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Wirtgen TECHNOLOGY

Spring/Summer 2007

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On the Cover: *W 2100 of Swank Associated Companies, Inc., mills runway base at DTW; see article pp. 20-21.*

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As I see it...

APTS: Roadbuilding Industry Will Gain From Wirtgen's Accumulated Experience

Take three of the most talented and experienced roadbuilding industry veterans in North America, put them all on one staff, and what do you get?

You get a "brain trust" that is going to help road agencies to explore new horizons in road construction, help contractors to do their jobs faster and more profitably, and help move the roadbuilding industry forward in a way beneficial to all involved.

That's the promise of Wirtgen America's new *Advanced Pavement Technology Solutions* group. APTS, as we're calling it, is a value-added service from Wirtgen America that will promote best practice and new technology in the roadbuilding industry.

APTS will provide non-commercial, non-proprietary technical outreach to both government and contractor roadbuilders or roadbuilder groups seeking answers to questions, or looking for better ways of doing what they're doing. And it's on our dime.

Three industry heavyweights comprise the APTS, and together they constitute a knowledge base that is second-to-none. All are respected names in the roadbuilding industry. And all are new to Wirtgen America.

Bringing a contractor perspective to APTS is **Wayne Evans**, vice president of business development. From an equipment manufacturing background comes **Dale Starry**, our new manager, technical development, for Hamm Compaction Division and Vögele America Inc. And aggregates veteran **Tim Kowalski** brings a materials perspective as manager, Pavement Engineering Services, Wirtgen America. Together they form a triumvirate of teaching that is unlike anything seen in the industry up until now.

New Technology, New Solutions

How will APTS work? If a contractor has an on-the-job compaction problem — regardless of whose equipment he's running — he or she can call someone at APTS and we will try to help. And if we don't immediately have the answer, we will know how to get it.

APTS will be supported by external promotion in the trade press, a web site, and continuing personal outreach. We will answer questions in the trade press and invite inquiries via our future web site, and our outreach will be part of *Wirtgen Technology* Magazine as well.

There's nothing new about Wirtgen's reaching out to the field with the solutions people need to do their job better. Wirtgen America, Hamm Compaction Division, and Vögele America Inc. together have fielded a small army of problem-solving experts who may or may not be selling equipment at the same time.

For example, in May, our new general manager of Vögele America, Brodie Hutchins, conducted a presentation on roller compacted concrete for the Southeast Cement Association and American Concrete Pavement Association; read about it in this issue. And the Fall-Winter 2006 issue of Wirtgen Technology contains four complete presentations on field technology given by either staff or end users at Wirtgen's *Technology Days* event in Germany in September.

Impartial Problem Solving

But the new group's sole responsibility will be impartial, non-commercial problem-solving for the roadbuilding industry, in addition to undertaking workshops and presentations at industry meetings and conventions, including local, state and national venues.

Evans joined Wirtgen America in September of last year and has been active in developing new and existing marketing opportunities for Wirtgen America and Vögele America Inc. Now he adds APTS to his responsibilities, as he reaches out in a non-commercial way to contractor and government organizations, to help them solve existing problems and understand new technologies in roadbuilding.

Starry joined us in January. His more than 37 years of industry experience in paving and asphalt and soil compaction equipment and application uniquely qualifies him for his work on the APTS team. And Kowalski's experience in asphalt, concrete and aggregates in a variety of positions — including continuing education and seminar classes in materials and mixes — will help assist customers in understanding mix designs, pavement material properties, and their potential or capacity for recycling. He's also new this year.

Innovative equipment from Wirtgen Group, plus the know-how of APTS, are bound to solve thorny problems in the field. As an example, inside you will find APTS' first "Best Practice" brochure on "tender" HMA mixes, by Dale Starry. It's just the first example of how APTS will benefit roadbuilders. We hope you enjoy it.

Stu Murray
President
Wirtgen America Inc.

Concrete Overlay No Sweat In I-40 HMA Mill-And-Fill

A failing concrete overlay on I-40 near Raleigh-Durham, N.C., was determined by the North Carolina DOT to be in need of replacement. The specifications for the project provided that the concrete overlay was to be removed by cold-milling and the overlay was to be replaced with hot mix asphalt (HMA) each night, with liquidated damages due for failure to reopen a lane by rush hour the next morning.

The Lane Construction Corporation was awarded as prime contractor the $21 million project for the North Carolina DOT, and has undertaken the milling, while its Rea Contracting LLC affiliate was doing the HMA placement on strict nightly schedules.

"We're grinding anywhere from 3 to 3.5 inches of concrete overlay off the Interstate using a Wirtgen W 2200 cold mill with full lane, 12-ft., 3-in. drum," said J. Todd Moore, superintendent of the I-40 project for Lane. "We have approximately 21 lineal miles to do, two lanes eastbound, and two lanes westbound, and all off ramps and acceleration lanes."

The existing pavement is three lanes wide each way, with the third (inside) lane made of full-depth concrete, recently reconstructed. The concrete overlay being removed had been placed over existing portland cement concrete and was experiencing spalling at the joints, and patched "blow-out" potholes where heavy traffic was pulling material from the pavement.

"We have about 290,000 square yards of concrete removal required for this project," said Richard Snow, P.E., construction manager for Lane. "Our average pace of 2,200 lineal feet per night of lane works out to about 2,700 square yards per night. On weekends we do a lot more with our marathon closures. While we still keep one lane open, we are able to keep the two lanes closed 56 hours straight."

"We're finding both conventional and high early-strength concrete in the overlay, but the W 2200 is chewing right through it all," Moore said. "We've used the W 2200 for scarifying concrete as well, but this 3.5-inch-deep cut is more of a test for the machine during the four hours we work each night."

New Open-Space Tooth Pattern

A new open-spaced tooth pattern drum design which applies more horsepower per tooth, but with fewer teeth, was being used on this cold mill. "We're using Wirtgen teeth with 1.25-inch spacing of teeth on the drum, with some 130 teeth on the drum," Moore said. "We're not using up as many teeth on the drum as before, but it's grinding up the concrete more efficiently, and pulling the material off the existing concrete. It's coming up in a little bit larger chunks, and the milling is more efficient. It's leaving a nice pattern on the pavement, and both the state and the paving contractor are well-pleased."

Nonetheless, Moore and his crews have experimented with the right configuration for the drum and machine. "At one time we slowed the cutter drum down, but had no success with increasing footage, because teeth were breaking off as the drum was going slower, and not keeping up," he said. "We brought it back to its original speed, about 6.5 meters per minute (21 feet per minute) and now things are rolling. Because we're limited at night to what can be repaved before rush hour, I'll open up anywhere from 2,000 to 2,600 ft., depending on how tight the concrete is in our four-hour period."

New "Eco-Cutter" design features economical open-space tooth pattern

Typical coarse texture produced by special "Eco-Cutter" drum

Thus a given night would see Lane begin milling after 8 p.m. and conclude about midnight, with Rea Contracting paving the next four to five hours, with the last hour striping and removal of the traffic control pattern. "We have to be off the Interstate by 6 a.m., with penalties of $10,000 per hour," Moore said. When visited in May weekend work was being required due to the excessive cold and rainy spring 2007 weather in North Carolina. "For weekends, we will shut lanes down at 8 p.m. Friday and work the whole way through to 6 a.m. Monday," Moore said.

Lane had just completed its first weekend's work, with one lane repaved 12,000 ft. long between Saturday and Sunday, and the contractor off the Interstate 10 hours ahead of schedule. No work was done on Memorial Day weekend, nor the Friday before nor the Tuesday after.

Superpave Replacing Concrete Pavement

The concrete overlay was being replaced by two lifts of a Superpave mix, PG 76-24 polymer modified binder, with 9.5 D mm aggregate. The first was a 2-in. lift, followed by a 1.5-in. lift on top to bring to grade. The HMA was provided by Rea Contracting out of its Northern Raleigh plant. North Carolina DOT specified a material transfer vehicle be used between truck and paver.

At midnight, the milling and paving supervisors meet to run numbers as to how far the milling can go that night, so both crews can finish their jobs that morning. "We see how far we will mill, so we can finish milling and Rea can finish paving, all at a happy medium," Moore said. "We also have to figure in cutter tooth changes, and that will slow us down a little. Right now we do a complete cutter tooth change every 1,000 to 1,100 feet; the more efficiently we can change the 130 milling teeth, and install new ones, the faster we can get back to work." Lane's complete tooth change using Wirtgen quick-change toolholders will take about 15 minutes.

While some contractors prefer welded-on teeth, Moore prefers the quick-change holders. "Welded-on teeth work well when they're working, but when one goes bad, you have a lot more work to do," he said. "This way we don't have to have a certified welder on-site. If one holder goes out, we take it out, slide a new one in, and pull it to torque, and we're back in business in a quarter of the time."

Hydro-Sweeping And Infrared Drying

Following the W 2200, a standard street sweeper was cleaning the milled surface, followed by a contract hydrovacuum truck which was water-blasting any remaining material off the surface, and vacuuming it into a tank for disposal.

"We're picking up the heavy stuff with the sweeper, and then we have a 36,000 psi-capable hydrovac truck clean the pavement with sprayed water, and vacuum up the water and any fines," Moore said. "This surface has to be totally spotless before we apply our tack coat."

And because the surface has to be bone-dry before the tack coat — and not much time in which to dry — Lane was using an infrared heater truck with generator to dry the milled surface prior to tack and overlay. "The truck has two 195-mph blower fans which blow off any standing water, and heating coils which evaporate any remaining moisture."

Missing was a typical rotary broom kicking up dust and throwing material onto the roadside.

Lane's W 2200 with full-lane width drum was giving Lane the power and reliability it needed to keep this project on schedule and in budget. "I've been around milling machines for 12 years now and the Wirtgen brand is the best one I've been around," Moore said. "It's user friendly and easy to train other workers on, and it works consistently. I

W 2200 with 12-ft., 3-in. cutter removes full lane of portland cement concrete overlay in one pass

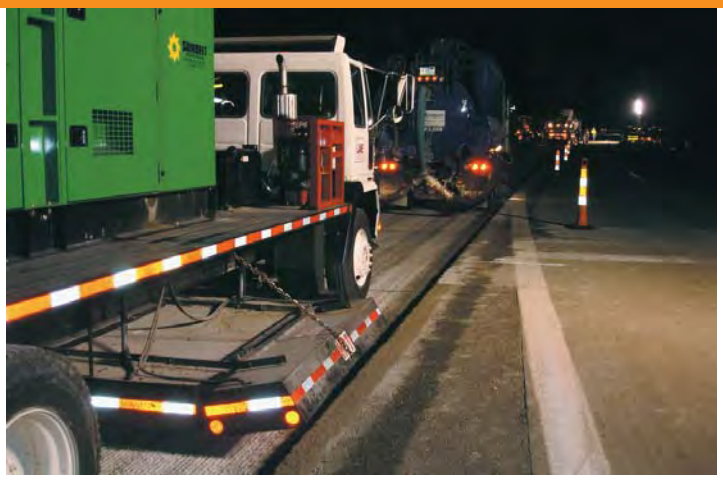
like the production I get out of it."

Nonetheless, Lane was keeping a Wirtgen W 2100 in the vicinity to substitute for the W 2200 if need be.

Moore was finding that the new Eco-Cutter drum from Wirtgen was keeping the job moving along with accrued savings from use of fewer teeth. "This is the first application for which we've used this full-lane drum," Moore said. "This application is nice for the full-lane drum because it's one lane, one way, without having to back up and go. And the drum has a coarser pattern to it. My feeling is, 'the coarser, the better', because the asphalt can hold tighter in the voids than it can in a smoother surface."

Fewer cutting tools on the new Eco-Drum means less resistance to cutting and a higher rate of advance, with lower tool costs per milled cubic yard. These drums, with smaller number of point attack tools, make sure work proceeds more quickly and cost-efficiently.

Despite the fact that the standard-width Eco-Cutter may be equipped with only 114 cutting tools, its performance with 1-inch (25 mm) tool spacing is roughly 20 percent higher than that of a standard milling drum with 0.6-inch (15 mm) tool spacing when working in hard asphalt and at a milling depth of 8 inches.



High pressure wash-vacuum followed by shop built infrared heater prior to tack coat

Cutting 4-in. deep with 1.25-in. spacing cutter

Lane's W 2200 equipped with special 12-ft., 3-in. "Eco-Cutter" cutting failed concrete overlay

Tough Latex Modified Concrete No Match For Wirtgen Mills

Swank's W 2000 is one of five Wirtgen mills on site

"They're good on parking lots where people need patching of soft areas. But the nice thing is that the W 120 F is a legal load. I can move it any time, day or night, without a permit."

Working within an excruciatingly tight weekend time frame, weekend after weekend this spring, a fleet of Wirtgen cold mills removed extremely tough latex modified concrete (LMC) bridge deck overlays ahead of deck restoration on I-376, the Penn Lincoln Parkway East in Pittsburgh.

Subcontractor Swank Associated Companies, Inc. used two W 2100s, a W 2000, and a new W 120 F without conveyor to cut the hard-as-nails overlay prior to repaving, all in one weekend. Swank also retained a spare W 2000 on-site in case a machine went down. But the project benefited from weekend-long shutdown of multiple lanes on the bridges.

In May, Swank was working on westbound Panther Hollow Bridge, one of 26 bridges being resurfaced under this project. The machines were cutting 6000 psi latex modified concrete 2 inches deep in longitudinal passes.

"It's still 'live' — there are only a couple of failures in the overlay — and it's cutting hard," said George T. Fischer, chief operating officer, Swank Associated Companies, Inc. "Even the 2100 struggles and spins to get through it."

Penn DOT was removing the LMC overlay in advance of a potential catastrophic failure of the deck overlay, and the work was being executed along with concrete pavement restoration between the bridges, by Trumbull Corporation, the project general contractor.

While it's a more costly premium product, LMC is used by road agencies for bridge deck surfaces because it's so tough, and particularly because it is virtually impenetrable to chloride ions present in deck meltwater, thus greatly reducing the potential for rebar and structural steel corrosion. The existing decks being removed were placed by Swank in the 1980s and have withstood years of traffic, snow, ice and salt with virtually no failures.

Swank's Friday night work was only the start of a carefully choreographed deck replacement process.

"They give us a new bridge every weekend," Fischer said. "When they shut down traffic at 9 p.m. on a Friday night, we move in and remove 100 percent of the LMC overlay. That's followed by our hydrodemolition sub beginning at 3 a.m. Saturday. By 9 a.m. he is done and we've already begun cleaning the deck with power washers, then covering the deck up with plastic to keep it clean.

"Bridge deck finisher rails then are set up and at 8 p.m. on Saturday, our LMC pour crew comes in and places hundreds of cubic yards of quick-setting latex modified concrete in slow, tedious

At dusk on a Friday evening, four big Wirtgen mills await order to proceed to work zone

work," Fischer said. "By Sunday at 7 a.m. they've already started removing the curing tarps and the cure is over. We transversely diamond-groove the deck and the deck is flushed, vacuumed and cleaned. By Sunday evening the deck is reopened to traffic."

While all this is going on, traffic is maintained in one lane on the bridge, resulting in significant backups over the weekend. Work began in March and would continue through the summer.

Conveyor Removed From W 120 F

The W 120 F's conveyor was dismounted because of how it was being used on the deck. "We're using the W 120 F to cut transversely across the bridge deck," Fischer said. "The Panther Hollow deck is 1,100 ft. long and has 17 expansion dams in it. We have to cut the concrete from both sides of those dams. Those are long passes with traffic alongside, and we would have to stop traffic to accommodate the conveyor. The conveyor simply would be in the way of the traffic. It doesn't matter that the material loads out on the deck; what matters is that it cuts and saves jackhammer time."

Swank's W 120 F is one of the first in the country. "It's been a good performer for us," Fischer said. "Because we have the Flexible Cutter System (FCS) we just pulled the 4-ft. cutter it came with and replaced with a 3-ft. cutter for this job. Now we can change-out drums in two to three hours." The W 120 F also is paired with Wirtgen's new Level-Pro system.

Swank will use the 4-ft. drum on the W 120 F for small milling jobs in which it's not cost-effective to bring in a larger machine. "These can be 2,000 to 3,000 square yard jobs," Fischer said. "They're good on parking lots where people need patching of soft areas. But the nice thing is that the W 120 F is a legal load. I can move it any time, day or night, without a permit."

That's a big bonus to Swank, because the W 120 F is the first cold mill of its size in the firm's fleet. "We never did have a machine of its size," said Clayton Lebe, milling superintendent, Swank. "This is our first attempt at a machine like this, our first belt-load small machine. Previously we would use small motor graders with a 42-inch head attached, without a conveyor. We'll get more production, better performance and load-out with the belt-loading, a better pattern, more control, and less dust."

Swank Milling Fleet

The five Wirtgen machines on the Pittsburgh job are among nine machines in Swank's fleet. The firm began purchasing Wirtgen machines four years ago as it shifted from a competing make.

"We actually ran beside Wirtgens," Fischer said. "A competitor had a Wirtgen on a job and we got to watch it cut alongside our own machines. And we were pleased with what we saw. When we demo'ed a machine and saw how it performed, and how beautiful the pattern was, we were sold."

"We did our homework and checked with many companies," Lebe said. "We kept hearing the same story from every one we talked to, that Wirtgen was a reliable machine. We wanted reliability, and longevity. The dependability is there."

New W 120 F is among first in North America, was used without conveyor in special deck application

Minimal cleanup is another strong point of the Wirtgen platform, Fischer said. "Cleanup definitely sells the machine as well," he said. "Contractors must take cleanup into account. When they mill, the side plates on other machines leave a windrow, but Wirtgen has eliminated that cleanup. Also, at the end of a pass, when you pick-up over a casting, manhole or bridge deck, the debris left at the end of a pass is much reduced with the Wirtgen compared to other models. If you have to cleanup, you will know the savings. You have to be doing cleanup to appreciate it; that's where you will find great savings."

"One of our customers told us the pattern looked like precision laser cutting, compared to other machines," Lebe said.

Fischer added that Wirtgen's paint coating was remarkably durable. "The paint is excellent," Fischer said. "With other machine brands, we've had to paint them within a couple of years of purchase. But with Wirtgens, we have a machine that's now four years old that we would not even consider painting."

And Swank takes advantage of Wirtgen training classes to make sure its service technicians have the know-how to keep the machines running during the season, and off-season.

"Winter maintenance is very extensive because we want to work the machines hard during the summer," Fischer said. "So we do winter maintenance on all machines, whether its block changing, flashing, servicing, track pad replacements, and wear items. Each winter we send six to eight people to the Wirtgen school."

Swank's distributor is Groff Tractor & Equipment, Inc., New Stanton, Pa., and Swank works with Wirtgen district regional sales manager Jim Griffith.

W 2100 picks up LMC milling on other side of steel expansion joint or 'dam'

About The W 120 F

Successor to the popular W 1200 F/T, the new midsized Wirtgen W 120 F cold milling machine was introduced at World of Asphalt 2007 in Atlanta.

The W 120 F is a high-performance cold milling machine with a milling width of 1.20 m, or 48 inches, ideal for removing complete asphalt courses to their full depth (12.6 inches).

The W 120 F has a hydraulically folding primary conveyor, and features front-end loading of reclaimed asphalt pavement (RAP) via a two-part conveyor system. On the Pittsburgh I-376 project, though, the conveyor was not mounted.

The machine can be equipped with wheels or crawler tracks. Its engine output is 280 hp and its operating weight is 45,636 lbs.

The optional Flexible Cutter System (FCS) permits the use of different milling drums with working widths of up to 1.20 m and a variety of line spacings. And the W 120 F can be equipped with the optional new Wirtgen Level Pro® leveling system.

About The Level Pro System

The new Level Pro® System from Wirtgen Group provides extraordinary control over newer Wirtgen cold milling machines.

The new W 120 F can be equipped with Level Pro, which was developed by Wirtgen as the state of the art in cold milling control. The automatic leveling system is highly user-friendly and regulates the pre-set milling depth and inclination electronically, guaranteeing full control of the leveling process, and high accuracy of the milling results.

The complete system consists of combinable sensors, a controller unit and an ergonomically designed control panel for the machine operator. Level Pro was specially programmed for cold milling machines and is designed to precisely fit their operating conditions. It features graphic symbols and familiar key functions that allow intuitive operation.

Indiana's 'Super 70' Launches With Armada Of Wirtgen Mills

An armada of Wirtgen cold mills launched the first real work on the massive *Super 70* reconstruction of I-70 east of downtown Indianapolis, taking out 65,000 tons of asphalt in three days.

Contractor Mid America Milling Co., Jeffersonville, Ind., better known as MAMCO, in March fielded eight Wirtgen mills, including two W 2200s with full-lane 12-ft., 6-in.. drums, a W 2200 and two W 2000s with 7-ft., 2-in. drums, and two W 1200 Fs.

MAMCO milled 65,000 tons of hot mix asphalt overlays, shoulders and base courses over the 6.1-mile project in just three days, in advance of complete reconstruction of the urban expressway in one season. The millings were being received by 75 trucks from one end of the project to the other.

One of the smaller W 1200 Fs — now replaced in the Wirtgen lineup by the new W 120 F — was being used to cut 11 inches deep of 4-ft.-wide asphalt shoulder along the center jersey barrier.

"We have to be done by Saturday night and have only three days to do it," said Charles Becht, superintendent for MAMCO. "These Wirtgens increase our productivity tonnage-wise, especially when we find the asphalt is deeper than the DOT thought it was."

Big W 2200 filled 20-ton triaxle truck every 33 seconds

MAMCO's W 1200 F mills close to jersey barrier in Super 70 project

"We're taking all the asphalt down to the existing concrete," said Dave Money, milling supervisor for MAMCO, in March. "Other teams are taking the shoulder out down to the dirt subgrade. We're taking out 65,000 tons in three days, with unlimited hours. We don't care how long we have to work; we have two 12-footers, four 7-footers, and two 4-footers out here and these machines will get it all done."

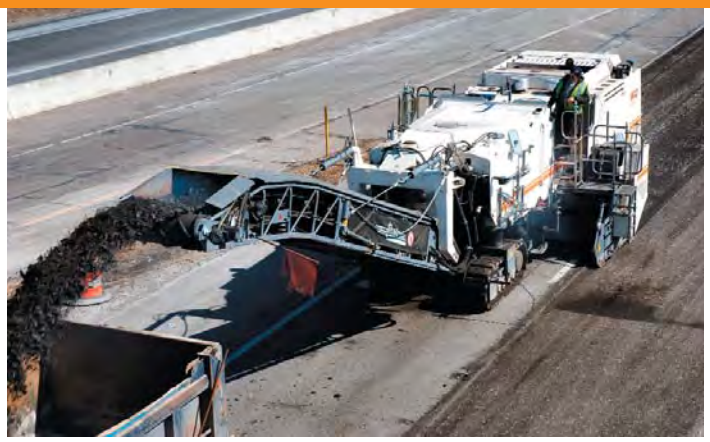
Money worked with a W 2200 with the full lane drum. "It's a good machine," he said. "I would take this over any machine. I had a 7-footer for nine years, but got the 12-footer three years ago. I wouldn't change it for the world!"

The lack of traffic and interruptions, and abundance of trucks, enabled the largest Wirtgen mills all the elbow room they needed to mill at prodigious production rates. For example, Money's powerful W 2200 was filling 20-ton triaxle haul trucks in average of every 33 seconds, but there were plenty of trucks to keep the project going.

"We have a total of 16 Wirtgens," said Scott Sherrell, MAMCO general manager. "They give us the most value for the money, and the best engineering and dependability. We base our entire operations on the Wirtgen platform and they're the best machines out there."

I-70 was completed in the early 1970s and had never

W 1200 F mills elevated lanes inside shoulder east from downtown Indianapolis



Full-lane cutter of MAMCO's W 2200 makes quick work of asphalt base course

W 2200 is one of eight Wirtgen mills on Super 70 project

been rebuilt. The stretch of I-70 from the I-465 east leg to downtown is one of the most heavily traveled roadways in Indiana, carrying nearly 180,000 vehicles per day. Pavement and bridge decks were deteriorating, inside shoulders were functionally obsolete, curve sightlines were deficient, and vertical clearance at many of the bridges was too low.

Understanding the impact of prolonged construction on the massive traffic volumes affected, Indiana DOT decided to reconstruct the freeway mostly in the 2007 construction season. Prime contractor is Walsh Construction, Inc.

"The cost to continue patching it from year to year just to make it safe enough for traffic is too great. It's time to start from the subgrade up," said Indiana DOT commissioner Thomas Sharp late last year.

"We're going to eliminate this corridor's deficiencies in one construction season," Sharp said in 2006. "It's an aggressive schedule, and we're committed to staying on time. We know there will be some disruption with the ramps closed, but it's the safest, quickest way to rebuild the highway."

Work in 2007 involved closure and demolition of the existing concrete and asphalt overlays in the westbound travel lanes of I-70 beginning in February, and lasting through July. Then, work would shift to the eastbound lanes July through November. March through June 2008 would see a wrap-up of the project, with no major lane restrictions. MAMCO will repeat the cold milling process — this time for eastbound I-70 — beginning in mid-July.

The project includes the replacement of 75 lane miles of pavement, including travel lanes, outside shoulders, and inside shoulders widened from 7 to 14 ft.; replacement of 28 bridge decks; the widening of inside shoulders; plus new signs, lighting, striping and other appurtenances.

New Super 700 Paver Plays Multiple Roles In South Carolina

Leaves of Super 700 hopper are worked independently in narrow spaces

A "Three Amigo" asphalt contractor in South Carolina is using one of the first Super 700 pavers from Vögele America, Inc. to pave roads, shoulders, patches and do commercial work.

To do patching work for the South Carolina DOT, TB Bulldozing Inc., Aiken, S.C., has teamed its new Super 700 with a Wirtgen W 2000 cold mill, and a Hamm HD O90V asphalt compactor incorporating Hamm's exclusive Oscillation technology.

"We are using the W 2000 and the little Super 700 to do full-depth, 6-ft., 6-in. [79-in.] by 6 in. deep patching for the South Carolina DOT," said Tommy Baggott, owner. "And the HD O90V is the smallest roller that the state would allow us to use." TB Bulldozing was patching sections of Winterwood Road in Richland County north of Columbia, S.C., where cuts totaling 1,300 square yards had been marked out by the DOT.

In addition to the W 2000, Baggott owns a new W 120 F, among the first in North America. He also does 10-ft.-wide leveling courses with a 780 WB, and does main line paving with an 1110 WB, both from Vögele America. And along with the HD O90V are a Hamm HD 120, HD 8 VV and new HD 14 VV.

"The HD 8 is a little roller which we use for driveways and up close to buildings and curbs and gutters," Baggott said. "It does a real good job for us; we've had it close to a year and have nearly 2,000 hours on it."

Baggott's first Wirtgen Group product was the 780 WB, which replaced a paver of a different brand. "I wanted to go to a different type of paver and you folks were able to guarantee performance with the 780 WB," Baggott said. "I've been running Vögele America pavers ever since, along with the Wirtgen mills and Hamm rollers."

Baggott was patching with mix from TB's own plant, a 350-tph plant making an intermediate binder mix, to be topped with a Surface C mix as a leveling course.

The patching mix was being placed in two 3-in. lifts, 6-ft., 6-in. wide. "That's a good thing about the Super 700," Baggott said. "You don't have to worry about one tire or one track being not level. This paver walks right down in the hole, you spread the screed out to 6-6, and it makes a good, even match. That's what the state likes."

The Super 700 is new to North America, but Baggott first saw it on a trip to Germany in 2006. "When I spotted it, I pretty much had to have one," he said. "I was honored to have one of the first and we did a lot of testing with the state, and got it DOT-approved. They really like it, along with all the Vögele America machines that I have."

The Super 700 show versatility that other pavers can't match, Baggott said.

"Out here, when we're paving right on the centerline, normally a paver would take up nearly both lanes. But with the Super 700 you can leave one side up and work in one lane. And it's really good for working patches."

TB Bulldozing's W 2000 mills 79-in. patches on Winterwood Road for SC DOT

HD O90V roller uses exclusive Hamm Oscillation compaction on patch

State-of-the-art controls make new Super 700 highly productive in field

"It goes into our 6-6 cuts, but also will sit in a 4-foot trench and pave," he said. "You can get right next to a building and pave because each separate hopper leaf works individually and independently. On conventional pavers both hopper sides will come up at the same time when you hit the lever. The Super 700 lets you raise one and leave the other all the way down, and work that way.

"That helps when you're in a real tight area, trying to get in to close places," Baggott said. "Out here, when we're paving right on the centerline, normally a paver would take up nearly both lanes. But with the Super 700 you can leave one side up and work in one lane. And it's really good for working patches."

The Super 700 already has done duty on parking lots, doing tight areas there; building up 4-ft. wide shoulders; but also has been home on DOT paving projects. Baggott also has fine-tuned his Super 700 to do widening. "We've made an attachment to do 2-ft. widening with it," he said. "Some projects have shoulders that are broken out. We can go in and mill the shoulder out 2 ft., and then backfill the shoulder and the road at the same time."

In part Baggott credits his success with new technologies from Wirtgen Group to the Wirtgen field staff with whom he's dealt. "I want to give credit to Steve Strom, Spurgeon Prescott and Richard Evans, who introduced these new technologies to me, and made sure they worked for me and my customers in the field."

Versatile Super 700 fits perfectly in 6-ft., 6-in.- wide patch

About The Super 700

The new Super 700 with electrically heated AB 200 V screed from Vögele America, Inc. is one of the most innovative pavers on the market.

This exciting new paver combines highway class technology in a compact package perfectly suited for paving cart, bike and walking paths, confined areas, repair of milled areas, and conventional commercial applications.

Unique to the Super 700 is its ability to drive through an opening less than 4 feet in width, pave within 2 inches of boundaries, and drive in a footprint of 43 inches. Also, it can be operated with one person, and has two positions at which the operator can stand, either on the screed, or on an elevated platform.

The Super 700 is powered by the liquid-cooled Deutz BF3 M 2011 diesel engine rated at 57 hp @ 2,300 rpm. Efficiency is designed into the paver with the unique ECO Mode, allowing the engine to provide sufficient power for all functions, but at a lower rpm for less fuel consumption, less noise and reduced wear. The power plant also includes an 8kW tractor-mounted generator for screed heating and lighting.

Hopper capacity for the Super 700 is 5.5 tons. Unlike all other hydraulically operated hopper designs, the hopper sides are also equipped with hinges allowing for many material feed configurations. The Super 700 is capable of paving a 6-inch depth mat at a laydown rate of 220 tons per hour. Paving speed is up to 98 ft. per minute, and the transport speed is 2.2 mph.

The Super 700 is equipped with the electrically heated AB 200 V screed, with a basic paving width of 3.6 to 6.5 ft. With cut-off shoes and bolt-on extensions, the paving width is 1.64 to 10.5 ft. A high-density screed, the AB 200 TV, also is available.

Roller Compacted Concrete Or Paver Compacted Concrete, Both Are Jobs For Vögele Pavers

Hamm HD 120 finishes concrete surface at demonstration at Tennessee DOT

"The fully mechanical compacting process makes it possible to walk on the surface or lay the second layer with the road paver directly after the high-power compaction screed."

Roller compacted concrete — and its cousin, paver compacted concrete — is a potential opportunity for big pavers from Vögele America, Inc., as a recent workshop presented by the concrete and cement industries indicated.

There, Vögele America, Inc. general manager Brodie Hutchins joined a blue ribbon panel describing today's roller compacted concrete, and spoke on the kind of paving and compaction equipment needed to successfully place roller compacted concrete.

Roller compacted concrete (RCC) is an older concept which is being revived by the concrete industry, but with a twist. With a runup in asphalt prices removing hot mix asphalt's conventional price advantage versus concrete, the concrete industry now says that a more durable product — RCC pavements — can be placed at the same cost by the same machines as asphalt pavements, but for less critical pavement applications.

And pavers from Vögele America, Inc. are placing pavements of both HMA or RCC, executing the jobs and standing in the spotlight. Here's why new attention is being focused on roller compacted concrete and why pavers from Vögele America are at the center of the activity.

What Is Roller Compacted Concrete?

Roller compacted concrete is a stiff, zero-slump portland cement concrete mix placed with an asphaltic concrete paver, and typically, compacted with vibratory and rubber-tired rollers.

While RCC contains the same basic ingredients as conventional concrete — cement, aggregates, and water — it's mixed in a drier form and can be placed with conventional asphalt pavers, or pavers with intensive compaction components at the screed.

RCC is stiff enough to compact by vibratory rollers, and does not require many of the features we associate with concrete: forms, finishing, dowels, or reinforcing steel, reports the Portland Cement Association (PCA). RCC is compacted immediately after placement, in a continuous process performed until the finished pavement meets density requirements. The pavement is then cured, and in many cases joints are sawed to control cracking.

While RCC conventionally has been used for parking areas and equipment yards for container ports, rail terminals, truck terminals, and industrial

Vögele America's general manager Brodie Hutchins walks workshop attendees through paver types

yards where the pavements are subjected to large forklift trucks, straddle carriers, log stackers, and mobile cranes, it has not commonly been used for roadways. The concrete industry now seeks to popularize RCC for low-volume roads in urban areas, for highway shoulders, and urban parking areas.

RCC has been used on a rural road in South Carolina, on roads in and around Chattanooga and Knoxville, Tenn., and Columbus, Ohio, and in Georgia, as shoulder on the 35 lane-miles of shoulder along I-285, the Atlanta Perimeter/Beltway, marking the first time the material was used on a highway reconstruction job.

RCC owes much of its economy to high-volume, high-speed construction methods, reports the PCA. RCC is blended in continuous-mixing pug mills at or near the construction site. These high-output pug mills have the mixing efficiency needed to evenly disperse the relatively small amount of water used.

Conventional dump trucks transport the RCC and discharge it into an asphalt paver, which places the material in layers up to 10 inches thick. Compaction is the most important stage of construction, providing density, strength, relative smoothness, and surface texture. Use of a Vögele paver with compacting or tamping screed can eliminate all but one roller on a project.

Curing ensures a strong and durable pavement. Curing makes moisture available for hydration, the chemical process that causes concrete to harden and gain strength. A water cure sprays the pavement to keep it wet, while a spray membrane also can be used to seal moisture inside.

Cured RCC pavements exhibit high flexural strength, from 500 to 1000 psi, and high compressive strength, 4,000 to 10,000 psi.

Equipment For RCC

Equipment from Vögele America and Hamm Compaction Division are well suited for placing RCC, and there are reasons for it, said Vögele America's Brodie Hutchins at a workshop on RCC sponsored by the Southeast Cement Association, the Portland Cement Association, and the American Concrete Pavement Association, in Nashville in late May.

"There are major differences between the tractors of

Use of a Vögele paver with high density paving screed can eliminate all but one roller on a project

RCC mix sample is checked at onsite mobile testing lab

Compaction density of RCC pavement is measured with nuclear density gauge

American and European pavers, and most importantly, the screed," Hutchins said. "Much of the difference lies in the compaction available at the screed."

European pavers are substantially taller and of more of a 'boxy' design, Hutchins said. "With European pavers we don't pave as though we are placing an American-style asphalt overlay," he said. "We are talking deeper depths, and wider widths, which works out to a slower pace."

There is a substantial difference in the weights, too, Hutchins said. "An average U.S.-style paver with screed is around 45,000 lb., versus a European-style machine with a screed, in the neighborhood of 60,000 lb.," he said. "American machines have a basic width of 10 ft. for highway jobs, whereas most of the machines from Europe will be 8 ft. machines. They look much bigger but actually they are narrower in width."

In the U.S., most of the screeds are "front- and rear-mounted screeds", meaning the screed extensions may be mounted on either the front or the rear of the main screed. "But in Europe, everything is rear-mounted, or fixed," Hutchins said. "That means their extensions are bolted onto the main screed, so you don't have the ability to go in and out unless you have a rear-mounted screed with hydraulic extensions."

And in the U.S. the energy in the screed is primarily vibratory, using shaft-driven integral vibrators. "On a European-style high-compaction screed, there are other compaction mechanisms, such as a tamper or tampers, pressure bars, and vibration," Hutchins said. "A typical 10-ft. screed for a U.S.-style paver will weigh 7,000 to 8,000 lb., where in Europe it will be a 10,000-lb. screed. The tampers and eccentric shafts, and other components, in the European screed add to the weight."

In addition to RCC, or 'paver compacted concrete' (PCC), European-sourced Vögele pavers with these attributes place cement-treated base, crusher run aggregate, soil cement, drainable concrete, and asphalt-treated base. "Some contractors even will put in stone base using these pavers," Hutchins said.

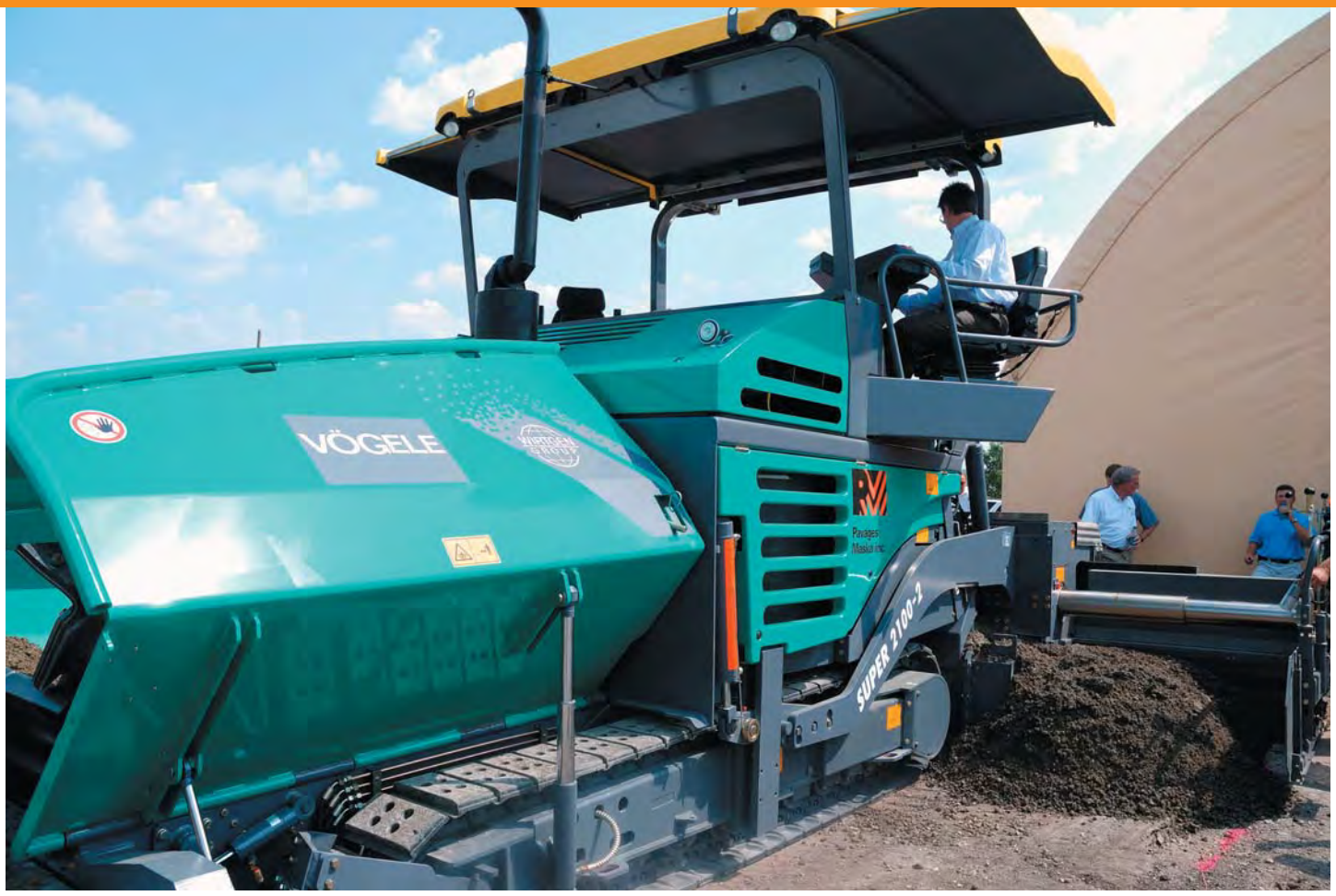
Use of a paver for base or other heavy material eliminates a lot of the guesswork and repetitive actions caused by conventional placement, Hutchins added. "Count the number of machines required for conventional base work. You will have dumping, dozing, blading, rolling, do it again until you get it right, and then throw away the excess," he told the workshop. "Or you can place it to grade with accuracy and compaction, depending on the material. And you don't have to clean up the edges."

Typical densities behind the tamping screed will generally be in the low 90s, Hutchins said. "On one placement we got 99 percent density in 10 in. deep slab," he said. "High screed compaction reduces the roll down and the number of machines you need to have on a project. Your yield loss is virtually eliminated, and you have better production rates with fewer machines. You put RCC down one time, and roll it for finishing purposes, without the marks of dozers or multiple passes with rollers."

The paver used in the workshop demonstration at the Tennessee Department of Transportation regional office was a Vögele Super 2100-2 with extendable TP2 screed, with single tamper bar and two pressure bars on the back. The Super 2100-2 was placing RCC 6 in. deep, at variable widths, and all compaction was being obtained at the screed. A Hamm HD 110 roller was being used for finish only, without vibration.

Vögele 'Paver Compacted' Concrete?

The Portland Cement Association says that new paving equipment from Vögele AG makes it possible to place RCC pavements without the need for any additional compactive effort. "Newly developed high-power compaction screeds for the drier, stiff concrete mixes typically used in RCC have been used with some success in Europe," PCA says. "Eliminating the need for consolidation using rollers makes this Paver



In driver's seat, Brodie Hutchins checks paver rear at start of roller compacted concrete demo at Tennessee DOT

Compacted Concrete (PCC) extremely attractive."

PCA quotes Siegfried Riffel, responsible for project management for highway construction with Heidelberg Cement in Germany, as saying these new pavers place, then compact, the zero-slump concrete mix from the surface with tamping, vibrating, and pressing compacting systems, achieving the minimum specified density.

"Densities equal to or greater than the required 98 percent of a modified Proctor test have been obtained directly out of the back of these Vögele pavers," PCA says, "resulting in a working width, paving depth, transverse road profile, surface accuracy, and surface texture of the highest possible quality achievable for roadway pavements."

PCA states that pavers manufactured by Vögele AG have been designed to handle and place lean-mixed concrete materials, such as conventional RCC mixes. "These models ... can be fitted with fixed-width screeds resulting in maximum paving widths from 8 to 16 meters (26 to 52 feet). These screeds are available in different versions depending on their compaction systems. One system, the TVP2, is equipped with a tamper, vibrators, and two pressure bars, and is capable of successfully placing RCC mixes at their minimum specified densities without the need for additional compacting using conventional vibratory or static drum rollers.

"PCC placed with these new high-density pavers offers many technical and economic advantages," PCA says. "It is, for example, possible to achieve high quality in terms of strength, durability, and surface finish at relatively low device and personnel costs. The fully mechanical compacting process makes it possible to walk on the surface or lay the second layer with the road paver directly after the high-power compaction screed. Depending on the desired thickness and width of the installation, the concrete can be laid very quickly, from 60 up to 120 meters (approximately 200 to 400 feet) per hour."

About The Super 2100-2

The tracked Super 2100-2 is powered by a 244-hp Deutz diesel engine and weighs 47,180 lb. Like the Super 1800 SF, its screed size is a nominal 8.3 ft., but unlike the Super 1800 SF, it can pave up to 42.5 ft.

The Super 2100-2 is a large machine ideal for highway construction in full-road width, surfacing large areas, or on airport runway projects. It comes with a powerful engine developing 244 hp. Conveyors and augers installed in the paver are so dimensioned as to transfer and spread even largest quantities of mix with effortless ease, but also other materials like water-bound base in thick layers, or roller-compacted concrete.

Its innovative Ergo-Plus design means the operator enjoys a modern, ergonomic working environment that will optimize productivity even over the longest working days. And its super-quiet operation means it can work at nights or in noise-sensitive areas.

Big W 2100 Keeps Detroit Runway 3R-21L Project On Time, In Money

W 2100 mills as part of $74 million runway reconstruction

"It's a very precise machine. Whenever you set the grade, it stays there, without constant adjustment or guesswork. Once we're done with the asphalt removal there is no cleanup required whatsoever."

Day after day this summer, a big W 2100 cold mill with standard 7-ft., 2-in. drum is removing large volumes of asphalt base from Detroit Metropolitan Wayne County Airport, keeping the $74 million reconstruction of Runway 3R/21L on time and on track.

This spring, following the demolition and removal of 17 in. of portland cement concrete using breakers, Swank Associated Companies, Inc. was removing 9.5 in. of underlying asphalt in one pass, plus the runway shoulders, adjacent stub taxiways, and two blast pads, on the northernmost 7,600 ft. of the 10,001-ft.-long by 150-ft.-wide runway. Then the runway will be rebuilt in much the same fashion.

Reconstruction of Runway 3R-21L will extend the useful life of the runway by at least 20 years, according to the Wayne County Airport Authority. The existing runway was 30 years old and over the last decade required extensive patching. The complete replacement will take 175 days to complete.

Rubblizing of the old concrete was being executed by guillotine type breakers, with two 60-ton excavators digging out the broken pieces.

"We're removing all the asphalt base from 3R-21L, and two 35-ft.-wide asphalt shoulders," said Shane Allison, milling foreman for Swank. "The asphalt has an average lift of 9 in. beneath the existing concrete, removed by Angelo Iafrate Companies."

Swank was milling between 3,500 to 4,000 tons per day of reclaimed asphalt pavement. "It's hit or miss each day," Allison said. "We find soft spots, then fairly loose spots. On the average we're taking out 6,500 square yards a day of asphalt."

Swank did a preliminary mill of 2,500 ft. of taxiway in August 2006 through a crossing runway, which enabled the airport to shut down the main runway in May 2007. The three-man crew was working four 10-hour shifts per week, with the option of five 10-hour shifts if production needed. "With our W 2100 we are staying so far ahead of the schedule that even if we were to break down for a few days, we wouldn't fall behind," he said.

Swank was cutting an average of 9.5 in. of asphalt in one pass; however, the actual depth was varying from 8 to 11 in. in the field. The W 2100 was cutting 5 to 15 meters (16.5 to 49 ft.) per minute.

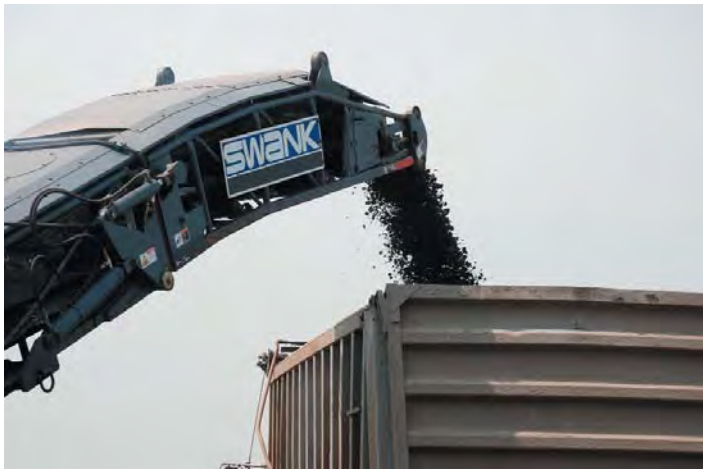
Working on a closed runway at an airport has less distractions than highway work, but there are trade-offs, Allison said. "Everything must be done to the most critical tolerances," he said. "Inspections are rigorous. We must

Swank's milling foreman Shane Allison checks cut depth, averaging 9.5 inches in one pass

strip the asphalt off the aggregate base, while removing as limited amount of base as possible. It's definitely trying."

But the Wirtgen equipment gets the job done. "It's a very precise machine," Allison said. "I've been with Swank since June 1995 and spent 10 years with a competing model. I've been with this W 2100 for two years and it's definitely a lot easier on us all. Whenever you set the grade, it stays there, without constant adjustment or guesswork. Once we're done with the asphalt removal there is no cleanup required whatsoever. The area is ready for them to lay their stone, and the savings to the project is enormous."

W 2100 standard drum of 7-ft., 2-in. width cuts at DTW airport



Swank averaging 6,500 square yards per day of RAP

About The W 2100

The new Model W 2100 surpasses its predecessor, the 2100 DC, in performance and profitability. The powerful Tier III 6-cylinder straight-type diesel engine with its impressive output of 700 hp allows the operator to easily steer. The W 2100 uses joysticks which are identical in design to the W 2000 and W 2200 machine models. The maximum milling depth of up to 32 cm (12.6 inches) and a milling width of 2.2 meters (7 feet, 2 inches) makes high production milling possible in only one pass. Cutter width options of 8 feet or 9 feet are available.

Pike's New HD 110 K Rollers Combine Rubber Tires And Vibration, Ideal For Superpave 'Tender Zone'

Hamm HD 110 K ideal for compacting Superpave 'tender zones'

HD O90V 'Ozzie' roller eliminates wave or 'roll' in HMA produced by conventional vibratory pavers

New England contractor Pike Industries has found that use of its three new HD 110 K combination rollers is letting the firm compact Superpave "tender zones", thus keeping mat woes at a minimum, jobs moving and clients happy.

The HD 110 K combination roller joins four pneumatic tires at one end with a 66-in. steel drum with conventional vibration at the other, in an articulated platform with a total operating weight of 10 tons. In addition to the three combination rollers, in 2007 Pike also added a HD 110 VHV ("very high vibration") roller, and a HD O90V Oscillation roller to its fleet, a total of five new Hamms this year.

"We have a lot of tender mixes in this end of the state, and we've been reading up on the new technologies to find a solution," said Mike Mullin, regional coordinator for southern Vermont, Pike Industries, Inc., Wallingford, Vt., an Oldcastle company. "We've tried the combo rollers and the Ozzie rollers, and they seem to give us a much smoother ride, and we get our compaction a little quicker. They've really been a good tool for us."

Superpave Shoving, Pushing Quelled

Almost all Vermont state jobs use Superpave, Mullin said, and that's a source of tender mixes. "We are seeing a lot of shoving and pushing — and some splitting — of the mixes when trying to compact with the regular vibe rollers," Mullin said. "We've found that, using the combos, we can knead things back together. And the Ozzie, because of its action, doesn't seem to make 'waves' as we've seen with other rollers."

If Pike lets a Superpave mix sit too long — waiting for it to cool down — it results in a lot of "splitting" in the mat, Mullin said. But if Pike uses a combo roller, and the Ozzie, the firm can get on the mat sooner and eliminate the splitting issue.

The splitting resulted in mat cracks varying from 2 in. to a foot long, Mullin said. "In the old days we'd have to put mix back in and roll," Mullin said. "But with the combo roller, the

New HD O90V Oscillation roller is one of five new Hamms for Pike Construction this year

Unique Hamm HD 110 K combines four rubber tires (behind tarp) with conventional vibratory drum

kneading action of the tires seals the cracks up, and the steel drum behind it seals it all off, we get our compaction, and have a good looking mat.

"With the combo roller and the Ozzie, we can get on when it's a little warmer," he said. "We are able to get our marks out, get our backrolling done and achieve our compaction. And here, like everywhere else, the compaction specs are the big number we watch. And you can get those a lot quicker with the Ozzie."

HD 110 K Eliminates A Roller

And there's another upside: the combination roller lets Pike get rid of a roller in the paving train without sacrificing functionality.

"With a combo we can actually eliminate a roller," Mullin said. "The rubber and the steel is there to do the job. And a lot of times, with an all-rubber tired roller, especially in the early spring and late fall, we have a lot of 'picking' problems. We don't seem to have that with the combo roller."

Pike's classic paving train will include the paver, an all-steel, dual-drum vibe breakdown roller right behind the paver, then the combo roller. Sometimes, when tender mixes are problematic, Pike will run a third roller at about 140 deg F, and then clean up with an all-steel roller at the tail end.

"The Ozzie roller doesn't pound up and down like a regular vibratory roller," Mullin said. "It's a horizontal motion or rocking motion that compacts the mix without making the waves that a regular vibe roller does. It moves the mix around, getting compaction, without us getting bumps in the road."

The ripple or bump is a single "wave", cresting about 1 to 1.5 in. high. The ripple will move with the vibratory drum, but wherever the drum stops, the wave will stand.

"We would have to roll perpendicular to the wave, from the side of pavement, to get the roll back down," Mullin said. "But that itself would create a lot of bumps, because it will lap back over itself. With the Ozzie we don't get those big waves and can progress through the job without going back and fixing the bumps."

Vermont Agency of Transportation's density requirement is 92 to 94 percent compaction, Mullin said. "We've found that the Oscillation roller helps us attain compaction faster than with other rollers. I think that in the future you will see more of them on the road because they do give you a smoother ride."

The Ozzie's ability to get on a Superpave mat at a higher temperature without stressing the mat is a big benefit for a smooth mat, Mullin said. "You want to be able to get on the mat when it's warmer," he said. "With the other rollers, no matter what temperature we were trying it at, we were still having problems. With the Ozzie, we can get on it when it's still warm and workable, and get the results we need. For the past two years, the Ozzie has been consistent for us. We found we can get more work done, more lane miles done per day with the Ozzie, than we can with the vibes. It's definitely a technology headed in the right direction."

New Popularity For Combos

"The popularity of combination pneumatic rollers has waxed and waned over the years," said Dave Salzmann, northeast district sales manager for Hamm and Vögele America. "Things were quiet until Superpave came out, and the arrival of its 'tender zone'. You can't take a steel drum into the tender zone, because the mix will shove and crack in the temperature range of 200 to 250 deg F. But if you can't put a steel drum in, you can put a rubber tired roller, which confines the mix and keeps it from shoving. The alternative is to keep off the mat altogether, and then finish rolling as the mix cools. But the risk is that as the mix cools, you may have an inability to achieve the target density, and that makes contractors nervous, who don't like to leave compaction to the last temperature drop. We're finding we are having more and more requests for the Ozzie/combo rollers."

Photos by Rick Paré, Wood's CRW of New Hampshire

New Oscillation Soil Compactor Adds Soft Touch To Delicate Construction

New 3412 VIO cut transmitted vibrations in half

A Hamm 3412 VIO soil compactor — incorporating both exclusive Hamm Oscillation compaction and conventional vibration in a single drum — was put to work this spring in New Hampshire to limit vibrations transmitted to a nearby high-tech manufacturing plant.

In Keene, N.H., contractor Park Construction Corporation was using the 3412 VIO — one of the first in North America — to reduce compaction vibrations carried through the soil a half-mile away to Moore Nanotechnology Systems, LLC, a manufacturer of ultra-precision manufacturing systems used for casting contact lenses and other manufacturing-critical optical products.

"The 3412 VIO has been working for us very well," said Dave Norby, treasurer, Park Construction Corporation, Fitzwilliam, N.H. "It's been reducing vibrations in the existing buildings, and vibration has been a problem on this job. Their instrumentation tells us so."

"The 3412 VIO has been working for us very well. It's been reducing vibrations in the existing buildings, and vibration has been a problem on this job. Their instrumentation tells us so."

Transmitted Vibrations Cut In Half

Park was using the 3412 VIO to compact base for the intersection improvement and construction of the Keene-Swansea roundabout, N.H. State Routes 9 and 10 in Keene.

"We are required to get 95 percent compaction on the base," Norby said. This work required excavation down approximately 3 ft., then backfill with a foot of sand, a foot of bank run, and a foot of crushed stone, each in 12-in. lifts. The 3412 VIO compacted the subgrade, the sand, the bank run and the crushed stone.

The 3412 VIO was the recommendation of Park's paving subcontractor, Continental Paving, Inc. "At first we thought we'd use an asphalt roller with Oscillation, but we learned from our dealer, Wood's CRW of New Hampshire, that we could get an actual dirt roller with Oscillation," Norby said. "That's when we decided to go with the VIO. We like it in this unique application, but we will use in other projects as well. It will give us conventional vibration for regular site work, but we do a lot of city work next to buildings, and we'll use it in Oscillation and not bother the residents."

Norby estimated the reduction in transmitted vibration with the 3412 VIO by about 50 percent of normal for a unit of this size. "We are getting more vibration stockpiling, with the dozer going up and down the pile, and loader loading, than we do with the 3412 VIO," Norby said.

Precision Manufacturing Nearby

The reduction in transmitted vibrations was required by the presence of an ultra-precision manufacturer not a mile

Unique 3412 VIO combines Oscillation and vibration in a single drum

from the job site. There, Moore Nanotechnology Systems, LLC develops high-tech machine systems, typically utilizing single point diamond turning [lathes] and deterministic microgrinding technologies to produce plano, spherical, aspheric, conformal, and freeform optics or lenses, or optics manufacturing products. The company was established in 1997.

"We are building ultra-precision diamond turning machines," said Sinan J. Badrawy, Ph.D., engineering manager for Moore Nanotechnology. "About 90 percent of these machines are used in the optical market, used either directly, or indirectly, in making lenses. If directly we will cut the actual lens, or indirectly, we will cut the die and the mold for the lens."

Either way, extreme precision at the nano-tech level is required to produce accurate products. "We can cut a part 3-in. diameter with a form accuracy of 0.1 micrometer, which is 100 nanometers," Badrawy said. "The surface finish across the part — from highest point to lowest point — is below 1 nanometer. This accuracy is such that by comparison, you would build the Empire State Building to a height accurate to the thickness of one dime."

Foundation Vibration An Issue

With high accuracy like this required, Moore Nanotechnology monitors ambient vibrations which come through its foundation. When construction on the intersection began, Moore was able to see the effects of transmitted vibrations in its parts and production databases.

"We didn't hear about it, we saw it in our parts," Badrawy said. "It was influencing our parts accuracy. Just by tracking the vibrations back we could tell what kind of frequency, what kind of amplitude, what kind of equipment was working and where."

Moore conveyed its concerns to the New Hampshire DOT. The state and contractor worked with Moore Nanotechnology to reduce vibrations that could impact product viability. Ultimately, even the 3412 VIO was not able to reduce transmitted vibrations enough to completely eliminate the problem, but it came very close to those requirements.

Ultra-high-precision manufacturer was impacted by transmitted vibrations

About The 3412 VIO

The Hamm 3412 VIO combines — for the first time in North America — revolutionary Hamm Oscillation Technology with conventional vibration technology in a single drum.

The drum achieves an oscillation and conventional vibration frequency of 1,980 vpm, with an oscillation and centrifugal force of 64,575 lb.

With a drum width of 84 inches, the 3412 VIO has a travel speed of 7.4 mph and 131 horsepower. With ROPS it has an operating weight of 26,433 lbs.

Oscillation compaction works by imparting a horizontal or rocking force into the base material, side-to-side, rather than by forcing it downwards by an up-and-down motion. The drum never leaves the material.

Unlike traditional vibratory compactors that achieve compaction by bouncing the drum on the ground, somewhat like a Marshall hammer, nonaggressive Oscillation technology ensures that the roller drum maintains constant contact with the ground for faster, more effective compaction. In the 3412 VIO, movement of exciters within the drum changes its direction of effect during one turn, so they generate an oscillating or rocking movement of the drum, much like a gyratory compactor.

Horizontal forces are transmitted from the drum into the surface. The result is better compaction in fewer passes, with less vibration-related wear and tear on operators and surroundings.

The unique technology of the 3412 VIO allows the operator to choose vibration or oscillation compaction, whichever is better suited for the soil or surrounding conditions.

The dramatic 3000 Series of single-drum soil compactors from Hamm Compaction Division gives contractors a whole new way to compact earth and satisfy customers. The 3000 Series has been designed from the ground up with input from dealers and customers the world over.

New Hampshire's Continental Paving Embraces Oscillation With Six Ozzie Rollers

A New Hampshire asphalt contractor has plunged big-time into exclusive Hamm Oscillation compaction with the acquisition of six HD O90V "Ozzie" compactors.

"We found that the HD O90V gives us an average 2 percent better compaction than other brands, all things being equal," said Eddie Small, paving supervisor, Continental Paving, Inc., Londonderry, N.H. "As a contractor that means we get paid faster, avoid penalties and achieve critical compaction sooner."

This is especially true for airports, Small said. "We have airport work where we have to meet strict density criteria," he said. "That roller achieves it a lot easier that other rollers. We don't have to struggle with pneumatic rollers and triple drums to get compaction. We get a lot better results with the Oscillatory roller."

The benefits of Oscillation compaction sometimes require some explanation to end users, but for Small, it was logical. "It only made sense to me," Small said. "If you can roll the stones so they fit better, as Oscillation does, instead of pounding them down, like vibration, your compaction will be more efficient. I didn't doubt it from the start."

Using Ozzie All By Itself

"There are times when we will use the Oscillatory roller by itself, without a vibratory roller," said Keith Dane, quality control supervisor, Continental Paving. "This might be on top, on thinner lifts, where we don't need the pounding of the vibratory roller. We'll run the Oscillatory and it will give us a better ride, with easier compaction."

"In the state of New Hampshire we have to meet a ride spec and the Oscillation makes it easier," Small said. "If I can gain 90 percent of my compaction with just one roller, like the Ozzie does, I have a lot less to do behind it, like just smoothing the road out and putting all the pieces together."

Continental frequently overlays bridge decks with hot mix asphalt, and the nonaggressive Oscillation helps there. "Because it doesn't have the up-and-down vibration of conventional compaction, there is less stress put on the bridge," Small said. "That could cause damage to a smaller bridge. Oscillation is a lot better for the bridge, and we still get compaction on the lift."

One Ozzie can help Continental eliminate another roller on a job

"The New Hampshire DOT won't let us use vibratory rollers on a bridge deck, but they will let us use Oscillation," Dane said.

What Is Oscillation Compaction?

Oscillation compaction works by "massaging" the hot mix asphalt (HMA) from side to side with a rocking action, rather than by forcing it downwards by an up-and-down motion. With Oscillation compaction, the drum never leaves the mat.

Unlike traditional vibratory compactors that achieve compaction by "bouncing" the drum on the ground, Hamm's unique oscillation technology ensures that the roller drums maintain constant contact with the ground for faster, more effective compaction.

In the Oscillation drum, two eccentric masses turning in the same direction cause a movement around the drum axle. The movement changes its direction of effect during one turn so it generates an oscillating or rocking movement of the drum. Horizontal, rocking forces are transmitted from the drum into the pavement. The result is better compaction in fewer passes, with less vibration-related wear and tear on operators and surroundings.

Acquired 2116W Vögele Paver

This year, Continental complemented its six HD O90V rollers with an 8-ft. 2116W asphalt paver from Vögele America, Inc. "We're finding that it's a small machine with a big-machine personality," Small said. "You don't have to use it only on small projects, you can use it all day. You can pave an 18-ft. road with it, then pave a 30-ft. road, without having to bring another paver out, which makes it a lot more versatile."

Small took note of the 2116W's tractive power. "In Concord, N.H. it was pushing loaded Flow-Boys up an 8 percent grade," Small said. "That's remarkable, because 8-ft. machines either usually don't weigh enough, or have enough power. Most inspectors who walk up to it have no clue about its power."

In New England, Continental Paving is on a roll, so to speak. Continental Paving, Inc. is a major player in New England roadbuilding. It began in the 1970s as a family owned and operated trucking business that expanded into related work such as site development, utility installations and ultimately, paving. The firm was incorporated in 1981.

Continental Paving is vertically integrated and is in control of its own resources from raw materials, to plant, to field equipment. Its work force of more than 250 employees is engaged in portable aggregate crushing operations, pavement milling and reclaiming, asphalt production and sales out of two stationary and one portable asphalt plants, aggregate production and sales from its Litchfield Sand and Gravel operation, and a Continental Paving-owned and operated stone quarry and crushing facility.

One of Continental's six Ozzies compacts in New Hampshire

Continental enjoys faster, more efficient compaction with Oscillation

About The Vögele 2116W Paver

The 2116W rubber tired paver from Vögele America Inc. is versatile and productive enough for the smallest to the largest commercial jobs, but with the features and mat quality of a highway class machine. It follows the highly successful 2111W in offering the reliability and mat quality of the highway class pavers, but is a larger machine overall.

The machine's overall length is 19 ft., 4 in., with overall width of 8 ft., 6 in. It has a wheelbase of 92 in. with an inside turning radius of 12 ft., 6 in., and has a maximum paving width of 21 ft., 6 in.

The HF400E screed often shipped with the 2116W incorporates the same box frame design as the larger HR500E for maximum rigidity and strength. Two pair of 4-in. guide tubes in the carrier frame system are designed to maintain angle of attack and vertical adjust positions for improved mat quality. The Multi-function Intelli (MFI) control system with independent 4-zone electric heating is re-programmable and self-diagnostic. The LED display indicates which zones are heating as it runs through the heating cycle.

In Maine, Oscillation Assures Compaction On Superpave Streets

The City of South Portland, Maine, was introduced to exclusive Hamm Oscillation technology in a quiet, seaside neighborhood by a contractor eager to leverage new technology to get jobs done faster and with lower cost.

There, asphalt contractor Dayton Sand & Gravel Co., Inc., with permission from the city, used a Hamm HD O90V compactor with Oscillation compaction in the rear drum, and conventional vibration compaction in the front, to compact Superpave mix on a residential street, eliminating a pneumatic-tired roller from the equipment train in the process.

"We're placing an inch-and-a-half of Superpave mix," said Richard F. Crocker, project manager, Dayton Sand & Gravel Co., Inc., Dayton, Maine. "The Oscillation roller is allowing us to place and compact Superpave mix on this residential street, but not have to use a rubber-tired roller, which is big and cumbersome for these conditions."

Rubber-tired or pneumatic rollers have their place, Crocker said, but not in the confined area of narrow, shady streets where Dayton Sand & Gravel was paving in early June. "Here we have overhead tree limbs, tight radii, and limited space for construction equipment," Crocker said. "The Oscillatory roller is allowing us to get by without using a rubber-tired roller. The City of South Portland has been kind enough to let us utilize the Oscillation technology, and we've been able to verify the density we are achieving with a PQI gauge."

Dayton Sand & Gravel demonstrates Oscillation compaction to City of South Portland, Me.

Dayton was using both drums to compact to that density. "We're vibrating in, and are oscillating out in the same pass," Crocker said. "With that oscillation we eliminate the rubber-tired roller, and are going from an 89 behind the screed, to a 92.9 to 93.1 with one pass in vibratory, one pass out oscillation. Essentially we are achieving all our density in the breakdown phase. We're breaking down and doing intermediate rolling, all with one roller. The length of our pulls, our mix design and the current ambient conditions allow us to do that."

Crocker was thankful that the city was permitting him to show what the new technology can do. "The city has been graceful enough to allow us to demonstrate this new technology," he said. "The roller, and its operator, are performing as expected, and the numbers prove it. Communications with operators, crew and the customer are paramount."

"This is the second phase of our street program here," said Joe Colucci, supervisor, public works, City of South Portland, Maine. "These streets were a total mess, but last year we full-depth reclaimed them, graded the base and put a crown in, and placed 2 in. of binder on them. We let them sit for a year to make sure everything settled, and now are putting the final surface course on."

Colucci was willing to see how Oscillation compaction worked for his city. "We're checking it out on a trial basis," Colucci said. "Dayton gave us the technical information and we are observing how it performs. One of the big reasons I wanted to try Oscillation is that the pneumatic tire roller can leave tire tracks in the mat, and we don't get the smooth surface we need. I'm hoping that this will eliminate that possibility and get the smooth, glassy surface we want."

Parts of South Portland neighborhoods built on sandy shoreline material, but Oscillation won't disturb it

Undisturbed Sandy Foundations

Crocker observed that nonaggressive Oscillation compaction is ideal for the sandy foundations prevalent along the shoreline in South Portland. "As a contractor, we've taken into consideration that these houses are built on sandy material," Crocker said. "We don't want to disturb any foundations or other structures beneath the ground. Oscillation compaction helps us eliminate, or lessen, the impact of compaction on these foundations. We are trying to limit the amount of vibration, and with Oscillation technology, we are gaining the density we need, and giving the city a decent road that will last, while not disturbing the neighborhoods or their foundations."

Dayton Sand & Gravel's Ozzie enabled elimination of a pneumatic roller on project

About The Hamm HD O90V

Hamm Compaction Division, Wirtgen America Inc., introduced Oscillation compaction technology to North America via the HD O90V.

The designation HD O90V signifies a hybrid roller of the Hamm HD 90 platform, in which the front has a conventional vibratory drum, and the rear incorporates the revolutionary Oscillatory technology.

With an operating weight of 20,172 lbs., this 66-inch, double-drum, articulated machine offers benefits in addition to its unique oscillation technology. The HD O90V features a hydrostatic dual-drum drive which is infinitely variable, front and rear visibility of 3 X 3 feet, and a full 150-degree swingaround and swiveling operator's seat in an ergonomically designed operator's compartment.

The intermittent spray system has manual override and is served by dual pumps and non-corroding polyethylene water tanks. All spray nozzles are clearly visible from the operator's seat. Its 3.5-inch drum offset to either side permits pinching of joints and increased rolling width.

Service features include tiltable operator's compartment for easy service access. There is excellent visibility to both drums as well as all spray nozzles, an emergency braking system, and a maintenance-free articulated steering system.

In New England, Wood's CRW Serves Up Experience, Service

Wood's CRW Corp. of New Hampshire — based in Hooksett, N.H. north of Manchester — is a full-service equipment distributor that is making waves in New England. There, in addition to other lines, Wood's CRW carries Hamm asphalt and soil compactors, and pavers from Vögele America, Inc. Wirtgen Technology Magazine visited Wood's CRW in June and learned how this remarkable distributorship has grown so fast. We conducted this interview with Jeffrey M. Lothrop, president, and Tim Grip and Rick Paré, sales representatives.

In front of new Hamm HD 14 are Wood's CRW personnel Tim Grip, Rick Paré, Jeffrey Lothrop, and sales rep Mark Chartrand

Wirtgen Technology: ***A name like Wood's CRW of New Hampshire indicates a history. What is the background of Wood's CRW of New Hampshire?***

Lothrop: Wood's CRW refers to my partner, Charles Robert Wood, who launched his Wood's CRW Corp. business in Burlington, Vt., in 1961. We decided to launch a joint venture in New Hampshire, and to keep initial costs down, we decided to use the existing name. It is a separate corporation, completely independent of the Burlington operation.

We incorporated in 1986 and opened in 1987 in Hooksett. We purchased this five-acre property in 1999. We started as a rental store, and some paving contractors indicated that there was a need for a paving equipment dealer in the area. We took their hint and took on a small paver line, and it grew from there.

When did you take on the Hamm line?

We took on the Hamm line of rollers in the early 1990s. We needed a double-drum, dual-drive articulating roller to complement the smaller rollers we sold, and took on the Hamm line. We've had good luck with the Hamm rollers; they are well-made and dependable. Our customers didn't have a lot of problems with them, and our sales kept growing and growing over the years.

Did your customers have to adapt to the German design?

One of the things we like about the Hamm roller is that in general it has a low profile. Our New England area is hilly and contractors often must pave on hills. We were able to use that to help sell the roller line. Customers appreciate the sense of stability that sitting lower on the roller brings on the hills.

For Wood's CRW, how was the transition of Hamm from Texas to Nashville under its new owners, Wirtgen Group?

As Hamm ramped things up, and moved to the new facility in Nashville, we were concerned that parts availability might be an issue. But they have been geared since Day 1 for parts and service, so we did not run into any major issues. Some frequently moving parts we keep in stock ourselves.

Rick Paré: The Hamm roller line has done a really good job here. The only learning curve we all experience is educating operators on the articulation of the double-

drums. Our smaller driveway and light commercial customers are used to straight frame rollers. But once they realize there is a need for a double-drum they quickly accept the technology.

We now are selling smaller 3- to 5-ton rollers to the highway class contractors, so we are getting some intermingling of product amongst the separate sets of contractors. They are looking at each other and deciding what kind of products they need.

The orange Hamm rollers have definitely taken off here in New England. Their engineering surpasses what our customers have seen elsewhere in the 1.5- to 5-ton roller class. They are quick to accept that there is a better product out there. Now we are starting to see those 1999 and 2000 Hamm rollers being traded in for new product.

The new little HD 10C VV roller is a great product for us. It's a nice size roller for driveway customers and fits right into their scope of services. It rolls a really nice mat. I don't know of any customer with one of those machines who doesn't absolutely love it.

How did Wood's CRW of New Hampshire add highway-class pavers and rollers to its commercial mix?

Lothrop: Ever since we began concentrating on paving equipment, we've called on the larger highway-class paving contractors, because we sell them a lot of supplies, and equipment such as curb machines and sidewalk pavers. When we took on Hamm, we then had more on our plate to sell to the main line paving contractor. Instead of just having small rollers and curb machines, we then had 10-ton highway rollers to show them. When we took on Vögele America — at the time it was called Pro-Pav, in 1999 — we had even more to sell.

We've found over the years that Hamm and Vögele is a push-pull relationship. Once you place a Vögele paver with a customer, that customer will be more apt to let us bring in the Hamm rollers, and vice versa. Lately Hamm has been driving Vögele demonstrations.

Tim Grip: One contractor is a clear example of that. The first thing they ever bought from us was a small curber, and we were able to supply them well with parts and service. That led to a small roller from another make, and from there we were able to sell them a Hamm HD O90V. They now have six Ozzies, and have just purchased an HD 8 VV. Furthermore, they had run all 10-ft. pavers, but they have just purchased their first 8-ft. paver, a Vögele America 2116W with Carlson screed.

There must be more to it than the products, though.

Lothrop: Yes, they like the fact that we are local, and close to them. We have five mechanics in the shop, plus service guys on the road. Their parts are very accessible to them, being able to come right up the street to our location. Plus, the fact that they have had good experience with the Hamm rollers encouraged them to try the Vögele paver.

The most difficult thing in selling is to get a customer to change paver brands. It's easier to get them to try a different brand roller, but to get them to try a paver is much more difficult.

Grip: That has to do with the familiarity of the product name, and past experiences with that piece of equipment. As the product line improves, they become more experienced with the equipment's operation. In the highway industry, it's a hard working, high-tension environment, all day long. One thing crews don't like is change, because they need to be very consistent in their production, and anything that will interrupt that will be viewed negatively.

Also, crews will be very familiar with their existing units and their performance. If something begins to go wrong with a paver, they will see it starting and will know exactly how to respond.

Lothrop: The first paver is the hardest to place. Being the new brand on the street in a region makes it tough, but once a contractor has a good experience with a new machine, and we perform the way we should as a dealer, backing it up and supporting it and having the parts here when they need them, that spreads amongst the other contractors. They all talk with one another about equipment, and the confidence builds in the product line and in Wood's CRW's ability to support it. Together that helps future sales of those machines.

Does the advanced technology of the Vögele America paver line and Hamm compactors help make your job easier?

Lothrop: It's a fact that the Vögele America pavers stand shoulder to shoulder with the best paver lines. They're on the cutting edge, technology-wise. With that we also sell parts and service, with the support to back it up from knowledgeable people.

Paré: The hardest thing is to convince the crew that there is different product out there that will do the same thing, but better. In the highway class, I strongly believe you need to put that paver in the hands of the crew that's going to influence the purchase decision. Even though the decision will be made by an owner or corporate types, they will go to the paving crew to make sure they're happy with the product. Because if the paving crew is unhappy, work will suffer, and the bonuses and deducts now prevalent in highway paving will be unpredictable. Contractors need to be on their game, and they don't want any variable standing in their way of achieving the goal at the end of the day.

Lothrop: What I like about the Wirtgen Group and Hamm rollers and Vögele America pavers is that like us they are specialized in road maintenance and asphalt construction. We want to deal with a high-quality manufacturer who, like us, is 100 percent committed to roadbuilding and paving equipment, and that's what we like about Wirtgen Group.

Grip: The capabilities of the Hamm and Vögele rollers are helping our customers make money. Contractors are in business and it's a profit or loss undertaking. Bonus or deducts for main line paving are make-or-break issues for our highway class customers.

That's why the Oscillation rollers have been so good for us. They help contractors get bonuses and it's been our way in with the larger contractors, and we work up from there to larger rollers.

WIRTGEN GROUP

Wirtgen News

Wirtgen Group Steals Show At Bauma 2007 In Munich

Wirtgen Group "stole the show" at Bauma 2007, the world's largest construction equipment show, held April 23-29 in Munich.

The "Three Amigo" brands of Wirtgen, Vögele and Hamm were joined by a fourth Wirtgen Group nameplate, new in 2006, Kleemann GmbH.

Wirtgen Group exhibited its latest products and refinements in its two lines of businesses. Its **Wirtgen Road Technologies** line of Wirtgen, Vögele and Hamm displayed more than 80 products in a 82,666 sq. ft. outdoor stand, while Kleemann exhibited its mobile crusher line separately as part of the new **Wirtgen Mineral Technologies** line.

Wirtgen's new small milling machine range was enlarged with five newly developed machine models. The small milling machine line now includes nine cold mills, the **W 60, W 100, W 100 F, W 120 F** and **W 130 F.**

Joseph Vögele AG displayed 16 road pavers, many of which are marketed in North America. New at Bauma was Vögele's new **InLine Pave** concept, which permits simultaneous "hot-on-hot" placement of two lifts of hot mix asphalt, in one pass.

And Hamm emphasized its **Compact Line** of HD rollers, available in North America as the **HD 8 VV, HD 10 VV, HD 10C VV, HD 12, HD 13 VV** and **HD 14 VV** models.

Bauma 2007 set a new record for visitor numbers: some 500,000 attended this year, compared to 416,000 in 2004, an increase of 20 percent. Bauma emerged as the world´s largest trade fair in terms of exhibition space, with a grand total of 5.8 million sq. ft. occupied.

We invite you to take an armchair tour of Wirtgen Group at Bauma 2007 on these pages.

Eurostyle banners herald Wirtgen Group stand

New Super 700 paver is gaining popularity in North America

Giant 2500 SM surface miner on display

Hamm's HD Series of asphalt compactors was designed with American market in mind

Super 2100-2 on display, is used for roller compacted concrete in North America

Every inch of space employed at Wirtgen's huge exhibit

Hamm's exclusive Oscillation compaction is an industry standard

Hamm's Compact Line of rollers is small end of HD line

New Eco-Drum utilizes economical open-space tooth pattern

Wirtgen's small mills have big technology built in

Multiple products comprise Vögele's In Line Pave concept

More than 80 products were displayed at Bauma in Munich

WIRTGEN GROUP

Wirtgen News

New Wirtgen Cold Mill, Hamm Rollers Displayed At World Of Asphalt

The new Model W 120 F high-performance, mid-sized asphalt cold milling machine was introduced by Wirtgen America at World of Asphalt 2007 in Atlanta March 19-22.

The new Model W 120 F high-performance cold milling machine has a milling width of 4 ft. (120 cm), and replaces the existing W 1200 F/T. It features front-end loading of RAP via a larger two-part conveyor system, and can be equipped with wheels or crawler tracks. The 300-hp Cummins powered machine cuts to 12.6 in. deep and accepts the optional Wirtgen Flexible Cutter System (FCS) for quick exchange of different-width milling drums and bit spacings. It also can be equipped with the optional new Level-Pro leveling system.

Also displayed was the smaller Model W 50 DC. It's a productive cutting machine with a cut depth of 8.3 in. and standard drum diameter of 29.5 in.

The new Vögele Super 700 asphalt paver also was displayed at World of Asphalt. With its electrically heated AB 200 V screed, this innovative new paver combines highway class technology in a compact package perfectly suited for paving cart, bike and walking paths, confined areas, repair of milled areas, and conventional commercial applications. Unique to the Super 700 is its ability to drive through an opening less than 4 ft. in width, pave within 2 in. of boundaries, and drive in a footprint of 43 in.

New W 120 F is introduced at World of Asphalt 2007

Hamm's new HD 14 gets looks at World of Asphalt

Also displayed was the 2116T asphalt paver. The Vögele 2116T rubber track paver offers contractors higher speeds, smoother rides and better handling in an 8-to 21-ft. 6 in. paver. The 2116T has been designed to offer the commercial and highway class contractor the features and reliability enjoyed by Vögele America's many satisfied 10-foot highway-class paver customers.

Hamm Compaction Division's largest Oscillation roller, the HD O120V, was exhibited. This 78-inch-wide, double-drum roller has an operating weight of 26,345 lb. with oscillation in the rear drum, and conventional vibration in the front. The rear drum has an oscillation frequency of 2,160 to 2,520 vpm, and the front with vibration frequency 2,520 to 3,000 vpm.

At World of Asphalt, Wirtgen's new WR 2400 recycler/reclaimer was honored by Construction Equipment magazine as one of the Top 100 New Products of 2006. From left are Wirtgen America's vice president of sales and marketing, Jeff Wiley; Construction Equipment senior editor Mike Anderson; and Wirtgen America president Stu Murray.

Also displayed was the new HD 14 VV asphalt compactor and the HD 8 VV, introduced late in 2006. For both models, VV stands for "Vibration Front, Vibration Rear", with the capability of vibration running in the front drum only, rear drum only, in both drums simultaneously, or no vibration.

The HD 14 VV weighs in at 4.6 tons and has a maximum working width of 56 in. It offers an outstanding operator view, is suitable for a wide range of different tasks and has exceptional ergonomic comfort. In comparison with other machines in its weight class, its drum diameter is exceptionally large.

The 1.6-ton HD 8 VV is a small articulated asphalt compactor with a 31.5 inches (800 mm) and a working width of 33.7 inches.

Dale Starry Joins Wirtgen As Technical Development Manager

Dale Starry has joined Wirtgen America, Inc. as manager, technical development, for Hamm Compaction Division and Vögele America Inc. asphalt paver product lines. Starry will be active in customer product outreach and training for Hamm asphalt and soil compactors, and Vögele asphalt pavers.

Starry's more than 37 years of construction industry experience uniquely qualifies him for his work with Wirtgen Group. Most recently, since 1997, Starry worked at Ingersoll-Rand Co. in compaction marketing management, management of the compaction service and warranty department, and management of product applications and training initiatives through the [Blaw-Knox] Ingersoll-Rand Road Institute.

Before that, Starry worked 15 years with Bomag compaction equipment, where his responsibilities

included product management and marketing services, as well as product training and new product development for soil stabilizers, and a full line of hand-guided and ride-on equipment for HMA and soil compaction applications.

Prior to Bomag Starry worked for Ingersoll-Rand, beginning in 1974 as applications engineer for its compaction division, later moving to soil compaction product management.

Mark Stang New VP Sales For Vögele America, Inc.

Mark Stang has been promoted to vice president, sales and marketing, for Vögele America, Inc. Most recently Stang was area manager for Vögele America and Hamm Compaction Division, after having joined Wirtgen America in 2004.

Stang brings to Vögele America a wealth of experience in asphalt pavement construction equipment. His work experience includes 22 years with Ingersoll-Rand Co., where he served in product and marketing management for compaction equipment, and direct and national account sales for asphalt pavers, compaction and milling machines, compressors, small and large blasthole drilling, construction forklift, and handheld air tools.

He is a 1981 graduate of Loyola College in Baltimore, with a Bachelor of Arts degree. Mark and his wife Dawn and three children live in the Allentown, Pa., area.

Tim Kowalski Named Wirtgen Pavement Engineering Manager

Tim Kowalski has been named manager, Pavement Engineering Services, Wirtgen America Inc.

Kowalski will assist customers in understanding pavement material properties and their potential or capacity for recycling. He'll be actively involved in educating customers about the benefits of foamed asphalt, how to design foamed asphalt mixes, and will consult on equipment applications.

Kowalski is a 1990 graduate of the University of Wisconsin-Madison, with a B.S. degree in Construction Administration, with a Minor in Business. He has quality certification for asphalt and aggregate in Wisconsin, Illinois and Colorado, and possesses National Ready Mixed Concrete Association Level 2 and 3 certifications, as well as all American Concrete Institute certifications for portland cement concrete.

Kowalski comes to Wirtgen from Lafarge North America, where he worked in numerous positions, culminating as project manager for its aggregate and asphalt quality management system for 249 aggregate, and 80 asphalt plant locations. Prior to Lafarge he worked as QC manager for Rockford Blacktop Construction Company, Inc., Loves Park, Ill., and Rock Road Companies, Inc., Janesville, Wis.

He's an accomplished instructor, having taught courses in asphalt at the University of Wisconsin-Platteville, taught a course in nonmetallic building materials for Lafarge personnel, conducted presentations for the National Stone, Sand & Gravel Association sales training courses, presented at the International Center for Aggregates Research Symposium in 2003, and assisted the State of Illinois in developing its QC/QA Program for Pay in asphalt.

Kowalski will travel extensively in the field, but be based in Wirtgen's North American headquarters in Nashville.

Wirtgen America Honored As One of 25 Top Tennessee Employers

In late 2006, Wirtgen America, Inc. was named one of the Best Employers in Tennessee — one of only 25 so honored — by *Business Tennessee* magazine in partnership with the Society for Human Resource Management (SHRM) Tennessee State Council, the Tennessee Chamber of Commerce and Industry, and Best Companies Group.

This third annual survey and award program identifies, recognizes and honors the best places of employment in Tennessee, for the benefit of the state's economy, its workforce and businesses.

The Best Employers in Tennessee program is made up of 25 companies split into two groups; 15 small/medium-sized companies (25-249 employees); and 10 large-sized companies (over 250 employees). Wirtgen America falls into the small/medium category.

Two High-Performance Pavers Now Marketed by Vögele America

Two high-performance tracked paver models from Vögele AG now are being marketed by Vögele America, Inc., Chambersburg, Pa.

The Super 1800 SF tracked paver with spray assembly for high-performance surfacings, and the powerful and efficient Super 2100-2 tracked paver, now are available through Vögele America. Previously they had been marketed through an arm of Wirtgen America Inc. in Nashville, Tenn.

"The transfer of these unique pavers to Vögele America will consolidate all Wirtgen Group North American asphalt paver marketing in Chambersburg, enhance customer service, and give us a broader product line that will meet the many different needs of our different customers," said Brodie Hutchins, general manager, Vögele America, Inc.

Wirtgen

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