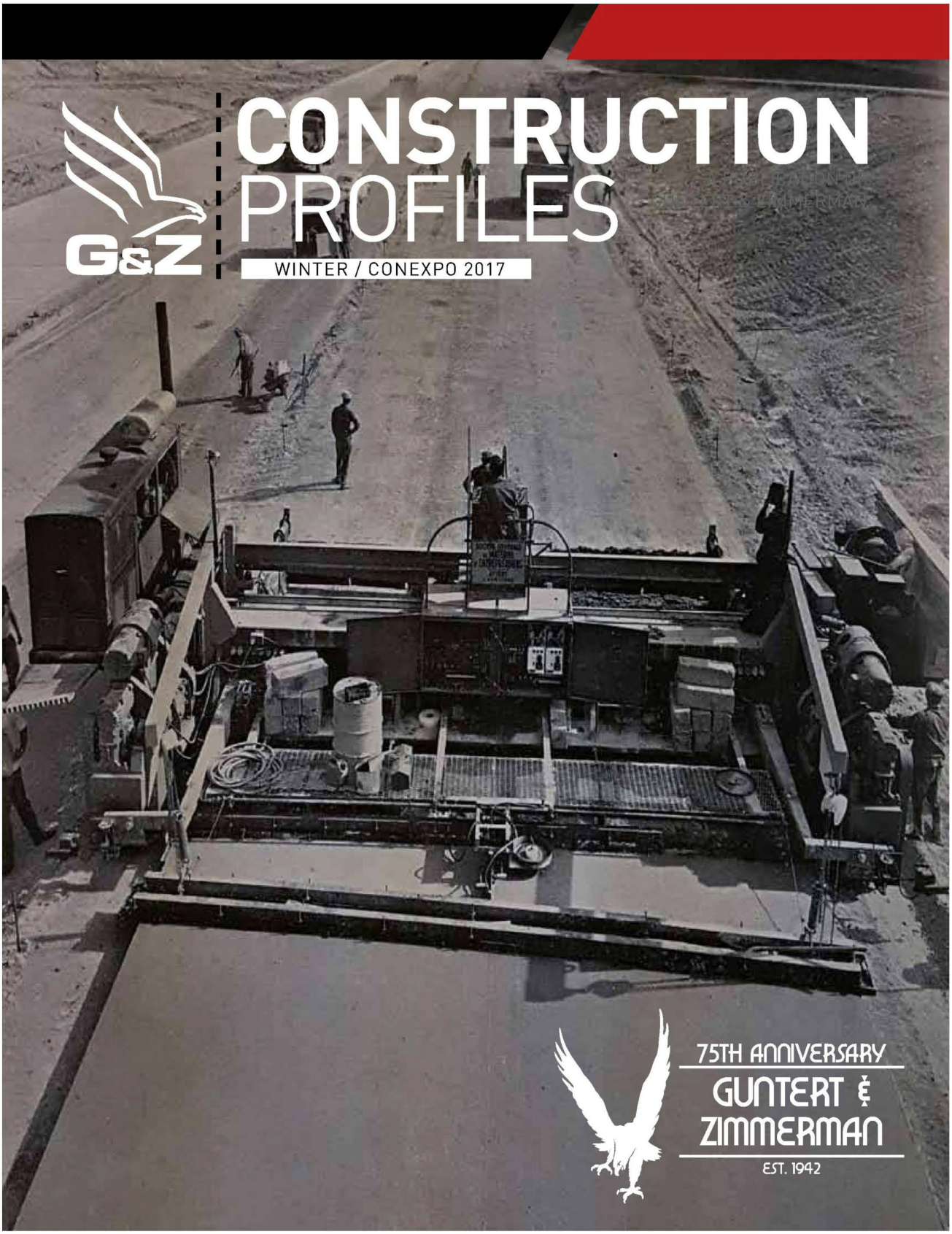

G&Z
CONSTRUCTION
PROFILES
WINTER / CONEXPO 2017
75TH ANNIVERSARY
GUNTERT &
ZIMMERMAN
EST. 1942

GZ 003689

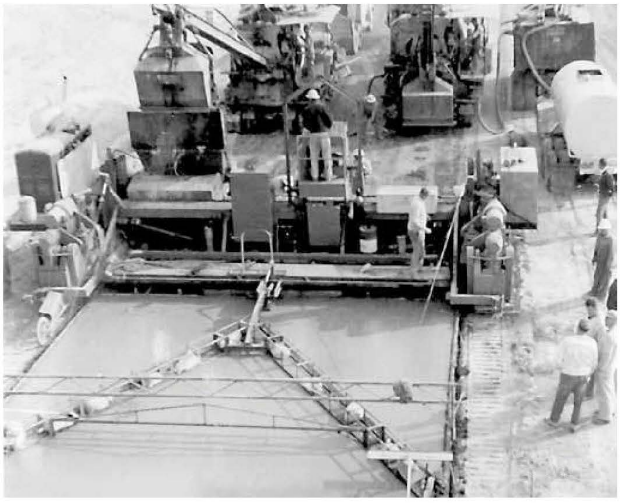
DEAR CUSTOMERS AND FRIENDS:

It is always a pleasure to participate in Con Expo which allows us to catch up with so many of our customers in just one week. Con Expo is extra special this year because it is also Guntert & Zimmerman's 75th anniversary. I am extremely proud of this landmark achievement for our company.

My late father, Ronald M. Guntert, Sr., founded what would eventually become Guntert & Zimmerman (G&Z) in February 1942 during World War II (WWII). Shortly after WII, G&Z turned their attention to the design and manufacture of specialized canal equipment. In 1956, pre-dating the development elsewhere, G&Z pioneered concrete slipform paving on highways by supplying Teichert Construction the first dual lane, crawler track mounted slipform paver with automatic line and grade control for use on their Highway 99 project near Manteca, California. Because the job was bid using fixed forms, Teichert was forced to slipform over forms.

It wasn't until 1959 that the new G&Z slipform paver was finally approved for use on California Department of Transportation projects. Two California contractors that year, The Gordon H. Ball Company on their project near Winters, California and Griffith Company on their project near Fresno, California each started paving with their G&Z slipform paver almost simultaneously. These two machines set new standards for concrete production rates, smoothness and productivity. Within a couple years, these pioneering contractors were consistently producing concrete pavement with smoothness averaging under 2 inches per mile using a 2/10th inch blanking band as measured by the California Profilograph. G&Z pavers have always had a reputation for placing smooth concrete.

In 1963, G&Z licensed SGME-Moser of Herentals, Belgium to manufacture and sell G&Z products in Europe and the UK. G&Z - SGME supplied the first slipform paver to be successfully used in Europe to the French contractor Gailledrat for a concrete highway project outside Paris, France (cover photo). Gailledrat was also the first contractor in the world to use a slipform paver on a thick



concrete airfield pavement at Orly Field in Paris, France. The "GZ" Paver, as the Europeans call it, became an immediate success and its acceptance and use rapidly spread around Europe and the UK.

As you will see illustrated in this magazine, G&Z has a long history of industry leading "firsts" which has carried G&Z throughout its 75 year history. G&Z has built its reputation by pioneering innovative equipment solutions that substantially increase contractor productivity, reducing costs and increasing profitability. This is a reputation that we are very proud of.

G&Z has been committed to the concrete paving industry since my father founded our company in 1942. Thanks to you, 75 years later, we continue to be the most trusted name in the industry and will be here to support you for many years to come.

RONALD M. GUNTERT, JR.
PRESIDENT / CEO

ROLF C. GUNTERT
VICE PRESIDENT

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RONALD M. GUNTERT, SR.

FOUNDER

1911 - 1993

Ronald M. Guntert, Sr. was awarded the American Concrete Pavement Association Hartman-Hirschmann Outstanding Achievement Award in 1992 for personal devotion and years of dedication and involvement in the concrete pavement industry.

ACPA

G&Z HISTORICAL TIMELINE 1942-2017

G&Z LEADS THE WAY

GZ 003691

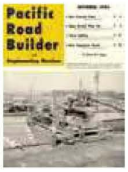
G&Z'S 75 YEAR HISTORY 1942 - 1963

1942

Ronald M. Guntert, Sr., founder of G&Z, forms a limited partnership with Hickinbotham Bros., a local steel service center, and L.R. Zimmerman for the purpose of fulfilling World War II (WWII) contracts. The partnership is known as Hickinbotham Bros. Const. Div., and they establish their shipyard on the Stockton Deep Water Channel on Banner Island, Stockton, California, U.S.A.

During WWII, Hickinbotham Bros. Const. Div. enters into contracts with the Navy and Army Transportation Corps for the construction of floating crane barges, landing crafts, steel tug boats, and inter-island supply vessels. These contracts are completed so effectively that on August 27, 1944, the Army-Navy Production "E" Award for Excellence is presented to the men and women of Hickinbotham Bros. Const. Div.

1956



Concurrently and possibly pre-dating the development elsewhere, G&Z and Teichert Construction pioneer concrete slipform paving on highways by supplying the first dual lane, crawler track mounted slipform paver with automatic line and grade control for use on a section of Highway 99 near Manteca, California. To comply with the contract specifications, the slipform paver has to pave over fixed forms. In 1959, the slipform paving process is finally accepted for use on all concrete highways built in California without the use of fixed forms and rapidly spreads to other parts of the United States.

1963

G&Z pioneers the first slipform paver ever to be used in Europe on a concrete highway project in France being built by the contractor Gailledrat. G&Z licenses SGME-Moser (Herentals, Belgium) to manufacture and sell G&Z products in Europe and the UK. The G&Z or "GZ" Paver, as the Europeans call it, is an immediate success and rapidly spreads to other European countries that build concrete roads. The same year that the slipform paver is introduced for use on European highways, G&Z pioneers the use of the slipform paver on a thick concrete airfield pavement at Orly Field (Paris, France) by the contractor Gailledrat. This is the first time a slipform paver is being used on a concrete airfield pavement anywhere in the world. The first use of a slipform paver on a concrete airfield pavement in the United States is at the Sacramento Metropolitan Airport in California in 1966 by Fredrickson & Watson.

1947

Immediately after World War II, G&Z turns to the design and fabrication of canal construction machinery and supplies its first set of canal machines in 1947. These original machines are used on the Grand Coulee Dam project in Washington State, the Friant-Kern Canal, and the Delta Mendota Canal Project in California. G&Z canal equipment has been used to construct over 80% of the canals in the western United States.

1959

The first monolithic 24 ft. (7.3 m) wide concrete pavement is constructed by true slipform paving methods without fixed forms using a G&Z concrete slipform paver. The Gordon H. Ball Company on their project near Winters, California and the Griffith Company on their project near Fresno, California each start paving with their G&Z slipform paver almost simultaneously. These machines set new standards for concrete production rates and smoothness. The first three lane wide paving ever produced in the world arrives several years later near Sacramento, California by the Gordon H. Ball Company.

GZ 003692

1972 - 1999

1980

G&Z's Belgium licensee, S.G.M.E.-Moser (Herentals, Belgium), introduces the first successful paver mounted Dowel Bar Inserter (DBI) in Switzerland for inserting dowels in the plastic concrete behind a paver. The DBI is mounted off the rear of a two track slipform paver. The year prior to this, S.G.M.E. successfully introduced the first slipform paver without a DBI into the German market. These developments lead to the rapid introduction and acceptance of the slipform paver with Dowel Bar Inserter (DBI) for use in a growing Western European concrete highway reconstruction market.

1996

G&Z introduces its very popular S850 Slipform Paver model that sets a new industry standard for smoothness, maneuverability, and ease of width change and transport. It is during this period that G&Z patents the JC Extenders that are used to speed tractor width changes. Concurrently, the G&Z Quadra Bolsters (hydraulically telescoping bolsters) that connect to the crawler tracks are also patented with 90 degree steering capability which make it extremely easy for the contractor to go from paving to transport mode and makes on site maneuverability easier to reduce the size of hand pours.

1972

G&Z pioneers the first slipform paver ever to place concrete pavement at 50 ft. (15 m) wide at a thickness of 21 in. (50 cm) at the Dallas/Ft. Worth Airport (Texas, U.S.A.). This project is built by a joint venture of the Peter Kiewit Company and the H.B. Zachry Company. The runway slab cross section includes dowels and reinforcing mats and is built using two lift construction including two paving machines, one equipped with a special sidefeeder. Concrete is produced and delivered to the paving spread at rates of 1,200 cyd/hr (923m^3/hr).

1987

G&Z introduces the first successful paver mounted Dowel Bar Inserter (DBI) in the United States on I-45 near Concordia, Texas with H.B. Zachry and a few months later on I-90 near Janesville, Wisconsin with James Cape & Sons. The I-90 project is important because the highway is being paved at 38 ft. (11.58 m) wide and the DBI was supplied to insert the bars at the location of the transverse contraction joint on a 1:6 skew. It is also the first job ever paved with a DBI that met the profilograph specification.

1999

G&Z designs, manufactures, and successfully introduces the first modular DBI attachment that can mount off the rear of a standard four track slipform paver with little or no modification. Long bolster extensions are not required. As a part of this patent, G&Z designs the "Compact" DBI or CDBI Module with self loading capability. The size project required to justify the use of a DBI as well as the time required to transport and change width is dramatically reduced. The CDBI also features G&Z's patented confining pan and four fork per dowel bar insertion method which insures consolidation of homogeneous concrete around the dowel bars and superior bar alignment

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G&Z'S 75 YEAR HISTORY 2001 - 2010

2001

G&Z designs, manufactures and successfully introduces the first hyper-mobile, high production concrete batching and mixing plant built around the first 12 cyd (9.2 m^3) twin shaft mixer ever built in the world. The plant is able to produce highly uniform concrete up to 600 cyd/hr (460 m^3/hr). The plant is completely self-erecting eliminating the need for a crane and does not require foundations. The fully trailerized plant only requires 4 truck loads to move. The MCP Concrete Batch Plant is designed in collaboration with James Cape & Sons. The MCP allows Cape to increase production, improve concrete uniformity, and add a batch plant to its arsenal that is "hyper-mobile".

2009

G&Z introduces its new TeleEnds: Telescopic Paving Kit End Sections which dramatically reduce the time required to change paving widths without sacrificing pavement smoothness. G&Z's TeleEnds allow the contractor to perform paving kit width changes rapidly without removing bolts, use of a crane, and with just a one or two person crew. Each TeleEnd gives the contractor 3 ft. (915 mm) (or 6 ft. [1.83 m] for both sides) of quick width change capability with G&Z Slipform Pavers. With the TeleEnds, a width change that would typically take a four person crew no less than 6 to 10 hours can now be performed by one or two people in two hours or less.

2010

The G&Z S600 Concrete Slipform Paver is designed around a multi-purpose tractor frame that makes it ideal for city streets, secondary roads, highway and airport paving, as well as a wide range of other applications such as barrier walls, off-set paving, and zero or minimum clearance paving. The S600's design redefines what mobility means for a small paver without sacrificing the same performance advantages contractors have come to expect from G&Z's large and mid-size paver. Utilizing G&Z's time tested and rugged paving kit design, the S600 is capable of achieving excellent ride numbers on the toughest IRI and zero blanking band projects.

2005

G&Z designs, manufactures, and successfully introduces its PS1200 Placer Spreader which can spread at widths of up to approx. 40 ft. (12.5 m). The G&Z PS1200 3 or 4 track Placer Spreader is self-loading and can be transported in a single truckload. It is provided with a powerful 64 in. (1626 mm) wide roll-in / roll-out belt, that rapidly receives and spreads the concrete load. Depending on the batch size, hourly production rates between 300 to 500 cyd/hr (228 – 380 m^3/hr) can be achieved. The PS1200 also includes a patented strike off relocation feature which allows the belt side to be changed from one side to the other in under a couple hours.

2009

G&Z teams up with Leica Geosystems and Flynn Construction (Dubuque, Iowa) to place the smoothest concrete ever achieved anywhere using Leica's Total Station stringless technology using a G&Z S850 Paver. On its 10.5 mi. (16.8 km) Highway 65 demonstration project near Mason City, Iowa, Flynn earns 100% of the available smoothness bonus and does zero grinding under Iowa's very strict zero blanking band specification. Since the fall of 2009, G&Z and Leica Geosystems successfully starts up multiple stringless installations around the United States. G&Z and Leica Geosystems commit to taking this relatively new technology for the concrete paving industry to a new level of excellence.

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2011 - 2015

2012

G&Z introduces a Swing Leg (SL) version of the very popular S850 Quadra Bolster (QB) Mid-size Concrete Slipform Paver, which was first introduced in 1996. The SL version of the S850 offers the same smooth ride, maneuverability, ease of width change, and transport of the S850QB, but offers the narrowest profile mid-size paving machine in the industry. With special narrow track pads on one side, the S850SL Paver, with or without a DBI (with bolster extensions), can walk on a concrete companion lane with as little as 12" of room from edge of pavement to the toe of the temporary barrier wall. The S850SL is also available with G&Z's patented SmartLeg design, where the paver's crawler track-mounted swing legs can maneuver around obstacles on the fly while automatically maintaining alignment straight ahead. The crawler tracks can walk in and out or be positioned inside the edge of pavement to cross narrow bridges.

2014

G&Z introduces the S400 Multi-Purpose Slipform Paver, which is an entry level single and dual lane paver with the ability to handle multiple applications including: city streets, ramps, shoulders, highway, airport, off-set, zero or minimum clearance, as well as barrier walls and curb & gutter. The S400 has a functional design at an affordable price point. The same patented productivity features available with the S600 are available with the S400, adding value to the customer. The versatile, cost-effective, and productive S400 can also achieve excellent ride numbers on the toughest IRI and zero blanking band projects.

2011

In early 2011, G&Z files their Swing Leg or "SmartLeg" Patent, which revolutionizes on-site maneuverability of concrete slipform pavers and minimizes the time required to transition the machines into transport mode. This becomes the technology that every paver manufacturer in the world wants to copy. G&Z receives the US patent on the "SmartLeg" system in 2013. The SmartLeg system is comprised of a hydraulically actuating bolster swing leg, a rotational transducer on the swing bolster hinge, and a slew drive mounted on the crawler track with a second transducer to measure track angle. The crawler track can be laterally shifted on the fly while automatically maintaining track alignment straight ahead. This system allows the contractor to maneuver around track line obstacles without the need for stopping to make bolster swing leg mechanical adjustments or resetting the steering transducer.

2013

G&Z introduces the first "IntelliMatics" system in the concrete paving industry, which works in conjunction with their EGON Control System. The EGON operator display gives an all-in-one overview of the paver's I/O (inputs and outputs), system faults, hydraulic pump pressure/filter conditions (clog monitoring with alarm), fuel level, individual forward/reverse track pressure, along with the current machine mode and configuration. The EGON "IntelliMatics" system also features a powerful remote diagnostics/monitoring software in real-time via Wi-Fi, GSM, or GPS technology. The web-based remote user interface allows the ability to download program updates, remotely monitor the hydraulic system (including filter monitoring), equipment location and data logs, along with diagnostics and troubleshooting. The system also provides service reminders and email notifications to the customer. G&Z's EGON system with "remote IntelliMatics" has taken machine connectivity and service to the next level.

2015

G&Z takes the first fresh look at placer designs in more than 30 years with the introduction of the MP550 Material Placer. The design goals achieved include greater on board material holding capacity, versatile and unique hopper design, ease of access to conveyors, belly pack remote control, improved reach and clearance for the swing conveyor, high on-site maneuverability, and powerful propulsion system. With its adjustable flop gate, the hopper can handle a wide variety of trucks. In addition, the machine's optional jacking columns provide better clearance and make machine cleaning easier than ever. The auto level control and powerful propulsion system provide plenty of capability and torque to maneuver amongst steep grades and to push loaded concrete trucks. The MP550 has set a new standard for material placers.

MP550 IT'S HUNGRY.

GZ 003695

G&Z: LANE'S TOP CHOICE FOR THREE DECADES

LANE'S RELATIONSHIP WITH G&Z STARTS IN 1987

The Lane Construction Corporation (Lane), headquartered in Cheshire, Connecticut, has always been known for its leadership in the construction industry. Lane has successfully completed thousands of projects over its 125-year history. One of these projects includes the I-495 Express Lane Project in Virginia, which was one of the largest public-private partnership (P3) projects in the United States, valued at US$ 1.5 billion. In addition, Lane has been ranked as the Top Highway Contractor by Engineering News-Record (ENR) for the third year in a row. In 2016, Lane became a wholly-owned subsidiary of Salini Impregilo SpA, another leader in the world construction industry. Based in Milan, Italy, Salini Impregilo also owns other well-known construction companies around the globe and has paved well over 30,000 mi (50,000 km) of roadways, enough to cross the continental United States at least 9 times.

For three decades, G&Z has been Lane's premiere choice for concrete slipform pavers. Lane's relationship with G&Z started in 1987, when Lane was the low bidder on a contract to do a concrete overlay on 26 miles (41.8 km) of dual lane asphalt pavement on I-80 between Clearfield and Dubois, Pennsylvania. The US$ 44.9 million contract included more than 600,000 yd² (501,676 m²) of unbonded concrete overlay and nearly 400,000 yd² (334,451 m²) of concrete shoulders. Dowels were specified on the transverse contraction joints every 20' (6 m) on a 1:6 skew. Once Lane was awarded this large contract, they moved quickly to acquire a new paver with a dowel bar inserter (DBI) to handle the mainline paving.

Then President of Lane, Mr. Skip Wetmore, met with a young Ron Guntert, Jr. in Ruston, Louisiana to watch T.L. James pave with their new G&Z S1000 Paver with DBI. He was impressed with the machine's paving profilograph numbers of under 6"/mi (96 mm/km) while successfully inserting dowels on the transverse contraction joint with concrete being dumped on grade directly in front of the paver. Wetmore ordered G&Z's S1000 with DBI (shown above) on the spot for the I-80 Pennsylvania job contingent upon the Pennsylvania Department of Transportation (PennDOT) accepting the use of the DBI. It was agreed that G&Z would assist Lane in convincing PennDOT to allow the DBI and that a placer spreader would not be required in front of the paver. After a subsequent trip to T.L. James' jobsite with PennDOT, Lane won their approval for the first use of a

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G&Z DBI in the state and convinced them the specified placer spreader was not required. The I-80 Dubois – Clearfield job was an enormous success for Lane. The project manager on that job was a young man by the name of Robert Alger. Robert Alger is Lane's current President & CEO.

In late 2001, Lane again teamed up with G&Z to convince the South Carolina Department of Transportation (SCDOT) to approve a DBI for use in the state. After numerous meetings, G&Z and Lane were able to convince SCDOT to allow the use of a DBI. This unique job had a strict profilograph specification: using a 1/10th blanking band anything over 10"/mi (160 mm/km) had to be diamond ground to within specification. In addition there was a line item in the contract requiring surface profiling (diamond grinding) the entire concrete surface for skid resistance, quietness, and super smooth ride.

After securing the contract for the US$ 64 million concrete paving job in South Carolina (SC) near Florence on I-95, Lane considered resurrecting their 1988 G&Z S1000 Paver with DBI. After comparing the modern mobility features of G&Z's S850QB Paver with Compact Dowel Bar Inserter (CDBI) to their S1000, Lane decided to buy the latest technology for the job in SC. Once the order was placed, G&Z and Lane's concrete experts immediately began working on an optimized concrete mix design to insure they were delivering the state the most durable concrete possible that would be super smooth. Adding a well graded third aggregate, Lane was able to optimize the concrete aggregate gradations which yielded an excellent mix. On Lane's best days they were achieving ride averages in the 3" to 4"/mi (48 mm to 64 mm/km) range on a 1/10th blanking band and averaging 3,000 lineal feet (914 m) of 24' (7.3 m) wide pavement per day. Another unique aspect in the second phase of the job was the old concrete that was removed from the first phase was crushed and used in the new concrete pavement. Up to 100% of the coarse aggregate was recycled concrete aggregates. Lane was paid US$ 1.9 million in early completion bonus.

DULLES INTERNATIONAL AIRPORT

Lane began paving with their second G&Z S850QB Slipform Paver at Dulles International Airport in Virginia with a Compact Dowel Bar Inserter (CDBI) in June of 2007. Paving was done at a width of 18.75' (5.7 m) with runway depths of 17" (432 mm) and deicing pad at a depth of 16" (406 mm). This new Dulles fourth runway project required the paving experts and Lane and G&Z to work with the airport owner and the design engineer to get their approval to use of the DBI and a third aggregate. Lane wanted the third aggregate to optimize the aggregate gradations in the concrete mix to achieve a quality concrete pavement. Lane also used a MIT scan to check the location of the inserted dowel bars and the bars were all held within a very tight specification.

Emmett Brown, Assistant Superintendent of the Dulles Project with Lane, said, "We are happy with the paver. We averaged over 3,000 yd^3 (2,294 m^3) a day with our best run at 4,000 yd^3 (3,058 m^3) for a 10 hour day. At times the paver was paving at upwards of 10' per minute (3 m/km). The limits we faced were setting up each paving section. We could do more cubic yards, but job specifications limit the amount we can complete each day." The CDBI on the paver allowed Lane to dump concrete on grade in front of the paver. If baskets had been used, it would have required the use of a separate placer/spreader. Brown added, "We did not have any edge slump issues on this project. The edges came out of the paver straight and level."

Robert Alger, President & CEO of Lane Construction, said, "We have had great success with G&Z equipment on heavy 18" to 22" (457 mm to 559 mm) thick pavement. We had the opportunity to insert dowels at Dulles for the first time on an airport, and there was really only one paver that we felt comfortable using and that's the G&Z. We've used the paver before (without CDBI) on heavy airport pavement, and now that they allowed us to use a dowel bar inserter, G&Z was the only piece of equipment that made sense."

WRANGLING THE TEXAS HIGHWAYS

In 2016, Lane purchased its third S850QB Concrete Slipform Paver from G&Z. Lane's third S850 went to work in late 2016 in Mansfield, Texas on State Highway 360 (SH 360). In a joint venture with Abrams (Lane-Abrams), the team has begun paving a 4-lane, 9 mile (14.4 km) toll road extension from I-20 to State Highway 287. In addition, the team is also required to construct several dual-lane sections of frontage road and road bridges. The first phase of the US$ 287 million project will enhance the region's traffic flow and improve roadway safety. The second phase of the project (US $600 million) is in the works, and will progress depending on funding. An estimated 235,000 yd3 (179,600 m3) of concrete will be required for the project. The annual daily traffic (ADT) count for the corridor is currently around 50,000. In the

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next 13 years, the ADT is expected to more than triple to 170,000.

On the SH 360 project, Lane's S850QB was performing dual-lane paving at a width of 24' (7.3 m) on top of a compacted base. The continuously reinforced slab was 10.5" (26.6 cm) thick. The longitudinal rebar within the concrete included full width (transverse) rebar sections at 2' (60.8 cm) intervals. On the job, the crew paved sections as long as 3,800' (1,158 m) in a single day, or 2,814 yd3 (2,152 m3) of concrete.

Given that the job involved several subcontractors and was completed in multiple sections, the crew was frequently required to move the paver in and out of an area. Despite this challenge, G&Z's S850QB had no difficulty getting around. "One of the things that makes G&Z pavers great is their maneuverability on the job," says Willy Barnett, Paving Superintendent at Lane. G&Z's hydraulically telescoping bolsters and jacking columns with 90 degree steering are just some productivity features that make this possible on the S850QB. "With G&Z pavers, we can easily go around obstacles and even work in tight situations," added Barnett.

In addition, the job's specifications required the team to achieve International Roughness Index numbers (IRI) of 75 or less. Any 0.1 mile section with an IRI greater than 75 was subject to corrective action. Despite the stringent IRI specifications, the paver yielded exceptional smoothness with an average IR in the high 40s. Another challenge the crew faced was the trip required from the concrete plant to the jobsite. Twenty truckloads of concrete were placed in front of the paver per hour. On average, the trip from the plant to the site took ten minutes. The paver's spreader plow and stout frame made it easy to handle the concrete, even at the lower end of the slump range.

Two paving widths are required on the job. This brought the paving kit from the original 24' (7.3 m) down to 22' (6.7 m) "Compared to other pavers we've used, G&Z's pavers make width changes easy," commented Barnett. This is possible with G&Z's patented VariWidth and TeleEnds technologies. VariWidth allows the paver tractor frame to telescopically expand or contract based on the required paving width on the project. Hydraulic clamping pucks on the telescopic tractor frame center module eliminate the need to loosen and tighten bolts on the center module clamping plates. Telescopic end sections "TeleEnds" of the paving kit have spacers in 6" (15 cm) increments that can be added and removed from the paving kit by hand. The spacers are hydraulic clamped together and can accommodate up to 4' (1.25m) of width change per side…no bolts or adjustment required Width changes can be accomplished in hours instead of days.

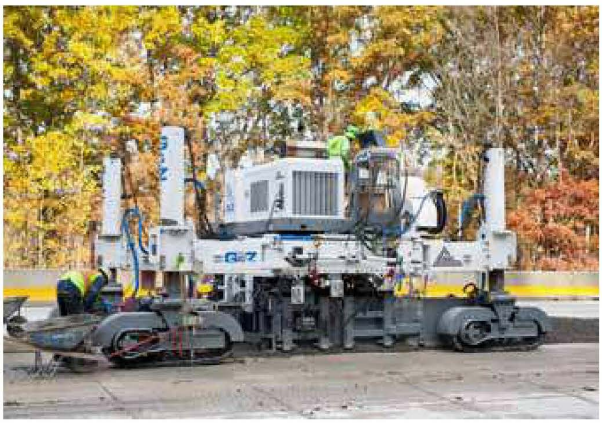
Lane will continue to use its new S850QB on the first phase of the SH 360 project and plan to use it on the second phase of the project when funding becomes available.

G&Z S400 PAVER

A TOP SELLER IN 2016

The New G&Z S400: Multi-Purpose 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 much wider market," says Ron Guntert, President/CEO 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 on a US $19 million, 4 mi (6.7 km) un-bonded concrete overlay project located 13 mi (21.7 km) south of Pittsburgh. Describing the purchase of the S400, David Sciullo, 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."



RAMPS & INTERCHANGES / CITY & MUNICIPAL STREETS / CONCRETE OVERLAYS
SHOULDERS & BIKE PATHS / COUNTY & SECONDARY ROADS / MAINLINE PAVING
AIRPORT PAVING / BARRIER WALL / CURB & GUTTER / CANAL & RESERVOIR LINING

GZ 003699
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AUSTIN BRIDGE & ROAD

PUTS G&Z S600 TO THE TEST AT AUSTIN-BERGSTROM INTERNATIONAL AIRPORT

Austin Industries has more than 100 years in the heavy highway and transportation infrastructure industry with landmark projects from Arizona to North Carolina including urban highway interchanges, tollways, runways, port facilities, border crossings, automated mover guideways, and specialty bridges. Based out of Irving, Texas, Austin Bridge & Road, a division of Austin Industries, was formed in the 1980's when Austin Bridge, Austin Paving, and Austin Road were merged. With their storied history and their executive staff's combined experience of roughly three centuries, Austin Bridge & Road was well suited to take on the concrete paving project at the Austin-Bergstrom International Airport.

Opened in 1999, Austin Bergstrom International Airport 300,000 ft^2 (27,871 m^2) terminal concourse and the 24 contact gates on the existing apron were designed for a capacity of 11 million passengers per year. While 2014 saw more than 10.7 million passengers and 11.9 million passengers in 2015 using the airport, the airport has already exceeded its capacity in less than a 20-year span. The expansion project will increase the capacity to 15 million passengers annually. It is anticipated that it will be at least 2025 before that level of passenger traffic is reached.

The expansion project is expected to be done in three phases. Phase 1 includes 528,400 ft^2 (49,088 m^2) of pavement (2017), Phase 2 includes 314,000 ft^2 (29,171 m^2) of pavement (2018), and Phase 3 includes 466,800 ft^2 (43,366 m^2) of pavement (2019) of which Austin Bridge & Road was awarded the apron paving for the expansion. With Austin Bridge & Roads heavy back log, Austin needed to invest in some additional concrete paving equipment

GZ 003700

to handle their existing work in addition to the airport work. Austin Equipment Division personnel, reached out to the industry to collect feedback on the available equipment in the market. Between the feedback received from other G&Z customers, technical presentations from the G&Z staff, and productivity features that allow for quick width changes and site mobility, Austin Bridge & Road selected two G&Z S600 Concrete Slipform Pavers equipped with the Trimble Stringless Technology.

At the Austin-Bergstrom International Airport, Austin Bridge & Road is paving a series of 20 ft (18.3 m) and 25 ft (7.62 m) wide PCC sections at 16.5 in (419 mm) thick plain concrete with dowels baskets located the transverse contraction joints. Dowels were also specified on the longitudinal construction joints which were drilled and grouted. In order to save time changing between 20 and 25 ft widths, Austin Bridge & Road selected G&Z's patented paving kit "Telescopic End Sections" (TeleEnds) which have 3 ft (1000 mm) of telescopic ability per side for a total of 6 ft (1.83 m) of quick width change. Utilizing the TeleEnds, in conjunction with the S600 tractor patented hydraulic clamping puck and roller system (VariWidth) and telescopic access walkway, the patented hydraulic swing legs (SmartLeg), and slew drive for steering (AccuSteer) features, Austin Bridge & Road was able to rapidly switch between 20 and 25 ft. "The S600 can really build a great edge and the finish is very good. Service and support has been great from G&Z…anytime we call we get answers" according to Luis Leal, General Paving Superintendent.

Austin Bridge & Road received the first of the two S600 units at the Austin-Bergstrom International Airport in October 2016 and put the S600 to work immediately. The S600 was

equipped with Trimble Stringless Technology. Shortly after the concrete pavement start up, Austin Bridge & Road experienced some difficult challenges with the concrete paver. According to Rod Jablonsky, "There was a series of unfortunate events when the first S600 was delivered but G&Z's knowledgeable staff responded quickly to correct the issues and stood by their product. Austin Bridge & Road has not lost any confidence in Guntert & Zimmerman equipment and still feel it was the best decision" The equipment is back to work and performing to G&Z's quality standards.

Austin Bridge & Road received their second S600 later in 2016 and was put to work in McKinney, Texas on their US75 project. The S600 was configured to a 28 ft. (8.53 m) paving width and was utilizing Trimble Stringless to pave and match grade.

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ROOS: QUALITY CONCRETE ROADS IN BELGIUM

G&Z PIONEERED THE EUROPEAN MARKET IN 1963

The country of Belgium, located in the center of Western Europe, with a population of approx. 11 million people, has always been a big believer in building concrete roads for long life, low maintenance and smoothness. It is estimated that of Belgium's 1726 km (1,035 mi) of motorways (freeways), started in the 1950s, between 35 to 40% of this network is concrete. Many kilometers of this motorway network are continuously reinforced concrete pavements (CRCP.)

The advantage of CRCP is the absence of transverse joints. Crack and shrinkage is controlled by the concrete's bond to the longitudinal reinforcement. The maximum crack width is 0.5mm (1/64 in) and the ideal distance between the cracks is 0.7 to 1.5m (2.3 to 4.9 ft.) The longitudinal reinforcement as a percentage of the slab cross section in CRCP pavement is between 0.60 – 0.85%. Today in Belgium this percentage is 0.75%.

The first successful concrete slipform paver introduced into Europe was a Guntert & Zimmerman supplied in 1963 for a highway project outside Paris, France. Shortly before this, G&Z licensed SGME-Moser, Herentals Belgium to manufacture and sell G&Z concrete paving equipment in Europe and the UK. Thus G&Z has always had a very close connection with Belgium. More than 25 large slipform pavers, built and sold and under license with G&Z by SGME, were supplied in the little country of Belgium alone.

Prior to the 1963 license agreement, concrete roads in Belgium were built by conventional concrete paving train, sometimes comprised of as many as seven fixed form riding machines and a paving crew of 22 not including the form

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setting crew. Production was limited to approx. 90 m^3/hr (117 yd^3/hr) and required the use of special side tipping concrete trucks. This is in contrast to a G&Z slipform paver that didn't require forms, and only required a train of two machines and a crew of 8 to 9 people. When using a slipform paver, concrete production rates of over 300 m3/hr (392 yd^3/hr) were possible depending on the concrete delivery method. The G&Z slipform paver revolutionized concrete paving in Europe, and every slipform used in the world today evolved from the development of G&Z and their licensee SGME-Moser.

Since the early 1970s, CRCP is the only concrete pavement type specified for use on motorways in Belgium. The first CRCP paving in Belgium with a slipform paver was done in 1971 with a G&Z SGME slipform paver and push-type sidefeeder attachment by the Belgium contractor Sogetra.

HIGH PROFILE MOTORWAY LINKING CHARLEROI TO FRENCH BORDER

The most important new motorway project in Belgium in 2016 was a new 8.6 km (5.2 mi) section of the E420 (Belgium highway designation A304) which bypasses the city of Couvin linking Charleroi to the French Border. The Dutch contractor Roos Group is executing the 190,000 sqm (227,234 yd^2) "Couvin" project as the subcontractor for the Dutch contractor BAM.

The dual lane, concrete motorway mainline is 7.75m (25.4 ft) wide. The shoulders are also concrete. The motorway mainline was constructed using CRCP pavement and built using two lift construction. The 18 cm (7.1 in) thick 1st (bottom) lift was placed by Roos' SP850 paver immediately followed by G&Z S600 Paver used to place and precisely finish the 6 cm (2.36 in) thick 2nd (top) layer. "For phase 1 of the project, which is almost finished, the results are more than satisfying according to all the different parties. The smoothness of the surface is even better than expected, according to the commissioning company. The fact that the Guntert & Zimmerman S600 slipform paver is able to pave concrete with really low water-cement ratio ensures optimal compaction of the concrete, high load resistance, and efficient use of raw materials", according to Peter Roos, CEO of the Roos Group. The result of these efforts will be a safe, state of the art highway which will be used as the primary connection between Charleroi and the France Border for at least 30 years. The mainline pavement totaled 133.300 sqm (159,423 yd^2).

The motorway passes through the hilly Ardennes forest. This explains why the mainline pavement must be widened with concrete shoulders. The shoulders are built of a single lift, CRCP pavement. The wide shoulders allow trucks to pull over and stop at the side of the road when icy. The 5,80m (19 ft) wide shoulder was paved using the G&Z S600 as well. The 2,30m (7.5 ft) wide shoulder was paved using a special machine built by Roos (RM300.) The shoulders totaled 56.700 sqm (67,812 yd^2.) Peter Roos also added that "The biggest part of this project will be executed with the Guntert & Zimmerman S600 paving machine. The two S600 paving widths on the project are 7.75m and 5.80m." Roos purchased the G&Z S600 Paver in 2010. Roos went on to say "I am very happy with the machine, and the service of Guntert & Zimmerman. In the beginning there were some little issues but Guntert& Zimmerman did all that was necessary to solve these problems, even in Europe."

Concrete production for mainline pavement was provided by Roos' mobile concrete plant which has a practical output of 80m^3/hr (105 yd^3/hr) for bottom layer while the top layer was supplied by truckmixers supplied by a ready-mix concrete supplier at a rate of 26m^3/hr (34 yd^3/hr). Daily concrete production on site averaged between 1,100 – 1,200 m^3/day (1438 – 1,570 yd^3 / day) or up to 640 m (2,100 ft) of concrete pavement/day.

Concrete side-feeding method for the CRCP mainline pavement on the 1st (bottom) layer was by end-dump trucks which discharge their concrete load into a "container

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box", and then an excavator with special bucket was used to spread concrete in front of the paver. The second (top) layer concrete also used a container box with concrete supplied by truckmixers (sometimes two truckmixers at a time) and an excavator to spread the concrete in front of the second lift paver.

UTILIZING EXPOSED AGGREGATE

The "exposed aggregate" surface treatment is a Belgian development dating back to 1979 as an alternate to earlier practices of deep, transverse tining which, because of displaced surface concrete, resulted in noisy pavements. The process of exposing the aggregates includes spraying a sugar based product on the concrete surface (to retard the setting of the surface mortar), covering the surface with plastic and then the next day washing / brushing out the laitance to expose the aggregate. This was first tried in 1979 on the Brussels ring road and became the preferred method of texturing in Belgium and is now mandatory. Since 1980, every square meter of Belgian motorway concrete pavement has been executed using an exposed aggregate surface including national and secondary roads.

In the beginning, exposed aggregate surfaces were used on concrete mixes having up to 40mm (1.5 in) top size aggregate; however, this also resulted in a noisy surface. The use of small aggregates on the surface to reduce pavement noise came from the developments in Austria of Dr. (Dipl. Ing.) Herman Sommers, Director of the Austrian Cement Research Institute in 1989. Later Belgium limited the top size aggregate to 20-22mm (approx. ½ to 5/8 in) stone and increase the content of smaller sized aggregates. However, from empirical experience, it was found that for maximum noise reduction, the thin upper layer must contain small <9.5mm (3/8") minus immediate size aggregates. According to Peter Roos, CEO of Roos Group "To make this kind of pavement long lasting for over 30 years with minimum maintenance, CRCP is naturally the best choice. To ensure the highest reduction of noise for the local residents, we needed to pave the concrete in two lift construction. The upper layer consists of a concrete mix with fine granulate porphyry 4.75-6.3 mm (no. 4 - 1/4") aggregates ."

The quality of the finished projects within the Roos Group the last couple of years is really high. The Roos Group is still continuously improving their processes every day, to create a more satisfying experience for the motoring public, as well as performing for their customers.

Guntert & Zimmerman is proud to call the Roos Group a customer. Roos has an excellent reputation for service and their internal expertise, allowing them to deliver high quality, sustainable, safe and smooth riding concrete pavements. Even if custom designs are required to realize a project, the Roos Group is experienced in delivering the appropriate product. They also own a wide variety of concrete paving equipment, some of it customized by Roos to meet their project's needs. This internal capability allows Roos to take on any size or type of concrete paving project.

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PARTS & SERVICE DEPARTMENT
YEARS OF EXPERIENCE

Guntert & Zimmerman's Parts Department is one of the company's many assets. The Parts Department is available **24/7** reducing downtime and giving our customers the peace of mind that we're always available no matter where you are in the world. G&Z Inside Sales Team has decades of parts experience with G&Z machines. Their expertise allows our customers to receive the right parts the first time.

We pride ourselves in our customer service. That is why we stock parts at our facility to ensure availability when a customer needs them. If we don't have it, we'll find it for you quickly. With G&Z it's not necessary to talk to an under stocked distributor. Customers speak directly to the G&Z factory in Ripon, CA which is located just 1.5 hrs from four major airports with international service. If you do not know the part number, G&Z's staff can promptly locate the correct part for your machine and in many instances have it shipped the same day.

G&Z's staff has a simple unwavering instruction...**when a customer calls, drop what you are doing and take care of the customer's needs, NOW!** Our dedicated staff is knowledgeable about the various construction disciplines where our equipment is used. If there is a question a staff member cannot answer for you, they will quickly put you in touch with someone who can.

G&Z service techs not only hold intimate knowledge of G&Z equipment, but also of the concrete paving, trenching and canal construction processes. The service department can be reached **24/7** by phone and e-mail. We assist not only in commissioning, training and teaching the best maintenance practices of G&Z equipment, but also consulting in the areas of concrete mix design analysis and construction techniques and applications. Our goal is to see your equipment perform above and beyond any specifications or expectations.

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SERVICE DEPARTMENT:
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GZ 003705

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MP550
Material Placer

Receiving Hopper	Approx. 5 yd^3 (3.8 m^3)[1] Powerful Variable Speed 14" (355 mm) Auger 23" (584 mm) High Front Lip with Hydraulic, Hinge Up, Flop Gate
Conveyors	Swing Conveyor: 36" (914 mm) Wide x 35' (10.66 m) Long 170° of Swing Capability Transfer Conveyor: 36" (914 mm) Wide x 23' (7 m) Long Variable Speed: 0 - 600 fpm (0 - 183 mpm)
Propulsion System	4 Wheel Drive - High Flotation Rubber Tires 5 Steering Modes - Coordinated, Crab, Front, Rear, and Optional Automatic Working Speed: variable approx. 0 - 110 fpm (0 - 33.5 mpm) Walking Speed: variable approx. 0 - 9 mph (0 - 14.5 km/hr) Approx. 12' (3.66 m) Steering Radius[2]
Elevation Control	Standard: Hydraulic Hopper Height Adjustment Optional: 4 Jacking Columns with 27" (685 mm) Hydraulic Height Adjustment
Machine Weight[3]	Approx. 45,000 lbs (20,547 kg) Approx. 55,000 lbs (25,113 kg) with optional jacking columns
Engine Power	260 HP (193 kW) 6 Cycle Tier 4i Diesel Engine with ECO Throttle

[1] Two belts together hold an additional approx. 3.75 yd^3 (2.86 m^3)
[2] To Centerline of Inside Tires
[3] Dry Weight
US and International Patents Pending

VERSATILE

State of the Art Propulsion System

Belly Pack Control System

Hinging Swing Conveyor

HIGH PRODUCTION

Largest Hopper Size

High Capacity Conveyors

Adjustable Pusher Rollers

EASY MAINTENANCE

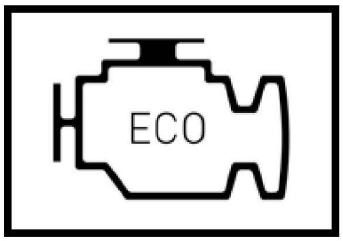
Quick Release Hopper

Swing Open Side Panels

Easy To Change Continuous Belts

LOWEST OPERATING COST

Premium Tier 4i Engine



ECO-Mode

Easy to Access Transfer Belt

GZ 003707

Patent Owner, Guntert & Zimmerman - Ex. 2042 p. 19

TECHNOLOGY AVAILABLE ONLY THROUGH G&Z

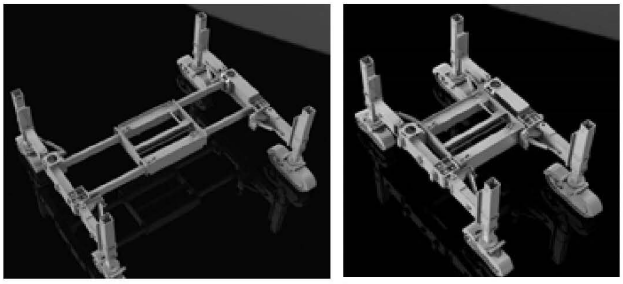
G&Z is dedicated to designing machines that **Maximize Available Paving Time and Minimize Everything Else**. G&Z's Exclusive industry proven and requested options include: AccuSteer, SmartLeg, TeleEnd, VariWidth and more. These optional systems work together to reduce paving kit and tractor width change time, easily maneuver onsite, quickly reconfigure the machine, and transport to dramatically save time.

G&Z is committed to making its customers as productive as possible. G&Z offers a wide range of technologies to help contractors have as many paving days as possible during the season. Listening to contractors' needs and engineering patented solutions makes G&Z equipment: **Contractor Inspired. Guntert Engineered.**

MAXIMIZE AVAILABLE PAVING TIME WITH FASTER WIDTH CHANGES

Changing widths quickly without affecting pavement smoothness is a significant challenge. With the combination of the TeleEnd and VariWidth systems, changing both the paving kit and tractor widths has never been quicker or easier. With TeleEnd, no need to drop the kit to change width. TeleEnd uses hydraulic cylinders to open and close the end section to add or remove sections of kit. VariWidth is designed to eliminate the need to support the tractor or unbolt extension tube clamping pucks. VariWidth uses adjustable cam rollers and hydraulic clamping pucks to accomplish quick and easy tractor width changes.

VARIWIDTH *(PATENTED)* TRACTOR WIDTH CHANGES



The VariWidth system features adjustable cam rollers and hydraulic clamping pucks to easily extend and retract tractor extension tubes. This can be accomodated without supports or a "two-stage" telescopic tube, which can cause the frame to sag and adversely impact steering and smoothness. VariWidth can reduce tractor width change times from hours to minutes.

TELEEND *(PATENTED)* TELESCOPIC END SECTION

The TeleEnd: Telescopic Paving Kit End Section offers 3' (1m) of quick change kit per side. A 6' (2 m) width change can be accomplished by one or two people in as little as an hour. TeleEndXL's are available allowing up to 4' (1.25 m) per side. TeleEndXXL's are also offered for up to 6.5' (2 m) per side.

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MAXIMIZE AVAILABLE PAVING TIME WITH SUPERIOR MANEUVERABILITY

AccuSteer and SmartLeg systems take paver productivity to the next level. The two systems work in tandem to adjust the swing leg angle on-the-fly while the crawler track automatically steers straight ahead. These two systems rapidly and semi-automatically reconfigure the machine into the transport configuration.

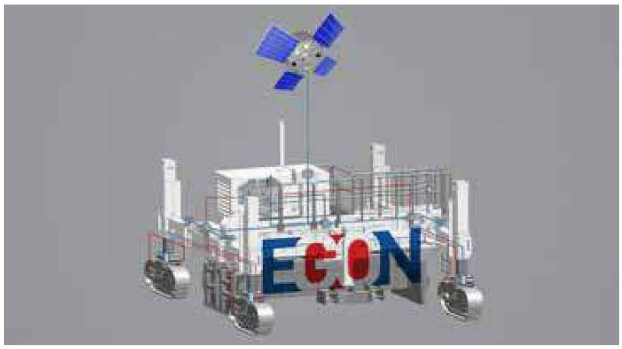
ACCUSTEER *(PATENTED)* SLEW DRIVE TRACK CONTROL

The AccuSteer system offers unparalleled maneuverability and steering accuracy while allowing steering in 90 degree and counter-rotation mode in every swing leg position.

SMARTLEG *(PATENTED)* SWING LEG SYSTEM

The SmartLeg system allows contractors to adjust the swing leg angle on-the-fly to maneuver around an obstacle without stopping production.

What's the use of great features and options without easy to operate controls? G&Z's Equipment Guidance and Operation Network (EGON) makes operating a piece of G&Z equipment easy and intuitive. Also, EGON boasts great add-ons like IntelliMatics™, NoLine: stringless integration, and remote operability. As new technologies become available, integration and operation should not be difficult and time consuming. EGON's simple and intuitive "plug and play" integration makes the latest advancements available to all customers.



EGON is a Next Generation Operator Control System that incorporates user friendly features, a modular state of the art network of controllers, extensive onboard and remote monitoring options, and diagnostic capability to allow superior ease of use and troubleshooting. It has never been easier to operate, reconfigure, diagnose, and manage a piece of concrete paving equipment.

EGON IntelliMatics™ is a powerful remote diagnostics/monitoring system. The G&Z software engineering team has designed a web based remote user interface to allow maximum connectivity anywhere in the world for the contractor as well as for solving challenges with G&Z service personnel.

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CANAL LINING EQUIPMENT

Guntert & Zimmerman pioneered the use of mechanized and automated canal construction machinery starting in 1947. Through the years, G&Z's canal equipment has proven itself to be highly durable and reliable. Some G&Z canal equipment built and sold in 1975 is still being used today. These tools have maintained their value and have kept their owners in a competitive bidding position throughout the long life of the equipment. The machine design is intended to allow the machine to be reconfigured for a wide variety of canal sections. They can even be converted for use on highway and airport paving. In regions of the world that rely heavily on irrigation, such as the western United States, Spain and South Africa, G&Z equipment has been used to construct **more than 80%** of the existing concrete lined canals.

EAGLE TRENCHERS

Guntert & Zimmerman is committed to manufacturing high quality wheel trenchers to increase your productivity, lower your operating costs, and insure ease of operation. Eagle Trenchers are an excellent choice for a wide variety of high production trenching applications, such as foundations, utilities, irrigation and fiber optic installations. Eagle Trenchers are built rugged enough for your toughest jobs.

CONVERTIBLE HIGHWAY AND AIRPORT **EQUIPMENT**

As an alternative to a custom built solution, G&Z's Highway and Airport Concrete Paving Equipment can be converted into canal and reservoir liners with minimal modification, such as the S1500 paver shown. The G&Z TC1500 can also be converted to a cure jumbo for canals and reservoirs.

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G&Z CONCRETE
SLIPFORM PAVING EQUIPMENT

Guntert & Zimmerman's (G&Z's) Slipform Paving Equipment are the most trusted machines in the business. In 1956, G&Z pioneered and introduced the first concrete highway and airport slipform paver mounted on crawler tracks with automatic line and grade control. Today, G&Z offers a full range of concrete slipform paver models along with other support equipment, such as mechanical Dowel Bar Inserters, Placer Spreaders, Material Placers, and Texture Cure Machines to suit your present and future needs.

G&Z equipment designs are based on 75 years of experience. G&Z paving equipment is built to last under the rigors of job site use, transport, and configuration changes. Unique productivity features are incorporated in the machine design to reduce the time required to transport, maneuver, and change paving widths without sacrificing the performance advantages contractors have come to expect from a G&Z.

CONCRETE SLIPFORM PAVERS

S400
6.5' - 24.5' (2 - 7.5 m)

S600
8' - 31' (2.5 - 9.5 m)

S850 (QB OR SL)
12' - 41' (3.5 - 12.5 m)

S1500
18' - 52.5' (5.5 - 16 m)

CONCRETE SLIPFORM PAVING SUPPORT EQUIPMENT

DBI
Dowel Bar Inserter

MP550
Material Placer

PS1200 PLACER SPREADER
18' - 41' (5.5 - 12.5 m)

TC1500 TEXTURE CURE MACHINE
12' - 56' (3.5 - 17 m)

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GZ 003712