



# CAT<sup>®</sup> 785D

## WATER TRUCK

### **THE CHALLENGE: DUST. THE ANSWER: CAT<sup>®</sup> WATER SOLUTIONS.**

Cat<sup>®</sup> 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 solve overwatering and underwatering issues with a focus on sustainable operations.

The exclusive Auto Mode feature 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 785D truck platform.
- + Integrated design: truck, tank, and Cat Water Delivery System (WDS) connected with Cat MineStar<sup>™</sup> technology.
- + Ergonomically designed in-cab controls for ease of use.

### **GAIN EFFICIENCY WITH THE CAT WATER DELIVERY SYSTEM (WDS)**

- + Auto Mode provides variable water flow based on truck speed and determines appropriate flow to 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<sup>™</sup>**

- + 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**

- + Gain more control of your operations using less water.
- + Auto Mode can help conserve water and reduce 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, MINE, OR JOB 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 size, and more.
  - » Optional 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.

### **SUPPORTED & BACKED BY THE ONE YOU TRUST**

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



# 785D Water Solutions Truck Specifications

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

## Engine

Engine Model	Cat® 3512C HD	
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 <sup>3</sup>

- 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
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- Consult your tire manufacturer for maximum tire load.

## Weight Distributions – Approximate

Front Axle – Empty*	45-46 %
Front Axle – Loaded	33 %
Rear Axle – Empty*	54-55 %
Rear Axle – Loaded	67 %

\*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

Brake Surface – Front	61 269 cm <sup>2</sup>	9,497 in <sup>2</sup>
Brake Surface – Rear	89 727 cm <sup>2</sup>	13,908 in <sup>2</sup>
Service Brakes	Four corner, wet multi disc, oil cooled, air over hydraulic actuated	
Parking Brake	Four-corner, wet multi disc, spring applied, hydraulically released	
Brake Standards	ISO 3450:2011	

## 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 °	

## 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	90 L	24 gal
Steering System (includes tank)	117 L	31 gal
Brake/Hoist System	337 L	89 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

# 785D Water Solutions Truck Specifications

## Steering

Steering Standards	ISO 5010:2007	
Steer Angle	31.34°	
Turning diameter (ISO 7457:1997)	29.8 m	97.7 ft

## Tires

Standard Tire 33.00-R51 (E3 & E4)

- Productive capabilities of the 785D truck are such that, under certain job conditions, TKPH (TMPH) capabilities of standard or optional tires could be exceeded and, therefore, limit production.
- 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 82 dB(A)  
Tested to ISO 6396:2008

ROPS Certification Rating Tractor ROPS Rating

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

785D WTR (Tractor) 94 000 kg 207,234 lb

- 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	0.1-0.8 L/m <sup>2</sup> (4 kph - 40 kph)	0.05-0.2 gal/ft <sup>2</sup> (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	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<sup>2</sup> 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.

# 785D Water Solutions Truck Specifications

## 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.

# 785D Water Solutions Truck Specifications

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 6 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: route, heat map, decay map. <sup>1</sup>		●
Future enhancements and new feature developments.		●

\*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.<sup>1</sup> Feature included in future update.

# 785D Water Solutions Truck Specifications

## Standard and Optional Equipment

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

	Standard	Optional
<b>POWERTRAIN</b>		
Cat 3512C HD-EUI engine (Fuel optimized)	•	
Cat 3512C engine (U.S EPA Tier 2 equivalent)		•
Diesel engine/turbocharged/aftercooled	•	
Aftercooler	•	
Elevated low idle control	•	
Automatic starter protection	•	
Multi-point oil pressure sensing	•	
Pre-lube		•
Filtration with oil cooler		•
Oil renewal system		•
Muffler	•	
Muffler, extended exhaust		•
Exhaust system to heat body		•
Fan, conventional drive	•	
Fan, variable speed, rockford for use in freezing weather operations		•
Air start	•	
Electric start		•
Engine idle shutdown	•	
<b>Braking System:</b>		
• Brake release motor (towing)	•	
• Oil-cooled, Multiple-disc (front and rear), (service, retarding, parking, secondary)	•	
• Automatic resistive braking control	•	
• Engine overspeed protection	•	
• Extended life brake disc material	•	
<b>Transmission:</b>		
• 6-speed, automatic powershift with electronic Transmission Chassis Control (TCC)	•	
• Controlled throttle shifting	•	
• Individual clutch modulation	•	
• Body-up shift inhibitor	•	
• Directional shift management	•	
• Downshift/reverse shift inhibitor	•	
• Oil level sensor	•	
• Neutral start switch/coast inhibitor	•	
• Body-up reverse neutralizer	•	
• Programmable top gear	•	
• Lock-up torque converter	•	
• Rear axle continuous lubrication/ filtration	•	
<b>ELECTRICAL</b>		
Back up alarm	•	
Alternator, 105 ampere	•	
Batteries, 12V (2), 93 amp/hour	•	
Converter, 12V electrical	•	
Electrical system, 24V, 15 amp	•	
<b>Lighting System, LED:</b>		
• Backup and hazard lights	•	
• Directional signals, front and rear	•	

	Standard	Optional
• 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	•	
Payload, indicator lights	•	

## OPERATOR ENVIRONMENT

Standard Cab:		
– Deluxe operator seat		
– Basic companion seat	•	
– Payload indicator lamps		
– Retractable windshield visor		
Deluxe cab		
– Includes the standard cab features		
– Premium plus operator seat		
– Deluxe companion seat		•
– External payload digital display monitors		
– Cab cleanout vacuum		
– Operator footrest		
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	•	
Mirrors, right and left	•	
Speedometer and Tachometer	•	
Supplemental steering (automatic)	•	
Traction control system	•	
Transmission gear indicator	•	
Vital Info Management System (VIMS)	•	
VIMS message center w/universal gauge and	•	
Heater/defroster (11 070 kCal/43,930 BTU)	•	
Horn	•	
Hoist, body control (electric)	•	
ROPS cab, insulated/sound suppressed	•	
Seatbelt for operator, park brake safety; two-point	•	
Stairway and walkway access, 600 mm (24 in)	•	
Steering wheel, tilt, padded, telescopic	•	
Window, operator, electric powered	•	
Windshield, wiper, intermittent control, and washer	•	
Prohibit access handrail – rear cab	•	

# 785D Water Solutions Truck Specifications

## Standard and Optional Equipment

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

	Standard	Optional
<b>SAFETY AND SECURITY</b>		
Ground level VIMS data port	•	
Ground level battery disconnect	•	
Working at heights handrail		•
Working at heights package		•
Working at heights service		•
Fire extinguisher, portable		•
<b>SERVICE</b>		
Service center		•
Quick connect fitting for engine oil	•	
Grease injector	•	
Dual [LM2] [TS3] dryer for compressed air system	•	
Auto lube	•	
Auxiliary steering quick connect (towing)	•	
Auxiliary "buddy" dump quick connect	•	
<b>FUEL SYSTEMS</b>		
Fast fill fuel system	•	
1893 L (500 gallon) capacity fuel tank and fast fill system	•	
2498 L (660 gallon) capacity fuel tank and fast fill system		•
Fuel filter basic screen	•	
Fuel filter with separator		•
Fuel heater		•
<b>FLUIDS</b>		
Antifreeze protection to -50° C (-58° F)	•	
<b>RIMS AND WHEELS</b>		
33R51 standard rim	•	
33R51 quick change rim		•
Rim diffuser		•
Hub odometer		•
Wheel chocks		•
Brake wear indicator		•
<b>MUD GUARD</b>		
Mud guards for standard hydraulic and fuel tank		•
Mud guards for standard hydraulic and large fuel tank		•
<b>ACCESS</b>		
Fixed ladder	•	
Powered staircase		•
<b>CHASSIS</b>		
Mirror heated	•	
Mirror wide and heated		•
Driveline guard	•	
<b>COLD WEATHER</b>		
240V engine coolant and oil heater		•

	Standard	Optional
<b>CAT TECHNOLOGY PRODUCTS</b>		
<b>Object Detection System:</b>		
• Radar and camera	•	•
• Radar and camera, alternate		•
• Camera only (radar ready)		•
• Camera, alternate		•
• Omission, camera and radar		•
Product Link™ Elite	•	
Road Analysis Control (RAC)	•	
Vehicle Information Management Systems (VIMS)	•	
<b>Cat MineStar™ hardware and connectivity packages:</b>		
• Level 1 - Basic (Equipment Tracking)*	•	
• Level 2 - Premium (Production Recording)		•
*Basic connectivity package comes standard on all Cat Water Solutions trucks with a 6-month complimentary service-based offering		

## CAT WATER DELIVERY SYSTEM (WDS)

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

Parts & service available through global Cat dealer network

**For more information contact OEM Solutions:**

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