates a comprehensive replica of individual processes and the interactions between all machinery, including robotics and collaborative robots (cobots). It allows users to test different layouts and configurations in a safe, virtual environment before implementing them in the actual production setting.

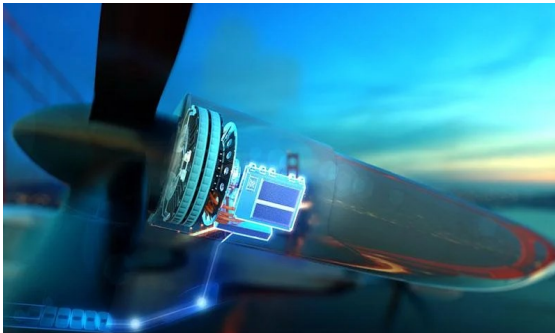
AI provides its value here because it can identify faults during the simulated production process, such as defects in parts or materials that could otherwise go unnoticed. If these issues aren't caught, they could result in the mass production of flawed items, leading to costly waste and the disposal of materials, potentially in landfills. This not only incurs unnecessary expenses but also harms a manufacturer's environmental, social and governance (ESG) performance.

unnecessary expenses but also harms a manufacturer's environmental, social and governance (ESG) performance.

In another benefit, AI's capability to instantly process large volumes of data enables it to anticipate bottlenecks or inefficiencies before they arise, facilitating proactive adjustments and better decision-making. For instance, it might identify an automated guided vehicle (AGV) taking an unnecessarily long route when moving pallets from a warehouse section to a production line, allowing for a more efficient path to be implemented. If the AGV can take a quicker path to its end goal, this seemingly minor alteration can make a huge impact in getting items into production sooner, and into the supply chain for end sale. It also has sustainable benefits for the organization due to the energy saved.

AI's capabilities can also be leveraged during the proposal development phase. By using AI-powered simulation software, users can quickly and easily design a more efficient production process, enabling them to share innovative new plans or ideas with colleagues or clients at the earliest possible stage.

AI can also help bridge the skills gap in the manufacturing industry. With the sector in the U.S. expanding rapidly, an estimated 3.8 million new employees will need to be recruited by 2033 to meet demand. If the talent shortage isn't addressed, nearly half of these positions could go unfilled, creating significant productivity and growth concerns for the sector. Historically, advanced tools and technologies in manufacturing, such as 3D simulation software and complex programming interfaces, have required skills that only specialized workers possessed. Instead of replacing human talent, AI can make it easier for more people to learn and adopt these new technologies. Please read the full article [here](#).



Rolls-Royce Shuts Down Electrical Propulsion Business

Rolls-Royce has elected to shut down its electrical propulsion unit, Rolls-Royce Electrical, having failed to find a buyer for the business. The move ends 10 months of uncertainty after CEO Tufan Erginbilgic announced a sweeping, company-wide restructuring plan in November 2023. The new strategy signaled the sale of non-core assets, including electric propulsion, as part of a wider plan to refocus the company on its traditional turbofan business sectors.

Having announced its intent to exit the electric power business to “focus on core growth areas,” the company was rumored to be in talks with a potential buyer

last December. However, Rolls-Royce confirms to Aviation Week that it has “now moved that process to the next step.” No further details of the closure plan have been announced, though industry sources say the company will complete work under contractual obligations.

Rolls-Royce began its involvement in electric propulsion when an initial unit was set up in 2018 as part of an internal innovation hub. The initiative significantly expanded the following year by acquiring key technologies and facilities from Siemens in Germany and Hungary. In 2022 Rolls-Royce Electrical was spun out as an individual business to support both wider electrification in aerospace and the advanced air mobility market. The company focused on the development of transverse flux, air-cooled electric propulsion units covering the 150-200 kW range for urban air mobility vehicles, as well as a larger 300-400 kW motor for regional platforms and a turbogenerator. The smaller motor initially was in development for UK-based launch customer and VX4 electric vertical-takeoff-and-landing vehicle developer Vertical Aerospace, but this program was terminated under mutual agreement in May. Development of the turbogenerator—targeting a 600 kW to 1.2-megawatt range—has been undertaken at the company's Dahlewitz facility in Germany while work covering energy storage has been focused in Warwick, England. Please read the full article [here](#).

Renishaw to Unveil New Metal Additive Manufacturing System at Formnext 2024



Global engineering-based tech firm – Renishaw plans to unveil a new metal 3D printer in its RenAM 500 series during Formnext 2024 from Nov 19-22 in Frankfurt, Germany. The Renishaw expert team will provide live demos covering different aspects of this system in Hall 11.0, Booth C11.

Using modern laser tech & sensible process monitoring abilities, the RenAM 500 series delivers great control over the AM process by ensuring high-quality parts production.

The latest inclusion to the series can meet the recent adopter's demands of AM with low initial investment & not compromising on part quality.

Director of Additive Manufacturing at Renishaw, Louise Callanan explains "After launching our most recent developments, TEMPUS™ technology and the

RenAM 500 Ultra, at Formnext 2023, it felt natural to launch our next system at this year's show. The reception at the event last year was incredibly positive, with attendees excited about the exceptional results they could achieve with more productive systems."

"Reducing cost per part has always been integral to widening the adoption of AM. Our most recent launch of TEMPUS technology and the RenAM 500 Ultra system focused on productivity, helping manufacturers reduce build times by 50%. As we develop the latest system in the RenAM 500 series, Renishaw aims to lower the entry barrier to metal AM, to ensure that manufacturers of any size can find a system that provides value and quality," he added.

Each RenAM 500 series from Renishaw, including the RenAM 500 Ultra, is now available with extensive lasers that can navigate the whole powder bed concurrently. It allows for efficient laser allotment & massive build rates by enhancing overall productivity & reducing the cost per part. The latest RenAM 500 Ultra system comes with advanced TEMPUS tech enabling lasers to fire as the recoater movements by eliminating 9 seconds of construction period per layer.

Meanwhile, the existing RenAM 500 series users can upgrade to TEMPUS tech for their machine investment. Please read the article [here](#).



UPM Focus: Metal Powders of UPM Additive Solutions

UPM Additive Solutions is your one-stop shop for all additive manufacturing services surrounding the printing process. Recently, UPM Additive Solutions added powders to their arsenal of services, which is a big step for the company. We talked with Max Sweeney, Program Planner/Business Development Specialist on our Additive team to get a better technical understanding of powders and why they are moving us closer to becoming a more capable service provider.

To understand the role of powder in the additive manufacturing process, Sweeney gave us some technical insight, beginning by describing the way metal powder is made. "Powder comes from atomization, the process of taking a feed stock of metal, putting it into a melting pool, cycling it with certain gasses that turns back into solid, droplet like particles. Lastly, this new powder goes through a sintering process and becomes microns," Sweeney said. Following atomization, powder is used in further additive manufacturing processes. "Essentially, there are different kinds of

powder created from various metal AM processes and they have different uses. Notably, laser powder bed fusion AM tends to give parts a higher finish, creating powder that is used for medical and aerospace applications." Currently, UPM Additive stocks stainless steel grade 316, and nickel grades 625 and 718.

The addition of powder to UPM Additive was very important Sweeney noted, "UPM Additive's move to sell powders aligns with our strategy of providing end-to-end solutions for additive manufacturing. Offering powders complements our existing range of services, including build plates and resurfacing but also helps close our full circle of additive solutions. This helps streamline our customers' supply chain by reducing the need for multiple vendors and ensuring a reliable source of high-quality materials. Additionally, it positions UPM as a true one-stop-shop provider, improving customer loyalty and capturing more value from the growing additive manufacturing market."

UPM Additive Solutions is the perfect choice to be your powder supplier for five simple reasons: exceptional purity, enhanced performance, versatile applicability, reliable quality, and superior service. The UPM Additive solutions team strives to get important materials delivered to customers in a timely manner, improving their supply chains. Please visit [this page](#) to inquire about UPM's powder solutions.