



Dana Launches Spicer® Smart Suite™ Package for Mining Industry

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Connected-Vehicle Technology Delivers Predictive Maintenance to Improve Safety, Reliability

LAS VEGAS, Sept. 26, 2016 /PRNewswire/ -- Dana Incorporated (NYSE: DAN) unveiled its Spicer® Smart Suite™ technology option for the mining industry today at MINExpo 2016. This fully integrated system of connected-vehicle features turns passive drivetrain components into active sources of intelligence, transforming raw data into actionable insights to improve safety, boost efficiency, and reduce costs.

The Spicer Smart Suite platform is designed to reduce the risk of vehicle breakdowns in underground mines, improve the efficiency and precision of load transfers, and enhance the long-term durability of powertrain systems. Ultimately, this technology will be offered as an optional feature on all Spicer axles for load haul dumpers (LHDs) and articulated trucks used in underground mining operations.

"While demanding productivity, the mining industry places an extraordinary premium on safety. As a result, automated technologies are transforming the process for extracting underground commodities," said Aziz Aghili, president of Dana Off-Highway Drivetrain Technologies. "This Spicer Smart Suite package helps mining equipment operators balance their priorities with predictive maintenance and insightful diagnostics that deliver optimal vehicle efficiency while keeping the machine in top working condition at all times."

As in any industry, learning to properly run a mining vehicle takes time, training, and experience. Inadvertent suboptimal gear shift patterns can compromise productivity, while human error of even the most seasoned operators diminishes equipment performance. In order to optimize efficiency, Spicer Smart Suite technology has leading-edge, machine-learning algorithms embedded into the software. By recognizing, learning, and anticipating vehicle and operator behavior, this system can significantly reduce the need for vehicle calibration and allows operational parameters to be customized by taking into account specific machine characteristics, engineering tolerances, and operator tendencies.

Vehicle maintenance can also be especially challenging in an underground mine, and unscheduled downtime is both costly and inconvenient. The diagnostic tools offered by the Spicer Smart Suite package monitor various mechanical components and deliver predictive maintenance to prevent breakdowns, and can alert both operators and maintenance personnel to potential issues before they cause a bigger problem. Additionally, health-status monitoring can measure and store engine speed and torque to compare real-time data with historic records in order to recognize a potential problem before it happens. Other driveline data-management systems will be available to monitor vehicle speed, steering, suspensions, brake wear, axle temperature, and oil condition.

Another tool in this package designed for mining vehicles will be the Spicer Smart Suite intelligent load monitoring system (ILMS), which improves the efficiency of load transfer between LHDs and mining trucks. The Spicer Smart Suite ILMS solution uses patented and proprietary technologies to collect data from multiple sources on the axle and numerous other vehicle systems to provide robust, real-time operating metrics.

Dana's wide range of advanced drivetrain technology concepts for the mining industry will be showcased at MINExpo 2016 in the South Hall of the Las Vegas Convention Center in booth number 28921. To learn more, visit www.dana.com/offhighway.

About Dana Incorporated

Dana is a world leader in the supply of highly engineered drivetrain, sealing, and thermal-management technologies that improve the efficiency and performance of vehicles with both conventional and alternative-energy powertrains. Serving three primary markets – passenger vehicle, commercial truck, and off-highway equipment – Dana provides the world's original-equipment manufacturers and the aftermarket with local product and service support through a network of nearly 100 engineering, manufacturing, and distribution facilities. Founded in 1904 and based in Maumee, Ohio, the company employs more than 23,000 people in 25 countries on six continents. In 2015, Dana generated sales of nearly \$6.1 billion. *Forbes* Magazine has again selected Dana as one of America's 100 Most Trustworthy Companies. For more information, please visit dana.com.

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