Trimble CCSFlex and GCS900/AccuGrade Compaction Control System for Soil and Asphalt Compactors

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CCSFlex Overview

- Asphalt and Soil Compactors – only
- Pass count system
- Multiple Add-on options
- Not upgradeable
System Overview

- Affordable
  - $13,995 USD

- Easy to install
  - Low impact install without damage to the machine
  - Can be installed easily by customer
  - Installed and running in about 2 hours
  - System is easily removed, moved to other compactors

- Easy to use
  - Install and start working
  - 3D designs and GPS base station NOT required

Notes:
- Kit includes V-block and Very High Bond (VHB) tape options for display mounting
- USB stick with all documentation and on-machine software also included
CCSFlex is Ideal for Contractors Who …

- Are of any size – small and large
- Want to improve the quality of their compaction operations
- Require a pass count system at an affordable price
- Require a system that is easy to install and use
- Have not yet invested in machine control due to complexity or price

Applications

- Compaction applications where pass count and uniform compaction coverage has to be achieved most efficiently
  - Road building and improvement
  - Site development, parking lots/car parks
  - Utilities / trench backfilling
  - Retention basins
  - Embankments and slope work
- Add-on options to CCSFlex would also allow applications or project requirements which require:
  - Compaction Value (soil compaction) or
  - Temperature mapping (asphalt compaction)
Importance of Compaction

- Good compaction
  - Increases strength
  - Reduces settling
  - Increases durability
  - The result is a high quality product
    - And lower costs

- Poor compaction
  - Reduced strength
  - Increased settling
  - Reduced durability
  - The result is a low quality product
    - And higher costs

Pass Count and Coverage is Critical

- Below the target pass count → poor compaction
- Above the target pass count → low productivity

- Important to ensure good pass coverage
  - Missed areas = poor compaction

- Good compaction → high quality product
  - And lower costs

- CCSFlex can ensure these critical factors are met on any job!
Compaction with and without CCSFlex

- Example of compaction operations with and without CCSFlex

**Compaction without CCSFlex**

Unnecessary compaction outside project area

Un-compacted

Compaction within project area

Meets target compaction level

Over-compacted

Indication of passes, coverage area which meets target compaction

Limited area which meets target compaction

System Configurations

- Standard “System in a Case” configuration
System Configurations

- CB450 Control Box
- MS972 GNSS Smart Antenna
- IS310 Infrared temperature sensor (rear)
- IS310 Infrared temperature sensor (front)
- SNM940 Connected Site Gateway
- Third-Party Mobile Printer
- CM310 Compaction Sensor
- GCS-FLEX
  - Installed and calibrated in less than 2 hours by the dealer or customer
    - New, easy-to-use quick install guide
  - No expensive tools, welding required
CCSFlex On-machine Software

- Asphalt and Soil Compactors
- Pass counts mapping
- Coverage mapping
- Production files (.tag)
- Automatic Coordinate System
- Cab-mounted GNSS support

MS972 GNSS Smart Antenna

- MS972 Base-level configuration

- Autonomous + SBAS + DGPS capable
  - Autonomous
    - 10-15 meter horizontal accuracy
  - SBAS
    - WAAS / EGNOS / MSAS
    - Sub-meter level horizontal positioning
  - DGPS
    - Using SNM940, can use corrections from IBSS for sub-meter level horizontal positioning

- Firmware options
  - Location RTK with precise horizontal positioning
    - 1 cm (horizontal) / 10 cm (vertical)
  - RTK high accuracy positioning
    - 1 cm (horizontal) / 1 cm (vertical)
Higher end GCS900 Compaction

- Tracks compaction by layer
- Pass counts
  - Monitors pass count over entire surface from one or multiple machines against a target pass count value
    - Highlights over- or under-compaction areas
- CMV values
  - Monitors the Compaction Meter Values (CMV) over the entire surface from one or multiple machines
    - Highlights compaction inconsistencies such as soft spots
- Machine Drive Power (MDP) values
- If pass count and CMV / MDP consistency is good then surface is likely to pass inspection
- Temperature mapping values (asphalt compaction)

GCS900 Compaction Reporting

- CCV/CMV values
  - Summary
- Temperature
- MDP values
- Pass count
  - Summary
  - Detail
Compaction Control Benefits Summary

- GCS FLEX Easy to use and install
  - Install and start working
  - No 3D designs or GPS reference stations are required
  - Customer installed, up and running in less than 2 hours
  - Easily move the system to other compactors in the fleet

- GCS FLEX Affordable
  - Ideal for the price-sensitive contractor

- GCS FLEX and GCS900 Real-time compaction progress
  - In-cab control box displays passes over of the compacted surface
  - Optional third-party printer provides real-time in-field reports

- GCS FLEX and GCS900 Increase compaction productivity
  - Less experienced operators become more productive, more quickly
  - Reduces the number of unnecessary passes

- GCS FLEX and GCS900 Increased quality
  - Achieve uniform compaction coverage and quality
  - Record compaction data for quality inspections

- GCS900 and Accugrade
  - Two-way data support
  - Uses same 3D model as Paver PCS900 System

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- 2D and 3D Project Monitoring data in the field – empowering the foreman or site manager
- Use mobile device GPS to identify problem areas and mark them for rework.
- View project data on site and react quickly
VisionLink Mobile

View current 3D project data such as elevation maps details on your mobile device.

Real-time production information at your foreman’s fingertips

- You ask your foreman to make critical real-time decisions
- Give your foreman real-time information on the progress of the project
  - Target and actual loads per hour – total loads
  - Idle, working and off hours for machines
  - Volume per hour moved

Requires 2D or 3D Project Monitoring Subscription
**VisionLink Mobile**

2D Dashboard – provides information for all assets on the selected site

**Map Settings**

Select Map View:
- Coverage
- Elevation
- Cut/Fill
- CMV Summary
- MDP Summary
- Pass Count
- Pass Count Summary
- Temperature

Select Map Type:
- Map
- Satellite
- Hybrid
- Terrain

Return to Project Selection page

**Editor's Note:**

- Loads
- Hours
- Volume

**Asset by Asset Details**
Local Airports 3D Milling and Paving

3d Airport Pave
We have handful of discounted ticket available at this time.

Thank You

Also thank you to Motley and Motley for demo pit.