

TRIMBLE ROADING SOLUTIONS

DEPENDABLE TECHNOLOGY, DEPENDABLE SUPPORT

Reliability is critical in paving work because the paving cannot stop. Trimble components are built to withstand the heat, steam, tamping and vibration that are regular on pavers, milling machines and compactors. And while system durability prevents downtime, Trimble's extensive distributor network ensures that training and support is always close.

PAVING COMPONENTS TO STAND UP TO ANY JOB CONDITION



TD510 and TD540 Displays

- Modern, colourful graphics
- Sunlight-readable, optically bonded LCD with capacitive multitouch interaction
- Android operating system for easy software extensibility
- Powerful octa core processor platform with dedicated graphics processor



AS200 Angle Sensor

- One of the most accurate slope sensors in the business
- Produces slopes as tight as 0.1%



CS200 Contact Sensor

- Mechanically traces a surface or a stringline

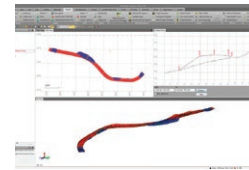


ST220 Sonic Tracer

- The five sensors on the sonic tracer average out small irregularities on the surface
- Contact-free sensing of ground, curb or stringline
- More than 25 centimeters (10 inches) of sensing range when placed perpendicular to a stringline or narrow curb
- Maintenance-free ceramic sensors
- Automatic temperature compensation

TRIMBLE BUSINESS CENTER SOFTWARE GOOD DESIGNS MAKE GOOD SURFACES

Data preparation and management is easy with Trimble Business Center.



Using Trimble Business Center, you can create 3D design models and automatically generate uncompacted surface designs for the Trimble PCS900 3D Paving Control System.

The uncompacted surface designs guide the paver to automatically lay more material above low areas and less material in high areas, anticipating and eliminating longitudinal waves that can occur after asphalt compaction.

TRIMBLE SPS930 UNIVERSAL TOTAL STATION

The Trimble SPS930 Universal Total Station controls the alignment of the machine and gives the system millimetre control over the screed. It works flawlessly in tunnels and overpasses, in tight corridors and over long distances. It also:

- Offers the best accuracy on the market—every millimetre saved reduces your milling and paving costs substantially
- It can very accurately drive the mill drum to cut to the 3D design within 3-6 millimeters (0.01 - 0.02 feet).
- Is flexible and reliable—you can work on sites where there is an obstructed view of the sky
- Has a 45 degree tracking angle—you can set it up very close to the mill in narrow corridors or in the drainage area between divided highways
- Transitions faster—Trimble Hot Swap technology transitions to the next total station without stopping the machine
- Maximises your return on investment—other survey and machine control work can be done with the same instrument

TRIMBLE HOT SWAP

Trimble Hot Swap technology makes total station transitions faster and less dependent on manual intervention from the operator. It automatically maintains the same tolerance between total stations, ensuring a smoother surface at the transition point and reducing the need to grind problem spots.

TRIMBLE ROADING SOLUTIONS

3D MILLING

3D MILLING WITH TRIMBLE PCS900 PAVING CONTROL SYSTEM

Milling to a fixed depth often satisfies the specification for a resurfacing project, but it leaves any road smoothness improvements to the paver. With the Trimble PCS900 Paving Control System you can mill at variable depth and slope, eliminating undulations and preparing a smoother sub-surface for new asphalt. When used in conjunction with a paver equipped with Trimble Roadworks or PCS900, the end result is a significantly smoother road surface using less material and finished in less time.

ACCURATE MILLING, NO STRINGLINES

Accurate milling begins with a quality 3D design model created in Trimble Business Center. The 3D design is displayed to the machine operator showing areas that are on, above, or below ideal grade. Comparing the actual drum position and slope with the digital design, the system automatically guides the milling drum to cut the ideal depth and slope without stringlines or manual adjustments.

With PCS900 on your mill, you can easily handle transitions, super-elevated curves, variable drainage slopes and longitudinal waves. And you can do it all without re-work.

MILL SMARTER

Using PCS900 on your milling machine provides several benefits:

- Smoother base—mill out the existing undulations, creating a smoother surface for paving
- Shorter lane shutdowns—trucks can run more efficiently unhindered by stringline and stakes
- Reduced machine wear—by only milling to the depth required, the machine will burn less fuel and experience less teeth wear
- Less material to remove—fewer trucks and cost required to remove waste material
- Less asphalt usage—mill off the minimum depth and use less asphalt for the final surface

Result after fixed depth milling of a road with longitudinal waves

Result after 3D milling of a road with longitudinal waves

PRISM:

Patented Trimble active tracking technology guarantees total station lock to the on-machine target and ensures millimetre control of the milling machine drum.

TRIMBLE CB460 CONTROL BOX:

The Trimble CB460 Control Box indicates the position of the drum versus the 3D design or pre-defined vertical offset.



TRIMBLE ROADWORKS

PAVING CONTROL PLATFORM

2D PAVING WITH TRIMBLE ROADWORKS PAVING CONTROL PLATFORM

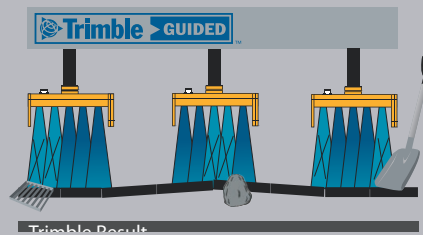
The Trimble® Roadworks 2D Paving Control Platform for asphalt pavers is ideal for projects that require meeting a thickness specification. When milling is done to design using Trimble 3D technology, Trimble 2D paving technology can easily handle the task of paving a fixed thickness.

Roadworks can reference off a surface, stringline or designed cross-slope. This makes the system an excellent, lower cost option for roads that have been graded or milled using Trimble PCS900 Paving Control Systems.

MANY BENEFITS FROM ONE SYSTEM

Trimble Roadworks system can help you to:

- Lay the finished surface with accuracy to 3 millimeters (0.01 feet)
- Minimise use of expensive material, pave within a tighter tolerance and get closer to the minimal asphalt thickness specification
- Reduce labour costs by controlling the screed with one operator
- Eliminate operator mistakes with the easy-to-use display interface
- Achieve maximum smoothness and rideability
- Finish on time



ROADWORKS AVERAGING BEAM AND SONIC TRACERS

ST220 Sonic Tracers mounted on the averaging beam ignore irregularities such as grates, and stones that could otherwise decrease accuracy. The beam measures a full 9.1 metres (30 feet) in length as required by some governmental agencies and swings back behind the paver to reference both the adjoining surface and freshly laid mat.



FOR EXCELLENT RIDEABILITY RESULTS

3D ASPHALT PAVING

3D PAVING WITH TRIMBLE ROADWORKS PAVING CONTROL PLATFORM

The Trimble Roadworks 3D Paving Control Platform for asphalt pavers is a highly accurate, automatic 3D screed control system that can significantly improve paving productivity and rideability by directly referencing the design rather than a surface or stringline to minimise asphalt usage, reduce waste and overruns and finish projects on time and under budget.

When used with a traditional asphalt paving machine with a tractor and hydraulically controlled floating screed with a supported 2D system, Roadworks can be used to place any variety of materials, including hot asphalt, cold recycled asphalt, road base, gravel, concrete treated base, sand or any other paving material.



PRECISION PAVING WITH LESS MATERIAL

The Roadworks system regularly achieves asphalt mat accuracies of 3-6 millimeters (0.01-0.02 feet), making it ideal for projects such as airports, large commercial surfaces and highways.

Accurate 3D control of the screed allows you to:

- Take out high and low areas early in the process with the less expensive materials
- Increase road smoothness using less asphalt than with traditional paving methods
- Lay complex designs such as transitions, super-elevated curves and frequently changing cross slopes
- Achieve accuracy and smoothness specifications, which can mean bonus income

Horizontal Steering and automatic screed width controls allow for a higher quality surface, and for more accurate, faster paving and with substantially less operator fatigue than with traditional asphalt paving methods.



TRIMBLE ROADWORKS

PAVING CONTROL PLATFORM FOR ASPHALT COMPACTORS

Trimble Roadworks Paving Control Platform for Asphalt Compactors is the next generation Intelligent Asphalt Compaction (IC) system designed to help operators of all levels improve the speed, accuracy and ease of asphalt compaction.

The intuitive Android interface on a large, friendly touch screen enables you to easily view real time temperature mapping, compaction progress, pass counts and optional display and recording of the compacted asphalt density.

For asphalt and hot mix asphalt compaction applications, Trimble Roadworks is ideal for operations where the specification calls for a target density, pass count and asphalt temperature control such as highway and railway construction, residential pads, commercial site construction, parking lots and sports fields.



INTELLIGENT COMPACTION

The asphalt compactor is the last machine to pass over your paving project, and mistakes during this phase can be very costly to fix.

Roadworks enables contractors to accurately control the compaction process, while reducing unnecessary passes that result in over compaction. The system achieves compaction target faster, more accurately and with less rework.

- Compact surface material to the desired compaction density and monitor site volumes simultaneously, in real time
- Ensure optimal compaction within the target temperature range, avoiding under and/or over compaction with real-time temperature map monitoring
- Achieve increased durability, stability and load-bearing capacity
- Easily meet Department of Transportation (DOT) or private job specifications

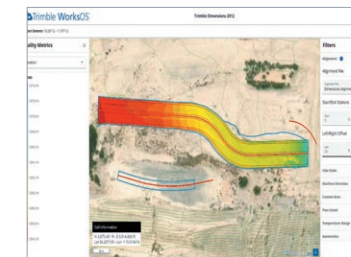


ACTIONABLE DATA

Supervisors and quality managers can monitor compaction activities in real-time, and operators can immediately identify the areas that require further compaction.

Office-only licenses offer extended functionality.

- Collect and document comprehensive, real-time compaction data to improve layer management
- Analyse data in the office to generate detailed reports and documentation to meet project specifications
- Continuously monitor pass counts and compaction measurement values (CMV) over the entire area to take corrective action as needed
- Improve testing success, reduce rework, operator hours and lower ongoing machine maintenance costs
- Reduce over-compaction to optimise fuel use and machine time



Trimble WorksOS Software

FOR A PERFECT FINISH

- Better understand work previously completed versus work completed that day
- Field data files can be directly imported into the Veta software platform to increase work opportunities and to gain a competitive advantage at the bidding process

OFFICE-TO-FIELD CONNECTIVITY

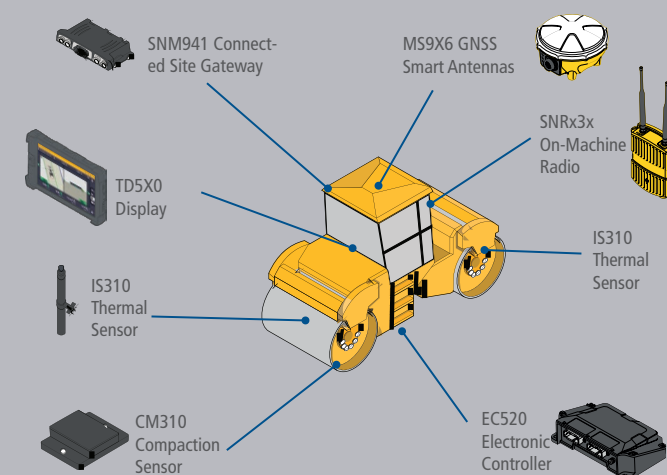
Reduce waste and overruns with efficient communication and data transfer with Trimble WorksManager and Trimble WorksOS—mobile-friendly software that easily manages data and technology assets across job sites.

With the Trimble SNM941 Connected Site Gateway, transfer 3D designs from the office to the machine wirelessly and automatically so that the operator is always using the latest design. Productivity data collected from the machine can automatically sync back to the office.

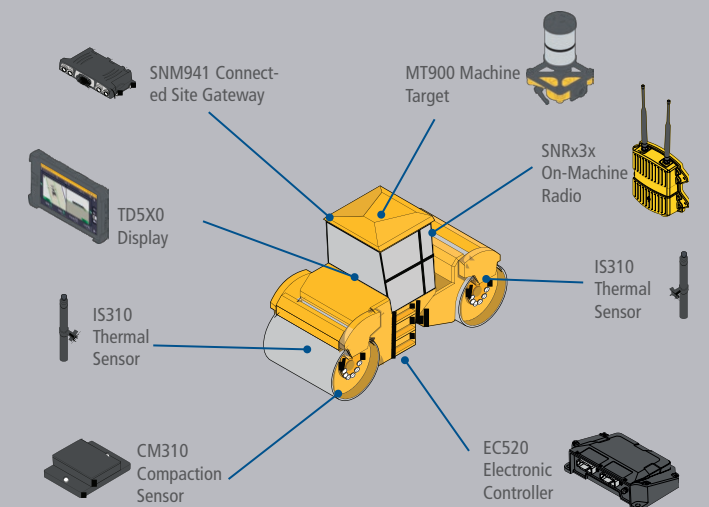


Trimble WorksManager Software

SINGLE GNSS SYSTEM



UNIVERSAL TOTAL STATION SYSTEM



TRIMBLE ROADING SOLUTIONS

3D SLIPFORM PAVING

NO STRING, NO DELAYS

It's time to kick stringline off your site. . .

Stringline delays your pour, it costs too much, and it's just too hard for your haul trucks to drive around. Every time it breaks, you have to stop the machine. Every time it sags, your surface suffers and so does your bonus.

Once you start paving with the Trimble PCS900 Paving Control System, you'll wonder how you could ever use string in the first place. You'll start working faster every day. Your haul trucks can pull up and dump without driving around string. You'll stop less often, grind fewer problem spots and blow away your target IRI number.



CONCRETE PAVER GUIDANCE

STRINGLESS AND PRECISE

MORE CONTROL, LESS WASTE

Trimble PCS900 Paving Control System for Slipform Pavers uses automatic steering and 6-way control of the pan to keep the paver exactly on the target alignment, grade and slope. The result is a more consistent concrete surface with better rideability and a bigger bonus – without the time and cost of string.

You'll see efficiency improvements through:

- Improved site logistics and safety
- On time delivery of mix
- Better yield
- Increased smoothness

ONE INTEGRATED WORKFLOW

The cost of concrete rework is too high to be working with multiple manufacturers and file formats. Using one integrated workflow from Trimble, you can be confident of the quality of your work, and stake your reputation on the results.

Pave to the 3D design, and your grade checker can work from the screed using a Trimble rover, the same 3D design model and total stations to verify the as-poured surface.

Plus, training and support from SITECH Construction Systems means you are never working alone.

