

CS-583E

Vibratory Soil
Compactor

CAT[®]



Cat[®] 3056E ATAAC Turbocharged Diesel Engine

Gross Power 112 kW/150 hp

Drum Width 2134 mm

Operating Weight (with ROPS/FOPS cab)

CS-583E 15 430 kg

Productivity and Reliability in a Durable Package

The CS-583E Soil Compactor offers high compaction performance, speed and gradeability to maximize productivity while providing exceptional reliability and durability.

Engine

- ✓ Cat 3056E ATAAC turbocharged electronic diesel engine delivers 112 kW (150 hp) and is built for performance and reliability without sacrificing fuel economy. **pg. 4**

Vibratory System

Pod-style eccentric weights ensure peak compaction performance and minimal service. High dynamic force helps achieve density in the fewest number of passes. **pg. 5**

Operator's Station

The new 500E-Series Soil Compactors feature excellent operator comfort and visibility. A tilting steering column, propel lever wrist rest, grouped control gauges and conveniently located control switches enhance operator productivity and reduce fatigue. Four heavy-duty isolation mounts provide a smooth ride. Standard rearview mirrors, two front-facing and two rear-facing working lights are provided.

- ✓ New steering wheel with integrated center horn function and steering knob helps reduce operator fatigue.
- ✓ Machines with the open ROPS/FOPS platform are surrounded by handrails and features angled foot rests for sure footing when working on a grade. **pg. 6**

Gradeability and Machine Control

The exclusive dual pump propel system provides a separate balanced hydraulic flow to both the rear drive axle and the front drum drive motor. This unique dual pump propel system provides excellent grade climbing, machine control and tractive effort. Dual pumps also minimize drum and wheel spin-out in low traction conditions. High working speeds increases productivity. **pg. 9**

Performance and reliability you can depend on.

Based upon the industry-proven reputation of the Caterpillar® 500D-Series Soil Compactors, the new 500E-Series establishes new standards for productivity and reliability in the soil compaction industry. Durable Cat power train, field-proven hydraulic and vibratory systems and the world's largest and most dedicated dealer support system ensure the 500E-Series Soil Compactors will provide maximum utilization.



✓ *New feature*

Versatility

Standard dual amplitude expands the compactor's application range. The large spread between high and low centrifugal force makes it easier to tailor the compactive effort to density specifications. **pg. 5**

Visibility

- ✓ The one-piece sloped hood design provides exceptional operator visibility to the outside edge of the rear tires and to the rear of the machine for improved safety. **pg. 8**

Serviceability

- ✓ The newly designed one-piece fiberglass hood tilts forward to allow access to the engine and daily maintenance points. Daily check points are accessible from ground level. Rear mounted cooling system allows easy access for cleaning.
- ✓ The hydraulic oil cooler tilts down for convenient access and easier cleaning.
- ✓ Steps to the operator's platform swing-out for easier access to hydraulic components and oil filters. The operator's platform tilts forward to provide convenient access to the hydraulic components. Vibratory bearing lube service interval of 3 year/3000 hour keeps maintenance to a minimum and maximizes production. The articulation hitch area features sealed-for-life bearings that never need maintenance. **pg. 10**



Comfort and serviceability you deserve.

The operator's station provides a comfortable and easy-to-use environment that promotes productive operation. Simplified service access and extended service intervals minimizes maintenance time and increases productive work time.

Caterpillar 3056E ATAAC Turbocharged Electronic Diesel Engine

Industry-proven Caterpillar technology designed to provide unmatched performance, reliability and fuel economy with ample power for the most demanding jobs.



Turbocharged air-to-air aftercooling. It provides improved fuel economy by packing cooler, denser air into cylinders for more complete combustion of fuel and lower emissions.

Electronic Control Module. The Electronic Control Module (ECM) provides improved emissions and optimal performance through electronic timing and fuel delivery along with advanced troubleshooting and diagnostic capabilities using Electronic Technician (ET).

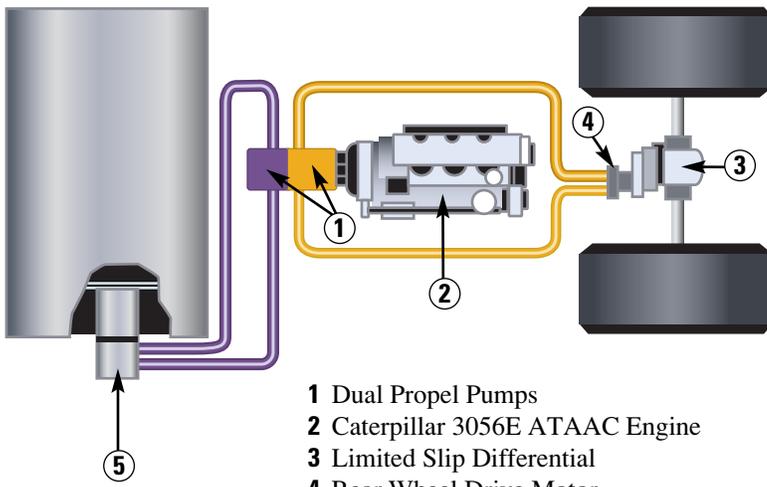
Highly-efficient combustion chamber. It increases power while lowering fuel consumption, engine emissions and noise.

High displacement-to-power ratio. It ensures long life and provides outstanding reliability and durability.

Oil cooler. The large oil cooler reduces oil deterioration and varnishing of internal components. Allows for 500 hour engine oil change intervals.

Dual Pump Propel System

Superior tractive effort and gradeability for outstanding productivity in demanding applications.



- 1 Dual Propel Pumps
- 2 Caterpillar 3056E ATAAC Engine
- 3 Limited Slip Differential
- 4 Rear Wheel Drive Motor
- 5 Drum Drive Motor

Dual propel pumps. Dual propel pumps provide separate, balanced hydraulic flow to the rear wheel axle and the drum drive motors. Provides high gradeability on moderate slopes and increases tractive effort in loose or poor underfoot conditions.

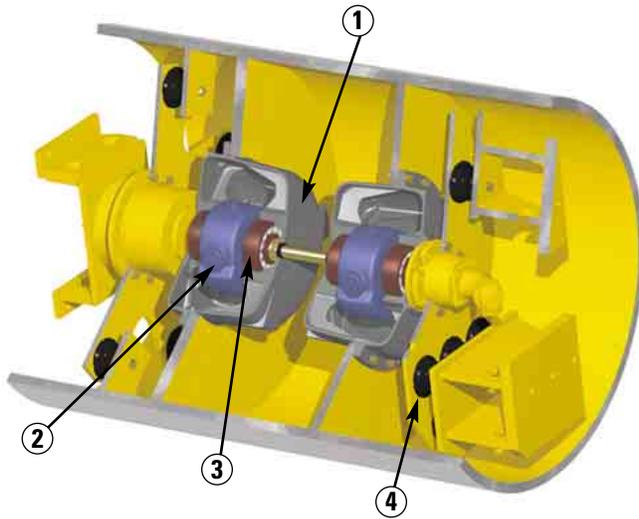
Limited slip differential. It provides balanced tractive effort and smooth torque transfer to both rear wheels.

Speed ranges. Two speed ranges for versatile operation. Low speed range for vibratory operation and maximum torque when climbing grades. High speed range moves machine quickly over longer distances.

Valves. Flushing valves in each propel circuit helps keep hydraulic oil cool and clean for maximum system efficiency.

Vibratory System

The pod-style vibratory system, delivers superior compactive force while offering serviceability advantages.



- 1 Pod-style Weight Housings
- 2 Patented Eccentric Weights
- 3 Heavy-duty Bearings
- 4 Isolation Mounts

Pod-style weight housings. They are assembled and sealed at the factory to ensure cleanliness, longer bearing life and easier field exchange or service.

Dual amplitude. Dual amplitude works efficiently in a wider range of applications. High or low amplitude is selected from the operator's station.

Vibratory frequency. Vibratory frequency of 30 Hz for high compaction results. Optional variable frequency control available with a frequency range from 23.3-30 Hz allows frequency to be better matched to varying job conditions.

Heavy-duty bearings. Large heavy-duty bearings for the eccentric weight shaft designed for high compactive forces.

Service interval. 3 year/3000 hour vibratory bearing lube service interval for reduced maintenance.

Isolation mounts. Improved isolation mounts allow more force to be transmitted to the ground and less vibration to the drum yoke.

Patented Eccentric Weights

Reliable dual amplitude selection and innovative design ensure precise performance.

High Amplitude

Low Amplitude



Amplitude selection. Positive amplitude selection is accomplished when the steel shot is repositioned inside the hollow eccentric weight. Direction of weight shaft rotation determines amplitude level.

High reliability. High reliability since there is no chance of the high-strength spherical steel shot wedging together. System reliability is superior to swinging mechanical weights and is also quieter during starts and stops.

Simplified control. Simplified control from the operator's station with a selection switch on the operator's console.

Longer service life. No heavy weights to slam together, no metal fragments to contaminate the bearing lubrication system.

Operator's Station

Ergonomically designed for maximum operator productivity while offering excellent visibility and unmatched comfort.



Seat. The comfortable and durable seat has adjustable fore/aft position, bottom cushion height, suspension stiffness and flip-up arm rests with a 76 mm wide retractable seat belt.

Operator's station. The isolated operator's station with four heavy-duty rubber mounts limits machine vibration transmitted to the operator's station.

Floor mat. Rubber floor mat provides sure footing and helps further isolate the operator from machine vibration and noise.



Operational gauges. Steering console and instrumentation gauges are infinitely adjustable within the tilt range to the desired position of the operator. Entire console tilts for simple entrance and exit.

Instrument panel. Machine gauges are located on the adjustable front steering column for easy reference during machine operation. The instrument panel contains the fuel gauge, vibrations per minute (VPM) meter (optional) and a nine-light LED fault indication panel.

Indication panel. Fault indication panel is a three-level warning system to alert the operator to abnormal machine conditions with a visual warning and action alarm.



Single lever control. The single lever control for propel and vibratory On/Off provides simple and low effort operation. A padded adjustable wrist rest provides comfort.

Control panel. The control panel with grouped switches puts all controls within easy operator reach.

Storage. Convenient storage compartment for storing operator's personal items.

ROPS/FOPS Cab

Optional cab can increase machine utilization in extreme environment conditions and the ergonomic design emphasizes comfort, visibility and easy operation.



Cab. The cab is a spacious and comfortable work environment that includes large windows, more interior room with storage areas, better ergonomics and a dramatic reduction in interior sound levels.

Windshield. Full-length glass windshield provides exceptional visibility to the drum and optional leveling blade.

Mirrors. Two exterior rear view mirrors, front and rear working lights included with cab.

Wipers. Windshield wipers on front and rear windows allow clear vision in adverse conditions.

Windows. Slide-open side windows for cross ventilation.

Climate control. The climate control with standard heater and defroster for maximum operator comfort. Optional air conditioning helps keep the cab cool and comfortable.

One-Piece Sloped Hood Design

The one-piece sloped fiberglass hood design provides excellent service access and exceptional operator visibility.



Visibility. The visibility to the tire edges and rear of machine is exceptional. The sloped hood allows the operator to see obstacles measuring 1 meter high located 1 meter to the rear of the machine. Excellent visibility increases productivity when working near obstructions or maneuvering around the job site.

Lockable engine hood. The one-piece lockable engine hood opens quickly and easily with the use of gas struts to provide unrestricted access to the engine, cooling system and all service points.

Sound levels. Low sound levels for the operator and the ground crew due to the one-piece engine hood and revised cooling air flow through the rear mounted radiator.



Gradeability and Machine Control

The exclusive dual pump propel system, proven reliable on 500D-Series Soil Compactors, provides superior performance, machine control and exceptional grade climbing capability.



Propel pump system. The two propel pump system has dedicated pumps to drive the heavy-duty, high-torque rear wheel and drum motors independently. Should the drum or wheels begin to spin, there is always hydraulic flow to the non-spinning motor, allowing continuous tractive effort.

Controllability. Controllability is another feature of dual propel pumps. The operator has complete machine control to stop, maintain machine position and change directions while on a slope. This feature is especially useful on steep slopes and loose underfoot conditions.

Pressure valve. The pressure override (POR) valve limits maximum system pressure by de-stroking the propel pumps. This reduces pump flow while maintaining system pressure. This lowers the horsepower draw while accelerating the machine which saves fuel.



Reliability and Serviceability

The 500E-Series Soil Compactors continue to provide exceptional reliability and serviceability that you've come to expect from Caterpillar.



The one-piece fiberglass hood tilts forward for exceptional access to the engine and cooling system. Daily service points are accessible from ground level and are grouped on one side of the machine.

Hydraulic test. Quick connect hydraulic test ports simplify system diagnostics.

Ecology drains. Ecology drains provide an environmentally safer method to drain fluids. They are included on the radiator, engine oil pan, hydraulic and fuel tank.

Simple fluid collection. S•O•SSM (Scheduled Oil Sampling) ports allow for simple fluid collection of engine and hydraulic oil.

Hose routing. Secure hose routing with polyethylene mounting blocks to reduce rubbing and increase service life.

All-weather connectors.

Nylon braided wrap and all-weather connectors ensure electrical system integrity. Electrical wiring is color-coded, numbered and labeled with component identifiers to simplify troubleshooting.

Caterpillar batteries. Maintenance-free Caterpillar batteries are protected by bolt-on covers in the rear of the machine on both sides. Caterpillar batteries are specifically designed for maximum cranking power and protection against vibration.

Product Link. The machine is Product Link wire-ready. The Caterpillar Product Link System (CPLS) ensures maximum uptime and minimum repair costs by simplifying tracking of equipment fleets. Provides automatic machine location and hour updates. Can be obtained through your local Caterpillar dealer.

Indicators. Visual indicators allow easy check of engine coolant, hydraulic oil tank level and air filter restriction.

Swing-out steps. Swing-out steps allow easy access to hydraulic components and oil filters.

Operator's station. The operator's station tilts forward to allow convenient access to the hydraulic pumps.

Cooling system. The rear mounted cooling system provides easy access for cleaning. Hydraulic oil cooler tilts rearward for additional access to the radiator.

Bearings. Sealed-for-life bearings in the articulation hitch never need to be greased.

Oil. 500 hour engine oil change interval.

Service interval. 3 year/3000 hour vibratory bearing lube service interval for reduced maintenance.

Engine

Four-stroke cycle, six cylinder
Caterpillar 3056E ATAAC electronic
turbocharged low emissions diesel
engine.

Ratings at 2200 rpm	kW	hp
Gross power	112	150
Net Power		
EEC 80/1269	107	143
ISO 9249	107	143

Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator. No derating required up to 3000 m altitude.

Dimensions

Bore	100 mm
Stroke	127 mm
Displacement	6 liters

Dual-element, dry-type air cleaner with visual restriction indicator, thermal starting aid and fuel/water separator are standard.

Transmission

Two variable displacement piston pumps supply pressurized flow to two dual displacement piston motors. One pump and motor drives the drum propel system while the other pump and motor drives the rear wheels. The dual pump system ensures equal flow to the drive motors regardless of the operating conditions. In case the drum or wheels lose traction, the other motor can still build additional pressure to provide added torque.

The drive motors have two swashplate positions allowing operation at either maximum torque for compaction and gradeability or greater speed for moving around the job site. A rocker switch at the operator's console triggers an electric over hydraulic control to change speed ranges.

Speeds (forward and reverse)

Low Range	5.7 km/h
High Range	11.4 km/h

Gradeability with or without vibration (subject to underfoot conditions) 55%

Brakes

Service brake features

Closed-loop hydrostatic drive system provides dynamic braking during operation.

Secondary brake features*

Spring-applied/hydraulically-released multiple disc type brake mounted on the drum drive gear reducer. Secondary brakes are activated by: a button on the operator's console; loss of hydraulic pressure in the brake circuit; or when the engine is shut down. A brake interlock system helps prevent driving through the secondary brake.

* All machines sold within European Union are equipped with a brake release pump which allows the manual release of the secondary brake system for towing the machine.

Braking system meets EN 500.

Steering

A priority-demand hydraulic power-assist steering system provides smooth low-effort steering. The system always receives the power it needs regardless of other hydraulic functions.

Minimum turning radius:

Inside	3680 mm
Outside	5810 mm

Steering angle

(each direction) $\pm 34^\circ$

Oscillation angle

(each direction) $\pm 15^\circ$

Hydraulic system

Two 76 mm bore, double-acting cylinders powered by a gear-type pump.

Final Drives and Axle

Final drive is hydrostatic with gear reducer to the drum and hydrostatic with differential and planetary gear reduction to each wheel.

Axle

Heavy-duty fixed rear axle with a limited slip differential for smooth and quiet torque transfer.

Tires

587 mm x 660 mm (23.1" x 26")
CS-583E 12-ply flotation

Ballasted with 30-35% calcium chloride/water solution, approx. 430 liters per tire.

Sound

Operator Sound. The operator sound level measured according to the procedures specified in ISO6394 is 81 dB(A), for cab offered by Caterpillar, when properly installed and maintained and tested with the doors and windows closed.

Exterior Sound. The labeled spectator sound power level measured according to the test procedures and conditions specified in 2000/14/EC is 111 dB(A).

Instrumentation

Electronic Control Module (ECM) constantly monitors condition of the engine. Alerts the operator if a problem does occur with three levels of warning. Warning system includes: Action Alarm and Lamp, Low Engine Oil Pressure, High Engine Coolant Temperature, High Hydraulic Oil Temperature, Low Charge Pressure, Starting Aid and High Combustion Air Temperature. Instrumentation also includes an Alternator Malfunction Light, Check Engine/Electrical Fault, Service Hour Meter and Fuel Gauge.

Operator and Machine Protective Equipment

Backup Alarm – 107 dB(A) alarm sounds whenever the machine is in reverse.

Forward Warning Horn – located on the front of machine to alert ground personnel.

Seat Belt – 76 mm wide seat belt is standard.

Electrical

The 24-volt electrical system consists of two maintenance-free Cat batteries, electrical wiring is color-coded, numbered, wrapped in vinyl-coated nylon braid and labeled with component identifiers. The starting system provides 750 cold cranking amps (cca). The system includes a 55-amp alternator.

Frame

Fabricated from heavy gauge steel plate and rolled sections and joined to the drum yoke at the articulation pivot. Articulation area is structurally reinforced and joined by hardened steel pins. One vertical pin provides a steering angle of $\pm 34^\circ$ and a horizontal pin allows frame oscillation of $\pm 15^\circ$. Safety lock prevents machine articulation when placed in the locked position. Sealed-for-life hitch bearings never need maintenance. Frame also includes tie-down points for transport.

Service Refill Capacities

	Liters
Fuel tank	300
Full fuel capacity	330
Cooling system	26
Engine oil with filter	12
Eccentric weight housings	26
Axle and final drives	20
Hydraulic tank	64
Filtration system (pressure type)	
Propel	15 micron absolute
Vibratory	15 micron absolute

Operating Weights

Weights shown are approximate and include lubricants, coolant, full fuel and hydraulic tanks and a 80 kg operator.

	kg
Open platform	14 910
ROPS/FOPS canopy	15 110
ROPS/FOPS cab	15 430
Weight at Drum with ROPS/FOPS cab	9950

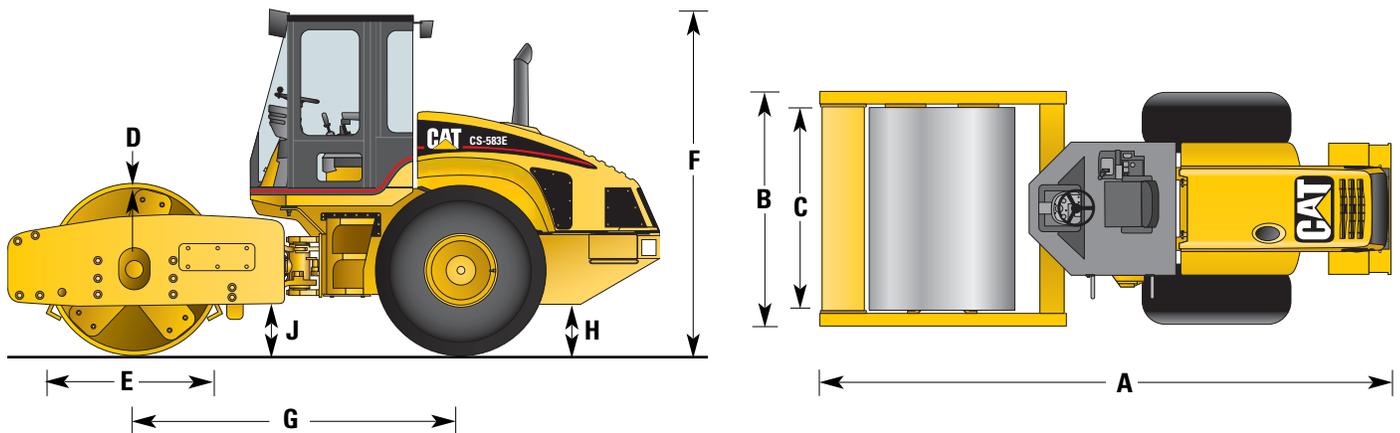
Vibratory System

Drum width	2134 mm
Drum shell thickness	40 mm
Drum diameter	1524 mm
Eccentric weight drive	Hydrostatic
Weight at drum (with ROPS/FOPS cab)	9860 kg
Static Linear Load*	46.2 kg/cm
Frequency	
Standard	30 Hz
Optional	23.3-30 Hz
Nominal Amplitude	
High	1.8 mm
Low	0.9 mm
Centrifugal Force at 31.9 Hz	
Maximum	332 kN
Minimum	166 kN

* Meets NFP 98736 class: VM4

Dimensions

All dimensions are approximate.



	mm		mm
A Overall length	5830	F Height at ROPS/FOPS canopy	3060
B Overall width	2370	Height at ROPS/FOPS cab	3070
C Drum width	2130	G Wheelbase	2900
D Drum shell thickness	40	H Ground clearance	448
E Drum diameter	1524	J Curb clearance	497
		Inside turning radius	3680
		Outside turning radius	5810

Total Customer Support System

Service capability. Most dedicated dealer support system to ensure fast service whether at the dealer's shop or in the field by trained technicians using the latest tools and technology.

Parts availability. Most parts on dealer's shelf when you need them. Computer-controlled, emergency search system backup.

Parts stock lists. Dealer helps you plan on-site parts stock to minimize your parts investment while maximizing machine availability.

Literature support. Easy-to-use parts books, operation and maintenance manuals and service manuals to help you get maximum value from your Caterpillar equipment.

Remanufactured parts. Pumps and motors, pod-style weight housings, engines, fuel system and charging system components available from dealer at a fraction of new part cost.

Machine management services. Effective preventive maintenance programs, cost-effective repair options, customer meetings, operator and mechanic training.

Flexible financing. Your dealer can arrange attractive financing on the entire line of Caterpillar equipment. Terms structured to meet cash flow requirements. See how easy it is to own, lease or rent Cat equipment.

Estimated Production

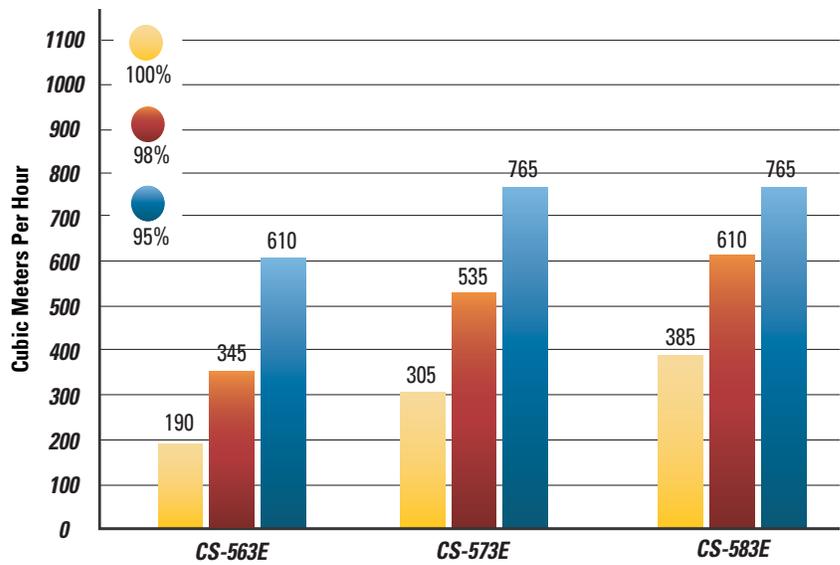
	Depth mm	Density %	150/300 mm Layers
Surface	0-500	>98	385/500 m ³ /h
Shallow	500-3000	95-98	610/710 m ³ /h
Deep	>3000	90-95	765/1150 m ³ /h

Based on depth of fill below final grade (surface)

Based on final compacted thickness of layer

Density spec. is based on Standard Proctor Test

Productivity Comparisons



% Compaction of Standard Proctor
150 mm Crushed Limestone Base

Results are similar for padfoot drums.
Results may vary for different applications.

Machine Selection

Application	Layer Thickness mm	Smooth Drum			Padfoot Drum
		CS-563E	CS-573E	CS-583E	
Sand, Clayey or Silty Sand, Mine Tailing	150-300	●	▲	□	□
	300-450	▲	●	▲	□
	450-600	□	▲	●	□
Clay, Sandy or Silty Clay, Stabilized Clay	150-300	▲	▲	▲	●
	300-450	□	▲	▲	▲
	450-600	□	□	▲	□
Silt, Sandy or Clayey Silt, Coal, Ash, Solid Waste	150-300	▲	▲	□	●
	300-450	▲	□	□	▲
	450-600	□	□	-	▲
Base Aggregate, Gravel, Crushed Rock, Stabilized Base	150-300	▲	▲	●	□
	300-450	□	▲	▲	□
	450-600	-	□	□	□

□ Good

▲ Better

● Best

Optional Equipment

Optional equipment may vary. Consult your Caterpillar dealer for specifics.

**Roll Over Protective Structure/
Falling Object Protective Structure
(ROPS/FOPS) canopy** is a two-post structure that bolts directly onto flanges welded to the operator platform. Includes two front-facing and two rear-facing working lights, handrails and a rear view mirror. The structure meets ISO 3449-1992 and ISO 3471-1994.

ROPS/FOPS Cab includes a rotating cloth suspension seat, one access door, tinted safety glass windows, electric wipers front and rear, heater/defroster, two vertically sliding side windows for ventilation, two exterior rear view mirrors, two front-facing and two rear-facing working lights, interior dome light, coat hook. Cab can be ordered with or without air conditioning. Cab is fully EROPS rated and meets ISO 3449-1992 and ISO 3471-1994.

Sun Visor for the front windshield can be installed on machines equipped with a ROPS/FOPS cab.

Roll-Down Sun Screen for the rear window can be installed on machines equipped with a ROPS/FOPS cab.

Rear View Mirrors are available for internal use on machines equipped with a ROPS/FOPS cab or external use on machines equipped with a ROPS/FOPS canopy.

Transmission Guard consists of a heavy plate which covers the rear axle, axle drive motor and input gearbox.

Cab Lift Cylinder is available and provides a hydraulic cylinder to raise and lower the operator's platform or cab.

Vibration Auto On/Off. Vibration system switches on/off automatically.

Variable Frequency is an electronic displacement control on the vibratory pump that is operated by a dial on the operator's station. Engine rpm remains constant. Frequency range from 23.3-31.9 Hz makes it easier to match frequency, amplitude and working speed to job conditions. Includes the vibratory gauge.

Vibratory Gauge is mounted on the console in front of the operator and displays the actual vibratory system frequency. (Standard with the variable frequency option.)

Rotating Beacon includes an amber beacon and mount that can be attached to machines with ROPS/FOPS canopy or ROPS/FOPS cab.

Polyurethane Drum Scrapers for the CS-583E provide a front and rear scraper for continuous contact with the drum surface and replaces the standard steel front scraper.

Two-piece Padfoot Shell Kit bolts onto the smooth drum CS-583E and features 90 mm high pads. Includes special bumper.

Smooth Drum Rear Steel Scraper mounted at the rear of the drum.

Padded Drum Rear Scrapers help keep material from building up on the drum.

Speedometer

Recording Module provides a visual gauge for reading worktime, machine speed, distance covered and amplitude selection.

Compaction Indicator CI 010 includes LED panel indicating compaction level with integrated LCD screen displaying travel speed and compaction meter value. Also Includes hand-held printer.

Compactionmeter ALFA 022R includes compaction meter value dial, frequency meter dial and resonance meter value dial.

Drum rear Steel Scraper mounted at the rear of the drum.

Wheel Loader Type Tires. Includes two complete wheels with rim and 20-ply 20.5R25 RL2-6S tire.

Spare Tire with Rim is available for both the flotation tread and the traction tread.

CS-583E Vibratory Soil Compactors

HEHG9952 (06/2003) hr

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

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