Cat® Compaction Meter Value (CMV)

Compaction Measurement for Cat Compaction Control

Common Technology

- *Most intelligent compaction solutions available on the market are accelerometer-based technologies*
- *The system is scalable to meet your requirements*

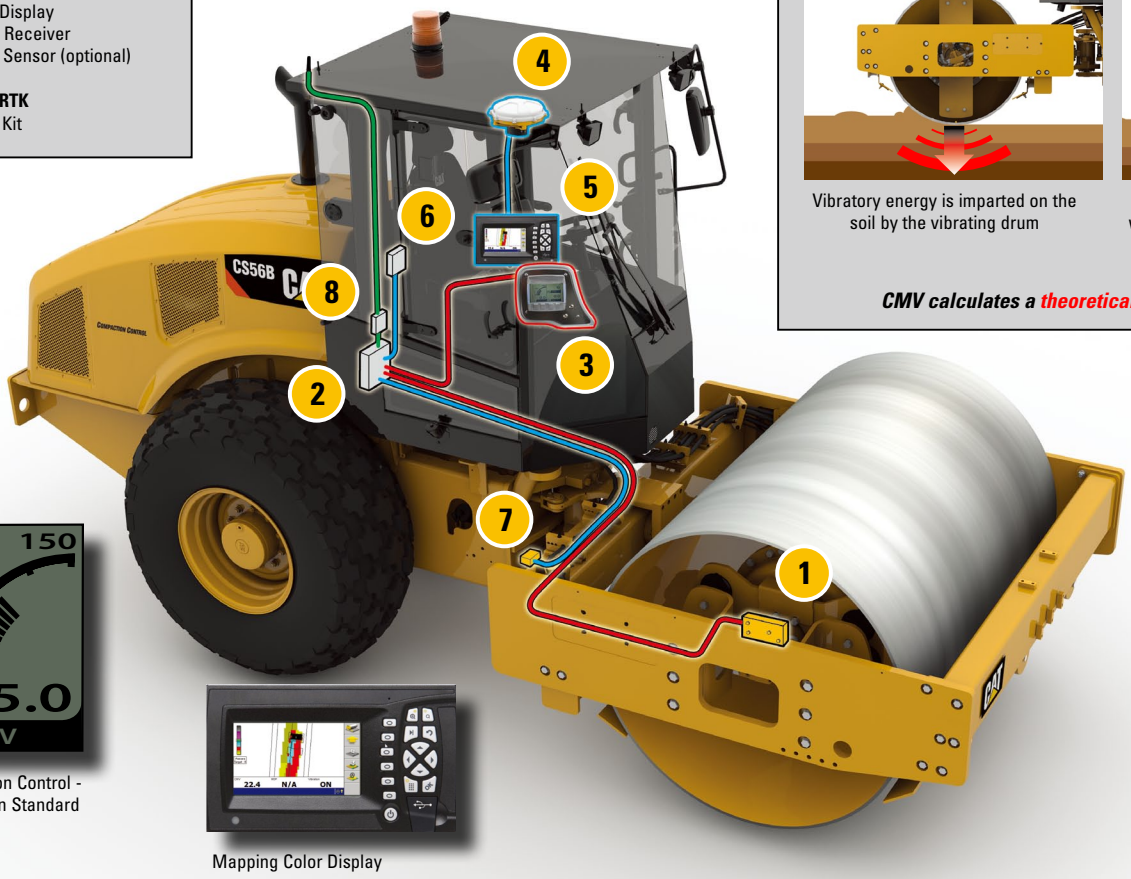
Measures Deep

- *CMV measures 1 to 1.2 m (39 to 48 in) deep depending on the soil type, moisture and other factors*
- *CMV can indicate the presence of buried objects (eg, rocks, tree trunks, clay balls) that could affect the quality of the base*
- *CMV can provide indications of soil stiffness as well as need for additional moisture to aid compaction*
- *CMV helps contractors find and remedy potential problems while the ground is open and the costs are lower*

Cat Compaction Control - CMV
1. Accelerometer
2. Controller
3. LCD Display

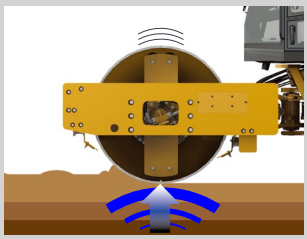
Mapping, SBAS
4. GNSS Antenna
5. Color Display
6. GNSS Receiver
7. Angle Sensor (optional)

Upgrade to RTK
8. Radio Kit



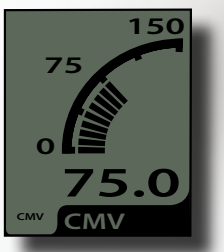
CMV - How does it work?

Vibratory energy is imparted on the soil by the vibrating drum



The material vibrates in response, which is detected and measured by the accelerometer

CMV calculates a theoretical indication of soil stiffness



Cat Compaction Control - CMV Gauge on Standard LCD Display

Mapping Color Display

Cat® Compaction Control Overview

Cat Compaction Control

Optional Cat Compaction Control provides information about the state of compaction to operators. The system comes with a choice of two different measurement technologies, Compaction Meter Value (CMV) and Machine Drive Power (MDP). CMV is an accelerometer-based technology that is similar to other accelerometer-based measurement systems on the market. MDP is a new, innovative, energy-based technology available only from Caterpillar.

Compaction Meter Value (CMV)

CMV technology utilizes a drum-mounted accelerometer to measure G-forces of the vibrating drum, utilizing the data in a formula to calculate an indication of soil stiffness. This technology is employed by many competitive manufacturers as well, while one manufacturer also attempts to calculate drum displacement and incorporate that into the formula. The system essentially measures the soil reaction to being struck by the drum. This means that the vibe system must be active in order to measure. While there are certain applications where this technology excels, the vibratory requirement can create some problems and limitations. CMV is very inconsistent in cohesive soils, which makes it unsuitable for use on padfoot drums or shell kits.

Cat Machine Drive Power (MDP)

Machine Drive Power (MDP) is a new, innovative, compaction measurement technology available only from Caterpillar. MDP utilizes a completely different principle, measuring the amount of energy required to propel through the soil, which provides a more direct indication of soil stiffness. Because it does not rely upon vibration energy on the soil, MDP can make measurements whether the vibe system is on or off, and is not subject to the restrictions that affect accelerometer-based technologies. MDP produces a more reliable measurement on more soil types, at a depth that is comparable to typical lift thickness, and it works on smooth drum or padfoot machines.

Mapping

Cat Compaction Control can be augmented with satellite mapping capability. The system utilizes available Global Navigation Satellite Systems (GNSS), such as GPS or GLONASS, to provide the coordinates to correlate measurements with a ground location. The maps are useful for providing visual documentation of compaction quality or processes. The standard SBAS system does not require a base station, while the RTK option allows you to utilize existing base-station infrastructure.

Cat Compaction Control Comparison - MDP and CMV

Feature	Machine Drive Power (MDP)	Compaction Meter Value (CMV)	Comment
Measurement Depth*	30-60 cm (12-24 in)	1-1.2 m (3.3 - 4 ft)	Systems measure different depths, volumes
Correlates w/portable measurement devices	✔		Gives you confidence to move on
Usable on smooth drum, padfoot, or padfoot shell	✔		MDP is only technology for padfoot
Usable on granular or cohesive material	✔		CMV is inconsistent on cohesive
Requires active vibe system to measure		✔	MDP can measure with less soil disturbance
Exclusive Cat technology	✔		MDP only available from Caterpillar

* Dependent on soil type, moisture and other factors.

The Cat Advantage - Single Source Provider

	Cat Dealer	Competitive Dealer	Comment
Convenient worldwide dealer locations	✔		More than our 5 largest competitors combined
Engine service	✔		Cat machines feature Cat engines
Machine service	✔	✔	
Service technician trained for paving equipment	✔		Cat technicians trained on Cat machines
24/7/365 parts availability on most service parts	✔		Long lead times for competitive OEM parts
New OEM parts	✔		Competition offers inferior aftermarket parts
Reconditioned OEM parts	✔		Rebuilt to OEM spec by Cat Reman
Available financing options	✔		Available through Cat Financial
Application expertise	✔		Personnel understand the paving business
Machine rental	✔		Keeps your capital expense low
Products with high resale value	✔		Durable Cat machines built to last

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com/paving

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