Ball Aerospace-Built Optics and Mirror System Launched Today Aboard James Webb Space Telescope

BROOMFIELD, Colo., Dec. 25, 2021 /PRNewswire/ -- Ball Aerospace is celebrating today's launch of NASA's James Webb Space Telescope (Webb) from French Guiana. The Colorado-based company designed and built the advanced optical technology and lightweight mirror system that will enable Webb to detect light from the first stars and galaxies.



"It is truly an honor to be such an integral part of the next great space observatory," said DrMakenzie Lystrup, vice president and general manager, Civil Space, Ball Aerospace. "Today's launch is the culmination of a lot of hard work by a closely integrated team that spanned across multiple mission partners and NASA. We are tremendously eager to see the science the new observatory captures."

Announced as the Next Generation Space Telescope in 1996, and renamed James Webb Space Telescope in 2002, the space science observatory represents the largest and most complex ever built. Once on orbit, Webb will capture faint light from the very first objects that illuminated the universe after the Big Bang.

To make this possible, Ball Aerospace worked with NASA's Goddard Space Flight Center and Northrop Grumman, the prime industry partner, to innovate the 25 square-meter (~269 square feet) mirror system consisting of 18 beryllium mirror segments working together as one mirror. It will be the largest mirror and the first segmented telescope ever deployed in space, operating at the extremely cold space temperature of -406º F (30K) necessary for infrared imaging of distant stars and galaxies.

Ball also developed the cryogenic actuators mounted on each segment to control individual mirror positioning and curvature radius within one ten-thousandth the width of a human hair. To align the mirror segments, Ball also designed the 22 electronic flight control boxes to operate in a deep-freeze space environment to individually control each of the 132 actuators that keep the telescope segments properly aligned on orbit.

To innovate, validate and demonstrate technologies used to develop Webb's pioneering optical system, Ball Aerospace drew on its in-depth experience with space hardware designed for all four of NASA's Great Observatories (Hubble Space Telescope, Compton Gamma Ray Observatory, Chandra X-Ray Observatory and Spitzer Space Telescope).

Ball is also playing critical roles in other upcoming space observation missions. It is partnering with Goddard to develop the Wide Field Instrument for the Nancy Grace Roman Space Telescope and providing the spacecraft bus and telescope for the Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer (SPHEREx). Earlier this month, the Ball-built Imaging X-Ray Polarimetry Explorer (IXPE) launched from Kennedy Space Center on its mission to uncover the inner workings of some of the most exotic astronomical objects in our universe, such as neutron stars and black holes.

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Forward-Looking Statements

This release contains "forward-looking" statements concerning future events and financial performance. Words such as "expects," "anticipates," "estimates," "believes," and similar expressions typically identify forward-looking statements, which are generally any statements other than statements of historical fact. Such statements are based on current expectations or views of the future and are subject to risks and uncertainties, which could cause actual results or events to differ materially from those expressed or implied. You should therefore not place undue reliance upon any forward-looking statements and they should be read in conjunction with, and qualified in their entirety by, the cautionary statements referenced below. The Company undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Key factors, risks and uncertainties that could cause actual outcomes and results to be different are summarized in filings with the Securities and Exchange Commission, including Exhibit 99 in our Form 10-K, which are available on our website and at www.sec.gov. Additional factors that might affect: a) our packaging segments include product capacity, supply, and demand constraints and fluctuations and changes in consumption patterns; availability/cost of raw materials, equipment, and logistics; competitive packaging, pricing and substitution; changes in climate and weather; footprint adjustments and other manufacturing changes, including the startup of new facilities and lines; failure to achieve synergies, productivity improvements or cost reductions; unfavorable mandatory deposit or packaging laws; customer and supplier consolidation; power and supply chain interruptions; changes in major customer or supplier contracts or loss of a major customer or supplier; inability to pass through increased costs; political instability and sanctions; currency controls; changes in foreign exchange or tax rates; and tariffs, trade actions, or other governmental actions, including business restrictions and shelter-in-place orders in any country or jurisdiction affecting goods produced by us or in our supply chain, including imported raw materials; b) our aerospace segment include funding, authorization, availability and returns of government and commercial contracts; and delays, extensions and technical uncertainties affecting segment contracts; c) the Company as a whole include those listed above plus: the extent to which sustainability-related opportunities arise and can be capitalized upon; changes in senior management, succession, and the ability to attract and retain skilled labor; regulatory actions or issues including those related to tax, ESG reporting, competition, environmental, health and workplace safety, including U.S. FDA and other actions or public concerns affecting products filled in our containers, or chemicals or substances used in raw materials or in the manufacturing process; technological developments and innovations; the ability to manage cyber threats; litigation; strikes; disease; pandemic; labor cost changes; inflation; rates of return on assets of the Company's defined benefit retirement plans; pension changes; uncertainties surrounding geopolitical events and governmental policies, including policies, orders, and actions related to COVID-19; reduced cash flow; interest rates affecting our debt; and successful or unsuccessful joint ventures, acquisitions and divestitures, and their effects on our operating results and business generally.

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