

Material Transfer Vehicles Are a Must-Have Today

In the year 1935 Harry Barber launched his invention, the very first asphalt paver. As you might imagine roadbuilding was changed forever and for the better. Road paving technology would not significantly change again until 1989 when Roadtec's parent company, Astec Industries, introduced the very first material transfer vehicle, the Shuttle Buggy® MTV. Roadtec material transfer technology led the way to dramatically improved pavements, making Roadtec MTV's an essential tool for today's roadbuilders.



Shuttle Buggy material transfer vehicle

The Shuttle Buggy® MTV

The Shuttle Buggy material transfer vehicle (MTV) is designed to "shuttle" between the hot mix asphalt haul truck and paver. Segregation problems are eliminated thanks to the machine's remixing action. The Shuttle Buggy MTV also allows non-stop paving, which leads to a much smoother surface. The machine has a storage capacity of 25 tons (22.7 metric tons), allowing the contractor to smooth out his truck cycles and reduce haul costs. Truck unloading capacity is rated at 1,000 tons per hour (907 metric tons/hour) and paver loading capacity at 600 tons per hour (544 metric tons/hour).



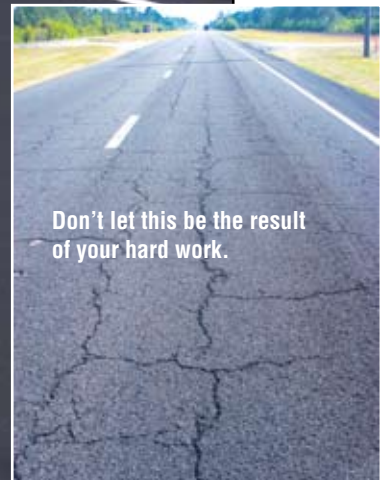
MTV-1000 material transfer vehicle

The MTV-1000™

The MTV-1000 material transfer vehicle is a compact machine which transfers mix from truck to paver while rebrending the material. Like the Shuttle Buggy MTV, the MTV-1000 is able to help roadbuilders solve material and temperature segregation problems. Reblending takes place at the transfer from truck unloading to paver loading conveyor. The machine allows continuous paving without stopping for refills from trucks. Paver loading capacity is rated at 600 tons per hour (544 metric tons/hour).



Both Roadtec material transfer vehicles, the Shuttle Buggy and the MTV-1000, help you build smooth, unsegregated, durable roads.



Don't let this be the result of your hard work.

Roadbuilders Rely on Material Transfer Vehicles from Roadtec

Roadtec is the material transfer expert when it comes to paving. That's why Roadtec material transfer devices are the only viable solution for road builders worldwide, and their value is being recognized everywhere. Only Roadtec offers you machines that truly remix and give you reliable results time after time. Roadtec experience combined with unique features are simply unmatched. We brought you the first MTV and we have continued to perfect the technology to bring you the current generation of machines.

The Problem that Led to the first MTV

When pavement failure began to be studied more closely in the 1980's, it was found that one of the most important causes was material segregation.

This discovery inspired our engineers to find a solution: a device that could re-mix hot mix asphalt just before feeding it to the paver. The result was the first Shuttle Buggy MTV. With the help of a Shuttle Buggy MTV, road builders were now able to eliminate material segregation for the first time ever.

Temperature Difference Surprise

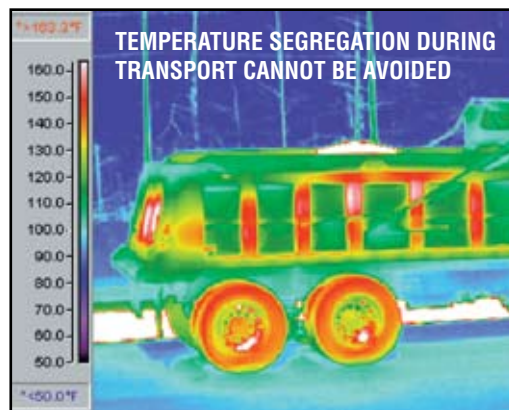
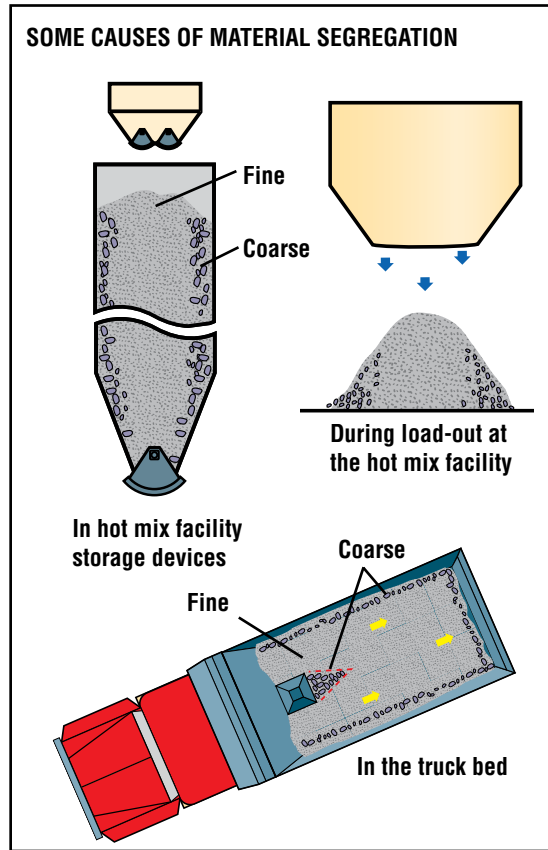
Our research & development staff looked at hot mix at the job site with an infrared camera. They saw a surprisingly large temperature differential in the mix, with some areas of the load as cold as 210°F (99°C)! And the mix had not been hauled a great distance.

Non-uniform compaction, raveling and stripping could be traced back to temperature differentials in the mix. The good news was that the Shuttle Buggy MTV with its re-mixing action could eliminate differences in mix temperature, just like it eliminated material segregation.

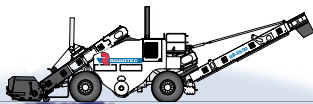
Important Side Benefits

Roadtec has sold hundreds of Shuttle Buggy MTV's worldwide. Many of our customers have been able to reduce their trucking costs because of the Shuttle Buggy MTV's ability to eliminate truck delay.

Not only does the Shuttle Buggy MTV dramatically improve pavement quality, it can also help make your paving operation more efficient. Find out more on the following pages.



Infrared image of loaded truck with insulated truck bed. Note the temperature loss through the uninsulated tail gate. Without remixing, the colder material will screed out together and form a potential trouble spot.



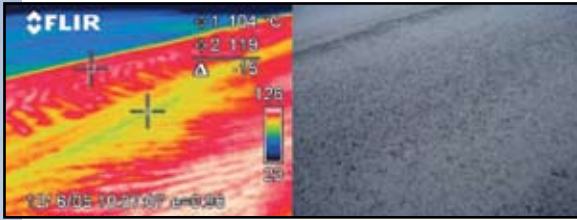
Hundreds of Shuttle Buggy MTV's are in use all over the world: in 46 U.S. States, in 20 countries, on 6 continents.

Solutions

Remixing

Roadtec Gives You Control Over Segregation

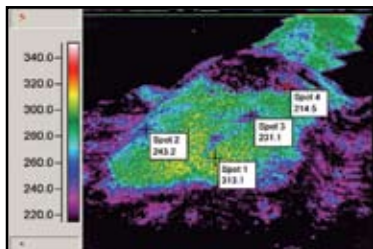
Segregation in hot mix asphalt can ruin the quality of your work. Yet the things that cause the segregation, like less than perfect stockpile management at the hot mix plant or long truck wait times, are often out of your control. But you can fix it. Remixing hot mix just before it is placed can eliminate material and temperature segregation. With Roadtec's material transfer technology, you can count on thorough remixing that redistributes all the material evenly.



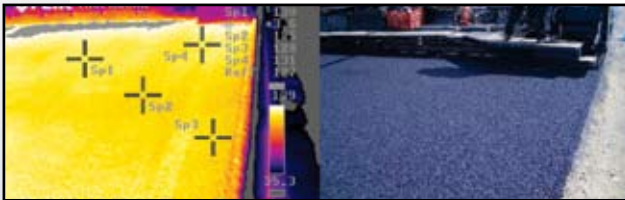
The infrared photo shows temperature differentials. The poor quality of the pavement is easily seen.



Even this mix can make a good pavement if it is run through a Roadtec MTV.



Windrows typically have temperature differentials of more than 100°F (38°C). Even temperatures can be restored with a Roadtec MTV.



Minimal color variation in the infrared image indicates minimal temperature difference in the mix, a result of good remixing.

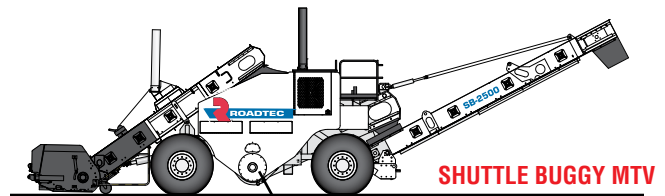
Why Segregation is a Problem

Pavements that have either aggregate or temperature segregation will have areas where the mix has either poor structure, poor texture, or both. The mat will not have uniform density and the surface will fail prematurely.

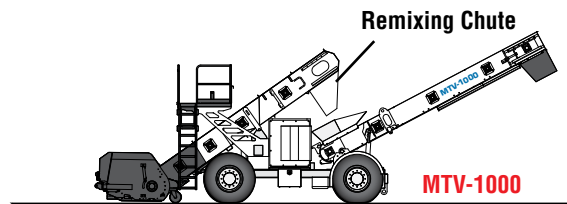
Compaction will not fix either temperature or material segregation.

Roadtec Offers Two Solutions

The Shuttle Buggy® MTV and its compact cousin, the MTV-1000™ both offer exclusive Roadtec remixing technology and heavy-duty construction. The Shuttle Buggy MTV also gives you 25 tons (22.7 metric tons) of storage capacity in the form of a surge bin located at the center of the machine.



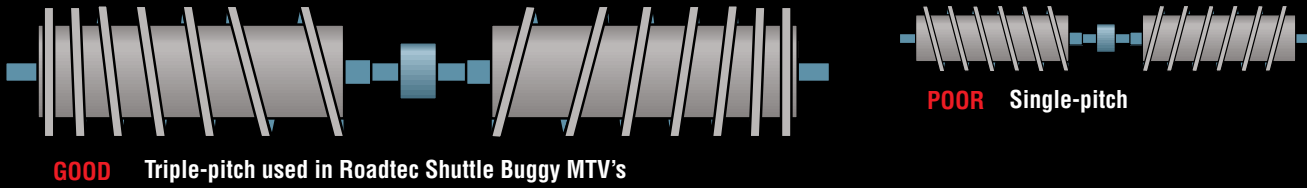
Triple-Pitch Remixing Auger



When it Comes to Mixing Augers, Only Multi-Pitch Flighting Does the Job

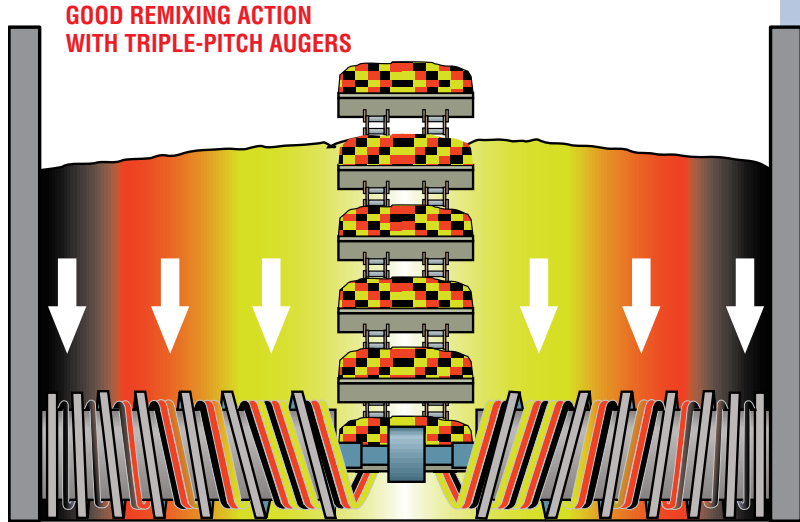
The reason why single-pitch augers won't remix is simple: Single-pitch flighting pulls material primarily from the sides of the bin. The spaces between flights fill up and the auger just tunnels through. The contents of the bin are not remixing, and therefore segregation remains a problem. Single-pitch augers are fine for some applications but not for remixing hot mix asphalt.

SHUTTLE BUGGY[®] MTV MIXING AUGER FLIGHTING DESIGN



Shuttle Buggy MTV Remixing

Remixing augers with increasing pitch provide uniform flow across the entire width of the bin. They draw material down evenly across the whole bin and therefore all the material is remixed very thoroughly. Single-pitch augers tend to tunnel through material and draw only from the sides of the bin. Roadtec Shuttle Buggy material transfer vehicles use an exclusive triple-pitch auger design. This exclusive Roadtec advantage is key for achieving the best mixing results. It's why you'll be able to meet the tightest temperature segregation spec with ease when you use a Roadtec Shuttle Buggy MTV.



The Shuttle Buggy MTV Surge Bin

Contents of the Roadtec Shuttle Buggy MTV's 25-ton (22.7 metric tons) storage bin are constantly mixed by the triple-pitch auger located in the bottom of the bin. The mixing action equalizes temperatures and evenly mixes large and small particles. A slat conveyor runs from the bottom of the bin and feeds the paver. Heat sink characteristics of the storage bin further help combat temperature segregation.

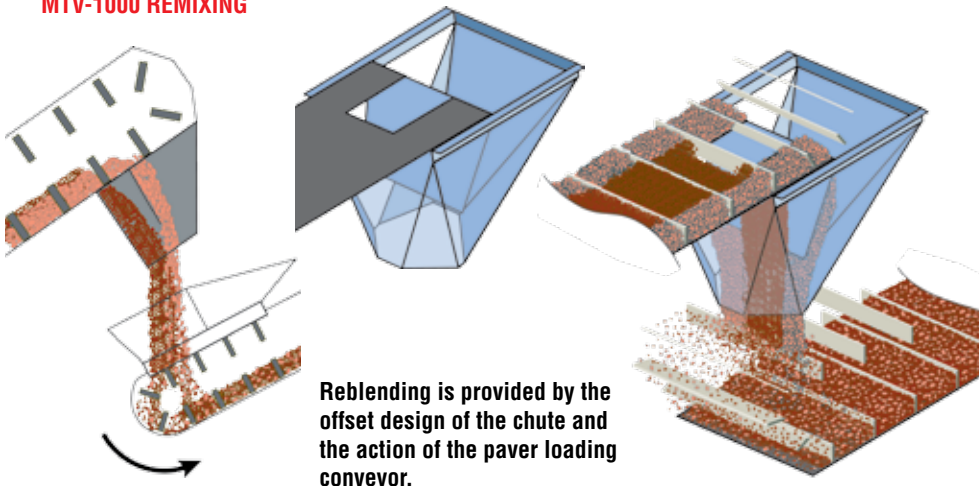


The Shuttle Buggy MTV continues to feed the paver while trucks are on their way. A 25-ton (22.7 metric tons) surge bin makes it possible.

MTV-1000 Exclusive Offset Gravity Transfer Assures Homogenous Mix

The MTV-1000 uses the transition between the truck unloading and the paver loading conveyors as a remixing point. Larger aggregate that may have rolled to the sides of the conveyor as well as cool spots in the mix are re-distributed throughout the mix.

MTV-1000 REMIXING

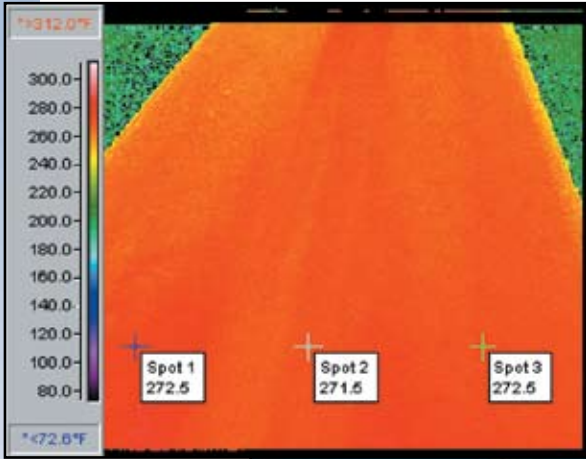


Remixing

Infrared Analysis

Roadtec Remixing Technology Delivers

Infrared images show the quality of remixing that takes place with different devices. Time after time Roadtec machines have been shown to perform far better than others. Roadtec mixing technology is better engineered and achieves superior results.



Real Job site Pictures Prove It

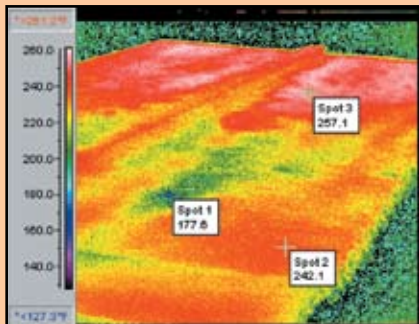
Infrared images were taken behind the actual machines pictured. Color variation in the infrared photos show temperature differences. Uniform density cannot be achieved when mix temperatures vary. Cold spots become pot holes.

Virtually no temperature difference. Roadtec Shuttle Buggy.

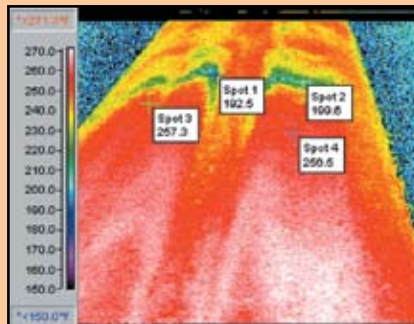


Infrared Studies

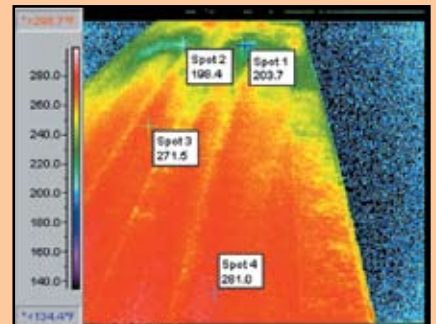
Windrow Pickup Machine



Windrow Pickup Machine with Truck Dumping Head



Remix Paver with Auger Feeders



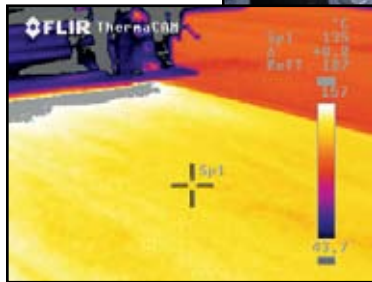
No other device combats segregation like the Shuttle Buggy MTV. No other d

Side-by-Side Test in Spain

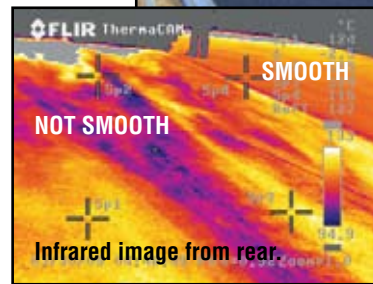
Sacyr, a European construction firm, put the Shuttle Buggy MTV to the test running two pavers side by side. One paver was fed with the Shuttle Buggy MTV, the other by truck. Results from this and other tests like it have increased Roadtec Shuttle Buggy MTV sales in Europe.

Improve Results for Any Paver

After the images on the right were taken, the Shuttle Buggy MTV was re-assigned to the other paver. Running with the Shuttle Buggy, the paver that had previously laid a segregated mat was now placing mix that had no sign of temperature segregation. See below.



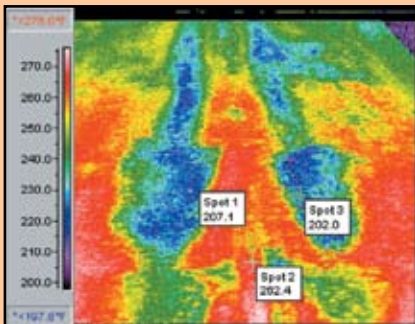
When the Shuttle Buggy was switched to the other paver it too provided temperature segregation-free results.



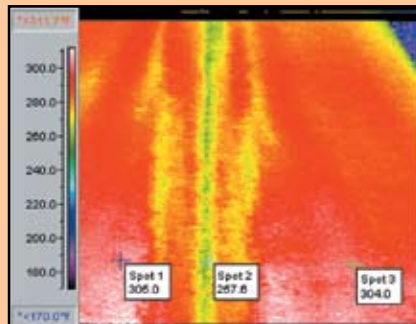
Corresponding rear view infrared image. The Shuttle Buggy MTV mat is visible in the upper right quadrant.

Infrared Analysis

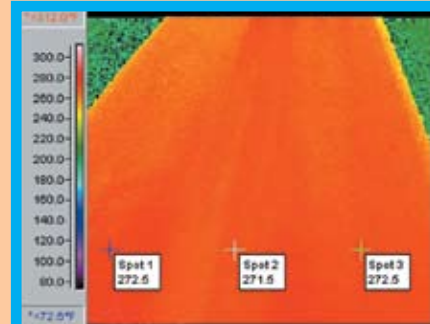
Belt Conveyor Type Material Transfer Vehicle



Belt Conveyor Type Material Transfer Vehicle with add-on pugmill



Roadtec Shuttle Buggy MTV



Device can help you meet and beat spec every time like the Shuttle Buggy MTV.