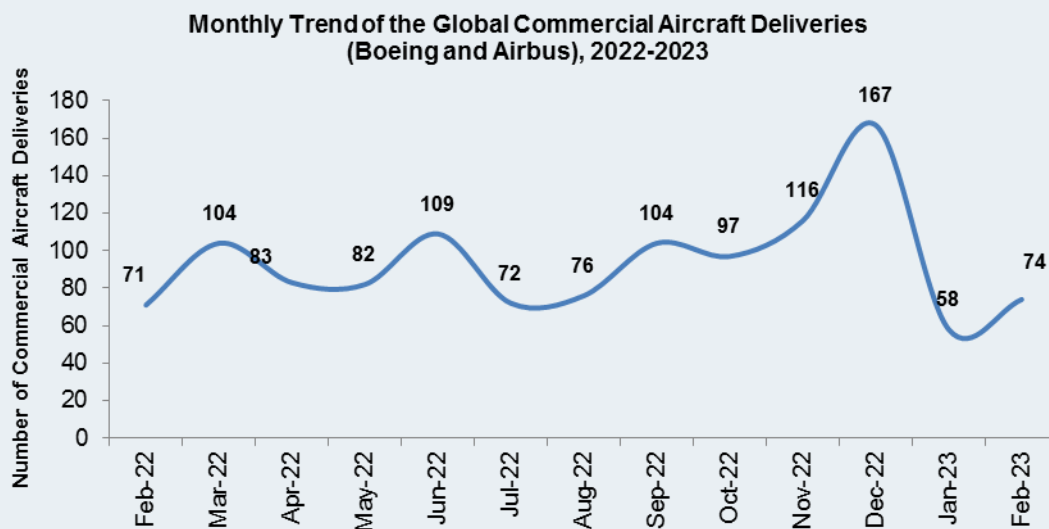


Composites Market Update for February 2023

The composites market in February declined year-over-year approximately 10%, and was essentially flat as compared to January. The infrastructure sector performed well, with some weakness in marine. Recreational vehicles experienced a particularly strong decline, followed by construction, as demand in these sectors was dampened by high interest rates, which places limits on consumer discretionary spending and impacts housing starts. The transportation sector (excluding RVs) showed positive growth. Raw material prices, which have declined, following increases in 2021, are anticipated to inch up slightly in March, reflecting higher demand. March has the potential to somewhat rebound, showing single to double digit gains, as compared to February, although down on a year-over-year basis. The buildup of inventory, and destocking (reduction of the inventory to sales ratio) downstream, which has softened demand, is ebbing, driving a pickup in business opportunities. We see opportunities for the business environment to stabilize and improve in the coming months, as inventories need replenishing, supply chain issues continue to be less prevalent, inflation rates fall, and interest rate hikes begin to ebb.

Aerospace

Commercial aircraft (Boeing and Airbus) deliveries increased from 58 aircraft deliveries in January 2023 to 74 aircraft deliveries in February 2023.

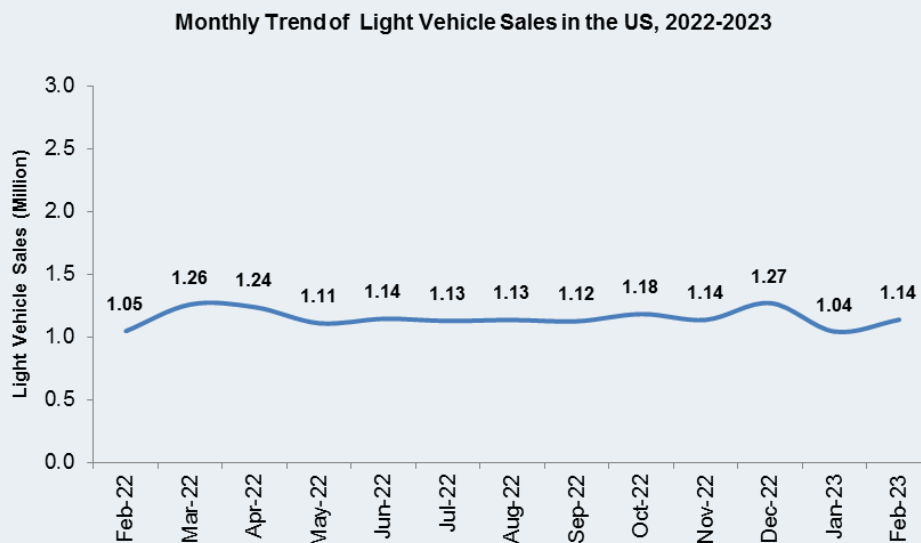


Some of the highlights of February 2023 are as follows:

- **GKN Aerospace to Expand Composites Facility.** GKN Aerospace has launched an 80,000-square-foot expansion of its Chihuahua, Mexico, facility to meet future demands for advanced, complex composites manufacturing and assembly for the business jet industry. The expansion is expected to be completed by the end of 2023 and to create 100 new jobs. The move further strengthens GKN Aerospace's footprint in Mexico and will support its partnerships and growth strategy alongside multiple leading business aviation customers.
- **Hexagon Purus Opens New U.S. Facility to Manufacture Composite Hydrogen Tanks.** Hexagon Purus is helping to combat climate change and drive energy transformation through its zero-emission energy storage solutions. These tanks are used to store compressed gas hydrogen (CGH2) and this facility says the company will help Hexagon Purus to meet the growing demand for zero-emission mobility and infrastructure systems as governments and industries worldwide increase their commitment to combating the worsening climate crisis.

Automotive

The U.S. new vehicle sales of 1,136,332 units in February 2023 represented an increase of 9% as compared to 1,045,624 units in February 2022.



One of the highlights of February 2023 is as follows:

- **Ford Mustang Dark Horse Features Carbon Revolution Carbon Fiber Wheels.** Ford is outfitting its 2024 Mustang Dark Horse with Carbon Revolution carbon fiber wheels, unveiled at this year's Chicago Auto Show. The 19-inch wheels boast colored carbon fiber detailing using Hypetex's Chapel 2x2 260gsm 3K twill carbon fiber, a material that is said to have been engineered specifically to work within Carbon Revolution's Diamond Weave Technology creating an aesthetic carbon fiber weave on the visible surface of the wheel face and to match the blue interiors of the Dark Horse. The optional wheels with single-piece carbon fiber rims weigh 37% less versus the Dark Horse's standard aluminum wheel set, or roughly 21 pounds of weight savings total.

Construction

Privately-owned housing starts in February were at a seasonally adjusted annual rate of 1,450,000. This is 9.8% above the revised January estimate of 1,321,000, but is 18.4% below the February 2022 rate of 1,777,000. Single-family housing starts in February were at a rate of 830,000; this is 1.1% above the revised January figure of 821,000. The February rate for units in buildings with five units or more was 608,000.

Monthly Trend of Privately Owned Housing Starts in the US, 2022-2023



Some of the highlights of February 2023 are as follows:

- **Creative Composites Group Introduces H-5 Rated FRP Bridge Decking.** Creative Composites Group has introduced its new pultruded fiber-reinforced polymer (FRP) H-5 SuperDeck Lite deck profile. SuperDeck Lite is corrosion and rot-resistant, environmentally sustainable and offers what CCG says is the lowest lifetime cost of ownership. Easy to carry, drill and cut, SuperDeck Lite pultruded deck profiles are lighter than newly treated lumber and offer fast installation in remote areas. CCG also developed deck attachments for top down construction or for blind-bolted connections.
- **Trex Launches New Trex Signature Decking.** Trex, the world's number 1 brand of high-performance, low-maintenance composite decking and railing, is revolutionizing outdoor living with the introduction of its latest innovation Trex Signature decking. Introducing an altogether new decking material for those who find joy at home and inspiration in nature, Trex Signature is crafted with the natural look of interior hardwoods but engineered to withstand the elements and demands of the outdoors. Establishing the next category for composite decking, Trex Signature features a whole new level of realism for wood plastic composites (WPC).

Wind Energy

According to the latest "Energy Infrastructure Update" report from the Federal Energy Regulatory Commission's Office of Energy Projects, during January 2023, the installed capacity of 2 units was 350 MW as compared to 2,497 MW of 11 units during January 2022. With a total installed generating capacity of 145.16 (GW), wind constituted 11.46% of the total installed generating capacity of 1,266.75 (GW) among all energy sources.

Some of the highlights of February 2023 are as follows:

- **Siemens Gamesa to Set Up an Offshore Wind Turbine Nacelle Facility in New York.** Siemens Gamesa apprised of its intention to build a major offshore nacelle manufacturing facility in New York State. It would create up to approximately 420 direct jobs, support a significant rise in indirect jobs, and represent an investment of around \$500 million in the region. Siemens Gamesa is also committing to localizing several new component supplier facilities, including steel component fabrication, bearings, and composite components, demonstrating the further development of a sustainable local supply chain ecosystem. This could help double the number of jobs created by the facility.
- **EuCIA Takes Part in EU-Funded REFRESH Wind Blade Recycling Project.** The European Composites Industry Association (EuCIA) apprised of its participation in REFRESH, an EU-funded project which aims to develop a novel circular, smart system enabling improved recycling of glass fiber reinforced composites derived from wind turbine blades. The first operation meeting of the REFRESH consortium took place on February 20.
- **Vestas Presents New Solution for Epoxy-Based Circular Turbine Blades.** Vestas is presenting a new solution that renders epoxy-based turbine blades as circular, without the need for changing the design or composition of blade material. Combining newly discovered chemical technology developed within the CETEC initiative, and partnerships with Olin and Stena

Recycling, the solution can be applied to blades currently in operation. Vestas' solution is enabled by a novel chemical process that can chemically break down epoxy resin into virgin-grade materials. Through a newly established value chain, supported by Nordic recycling leader Stena Recycling and global epoxy manufacturer Olin, Vestas will now focus on scaling up the novel chemical disassembly process into a commercial solution. Once mature, the solution will signal the beginning of a circular economy for all existing and future epoxy-based turbine blades.

Marine

The US marine industry is anticipated to experience good growth in 2023.

One of the highlights of February 2023 is as follows:

- **Rondal Selected as 2023 JEC Innovation Awards Finalists for Automated Carbon Composite Wing Sail.** Rondal, the market leaders in superyacht spars and sailing systems informed that it's automated carbon fiber composite wing sail for yachts has been recognized by the JEC Innovation Awards committee and selected as a finalist for the 2023 JEC Innovation Awards in the category Maritime Transportation & Shipbuilding. The new wing sail concept aims to significantly increase the market share of wind-propelled yachts by creating a highly efficient, automated, composite solid wing sail technology that can be "ready-to-sail" in seconds, maximizing the time vessels rely solely on clean, renewable wind propulsion. The wing sail created is also the world's first large structural composite wing produced using a single adaptive mold with integrated heating to manufacture individual curved wing skin panels from prepreg materials which were then bonded together to assemble the final wing structure.

Consumer Goods

New orders for manufactured durable goods in February, down three of the last four months, decreased \$2.6 billion or 1.0% to \$268.4 billion, according to the U.S. Census Bureau. This followed a 5.0% January decrease. Excluding transportation, new orders were virtually unchanged. Excluding defense, new orders decreased 0.5%. Transportation equipment, also down three of the last four months, drove the decrease, \$2.6 billion or 2.8% to \$89.4 billion.

Recent Development in Materials

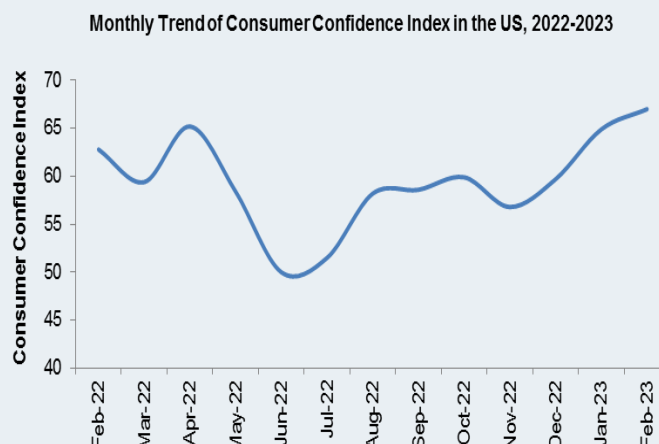
- **Ilium Composites Develops ULTImat FR, Next Generation Fire-Resistant Fiberglass.** Ilium Composites, the global manufacturer of fiberglass structural composite reinforcements, has developed fire-retardant fiberglass reinforcement as part of its revolutionary ULTImat glass fiber range. ULTImat FR is comprised of three unique materials across four layers. A bespoke proprietary fire-retardant structural core is sandwiched between two fiberglass layers and completed with an integrated surface veil that creates an aesthetic surface finish without visible glass fibers on the gel coat. Available for all closed mold processes, ULTImatFR is leading the standard for fire safety in aesthetic composite surfaces.

The US Economic Overview – February 2023

The US Consumer Confidence Index increased to 67.0 in February 2023 as compared to 64.9 in January 2023. The GDP at current price of the US increased from US \$26.09 trillion in December 2022 to US \$26.34 trillion in January 2023.

Real gross domestic product (GDP) increased at an annual rate of 2.6% in the fourth quarter of 2022, according to the "third" estimate. The increase in real GDP primarily reflected increases in private inventory investment, consumer spending, nonresidential fixed investment, federal government spending, and state and local government spending that were partly offset by decreases in residential fixed investment and exports. Imports decreased.

The price index for gross domestic purchases increased 3.6% in the fourth quarter of 2022. The PCE price index increased 3.7%. Excluding food and energy prices, the PCE price index increased 4.4%, an upward revision of 0.1%.



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