

CAT® 785(04)
WATER TRUCK

THE CHALLENGE: DUST. THE ANSWER: CAT® WATER SOLUTIONS.

Cat® Water Solutions helps you efficiently reduce haul road dust to enhance safety and increase productivity at your quarry, or mine site.

An integrated truck, tank, and water delivery system – paired with scalable levels of connectivity – helps you control dust with a focus on sustainable operations. The exclusive Auto Mode enables operators to deliver a more efficient watering technique with enhanced precision and control – helping solve watering issues common with traditional manual watering operation. This solution is sold and supported by the local Cat dealer you know and trust.

INTEGRATED DESIGN —DELIVERING PROVEN PERFORMANCE

- Built on a proven Cat 777 truck platform.
- Integrated design: truck, tank, and Cat Water Delivery System (WDS) connected with Cat MineStar™ technology.
- Ergonomically designed in-cab controls.

GAIN EFFICIENCY WITH THE CAT® WATER DELIVERY SYSTEM (WDS)

- Auto Mode provides variable water flow based on truck speed to determine appropriate flow to maintain deposition rate and conserve water.
- Automatic start and stop helps eliminate overwatering at road intersections.
- Maintenance-free and self-cleaning water spray heads reduce truck downtime.

SCALABLE CONNECTIVITY WITH CAT MINESTAR™

- Take control with near-real-time information hosted in the cloud.
- Monitor water source and distribution, report status to remote management.
- Service-based offering with scalable levels of connectivity to fit your needs: select between Basic or upgrade to Premium for a higher level of data-driven insights.

REDUCE COSTS, SUSTAINABLY

- Auto Mode conserves water and reduces fuel costs.
- Advanced technology connected to our water delivery system increases efficiency to help optimize your water truck fleet size.

ENHANCE SAFETY & PRODUCTIVITY AT YOUR QUARRY OR MINE SITE

- Lower dust levels, increase visibility, maintain haul road safety.
- Know where and when to water using advanced technology.
- With automated water delivery, the operator can remain focused on traffic and driving.

CUSTOMIZATION WITH OPTIONS TO FIT YOUR OPERATIONS

- We can help you choose a cannon nozzle, water tank, and spray head configuration based on your region and specific watering requirements.
- Choose number of spray heads mounted on rear spray bar, add optional side spray heads on the water tank for additional coverage, select cannon nozzle, and more.
- Hoist cylinder mounting enhances serviceability by raising the water tank for easier maintenance.
- Optional WDS Camera System: includes a camera to view spray bar on back of water tank and two cameras on top of tank for water fill positioning.

CAT DEALER SUPPORT

- Full support of Cat dealer and parts network
- Cat dealer installation & retrofit kits available
- Eligible for Equipment Protection Plans (EPP) & Customer Value Agreements (CVAs)

785 (04) WATER SOLUTIONS SPECIFICATIONS

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

Engine

Engine Model	Cat® 3512C HD-EUI	
Rated Engine Speed	1,750 rpm	
Gross Power – SAE J1995:2014	1082 kW	1,450 hp
Emissions Rating	Fuel Optimized	
Bore	170 mm	6.7 in
Stroke	215 mm	8.4 in
Displacement	58.56 L	3,573.6 in^3

- Net Power advertised is the power available at the flywheel when the engine is equipped with air intake system, exhaust system, and alternator.
- Ratings based on standard air conditions of 25° C (77° F) and 99 kPa (29.32 Hg) dry barometer. Power based on fuel having API gravity of 35 at 16° C (60° F) and an LHV of 42 780 kJ/kg (18,390 BTU/lb) when engine used at 30 °C (86 °F).
- No engine derating required up to 4267 m (14,000 ft) altitude.

Weights – Approximate

Rated Gross Machine Weight (RGMW)	249 476 kg	550,000 lb
Nominal Rated Payload (NRP)	145 tonnes	160 tons

- Consult your tire manufacturer for maximum tire load.

Water Tank Capacity

Capacity	121 133 L	32,000 gal

- Water tanks are offered by local 3rd party providers.

Weight Distributions – Approximate

Front Axle – Empty*	47.5%
Front Axle – Loaded	32.6%
Rear Axle – Empty*	52.5%
Rear Axle – Loaded	67.4%

*Depends on configuration.

Final Drives

Double reduction, planetary with full floating axles.	
Differential Ratio	2.10:1
Planetary Ratio	10.83:1
Total Reduction Ratio	22.75:1

Transmission

Forward 1	12.1 km/h	7.5 mph
Forward 2	16.3 km/h	10.2 mph
Forward 3	22.2 km/h	13.8 mph
Forward 4	29.9 km/h	18.6 mph
Forward 5	40.6 km/h	25.2 mph
Forward 6	54.8 km/h	34 mph
Reverse	11 km/h	6.8 mph

- Maximum travel speeds with standard 33.00-R51 tires.

Braking System

Service Brakes: Four corner, wet multi disc, oil cooled, air over hydraulic actuated

Brake Surface – Front	61 269 cm^2	9,497 in^2
Brake Surface – Rear	89 681 cm^2	13,900 in^2
Brake Standards	ISO 3450:2011	

Parking Brake: Four-corner, wet multi disc, Spring applied, Hydraulically Released

Body Hoists

Twin, two-stage hydraulic cylinders with snubbing valve		
Pump Flow – High Idle	750 L/min	198 gal/min
Relief Valve Setting – Raise	17 238 kPa	2,500 psi
Body Raise Time – High Idle	15.2 seconds	
Body Lower Time – Float	16.2 seconds	
Body Power Down – High Idle	15.9 seconds	

- Power raise in both stages; power down in second stage.

Suspension

Self-contained nitrogen/oil cylinders, pin-to-pin mounting, top and bottom double shear clevis attachments

Effective Cylinder Stroke - Front	320 mm	12.6 in
Effective Cylinder Stroke - Rear	165 mm	6.5 in
Rear Axle Oscillation	+/- 5.4 °	

785 (04) WATER SOLUTIONS SPECIFICATIONS

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Service Refill Capacities

Fuel Tank	1893 L	500 gal
Fuel Tank (optional)	2498 L	660 gal
Cooling System	490 L	129 gal
Crankcase	204 L	54 gal
Differentials and Final Drives	650 L	171 gal
Steering Tank	94 L	25 gal
Steering System (includes tank)	117 L	31 gal
Brake/Hoist Hydraulic Tank	540 L	120 gal
Brake Hoist System (includes tank)	641 L	169 gal
Torque Converter/Transmission System (Includes Sump)	248 L	65.5 gal
Front Wheels, Each	13.5 L	3 gal

Steering

Steering Standards	ISO 5010:2019	
Steer Angle	31.34°	
Turning diameter, (ISO 7457:1997)	29.8 m	97 ft 9 in

Tires and Rims

Standard Tire	33.00-R51 (E3 & E4)

- Quick Change Rims optional.
- Caterpillar recommends the customer evaluate all job conditions and consult the tire manufacturer for proper tire selection.

Cab

Air Conditioning	6.9 kW	23,543 Btu/hr
Heater / Defroster	10.01 kW	34,462 Btu/hr
Operator Sound pressure level) Tested to ISO 6396:2008		82 dB(A)
Rollover Protective Structure (ROPS) for:		
Operator meets		ISO 3471:2008
Trainer meets		ISO 13459:2012
Falling Objects Protective Structure (FOPS) for:		
Operator meets		ISO 3449:2005 Level II
Trainer meets		ISO 13459:2012 Level II
785 WTR (Tractor)	94 000 kg	207,234 lb

- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in a noisy environment.
- Note: Welding on ROPS or making modifications to the ROPS may void the ROPS certification. Please contact Caterpillar OEM Solutions if the application requires welding on the machine frame.

Cat® Water Delivery System (WDS)

Operator selectable coverage	0.2-0.8 L/m^2 (4 kph - 40 kph)	0.05-0.2 gal/ft^2 (3 mph - 25 mph)
Maximum water flow	6814 L/min	1,800 gal/min
Water per spray head (minimum)	132.5 L/min	35 gal/min
Water per spray head (maximum)	2271 L/min	600 gal/min
Spray head opening range (minimum)	1 mm	0.04 in
Spray head opening range (maximum)	19 mm	0.75 in
Maximum size debris flushed through spray head	19 mm	0.75 in
Spray width per head (dependent on flow)	4.5-9.1 m	15-30 ft
Spray system hydraulic tank capacity	27.5 L	7.25 gal
Maximum number of rear spray heads	5	
Minimum number of rear spray heads (3 recommended)	2	
Maximum number of front/side spray heads	2	
Minimum number of front/side spray heads	0	
Maximum water from cannon (idle)*	2271 L/min	600 gal/min
Maximum water from cannon (high idle)*	6246 L/min	1,650 gal/min
Maximum cannon spray distance*	61 m	200 ft
Wet water pump/hydraulic motor coupling		

*Depends on nozzle orifice and pipe size.

- Coverage rates above 0.6 L/m^2 may not be available at higher speeds depending on head count and configuration.
- The Auto Mode setting controls water coverage and automatically adjusts to the number of spray heads being used — independent of ground speed. This is an exclusive feature designed into the Cat® WDS software to help water more efficiently.
- Alternatively, manual mode allows the operator to set a water flow rate that is constant regardless of ground speed. This mode is not recommended for daily operation and will reduce watering efficiency and may increase fuel usage.
- Spray head opening is automatically controlled by the system to achieve Auto Mode Coverage or manual mode flow rate.
- Spray heads on competitive water distribution systems require tools and maintenance to change flow and spray pattern. Caterpillar is the only company to have variable active spray heads to regulate water spray.
- Water flow is continually adjusted during operation to conserve water and achieve desired coverage and flow rate.
- Water tanks are offered by local 3rd party providers with customization based on water application and regional customer requirements. Please contact your local Cat dealer, regional OEM Solutions Account manager, or email OEM_Solutions@cat.com for more information on water tank options and attachments.

785 (04) WATER SOLUTIONS IN-CAB WATER CONTROLS



1	Keypad to select and control the number of spray heads with buttons for intermittent spray, head cleaning, pump on / off, water cannon on / off, tank fill percentage, and adjustments for water flow rate.
2	Joystick for cannon control with adjustable spray selection. Choose a stream or fan spray when watering the pile or mining face. The cannon may also be used for fire mitigation.
3	Integrated touchscreen with user interface for configuring the water delivery system with real-time indicator of water tank level, cannon, and spray head operation. Optional Cat WDS cameras may also be viewed in this screen.

785 (04) WATER SOLUTIONS CONNECTIVITY

Cat MineStar Connectivity comes standard on all new Cat Water Solutions trucks with two package options.

MINESTAR CONNECTIVITY FEATURES*	LEVEL 1: BASIC** Equipment Tracking	LEVEL 2: PREMIUM Equipment Tracking + Production Recording
Near-real-time and historical reporting.	●	●
Truck location / utilization data: routes, starts, and stops.	●	●
Fuel and water level.	●	●
Whether or not the truck is spraying water.	●	●
Water Delivery System Utilization. (Auto Mode vs. manual mode)	●	●
Home Page View.	●	●
Home Page View with cumulative and hourly graphs.		●
Water Distribution Map.		●
Volume of water put down over time and area covered.		●
Water distribution rate, water delivery system setting by location, truck, and conditions.		●
Activity breakdown including time and distance: watering, not watering, stopped, etc.		●
Water dispensed by time/rate and mode, last 5 water activities, water dispensed by age.		●
View and export at least 8 weeks of historical water activity data.		●
Replay provides the ability to review and replay shifts by selecting a historical date and time. Review water level, pump on/off, heads on/off, cannon on/off, WDS Mode (Manual or Auto Mode), and coverage rates.		●
In-cab reporting to operator on water coverage and need.		●

*Based on equipment connectivity via WiFi or cellular data.**Basic Connectivity Package comes standard on new truck purchase with a 6-month complimentary service-based offering for better data insights.

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

POWERTRAIN	Standard	Optional
Aftercooler	•	
Air start		○
Automatic starter protection	•	
Cat Engine, 3512C, 1450 hp, Fuel optimized	•	
Diesel engine/turbocharged/aftercooled	•	
Ground level engine shutdown	•	
Electric start	•	
Elevated low idle control	•	
Engine idle shutdown	•	
Ether starting aid (automatic)	•	
Fan, conventional drive	•	
Fan, variable speed, rockford for use in freezing weather operations		○
Filtration with oil cooler		○
Multi-point oil pressure sensing	•	
Muffler	•	
Muffler, extended exhaust		○
Oil renewal system		○
Pre-lube		○

TRANSMISSION	Standard	Optional
6-speed, automatic powershift with electronic Transmission Chassis Control (TCC)	•	
Body-up reverse neutralizer	•	
Body-up shift inhibitor	•	
Controlled throttle shifting	•	
Directional shift management	•	
Downshift/reverse shift inhibitor	•	
Individual clutch modulation	•	
Lock-up torque converter	•	
Neutral start switch/coast inhibitor	•	
Oil level sensor	•	
Programmable top gear	•	
Rear axle continuous lubrication / filtration	•	

ELECTRICAL	Standard	Optional
Alternator 105 amp	•	
Back up alarm	•	
Batteries, 12V (2), 93 amp-hour	•	
Converter, 12V electrical	•	
Electrical system, 24V, 15 amp	•	
Payload indicator lights	•	
Vehicle Information Management Systems (VIMS)	•	
VIMS, blue light	•	
LED lighting system – Backup and hazard lights – Directional signals, front and rear – Engine compartment lights – External payload lights – Headlights and fog lights – Lo-hi beam selector – Ladder light and service deck lights – Left-hand ladder/service deck – Stop/tail lights	•	

BRAKING SYSTEM	Standard	Optional
Automatic resistive braking control	•	
Brake release motor (towing)	•	
Engine overspeed protection	•	
Extended life brake disc material	•	
Oil-cooled, wet multi-disc (front and rear) (service, resistive braking, parking, secondary)	•	

FLUIDS	Standard	Optional
Antifreeze protection to –50° C (–58° F)	•	

CAB	Standard	Optional
WDS Deluxe cab: – Water controls (monitor, joystick, keypad) – Payload indicator lamps – Retractable windshield visor – Premium plus operator seat – Deluxe companion seat – Cab cleanout vacuum – Operator footrest	•	
Air cleaner service indicator	•	
Air conditioner	•	
Auxiliary power connection/cigarette lighter	•	
Diagnostic connection port	•	
Dome courtesy light	•	
Entertainment radio ready – 5-amp converter, speakers, antenna, and wiring	•	
Gauge panel: Air pressure, Brake oil temperature, Engine coolant temperature, Fuel level	•	
Electric hour meter	•	
Electric engine control fault indicator	•	
Heater/defroster (11 070 kCal/43,930 BTU)	•	
Horn	•	
Hoist, body control (electric)	•	
Mirrors, right and left	•	
Prohibit access handrail – rear cab	•	
ROPS cab, insulated/sound suppressed	•	
Seatbelt for operator, park brake safety; two-point seatbelt for trainer/passenger	•	
Speedometer and Tachometer	•	
Stairway and walkway access, 600 mm (24 in)	•	
Steering wheel, tilt, padded, telescopic	•	
Supplemental steering (automatic)	•	
Traction control system	•	
Transmission gear indicator	•	
Window, operator, electric powered	•	
Windshield, wiper, intermittent control, and washer	•	
Vital Info Management System (VIMS)	•	
VIMS message center with universal gauge & keypad	•	

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

CAT TECHNOLOGY PRODUCTS	Standard	Optional
Product link™ cellular	•	
Product link satellite		○
Cat Water Delivery System software	•	
Cat MineStar™ hardware and connectivity packages:		
• Level 1 – Basic (Equipment Tracking)		○
• Level 2 – Premium (Equipment Tracking + Production Recording)		○

OBJECT DETECTION SYSTEM	Standard	Optional
Radar and camera	•	
Radar and camera, alternate		○
Camera only (radar ready)		○
Camera, alternate		○
Omission, camera and radar		○

SAFETY AND SECURITY	Standard	Optional
Ground level VIMS data port	•	
Ground level battery disconnect	•	
Fire extinguisher, portable		○
Working at heights handrail		○
Working at heights package		○
Working at heights service		○

FUEL SYSTEMS	Standard	Optional
1893 L (500 gallon) capacity fuel tank and fast fill system	•	
2498 L (660 gallon) capacity fuel tank and fast fill system		○
Fast fill fuel system	•	
Fuel filter basic screen	•	
Fuel filter with separator		○
Fuel heater		○

ACCESS	Standard	Optional
Fixed ladder	•	
Powered staircase		○

RIMS AND WHEELS	Standard	Optional
33R51 standard rim		○
33R51 quick change rim		○
Brake wear indicator		○
Hub odometer		○
Rim diffuser		○
Rims Mounting Group	•	
Wheel chocks		○

MUD GUARDS	Standard	Optional
Mud guards for standard hydraulic and fuel tank		○
Mud guards for standard hydraulic / large fuel tank		○

CHASSIS	Standard	Optional
Driveline guard	•	
Mirror heated	•	
Mirror wide and heated		○

COLD WEATHER	Standard	Optional
240V engine coolant and oil heater		○

SERVICE	Standard	Optional
Auto lube	•	
Auxiliary steering quick connect (towing)	•	
Auxiliary "buddy" dump quick connect	•	
Dual [LM2] [TS3] dryer for compressed air system	•	
Grease injector	•	
Quick connect fitting for engine oil	•	
Service center		○

CAT WATER DELIVERY SYSTEM (WDS)	Standard	Optional
Controls:		
• Factory installed / Integrated into cab	•	
Water System Monitor:		
• Integrated into cab	•	
• Programmable spray configurations	•	
• Automatic diagnostic messages	•	
Variable Hydraulic Pump Drive:		
• 1,800 gpm at speeds of 3 - 25 mph (4 - 40 kph)	•	
• Auto shut-off	•	
• Soft startup	•	
Stainless Steel Spray Heads:		
• Resists corrosion	•	
• Maintenance free	•	
• Patented design	•	
Independent Hydraulic Cooling System:		
• Minimizes overheating	•	
Water Cannon:		
• Hydraulically controlled	•	
• Optional nozzles		○
• Integrated joystick with cab controls	•	
WDS Camera System: includes three cameras		○

Parts & service available through global Cat dealer network

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

WATER TANKS	Standard	Optional
Water tanks are offered by local 3rd party providers with customization based on water application and regional customer requirements.		○
Options include: tie offs, ladders, splash guards, fill chute, rock ejectors, hose reels, working lights, and other options based on request.		○
Spray bar for 3-5 Cat WDS spray heads		○
Side spray mounting for Cat WDS spray heads		○

Please contact your local Cat dealer, regional OEM Solutions Account manager, or email OEM_Solutions@cat.com for more information on water tank options and attachments.

For more information, contact OEM Solutions:

oem_solutions@cat.com | www.cat.com/oemsolutions

Materials and specifications are subject to change without notice. Featured products in photos may include additional equipment. See your Cat dealer for available options.

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