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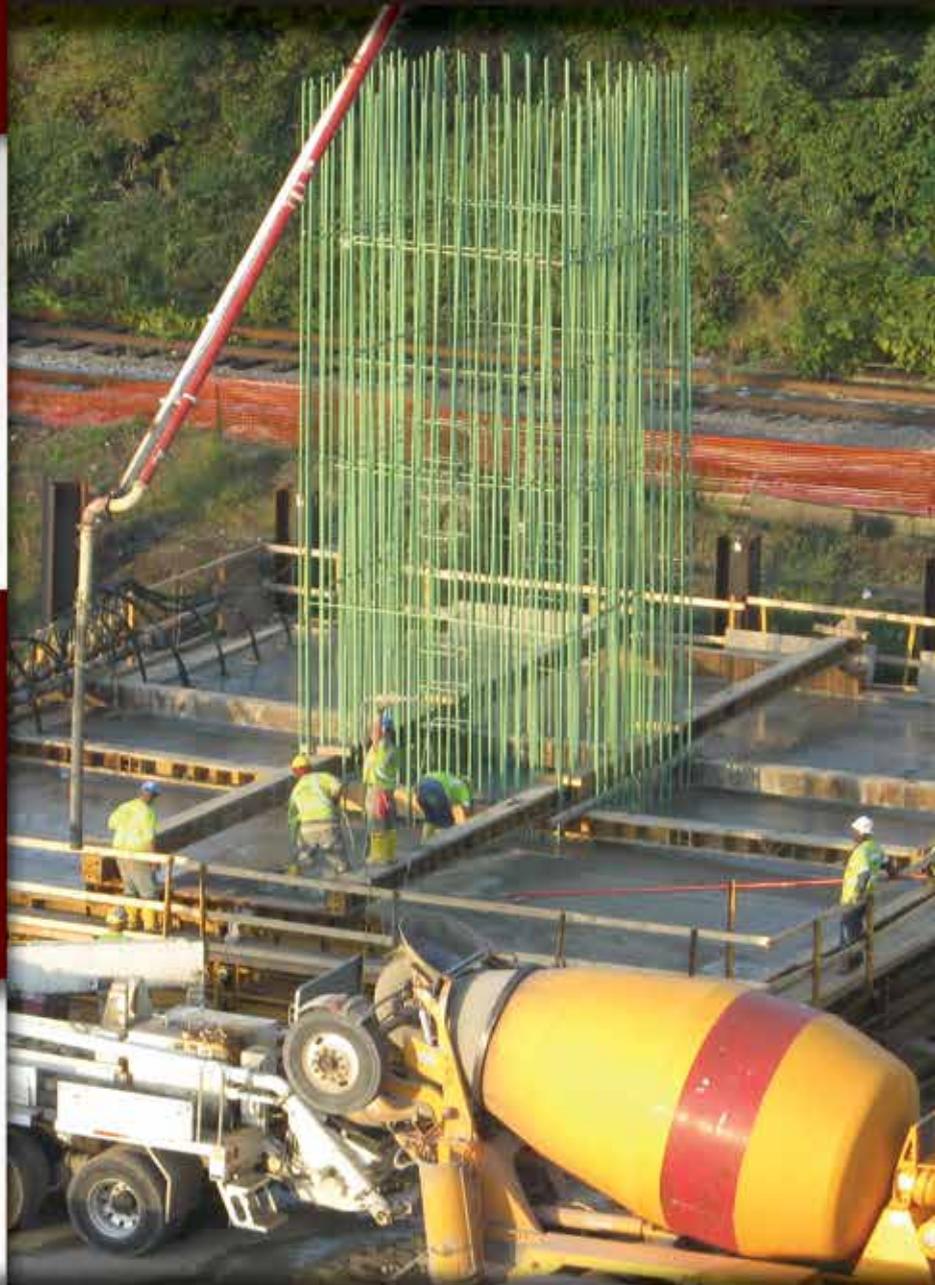
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Mack Trucks was honored by the Environmental Research & Education Foundation (EREF) for its long-standing support of the organization's work in funding research for sustainable waste management practices. Since 1997 Mack has sponsored EREF's Annual Charitable Auction, which raises funds for research and education to advance waste management technology and practices. EREF recognized Mack's ongoing support at the 2016 auction, which was June 7 at WasteExpo 2016 in Las Vegas.

Mack contributed three chassis models to the auction with truck bodies provided by equipment manufacturers in the waste management industry. Bidders could choose from a Mack® Granite® Axle Back with a Galbreath hoist, a Mack LR model with a Heil Odyssey HPF front loader and a Mack TerraPro® Cabover with a McNeilus front loader.

Winning bids for the three trucks accounted for more than \$800,000 of the \$1.6 million raised at the event. Since the auction was first held 22 years ago, EREF has received more than \$16 million to support its mission.



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Founded in 2001, Mobile Ag & Industrial Supply is a certified California small business and Kern County's leading supplier for farm equipment. In addition to its large equipment showroom, the company has a parts department, equipment service department and the largest in-stock inventory of safety and industrial supplies in the area.

"The heart of Mobile Ag & Industrial Supply is service, and our customers are our number one asset," said Kari Mitchell, President of Mobile Ag & Industrial Supply. "The addition of JCB's world-famous agricultural equipment will help us broaden our customer base and offer the best equipment available."

For more information about Mobile JCB visit www.mobileagca.com. To learn more about JCB and its equipment for the construction, agricultural, industrial, waste/recycling, rental and landscaping industries, visit www.jcbna.com.

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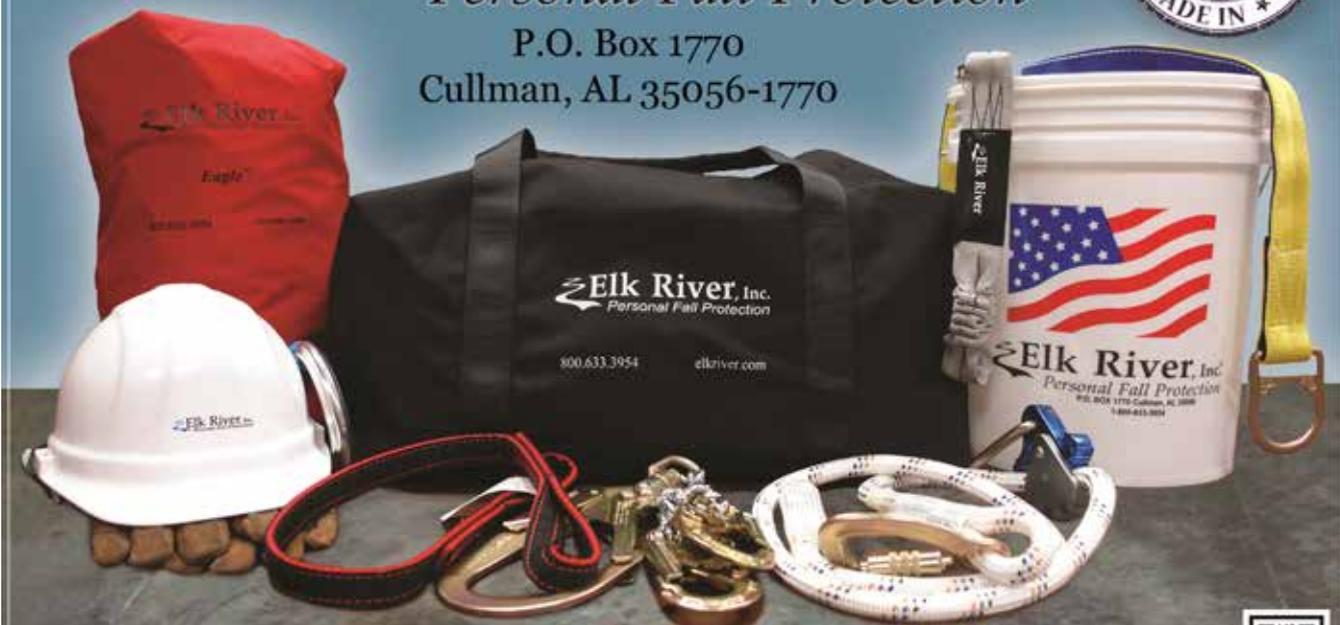


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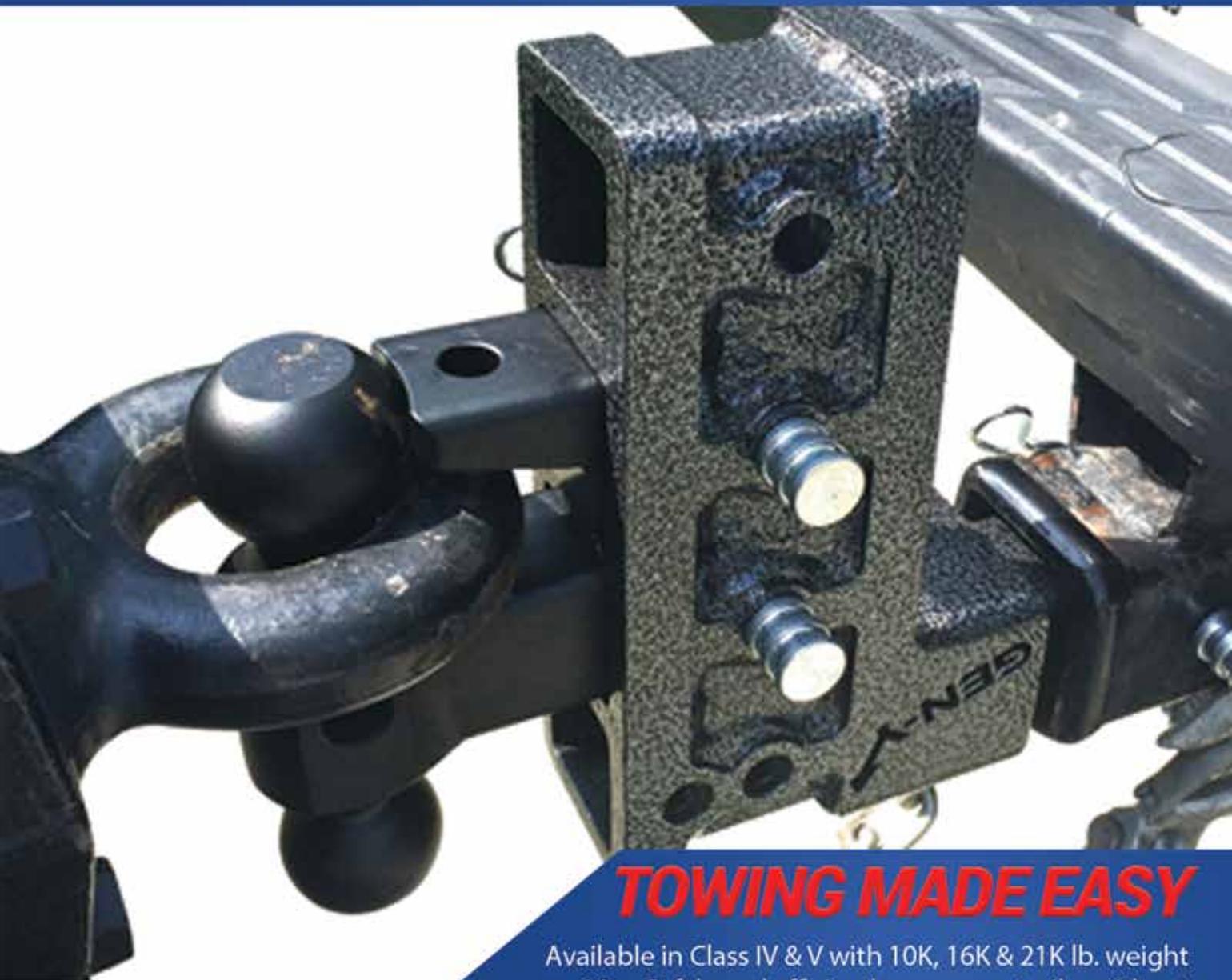
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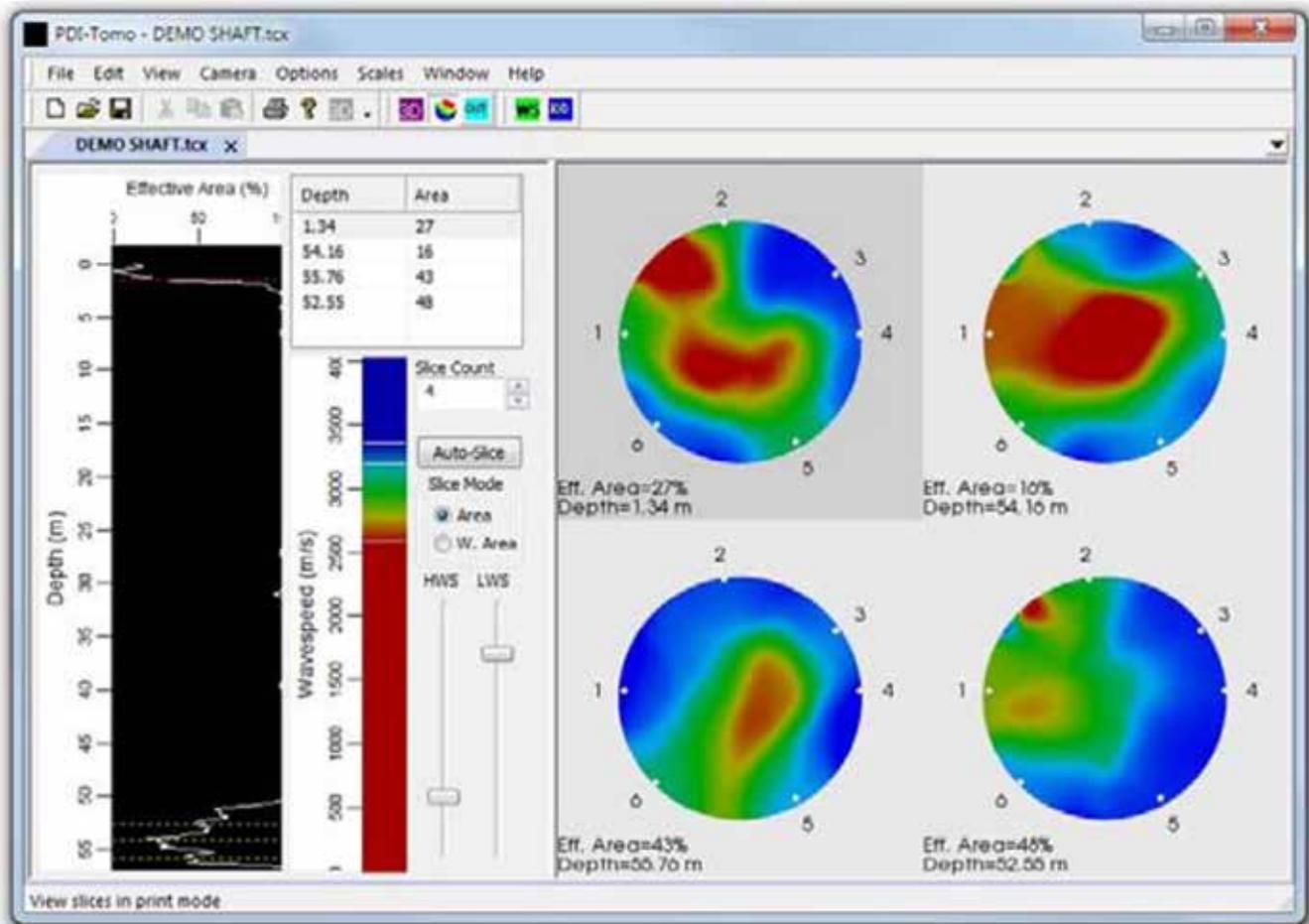
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New Tomography Software for Cross Hole Sonic Logging PDI-Tomo



Pile Dynamics has released the new PDI-Tomo software for analysis of Crosshole Sonic Logging (CSL) data. The program replaces an older tomography program, with significant advantages.

Crosshole Sonic Logging evaluates the integrity of the concrete of drilled shafts and other bored or cast-in-place deep foundations. Ultrasonic transmitters and receivers are inserted in the foundation and an instrument such as the Pile Dynamics' brand CHAMP-XV collects the data. Its software CHA-W analyses the propagation of the waves emitted by the transmitters, indicating potential concrete problems.

Tomography Analysis with PDI-TOMO takes the examination many steps further, allowing a better estimate of the extent of irregularities or defects. It combines arrival time data from the scans of all pairs of tubes, analyses the data and displays it in various views.

Once CSL testing is complete and data is processed, the transition from CHA-W to PDI-Tomo is done in one seamless step. PDI-Tomo has been designed for fast data processing, improving the productivity of CHAMP-XV users. Program functions are intuitive and many features are automatic (for example, PDI-Tomo find the depths where data suggests that a detailed investigation of integrity may be warranted). The professional looking PDI-Tomo output is highly customizable to fit the needs of each user.

For more information on this testing system visit www.pile.com/CHAMP. The CHAMP-XV and PDI-Tomo are just one of a growing line of Pile Dynamics Systems for quality assurance and quality control of deep foundations. Pile Dynamics is based in Cleveland, Ohio, USA; its products are sold around the world through PDI's network of representatives.

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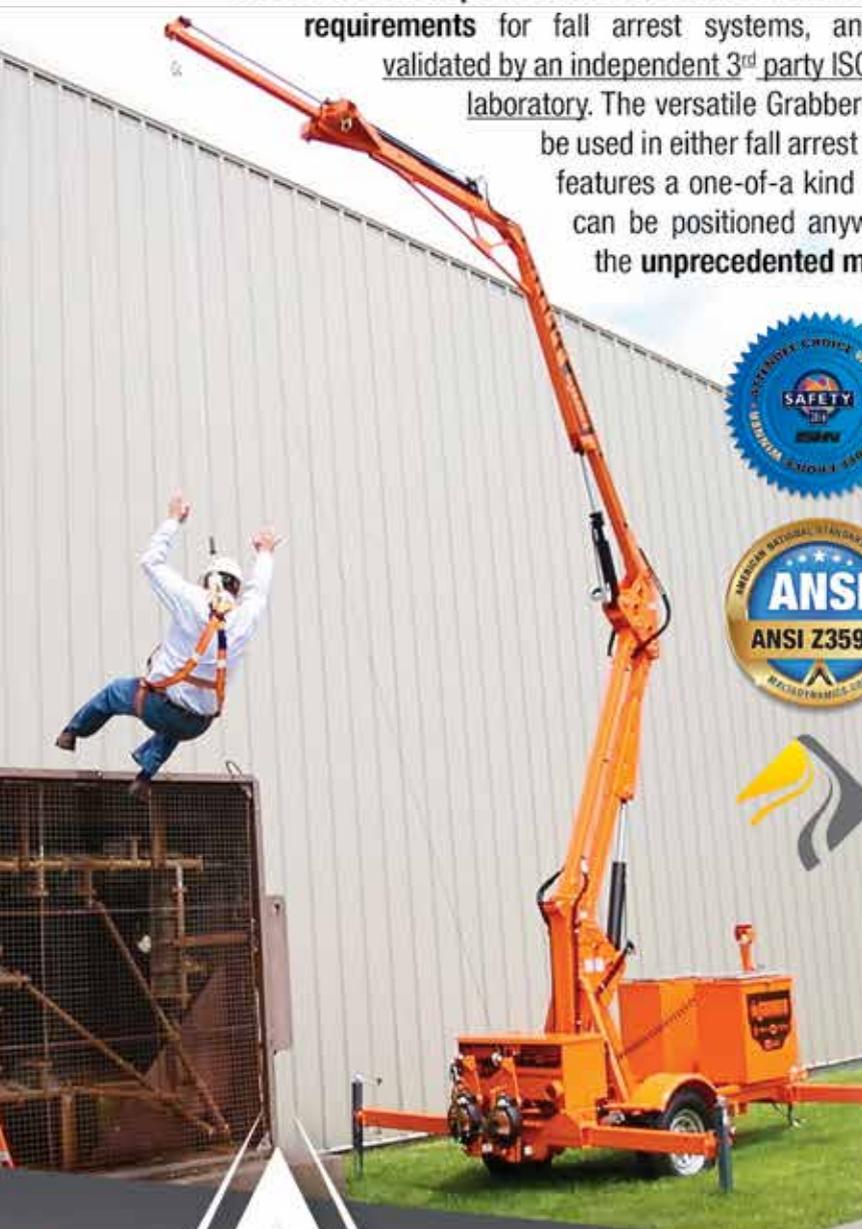
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Milwaukee® Introduces the Industry's First 18V Miter Saw with Corded Capacity and Performance

Milwaukee Tool announces the next big breakthrough for the industry – the M18 FUEL™ 10" Dual Bevel Sliding Compound Miter Saw. By harnessing the extreme performance of M18 FUEL™ combined with the revolutionary power and runtime of the new M18™ REDLITHIUM™ HIGH DEMAND™ 9.0 Battery Pack, Milwaukee is able to introduce the industry's first and only 18V miter saw to deliver corded capacity and performance, with the convenience of cordless portability. Able to run on one M18™ REDLITHIUM™ battery, the tool will be fully compatible with the M18™ system – the most advanced, capable, and complete system in the industry.

"Corded miter saws make up most of today's market because there really has been no cordless option available that could fully replace a corded unit's power and capacity," said Tyson Apfelbeck, Product Manager for Milwaukee Tool. "By combining our advanced framework of motors and electronics with the new M18™ REDLITHIUM™ HIGH DEMAND™ 9.0 battery pack, we're taking our FUEL™ technology and delivering a full-size, full-capacity miter saw that operates off just one battery – a true game-changer for our users! And we're able to deliver all of this with a tool that operates on the same M18™ platform our users have come to know and depend on, so there's no loss of productivity. Up until now, no

other cordless miter saw has been able to provide this combination of power, capacity, performance, and runtime in one portable package."

The new Miter Saw has the capacity to complete a wide range of core applications, from frame to finish, including 5-3/4" Vertical Capacity for cutting large base up against the fence, 2x12 Horizontal Capacity for cutting stair treads and large stock, and 5-1/4" Crown Nested for cutting large crown molding in position. With an easy-to-access bevel handle located on top of the saw, users can reach a bevel capacity of 48° left and right and utilize 9 bevel detent stops. An adjustable stainless steel detent plate includes 11

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detent stops and allows a miter range of 50° left and 60° right. A detent override lets the user lock the saw in place for more control when a cut is needed at an uncommon angle.

Because lasers have a tendency to be inaccurate, inconsistent and often difficult to see, the Miter Saw also features a Shadow Cut Line Indicator for improved accuracy. An LED directs light onto both sides of the blade, casting a crisp shadow the width of the

blade kerf that is also easy to view in sunlight.

With best-in-class power, the new Miter Saw is designed to deliver 4,000 RPM for smooth, fast cuts. When equipped with Milwaukee's revolutionary M18™ REDLITHIUM™ HIGH DEMAND™ 9.0 Battery Pack it can power through up to 400 cuts on just one charge, eliminating the hassle of switching out battery packs multiple times during the day and exceeding what's possible on multi-battery miter saws.

At only 47lbs, and with integrated side and top carry handles, users have the option of taking this capacity and performance wherever their work takes them. Because it can be easily carried to and from the jobsite, setup and cleanup times are faster, increasing productivity. With no cords to wrestle with, users can work anywhere they need to without worrying about staying close to a power source.

The new M18 FUEL™ 10" Dual Bevel Sliding Compound Miter Saw is a true testament to Milwaukee's focus on investing in game-changing technology that will truly deliver breakthrough solutions for users.

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Specifications

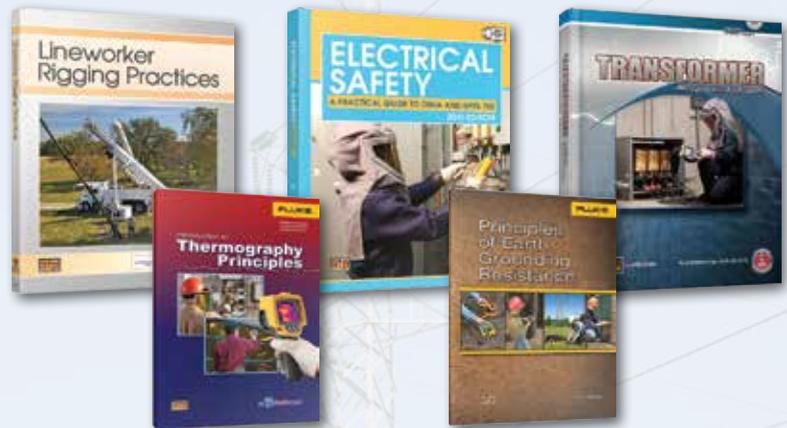
M18 FUEL™ 10" Dual Bevel Sliding Compound Miter Saw (2734-21HD)

- Blade Diameter: 10"
- No Load RPM: 4,000
- Arbor Size: 5/8"
- Bevel: Dual
- Slide: Yes
- Weight: 45lbs
- Vertical Capacity Base Against Fence: 5-3/4"
- Vertical Capacity Nested Crown: 5-1/4"



- 45° Bevel Capacity: 2x12
 - 90° Cross Cut Capacity: 2x12
 - 90° Cross Cut Capacity (max width): 2x12
 - 45° Miter Cut Capacity (max height): 3.5"
 - 45° Miter Cut Capacity (max width): 2x8
 - Max Bevel Angle (L/R): 48-48
 - Max Miter Angle (L/R): 50/60
- Includes M18 FUEL™ 10" Dual Bevel Sliding Compound Miter Saw, (1) REDLITHIUM™ HIGH DEMAND™ 9.0 Compact Battery Pack, M18™ and M12™ Rapid Charger, Blade Wrench, Carbide Tipped Blade, Dust Bag and Clamp.*
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Pile Dynamics Revolutionizes Shaft Inspection with the Squid



An important part of bored pile / drilled shaft construction is the cleaning and inspection of the bottom of the hole for cleanliness prior to the placement of reinforcement and concrete. Once drilling is complete, any material unsuitable for end bearing support is removed. Bottom inspection is then performed, often by lowering a camera down the bore hole, a procedure that gives a rough idea of the thickness of any debris left at the bottom.

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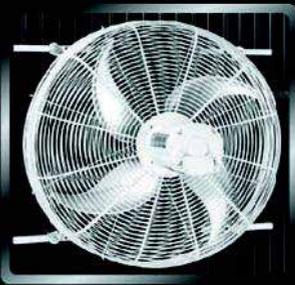
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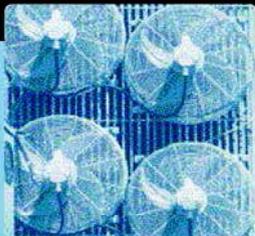
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The SQUID (Shaft Quantitative Inspection Device) is an alternative to the camera-based visual inspection of the excavated shaft base. SQUID assesses cleanliness by *measuring* the thickness of the debris or non-competent material remaining at the shaft base, and can also provide a *quantitative* evaluation of the strength of the bearing layer.

A drill stub column adaptor allows for a quick pinned connection to the Kelly bar of any drill rig; the rig itself lowers the SQUID body to the base of the shaft. The SQUID body includes three retractable contact plates attached to displacement transducers, and one instrumented cone penetrometer for each contact plate.

The penetrometer cones move through the debris layer and into the bearing material under the weight of the Kelly bar and measure pressure, while the transducers measure displacement. The SQUID body connects by cable to a wireless transmitter at the edge of the borehole; the transmitter sends pressure and displacement data to the SQUID Tablet.

The wireless data transmission to the tablet – where data is visualized - allows for the person holding it to be positioned at a safe distance from the borehole. The SQUID Tablet displays, among other information, the depth of the non-competent layer and the maximum penetrometer cone tip pressure.

The SQUID is the latest addition to Pile Dynamics extensive line of quality assurance and quality control systems for the deep foundations industry. The company is located in Cleveland, Ohio, USA, and has commercial representatives in all continents.



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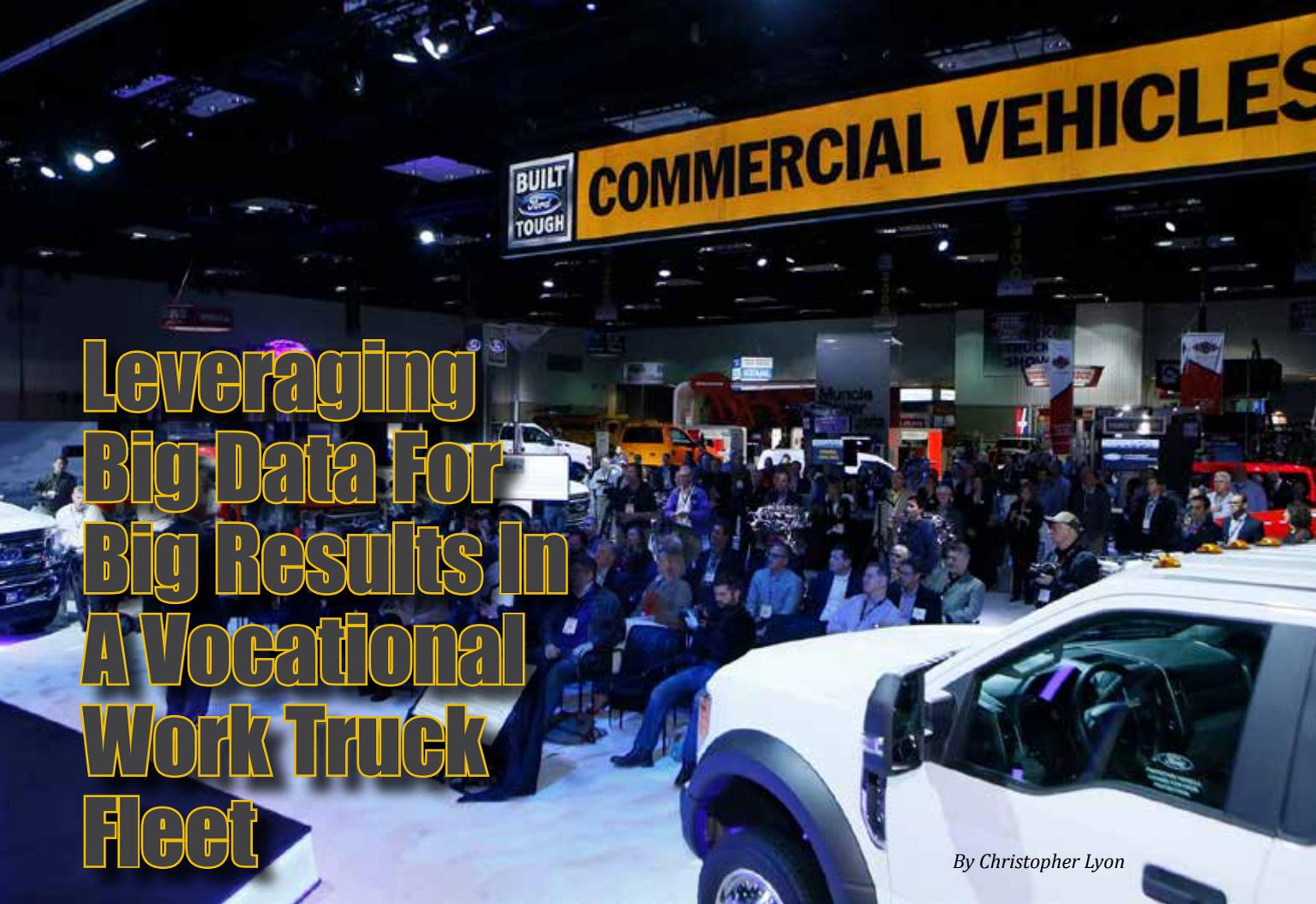


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Leveraging Big Data For Big Results In A Vocational Work Truck Fleet

By Christopher Lyon

One of the biggest challenges facing fleet managers is how to specify work trucks that will help their operations increase output and productivity in spite of declining budgets and reduced resources. Since most vocational trucks are not mass-produced, fleet managers often have just one opportunity to design an efficient vehicle for their fleets' specific needs, or be plagued with an inefficient truck for several years.

The days of figuring it out with Post-it® notes and Excel spreadsheets are over. Businesses are moving on from what has worked in the past and are coming to rely on big data to make strategic decisions. Accurate, well-analyzed data can enable fleet managers to make decisions based on real-world and real-time information.

Basic data

To begin, one must have a data source. For most fleet managers, this will be the operation's fleet information system, which stores vehicle maintenance, repair and fuel consumption data. At this basic level, the fleet manager can start looking at repair trends, component failures and overall asset usage. Based on any trends identified in this data, the fleet manager can make some top-level design decisions for the fleet's next work truck.

Beyond traditional data

Fleet managers today have access to technology their predecessors could only dream of. Data loggers, telematics, onboard diagnostics and advanced vehicle locator (AVL) systems provide real-time operational information. These systems track vehicle speed, engine loads, engine RPMs, hard stops and rapid accelerations, fault codes, and much more. This technology has matured over the past several years, making it possible to access data almost seamlessly through a data link or radio integration system. With their vehicles' unique data, fleet managers can design work trucks specific to their operational requirements and environments. This data can also serve as a cost justification tool when matching the right technology to the right application.

Drive and duty cycles

Understanding the difference between drive cycle and duty cycle is the first step in measuring how a fleet's vehicles operate. These terms are often used interchangeably; however, each is a different metric. A drive cycle measures and defines how a vehicle operates. It includes factors such as:

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- Average speed
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A duty cycle defines how much a vehicle is used, including:

- Hours of use per day
- Days of use per week
- Total miles driven per measurement cycle
- Percentage of on-road vs. off-road driving
- Loaded vs. empty usage

Understanding drive and duty cycle data will provide fleet managers the information they need to design appropriate work trucks. For example, an analysis might identify whether there would be sufficient return on investment for E-PTO worksite hybridization, or the use of other advanced/alternative technology. It's important to consider seasonal changes that may affect a fleet's drive and duty cycles, as well.

Telematics

Telematics is often thought of as a GPS tracking system; however, when properly leveraged, it can be so much more. Information provided from telematics can give fleet managers the tools to streamline many operations, including routine maintenance scheduling, real-time vehicle utilization and improved routing. Telematics can be used to increase the efficiency of fleet operations through route optimization. Driving fewer miles burns less fuel, a savings that directly impacts the bottom line. In a delivery fleet application, inventory and weight management can be as simple as scanning a barcode while loading vehicles to avoid overloading trucks.

In addition to these basic benefits, telematics also can provide information for long-term planning. By leveraging specific drive- and duty-cycle data, fleet managers can design vehicles that match their operational environment. For example, vehicle speed data can be used in determining whether increasing aerodynamic efficiency will provide sufficient return on investment. Improved aerodynamic designs can be an effective option for vehicles operating primarily at highway speeds, but if a fleet's

data shows new vehicles will be operated at low speed a majority of the time, investing in aerodynamic designs for those applications may not provide sufficient benefit to justify the cost.

Process improvement

Data also can be used as a process improvement tool. From the moment vehicles leave at the beginning of the day, they are almost entirely in the hands of the operator. It is commonly accepted the way a driver operates a vehicle can impact overall costs. Drive cycle data gives fleet managers the ability to tailor custom training programs and engage in driver behavior modification where needed. Sometimes just making drivers aware of the cause and effect of how they operate vehicles can be incentive

enough for them to change bad habits. Other situations may require a more hands-on approach, such as real-time feedback or incentive programs. Driver behavior modification can produce viable benefits, including:

- Reduced crash incidents
- Improved fuel economy
- Extended brake life
- Reduced engine and transmission wear

Pairing these strategies with a data-driven vehicle design can compound a fleet's savings in acquisition and operating costs.

One of the greatest benefits of data is that it does not lie. However, it's important to be aware of bad data. Incomplete or unreliable data can be the basis of undesirable and costly results. With all technology, the results can only be as good as the input

data. Additionally, if data is not used, it becomes useless.

Want to learn more?

For additional information on these issues and others facing fleet managers, attend The Work Truck Show® 2017 and Green Truck Summit, March 14–17, at the Indiana Convention Center in Indianapolis, Indiana. Sessions begin March 14, and the exhibit hall is open March 15–17. Educational sessions will include guidance on how to efficiently specify vehicles, leverage telematics solutions to maximize benefits, and identify and mitigate vehicle risks for vocational truck fleets.

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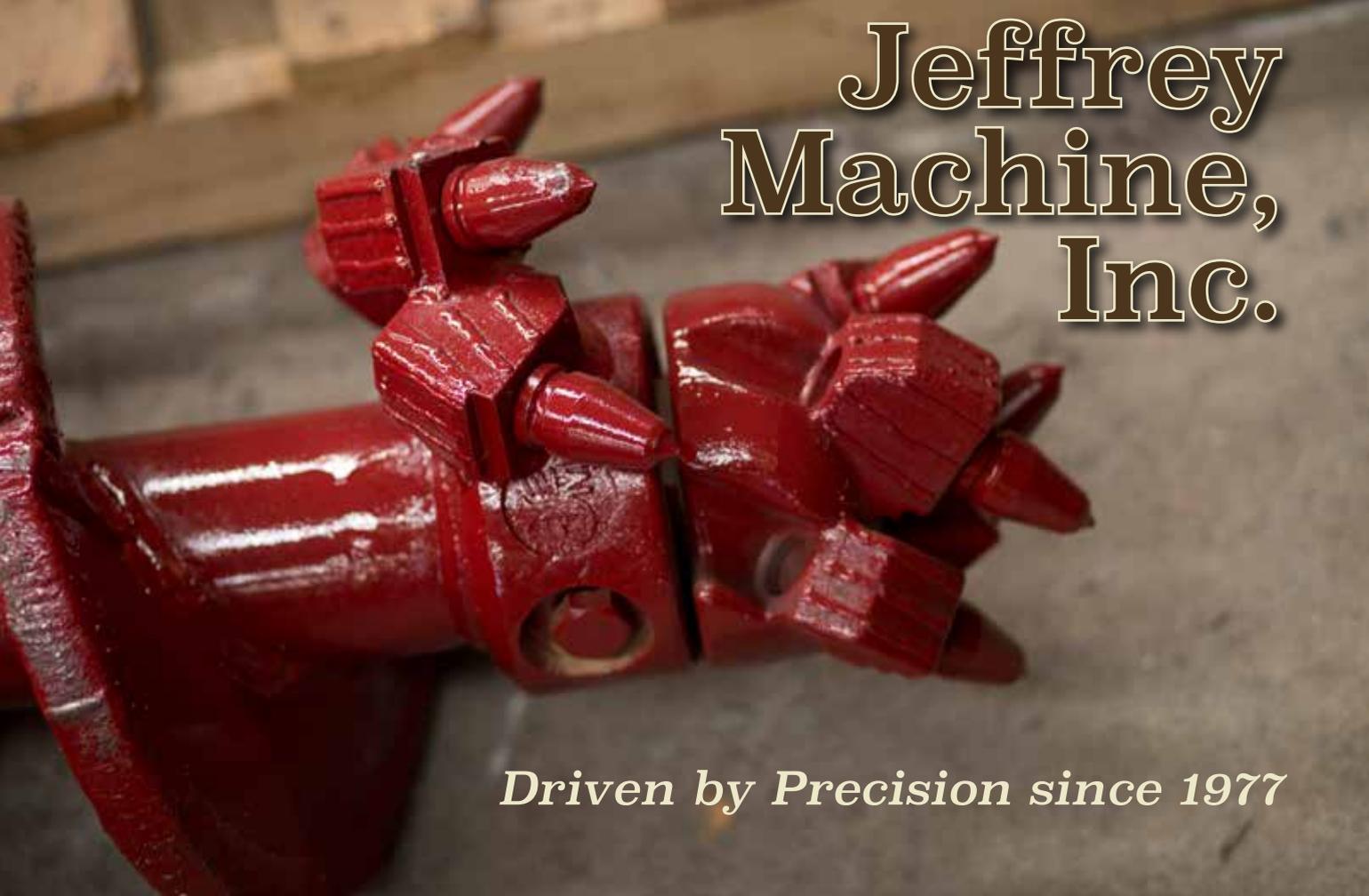


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Jeffrey Machine, Inc.

Driven by Precision since 1977

Jeffrey Machine, Inc. is one of the world-leading manufacturer of foundation and utility drilling tools, including augers, tooth holders, teeth, couplers and more, all designed to the customer's exact specifications. Jeffrey Machine works side-by-side with customers to create drilling tools with enhanced capabilities as unique as the demands of each job. Development of each innovative Jeffrey Machine product is the result extensive field studies and a commitment to continually improving the safety and performance of each product.

Jeffrey Machine offers a comprehensive line of auger tooling manufactured to ensure optimal performance under the most demanding drilling conditions. At the heart of this leading manufacturer of some of the world's toughest tooling is a precision machine shop that's small enough to continue providing exceptional, personal service. Their continued success is attributed to their ability to listen to and understand their customers in order to deliver each one the right tools.

Over the years, Jeffrey Machine has developed an excellent reputation for its customer oriented philosophy, and for producing and selling highly dependable products. At their 100,000 square foot, state-of-the-art facility in Birmingham, Alabama, they manufacture augers and other drilling tools of all shapes, sizes, makes, and models, from 6 inches to 15 feet or more in diameter for utility, heavy foundation, and light construction equipment.

Their custom approach has been the way they've done business since 1977 when Frank Sager founded the company as a machine, tool and die shop. Frank, a machinist and metal fabricator with many years of experience, created tools to the exact design request of his customers. Later, when he passed the family trade on to his son, Jeffrey Sager, who took great interest in the auger market, this same philosophy was carried on.

Jeffrey began working with augers in 1984, first repairing them and later rebuilding them, with results that were quite often better than the original tool. In addition to tool and die projects, local contractors began to seek out their services to repair equipment like broken augers. It was, therefore, a natural progression to fill that market demand by beginning to manufacture better tools that would hold up to Alabama's limestone and rocky soil.

In 2001, a 20,000 square foot shop was built, and due to increasing demands, another of equal size was constructed in 2002. Another expansion completed in 2007, brought the facility to right at 100,000 square feet, making Jeffrey Machine one of the world's largest independent auger manufacturers.

This state-of-the-art facility uses both standard and proprietary equipment, including a game-changing Plate Roll that greatly increases their capacity to quickly roll cylinders of up



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to two-inch thick material up to 10 feet long, in diameters as small as two feet and as large as 15 feet, making it perfect for barrels, cylinders and coring products that need a quick turn-around from shop floor to job site. This custom Plate Roll was a substantial investment that greatly improved the factory's ability to be more responsive to customers' needs, and adding new areas of potential expansion into new markets.

The goal of drilling contractors worldwide is to achieve the fastest, most efficient result with the least amount of wear on machinery and the lowest cost on everything from man hours to fuel. Jeffrey Machine delivers with the finest, most comprehensive line of drilling tools in the industry. From dirt and rock augers, to CFA and core barrels, to a full line of utility augers, revolutionary Dragon's Tooth® Rock Cutting System, and much more, their custom manufactured tools are designed to devour the densest rock, eliminate project downtime, and reduce wear-associated costs. In addition, Jeffrey Machine takes pride in having a large inventory of wear parts and components for the drilling tool industry.

A stand-out in their comprehensive line of drill tools are the innovative new .990 dirt tooth, .990 TRI Holder, and their revolutionary new Spline Couplers.

Designed by Jeffrey Machine, the .990 dirt tooth is manufactured in partnership with BETEK GmbH & Co. KG, one of the foremost global manufacturers of wear parts incorporating tungsten carbide.

The new .990 dirt tooth is engineered for use with a multi-purpose type auger equipped with a .990 TRI Holder. The versatile TRI Holder is uniquely designed to accommodate three different types of teeth: the new .990 dirt tooth; the standard .990 tooth (known in the industry as C-31); and Jeffrey Machine's exclusive .990 Dragon's tooth®.

The .990 size of this new dirt tooth is commonly used in both Foundation and Utility drilling applications in which ground conditions are dirt, clay, sand, compacted soils, and other low abrasion materials. Its versatility allows it to function effectively on machines ranging from some of the largest in the industry, to the smallest.

Proprietary to Jeffrey Machine, this new .990 tooth is unique in that the shank of the tooth will fit in a C-30 holder (or pocket), which is machined in-house from 4140 high tensile steel. The benefit of this interchangeability is that it allows contractors to move easily from a project in a rocky environment that requires a conical rock tooth or Dragon tooth, for example, to one in a non-rocky condition using the .990 dirt tooth in the same tool. This interchangeability helps significantly reduce project set-up downtime, in addition to reducing costs that result from the need to transport multiple augers to project locations.

Another new addition to the Jeffrey Machine line-up is their revolutionary Spline Coupler. Engineered for safety and performance, the Spline Coupler is Jeffrey Machine's answer to customer requests and increasingly tougher contractor requirements.

Jeffrey Machine's Spline Coupler is designed for use on Continuous Flight Augers (CFAs). It effectively joins together multiple strings of CFAs, in lengths of 5' to 20' and various diameters, to prevent movement between the connection points of each flight. The coupler allows for faster assembly and disassembly on the project site, both key factors in minimizing job site downtime, and maximizing each contractor's return on investment.

At connection points where Spline Couplers are installed, flight seams are timed together for a smooth transition in metering soil material up the string. The 5 set screws and 5 internal keys result in a much safer connection point and allow more torque ability. The 5" ID delivers excellent flow for pumping grout material.

The male/female coupler assembly is manufactured from a high PSI yield strength material and the set screws are high tensile strength material. The 9-1/4" Spline Coupler assembly has a turning torque rating of 150,000 ft-lbs with a safety factor of 2. Jeffrey Machine also offers a 14" Spline Coupler assembly rated at 550,000 ft-lbs turning torque with a safety factor of 2. Jeffrey Machine now also offers 7" and 11" Spline Couplers with turning torque ratings of 49,500 ft-lbs and 300,000 ft-lbs respectively, each with a safety factor of 2.

The ability to deliver exactly what their customers demand and the success contractors across the globe have experienced as a result of these innovative products is why Jeffrey Machine has grown from a small machine shop to one of the leading drilling manufacturers in the world. For more information about these products and the complete line of Jeffrey Machine tooling, visit JeffreyMachine.com.

www.jeffreymachine.com



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You wouldn't choose a shovel to dig a trench, when a mini-excavator is available to do the job faster, easier, safer and with greater overall economy.

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Loading construction equipment onto a transport truck is inherently hazardous, made even more so by the roll-back's steep load angle.

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THE RETRIEVER by **VERSATRAN** INC.

Next Generation Tape Measures From Milwaukee Tool

Milwaukee Tool announces the next generation of tape measures – new Magnetic Tape Measures with Finger Stop. The new Tape Measure lineup is designed with features that build upon the innovation that has made Milwaukee tape measures an industry favorite among professionals, improving ergonomics and maximizing functionality, while continuing to provide the longest life in the industry.

“Milwaukee® tape measures have come to be known for their extraordinary durability and longest life in the industry,” said Brandon Miller, Group Marketing Manager for Milwaukee Tool. “As a result of our user-focused research and the success of our tape measure line, we’ve now set the bar even higher by enhancing key features on these new tapes to help deliver an even better experience for the professional tradesman.”

Striving for continuous innovation and improvement, the new line of premium tape measures are more compact and ergonomic, providing a better fit in the user’s hand. An improved finger stop mechanism protects users’ fingers during retraction, while maximizing stability during layout applications.



www.milwaukeetool.com

Klein Tools New Multi-Bit Screwdrivers and Multi-Nut Drivers

Klein Tools introduces a new line of multi-bit screwdrivers and exclusive multi-nut drivers designed to increase productivity and save space in a tool belt or bag. Klein Tools’ research shows electricians want to do more with fewer tools and these multi-bit screwdrivers and multi-nut drivers do just that.

Multi-Nut Drivers

Klein’s exclusive multi-nut drivers come in two models with multiple interchangeable hex sizes. The heavy-duty shafts and cushion-grip handles exceed the torque performance of regular nut drivers.

- 6-in-1 Multi-Nut Driver
- 5-in-1 Multi-Nut Driver

15-in-1 Multi-Bit Screwdrivers

This multi-bit screwdriver features a fixed shaft with a ¼” nut driver and internal storage in the cushion-grip handle for 14 different screwdriver bits. It is available in three models:

- 15-in-1 Classic Multi-Bit Screwdriver
- 15-in-1 Tamperproof Multi-Bit Screwdriver
- 15-in-1 HVAC Multi-Bit Screwdriver

6-in-1 Ratcheting Stubby Screwdriver

The compact design of the 6-in-1 ratcheting stubby screwdriver makes it easier to work in confined spaces, while the ratcheting mechanism allows users to work faster and with more efficiency.

- 6-in-1 Ratcheting Stubby Screwdriver (standard bits)
- 6-in-1 Ratcheting Stubby Screwdriver (square recess bits)

www.kleintools.com/drivers

The New X-Force Hydraulic Detachable Gooseneck Super Low Deck Height



Felling Trailers, Inc.’s, X-Force Hydraulic Detachable Gooseneck model line now offers a “Super Low” deck height with the X-Force SL Series. The X-Force SL Series provides an 18” usable level deck height with a 6” ground clearance, making it an ideal spec for Carriers that specialize in extra-tall cargo/equipment transport. The low loaded deck height is ideal for a multitude of applications due to the full width level deck as opposed to a drop-side model. Felling Trailers designed and engineered the SL Series with versatility and functionality in mind knowing that with changing markets, Carrier’s cargo/equipment loads vary. The versatility offered with the 18” usable level deck height allows a carrier to transport cargo/equipment as asphalt milling machines, paving equipment, track excavators, etc. that have tall transport heights, ultimately keeping the Carrier’s wheels and payday rolling.

The SL Series are offered in four capacities; XF-70-2 HDG-SL (35 ton capacity), XF-100-3 HDG-SL (50 ton capacity), XF-110-3 HDG-SL (55 ton capacity), and XF-120-3 HDG-SL (60 ton capacity).

www.felling.com

Takeuchi-US Launches Takeuchi Fleet Management System- TFM



Takeuchi-US, a global innovation leader in compact equipment, has launched a new telematics system, Takeuchi Fleet Management (TFM). This is Takeuchi’s first step in a multifaceted initiative to know their customers better. Now available at all local dealers, TFM hardware comes standard on select excavators and track loaders in the Takeuchi lineup.

With the launch of TFM, Takeuchi along with its dealers and customers will have visibility into their equipment like never before. The new monitoring system checks the health of Takeuchi equipment and minimizes costly repair calls with real-time machine information.

Features include remote diagnostics that reduce service trips by capturing run hours and equipment data. Utilization tracking allows the operator to make decisions based on actual equipment use, and schedules maintenance. This saves time, parts and money by avoiding unnecessary maintenance. In addition, TFM minimizes cost using the precision to identify the problem as soon as it starts. This allows the service person to bring the correct tools and parts the first time, limiting any downtime.

www.takeuchi-us.com

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