

Press Release
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BMW Group subsidiary Designworks collaborates with John Deere on the Backhoe of the Future.

Project presentation through Augmented and Virtual Reality experiences at CONEXPO-CON/AGG® (7.- 11. March, Las Vegas).



Los Angeles. As a design consultancy and BMW Group subsidiary, Designworks is deeply involved in shaping the future of mobility and the way we experience it. After presenting a vision of an automotive interior predominantly designed for a fully automated driving experience together with BMW at CES 2017, Designworks helped introduce another pioneering look into the future of mobility in Las Vegas: A backhoe vision of the future, developed in collaboration with John Deere, is being presented for the first time at CONEXPO-CON/AGG from 7. - 11. March. The concept leverages emerging materials and technology innovations to dramatically reconfigure the traditional backhoe form and is the result of a unique research and design process called “Fixstern”. To showcase the Fixstern Backhoe vision at the largest construction equipment trade show in the Americas, Designworks was also tasked by John Deere with the development of a unique augmented and virtual reality experience.

FIXSTERN: A Pioneering approach to innovation.

Designworks applied BMW's holistic and innovative research and design process "Fixstern" (fixed star) to the backhoe project. The process creates a far-future vision, a focal point that all stakeholders can share in common, align to, and drive towards. "BMW is continuously working on innovations to headline the radical change in our future mobility. Through Designworks we are able to share knowledge and inspire change and transformation in other industries, which is important not only with regards to product design or connectivity but especially when it comes to sustainable solutions for the future", says Adrian van Hooydonk, Senior Vice President BMW Group Design.

The demanding goals John Deere and Designworks established to highlight the key areas of advancement also illustrate the dualities the team had to overcome in the process: Designing a highly capable and robust future piece of equipment while reducing weight by a minimum of 20 percent and the equipment's environmental impact by a minimum of 10 percent; elevating the user experience through user interaction and improved interior spaciousness while satisfying differing regional markets and addressing changing market demands through flexibility and versatility while lowering the cost to manufacture.

The John Deere Fixstern Backhoe.

The visionary backhoe concept incorporates an array of compelling features and innovations. A hybrid powertrain delivers the right amount of power, efficiency and light weighting without compromising productivity. It also enables a lower center of gravity and improves forward visibility. The form incorporates forward stabilizers, enabling an extended wheelbase with airless radial tires, which in-turn improves transport stability and expands the operator station.

To elevate the user experience, John Deere and Designworks expanded the operator station with larger openings and fewer obstructions to improve ingress/egress, visibility, and storage space. The isolation of seat and controls from a now-structural Rollover Protective Structure (ROPS) greatly improves comfort and control while reducing vibration and noise. Electric four-wheel steer improves maneuverability in tight areas.

The Fixstern Backhoe concept also boasts increased machine intelligence and connectivity with integrated augmented interfaces that enhance operation and real-time training, allow for increased communication between operator and project supervisor for efficiency and control, and incorporate predictive maintenance for decreased downtime and improved fleet management. "We wanted to stretch and challenge ourselves to innovate in new ways", said Doug Meyer, global director of product engineering, John Deere Construction & Forestry. "We worked closely with our backhoe customers to apply their input, and we leveraged jobsite visits and qualitative research to ensure the Fixstern

solutions address future customer and industry needs in performance, efficiency, and environmental compliance.”

Innovation through Materials and Consumer Insights.

Designworks fosters the integration of material and sustainability knowhow right from the beginning of the design and development process: For the Fixstern Backhoe the studio applied its proprietary database of emerging materials, fabrication techniques and technologies which were developed to help enhance product quality, save costs and increase efficiency while meeting stricter environmental regulations. With its holistic approach to material data including eco indicators, material availability, material cost and manufacturing information it also inspires designers to break barriers otherwise unquantifiable in the conceptual stage. The backhoe itself would be manufactured with intelligent, emerging, lightweight materials which help to reduce dig component weight and translates directly into increased payloads. The lightweight metal matrixed exoskeleton as well as a suspended hybrid propulsion unit help achieve the light weighting goals set out in the initial project phase.

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Designworks, A BMW Group Company

Designworks is a BMW Group company and a creative consultancy that's been driving innovation for more than forty years. Acquired by BMW Group in 1995, Designworks enables its parent company as well as internationally-renowned clients outside the automotive industry to grow their businesses through design and creative consulting services. With studios in Los Angeles, Munich and Shanghai and with clients including BMW, MINI, Rolls Royce, HP, Microsoft, Corsair, Coca Cola, Embraer, Neil Pryde, Siemens Trains and Singapore Airlines, Designworks is deeply immersed in a broad cross-section of industries.

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The BMW Group

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The success of the BMW Group has always been based on long-term thinking and responsible action. The company has therefore established ecological and social sustainability throughout the value chain, comprehensive product responsibility and a clear commitment to conserving resources as an integral part of its strategy.

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