

SAKAI

MASTERS OF COMPACTION



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Concept Roller Meets Hawaiian Contractor's Density & Smoothness Demands

In paradise, things have to be perfect, you know. At least as close to perfect as possible.

In a land where aggregate and other resources are extremely scarce, environmental concerns are high and this requirement for perfection is a given, we can all appreciate the need for contractors to get it done right and get it done fast.

In fact, one major Hawaiian contractor – Grace Pacific Corp. – demands of itself this same perfection. “Or as close to it as we can get,” states Darrell Goo, Senior Vice President of Construction at Grace Pacific’s home base in Honolulu. “We are committed to continually upgrading our asphalt plants and paving equipment to meet or exceed environmental requirements by taking advantage of the technological advances available to us.”

Grace Pacific has just won two prestigious national awards from the National Asphalt Pavement Association for 2006, the NAPA’s Diamond Achievement Commendation for Excellence in Hot-Mix Asphalt Plant/Site Operations for Maui and the outstanding brochure award for 2006.

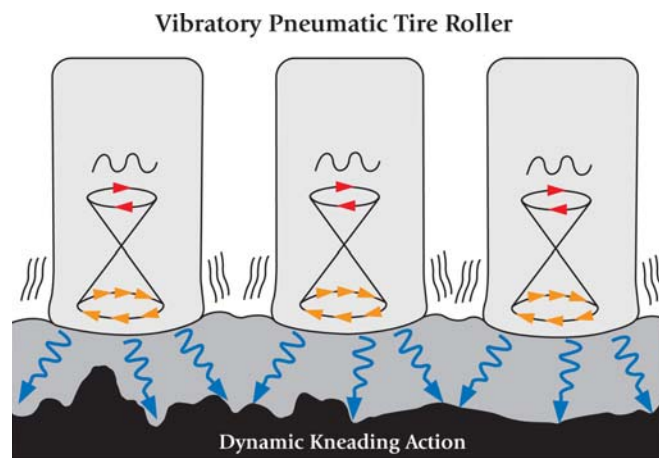
Once modern advancement that Grace Pacific has made is the move to Sakai’s relatively new concept roller, the GW750 Vibratory Pneumatic Tire roller, which combines the proven benefits of both pneumatic tire and vibratory rollers.

Sakai introduced the first GW750 at the World of Asphalt 2004 in Nashville and full production was available following ConExpo '05. “We saw the machine at World of Asphalt,” claims Calvin Shiroma, Grace Pacific’s Oahu Island Manager. “The machine has features that no one else offers and when the concept was explained to us by Sammy Nose (Sakai’s Technical Director), it all made good sense and we decided to try one. We now have four and soon will add more to the fleet.”

What has Shiroma and others excited is the ability of the GW750 to vibrate its rubber tires, a concept yet untried by any other OEM. Like a conventional static pneumatic tire roller, it develops a kneading action that helps to seal the surface of the mix. The vibratory action on the tires results in a very thorough compaction of the mix,

throughout the thickness of the mat. Testing in Japan and the USA has shown density to be more uniform throughout the pavement layer.

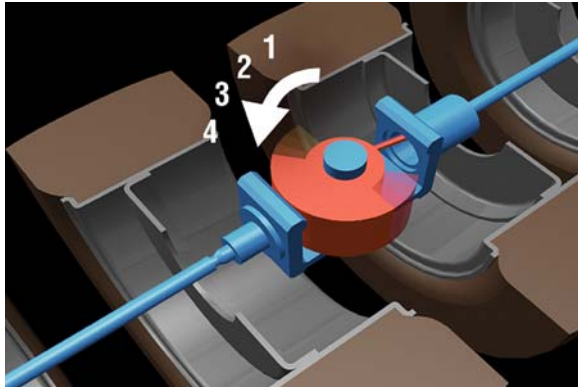
According to Nose (pronounced no-say), “Conventional static and vibratory processes would not give us this homogenous density result. In fact, this result cannot be detected by a nuclear gauge test and can only be seen by segmented core sampling that individually tests the top, center and bottom layers of the mat. This result should translate into the long-term durability of the mat surface.”



Sakai’s GW750 employs a multi-amplitude vibration system housed in each axle within the tire assemblies. The system generates centrifugal forces up to 10,000 pounds, approximating the output of a 55,000 pound static pneumatic tire roller. The dynamic kneading action generated at the tires is a unique combination of vibratory and gyratory-like forces unlike any other available on the market.

The vibratory system is designed much like a steel wheel vibratory, but with multi-amplitude, vibratory eccentric systems housed in both front and rear axle systems. These systems generate dynamic forces that help to achieve density far faster than conventional rubber tire rollers. According to Shiroma, “The ground speed of the GW750 is higher than that of our conventional pneumatics. Today’s mix designs, combined with the driving public’s demands that we get the job done faster, push the need for speed. And the size of this

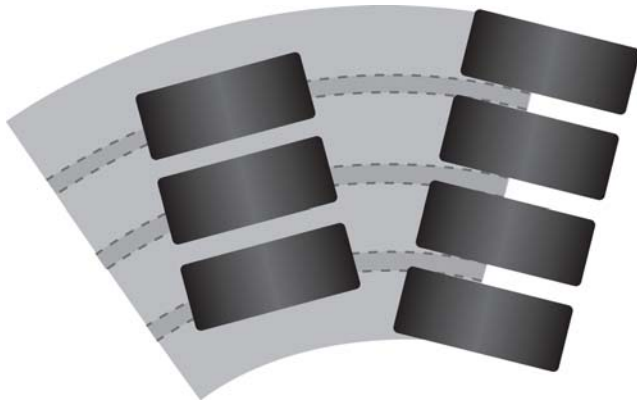
roller and its articulated steering makes it a great tool for smaller jobs that include tight turns and cul-de-sacs. ”



Unique vibrator mechanisms, housed within both front and rear axles, develop four different levels of centrifugal force for a wide range of compaction applications.

Smooth Sailing Around the Islands

The special tires are flatter and much wider than a conventional pneumatic tire roller. So the overlap is greater, leading to a very smooth finish. “These are the things that lead us to this product,” says Shiroma, “and it has proven itself to be of great value in the field. No doubt about it. The shape and width of these tires promote the smooth finishes we need.”



The GW750 incorporates center-point articulated steering so that the front and rear tires track precisely for equal overlap and uniform coverage across the mat.

Special, super-flat, 14-inch wide Michelin tires have been developed with Sakai to provide ample coverage and overlap for a smooth finish.



Smoothness is not the only attribute of the GW750. “We are getting density in less passes,” boasts Shiroma. Fewer passes means higher productivity and a better bottom line. And in many cases, reducing the time required to gain compaction enables contractors to reduce their bids and gain additional business.

Grace Pacific has put the GW750 to good use on Hawaii’s main roads: The Kalaniana’ole Highway. The Kamehameha Highway. The Farrington Highway. And many others. “We like the flexibility this machine gives us. We can have it out on mainline production today, then use it on a smaller road or parking area tomorrow,” states Shiroma.

Unique Dynamic Forces

Compaction gains are achieved by the unique vibration systems which are designed into each of the axles of the GW750. Like steel drum vibratory rollers, the machine offers a choice of centrifugal force outputs, which are controlled right from the operator’s station.

At high force, the GW750 is said to develop compaction forces equal to a 55,000 pound pneumatic tire roller. This kind of force would be extremely useful on thicker base materials and even on subbase work. With an operating weight of only 20,000 pounds and a footprint of about 87” x 179”, the machine is much easier to transport and saves on diesel fuel as well. Grace Pacific operators are trained to adjust the centrifugal force output to suit mix designs, mat thicknesses and ambient conditions.

According to Shiroma, “Another time-saving feature with the GW750 is that we can easily change forces on the run, right from the operator’s station, without the need to get off the machine. Our machine settings are usually determined while running test strips. But the operator has some decision-making power on site, should mix or ambient conditions change. Since most of our operators are used to running steel drum vibratories, the variable force concept is easy for them to grasp.”

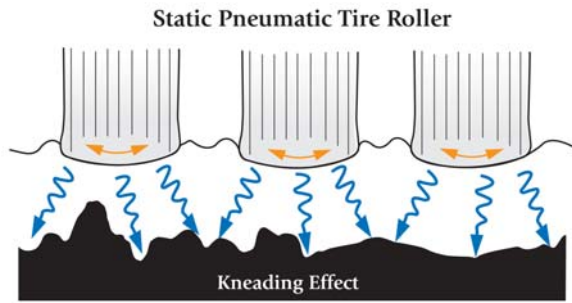
Grace Pacific: Aggregate to Finished Roads

Grace Pacific operates eight modern asphalt production facilities on the islands of Hawaii. Three are on the island of Oahu, two on Maui and one each is located on Hawaii, Kauai and Molokai. Paving crews throughout the islands are equipped with the latest machinery available and are trained to operate it safely and efficiently. With the shortage of aggregate on Hawaii, the practice of profiling and recycling is growing daily.

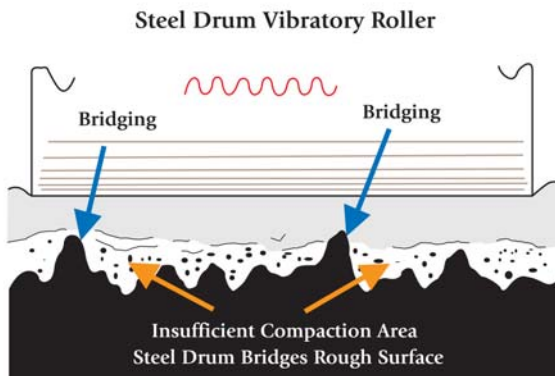
Overlaying Profiled Surfaces

One great benefit of the GW750 yet untested by Grace Pacific is its ability to seat overlays into previously profiled surfaces. When rolled statically, new asphalt overlays tend to bridge the profiled grooves. This is another thing you can only see by coring. Minimal interlock is achieved and overlays have a tendency to delaminate, causing additional problems and further expense.

Steel drum vibratory rollers can improve this situation, but the GW750 has the unique ability to massage the overlay into the profiled base, for a totally integrated, long-lasting surface. “Profiling is growing on the islands and we look forward to testing the ability of our



When overlaying profiled surfaces using static or vibratory steel rollers, a bridging effect prevents new material from seating properly in the base. The GW750 massages the new mix into the profiled surface, developing a long-lasting interlock.



machines to do this in the near future,” states Shiroma.

Grace Pacific’s slogan – “When Expectations are High, Excellence Endures” – fully supports the company’s philosophy of building roads throughout this island paradise. They look to Sakai and other OEMs to design the products that will protect their beautiful environment while advancing the commercial, military and travel industries the State of Hawaii needs to survive. And the GW750 is a perfect fit for this philosophy.

To learn more about the innovative Sakai product line or to see it in action, please contact your local Sakai dealer or Sakai direct at 800-323-0535 or log on to www.sakaiamerica.com.

