Hamm Solves Longitudinal Joint Woes

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Oscillatory System is Generations Ahead

The oscillatory system from Hamm creates horizontal shear forces instead of vertically impacting. No overcompacting • No damage to cold bottom or adjacent layers • Ultimate smoothness • Compaction in a wider temperature range • The 66” wide, 10 ton, HD O90V “Ozzi” is the ultimate intermediate and finish roller

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Thin Lifts Call For Fine Milling

Contractors and government road agencies alike are finding that cold milling with fine-toothed drums provides the best foundation for the growing number of thin-lift hot mix (HMA) asphalt overlays.

As the nation continues to shift from building new highways to maintaining the ones we have, new interest has grown in thin-lift HMA overlays as a maintenance procedure. Thin lift overlays — from one-half to an inch and a half in depth — are used primarily to improve pavement driving surface, are nonstructural in nature, and don’t contribute much to the pavement’s structural capacity. Instead of added strength, the emphasis is on added smoothness and correction to the weathered or rutted driving surface.

Thin lift overlays are a prime component of the asphalt industry’s new Perpetual Pavement design, in which a massively durable asphalt foundation supports a renewable driving surface which can be milled and replaced indefinitely. But because the lift is thin, adequate surface preparation becomes critical. Anything that can be done to level or otherwise optimize the foundation of the thin lift will pay off big time in terms of the life of the overlay and customer satisfaction with smoothness, not to mention contractor bonuses for smoothness and density.

And we feel the best way to optimize smoothness is to mill with a full- or half-lane Wirtgen cold mill machine using a closely spaced (5/16-in.) fine-toothed milling drum, moving forward at a moderate speed (50-60 fpm).

Fine Teeth Mean High Performance

Wirtgen’s fine tooth, or fine texture, drums allow the customer to establish a neater, finer, more accurate and level grade with a more consistent surface on which to place a thin-lift overlay. On Wirtgen machines, consistent surfaces can be improved by use of a full-lane drum and our exclusive Multiplex grade controls. We profile one such contractor — who achieved a $58,000 smoothness bonus on I-40 in Tennessee — in the following article.

If you mill for thin lifts using a standard milling drum with 5/8-in. spacing, and run it at 70, 80, 90 feet per minute, the surface you leave can be quite unlevel and non-uniform. Then, when you place a thin, inch-and-a-half lift of HMA and compact, the top of that new hot mix asphalt overlay can become an identical reflection of the milled surface on which it was placed (you can take paver automation and throw it in the ditch). But a fine-toothed drum going at an intermediate speed of 50-60 feet per minute will leave a more near-perfect surface for the new thin lift paving process.

A conventional drum at slower than usual speeds — for example, 25 to 30 feet per minute — will provide much the same result. Most milling contractors just won’t go that slow, because their whole agenda likely will be based on how fast they can cut. But if these contractors use a properly designed fine milling drum, they can produce a nice, fine smooth-milled surface, but do it at the higher ground speed they need to be profitable.

The word is getting out to the state departments of transportation. States like Maryland, Indiana, Tennessee and Colorado are looking hard at thin lift specs which incorporate attaining smoothness with a fine tooth drum, and all for the right reasons.

But with all those teeth, won’t a contractor have to pay more for teeth? Nothing could be further from the truth. The contractor will incur higher initial costs — because there are more teeth — but when you put twice as many teeth on a drum, each bit cuts less than half as much, because the teeth are closer together. The amount of wear on a bit is actually less per bit on these fine texture drums at 5/16-in. spacing when compared to drums with 5/8-in. tip-to-tip spacing.

Grooving Concrete With Fine Texture Drums

As an added bonus for the contractor, in most instances, fine-toothed drums have the ability to replace costly diamond grooving and grinding of rough or polished concrete pavements or bridge decks. Our fine-toothed drums can do work identical to that of a diamond grinder for half the price, and over time economics will win out on this application.

To defend their market turf, diamond grinders may focus on the fact a milling machine may produce a slight amount of spalling action at the joints. But if you look at the joints before they are ground either with a diamond grinder or a milling machine, you will see they already are cracked. All the cold mill will do is dislodge the material that’s already cracked.

We at Wirtgen America have proven “hands down” that if you do “mill and fill” thin single lift overlays, you should be using a fine texture drum for superior pavement smoothness and density results. Please let us show you how.

Stu Murray
President
Wirtgen America Inc.
Smooooth Operator: Fine Texture, Full-Lane Drum Wins Big Bonus

Earlier this year a Tennessee contractor won a $58,000 smoothness bonus on a thin-lift hot mix asphalt (HMA) overlay by using a fine texture drum the full width of a lane on I-40 in Cheatham and Williamson counties in central Tennessee.

Utilizing a Wirtgen W 2200, Wirtgen’s largest cold mill, contractor Eubank fine-milled 40 lane miles off I-40 — a 10-mile interstate mill-and-fill project — to a depth of 1 1/4 in. using a full-lane, fine-texture drum with tooth spacing at 5/16 in., approximately twice as dense a configuration as the conventional 5/8 in. spacing. The firm met or exceeded smoothness specs of less than 35 inches per mile using the half-car International Roughness Index (IRI) measurement, and Eubank received the bonus on every section.

“The state is doing a lot of thin overlays, in which we take off an inch and a quarter and put an inch and a quarter right back,” said Michael Eubank, director of field management, Eubank Asphalt Paving and Sealing, Charlotte, Tenn. “We found that when this is done with a conventional milling head, the surface will ravel and you can feel the milled surface reflecting through onto the fresh surface. We know now that the milled surface reflects through that inch and a quarter, and the fine-textured milling drum does not. That’s what we were looking to correct, and Wirtgen helped us correct it.”

As the result of this job and a few others, the state of Tennessee is taking a close look at its specs for milling limited access highways. “We are looking at use of full-lane drums, closer teeth spacing and forward speed as it relates to teeth spacing,” said Brian Egan, P.E., field operations engineer, Tennessee DOT.

“As we vary from interstate overlays with mill, binder and surface layers to mill-and-fill with thin overlay, we are paying special attention to the quality of cold milling, or milling for smoothness,” Egan said. “We like the 12-ft. drum because we eliminate the two machines, the overlapping of the joint and the possibility of a mismatched cross slope. We also like the non-contact leveling systems we saw. There’s no doubt that the milled surface with the fine textured milling drum was smoother and more uniform than the surface with the conventional milling drum. Although we are not moving ahead with a method spec for cold milling at this time, we will continue to study how to get the best smoothness for our customers.”

“Wirtgen has the most innovative products in our line of work and we decided that use of a W 2200 with 12 1/2-ft. fine textured drum was best, and we put it to work on I-40.”
Thin Lifts Challenge Contractors

Stung by the rising popularity of high-performance, polymer-modified chip seals, the asphalt industry has vigorously researched and promoted thin-lift HMA overlays. The definition of thin-lift overlays varies, but the lift usually is from 1 1/2- to 1/2-in. in depth.

The technology of HMA is making thin lifts more applicable. The chemistry of liquid asphalt has been enhanced by a new generation of asphalt modifiers, boosting the performance of Superpave mixes (Superpave Plus), open-graded friction courses, and thin-lift overlays.

In 1995 the National Asphalt Pavement Association (NAPA) reported that thin lift overlays are employed to improve ride smoothness, correct surface defects, improve safety characteristics such as skid resistance and drainage, enhance appearance, and reduce road-tire noise. NAPA has been a leader in promoting the concept of thin-lift overlays and has produced technical information on thin lifts that the industry cannot do without.

NAPA observed in 1995 that thin lift paving, such as that seen in non-structural overlays, presents several construction concerns. They point out that thin lifts require less HMA per foot of road length than thick lifts, resulting in faster paver speeds (in excess of 70 ft/min) which can make it difficult for rollers to keep up.

The thin lifts cool quickly, resulting in less time available to get density before the overlay reaches the temperature at which rolling must stop. Thin lift construction produces greater screed wear, NAPA said. If the lift depth is less than about twice the maximum aggregate size, the HMA may tear under the paver screed. Very thin lifts (less than 1 inch) can be damaged by the screed dragging large particles.

Thin lifts are more sensitive to vibratory rolling, NAPA said. Incorrectly chosen amplitude, frequency or roller speed can result in aggregate breakage and damage of the bond between the overlay and the existing pavement. Finally, density control is difficult, NAPA said. Thin lifts provide fewer options for aggregate particles to rearrange under compaction, thus, mat densities will tend to be less uniform than those associated with a thicker lift. This should be recognized if pay is in any way tied to mat density.

With these difficult variables to overcome, Eubank found it greatly enhanced its chances of success on a thin-lift overlay by using a fine-texture drum on a full-lane cold mill.

Quality Through Technology

“We’re always trying to keep up with the current technology and improve our overall quality,” Eubank said. “Safety is our No. 1 priority but we strive to maintain very high quality as well. If we can’t do a very high quality job, we’d rather not do it.”

Eubank went to the state and asked if it could use a fine-tooth drum on the I-40 project, and got the go-ahead. “Wirtgen has the most innovative products in our line of work and we decided that use of a W 2200 with 12 1/2-ft. fine textured drum was best, and we put it to work on I-40,” Eubank said. The machine and drum also was used to correct heavy rutting on Saturn Parkway in Murray County, Tenn. There, the machine cut from a half-inch to two inches of ruts off the pavement, followed by placement of a 1 1/2-in. base layer, followed by 1 1/4 in. of surface mix.

“On I-40 they cut the inside shoulder with a W 2200 with a standard cutting drum, and followed with the W 2200 with a 12-ft. drum cutting 1 1/4 inch with the fine texture drum,” said Jeff Wiley, Wirtgen America vice president, sales and marketing. “By making one full-lane pass with the 12-ft. machine, you don’t have to bother with using two mills and matching the joint at the center. The 12-ft. machine offers better rideability and smoothness — with a clean cut from edge to edge — when you’re out on the interstate, especially with thin lift HMA.” On I-40 the milled surface was replaced with a single lift of 1 1/4-in. PG 76-22 topping with 5/8-in. aggregate.

In addition to the fine texture from the drum, the full-lane width drum permitted extraordinary control over the outfall of the milled surface and contributed heavily to the project exceeding smoothness specs and the bonus. Eubank also used Wirtgen’s Multiplex grade averaging system to achieve a level base.

While the W 2200 was rented from Wirtgen in 2004, Eubank is a repeat customer. “We previously bought a 1900 DC in 1996, and in 2002 traded it in for a W 2000 with 6 1/2-ft. drum, a half-lane machine,” Eubank said. “We also own a Hamm HK 90, a vibratory, steel-wheel roller with four pneumatic tires in back.”
Operator of the W 2200 with fine-texture drum was Charbon Contracting, which also owned the W 2200 with conventional drum used in shoulder removal.

**Fine Milling, Tighter Teeth**

A conventional drum has standard 5/8-inch spacing, with a triple-wrap of teeth flights from edge of drum to center of cutter, Wiley said. “The teeth are staggered,” Wiley said, and the reason is that the flighting is angled toward the center of the drum, so as the drum rotates, it augers the cut material toward the center of the drum so it can be ejected onto the conveyor belt. The conventional drums are good at cutting deep — down to 13 in. — and they’re also good at cutting shallow.”

At a minimum, Wiley said, a fine-milling or fine-texture drum has spacing exactly half the conventional drum, that is, 5/16-inch. “With the fine-mill drum, another cutter tooth fills in the gap between the teeth on the conventional drum,” Wiley said. “The 5/16 drum is twice as ‘tight’ as the conventional 5/8 drum, so it provides a fine texture. It's not the finest texture drum you can cut with, but it will allow you to use our Type III bolt-on tooth holder system, so if you want to keep that drum in top condition, you won’t have to weld new holders on; you can unbolt and bolt them on. Long delays in the field or trips to the shop are avoided.”

“We went with the 5/16 teeth because you can still use bolt-on, quick-change tooth holders,” Eubank said. “The fine drums have their applications. For thin lift applications of 2 in. or less it’s the only way to go.”

Fine texture drums may go all the way down to 1/4-in. spacing. “When you do that,” Wiley said, “the drum gets congested and can no longer auger the material fast. You have so many more teeth on the drum that it takes more power to run the machine, and the RAP can’t be removed fast. At 1/4-in. spacing the drum cannot cut deeper than 2 in., because the material simply cannot physically be removed. So those drums are used for texturing only.”

Wirtgen offers two drums with 1/4-in. spacing. With one drum, for every revolution, a single tooth strikes the pavement; another drum has up to 1,000 teeth at 6 1/2 ft. wide, on which a tooth strikes the pavement twice every revolution. “This 1/4-in. x 2, ‘double-hit’ drum will allow a contractor to pick up the ground speed on the milling machine, yet still maintain a good milling pattern,” Wiley said.

Fine-toothed drums provide a smoother, more refined pattern for milled surfaces than conventional drums at higher speeds. “If you have the task of cutting out wheel ruts,” Wiley said, “a fine texture drum can mill off the ruts and leave a fine texture, and the road can be reopened to traffic — without an overlay — with no vibration apparent to drivers. But with a standard 5/8 drum, there will be vibration which will be felt in the steering column.”

These fine-texture drums are ideal for texturing slick asphalt pavements where the liquid asphalt has “bled” to the surface, Wiley said. “If you have an intersection showing slick spots, the fine texture milling drums will remove that slick surface and create a textured pavement,” he said. “Cars will not feel the textured surface but it will provide enhanced friction. You’ve solved your problem at minimal cost.”

Similarly, fine-texture drums have the capability to groove polished or rough portland cement concrete pavement or bridge decks at a fraction of the cost of conventional diamond grinding, but this application is not practiced in North America — yet. “It hasn't happened yet,” Wiley said. “We can achieve the same quality product, but there are a lot of specs out there which will have to be changed. It will take a lot more work on our part.”

**Thin Lifts And Fine Texturing**

For today’s thin-lift HMA surfacings, a fine-tooth drum is indicated, Wiley said. “With a conventional drum, your ‘peaks-and-valleys’ pattern are so high and deep, that if you don’t have thicker than an inch to an inch-and-a-quarter asphalt lift, they can reflect through to the surface. But with the 5/16 spacing, you minimize the potential reflection of the peaks and valleys through the thin lift surface.”

Also enhancing smoothness is Wirtgen’s Multiplex grade control averaging system. “There are three sensors on each side, a total of six,” Wiley said, “On each side, there is a wire rope sensor in the center of the machine above the drum that

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**Number of teeth on conventional 5/8 in. drum spacing is doubled on 5/16 in. fine texture drum**

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**Standard milling operations with a spacing of 15 mm produce roughly textured milled surface. The milled surface produced by fine milling with a spacing of 8 mm is very finely textured.**

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About the W 2200

The W 2200 — introduced in 2000 — is designed for big, continuous cold milling projects in which a pavement must be removed mile after mile. The high-horsepower, high-production W 2200 lets contractors or government agencies mill large projects in surprisingly short periods of time.

Its maximum milling depth of 13.7 inches (350 mm) means that entire pavements can be removed at a single pass. Wirtgen’s design engineers have produced a machine with a cutting width of 86.6 inches (2200 mm, or 2.2 meters), four large D-6 crawler tracks, a milling drum with a high-efficiency mechanical belt drive, and a reclaimed asphalt pavement (RAP) front-loading system on a unit that is both compact and easy to operate. It can be fitted with cutters of 8 feet, 10 feet, 12.5 feet and 14 feet in width.

The W 2200’s Caterpillar Model 3412E, 12-cylinder, 865 hp diesel engine is overspecified for the machine’s maximum cutting depth, with an immense feed rate and high level of performance that keep operators and owners happy. The front-loading conveyor system is sized to handle extremely large volumes of material, by means of its 43.3-inch (1100 mm) belts with a theoretical carrying capacity of over 1,100 tons (1000 metric tonnes) per hour.
“Hamm has the only roller with oscillation compaction, and from the bituminous engineer’s standpoint, you don’t risk crushing of aggregate in oscillation mode compared to vibration. The main advantage is the lack of degradation to the aggregate structure.”

Compaction at the screed using a European-sourced paver, and use of new oscillation vibration for compaction, were key to successful placement of a new hot mix asphalt (HMA) pavement at Indianapolis Motor Speedway this summer.

There, all Wirtgen Group “Three Amigo” product lines were used exclusively for the project: A Wirtgen W 2200 cold mill with 14-ft. drum removed the old asphalt, paving was done by a Vögele AG Super 2100, and compaction was done by three HD 130 and two HD O90V compactors from Hamm Compaction division. With the exception of a material transfer vehicle, all work was done by Wirtgen Group products.

Vigorous compaction at the screed via tamper and pressure bars was paramount for application of the stone matrix asphalt (SMA) pavement, selected by the track and its consultant for its durability, strength and impermeability under the punishment of professional race cars and tires, and weathering.

The screed was achieving 89 to 90 percent compaction as the material exited, followed by breakdown rolling in static mode, then unique oscillation compaction to 95.5 percent density, and finish rolling in static mode.

SMA is a gap-graded (low medium-sized aggregate and fines) hot mix asphalt design which brings together robust, coarse aggregate with as much as 6 to 8 percent liquid asphalt. Its lack of medium-sized aggregate — and fines percentage less than 15 percent of the aggregate weight — results in a strong mix with a rut-resistant, stone-on-stone structure which develops internal friction and resistance to shear.

But because the gap-graded SMA emphasizes large aggregate, the low-penetration grade asphalt conventionally used can drain out of the coarse aggregate structure. To keep the asphalt in place, cellulose fibers or other asphalt modifiers are added at the plant to keep the binder in place.

Reconstructing American Icon

The Indianapolis Motor Speedway is an American icon and in the opinion of many, the world’s greatest motor race course. With more than 250,000 permanent seats, it’s also the world’s largest seating facility.

Approximately 19,000 tons of SMA were being placed in two lifts, each lift approximately 1.6 million square feet in size. This compares to 3.2 million bricks laid down on the track in late 1909, giving the track its venerable nickname, “The Brickyard.”

Time To Repave Track

Indianapolis Motor Speedway management did not wait until pavement
failure before launching this reconstruction. “Race tracks are probably the most critical placements of asphalt that you can put down,” said Kevin Forbes, P.E., director of engineering, Indianapolis Motor Speedway. “We look at an aging race track as a potential problem, and we don’t wait for it to become a problem. From all points of view, there probably was nothing wrong conventionally with this race track. But it was getting to the point at which it was not worthy to run race cars on.”

“Heritage designed and produced the new mix, and is overseeing placement and production operations,” said Bill Pine, P.E., Heritage Research Group, Indianapolis. “We've overseen operations of the last three resurfacing operations at Indianapolis Motor Speedway.”

The existing lower lift was an open-graded drainage layer that was placed on top of a SAMI [stress-absorbing membrane interlayer] to keep water from the surface and remove to underdrains, Pine said. A friction course incorporating air-cooled blast furnace slag was placed on top of the drainage layer.

“The open graded drainage layer was there to take care of the ‘weepers,’ Pine said. “It served its purpose for the first few years, but after that point we started getting cracking, and felt that debris was getting in and filling up the open-graded layer. That’s all come out.”

Ultrasmooth Surface Required

For a high-profile track like Indy, smoothness considerations are elevated above standard highway benchmarks. “Our smoothness is hard to define, using the standard California Profilograph, even with zero blanking band,” Forbes said. “Our issue is with deviations which occur over 100 feet, which are significant to race car drivers. The typical Profilograph measures every 30 feet, so it won’t even pick our standard up.”

Because the mat had cracked, though, discontinuities were present in the pavement. “The cracked sections started to curl up between sections, and they would create a very high frequency – but low amplitude – shudder to the drivers, as opposed to definable dips or bumps,” Forbes said. “And that cracking allowed so much water into the mat that we decided it was time to start over.”

Reconstruction Began August

Reconstruction of the track began as contractors took from Aug. 9 to 12 to meticulously remove the 36-inch strip of 1909-vintage bricks, known as the “Yard of Bricks,” at the Speedway’s start-finish line. The bricks eventually will be cut into smaller pieces and sold to the general public.

On Aug. 16, a ceremonial “first cold milling” took place. To kick off the project, renowned professional racer Al Unser Sr., rode a Wirtgen W 2200 with 14-ft. drum, owned by Javelina Construction, Fishers, Ind., as subcontractor to McCrite Milling & Construction Co., Inc., New Albany, Ind.

The 14-ft.-wide mill wasn’t used just for speed of removal, but to help maintain smoothness in the final product, Forbes said. “As we try to maintain a very uniform plane on this race track, we felt that averaging across a 50-ft.-diameter surface with a 14-ft. head is better than averaging with a 6-ft.-8 or 7-ft. head. The end result was very nice. We had a very smooth surface to begin with, and we found very little correction to be done after the milling machine removed the 2 1/2 inches.”

The task of removing the remaining 4,399 square yards of asphalt from the 2.5-mile track required equal care, but the milling process already was ahead of schedule only a few hours into the project, Forbes said, the machine chewing up asphalt at the rate of 45 feet per minute.

That's approximately half the speed at which construction crews perform the same task on a highway project, Forbes said, and the slower speeds simply reflect the need to create a surface capable of safely accommodating 220-mph race cars upon the project’s conclusion.

“We don’t want to take anything away from state highways because they are very well constructed,” he said. “But it’s a different application of forces, and it’s different speeds. It becomes very, very critical that we give the drivers the smoothest, flattest, most predictable surface we can. If the drivers know the surface underneath them is very uniform, very reliable and very consistent, that will allow them to pull out all the stops in terms of their ability to drive their race car.”

Some 19,000 tons of asphalt was milled from the track, 1 in. surface, and 1 1/2 inches of intermediate course.
Use of 14-ft. drum helped ensure a smooth track

\section*{SMA Spec'd For Track}

Heritage recommended SMA for this critical application. “A lot of people look at SMA for its stability and strength, but it's also the most durable mix that we can build,” Pine said. “We chose to go to two SMA lifts, for strength, durability and impermeability. We’re putting a very dense mix in place of the open-graded mix to keep water out of the pavement entirely. Our goal is to get 95.5 percent density with 4 1/2 percent inplace air voids.”

The two lifts are slightly different in composition, Pine said. “The bottom lift is 9.5 nominal size dolomite SMA with a dolomite coarse aggregate, with dolomite aglime and mineral filler,” Pine said. “We’re using 0.3 percent cellulose fibers and about 6.5 percent PG 76-28 polymer-modified asphalt binder.”

“The 76 side will give us good stability, while the -28 side will do well for us in the wintertime,” Forbes said. “We are using the SMA principally for its high film thickness around the individual aggregate, which will give us a ‘rubber-band’ effect that SMAs are so good for, that will help us fight that brittle cracking stress that occurs in winter.”

The aglime and mineral filler together work to control the density of the mastic [glue] between the aggregate particles, Pine said. “Aglime is 100 percent passing the 475 sieve, and 17 percent passing the 075, whereas the mineral filler is 100 percent passing the 150 sieve, and around 75 percent passing the 075. Mineral filler is basically dust, and aglime is a stone sand with a fair amount of dust in it.”

A tack coat of AE90S emulsion was being placed on the milled surface by an Etnyre distributor truck, prior to placement of the intermediate base course, and a fog coat of lightly modified polymer tack will be placed between the intermediate and friction courses.

\section*{Steel Slag In Friction Course}

The friction or riding course will be a 4.75 nominal size steel slag SMA with the same aglime and mineral filler as the intermediate course, but with a blend of two different sizes of steel slag coarse aggregates, developed by Heritage Slag Company, Pine said.

The demands placed on race track asphalt are profoundly different from that of an interstate highway. “Compared to a conventional interstate mix, we’re looking for more durability,” Pine said. “We’ll need strength in the apex of the turns, where the cars are focused in a line; outside of that, durability is by far the main characteristic that we must meet.”

So on the banked curves, where specified, the asphalt binder will be switched from a PG 76-28 to a PG 82-22 to increase the stiffness of the mix in these areas.

On the first day of paving, SMA was being placed hotter than usual, at 365 deg F, to make sure there was enough heat in the SMA to get compaction despite cooling with ambient temperatures in the low 60s deg F.

“On a cloudy, windy day like today, if we’re going to err on temperature, we want to err a little hot,” Pine said. “We can always hold the rollers back, but if we get it too cold we’ll have density problems. You’ve got to lean one way or the other, and we’ve chosen to lean towards the conservative side.”

Later that day Forbes settled on 350 deg F as the temperature at which the mix should leave the plant, but would revise that temp downward as summerlike temperatures returned. “If we return to 90 deg temperatures with bright sun and no wind, the astute paving engineer will look at the exit temperature day by day, hour by hour,” Forbes said. “We know from test strips that we were getting the required density behind the screed at about 270 deg F.”

\section*{Placement And Compaction}

When Wirtgen Technology visited the site in September, the first full pass of intermediate course was being placed. This followed over 300 tons of test strips, Forbes said.

Paving was being accomplished with a German-sourced Super 2100 paver from Vögele AG with 12 1/2-ft. compacting screed, distributed by Wirtgen America Inc. Initial breakdown rolling was being done by two 30,644-lb. HD 130 rollers in static mode, from Hamm Compaction Division, Wirtgen America Inc. Active compaction was achieved by two Hamm 20,062-lb. HD O90V oscillation compactors in oscillation mode exclusively, followed by a single HD 130 finish roller in static mode.

Liquid dish detergent was added to the roller water system to ensure that the SMA would not stick to drums.

“We’re pretty confident that we’re seeing 89 to 90 percent compaction behind the paver screed, the breakdown rollers are getting us 93 to 93.5, and the HD O90Vs in oscillatory mode are getting us to 95.5, 96 percent compaction,” Forbes said.

The Super 2100 was chosen for its better handling of the SMA, Forbes said. “The three keys to density of SMA in our mind here are temperature, temperature, temperature. Getting that initial density with the SMA is a very good thing in case we have issues with mat temperature later on. And getting 89 to 90 percent density at the screed means that the heat we have in the mat will be retained for a much longer time. It means we will have more flexibility in rolling patterns behind the paver.”

“I give credit for equipment selection to paving contractor Grady Brothers, Inc., especially the paver,” Pine said. “Without a doubt we are getting much higher in-place density behind the screed than what we’d get with a normal paver, because of the tamper bar in front of the main screed and the
“We’re running in the high-80s in back of the screed, and that does a couple of things for us,” he added. “We don’t have to put as much effort into compaction with the rollers to get up to the same density, and it helps us maintain temperature for a greater length of time, because the more dense the mat is behind the paver when the first rollers get on it, there will be less penetration of drum water into the mat and it won’t cool down so rapidly.”

Oscillation Compaction Essential

On the first day of paving the Super 2100 moved forward at 25 feet per minute, with rollers at a speed of 100 feet per minute. The two HD 130 breakdown rollers were being used as five pattern pass static, with a five pattern pass using the two HD O90V in oscillatory mode, and a final HD 130 finish roller in static mode.

“Hamm has the only roller with oscillation compaction, and from the bituminous engineer’s standpoint, you don’t risk crushing of aggregate in oscillation mode compared to vibration,” Forbes said. “We wanted to get the initial density with some kind of dynamic action, but were afraid of crushing the aggregate with the vibratory mode. Oscillation works perfectly.”

Forbes admitted he had not used oscillation mode before, which might have been seen as a risk on such a high-profile, high-stakes project. “We’d never used them before, but our asphalt laboratory research facility, Heritage Research Group, has used them on state highway projects and found the numbers were quite a bit better when using oscillatory mode in conjunction with the static modes on SMA.”

“We had used oscillation compaction on another project and knew how it would perform,” Pine said. “The main advantage to oscillating and not vibrating the mix is the lack of degradation to the aggregate structure. There is no breakage of aggregate under the roller that we can speak of.

“It seems like a very good process, especially for a mix that may exhibit some tenderness at times,” Pine said. “But for SMA, from what we’ve seen, it works best in an intermediate position for us to obtain density, because at that point, you generally couldn’t vibrate with a conventional vibratory roller because the mat would be too cool and you would risk aggregate degradation in trying to get compaction.”

Since all three products used on this high-profile project were sourced from Wirtgen Group, the manufacturer has been steadfast in providing whatever product support might be needed to keep the job moving.

“The support here from the equipment manufacturer has been great,” Forbes said. “The technicians and tech support from Wirtgen Group has been a lifesaver in terms of helping the screed operators and paver operators and everybody else understand the nuances of the equipment, and help them learn how to get out of the machines what they’re capable of doing. It’s been almost priceless to us.”

“I can’t say enough good about Wirtgen Group,” Heritage Group’s Pine said. “Their support has been first class and has been very, very helpful. I have never seen a company provide as much technical support for their equipment as Wirtgen.”
New W 2100 Keeps Brothers-Sister Team Business In Black

A new, family-owned Wirtgen W 2100 with 7-ft, 2-in. drum is tearing up roads in northeastern Illinois and keeping its brothers-and-sister-team operators in the black.

“We've been in business for 15 years and we've learned that Wirtgen machines are the best,” said Chris Schneider, owner/operator, Quality Planing, McHenry, Ill. “They go fast and they keep their grade.”

Quality Planing is a family affair. The firm was founded by the late Stephen Schneider and his wife, Kandy Schneider. She continues as president and field operations are conducted by Chris, his brother Jason, and sister Stephanie. On a project this summer on Deerfield Road in Lake County, Ill., Chris and Jason were serving as groundmen while Stephanie drove the massive W 2100. They were working as subcontractors to Peter Baker & Son Co., Inc., Lake Bluff, Ill.

In addition to the W 2100 Quality owns a Wirtgen 1900 DC. And Wirtgens run in the family, so to speak, Schneider said. Quality's first cold milling machine was an old, rear-loading Cedarapids model, which was manufactured by Wirtgen in those early days before Wirtgen established its own presence.

“I've seen other brands of machines,” Chris said, “and with the Wirtgens you don't have to do a lot of tweaking around like you do with them.” On this project Quality was cold-milling 1 1/4 in. of aged asphalt on a two-lane road, cutting through paving fabric beneath the top lift. “The W 2100 cuts through Petromat like butter,” Schneider said.

Ironically, the machine lost a couple of hours that morning with a forward drive problem, but the W 2100's productivity is such that it did not make much difference. “If they break down, the people at Wirtgen will walk you right...
through it over the phone," Schneider said. “They're all good people there.

“We put in a phone call to [product support manager] Jan Schmidt in your Nashville office; he told us to move some wires around and we got it going again,” Schneider said. “We're going to gain all that time back, no problem. Here it's a matter of the trucks. With the W 2100 we're almost always faster than the trucks. We are supposed to be off the road by 4 p.m., and the halt slowed us a little, but we'll certainly be done by then.”

And even though Quality is among the smallest firms doing business in cold milling, they won’t buy any other brands except Wirtgen. “This is the best-running machine I've ever used,” Schneider said. “Among the big mills, I like the Wittgens the best. It just goes and goes. Like Timex, 'It takes a licking but keeps on ticking. Wirtgen rules!”

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About the W 2100

The new Model W 2100 surpasses its predecessor, the 2100 DC, in performance and profitability. The powerful 6-cylinder straight-type diesel engine with its impressive output of 640 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 ft., 2 in.) makes high production milling possible in only one pass. Cutter width options of 8 or 9 ft. are available.
Finke & Sons Sells ‘Three Amigo’ Products In Upstate New York

A fast-growing equipment distributor just south of Albany, N.Y., is making waves selling all “Three Amigo” Wirtgen Group product lines of Wirtgen milling and recycling machines, Hamm compactors, and Vögele America Inc. asphalt pavers.

Robert H. Finke & Sons, Inc., Selkirk, N.Y., has grown from a basement jack hammer repair shop in 1977 to a sales/rental company with approximately 30 full-time employees. Finke’s Three Amigo line from Wirtgen Group is complemented with earthmoving equipment from brands such as Kobelco and Bobcat. And Finke also sells, rents and services chainsaws, generators, plate compactors, jack hammers, pumps and welders by industry leaders Stihl, Honda and Miller.

And in 2004, Finke was anticipating the groundbreaking for a massive new sales and service facility close to its existing location.

“I had been working for another distributor for 25 years, and by 1976 I thought it was time to step out on my own,” said Bob Finke, founder and vice president. “In January 1977 I began selling Homelite chain saws and generators, and took on an air compressor line. We geared our products toward bridge rehabilitation.”

Soon new product lines included rubber-tired backhoes with hydraulic hammers, and that evolved to excavators. In 1987 Finke purchased its existing location and erected its current structure. Finke’s son John serves as president.

**Growth Demands New Facility**

Now Finke hopes to break ground on a new facility in early spring 2005, either adjacent to its existing plant, or on a nearby tract. “We no longer have room to accommodate our customers, their equipment, or service,” Finke said.

“All aspects of the business have grown: parts, service, shop area,” said David Kobylar, C.P.A., controller. “Our sales have increased each year, our employees and trucks have increased, our rental equipment and number of lines all have grown.”

“When they built this facility, it was planned around eight employees, me being number eight,” said Don Bauer, sales manager. “Now we’re at number 37, and we are definitely having trouble accommodating everybody.”

“When we started we geared ourselves toward the rental industry,” Finke said. “For a while the manufacturers told us we were doing it wrong, we should be in all sales. Now, 20 years later, they have a new concept; now it should be rental or leaning toward rental/purchase. We’re still here, in rental and sales, and each year we have grown.”

Despite Finke’s continuing growth, sales manager Bauer feels in late summer 2004 they were operating in a slow market in their region. “It’s a soft market, but because of our mix of sales and rental we’re doing fine. And if the economy picks up in the Northeast we’ll do that much better.”

**Taking On Three Amigos**

Finke became a “Three Amigo” distributor in 2002, but its involvement dates to 1989, when it brought on the Hamm Compactor line well before its acquisition by Wirtgen Group.
“We started out with four Hamm rollers in 1989,” Bauer said, “and now we have 53 in our rental fleet. We were approached by Wirtgen Group when it acquired Hamm and Vögele America pavers three years ago, and the announcement of our taking on all three lines was made at Conexpo-Con/Agg ’02.”

It’s been a good mix, Bauer said. “It’s been great as we have been able to handle the cold milling machine and paver end of the mix,” he said. “We had been well established with Hamm, and by bringing in Wirtgen and Vögele America it’s worked out well for us and our customers.”

The equipment acquisition, though, was not without its learning curve. “To be honest, we had not been looking for a paver line,” Bauer said. “But we already had been dealing with asphalt contractors, so when it came to taking on those lines, pavers fell into place. Vögele America and Wirtgen America staff worked with us over the hurdles of learning the product lines. They conducted training sessions in Chambersburg, Pa., and Nashville, and they came to our facility for training.”

And that outreach continues, years after the break-in period. “If we receive a new paver for demo, guys like Jerry Wright and Tom Koles and Dave Salzmann are out on the demo for the entire time,” Bauer said. “And on the milling end, Ron Graham and many technicians are there to help. We’re very satisfied with their support.”

After the sale, Bauer said, the support continues, beyond that which they are accustomed to from other manufacturers serving the roadbuilding industry. “After the sale, those folks from Vögele America will stop by and go out on the job to make sure the paver is working as well as it was when it was first delivered,” he said. “And they do this completely on their own, including going out in the early morning on night jobs. They definitely follow-up after the sale.”

**Synergy With Three Amigos**

From Finke’s point of view, there is a synergy with having all three product lines under one roof, so that the sum of the whole is greater than the sum of the parts. “It does help,” Bauer said. “The customer can come to one source for all elements of a reconstruction job: the milling machine, the paver and the roller. They can call one person for equipment, or one person for service or to transport the equipment, instead of three.”

Finke has its own low-boys, so at the drop of a dime it can truck anything it needs to get on a job site. It also has a 24-hour on-call service, so that if anything goes down in the middle of the night, they can go right out and fix it. “We don’t close our doors at 5 p.m. on Friday and worry about it Monday at 7 a.m.,” Bauer said. “The customers really appreciate that, because if they have all three lines, they get it serviced with just one call.”

As a dealer, being able to provide all three products helps keep the door closed on competition, Kobylar said. “Previously, customers needed to go to a competitor to look for a paver, even if we had rollers on the job,” controller Kobylar said. “Now, we can keep the customer right here.”

And keeping those customers under your wing is critical, because repeat sales from existing customers optimizes distributor profits, because familiarity with customers streamlines the business dealings. “Keeping those customers means you have to provide good service, good product, on a reliable basis,” Bauer said.

“If you say you’re going to be there at 8 a.m. on Monday, we’ll have the people there you need,” Finke said. “If they call at 4 p.m., we don’t go home; we send somebody out. It’s been that way for 27 years now, and we must be doing something right, because they keep coming back.”

Finke is carrying the ‘Three Amigo’ message to upstate New York.
Foreman, Operator Examined All Pavers, Chose Vögele 1110 RTB

An asphalt contractor in Upstate New York put the onus on his foreman and operator to find the right new paver.

HMA Contracting has four Hamm rollers with a good deal of age on them, representing years of doing business with Wirtgen Group “Three Amigo” dealer Robert H. Finke & Sons, Inc (see preceding article).

But when it was time to select a new main line paver, the firm did it through a unique process: His employees made the recommendation.

“Before we bought our 1110 RTB from Vögele America, I took my paving foreman and my principal operator to Nashville for World of Asphalt 2003 in Nashville,” said Don King, president, HMA Contracting Corp., Mechanicville, N.Y.

“We went down there for three full days,” King said. “They literally spent six hours each day crawling over every paver that was in the full-size class we were looking for. And within one day they narrowed it down to four machines; in three days they narrowed it to two machines. We came back and talked about the pluses and minuses, and the serviceability of the pavers. We considered the reputation of the companies behind the pavers. And at the end we chose a Vögele America paver.”

That Finke was the local dealer was a major plus, King said. “The fact that Finke represented Vögele America in the local area, and that we have had such good service from them over the years, tipped in Vögele America’s favor.”

As viewed on the show floor, the serviceability of the 1110 RTB via access points appealed to King and his employees. “We had a different paver before the 1110 RTB, and it was not an easy paver to work on,” King said. “The way it was constructed made it difficult to service. You didn’t have access to different parts of the engine, especially the hydraulics when trying to chase out lines. When you put your paver through that kind of workload and hours over the years you are bound to have hydraulic issues. O-rings will blow, hoses will leak and chafe. We thought the combination of this tractor and this screed was right for us.”

The 1110 RTB’s visibility was a big plus as well. “Visibility is a very important thing,” King said. “Some of the newest machines they wanted us to consider had extremely poor visibility, both in terms of the paving operation and looking ahead and the pavement, and in being able to see employees and groundmen, and from them, back. The 1110 RTB has very good visibility, a very low profile, and is easy on the trailer to tow, with few bridge issues. It’s a handy paver to have and be around.”

Proponent Of Trade Shows

While many in the construction equipment industry question the value of trade shows in the age of the Internet and national equipment distribution, contractor King said there is no question that trade shows are useful for judging equipment.

“You can see a paver perform on a demo project,” King said, “but when you can walk 50 to 100 feet between machines, and then be able to go back and compare to the machine you just saw, then go back again, it makes a huge difference in being able to make an informed purchase decision.”

As the leaves turned orange and red in mid-October, HMA Contracting was using its 1110 RTB to put the finishing touch-
es on a subdivision of Albany where the contractor had worked in previous years.

“This project involves putting in residential suburban roads over an existing base course, with or without asphaltic concrete gutters,” King said. “There are tight little cul-de-sacs with long, main roads transiting through the project. We have done all the work in the subdivision since its inception five years ago. We’ve been putting in base courses all along, and now that the final homes are being built, they’re topping all the roadways with a friction course.” That friction course is a Marshall-design New York State Type 7 mix, which is a 3/8-minus product, placed 1 1/2-in. thick.

The Carlson EZ-IV screed used on this machine has built-in wing gutter sections. “We use 24-in. gutter sections which can be raised up to 5 in. high to put in the wing gutters popular in a lot of the subdivisions,” King said. “There is vibration available at the screed; sometimes we use it, sometimes we don’t; it depends on the nature of the material, the condition of the subbase or existing pavement we’re using it on. But it works very well.” On this job vibration at the screed was attaining from 86 to 88 percent density right at the screed, and in residential areas HMA was compacting the pavement to about 92 percent density.

The enhanced visibility of the 1110 RTB is even more important when working in courts and cul-de-sacs, as in this subdivision, King said. “There are a lot of irons in the pavement, a lot of manholes and catch basins,” King said. “It’s very important to be able to see them so you don’t hit them or knock them out of place.”

1110 RTB IS MAIN PAVER

King relies on his local distributor, Finke & Sons to keep his equipment in top shape and placing asphalt. “We do a lot of business with Finke & Sons,” King said. “The Wirtgen team that includes Hamm, Vögele and Wirtgen have been good to us.”

HMA’s main paver is the 1110 RTB, but also has a small paver used for sidewalks and paths. HMA also has an assortment of Hamm rollers of varying ages, including a Hamm 2320 soil compactor it’s owned for 11 years. Although he was not using it that day, King lauds the performance of his decade-old Hamm DV 8 asphalt compactor. “We’ve had great service with that machine,” King said. “In my opinion it’s the best machine ever made — in the world — for compaction of asphaltic concrete in tight areas.”

Because the 1110 RTB is HMA’s main paver, the firm depends on it month after month to perform as prescribed. “It’s got to work day after day,” King said. “We work approximately 180 days a year, with our season from mid-April to mid-December. In that time it’s easy to put 2,500 to 3,000 hours on a machine and it’s been serving that purpose well.”

When his product needed support early in the season, HMA was able to get assistance from Vögele America’s Jerry Wright and from Finke & Sons. “We also have our own mechanic who has attended the Vögele America school for professional training,” King said. “When we’ve had the right person with the right technical skills, we send them for refresher courses every two years, or every year if it’s a matter of new equipment. Training is everything; we emphasize it in our management structure, our production employees and especially among our mechanical people.”

About the 1110 RTB and 1110 WB

The Vögele America 1110 RTB takes the continuous rubber track drive system to the next level and beyond. The unit is designed to meet customer demands with features such as the highest roading speed available in a track unit, outstanding control and the smoothest ride. The 1110 RTB has a top speed of 10 mph, an excellent speed for any paver, let alone a track unit.

Its brother, the 1110 WB asphalt paver, has gained great acceptance with public works agencies and contractors since its introduction in 1998. Independently driven front-wheel assist is an option. The Portal Axle Drive system provides true differential steering and the option of differential lock or modulated steer-assist pedals for better traction and handling.

Both machines boast a paving width of 10 to 28 ft. and maximum lift depth of 12 in. Horsepower of the 1110 RTB is 200 @ 2,200 rpm, with a weight of appx. 45,489 lbs; horsepower of the 1110 WB is 173 @ 2,200 rpm, with a weight of 39,650 lbs.
A major Canadian contractor is boosting its presence in the market with milling and reclaiming equipment by Wirtgen Group, including a new W 2100 acquired in spring.

Miller Paving, a unit of Miller Group, has operations all over eastern Canada, and its Wirtgen products can be found everywhere. But in its most important region, Ontario, all cold mills are Wirtgens.

“On our Ontario region arterial fleet, our machines all are Wirtgen right now,” said Stephen Damp, senior vice president, Miller Paving Limited, Markham, Ont. “We’ve been that way for a number of years, and we’ve been quite pleased. They’ve performed well and are all-around excellent.”

Miller has four regional divisions or groups which utilize milling machines, and of that total fleet, about half are Wirtgens, Damp said. “They’re great machines,” he said. “Fuel costs are less than other brands. We feel we’re getting excellent productivity.”

“We’re all over Ontario, Quebec, New Brunswick, and have operations in the United States,” said Dave McComb, Miller operations manager for grinding, reclaiming and cold in-place recycling in Ontario. “We have two W 2100s, which are 2-meter [79-in.] machines, and W 500 and W 600 DC cold mills. We will bring the smaller machines down to big jobs and do trim work, or send it out on its own to do anywhere from 1,000 to 3,000 square meter [1,196 to 3,588 sq. yd.] patch jobs. We also use them for crack repair and bridge decks.”

While not within McComb’s responsibility, the Ontario region also has a Wirtgen WR 2500 used for foamed asphalt base stabilization.

Cold Milling In Selkirk, Ont.

One of those W 2100s — acquired in spring 2004 to replace a W 2100 of 1996 vintage — was being used in October to cold-mill a Haldimand County highway in Selkirk, Ont., a small town on the shore of Lake Erie, west of Buffalo. “We’re running 60 mm [2.4 in.] down below the curb, and 2

percent crossfall in the center, and another contractor, Cayuga Materials, will come in and overlay,” McComb said. “They should have a nice 2 percent surface from the centerline to pave on.” It was part of an overall 140,000-square meter [167,438-sq. yd.] contract.

The W 500 was trimming along curbs and manhole covers in the wake of the W 2100.

“In Ontario we have all Wirtgen cold mills,” McComb said. “Our guys have worked on Wirtgens and are familiar with them. We’ve found they’re very reliable. When you buy a Wirtgen, it’s like buying a Mercedes; it’s a high-end milling machine, and it does good work.”

To keep the machines in top form, Miller Ontario regularly relies on Wirtgen training schools in Nashville. “Our mechanics go down to the training schools,” McComb said. “And when our Wirtgen tooth man, [Rhino Parts district sales manager] Gene Schantz, puts on a teeth and drum maintenance seminar in the spring, we send them all there.”

Productivity of the Wirtgen machines is high, McComb said, but the crews are what really makes it work. “Productivity depends entirely on the crew,” he said. “You have to have guys around the machine who know how to run it. These guys have
been running these Wirtgens for years and they can put out some really big numbers. We’ve ground over 30,000 square meters [35,880 sq.yd.] in a day some days. They look out for the equipment; they wash it down every day and keep it clean. We do all our maintenance in the spring and hopefully that will get us through the season without any problems.”

**Crews Prefer Wirtgens**

Likewise, vice president Damp said Miller looks to its crews for input as to what kind of machines to acquire, and the crews have a strong preference for Wirtgen products. “Our operators really like working them,” Damp said. “We look for feedback from our crews, and we’ve gotten really good feedback from them. They’ve been to the Wirtgen schools, they understand the Wirtgen equipment, and they’re doing a great job with them. They say they are nice machines to run, and feel they’re the best machines for productivity and performance.”

McComb said much the same thing. “Our crews really like the machines,” he said. “The sensor boxes are on the sides of the machines now, which is nice; we can just lock them up at night. They like the computerized display on top; we can easily figure out how much tonnage is coming off the belt, and at the end of day we can see how many tonnes we’ve milled. Plus, if we’re on a straight highway we will have a rough idea during the day of how many square meters we’ve cut.

“On top, the operator can see what depth is being cut and the cross-slope,” McComb said. “Our older machines did not have that computerized option.”

On his machines, McComb is using W6 teeth from Rhino Parts. “At one time we ran W5 and W6 teeth, but we found that to stock two different sets of teeth, it was more beneficial to run the W6 only. It can be more costly, but for overall production we are not changing teeth as often. With the W6 we should be able to grind all day if we don’t hit anything or find any steel, as we do in the odd jobs in the city. We get pretty good mileage out of these teeth.”

**Secret Is Uptime**

The secret to successful cold milling in today’s competitive environment is maintaining uptime, McComb said. “Here in Ontario, there formerly weren’t so many contractors with milling machines,” McComb said. “Now it seems almost everybody has one, or is planning to get into cold milling. Our biggest weapon is uptime, because if we can’t get there tomorrow because we are broke-down, chances are pretty good the competition will be there.”

And that’s where the spring overhaul comes in. “When we repair these machines in the spring, they are repaired to run all year long,” McComb said. “We will have problems, and things may break down at any time. But in early spring, if a component looks as though it will break down in June, we will go ahead and fix them then.”

This spring maintenance includes replacement of all tooth holders on all drums. “We’ll take all old holders out and put new ones in,” McComb said. “We’ll replace track pads. We look very closely at pumps and items like that. As far as the belts themselves, we will change them every couple of years. On some projects we will find a steel plate buried in the pavement and that will slice the belt open, so they may be changed in midseason. The workers who have been running the machine know what has been changed and what hasn’t, and they provide input.”

**More On Miller**

The Miller Group provides a full line of construction services to build and rehabilitate roads and parking areas, to construct pavements in concrete or asphalt and install concrete curbs and sidewalks for projects large and small. These projects may be for a provincial ministry, a municipality, a development
corporation, the private sector, or as a subcontractor to a gener-
al contractor.

Miller Group’s construction roots date back to 1917, repre-
senting a proud and successful history of building and paving roads, and that experience has resulted in the expertise that Miller Paving enjoys today. Miller Paving can rely on other resources of The Miller Group, including a large number of gravel pits and quarries, concrete production facilities, and asphalt production facilities. More information about Miller Group may be obtained at http://www.miller-group.ca/.

About The W 2100
The new Model W 2100 surpasses its predecessor, the 2100 DC, in performance and profitability. The powerful 6-cylinder straight-type diesel engine with its impressive output of 640 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 ft., 2 in.) makes high production milling possible in only one pass. Cutter width options of 8 or 9 ft. are available.

About The W 500, W 50 And W 50 DC
The W 500 which appears in this article was a four- or three-wheeled, compact, rear-loading cold milling machine, with cutting width of 20 in. and optional 24 in. cutter, and average productivity of 85 tph. In 2004 it was replaced by the new W 50 and W 50 DC cold mills.

The W 50 cold milling machine has a CE “in use” operating weight of 13,162 lbs., excluding optional conveyor. It can cut up to 6 in. deep and 20 in. wide with a 4-in. turning radius. Its Deutz power plant generates 80 hp. In addition to the loading conveyor, a fourth wheel is optional. It can mill at speeds up to 82 feet per minute.

The W 50 DC represents a more productive cutting machine housed in a larger platform than the W 50. For example, the W 50 DC has a cut depth of 8.3 in., compared to 6 in. with the W 50; a standard drum diameter of 29.5 in., compared to 23 in. with the W 50; and a Deutz engine of 123 hp, compared to 80 with the W 50.

The Deutz diesel engine, combined with a more robust 17,000-lb. design, 7-in. turning radius and standard rear loading conveyor, makes this a premier performer in the utility class. The W 50 DC has a mechanically driven milling drum and loading conveyor. It offers operators an unprecedented high standard of convenience and ergonomical design. One example is its spacious and comfortable operator’s platform, with ample leg room. The seat is individually adjustable and can be moved sideways beyond the edge of the machine.
A new 880 RTB 8-ft. paver from Vögele America Inc. — the firm’s first — has joined a new W 2100 cold mill in bolstering Ontario contractor Gazzola Paving Limited’s fleet and performance capabilities. And its beefed-up undercarriage — compared to other makes — sealed the deal, the contractor said.

“Last winter we sat down to discuss what equipment we needed in 2004,” said Virgil Gazzola, general manager of the Etobicoke, Ont.-based firm. “We had an old paver whose screed had rotted out, and we put a different make screed on it, but it was a mismatch. None of the employees liked it and it wasn’t new technology. We made a decision then and there to upgrade to a brand-new 8-ft. model.”

As a result of a long-term relationship with Wirtgen America Inc., and with its local distributor, Champion Road Machinery Sales, Brampton, Gazzola took a look at the Vögele America line.

“At our trip to Conexpo-Con/Agg ’02 we liked what we saw in that line regarding the undercarriage, because that’s where you see a lot of wear and tear,” Gazzola said. “You expect it in other places, but the undercarriage is the biggest drawback for most of the machines. We decided to take on the 880 RTB.” Delivery took place at the beginning of the 2004 construction season, but with the machine in Canadian red and white colors, not in classic Vögele America green.

**Benefits Of Rubber-Tracked Pavers**

Gazzola owns two existing 10-ft. pavers — both rubber-tracked — and had seen the benefits of rubber-tracked pavers for its paving style. “With our type of work we jump around many different-sized jobs,” Gazzola said. “We will do 1,000 tonnes one day, 500 in the city the next, subdivision work the next day. We experimented with a rubber tracked paver some eight years ago and found it gave us the best traction and floatation, and the best smoothness of all three types of paver: tracked, rubber-tired and rubber-tracked.”

However, the undercarriage of the tracked pavers Gazzola Paving owned posed problems of their own. “We had problems with the undercarriage, such as wearing out of the tracks, bogey wheels bending, and unexpected wear and tear. We did some research and found the undercarriage of the Vögele America rubber-tracked platform to be overbuilt compared to everybody else, which is the main reason we went with them. And so far, so good.”

In addition to the two 10-ft. pavers and the new 8-ft., Gazzola has a small 4-ft. paver. “We do everything,” Gazzola said. “That’s one of the reasons we like the rubber-tracked style. In a week we will do residential, road widening, and bridge decks; the next day we will do patching. So we’re all across the board in the Toronto area; we take any work we can get.”

That’s why Gazzola leans heavily on its paving crews to provide input on whether they can work with a paver.

“Over the years we have demo’ed a number of paver brands from Champion Sales,” Gazzola said. “Typically what will happen is that you will put a new piece of equipment on...
a job, and the crew decides they don’t like it. So we put the 880 RTB out there and I was expecting all-negative feedback. But when I went out on the job, and asked about the paver, the crew said it was ‘great’. Overall, they loved it; the screed was great, it had lots of power and good traction. So we had a chance to use it a couple days, and I got really good feedback. That’s another reason why we bought the model.”

Accessibility Of Interior

It wasn’t until the paver was delivered — after the initial setup — that Gazzola’s staff found another benefit of the Vögele America line, in its extraordinary accessibility to the interior for service.

“We opened up the cabinets and were amazed at how neat and tidy everything was,” Gazzola said. “It was so well put-together, and there was lots of room to get in. Whereas some of the other models we’ve found the interior space to be very tight and cramped. This’ is hidden behind ‘that’. To get at ‘that’ you have to take ‘this’ off. The 880 RTB was better thought-out; if something breaks down it’s clear that you can just go in and work on it, and leave. It’s not a matter of taking everything out and putting it all back, just to seal a hose. The guys in the shop were real impressed, not that they’ve had to make major repairs.”

The paver is equipped with a Carlson EZ IV 8-ft. electric screed with extensions in the front, rather than in the rear. The electric screed is proving to be a big benefit, Gazzola said. “It took a little bit of getting used to, but the electric heat is nice, providing an even screed temperature. We don’t get all the black fumes, and we don’t have that blowtorch going off under our feet. We’ll see, in four or five years, if electric heat doesn’t warp the heck out of the screed, but that’s down the road.”

Paver Joins New W 2100

The new 880 RTB is complemented by a new W 2100 cold mill from Wirtgen Group, which replaced an older W 2100 profiled last year (see Tight Urban Quarters No Straitjacket For Ontario’s Gazzola, Fall 2003, pp 23-24; back issues may be downloaded in pdf format at www.wirtgenamerica.com). This is the third 2100 model the firm has owned, and joins an existing W 500.

“We traded in the old one — it had 10,000 hours — and upgraded to a newer machine,” Gazzola said. “We thought it was time for an update, and the machine was delivered in the latter part of July.”

Improvements in the new W 2100 include greatly reduced fuel consumption, Gazzola said. “It’s unbelievable how little fuel it uses,” he laughed. “It has a lot more power and turns in a lot tighter radius. It appears that every little aspect of the machine has been refined or polished-up. The operator used to have to really ‘crank’ the steering to go around in a turn; now he just pushes the joystick. There are improvements in the sonar.”

Improvements to the tracks and drum mean it’s easier for Gazzola to mill cul-de-sacs with this large machine. “We now can catch those few inches that we used to miss,” he said. “That makes it a lot easier.”

And Gazzola never considered a different brand of machine when replacing his existing W 2100. “With over 10,000 hours on each of two of them,” he said, “why would we even think of any other brand?”

About the 880 RTB

The 880 RTB tracked paver from Vögele America Inc. offers contractors higher speeds, smoother rides and better handling in an 8-ft. paver. The 880 RTB has been totally redesigned to offer the commercial class contractor the features and reliability enjoyed by Vögele’s many satisfied highway-class paver customers.

It incorporates the Cummins 6BT5.9L turbocharged diesel engine and delivers 152 hp. The final drive utilizes two hydraulic motors to deliver 2 speed ranges with shift-on-the-fly-control. The 880 RTB delivers a top speed of 8.5 mph, an excellent speed for any 8 foot paver, let alone a track unit.

The 880 RTB boasts 190 cubic foot-hopper capacity in a paver only 17 ft. long, with a top speed of 8.5 mph. In addition, operator visibility has been improved 122 percent over previous designs. Production and maneuverability are two key factors in commercial paving applications. The Vögele 880 RTB delivers both. The feeder system is fully proportional and comes standard with ultrasonic material level sensors for precise control. The augers are hydraulically adjustable from 5 to 10 in. above the ground.
Briggs Ties Regional Growth To ‘Three Amigos’

Briggs Construction Equipment, Inc. — the premier construction equipment dealer of the Carolinas and Florida — is planning its growth around Wirtgen Group’s “Three Amigo” product lines of Wirtgen cold milling and recycling machines, Hamm soil and asphalt compactors, and United States-sourced asphalt pavers from Vögele America Inc.

The Three Amigo lines are being sold alongside Case excavation and earthmoving equipment, as Briggs is Case’s largest dealer in the United States.

Briggs has major sales and rental facilities in North Carolina, South Carolina and Florida. Wirtgen Technology Magazine spoke with Briggs’ Carolinas sales manager Scott McGuigan at its Charlotte headquarters this fall, and he described the challenges of running an equipment distributorship and the opportunities and synergies now open to Briggs as it incorporates the Three Amigos in its product line.

Wirtgen Technology: What is Briggs Equipment?

Scott McGuigan: Briggs Equipment basically is two sister companies; Briggs Construction Equipment, which is us, and Briggs Industrial Equipment, the world’s largest Yale forklift dealer. We are Case’s largest dealer in North America, maybe the world. We sell a lot of equipment, and we have a huge rental fleet.

When did Briggs start handling Wirtgen Group equipment?

The dealer here in Charlotte that we acquired in 2000 already handled Hamm compactors. At that time the folks at Wirtgen approached us on becoming a Three Amigo dealer. We finally got into it in mid-2003.

Why and how did Briggs expand into road construction equipment to complement its earthmoving and excavating equipment lines?

It’s certainly a different business from the dirt business! We wanted to expand into what was already a good, natural fit for us. Wirtgen Group quality-built roadbuilding equipment expands our customer base into a much larger size of customer, diversifies our product base, and consumes a lot of wear parts, such as teeth or belts. It was a good match.

By carrying the other two “brothers” of the Three Amigos we have boosted our asphalt roller business, as well. Instead of just being a roller dealer, we now are a true player in the asphalt market. The feedback that we have gotten in the last year indicates that the “Three Amigo” lines are in much better shape than their competition.

Lastly, we were strongly committed once the decision was made. From Day 1 we felt that if we’re going to get in this business, we’d better jump in feet first, because roadbuilding does not operate in your typical construction time frame. There could be a 2 a.m. call for a paver that goes down on a night job. It’s not for the fainthearted. You’d better be ready to commit totally, because your customers will give you a great opportunity to swing like Tarzan, or to hang yourself.

That’s where we’ve taken a lot of pride in stepping up to the market, especially with our large statewide organizations. A machine might have been sold out of Asheville, but if they’re working in our area, and a machine goes down, we have someone there in an hour or two from Charlotte.

How did the transition go to a Three Amigos dealer?

Briggs is at the forefront of the market, so we had to be ready with parts, service and sales. We had to have thorough training for parts and service, because that’s a big component of how we sell. Once we had training up to snuff we had to make sure we had parts in and on the shelf. That was somewhat easy to do, because of recommendations from Wirtgen, Hamm and Vögele. We also have to make sure that when we add additional machines that our parts inventory stays current.

But initially, training was the issue, not just for our mechanics, but also on the sales side. Most of the training took place here. We are so big that Wirtgen Group
found it beneficial to bring their staff to us for training. I give those guys a lot of credit, they really know how to support the product. They have their own lines of technicians and service people who come out when the machine is delivered, making sure everything goes right.

During this transition it helped that instead of our staff sitting in a classroom, going over schematics, the machines were here, presenting real-life situations as each model was delivered, with staff physically going over the machine and training us. I give a lot of kudos to them in presenting the training the way they did.

**Have you had success in marketing elective spare parts, such as Rhino teeth or the Hamm compactor maintenance kits for use on a scheduled basis?**

One thing we want to do, all the way up to the teeth — which is in a highly competitive market — is to be the absolute, one-stop shop for the customer. Wirtgen Group still is in the transition phase from selling direct from the manufacturer to a distributor system, especially on the Wirtgen cold mill side. There have been a couple of bumps on the road, but nothing major.

The Hamm kits that we will provide will make it easy for end user maintenance. These machines are used intensely in high-visibility projects that must be done in a certain time frame, with road closures and potential user delays. We try to package our service and parts, and make it available to the customer when he needs them. We want to promote a forward-looking stock that they will keep in their hands, and we will have parts here as they need them.

With Rhino teeth, we are selling availability of the teeth here, when a customer needs them. We also are selling quality. I will tell a customer that he can find a cheaper tooth anywhere, but from us he can buy quality of product and availability. It’s a low-margin piece of equipment, sold on volume, but even if I have to sell on low-margin, at least I get a customer in the door.

There are a number of long-standing Wirtgen milling machine customers in the Carolinas, who were previously sold direct, and when we first told them about Briggs becoming a dealer, they said “absolutely not”, that they did not want to deal with us. That was 15 months ago, and today they are tickled pink, able to drive five minutes to a store and buy virtually anything they want without having to wait for shipping. One contractor told us we probably will save him at least $15,000 on air freight this year, as almost always parts were needed next day and had to be airlifted at great cost. So even the shy customers have come around.

**A lot of Wirtgen customers are small businesses, who despite Wirtgen mills being marginally more expensive than the competition, continue to buy them because they don’t want to gamble their firm’s reputation and family livelihood on a less-reliable product. How do your customers perceive the performance of these machines in the field?**

It’s second to none. As a dealer as a whole, we don’t sell on price, we sell on value. That includes service, machine quality, price, availability of parts, the whole nine yards. We will be competitive on price, but the Three Amigos fit in very well with our forward-looking concept, that is they are not the cheapest on the market, but they offer the best value.

We see the same things the customer does on quality. We see the meticulous detail from grease fittings on the doors, to the frame thickness on the rollers, or the electrical panels, for example. The electrical panel on a Wirtgen milling machine or reclaimer looks like a phone box; it’s very detailed, not messy, laid out cleanly and easy to read. A customer can pull out one section to do tests and it does not affect other parts of the machine; this makes it easy to isolate problems.

**Have you found that the Vögele America pavers are particularly easy to service, compared to their competitors?**

The serviceability of the Vögele America pavers is all at ground level and is very accessible. In today’s environment, that’s a big advantage. When you go to the competition and find the insides are more difficult to get to — perhaps forcing you to climb up on the machine, or the part is tucked way back in — you can see the Vögele America pavers are more easily serviced. Ergonomics and maintainability of pavers and rollers figure a lot more in purchase decisions than ever before.

**How often do you find that the actual purchase decision or recommendation is being made by the operators or crew?**

It’s becoming more and more prevalent. Obviously the owner or boss will make the final decision, but the influence of the crews is much greater today, especially in road equipment as opposed to dirt machines. That’s because they are on the paver, roller or mill all day long, under all conditions, and are expected to be very productive. And that’s why the maintainability and ergonomics, such as seat comfort and operator rotation, play such bigger roles in the buying decision than they ever have.

**You described how committed Briggs is to your customers and market. How committed is Wirtgen Group?**

That Jurgen Wirtgen visited us from Germany just three weeks ago underscores just how serious Wirtgen Group is about building strong distributorships in North America. They were started down the right path by Reinhard Wirtgen, and the young blood has put an aggressive twist into pursuing markets. They have a good long-term vision of branding from the Far East to North America to Europe and beyond.

For us as a dealer, having an owner come a great distance and hear your two cents’ worth goes a long way. It makes us look on them as partners in success, and I’m sure, vice versa. We both know we are scratching the surface with these products and we both have much to gain.

Wirtgen Group is willing to go out of the way both short-term and long-term to make sure we grow and make our territory a viable market. With that kind of support we believe we are poised to dominate the asphalt market in Briggs’ territory.
A big Colorado road contractor believes it has found the solution to a long-standing problem of the paving industry: How to eliminate longitudinal joint failures from asphalt pavements.

Its secret is use of Hamm’s exclusive oscillation compaction technology as found on the Hamm HD O90V compactor.

A longitudinal joint in an asphalt pavement occurs when a lane of fresh hot mix asphalt is placed alongside an existing lane of HMA. Because of the difference in temperature and mat plasticity, the hot, fresh HMA does not bond well with the older, cooled mat and a longitudinal crack usually occurs between the asphalt lifts, encouraging intrusion of water, increasing roughness and potentially limiting the life of the pavement.

“These distresses are often in the form of raveling and eventual cracking,” reports the Washington State DOT in a bulletin. “The cause is attributed to relatively low density and surface irregularity at the joint.”

The National Center for Asphalt Technology (NCAT) lists 12 different methods of improving the quality of longitudinal joints, including three compaction techniques. These include different methods of rolling from the hot side, rolling from the cold side, and placement of HMA with a tapered wedge, with and without tack coat, and wedge with infrared heating. Results have been mixed.

“Rube Goldberg” contraptions also have been tried, with widely mixed results. To attain needed longitudinal joint densities, contractors have used heavy steel wheels alongside the paver screed, an “edge restraining device” attached to the side of a roller, a mat-edge “cutting wheel” mounted on roller or grader, and a screed box-mounted device called a “joint maker”. Rubberized joint adhesives have been tried.

Ideally, paving in echelon — with two pavers doing two lanes side-by-side — solves the problem, because both mats are placed at compaction temperatures and are rolled to density simultaneously. But today’s constricted work zones under heavy traffic — almost always limited to one lane closure at a time — makes that a very rare opportunity.

The Colorado DOT has taken the joint problem seriously. In the mid-1990s, it partnered with NCAT to produce a watershed study on longitudinal joints, downloadable at http://www.eng.auburn.edu/center/ncat/reports/rep96-3.pdf.

**Meeting The New Joint Spec**

Because joints with high densities generally show better performance than those with relatively low densities, getting high joint density became a centerpiece of Colorado’s efforts at defeating longitudinal joint problems. In 2003 the state implemented a longitudinal joint density spec requiring 92 percent (plus or minus 4 percent) compaction on the joint itself. This compares to densities (for PG-graded mixes) in driving lanes of 92 to 96 percent, with a target of 94 percent. Compliance was to be checked via cores removed directly over the longitudinal joint.

“The state put forth the spec without indicating how we contractors were to provide the quality they wanted on the joint,” said Jarrett Welch, quality control manager, Brannan Sand & Gravel Co., Denver. “This was a brand-new specification for joint density.”

Brannan is a major asphalt paving and patching contractor,
and produces hot mix asphalt as well as ready mix concrete. With offices in Denver and Lafayette, Colo., the firm has two asphalt plants strategically located in its market areas, in addition to three concrete batch plants and two gravel pits used for mining and recycling construction materials.

Earlier in 2004 Brannan completed a 16,800-sq. ft., ultra-modern headquarters facility. Its site is a 30-acre reclaimed gravel pit that has been in the Brannan family for three decades. Brannan’s headquarters is the first office building into what is planned as an office park.

Existing Colorado longitudinal joints prior to the spec were estimated to have densities of anywhere from 82 to 88 percent, and the freeze-thaw conditions in Colorado were ravaging the roads, Welch said. “We were seeing a lot of premature deterioration at the joints,” Welch said. “They really strove hard to implement a specification as quickly as they could.”

After a phase-in period during 2003, Colorado DOT began vigorously enforcing the new spec in 2004, and contractors scrambled for solutions. “We tried numerous methods — even outside of C-DOT work — to see what we could do to achieve the joint spec,” Welch said. “We tried an 800-lb. drum which attached to the wing of the screed, and it was supposed to achieve compaction. It didn’t work for us in getting the minimum of 88 percent.”

Brannan experimented with different rolling patterns and higher levels of vibration, to no avail. “We tried ‘beating the joint up’, if you will,” Welch said. “We would put both drums on vibratory mode at very high frequencies, and run up and down trying to ‘beat’ density into it. We’d get close, a few in the 88s, but the majority were just on the edge. We were getting there but couldn’t quite break over the mark. And when it comes to specs, you don’t want to meet them on the low side, it will kill your pay factor as well as not being in spec.”

“Beating up” the mat had a negative side effect: It was breaking up the aggregate. “When you run a heavy roller on a cold mat, just beating the daylights out of it, we saw ‘white-capping’ in the mat by which we could see we were breaking the surface aggregate. We were removing the oil off and exposing the fractured aggregate, which was leaving a streak of powder across the mat.”

Oscillation Compaction Solves Problem

Time was running out for Brannan, but a solution was around the corner. “We had to come up with something that would get the density without breaking the aggregate, and we became alarmed at the potential disincentives for not meeting the spec,” Welch said. “That’s when we met with Jeff Meyers of Honnen Equipment and Steve Daigh of Wirtgen Group.”

They introduced Welch to the unique capabilities of the HD O90V and its oscillation compaction. “They met with us and we gave them a shot,” he said. “Steve said he would guarantee that we would get joint compaction, and it did. It was very impressive after having tried a lot of things. When we saw that it would not fracture the aggregate while getting density, we knew we had what we needed. We were very impressed the first time we saw it.”
Oscillation compaction works by “massaging” the hot mix asphalt (HMA) from side to side, 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 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.

Using the HD O90V, Brannan checked densities directly over the joint. “We placed the nuclear density gauge right over the joint. Right off the get-go we saw densities go up substantially,” Welch said. “We were reading 92 to 93 off the density gauge after three passes, actively using both drums of the oscillation roller. We achieved 92 percent over a cold joint just like that.”

Eliminating Equipment On Job

There was an unanticipated benefit to oscillation compaction using the HD O90V: The roller performed so efficiently the contractor was able to eliminate a number of pieces of equipment off the job.

“To try to get density on the joint we’d add extra rollers, extra laborers and extra pieces of equipment to the project,” Welch said. “But with the oscillatory roller, all we had to do was use that one piece of equipment to get density.”

Aside from longitudinal joints, Brannan found a side benefit of the HD O90V is more efficient compaction on the mat itself. “We saw significant increases in densities on the mat outside of the joint,” Welch said. “In one circumstance we used the roller as a breakdown roller instead of a competing double-drum roller. Typically, I like to see us at 90, 91 percent compaction after breakdown, and we were getting that with the double-drum roller. Then we put the Hamm on there in the same pattern and it bumped it up 2 percent, to 92, 93 percent. After that I won’t need much more compactive effort; I already have it.”

For the most part now, on Colorado DOT projects, Brannan uses its HD O90V as an intermediate roller focusing on longitudinal joints, but it serves as a breakdown roller on smaller projects, including parking lots. And it since has acquired a second roller on lease.

Local contractors have been inquiring as to the nature of the unique roller in Brannan’s possession, Welch said. “The state was intrigued and skeptical when we rolled it out,” he said. “But when the density numbers started coming in, the state focused a lot of attention on it. The state has been bringing people out to observe what we were doing to achieve density. And contractors have been calling to find out what we were using to meet and beat the specs.”

About the HD O90V Compactor

Hamm Compaction Division, Wirtgen America Inc., has 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 articulating steering system. In 2005, a 78-in.-wide unit — the HD O120V — will be introduced to North America at Conexpo-Con/Agg ’05 in Las Vegas in March.
Two New Big W 2200s Spark AAA Expansion

Two new big W 2200 cold mills are the latest in a Washington State road service contractor’s expansion into asphalt milling and recycling.

AAA Sweeping, of Veradale, Wash., just east of Spokane near the Idaho border, acquired the two mills — largest of the Wirtgen Group line — as it boosted its presence in the Pacific Northwest markets. In addition to Washington State, AAA serves customers in Montana, Idaho, Oregon and Utah.

“We had looked at the W 2200s for a few years,” said Brett Sargent, owner. “The machines are second to none, they must be the best-finished products I have ever seen. They’re without doubt the finest pieces of machinery in the milling game.”

Wirtgen’s higher standard equates to higher productivity, Sargent said. “The W 2200 is a very productive machine,” he said. “In terms of dependability and workmanship, it all comes together in the W 2200. One thing I admire about them more than anything else is the protection for the lower primary discharge belt. Wirtgen protects the belt so well that it will last much longer than any other belt I’ve seen. It’s a patented feature and I’ve never seen anything that can compare to it.”

The payoff comes in uptime during which the belt rarely fails in the field. “Those lower belts can always be a problem,” Sargent said. “Whenever you lose a lower belt on a machine, you know you’re in for at least a couple of days of hard work until you can get it going again.” Instead, the belt can be serviced during the winter when the machine is idle.

Considering their abrasive environment, the ruggedness of the Wirtgen product helped seal the deal for the two W 2200s. “The sturdiness of the whole machine is impressive,” Sargent said. “The thing is built like a tank. They’re heavy, and as a result they can be hard to move. But once you’re on the site, the weight is very nice to have. From the sturdiness of the frame to the overall girth of the rig, they’re just built better than anything else.”

Growth From Sweeping Firm

AAA Sweeping was founded in 1984 as a road service contractor. The firm does contract sweeping, snow plowing, industrial vacuuming for sewer and catch basin cleaning, and seal coating and patching, and will have 40 employees at a peak time of the year. The firm will do anywhere from 4 million to 6 million sq. yd. of milling in a season.

Contract vacuuming is a good business to be in, given that Washington State uses sand instead of rock salt to
control snow and ice, and meltwater rinses it into storm drains, where it sits. "We’ve done thousands of miles of winter sand cleanup in recent years," Sargent said. "And we do sanding as well when we plow!"

AAA was the result of an acquisition of two firms. "To begin we bought out several companies which did maintenance sweeping," Sargent said. "And because it came along with the business, we did a lot of sweeping following cold milling operations. Soon we were doing sweeping for most of the cold milling contractors in this region.

"Then they asked us to bring the water trucks as well, then might we bring the traffic cones, then can you make it to the pre-job conference for us?" Sargent said. "Soon we asked ourselves, since we’re doing everything but bringing the mill, why not get some mills of our own and get involved? And the rest is history."

Sargent said AAA began by leasing cold mills with operators from other firms, but its first cold mills were purchased in the early 1990s. "Since then we put one step in front of the other to get to where we are now," he said. AAA’s involvement with cold milling dovetails with the adoption of asphalt milling and recycling by the industry in general during that era.

Public works legislation, such as clean water programs, contributed to AAA’s growth. "We went through a period where there was a lot of sewer construction involving excavation," Sargent said. "There was a real need for excavation of asphalt ahead of pipe laying," he said. "We grew through that period, and when that died down, cold milling had become more common."

Today the firm has four half-lane cold mills and two full-lane machines. "We have six smaller machines as well, anywhere from 14 in. to 4 ft. wide," Sargent said. Of these 12 units, four are from Wirtgen, the two W 2200s, a W 600, and a W 500. "We’ve owed other smaller-size Wirtgens in the past."

AAA uses its W 2200s for cold milling mountain roads as well as big interstates work, others stay away from the DOTs and specialize in municipal work or private sector work such as parking lots. Not so for AAA. "Our target is anywhere we can get a job and make a living," Sargent said. "Not all customers treat you the same, but we never stay away from a job unless it doesn’t make sense to us."

**Studded Tires Rut Pavements**

Rutting of pavements — both hot mix asphalt and portland cement concrete — is endemic to the region, and occurs on a scale scarcely dreamed of "Back East". "A lot of it, especially on concrete, is the result of studded tires and chains," Sargent said. "It’s a huge problem for the governments, but it’s a good problem for us, because correcting the ruts provides a lot of work for us. We do millions of square yards per year of large, limited access highway work, much of which is rutted." Washington State DOT is AAA’s biggest customer. Naturally, the firm does all its own sweeping after the mill.

To optimize performance in the field, AAA’s new W 2200s came equipped with Wirtgen’s exclusive Flexible Cutter System (FCS), which permits operators to change drums of different working widths — with tool holders fitted — in less than three hours on the job site.

"We haven’t done anything with the FCS yet, but I definitely see where that will be very handy in the future," Sargent said. 

Excessive rutting due to studded tires creates a need for cold milling in AAA Sweeping’s market area
New W 2500 S Brings Foamed Asphalt To British Columbia

“Our WR 2500 S worked very well,” Clark said. “It was the easiest part of the project. It fired up quickly, went and did what it was supposed to do.”

Using a new Wirtgen WR 2500 S, a locally owned road reclamation contractor introduced the benefits of foamed asphalt to British Columbia during a project in September and October.

Purchased in advance of this job, the WR 2500 S is giving the owner the power it needs for conventional full-depth road reclamation and stabilization projects, plus the option of foamed asphalt projects as they grow in the years to come. Yet it’s uncomplicated and mobile enough that it can be operated and managed by the owner/operator and his small crew.

“I run the equipment, I estimate, and I do the billing,” said Norman Clark, vice president, Lark Services Ltd., Langley, B.C., in suburban Vancouver. In addition to the WR 2500 S, the firm has a smaller-sized road reclaimer. When Lark bought the WR 2500 S in mid-July, it retired a competing road reclaimer. The WR 2500 S was acquired in anticipation of a foamed asphalt job in rural British Columbia.

“A job came up for tender with an option to do foamed asphalt, and I called Wirtgen’s Winton Kemmis to see if he had a foamed machine in inventory,” Clark said. “I flew to Nashville the next day and looked at it, came home, talked with my partner, and we decided to buy the Wirtgen.”

Clark had researched the process for six years and had come to the conclusion that the process was reliable. “It was just a matter of time before a project was launched in our area, and when the first job came with an option to foam, we chose to go after it.”

While his existing machine could have been retrofitted for foamed asphalt stabilization, Clark was skeptical of the process. “You really can’t retrofit them,” Clark said. “You are better off getting it done at the factory. My industry contacts assured me that the Wirtgen system worked reliably and we went with them.”

What Is Foamed Asphalt?

“Foamed” or “expanded” asphalt is created by carefully injecting a predetermined amount of cold water into hot penetration-grade asphalt in the mixing chamber of a pavement reclaiming machine, and offers a cost-effective alternate for road base stabilization.

Since the end of the 1980s, Wirtgen has been a major player in development of foamed asphalt (bitumen) technology, in which foamed hot asphalt is used to stabilize and improve existing road materials, producing highest quality base courses and cold mixes at lowest cost.

These materials can be processed in-place by milling and crushing the existing pavement structure — while incorporating foamed asphalt — using the WR 2500 S and WR 2000 recyclers from...
Wirtgen. Precise addition of water allows control of the rate of asphalt expansion and the amount of expansion. Foamed asphalt technology is built into these machines, not tacked on as an aftermarket add-on.

The expanded asphalt has a resulting high surface area available for bonding with the aggregate, leading to a stable road base using the existing in-place materials. The benefit is substantial cost savings over use of asphalt emulsions for base stabilization, and complete elimination of the cure or "break" period. The foamed base then is graded and compacted, and can permit traffic — including heavy trucks — almost immediately.

**First Job Cancelled**

Although Lark had gone out on a limb, purchasing the WR 2500 S in anticipation of British Columbia’s first foamed asphalt job, the firm got a nasty surprise in that the job was cancelled. Undeterred, Clark proposed that a long-pending project — Pemberton Meadows Road — be foam-stabilized instead.

"I was able to convince my contact at the Ministry of Transportation that he should try foam there," Clark said. "It was tendered as a foamed project and we were on our way. Foamed asphalt is not part of the M.O.T. specifications, and the project was considered a first-time try." Like himself, Clark said, the M.O.T. had been studying foamed asphalt for years. "They had gone to seminars and were up to speed on foamed asphalt," he said.

In the meantime, Lark put some 250 hours on the machine, pulverizing and undertaking base stabilization with liquid magnesium chloride. "We knew how the machine worked and were confident that we could get the machine working for us," Clark said. On the foam job, support of Wirtgen’s Nashville-based technical service engineer, Bob De Jong, also helped make sure the project went smoothly.

Pemberton Meadows Road involved foaming 4.7 km (2.92 miles) of road 7.3 meters (24 ft.) wide, a total of 34,000 square meters (258,000 sq. ft.). The road was foam-stabilized to a depth of 15 cm (6 in.). "We pre-pulverized it the week before, and the next week we injected the foam," Clark said.

Using cores taken from the existing road, Trow Associates Inc. — in conjunction with long-time foamed asphalt consultants A.A. Loudon & Partners — determined the foamed mix design using a Wirtgen WLB 10 portable foamed asphalt lab. For the most part the mix incorporated 2.5 percent liquid asphalt, with 1 percent cement, while due to local conditions a small portion used 2 percent AC and 1.5 percent cement. Cement was spread dry across the pulverized pavement. Water content varied from 1.5 to 2.5 percent by volume.

"A contractor or government agency using a WLB 10 can use actual samples from the road requiring rehabilitation to determine the most suitable mix design under lab conditions," said Mike Marshall, product specialist, Wirtgen GmbH. "The WLB 10 simulates what will happen during the recycling process to eliminate any surprises during construction."

The lab can help an agency determine the in-place materials preclude foamed asphalt base reclamation. "When considering options, the use of the WLB 10 can provide an agency with the information it needs to determine whether foamed asphalt recycling is a viable option," Marshall said. "This gives them a greater range of rehabilitation options per road and, of course, the security in knowing the foam process will work for their project."

The foam-stabilized surface was topped by a 50 mm (2 in.) lift of hot mix asphalt by contractor Alpine Paving Ltd., Burnaby, B.C.

"Our WR 2500 S worked very well," Clark said. "It was the easiest part of the project. It fired up quickly, went and did what it was supposed to do. Hired equipment was breaking down on us, hired operators were not showing up, replacement equipment was to be delivered. With the WR 2500 S working the way it was supposed to it made the job a success."

Of special use, Clark said, was the WR 2500 S’s foam system’s unique pre-heating system which warms solidified liquid asphalt in the system prior to use, eliminating the need to purge the lines at the end of each day. "When you finish a day of foaming, your system will have liquid asphalt still in it," Clark said. "With conventional systems you would have to flush the system with diesel oil each night and dispose of this messy, gooey material so it would not be frozen up in the morning. With the Wirtgen, you just turn the heater on for a half hour before start and drive away."

**About the WR 2500 S**

The big, new WR 2500 S “Super” Road Reclaimer and Soil Stabilizer from Wirtgen America, Inc. is a next-generation, foamed asphalt-capable successor to the proven Model WR 2500. The “S” in the WR 2500 S stands for “Super”, because the WR 2500 S is a beefed-up, higher performing version of the existing WR 2500. In addition to its high performance as a full-depth base recycler of failed road pavements and as a soil and base stabilizer, like its predecessor, the WR 2500 S when equipped for foamed or expanded asphalt can be used to make a foamed asphalt-stabilized base, with significant savings and base performance improvements for the owner and contractor. In fall 2004 over 25 Wirtgen foam machines were at work in North America, and the number is growing.
Wirtgen Group Founder Honored Among Top 100 Private Sector Leaders

Reinhard Wirtgen, founder of Wirtgen Group, has been honored as one of the “Top 100 Private Sector Transportation Design & Construction Professionals of the 20th Century” by the American Road & Transportation Builders Association (ARTBA).

Mr. Wirtgen (1941-1997) and other honorees were recognized at a gala reception and dinner in Washington D.C. Thursday, Oct. 21.

“Reinhard Wirtgen, founder of Wirtgen GmbH, pioneered asphalt and concrete pavement recycling to the benefit of the world,” ARTBA said in a commemorative publication. “By 1971, Wirtgen had developed hot asphalt milling technology to remove asphalt pavements. Later, using cutters from the mining industry, Wirtgen modified his hot milling machines into cold milling machines, which worked without pavement preheating and now have become a world standard.”

Mr. Wirtgen created a legacy of construction and civil engineering achievement that continues to enhance local transportation infrastructure around the world.

In developing countries, asphalt recycling technologies developed under Mr. Wirtgen’s authority help road agencies make scarce road funds go farther, enabling interior development, facilitating economic growth and helping assure a brighter future for citizens.

In developed countries, asphalt recycling technologies pioneered by Mr. Wirtgen improve the environment, conserve resources, enhance local economies, leverage roadbuilding funds, and provide better service to motorists and residents.

In 1989, Wirtgen unveiled machines for cold recycling of road base courses and materials. These machines helped popularize asphalt recycling to the extent that it is far and away the most-recycled product in the United States.

“Reinhard Wirtgen felt business was a ‘partnership with customers, based on mutual confidence’,” said Wirtgen America Inc. president and COO Stuart W. Murray. “He truly did commit his lifetime to serving the world’s construction industry. “He prided himself in providing the best product available, with the best design and workmanship.”

Larger Oscillation Roller To Debut At Conexpo

At Conexpo-Con/Agg 2005, the Hamm Compaction Division of Wirtgen America Inc. will introduce a new, larger asphalt compactor which incorporates exclusive Oscillation technology.

New to North America will be the Hamm HD O120V, which follows the proven HD O90V introduced in April 2003. The new roller has an operating weight of 26,345 lbs. It has a drum width of 78 in., with an offset working width of 81.5 in., and has a working speed of 3.9 mph. The rear drum features Oscillation compaction with oscillation force of 46,125 to 62,775 lbs. The front drum will feature conventional vibration at a top frequency of 3,000 vpm.

Oscillation compaction works by using horizontal shear forces on hot mix asphalt (HMA), rather than by forcing it downwards by an up-and-down motion. Unlike traditional vibratory compactors that achieve compaction by “bouncing” the drum on the ground, Hamm’s unique oscillation technology ensures that the oscillation drum maintains constant contact with the ground for faster, more effective compaction.

Hamm also will introduce to North America the Model 3412 VIO soil compactor with both vibration and oscillation within the drum. Its operating weight with cab is 26,433 lbs. with working width of 84 in.

Also new at Conexpo-Con/Agg will be:
- The new Wirtgen HT 11 cutting system featuring Rhino cutting bits and holders.
- The new FCS L fast-change drum system for the W 1900 and W 2000, which permits exchange of a standard drum with fine-texture drum in two to three hours.
A new Service Training Trailer for Hamm service technician education.
And new electric screeds from Vögele America Inc., will include the 8-ft., front-mounted HF400E and the 10-ft., rear-mounted HR500E. Also exhibited will be the Vögele America 2219T paver, formerly the 1110 RTB, with the new AB600TP high-density screed from Vögele AG.

Models introduced at World of Asphalt ’04 which will be new to Conexpo-Con/Agg will include the W 2000 recycler/reclaimer, and the W 50 and W 50 DC mid-sized cold milling machines.

Conexpo-Con/Agg 2005 will be held in Las Vegas Mar. 15-19. In addition to the new products above, Wirtgen Group will show nearly its entire line of equipment for North America. During the 2002 show, Wirtgen Group occupied an exhibit stand of very high visibility and foot traffic, and in 2005 Wirtgen will occupy the same location. Please plan to visit Wirtgen Group’s 24,000 sq. ft. exhibit S-500 at Conexpo-Con/Agg 2005.

Wirtgen Retail Sales Offers Total Service To Mid-South Customers

In response to a strong need for full-time equipment distributor service to customers in the Mid-South region of the United States, Wirtgen America Inc. has established a new Retail Sales division based out of Nashville.

Wirtgen Retail Sales will provide “Three Amigo” sales and service to the states of Tennessee, Mississippi, northwestern Arkansas, eastern Kentucky, southern West Virginia and western Virginia. Wirtgen Retail Sales offers a full line of Wirtgen asphalt milling and reclaiming machines, Hamm soil and asphalt compactors, and Vögele America Inc. asphalt pavers, all for rent or purchase.

Wirtgen Retail Sales will build its rental fleet to support customer needs and will offer rental and rental/purchase options along with new and used sales.

Sales manager is Mike Burris, who has 30 years of industry experience in customer support, operations management, sales and rental management, and distribution management in Tennessee and the surrounding states. Mike’s experience has been directly focused on the products and customers of the infrastructure and asphalt rehabilitation industry.

Bob Puckett serves as sales representative. Puckett has 35 years of industry experience. His background includes aftermarket and product support for Puckett Bros. Manufacturing, work as product manager of paving products for Gehl Co., and encompasses many years of regional sales management experience.

Wirtgen Retail Sales plans to expand the sales staff by one more position in coming months.

“Wirtgen Retail Sales personnel look forward to providing customers with the same excellent service that Wirtgen made available to customers through direct sales in the past,” Burris said. “We also will provide customers and their staff with annual training programs tailored to support their application requirements.”

Wirtgen Retail Sales’ parts department has seven full-time employees who can respond to incoming parts orders from 6 a.m. to 6 p.m. weekdays, and from 8 a.m. to 12 noon on Saturdays. Retail Sales also offers after-hours emergency service 24 hours a day, seven days a week. For more information contact Burris at (615) 838-3369, or Puckett at (901) 628-2153.

Jerry Wright Wraps Up Long Career At Vögele America

After eight years with Vögele America Inc., and over 48 years in the construction industry, Jerry Wright retired at the end of November.

Wright began his career in 1956 with Blaw-Knox. Throughout his career Jerry held positions in sales and marketing that continually shaped the industry, from new product development, to the development of distribution.

As a token of Wirtgen Group’s appreciation Jerry received a plaque for Outstanding Service and Achievement, a Rolex watch, and a two-week, all-expenses-paid vacation to Hawaii during the annual convention of the National Asphalt Pavement Association in February on the Big Island.

“Jerry created value for the paving customer,” said Rich Enners, president of Vögele America Inc. “His contribution to both Wirtgen America and Vögele America will be sorely missed. We all wish he and his wife Phyllis the very best in years to come.”

Kearney Addresses Recycling Contractors

In addition to his many other duties, Wirtgen America’s director of engineering Ed Kearney carries the message of quality, high technology and diverse application of Wirtgen Group products to road contractors and government transportation agencies. Here Kearney addresses the fall meeting of the Asphalt Recycling & Reclaiming Association (ARRA) in Las Vegas in October 2004. Kearney described foamed asphalt road base stabilization to the contractor group, and also serves as chairman of ARRA’s Committee on Recycling Education (CORE) group.

Miracle Kitten Wirtgen America Inc.’s Nashville receptionist Kelley Guffee cradles Wirtgen’s “Miracle Kitten” Chloë in June. The five-week-old kitten had been discovered a week earlier when employees attempted to move a loaded pallet in the Wirtgen equipment yard, and the kitten darted out before it could be crushed by the mobile equipment. No other signs of the cat family were found. Kelley has adopted the kitten and both are doing fine.
Wirtgen

Wirtgen Group Big Winner At The ‘Brickyard’

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Overbuilt Undercarriage Seals Deal For Gazzola’s New 880 RTB Paver

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Hamm

Hamm Oscillation Compaction Solves Longitudinal Joint Woes

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