



CONSTRUCTION PROFILES

A PUBLICATION OF
GUNTERT & ZIMMERMAN

FALL 2015





TECH UPGRADES YIELD PRODUCTIVITY AND SMOOTHNESS KNIFE RIVER PAVES IN IOWA

It wasn't long ago that setting stringlines for concrete slipform paving, especially on highway and interstate projects, was a foregone conclusion. Contractors would have to take the time and spend significant money to survey, set the line and make sure nothing moved while paving. Otherwise, slab quality and ride could suffer. The line not only took time on the front end of the project, it also hindered paving production, as trucks would have to navigate around the lines and backup long distances in order to deliver concrete to the paver.

Scott Hunwardsen – manager of paving for Sioux City, Iowa-based Knife River Corporation, an MDU Resources Company – knows all-too-well the additional time and challenges associated with setting

the stringline. For 30 years, he has worked with and led concrete paving crews. While a hindrance, the string line was also a necessity to give slipform paving contractors the means for meeting steering, elevation and ride requirements.

A job without a stringline can be a little bit unsettling for an experienced paving person entering his first stringless job, like Hunwardsen. But he broke through the technological hump this summer while paving a portion of Highway 3 in Cherokee County in northwestern Iowa. "I'll admit I was a little skeptical of stringless paving going into the job," he says.



NEW PAVER, TECHNOLOGY ADVANCEMENTS

One primary reason for his concern was the age of the paver previously used for decades to reliably pave many Midwest roadways. It wasn't feasible to equip the vintage 1991 slipform paver for stringless paving, so the crew was relegated to paving with a stringline.

It wasn't until the purchase of a new Guntert & Zimmerman S850SL mid-size concrete slipform paver that stringless paving was an option. "Contractors can equip the paver with G&Z's NoLine stringless paving preparation kit," says John Eisenhour, sales manager for Guntert & Zimmerman. "This provides a direct connection for stringless technology into the paver's guidance system and includes telescopic mounts for two total station prisms, so contractors can take full advantage of the benefits offered by stringless paving."

The first project slated for the new paver was the Highway 3 overlay and widening contract, so Knife River's crews could pave stringless. "Transitioning from the 1991 paver to the G&Z S850SL was one heck of a leap in technology all at one time," comments Hunwardsen. Knife River installed a Leica Geosystems product for stringless paving.

The Highway 3 paving project called for a total 32 ft (9.8m) paving width, a 20 ft (6.1m) overlay over the existing road plus 6 ft (1.8m) of widening on each side. "We put a 32 ft (9.8m) paving kit under the frame and were 41 ft (12.5m) wide from track to track," mentions Hunwardsen.

The double telescopic tractor frame design of the S850SL provides standard paving widths ranging from 12 to 26 ft (3.7 to 7.9m). The machine's 90-degree steering feature assists in speeding up

the time it takes to make frame width changes. When paving at the extended width required on Highway 3, Knife River used the exclusive JC Tractor Frame Extension System that extends the paver's maximum paving width capabilities to 39.4 ft (12m).

"The JC Extender system allows tractor frame extensions beyond its telescopic range without the use of a crane," explains Eisenhour. "Adding or removing one of these extenders can be accomplished in a matter of minutes with our patented pin connection system that uses only two pins per extender. This significantly reduces the time it takes to make a frame width change. The S850SL can also be specified with hydraulic clamping pucks in lieu of bolts to hold the frame extensions in place. With just a flip of a switch, the extenders are unclamped, and with the use of 90-degree steering, the extensions can be walked in or out."

When the paver had completed the first half of the Highway 3 project, Knife River also used it on another small stringless county job in South Dakota requiring a 24 ft (7.3m) paving width. Beyond the Highway 3 project, Knife River has plans to use the S850SL on a project requiring widths that fluctuate between 28 ft (8.5m), 26 ft (7.9m) and 24 ft (7.3m).

To quickly adapt to these widths, the contractor added G&Z's TeleEndXL paving end kit end sections to the new machine. These end sections allow one worker or a two-person crew to quickly change a paving width without the use of a crane. The end sections offer up to a 4 ft (1.25m) width change to each side of the paver, allowing the crew to make up to an 8 ft (2.5m) width change in less than two hours.

FAST PAVING, SMOOTH RIDE

Stage 1 of Highway 3 paving was a 5 mi (8.0km) stretch from Marcus, Iowa to just east of Cleghorn. The concrete plant was set up approximately 1 mi (1.6km) west of Cleghorn to expedite truck travel time to the site and reduce the number of trucks required to deliver concrete to the paver. In total, 33,000 yd³ (25,230m³) of portland cement concrete with fly ash was required for the project. Using a maturity meter method to monitor slab strength gain, the concrete achieved its 4000 PSI strength in 34 hours.

The contractor started with milling off the failing asphalt overlay over the full 20 ft (6.1m) width of existing travel lanes. A 2 in (50.8mm) thick asphalt leveling course was then paved. For the 6 ft (1.8m) shoulder extension to each side of the road, the contractor placed a granular base material. The existing travel lanes received a 6 in (152.4mm) concrete overlay, while the shoulders required 8 in (203.2 mm) of concrete.

By June, the road was ready for the concrete overlay. 5 ft (1.5m) long, #4 deformed bars were inserted every 30 in (762 mm) into the existing road. The rods tied together the existing road and shoulder extensions by 2 ft (0.61m) of the rebar sticking into the road and 3 ft (0.91m) sticking into the new shoulder.

One typical concrete slipform paving standard that didn't impede the trucks on this job was the stringlines, which helped to significantly speed up the paving process. There was no surveying or line positioning required at the front end of paving or strings to navigate around during concrete delivery.

Additionally, the S850SL's split guillotine paving kit sideform design allowed the crews to quickly match up to a previously poured slab, which sped up morning starts. This G&Z option splits the standard guillotine sideforms into front and rear sections that operate independently. The rear portion "wings out" as much as 15 degrees to allow the sideforms to clear and back over the previously poured slab.

The paver's swing leg design also helped to increase paving efficiency around box culverts. This design allows the operator to adjust the bolster swing leg angle on-the-fly. "We just walked the legs in and back to get across the culverts which helped to save us time," says Hunwardsen. "With our old paver, we would have to fill the culverts with gravel, pave over them and then remove the fill."

In just 2.5 weeks, Knife River finished paving this Stage 1 of Highway 3 in Cherokee County. The combination of stringless paving, along with significant technological and design advancements of the S850SL paver helped crews to deliver a quality product in a short period of time.

The extremely smooth ride numbers generated by the paver and stringless system put to rest the initial concerns of the 30 year paving veteran, Hunwardsen. "The travel lane ride numbers ranged from the high teens to 20 on zero-band with minimal bumps," he says.

This put Knife River into bonus category. "The ride numbers are excellent," Hunwardsen concludes. "While I was a bit skeptical at first, after paving stringless for the first time I see this as the way to go."



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G&Z PAVER FAMILY GROWS

NEW S400 IS AVAILABLE

The New G&Z S400: Compact Slipform Paver is designed to carry on the top performance of the G&Z brand, while adding even greater value for the customer. The S400 is an entry level, single/dual lane paver with the ability to perform versatile applications including: city streets, ramps, shoulders, highway, airport, dual lane, off-set, zero or minimum clearance and barrier walls. "The S400 is a slipform paver that does not confuse 'entry-size' with 'entry-quality'. Its functional design at an affordable price point opens the G&Z brand to a wider set of the market," says Ron Meskis, President of G&Z. The S400 adds value to the customer in its versatility, low operating cost and productivity.

The first S400 went to work for Golden Triangle Construction in Bridgeville, Pennsylvania – 13 miles south of Pittsburgh. On a 19 million dollar, 4 mile un-bonded concrete overlay project. Describing

the purchase of the S400, David Sciuillo, Vice President of Heavy Highway Construction for Golden Triangle, says, "We bought the S400 because we get results from G&Z products. We get better product coming out the back of the paver which is really the bottom line. We needed a paver to primarily tackle our single lane and shoulder work. The S400 is an economical machine that is competitively priced with other manufacturers, and it comes with G&Z features and quality that aren't available elsewhere in the market."

VERSATILITY

The G&Z S400 is designed to handle a wide range of paving widths and applications. The S400 features a standard telescopic range of 6.5' to 16.5' (2m to 5m). This standard telescopic range gives contractors the ability to pave most single lane applications without



the need for bolt-on extensions. With optional extensions, the S400 can pave out to 24.5' (7.5m) giving contractors a combination single and dual lane slipform paver. The S400 is designed around a multi-purpose tractor frame featuring a universal bolting pattern. The S400 can utilize this universal bolting pattern to easily mount barrier molds, offset kit hangers and attachments allowing the contractor to switch between multiple applications without any major machine reconfiguration. For the contractor, the S400 is an extremely versatile paver. "G&Z is all about innovation. G&Z's innovation doesn't just start with an engineer coming up with something he thinks will work. G&Z innovation has always started with listening and having a dialogue with contractors — asking us what will help us be more productive. With what we've seen from our current G&Z products, I'm looking forward to even newer things that Guntert can come up with," comments Sciallo.

LOW OPERATING COST

The G&Z S400 is engineered to optimize a contractor's fleet while keeping options and maintenance costs to a minimum. The S400 is capable of utilizing most options and attachments available on larger G&Z slipform paver models including: the paving kit, tie bar inserters, trailing finishing pan, final finisher, etc. Not needing to purchase dedicated options and attachments makes the S400 perfect as an entry level machine or as an addition to a fleet of slipform pavers. Sciallo adds, "The fact that G&Z has made its fleet of pavers from the S400 to the S1500 able to share parts is a huge advantage for us. We own an S850, two S600s and now, an S400. The paving kits and most of the options are interchangeable saving us time and money."

The S400's Tier 4i engine features low fuel consumption and does not have a particulate trap like other Tier 4 engines. It also features

extended service intervals. The "Eco-Mode" feature on the S400 reduces fuel consumption by up to 35%. The S400 features a plow over auger design dramatically reducing maintenance costs.

PRODUCTIVITY

G&Z is dedicated to designing machines that Maximize Available Paving Time and Minimize Everything Else. The S400 fits into this design strategy by adopting industry proven and requested options only available from G&Z. AccuSteer and SmartLeg work together to dramatically reduce the time it takes to reconfigure the S400 into 90 degree, counter rotate and transport modes semi-automatically. These features make a real impact for the contractor. Sciallo explains, "The AccuSteer and SmartLeg features are two of the best technologies on the machine. When we're paving and we encounter obstructions of the trackline such as a fire hydrant, utility pole, or curb, we can move the legs out and around those obstructions on the fly, and the track continues to stay straight. That's a big bonus! We've been talking about that for years on pavers, and we're finally able to do that, and it's actually easy to do."

VariWidth and TeleEnd are utilized to reduce paving kit and tractor width change times to a quick 2 hours in most cases. These unique productivity options give contractors the ability to keep the S400 running more hours in a paving season, maximizing productivity and minimizing downtime.

The S400 is an innovative paver that offers unmatched versatility, low operating cost and productivity for G&Z customers. It offers all of the quality and function of the large G&Z pavers in an economical package.



THE SLIPFORM FRONTIER

RIDLATAMA BRINGS NEW TECH TO INDONESIA

Indonesia constitutes what some would call the frontier of concrete slipform paving. A government with ambitious plans and contractors learning as they go makes for a challenging and yet exciting environment.

G&Z has embraced this market opportunity and brought its technology and concrete paving expertise to this frontier. Dispatching its concrete slipform paving experts, G&Z has set about to educate its Indonesian customers not just in machine operation but in all aspects of concrete slipform paving technology. The result of this effort is that the concrete roads being constructed using G&Z equipment are some of the highest quality concrete roads ever built in the country. Everyone from government officials to contractors are specifying or requesting that a G&Z slipform paver be used to construct the roadway being built.

Ridlatama Group is one of these Indonesian contractors. With 14 years of roadbuilding experience in asphalt and manual concrete forming, Ridlatama Group was a perfect candidate to modernize its concrete paving division with a slipform paver to increase efficiency and quality while cutting costs. Ridlatama Group is based and works in the province of Jawa Timur which is in East Java - 2nd largest province in Indonesia after Jakarta.

Ridlatama Group selected the G&Z S600 Multi-Purpose Slipform Paver for its productivity, ease of operation and low maintenance. The G&Z S600 was designed to be a multi-purpose, versatile slipform paver making it an ideal candidate for contractors in developing markets. With its ability to cover the widest variation of widths in its class, change widths quickly and achieve superior smoothness, the S600 provides a realistic one machine solution as opposed to

a multiple machine purchase situation. The S600 can pave widths from 2.5m (8 ft) to 6.75m (22 ft) without frame extensions (up to 9m [29.5 ft] with frame extensions), change widths in a matter of hours, and accept a dowel bar inserter for paving widths up to 7.5m (23 ft). Spanning the single and dual lane applications, the S600 is the perfect choice for an economical mainline paver.

The first project Ridlatama Group prepared for the S600 was Road Improvement Legundi - Bts. Kab. Sidoarjo (Link. 135) / Bts. Kab. Gresik - Krian (Link. 141) – a public street in Surabaya. The project was paved 3m (9.8 ft) wide and 30cm (11.8 in) thick. The total project was constructed in three passes to a finished 9m (29.5 ft) wide public road. The length of the project was 1.6km (1 mi); a great project to get used to the new equipment.

The G&Z Service and Sales Departments sent Ridlatama Group service men that were not only experts in the commissioning of paving equipment but who were also concrete slipform paving experts. Having this expertise on site ensured a clean start up and operation. The results have Ridlatama Group ecstatic about the machine.

“The G&Z S600 Multi-Purpose Slipform Paver is a premium paver in quality and productivity. The operation and controls on the machine are easy to learn and use. For a contractor new to concrete slipform paving, we were surprised by how easy it was to supervise the machine’s operation. The S600 is clearly the best solution compared to other pavers on the market in Indonesia. I say this because what’s most important in the world of a slipform paving contractor in Indonesia is ease of operation and maintenance as well as producing the best quality so the S600 is the ultimate solution for us,” says Novi Endaryono, Director Ridlatama Group.

Changing and modernizing a contractor’s construction means and methods is not an easy task. The initial corporate expenditure for the technology is a hurdle as well as the training and education needed to implement. Ridlatama Group is a forward thinking contractor and saw this up and coming technology in Indonesia as a way to distinguish its company from its competitors. In looking for the right machine solution, the G&Z brand’s association with quality, service and expertise made the decision clear.

With the G&Z S600 purchase made, the implementation was key to ensure the success of not only the paver but the use of slipform paving over manual methods. The results speaks for themselves.

Ir Sri Winarti, General Superintendant for Ridlatama Group, says, “The G&Z S600 paver is an efficient technology to work with. Getting the jobsite ready for paving takes much less time than formwork. We have seen a 50% increase in productivity using the S600 over formwork. If we were to build the road project Legundi Gresik – Krian Sidoarjo manually, it would have taken 3 months. With the S600 it only took 1.5 months. Also, the labor requirements using the G&Z S600 are 65% more efficient. We need 7 people to run with the S600 Paver. When using formwork, we need 20 people.”

Modernizing the concrete road construction method from forms to slipform has not just been proven to reduce production times but has proven to be the more economical method by reducing setup and manpower. This kind of success has given Ridlatama Group confidence to move forward and bid on more concrete paving work.

Ridlatama Group will use the G&Z S600 on their next higher profile highway project. “We will bring the S600 to construct the Mojokerto-Kertosono Toll Road Section 3. We will rely on the G&Z S600 paver because it has proven its quality,” concludes Novi Endaryono.





A TC MACHINE ABOVE THE REST

TOEBE CONSTRUCTION'S NEW G&Z TC1500

Toebe Construction has been building infrastructure projects since 1922. As a third-generation family business, Toebe has its eye on quality workmanship and equipment. When sourcing a new texture cure machine, Toebe took a long look at the options and features provided by G&Z's TC1500.

"I like a lot of the options of the G&Z TC1500. I really like its rigid frame, so when we are longitudinal tining the tine marks stay very straight and equal depth. Also, another great feature is the spray bar; it makes it much easier to change widths and add additional spray nozzles if you need to," says Calvin Doom, Head Paving Mechanic.

As concrete paving jobsites continue trending toward shorter production schedules and more complicated jobsites, mobility and readiness are two key features necessary when considering the purchase of any new equipment. Brandon Beemer, Toebe Paving Superintendent, explains, "The G&Z TC1500 is very easy to get around the jobsite with its 90 degree steering feature. What I liked was when the machine showed up at the jobsite it was ready to go to work shortly after coming off the trailer. The machine was sent to the jobsite set up exactly as we had talked about so there weren't any issues with the machine going right to work."

Toebe purchased the G&Z TC1500 and put it to work in Alpena, Michigan at Alpena County Regional Airport which is a commercial air carrier airport. The airport, conveniently located seven miles west of the city of Alpena, consists of 3,000 plus acres and maintains a 9,000 ft (2743m) north/south runway and a 5,030 ft (1533m) crosswind runway. Alpena is host to one of only four National Guard Combat Readiness Training Centers in the U.S.

As with all G&Z equipment, Toebe's TC1500 came with access to G&Z's world-class service team. The G&Z service team is well versed in training and operation of the G&Z equipment as well as concrete slipform paving best practices.

Praising G&Z service, Brandon Beemer says, "The G&Z service team is great and the most professional of all of the service teams that I have been around. They are very knowledgeable. They were able to train three operators in one day without any problems during the startup of the machine."

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