CAT® ASPHALT COMPACTION

# TECHNOLOGIES



# CAT® ASPHALT COMPACTION TECHNOLOGIES

*Cat® Compaction technology offerings may vary by region and model. Consult your Cat dealer for details.*

The longevity of asphalt surfaces can be directly correlated to the compaction process. Cat® Compaction technologies for asphalt are designed to help contractors consistently achieve asphalt density targets with confidence. From pass-count and mat temperatures to compaction measurement values, Cat asphalt compaction technology can help you visualize and document the work being done.




## TAKE SAFETY, QUALITY AND PRODUCTIVITY TO NEW LEVELS

Technology that fits your business and your budget, available as a factory-installed option or as an upgrade.

+ Designed to help operators of all skill levels consistently meet compaction targets faster, more uniformly, and in fewer passes.
+ Helps reduce rework, time and fuel costs.
+ Enhances jobsite safety.




# CAT TECHNOLOGY

## ELEVATE OPERATOR PRODUCTIVITY

Being able to consistently hit density targets is essential to asphalt compaction. Caterpillar offers tools that can help your crew repeat the compaction process with consistency. Providing the ability to monitor compaction parameters in real-time and enhance safety while on the jobsite are advantages that compaction technologies from Caterpillar provide.




Cat Compaction with Temperature Indication helps operators determine when optimal mat temperatures exist for asphalt compaction. The system utilizes dual infrared sensors to provide real-time mat temperatures so operators can identify temperature zones to start or stop rolling.

- **REAL-TIME MAT TEMPERATURES:** Infrared temperature sensors are designed to keep operators working in the optimal temperatures during compaction.
- **DIRECTION OF TRAVEL TEMPERATURE INDICATION:** On-board infrared temperature sensors mounted in the front and rear bumpers monitor the mat temperature in the direction of travel, providing operators with readings as they move over the mat in forward or reverse.
- **SIMPLE OPERATION:** The temperature reading is automatically integrated into the machine display along with other compaction parameters.
- **ELIMINATES HAND-HELD DEVICES:** Sensor readouts are integrated into the standard machine display.
- **QUALITY CONTROL:** When paired with mapping, pass-count and temperature data can be recorded for future analysis.

COMPACTION METER VALUE (CMV)

# MONITOR QUALITY



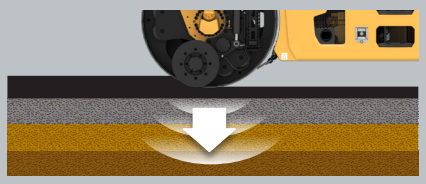

Compaction Meter Value (CMV) is an accelerometer-based technology that uses machine vibrations to measure and record composite stiffness of the current and supporting layers beneath the drum. By analyzing the frequency response of the drum, CMV provides real-time data that helps operators achieve consistent compaction with confidence.

- **INSTANT FEEDBACK:** Displays composite stiffness values in real-time so operators know when they are approaching compaction targets.
- **EASY TO UNDERSTAND:** An increasing CMV value indicates that compaction is improving. A static number indicates the asphalt has reached its compactive limit with the roller being used. Irregular CMV values indicate inconsistencies in the asphalt or base conditions.
- **QUALITY CONTROL:** Using CMV helps improve compaction quality and long-term performance of the asphalt surface.
- **PROOF ROLLING:** CMV can be used to proof roll the subgrade before paving. Deep reading levels can help identify buried objects or soft spots, helping to boost contractor confidence when warrantying their work.

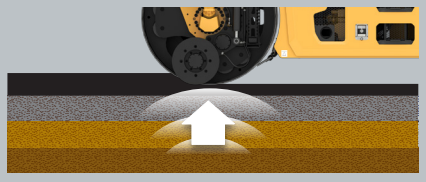
## HOW IT WORKS

**An accelerometer measures the response of the drum when vibration is on to provide a CMV value that is an indication how much energy the mat is capable of receiving.**

**MEASURES THROUGH SEVERAL LAYERS**
~ 46-152 CM (18-60 IN) DEEP*



**THE VIBRATING DRUM RELEASES ENERGY INTO THE MATERIAL.**



**THE ACCELEROMETER DETECTS AND MEASURES THE VIBRATION OF THE MATERIAL.**

**Actual CMV values can be influenced by several factors such as machine weight, amplitude, frequency, and direction of travel.*

# COMPACTION MAPPING

## KNOW WHERE YOU'VE BEEN

Cat mapping technology combines geographic locations with compaction measurements to create real-time visualization of work as it happens. In addition to monitoring from the operator station, the system records and saves pass count, temperature and CMV (Compaction Meter Value) values to the cloud to be further analyzed through VisionLink™* or exported for further processing. Mapping utilizes Global Navigation Satellite Systems (GNSS) to deliver Real-Time Kinematic (RTK) accuracy.

**Requires a VisionLink PerformancePro subscription.*

+ **ACHIEVE CONSISTENT COVERAGE:** Mapping helps operators see where the machine has been or where it hasn't, what meets target and what doesn't, so they can make sure the entire area has been compacted to specification.
+ **BOOST JOBSITE EFFICIENCY:** The mapping system identifies areas that have completed the compaction process to minimize the risk of under- or over-compacting the asphalt.
+ **QUALITY AND PROCESS CONTROL:** Mapping documents and saves data to the cloud so you have proof of the work done, providing a reference of overall quality of the job and method specs in a visual, easy-to-understand format.
+ **COMPLETE PICTURE:** Mapping documents 100% of the area compacted vs. spot checks, providing a complete picture of the work that has been done. The system helps operators monitor coverage and passcounts when marks on the mat are difficult to see or during night paving. Mapping also aids in identifying transition zones and longitudinal joint overlaps.
+ **ANALYZE AND IMPROVE:** Data is stored and accessed through VisionLink for data analysis and process improvement. Data can also be exported through an Application Programming Interface (API).





# SAFETY-FOCUSED TECHNOLOGIES

## PRIORITIZE SAFETY ON YOUR JOBSITE

Maintaining a safe jobsite is crucial for maximizing productivity and minimizing costs. Cat safety technologies help lower risks, allowing operators to perform their tasks effectively.

# SEAT BELT REMINDER

## BUCKLE DOWN ON SAFETY

Correct seat belt use is one of the simplest ways to help protect operators during a rollover, sudden machine movement, or other unexpected event. The Seat Belt Reminder System helps encourage operators to fasten and correctly wear their seat belts. The system monitors seat belt status and provides clear reminders when a seat belt is not properly fastened, promoting consistent seat belt habits and helping protect operators while supporting a safer work environment.

- **SEAT BELT ALERT:** If an operator attempts to operate the machine without fastening their seat belt, such as disengaging the parking brake or initiating machine movement, visual and audible in-cab alerts activate to prompt proper seat belt use.
- **SEAT BELT INHIBIT:** Seat Belt Inhibit can prevent the machine from traveling if the seat belt is not fastened correctly, helping to intervene before unsafe operation occurs.
- **JOBSITE VISIBILITY:** An optional indicator light mounted on top of the machine provides a visual indication of seat belt use.
- **SAFETY INSIGHTS WITH VISIONLINK:** Safety events are recorded and transmitted to VisionLink, giving fleet managers visibility into safety trends and supporting proactive safety improvement initiatives.

*Feature availability may vary by model or region. Seat Belt Inhibit is standard on machines sold in Europe to comply with EU Machinery Regulation 2023/1230.*

*VisionLink subscription and compatible hardware required. Available features and data may vary by equipment manufacturer, machine configuration, and region. Consult your Cat dealer for details.*

# COLLISION MITIGATION SYSTEM

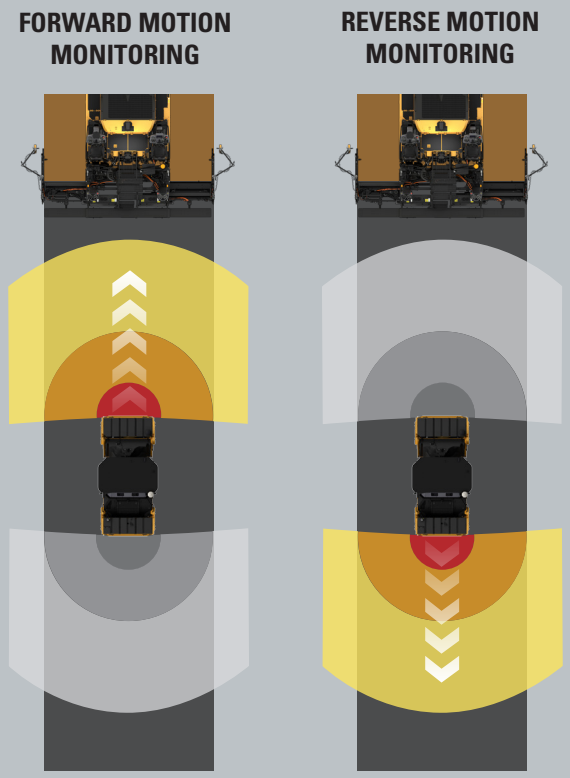
## IDENTIFY JOBSITE HAZARDS, MITIGATE RISK AND MANAGE SAFETY

The Collision Mitigation System (CMS) helps operators manage collision risks when operating in busy work areas. Using radar and smart camera technology, the system identifies people and objects, and provides operators with visual and audible warnings. Motion Inhibit can help prevent initial movement, while Automatic Emergency Braking can help slow or stop the machine when a critical risk is detected. Together, these capabilities provide an additional layer of support to help protect people, equipment, and jobsite operations.

- **OBJECT DETECTION:** Forward and rear-facing smart cameras and radar continuously monitor in the direction of travel of the machine. When the system detects an object, it provides visual and audible alerts, helping operators identify hazards that may be out of sight.
- **PEOPLE DETECTION:** Smart camera technology identifies people in the direction of travel of the machine and alerts the operator. The system highlights detected people on the in-cab display to help the operator recognize and respond to the risk.
- **MOTION INHIBIT:** When the machine is stationary, Motion Inhibit can help prevent initial movement if a person or object is detected in the critical (red) zone area in the direction of travel of the machine.
- **AUTOMATIC EMERGENCY BRAKING:** If the machine is in motion and the operator does not respond to a critical warning, the system can automatically apply the brakes to help slow or stop the machine.
- **OVERRIDE CAPABILITY FOR ENHANCED JOBSITE FLEXIBILITY:** When operating in confined work areas or around obstacles, operators can press and hold a button on the propel lever to temporarily override Automatic Braking and Motion Inhibit. This feature allows controlled machine movement when working close to detected objects or maneuvering around obstacles in the monitored braking zone.
- **SAFETY INSIGHTS WITH VISIONLINK:** Safety-event information and trends can be viewed in VisionLink, helping organizations identify patterns and support ongoing safety improvement.

## HOW IT WORKS

**The Collision Mitigation System uses radar to monitor the roller's direction of travel. Critical, Caution and Awareness zones provide an approximate distance to the detected object within the anticipated path of the machine.**



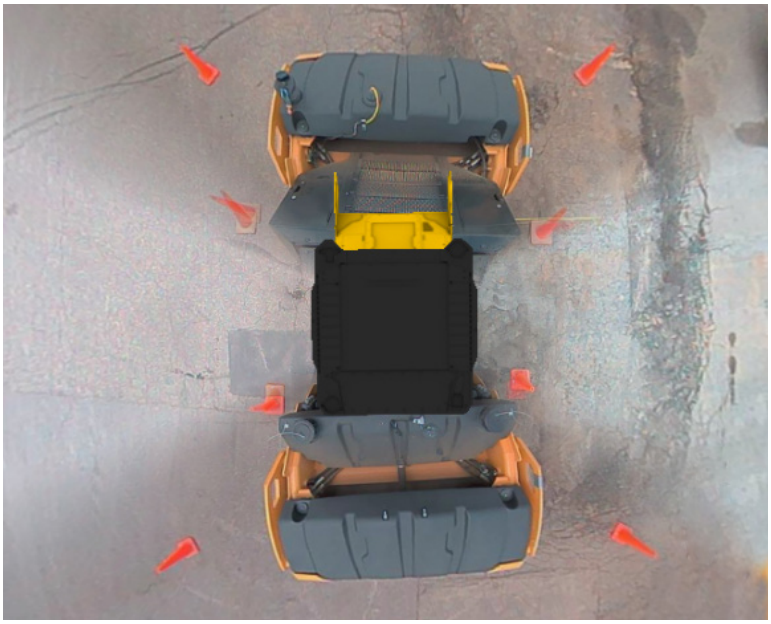

*Collision Mitigation does not replace proper training, attention, or safe operating practices. System performance may be affected by environmental conditions. Feature availability may vary by machine model and region.*

*VisionLink subscription and compatible hardware required. Available features and data may vary by equipment manufacturer, machine configuration, and region. Consult your Cat dealer for details.*

# CAMERAS

## ENHANCING OPERATOR VISIBILITY

Integrated multi-vision and surround cameras are designed to enhance job site awareness when nearing the paver, obstacles, and working near the ground crew.



### SURROUND VISION (360°)

+ **SURROUND VISION (360°) CAMERAS:** The top down, 360° viewing option provides operators with simultaneous views from the front, rear, left, and right cameras.
+ **BLIND SPOT REDUCTION:** Greater worksite visibility reduces blind spots and improves operators' awareness of their surroundings.
+ **WORK ZONE AWARENESS:** The high-definition display allows operators to easily see the work zone on all sides of the roller, increasing comfort and productivity.




### MULTI-VISION (FRONT & REAR) CAMERAS

+ **EXTRA SET OF EYES:** Multi-Vision (Front & Rear) cameras mounted in the front and rear bumpers provide good visibility when approaching obstacles.
+ **DESIGNED FOR ASPHALT COMPACTION APPLICATIONS:** The camera displays the direction of travel regardless of seat orientation, providing the flexibility needed when compacting asphalt.

# CAT COMPACTION TECHNOLOGIES FOR ASPHALT

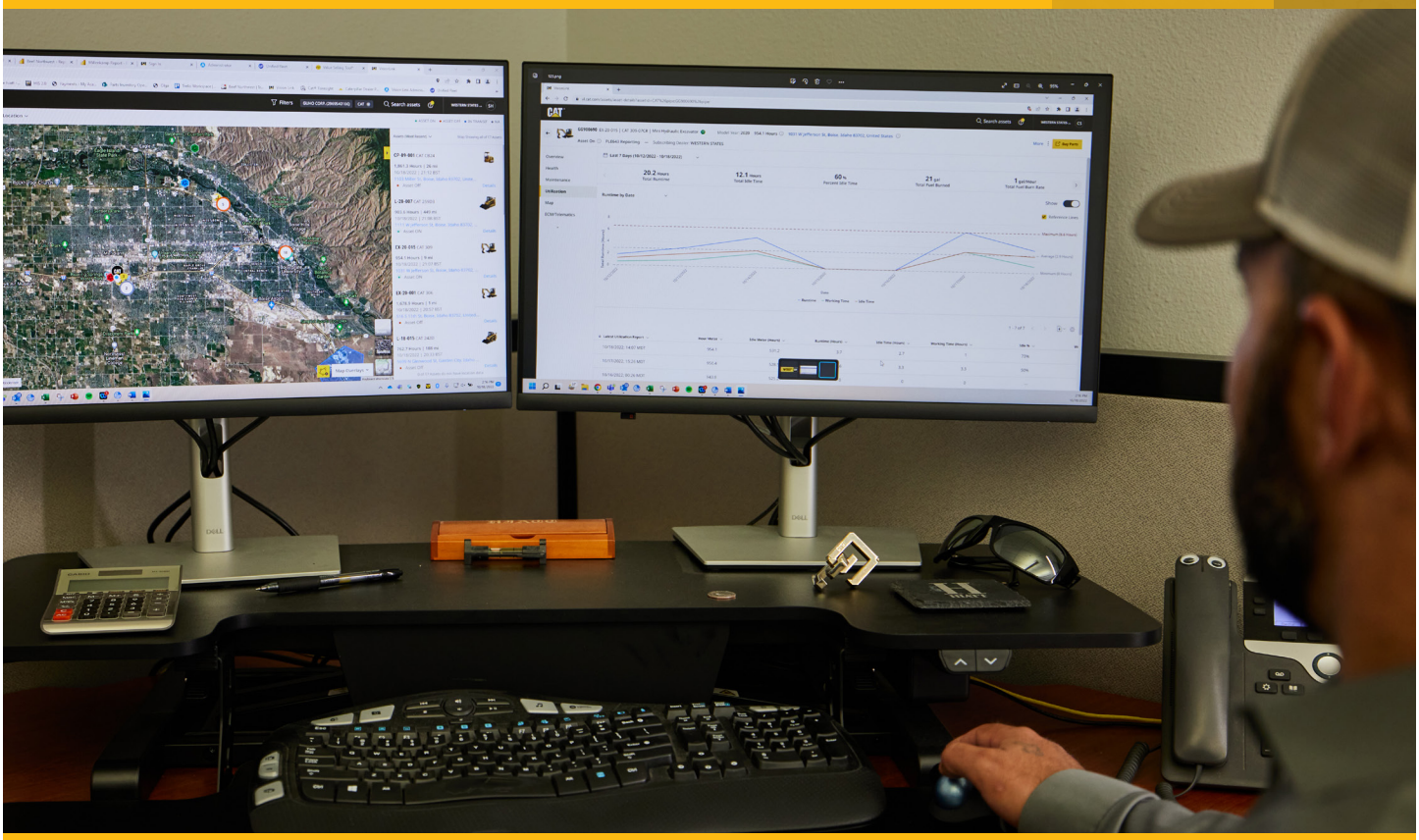
*Feature availability may vary by model or region. Please check with your Cat dealer for specific offerings and availability in your area.*

| SYSTEM | MODEL | AVAILABILITY | CONSIDERATIONS |
|---|---|---|---|
| **Infrared Temperature Sensors** | CB7-CB16<br>CW12, CW34 | Factory-installed or upgrade through your Cat dealer | • One each in the front and rear of the machine<br>• Always reads in the direction of travel<br>• Asphalt surface temperature is visible in the machine display<br>• Included with Cat Compaction mapping system |
| **Compaction Meter Value (CMV)** | CB2.5-CB4.4<br>CB2.5 GC-CB2.7 GC<br>CC2.7-CC4.0<br>CC2.7 GC<br>CB7-CB16 | Factory-installed or upgrade through your Cat dealer | • Requires vibration mode on<br>• Measures 46-152 cm (18-60 in) deep (averaged reading of total depth read). Actual CMV values can be influenced by several factors such as machine weight, amplitude, frequency, and direction of travel.<br>• Excellent for finding soft subgrade conditions |
| **Mapping** | CB7-CB16 | Factory-installed or upgrade through your compaction technology solutions provider | • RTK Global Navigation Satellite System (GNSS)<br>• Accuracy level of 1-3 cm (0.5-1.5 in)<br>• Requires a correction source such as: base station, Internet Base Station Service (IBSS), Virtual Reference Station (VRS) or Real Time eXtended by Trimble (RTX)<br>• Requires a VisionLink™ PerformancePro subscription for back-office connectivity<br>• Data can be exported for further analysis |
| | CW34 | Upgrade through your compaction technology solutions provider | |
| **Seat Belt Reminder** | CB1.7-CB1.8<br>CB2.5-CB4.4<br>CB2.5 GC-CB2.7 GC<br>CC2.7-CC4.0<br>CC2.7 GC<br>CB7-CB16<br>CW16 | Factory-installed or upgrade through your compaction technology solutions provider | • Requires a VisionLink subscription for safety incident tracking<br>• Optional configurable external beacon<br>• Seat Belt Inhibit is standard on machines sold in Europe to comply with EU Machinery Regulation 2023/1230 |
| **Collision Mitigation System** | CB13-CB16 | Factory-installed or upgrade through your compaction technology solutions provider | • Requires a VisionLink subscription for safety incident tracking |
| **Cameras** | CB7-CB10<br>CW16 | Factory-installed or upgrade through your compaction technology solutions provider | **CB7-10**<br>• Multi-Vision (Front & Rear) cameras are viewed on operator display<br>• Surround Vision (360°) cameras have a dedicated display<br><br>**CW16**<br>• Multi-Vision (Front & Rear) cameras are shown in a dedicated display |

# VISIONLINK™

## MACHINE AND JOBSITE DATA AT YOUR FINGERTIPS

VisionLink is a flexible and scalable cloud-based application designed to monitor all aspects of your operations, whether for individual machines or multiple interconnected job sites. It analyzes the collected data to provide insights into fleet utilization, compaction data and safety compliance. With VisionLink, you can make informed decisions that enhance operational efficiency and boost profits.



### MAXIMIZE UPTIME

Monitor equipment health, fault codes, fluid analysis, and inspection due dates. Reduce unplanned downtime with critical alerts. Order parts and schedule service within the platform.

### MAPPING DATA ANALYSIS

Access recorded mapping data for analysis, reference compaction quality and method spec information and pull reports of the work done. Data can also be exported through an Application Programming Interface (API).

### OPTIMIZE UTILIZATION

Manage assets by projects, groups, or geofences. Set utilization targets and monitor performance. Make informed, data-based decisions to reduce operating costs.

### PRIORITIZE SAFETY

Enhance operator awareness and worker vigilance on job sites by utilizing situational awareness alerts to mitigate risks and improve safety protocols.

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

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

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(Global excl China, Japan, India)

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