

Building on a legacy of innovation, the new Cat[®] Water Delivery System 2.0 provides higher water output, allowing trucks to run at higher speeds

- New water pump and Cat[®] hydraulic motor delivers 25% increase in water output
- Integrated hoist pump and controls from the truck power the spray system, increasing watering speed by 13%
- Easier installation requires less time and fewer parts to maintain

TUCSON, Ariz., September 21, 2024 – Nearly 20 years ago, Caterpillar changed the dynamics of managing haul roads with the introduction of the Cat Water Delivery System (WDS). Designed to work with an existing Cat truck platform, the system controls dust and addresses underwatering and overwatering issues.

In 2015, Caterpillar engineers enhanced the Cat WDS by developing an automated water delivery feature to increase safety and efficiency compared to traditional manual watering operations. Independent of engine RPM, the software adjusts water flow based on truck speed and automatically turns the water off when stopping at intersections, reducing overwatering issues that can lead to poor traction and subsequent haul road damage.

Designed using customer input, the first fully integrated Cat Water Solution was introduced in 2021, connecting a Cat truck, water delivery system, tank and telematics. This ushered in a new era of intelligent watering using Cat MineStar[™] to provide import data for mining and quarry operations to make informed decisions.

The new Cat[®] WDS 2.0 builds on a legacy of innovation by delivering more power, greater efficiency, streamlined integration and easier installation. With over two years of testing and validation at the Caterpillar Tucson Proving Ground, the system's new water pump and Cat hydraulic motor provides a 25% increase in water output compared to WDS 1.0. This increase enables water trucks equipped with the new water delivery system to achieve accurate water application rates at 45 kph (28 mph), keeping pace with autonomous haul truck fleets.

Cat WDS 2.0 delivers increased water cannon output and spray distance. Depending on the cannon nozzle orifice and pipe size, maximum water output of the cannon at high idle is 7192 l/min (1,900 gal/min), up to 15% higher than WDS 1.0. It also provides up to a 20% increase in maximum cannon spray distance of 73 m (240 ft).



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“The Cat Water Delivery System is the culmination of nearly 20 years of collaboration with our dealers and customers,” says Dave Freeman, WDS engineering manager. “Cat WDS 2.0 is a continuation of that journey, showing our dealers and customers we’ve listened. Connected with Cat MineStar data tracking, we believe we’re providing our customers with the most advanced water solution for the next 20 years.”

Designed for streamlined integration

WDS 2.0 is engineered with a high output, proprietary Cat hydraulic motor connected with a new water pump assembly. This motor is optimized to work with the hydraulic output of Cat rigid frame trucks. The water delivery system is now integrated into the truck’s hoist controls to regulate the optimal amount of hydraulic power from the hoist pump to the hydraulic motor. This design helps provide precise water output while eliminating the need for a separate hydraulic tank, reducing service and maintenance costs. The motor and pump assembly use a dry coupling that reduces the need for lubrication, eliminating leaks and failures associated with wet couplings.

Auto Mode, an advanced feature built into the Cat Water Delivery System, uses software to automate the watering process, while allowing operators to deliver a more efficient watering technique with enhanced precision and control. Caterpillar engineers designed this feature to solve issues common with traditional watering systems that deliver water at a constant rate and require operator adjustments. Guided by automation, WDS 2.0 can help junior operators perform at a higher experience level to increase sitewide production.

Knowing when, where and how much water is applied aids mine sites in water conservation while meeting dust suppression requirements. Patented self-cleaning spray heads produce larger, heavier water droplets designed to reach the ground, losing less spray to wind and evaporation. Caterpillar-designed hydraulic controls regulate water pump starts and stops to increase system life. The WDS 2.0 software provides additional protection against damage, shutting down when water is no longer pumping. This allows the operator to use all available water in the tank, reducing carryback when returning to the refill station.

An in-cab touchscreen allows the operator to view critical water delivery system information like tank level, spray head selection and water application rate. An easy-to-reach keypad allows the operator to select and control the spray heads. The new water camera system provides visibility to the back of the spray bar and top of the refill chute. Reducing the potential for slips and falls, the operator can remotely fill the water tank while remaining inside the cab. Cat WDS auto shutoff integrates with fill points to prevent overfilling.

Scalable technology with Cat MineStar

The Cat WDS is the market’s most advanced water control system. The ability to track water data is a game changer in the industry. The new WDS 2.0 connects with cloud-based Cat MineStar telematics, allowing customers to collect data to measure key performance indicators (KPIs) like operator watering procedures, cycle duration, fuel utilization, volume of water distribution and tank level when reaching the fill station.



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To help manage the site more safely and productively, Caterpillar offers a choice between two connectivity options. Cat WDS MineStar Basic uses Equipment Tracking to monitor the water truck and tracks how it is being utilized. Cat WDS MineStar Premium adds Production Recording, helping address sitewide watering needs in conjunction with other water trucks and equipment. With scalable levels of connectivity, customers can start with the Basic package and easily upgrade to Premium, gaining additional features like water distribution maps and future enhancements.

Supported by Cat dealers

Cat Water Solutions provides a complete line of water delivery trucks and retrofit options for mining and large quarry operations to help manage dust. Truck tank capacities range from 76 000 l (20,000 gal) up to 159 000 l (42,000 gal), spanning the Cat 777 (07), 777 (05), 785D and 789D model sizes. The Cat 789D water truck platform is capable of fully autonomous operation to integrate into autonomous haul fleets.

All Cat Water Solutions are fully supported by the Cat dealer and parts network. Covered by a Caterpillar factory standard warranty, the water truck is eligible for Cat equipment protection plans (EPP) and customer value agreements (CVAs). For haul truck conversions and retrofit installations, WDS 2.0 uses fewer parts and requires less installation time to help lower total cost of ownership compared to the previous delivery system.

More information about the new WDS 2.0 can be found by contacting a Cat dealer or visiting www.cat.com/watersolutions. For more information about Cat Financial solutions tailored to meet the mine site's specific needs for equipment acquisition, technology upgrades and maintenance, visit www.cat.com/catfinancial.

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NOTE TO EDITORS

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