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2019

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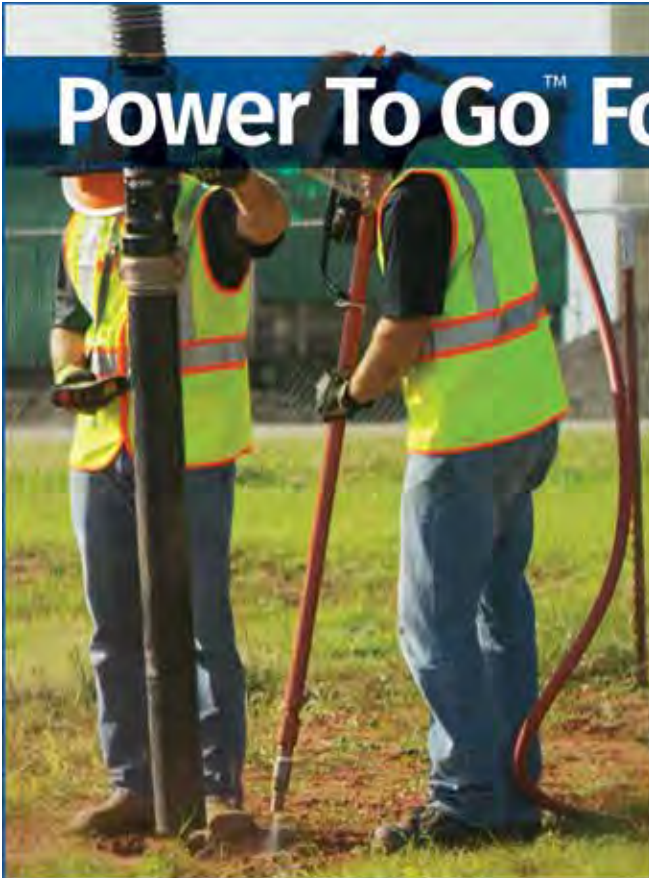
Performing good works, including helping customers, employees, the poor bring continued growth for Alabama contractor.

By David Steinkraus

ON THE COVER:

Brandon Cripple of KESS Environmental Services uses a Ditch Witch 3500 trencher to install drainage lines in the Montgomery, Alabama, area. KESS, based in Opelika, offers many services including residential and commercial onsite installation, new infrastructure, force mains, pipelines, maintenance and inspections. (Photography by Jeff and Meggan Haller)

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Don't Slow Down

TAKE ADVANTAGE OF OPPORTUNITIES TO KEEP YOUR TEAM GROWING AND IMPROVING FOR THE NEXT BUSY SEASON

BY CORY DELLENBACH, EDITOR

The leaves will start to turn color in the next several weeks in some areas, the weather is starting to get a bit cooler, and work might be slowing down a bit.

It's a sure sign of fall and winter quickly approaching.

Don't worry though: There is still time to get those projects done and keep your guys busy, so don't pack away those directional drills and vacuum excavators just yet for the winter season.

It is a good time to start thinking about what you are going to do during those dreaded slow days of winter. Many companies where snow flies will take on the added extra work of

snow clearing, but what about those that don't do that work?

There should be time set aside for maintenance of your equipment, you can assign your crew to clean up the shop after a busy summer season (I'm sure it could use it at this point), you can get a jump-start on filling out any bid paperwork for the next summer if you have it, or you can start looking at the different ways you can help your crew improve themselves.

HEAD TO KENTUCKY

One easy way to keep your crew on top of their game is sending them to the many trade shows in the months ahead. It's a great way to see the latest in technology coming out soon, and many of the trade shows have opportunities to learn different techniques by attending educational sessions.

The International Construction & Utility Equipment Exposition, also known as the Demo Expo, is Oct. 1-3 in Louisville, Kentucky, at the Kentucky Exposition Center.

ICUEE, dubbed North America's largest utility and construction show, covers 28-plus acres of indoor and outdoor exhibits and brings together more than 18,000 utility professionals every two years.

You'll see everything from directional drills to vacuum excavators, utility bucket trucks and a whole lot more.

On the education side, there are field classrooms, eat-and-learn workshops, a disaster-simulation lab and a diesel progress summit available to attendees.

CHECK OUT LOCAL COLLEGES

If trade shows aren't your thing, check out some of your local technical colleges. Many of them offer engineering or construction programs, and some might even carry courses that fit your line of work exactly.

Northeast Wisconsin Technical College in Green Bay, Wisconsin, for example, has a course titled Directional Drilling & Hydro Excavation Operator Training. This could be a great way to get your crew some additional training or refreshers. It could have the added benefit of drawing additional potential employees to your company.

If you send a couple of your guys to these courses, the other course attendees see that your company wants to help employees grow and they will want to join your team.

START NOW

If you stay busy, it'll be an easier transition back into the busy time next spring and summer and you won't have to start over from scratch on training.

Take a moment, jot down some goals for your team during these few slow months and put those goals into action.

Let me know how you plan to spend these next few fall and winter months and what advice you would give to other contractors. I can be reached at 715-350-8436 or at editor@digdifferent.com.

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ONE EASY WAY TO KEEP YOUR CREW ON TOP OF THEIR GAME IS SENDING THEM TO THE MANY TRADE SHOWS IN THE MONTHS AHEAD. IT'S A GREAT WAY TO SEE THE LATEST IN TECHNOLOGY... AND MANY HAVE OPPORTUNITIES TO LEARN DIFFERENT TECHNIQUES BY ATTENDING EDUCATIONAL SESSIONS.



IN PHOTOS

A Gallery of Contractors at Work

A small portion of the pictures that photographers take of each month's featured contractors are able to fit on the pages of the magazine. So every so often we post a gallery of the best of those "bonus" photos. Check out the most-recent one featuring companies profiled earlier this year.

digdifferent.com/featured

SUCCESS STORY

Ambitious Tunneling Project Saves Nature Preserve

Instead of tearing apart a wilderness area by trenching, a creative solution helped the city of Clifton, New Jersey, achieve its goals when it set out to relocate a failing sewer line. The project wrapped up earlier this year and you can read all the details about it in this online exclusive.

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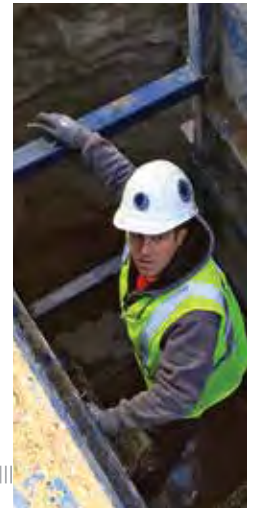
How to Manage Employee Conflicts More Effectively
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A HELPING HAND


Using Subcontractors to Achieve Business Success

There is oftentimes a push for diversification. A desire to be a one-stop shop equipped to handle anything a customer might need. But that approach isn't the right fit for everyone. Read about these companies that have found success incorporating subcontractors into their regular business practices.

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FOLLOWING THE HEART

PERFORMING GOOD WORKS, INCLUDING HELPING CUSTOMERS, EMPLOYEES, THE POOR BRING CONTINUED GROWTH FOR ALABAMA CONTRACTOR

STORY: DAVID STEINKRAUS PHOTOS: JEFF AND MEGGAN HALLER

The soil may not be good in central Alabama, but for KESS Environmental Services of Opelika, business is well rooted and growing. This 15-person company has created a space where concern for customers, employees and the community at large has led to a growing demand for its services.

KESS covers the state if needed, but only a few times a year will crews go beyond the nine counties surrounding the state capital of Montgomery, says Shane Duncan, owner. The company does have one crew outside that core area. It's based about 100 miles away near Birmingham. KESS technicians also go into the city of Montgomery because the municipal sewer doesn't reach everywhere, and many properties depend on onsite septic systems, which the company installs.

"We're in the Black Belt," says David Mastin, company manager. "It's sometimes called prairie mud. It is dirt that does not perc — period."

The name Black Belt comes originally from the soil present when the land was first cultivated. The soil was

rich and black, and it led to the establishment of plantations. By the middle of the 20th century, the good black soil was gone because of poor farming techniques.

Dripline goes in 6 to 8 inches below grade and is typically zoned into sections for dosing. The saying in Alabama is that anything deeper than 4 inches is below the frost line.

MOSTLY INSTALLS

Installations are 80% of the work at KESS. Another 10% is septic pumping, and the remaining 10% is everything else the company does, such as managing a community wastewater system in a subdivision of about 700 homes.

In that subdivision, every home has its own 1,500-gallon tank. Wastewater flowing out of a tank is filtered before flowing to a lift station that serves a group of homes. The station pumps water to a 10-inch force main that ends at a wastewater treatment plant.

Maintenance of advanced treatment units is another part of that 10%. Under Alabama law, all advanced sys-

"IT'S NOT ABOUT THE COMPETITION. IT'S ABOUT DOING THE RIGHT THING FOR THE CUSTOMERS AND THE ENVIRONMENT. IT'S ABOUT TAKING CARE OF THE PEOPLE"

Shane Duncan



David Mastin (right) and Michael Rush of KESS Environmental Services install a new PVC line for a septic system.

KESS Environmental Services Opelika, Alabama

OWNER: Shane Duncan

FOUNDED: 2001

EMPLOYEES: 15

SERVICE AREA: State of Alabama, with the core area around Montgomery

SERVICES: Residential and commercial onsite installation, pumping, new infrastructure, force mains, pipelines, maintenance, inspections

AFFILIATION: Alabama Onsite Wastewater Association

WEBSITE: www.kessenvironmental.com



tems must have a maintenance contract for the first two years after installation. KESS technicians will blow out clogged lines, clean filters, check air compressors and do everything else the manufacturer recommends. After that, homeowners are free to do what they wish with their systems, but most of them keep their contract with KESS, Mastin says.

"By doing so, it prolongs the life of the system. People don't understand they have to clean those filters that started being required in 2006," he says.

Marketing is not a major emphasis for the company. They are starting to use Facebook more often, Duncan says. "But to be honest, we don't advertise a whole lot. The company has been around a long time, and everybody knows the name," he says.

Mastin says he started working to increase Facebook exposure, but the company picked up so much work that he hasn't pushed hard on it. "It's because of a single principle: You take care of people, and they'll take care of you," he says.



The KESS Environmental Services team includes (from left) Greg Foley, Michael Rush, Sears Smith, David Mastin, Dylan Green and Shane Duncan. In the background are a Caterpillar excavator and skid-steer.



Michael Rush operates a Caterpillar excavator on a job site.

Duncan and Mastin are trying to expand the company with the management of private systems and repairs. They are planning for a new vacuum truck, larger than the one they have and with capacity to handle bigger jobs.

HELPING HAND

Sometimes technicians will travel across the state to do work for no money. It's part of the company's ethics, Mastin says. "Any profession ought to give back a little bit. We're big and give more," he says.

They do this under the Technical Review and Advisory Committee program of the Alabama Onsite Wastewater Association, which Mastin serves on. TRAC arranges for low-income homeowners to receive new onsite systems at no cost to them. Manufacturers donate material, installers donate their time and the work gets done. KESS handles three to five of these jobs each year.

There is a benefit to the company in terms of knowledge. If, for example, Infiltrator Water Technologies donated the tank and chambers, a factory representative is usually on hand for the project, Mastin says. Then the installation becomes a training opportunity for technicians, who can learn tips and tricks directly from the equipment manufacturer.

"I'm real big on education. I love it when these reps come out. They know a lot more than we do about how their product works and how we can work with it," Mastin says.

EQUIPMENT LIST

- A busy company like this keeps a lot of gear on the road. KESS uses:
- Two Cat excavators, a 2014 308 and a 2014 305.5
 - 2011 Kubota excavator
 - 2009 Wacker Neuson 8003 excavator
 - 2016 Cat 259D skid-steer
 - Kubota SVL90 skid-steer
 - 2014 Kubota farm tractor with an end loader, brush hog and other accessories



KESS Environmental Services provides onsite installation and maintenance of systems placed in famously poor soils. Shane Duncan, foreground, owner, is shown at a job site with a Ditch Witch 3500 trencher.

“AT THE END OF THE DAY, THIS IS WHERE MY KIDS ARE PLAYING, IN THE STREAMS AND RIVERS. I DON’T KNOW WHICH FAMILY DOESN’T LIKE GOING TO THE BEACH ... BUT WE’RE NORTH OF THE BEACH AND THAT’S WHERE OUR WATER ENDS UP.”

David Mastin

A powerful mentor

When his father died, David Mastin gave up his 13-year career as a deputy sheriff and stepped into his father’s pumping company to help his mother. He found his own help in the person of Danny Brown, a retired U.S. Navy officer and founder of KESS Environmental Services.

“Danny Brown took me under his wing. When I started installing, Mr. Brown came to me, gave me keys to his equipment and said he would help in any way possible. He invited me to all his job sites. He’s real big on education and teaching people. My workers would be working, but I’d get in his truck and we’d go to one of his jobs. He would say, ‘Do you understand why this dirt is no good?’ It blew my mind that my competitor is teaching me everything,” he says.

The same was true for Shane Duncan. He had a homebuilding company and met Brown when KESS installed onsite systems in the subdivisions he worked on.

“Danny’s whole outlook in life is he wants to help others succeed,” Duncan says.

One day Duncan jokingly told Brown that he would buy KESS. A few years later, that came to pass when Brown decided to sell. Mastin is now the general manager of KESS, and his A-Z Pumping Services handles pumping for the company.

“I think he foresaw the future for two younger guys to work together. He sort of put us together with lunches and things,” Duncan says. “He takes care of us and makes sure we’re doing the right thing.”

They learned by Brown’s example.

“I invite every installer to our job sites,” Mastin says. “We sell Clearstream Wastewater Systems but encourage them to come and see how the work is done. We also invite health department inspectors to come out and get their hands in the dirt and learn. We’re trying to continue what Mr. Brown started.”

Employees also receive a few days of paid time off at Thanksgiving and Christmas.

“They also know that if they do their jobs and work hard, I’ll give them the rest of a day with pay if they need it,” Duncan says.

“We also have a rule we try to follow: If we hire you, it’s going to be a life-time hire,” Mastin says. Workers may leave, but it will be their choice, and KESS works to keep its crew lean so there are no layoffs.

They don’t offer health insurance or help with it — yet. It’s something they would like to do for their workers, Duncan says.

On the workers’ side, there are also expectations and responsibilities. Part of their raises depend on improving themselves.

“We encourage you to get your septic installation license,” Mastin says. “When you start wanting to take over a crew, we offer you a slot at the school if you want to take it. With that slot, we pay for your school, we pay for your hotel, we pay for your testing — we pay for everything. And then on top of that, you’ll get a raise because in our minds that means you’ve taken the step: You want to better yourself.”

(continued)

- 1996 Mack vacuum truck with a 2,500-gallon steel tank and a Wittig pump (Gardner Denver)
- A variety of Dodge, Ford and GMC pickups and service trucks.

“We have a bunch of trailers,” Duncan says. “Every piece of equipment has its own trailer so you don’t have to go back and forth.”

They also have a parts trailer with pipe racks and other racks on it. Three trucks have fuel cells to refill machinery on site. Fuel tank capacities range from 50 to 80 gallons.

Aside from a larger tank, a new vacuum truck will be equipped with a jetter. That will help technicians maintain lift stations more easily and will avoid the need to hire someone else to bring a jetter to a job, Mastin says.

TREAT WORKERS RIGHT

After one year with KESS, employees receive a week’s vacation and one week of sick time. That doesn’t mean technicians work the rest of the time.

“This company is like a family,” Duncan says. “We encourage our guys not to miss events their kids have. Yesterday was graduation, so a few of our people went to watch their kids. They give us a lot of hard work every day and make this company go, so they deserve that time.”



Greg Foley, machine operator, boards the company's Caterpillar excavator to start work on an installation project.

Every year they take as many workers as possible to a regional trade show, even the unlicensed workers, so they can meet vendors and see products.

Crew leaders get a truck to drive, and they're required to earn their CDLs so they can tow machinery, Duncan says.

Employees also receive raises for hard work and bonuses from big jobs.

All of that means no turnover. KESS has hired several technicians in 2018, but it's because the amount of work is increasing.

In addition to Mastin and Duncan, the company depends on three crew leaders. The two primary leaders in Montgomery are Sears Smith and Greg Foley. Smith is the senior leader and watches everything. Foley oversees the technical side and troubleshooting. He's the guy to call when there are lift station problems, Duncan says. Dylan Green is the senior leader who works with the northern

crew in St. Clair County near Birmingham where he handles utility management and installations.

Duncan and Mastin also depend on these three leaders to train people as they work on jobs. Safety training is emphasized almost every day and formally in monthly talks about safety issues.

LIVE TO SERVE

Service defines KESS, whether it's service to employees or customers, or even to people who don't live in the area. That's one reason why Duncan and Mastin support the TRAC program — because there are consequences for everyone.

"At the end of the day, this is where my kids are playing, in the streams and rivers. I don't know which family doesn't like going to the beach, and I hate to say it, but we're north of the beach and that's where our water ends up," Mastin says.

Both he and Duncan fish, hunt (ducks, deer and the occasional alligator) and do other outdoor recreation. "So we're huge on taking care of our resources because they're going to take care of us," Mastin says.

"It's not about the competition. It's about doing the right thing for the customers and the environment. It's about taking care of the people," Duncan says.

Mastin and Duncan are not only successful, but unwilling to keep success to themselves, and that is good for everyone involved — for themselves, their employees, the industry and their community. ▼



David Mastin (left) discusses a work project with crew member Mike Burke.

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**MR. ROOTER PLUMBING OPERATOR APPLIES
5 YEARS OF CORPORATE EXPERIENCE AND
BUILDS HIS BUSINESS AROUND QUALITY STAFF**

STORY: **MARIAN BOND** PHOTOS: **MARC LEBRYK**

When Bob Gallup purchased the greater Indianapolis and central Indiana Mr. Rooter territory, his business background helped him understand the importance of planning, perseverance and procedures.

Gallup first learned about the franchise through a business broker. The owner wanted to sell the territory in the metropolitan area and continue doing business in an outlying region where he would maintain the office and facilities. So, Gallup needed to hire personnel and establish a new office. He purchased new computers, vehicles and fundamental pieces of equipment, including a jetter that has turned out to be the company's workhorse.

"This also required brand-new marketing, new signage, new phone numbers," he says. "But particularly new technology."

The business was in full swing by August 2012.



PERILS AND PARALLELS

Gallup had spent several years in the home security business and saw similarities with his new business, both of which involve technicians going to people's homes to perform a service.

"To me, this was a good fit with what I was familiar with," he says.

Gallup learned early on that he needed someone on hand to troubleshoot and be a technical leader for service technicians.

"This was the first time I had invested personally in a business," he says. "In a situation like mine, they say it will take twice as long to reach your goals if you are in a new industry, and there is truth in that. Initially, we did not have that strong support out in the field for our service people. Had I known how important this was, I would

**“THE FINEST IN
MANAGEMENT
CANNOT PERFORM
WITHOUT TALENTED
TECHNICIANS TO
SEND INTO THE FIELD.**

Bob Gallup



munication with customers. And he will show up to do the physical work and interact with local inspectors. All is based on demand. He will install a waterline, do sewer repair, lay concrete, repipe a home and help me put together a complex bid.”

Another key member of the developing management team was a client turned associate, John Leighty, who brought a totally new — but important — skill to the firm. Leighty is responsible for bathroom remodels and other work that requires artistic design or tile work. The two men are a strong team, and together, they have helped the company grow by reaching a new market.

SKILL SET

Several of Gallup’s technicians work as apprentices in a four-year program offered by Mechanical Skills in Indianapolis.

“The finest in management cannot perform without talented technicians to send into the field,” Gallup says. “I believe in helping my associates gain further education. It is important because whatever happens in the economy,

have probably saved time and money, but fortunately my problem was solved when Robert Wilhelm walked into my office.”

Wilhelm had a strong background in the industry, and Gallup considers him a godsend. Wilhelm knew the Mr. Rooter system and told Gallup he would help develop the business.

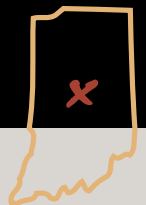
“In the world I come from, they say that before someone earns a key role, they are probably doing that role,” Gallup says. “One day I realized that I needed to understand what Robert was doing for me. That he was my senior plumbing specialist. The other guys are going to him with problems. He is the go-to guy. I thought about that, and we formalized his role in the company. He is now my field manager. That means he goes around and helps the plumbers with price quotes, scope of work, estimates and com-

Mitch Carrig, supervisor of excavation for greater Indianapolis and central Indiana Mr. Rooter, steers a John Deere excavator during a pipe bursting job at Ritter Manor Apartments on the east side of Indianapolis while Kenny Wright, excavation assistant, leads him around any obstacles.



Jonathan Wilhelm, right, apprentice, and Robert Wilhelm, field manager, use a Spartan 1065 cable machine to remove roots from a residential sewer line in Indianapolis.

Mr. Rooter Plumbing Indianapolis, Indiana



OWNER: Bob Gallup

EMPLOYEES: 17

ESTABLISHED: 2003, Gallup took over in 2012

SERVICE AREA: Greater Indianapolis and central Indiana

SERVICES: Drain cleaning and repair, excavation, pipe bursting, jetting, CCTV, waterline repair and installation

WEBSITE: www.greaterindianapolis.mrrooter.com

universally understood in the region, Gallup has kept the HammerHead Trenchless PB30G2 system busy on both residential and commercial jobs.

“The typical client does not understand what goes on underground or how the home connects to the city sewer,” he says. “We take them through the fundamentals and why in their situation this is a good solution. We will explain why the pipe is separated and why there are roots. HammerHead has videos that are helpful. We can give our clients referrals. They learn the advantages — that in the end we will fuse 10- or 20-foot lengths of pipe together. The

the smarter you are, the more you know about your business and the more you contribute to your family, your employer and yourself. My goal is for my employees to be the best trained to contribute to our team. I want them to have the best in accomplishment and financial rewards — to gain confidence and credentials.”

After the interview process, Gallup has a candidate go on a ride-along for two days with designated technician Travis Karch, a good listener and trainer who gives an evaluation. Then, each new hire is given a 90-day provisional period.

RAMPING UP

The addition of pipe bursting gave the company the ability to provide the latest in technology and a trenchless option for clients who don't want to tear up landscaping or a driveway to replace a sewer line. While the concept is not

“THE TYPICAL CLIENT DOES NOT UNDERSTAND WHAT GOES ON UNDERGROUND OR HOW THE HOME CONNECTS TO THE CITY SEWER. WE TAKE THEM THROUGH THE FUNDAMENTALS AND WHY IN THEIR SITUATION THIS IS A GOOD SOLUTION.”

Bob Gallup

fusing makes a strong connection similar to a broken bone that heals and is very strong, and thus we can give a good warranty.”

Gallup says local residential jobs are usually about 80 feet long, 10 to 12 feet deep and typically go under a sidewalk, front walkway or driveway.

“When you do that, you cross utility lines, gas lines, waterlines and electric lines,” he says. “With pipe bursting, you minimize the chances of hitting those utilities.”

For commercial clients, pipe bursting offers extensive advantages. Gallup bid on a job to repair a 550-foot line at an apartment complex and negotiated through a long bid process with the owner, a regular customer.

“The previous owner of the building had done some spot repairs, and what they had was 500 feet with a mix of PVC and clay tile — all different lengths and never backfilled. Never had any of this been inspected. There were seven lateral lines, and one had never been connected to the sewer main.

“It was a challenging job in a tight workspace — about 15 feet wide and 8 feet deep with a 1% fall. Utility locates continued to change. We found pipes 3 inches in diameter perpendicular to the trench, and nobody had any record as to what was in those pipes. The job was in a hole. We had to come up with a way to do it. Wilhelm’s leadership helped devise a solution.”

Gallup says they did about half the job using excavation, but it became so difficult they had to tell the client they couldn’t honor the contract. One of Mr. Rooter’s key values is that you must inform all parties involved as soon you discover you cannot honor a contract.

The client found the situation difficult to process, and Gallup had to bring in the right resources and explain the problems at every stage.

“The client shook my hand and said that, as we had been forthwith and honest at every turn in the past, they would proceed with the project even though the cost had doubled,” Gallup says. “This was validation for us. HammerHead was also available to help us throughout the process.”

FITTING OUT

Clay tile is the predominant sewer lateral material in their region. Most sewers are gravity fed, and 75% of the homes have a basement, so lines tend to be deep.

The fleet consists of eight Chevrolet 2500 Express vans, a 2005 Ford diesel dump truck and a 2007 Isuzu box truck used to stock inventory for sewer repair jobs, including pipe bursting. Gallup has a John Deere mini-excavator, plus other sales vehicles. *(continued)*

“THE CLIENT SHOOK MY HAND AND SAID THAT, AS WE HAD BEEN FORTHWITH AND HONEST AT EVERY TURN IN THE PAST, THEY WOULD PROCEED WITH THE PROJECT EVEN THOUGH THE COST HAD DOUBLED. THIS WAS VALIDATION FOR US.”

Bob Gallup



Bob Gallup,
president/owner,
Mr. Rooter Plumbing

Taking it to the streets

Starting or relaunching a business typically requires capital investments and a cash flow infusion, and it was no different for Bob Gallup, owner of Mr. Rooter Plumbing of Indianapolis and central Indiana.

“The result is our revenue has grown in a few months by 69%, and part of that is also the adjustments we have made, particularly because we have walked away from all-print Yellow Pages, which represented half of our marketing dollars. It was just not effective,” he says.

Gallup says that as a small business in a new market with existing larger competitors, he had to find smart ways to get the company in front of the consumer. So, he used what he calls “guerrilla tactics” — signs on street corners, fliers delivered in conjunction with other service providers and posts on social media such as Facebook, Twitter and Angie’s List.

He partnered with a heating and cooling company to create fliers promoting both businesses, which allowed him to share expenses. The two companies also leveraged each other, promoting in unconventional ways that set them apart to the homeowner.

“One thing we are excited about is that we have a company building a Mr. Rooter of central Indiana app for us,” Gallup says. “If a customer wants to become an Advantage Plan member, which offers a family of discounts such as preferred scheduling and pricing, they can go to the app store, select the app at no cost and download by putting in a membership number. We can communicate with the customer if they allow us to do that. Although this is not a huge percentage of where we get leads, it is growing every month. We plan to maximize that.”

While Gallup’s enthusiasm for the business grows, he says he gets mixed comments from his acquaintances in other industries. They wonder: “Why plumbing?” He explains that this is a business that in many ways is slow to change. There is little chance someone in Asia will be putting him out of business, and owning his own business was on his bucket list.

“Some people love flying on airplanes going from place to place, and all that it involves,” he says. “With Mr. Rooter and this industry, I enjoy the certainty of the technology today. Being in this industry gives me a high level of comfort and satisfaction.”



Bob Gallup, right, president/owner, discusses office and field operations with his team, from left, Taylor Mitchell, office manager; Mitch Carrig, supervisor of excavation; and Christine Tmeh, customer loyalty specialist.

Critical equipment includes four RIDGID electric jettors, two RIDGID pushrod cameras and two more from Spartan Tool. Gallup also has a John Bean commercial jetter (2,000 psi/18 gpm) that has been adjusted for residential use.

BUILDING WITH THE BEST

Early on, Gallup realized how important having a skilled professional answer the phone and make initial contact was in building a long-term relationship. He says he enjoys nurturing those relationships and taking care of his customer base.

“With our 17 employees, eight technicians and support staff, I believe we have formed a good foundation,” he says. “I stepped out of the corporate world, and now I can put my head on my own pillow every night, and one of the best unintended consequences is that my son Adam is working with me. He is in the business. In the course of things, he has an opportunity to figure out what he wants to do with his life. But he has learned this business.

“The first year we spent building our technical core. As that is established, we are bringing in younger people and teaching them the Mr. Rooter way. Showing how they can be the best and deliver on the Mr. Rooter brand promise. We see it as a mix of the tried and true, young and new.” ▼



Carrig watches the monitor of the Spartan SparVision 200 sewer video camera as Glen Ethridge, excavation tech, feeds it down into a residential sewer system.

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A Safe Shoring Arsenal

SOIL CLASSIFICATION AND KNOWING WHICH TECHNOLOGY TO GO WITH WILL HELP YOU AND YOUR CREWS REMAIN SAFE IN THE TRENCHES

BY JARED RANEY

Eight service workers died in trenching accidents last April. Staying safe requires more than following regulations: It takes a thorough understanding of the tools available.

“Not everything is in the rulebooks that these guys are confronted with,” says Jim Sullivan, president of Prospan Shoring. “They’re going to get into all different shapes and sizes; what they need to know is what’s in their arsenal when they pull out the door.”

There are three main types of trench collapse prevention methods: shoring, trench boxes and sloping. While there are some variations on these basic categories, the proper understanding and use of these three methods will ensure workers’ safety.

Anyone on a construction site should be aware by now that any trench greater than 5 feet deep must have some type of collapse prevention. The method used for prevention depends on two factors: trench layout and soil conditions.

ASSESSING SOIL

OSHA rules break down soil conditions into several simple categories — A, B and C. Class A soil is so-called virgin soil, the most cohesive soil; C is on the other end for soil with very poor compaction.

“Once you identify what soil you’re in, then you have to look at a couple other influencing factors. If the trench is dug adjacent to a roadway, where most city trenches are and utility company trenches are, that means there’s roadway traffic. And with that comes vibration,” Sullivan says. “So if your ground is subjected to vibration from planes, trains and automobiles, you’re required to downgrade your soil classification by one.”

There are a few instruments and methods to test the soil compaction, but for the purposes of shoring options, everything’s on the table until class C.

“So in other words, all these cities and utility companies declare themselves in class C soil. So you can imagine, if you’re in real good A soil, we let you do more with a product,” Sullivan says. “Most people want the standard to be as simple as possible, so they just say, ‘We’re in class C soil — get on with your day.’”

THE PROBLEM WITH SLOPING

Once you’re into C soil, there is a distinction in the engineering requirements between C-60 and C-80 soil. C-80 essentially means that there’s no



“NOT EVERYTHING IS IN THE RULEBOOKS THAT THESE GUYS ARE CONFRONTED WITH.”

Jim Sullivan

PHOTOGRAPHY BY MARK HIRSCH

Crews from Ken-way Excavating use a trench box on a job site during a pipe bursting job.



If trench boxes can't be used, shoring is also an option. Crews from Ken-way Excavating use shoring tools to secure the walls of a trench.

"THERE'S A DIFFERENCE BETWEEN SHORING AND TRENCH BOXES. EVEN THOUGH IT ALL FALLS UNDER ONE HEADING CALLED 'SHORING,' THERE'S A DISTINCT DIFFERENCE."

Jim Sullivan

cohesion at all, and it's at that point that shoring is no longer an option, leaving just trench boxes and sloping.

Unfortunately, for most municipalities, sloping, which OSHA treats as essentially the ultimate fallback for collapse prevention, is all but impossible in most urban settings.

"The reason people don't use sloping is because they'd have to remove the street on every dig, if they followed the OSHA formula," Sullivan says. "OSHA would say open up that trench. We don't care: The employee comes first. And I don't disagree with that. I'm just speaking to you from a reality standpoint: They're not going to remove the streets, they're not going to tear up somebody's front yard to the max, so really, people are out there using trench boxes or they're using shoring."

SHORING VS. BOXES

So for practical purposes, what the vast majority of contractors and municipalities need to understand is the difference between shoring columns and trench boxes.

"There's a difference between shoring and trench boxes. Even though it all falls under one heading called 'shoring,' there's a distinct difference. Shoring pressurizes the trench walls so they can't cave in. They're designed to pressurize the trench wall and take away its ability to lean in," Sullivan says. "Trench boxes are designed strong enough to take on the collapsing soil."

In simpler terms, while a trench box is designed to simply hold back any soil that does collapse, shoring is meant to prevent a collapse in the first place.

Shoring functions via a principle called an "arch effect." Basically, at the point where the shoring contacts the soil, it compresses outward in an arching pattern. So from point of contact, there is a dome of protection in the arch wall, the size of which depends on soil type.

This means you must know the maximum allowable separation between each column of shoring, which is to say how far apart horizontally two shoring bars may be placed. Manufacturers must provide those distances for

each soil type. For example, Prospan dictates a maximum of 6 feet for class C soil.

The manufacturer specifications, or "tabulated data," also tells users when plywood is required with shoring. While it's generally not needed due to the arch effect, sometimes it will be required to prevent minor collapses from the arch wall surface soil.

Due to the relatively complex nature of shoring devices, it can be tempting to use only trench boxes, but you could be asking for trouble.

"With trench boxes, you would think, Oh, this is a no-brainer: If they're strong enough to take the collapse, why wouldn't you use a trench box every single time?" Sullivan says.

The simple answer is that they can be less convenient and less versatile depending on the situational factors of a given trench. If laterals or other utilities are a factor in digging the trench, it could limit the space for a bulky metal box.

Another factor is that different types of boxes have varying weight limits. Depth is the main factor here — weaker aluminum boxes, while often easier to maneuver, cannot be used past a certain depth because it cannot hold the weight of all the soil that could potentially cave in. Even the sturdiest steel construction boxes have limits, though they are in most cases deeper than any realistic trench.

Boxes are also required to be stacked up to the top of the trench, so multiple boxes may be needed, which is a lot to haul or maneuver to and around a job site.

"You can't rely on trench boxes all the time, because what if you can't get the box in the hole?" Sullivan says. "And you can't use shoring all the time because what if you're in C-80 soil where shoring is not allowed. So anybody who's attacking this the right way needs to have both shoring and trench boxes in their arsenal."

PREPARING FOR ANYTHING

The fact of the matter is that preventing trench collapses is not always a simple endeavor. OSHA regulations attempt to simplify it as much as possible, but if it were a piece of cake, workers wouldn't be dying.

Stocking collapse prevention devices may be a hassle, but as the single most dangerous job for service workers, supervisors at all levels don't have the luxury of cutting corners — or fieldworkers will be those who pay, probably with their lives.

"Depending on the task at hand, sometimes it's hard to be compliant. As simple as it seems, it isn't. If they're putting in a catch basin or a manhole, or they're doing something where their options are limited with the dimensions of that trench, it's very difficult for them to stay protected," Sullivan says. "Sometimes where they start to dig and where they finish can be two different animals altogether; they need to have trench boxes and shoring in their bag of tricks." ▼

Keeping the Employees

LEARNING HOW TO READ YOUR CURRENT EMPLOYEES IS AN IMPORTANT STEP IN KEEPING EMPLOYEES LONGER

BY SANDRA MASON

Today's workforce is different. The society they live in is different. With low unemployment and worker shortages in many occupations, today's workforce has a lot of leverage in the job market. And in most cases, it takes more than good pay to get employees to stick around.

"Employers have to view the employer-employee relationship differently than ever before," says Cara Silletto, MBA, president and chief retention officer for Crescendo Strategies, a consulting firm that helps companies reduce unnecessary turnover by bridging generational gaps and making managers stronger. "Employers are starting to view that relationship differently because things like excessive overtime, worker shortages and turnover are beginning to really impact the bottom line. It can cost anywhere from \$5,000 to \$25,000 per employee who walks off the job."

There is positive news for employers in the construction and utility industry, though. Silletto says there are some basic things companies can do to immediately begin strengthening their employee retention efforts.

GET A HANDLE ON THE PROBLEM

The first action is to recognize that retention is a problem. Silletto says in order to do that, it's important to take long-term employees out of the turnover calculation.

"Long-term employees have what we refer to as golden handcuffs," Silletto says. They are largely loyal to a given company because they've earned inherent benefits as a result of their loyalty and tenure, such as considerable paid time off.

Conversely, a company's turnover problem often resides in its newer employees. "Most of these employees don't have a pension and are offered little in the way of paid time off or bonuses," Silletto points out. "I encourage senior leaders to look at the current tenure of their new hires over the past five years. What many companies find is that the average tenure declines every year."

To begin reversing that trend, company leadership can do the following:

THREE THINGS SENIOR MANAGEMENT CAN DO

1. Plan for shorter-term workforce. If people used to stay five to 10 years, they are now staying two to five years. Plan for that.

"Operationally speaking, companies should look at how they are scheduling and planning for turnover on their teams," Silletto says. By revamping the onboarding process and creating better training paths, employers can better maximize the time they have with an employee. Videos and group training, for example, could help expedite the learning curve.

2. Create a retention champion. Someone in the company needs to be in charge of the workforce retention initiative. It doesn't even have to be a full-time position, and it doesn't have to reside in the human resources department. This person would help monitor employee perceptions, serving as a liai-

son between employees and management. This person would also oversee the implementation and evaluation of different retention initiatives.

3. Gather feedback. Conducting employee surveys should be a core element of what the retention champion does. "It's important to collect real data about why employees leave," Silletto says. "If a company assumes it's all about pay and schedules, they are wrong. All of the data points back to things like company culture, communication and management effectiveness."

THREE THINGS MIDDLE MANAGEMENT CAN DO

1. Communicate expectations. Today's new workforce wasn't raised like the previous generation. New hires cannot read their managers' minds. "The phrases 'work ethic' and 'professionalism' are very subjective," Silletto adds. "Managers must spend more time and effort communicating expectations if they want employees to hit the mark."

2. Appreciate a job well-done. Many managers feel like they should only show appreciation when an employee goes above and beyond. "Remember, it's an employee's market," Silletto reminds. "Many employers say they have a problem with too many employees not showing up on time every day. I encourage managers to dig down deep into their hearts and admit the fact that they are grateful for the employees who do show up on time and do their jobs. A manager can become a better boss by just saying 'thanks' to his or her employees."

3. Have an onboarding plan. Employees always start out in the HR department filling out paperwork. But the new-hire experience continues once HR hands the employee over to his or her supervisor.

"Managers should have a plan for what to do with new hires once they get them," Silletto says. Are the new hire's tools in order? Are the other team members aware that the new hire is starting?

LEARN MORE AT ICUEE 2019

Silletto will be speaking about these topics and more at ICUEE 2019 in Louisville, Kentucky, Oct. 1-3.

"I'm going to share some backstories on why millennials and Generation Z have less loyalty coming into a company than previous generations," Silletto says. "We'll also talk about why they have more of a sense of entitlement. We call it the issues on the TABLE: technology, authority, balance, loyalty and entitlement. These five topics explain why today's new workforce sees the employer-employee relationship so differently. We'll also outline strategies for how companies can bridge this generational gap and begin reducing their unnecessary employee turnover." ▼

Cara Silletto, MBA,
president and chief
retention officer for
Crescendo Strategies



"EMPLOYERS ARE STARTING TO VIEW THAT [EMPLOYER-EMPLOYEE] RELATIONSHIP DIFFERENTLY BECAUSE THINGS LIKE EXCESSIVE OVERTIME, WORKER SHORTAGES AND TURNOVER ARE BEGINNING TO REALLY IMPACT THE BOTTOM LINE."

Cara Silletto

Top 6 Safety Technologies for Utility Construction

ENSURING YOUR CREWS HAVE THE EQUIPMENT TO STAY SAFE ON JOBS SHOULD BE A PRIORITY FOR COMPANIES

BY SANDRA MASON

Safety training is critical in the construction industry because it's a high-risk workplace with hazardous work. Dangerous situations are part of the everyday working environment. The constant challenge for construction companies is to create and deliver effective safety training.

"The traditional way of handling safety training tends to be boring and doesn't take into account the natural learning style of construction workers," says Abby Ferri, vice president, national construction practice, Hays Companies, a Minneapolis-based risk management, insurance and employee benefits advisor. "It is more effective to provide hands-on training, and if this can't be done in the immediate workplace, the training should be done in some sort of simulation of the workplace, or at least do meaningful activities that bring the workplace into the classroom."

Ferri, who has been actively involved in construction safety for more than 16 years, has found that rather than building a PowerPoint presentation for a particular training topic, it is significantly more effective to determine the learning objectives and goals for the particular training, identify learning activities that can be facilitated with the students (workers), and then guide them through the training. "It is important," she stresses, "that the training be interactive because this helps to keep everyone involved."

"People being trained need to have the opportunity to share their experiences and bring their on-the-job knowledge to the training," Ferri explains. "This is an adult learning principle that says adults benefit most from experiences that are problem based and collaborative."

The trainer needs to digest what is being shared, understand the group that is taking the training and, if necessary, adjust the learning activities — or even the content of the training — to make it appropriate and applicable, she says.

OUT AND ABOUT

Rather than in a classroom setting, Ferri is conducting an "in the field" Safety Tech Trek at the upcoming ICUEE, Oct. 1-3, in Louisville, Kentucky. Ferri will be walking around the show floor discussing how new equipment and technology can help keep workers safe.

"Despite what some think, technology is for every company," she says. "It's a matter of finding what technology works with a company's culture and can supplement that culture, plus make things easier."

"Under the lens of training, if there is technology for the sake of using technology, this may not resonate well with the workers. But technology that helps them do their jobs better, safer and more efficiently will prove beneficial."

She says these are some of the top construction safety technologies to keep an eye on:

Wearables and Embedded Technology: This technology involves attaching various types of mobile electronics and embedded sensors to the body and

personal protective equipment for a wide range of purposes. These include proximity detection, ergonomics, fatigue, overexertion, stress level monitoring, etc. The result is improved worker and job site safety.

Internet of Things: By combining the real-time data generated by wearables, embedded technology and GPS tracking with the IoT, big data can be used to monitor and measure a wide variety of safety performance metrics within the construction industry. This information can then be used to continuously change and/or strengthen safety programs.

Enterprise Solutions: These are designed to integrate multiple facets of job site safety through the interchange of information from "connected" workers and a "connected" job site. With a sensor network on site and connected workers enabled by technology, workplace safety is improved because these

"THE TRADITIONAL WAY OF HANDLING SAFETY TRAINING TENDS TO BE BORING AND DOESN'T TAKE INTO ACCOUNT THE NATURAL LEARNING STYLE OF CONSTRUCTION WORKERS."

Abby Ferri

solutions enable workers to transmit and receive information in real time. Additionally, worker productivity is increased due to the continuous interaction between the environment, information and workers.

Collision Avoidance Systems: Technologies will continue to evolve to further improve construction equipment safety. These include blind-spot coverage, proximity detection alerts, detecting the presence of workers, collision avoidance systems and systems that monitor equipment operators and keep a record of their performance.

Microlearning: While online safety training has its place, it doesn't work well for those who work in the field, Ferri notes. Typically, these workers don't engage with sitting in front of a computer to watch safety training and will not retain much information. More effective is microlearning. Basically, this involves breaking down information into compact, focused learning segments — usually three to five minutes long — that are designed to meet a specific learning outcome. The training — which can be viewed on a smartphone or tablet in the field — is easier to process, and knowledge retention is increased.

Apps: Mobile applications are making it easier to get safety training and information to workers. Plus, it helps safety managers be more efficient and productive. ▼

You can see the latest equipment and technology for the utility and construction industries at ICUEE - The Demo Expo, Oct. 1-3, in Louisville, Kentucky. Registration is now open.

12 Ways to Perk Up Your Website

THE INTERNET IS ENORMOUS. DON'T LET YOUR COMPANY'S WEBSITE GET LOST OUT THERE!

BY JUDY KNEISZEL

A construction business' website is everything from a 24/7 customer support center to a sales and marketing tool. Websites make a company discoverable by a wide audience and give it credibility among its competition. A good website can put a small contractor on even footing with much bigger competitor. But just having a website for your company isn't enough. Like any good business vehicle, a website needs an occasional tuneup. It needs to be refreshed regularly so it will continue to attract visitors and boost its search engine rankings.

I'll admit, before I started doing research for this column, I assumed with little effort I would find a lot of terrible company websites. I anticipated seeing sites created a decade ago and ignored for the past nine years. I was going to rant about cluttered layouts created on obviously free and now outdated templates with bad flash animation, rainbows of clashing bright colors, and again as many horrible fonts.

But, to be honest, I couldn't find sites like that. I'm still writing this column, however, because what I did find were the opinions of many experts who agreed that keeping a website fresh is critical to its effectiveness. A website — even a great one — shouldn't be viewed as a static thing like a billboard or brochure. To get the most out of a website, it must be maintained.

Your business isn't web design, of course. You don't have endless time to devote to updating your site nor are you big enough to hire someone to maintain your site full time. But having a never-changing website is like having a shiny new truck you never drive. Sure it looks great parked in front of your business and your company logo is on the side, making it an advertising platform, but that's not its optimum use.

Same with a website. It's a tool that can do so much more than simply look pretty and provide your phone number to anyone who happens to glance at it. So dedicate some time to it, and reap the rewards. Here are a few places to start:

1. **IF YOU HAVEN'T ALREADY ... DUMP THE FLASH.** Sure it was all the rage at one time, but now most Adobe Flash animation is considered a distraction that slows loading times. If that's not bad enough, Flash animation can also negatively affect search engine rankings. Fast-loading, content-rich websites get higher ratings than those with cutesy animation.

I FOUND ONE WEBSITE WHERE THE "BLOG" BUTTON TOOK ME TO A PAGE WITH THE FRAMEWORK FOR CREATING A BLOG AND THE WORDS "HERE YOU CAN ADD SOME TEXT." THAT ONE CLICK MADE THE WHOLE SITE LESS CREDIBLE.

2. MAKE SURE IT IS RESPONSIVE.

A responsive website is one that works on any platform. The goal should be easy scrolling and navigation on any screen from a massive desktop monitor to a laptop screen, tablet or tiny smartphone screen. Be sure your site loads quickly and looks right whenever and wherever someone might call it up.

3. MAKE SURE YOUR SITE WORKS ON EVERY POSSIBLE BROWSER.

Look at your site using as many different browsers as you can, from Safari to Firefox to Internet Explorer and Chrome, or use an online tool like Browsershots, which tests your site for compatibility on a vast array of browsers and all the different versions of each browser people may be using.

4. UPDATE PHOTOS/REPLACE STOCK PHOTOS WITH ORIGINALS.

People want to see current, original photos of your business, staff, trucks, restrooms, etc. — not dated old shots or pretty stock photography. Sure, your kids were cute when you first created your website. But if the kid you're holding by the hand in a website photo is now a head taller than you and driving the trucks himself, updating the photo will give your adult child and the website credibility. Also, if your website has pictures of retired equipment or staff members who have moved on, it's time to shoot some new photos. The good news is you don't necessarily have to pay big money for professional photography. You or someone on your staff with a digital camera or even a good smartphone and an eye for composition should be able to take pictures you can use on your website.

5. CHECK ALL LINKS.

This is an easy tweak that can be done any time you've got a few minutes to spare. Go to your website and click all links to make sure they still work and go where you want them to take you. If not, fix, replace or delete them. If you don't want to check them individually, use an online tool like Dead Link Checker.

6. ADD OR UPDATE TESTIMONIALS.

If you've had the same customer testimonials on your website for years, it's time for some new ones. Praise for service received 10 years ago tells potential customers little about what your business offers today.

7. UPDATE CONTENT.

Search engines get bored. They love new content and will boost a site's ranking when they detect it. Also, search engines keep humans guessing by constantly changing their analytics, so what was a ratings booster yesterday

might not be tomorrow, which is another reason to add new content often. How do you come up with new content? First, make sure all content on the site is up-to-date and relevant. You may have added services offerings that aren't mentioned on the website or perhaps you've dropped some services still listed. Maybe you've moved, changed or added a phone number, or gotten into social media but haven't linked your Facebook page to your website. Also consider if there are any problems some new content could solve.

8. BLOG REGULARLY OR DROP IT.

8. Blogging regularly on a website can boost search engine ratings. I found, however, many people have good intentions of posting to their blog regularly and then don't. I personally think it's better to not have a blog at all than to have one with one or two 4-year-old posts. I found one website where the "blog" button took me to a page with the framework for creating a blog and the words "here you can add some text." That one click made the whole site less credible.

9. LINK TO SOCIAL MEDIA BY ADDING SOCIAL SHARING BUTTONS.

For maximum effectiveness of all your online marketing efforts, make them work together. Add buttons to your website that take users to your Facebook page, YouTube videos or Twitter feed in a single click. Conversely, make sure your social media pages link back to your website.

10. ADD CALL-TO-ACTION BUTTONS.

10. Sometimes customers will come to your website just to find your phone number. Don't make them scroll all the way to the bottom of your homepage for your contact information. Add a call-to-action button so with one click, users can get a quote, call your office or take whatever action it is you want them to take.

11. **ADD VIDEO CONTENT.** Video increases the amount of time visitors spend on the site, which is good for search engine rankings. In addition to improving that retention rate, video helps people remember your company. It can make you stand out from the competition.

12. **RUN SOME TESTS.** If you're not sure how your site is performing, you can test it. There are several free tools available that, for example, determine if you have a high bounce rate, which means visitors aren't finding what they are looking for and "bounce" away from your homepage quickly. You can also test your page speed to see if your site is slow to load. There are tools that help analyze your search engine optimization rating and one that will show how your website compares with your competition's website. Some tools to play with include SEO Report Card, Fetch as Google, and Website Grader.

STUDY OTHER WEBSITES

If you think your website is getting stale and could use refreshing but don't know where to start, take some time to study other websites. Look at websites of other contractors. Think about other sites you visit often for business or fun. What brings you back to them again and again? Fresh content? Ease of use? Great images? ▼

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Dig These New Products at ICUEE 2019

BY CRAIG MANDLI

The International Construction and Utility Equipment Exposition (ICUEE), also known as the Demo Expo, is the premier event for utility professionals and construction contractors to gain comprehensive insights into the latest technologies, innovations and trends affecting their industry.

This year's event, slated for Oct. 1-3 in Louisville, Kentucky, promises to show off some of the finest new products on the construction market. Below is a preview of some of the newest products that will be highlighted at this year's show.

Boss Industries Bullet D

The **Bullet D** from Boss Industries is a compact, strategically designed system that integrates all major components on to a single frame, enclosed in a tough, weather-resistant canopy. Its design provides output of up to 80 cfm at 100 psi. Because it measures just 20 inches wide by 48 inches long by 40 inches high, it can be set on any class truck with minimal effect on load capacity and visibility. It is narrow enough to fit into standard industrial gates and doorways, as well as service elevators for highrise or underground construction. The width of the unit makes it suitable for mounting on top of 20-inch-wide service body compartments.



See ad page 55

800-635-6587; www.bossair.com; Booth L475

Ox Equipment MTS Dino Series

Advanced technology allows the **MTS Dino Series** dry suction excavator from Ox Equipment to powerfully dig without the use of water, eliminating issues related to slurry disposal as well as overweight loads. It uses a twin-fan system, which generates over 24,000 cfm. The large 10-inch-diameter suction hose, which extends up to 30 feet off the back of the truck, is precisely manipulated via the mechanical Power Arm. The functional side-tipping feature allows for efficient dumping from the 10-cubic-yard spoils container, allowing the unit to stay on site all day, effectively doubling productivity.



See ad page 41

888-290-4044; www.ox-equipment.com; Booth K373

Hyundai Construction Equipment Americas R30Z-9AK

Hyundai Construction Equipment Americas will exhibit nine equipment models, including a prototype of an electric-powered model, the R35E, developed in collaboration with Cummins Engine Co. They will also exhibit six conventional diesel-powered models from the 9A series of compact excavators, ranging from its smallest (the R17Z-9A) to its largest (the R80CR-9A) and including the **R30Z-9AK**. Also on display from the full-sized HX series of hydraulic excavators will be the HX140L, powered by a 127 hp Cummins QSF3.8 engine. Rounding out the exhibit from the HL900 series of wheel loaders will be the HL940TM model.



See ad page 37

877-509-2254; www.hceamericas.com; Booth K345

Oxford Plastics Systems LowPro 23/05 road plates

Oxford Plastics Systems' **LowPro 23/05** road plates are HS20-44 load rated for up to a 36-inch-wide trench. Two workers can transport this composite modular system in a work truck and install coverage for 6 feet of trench in 10 minutes. Interlocking sections have a high-visibility, anti-skid surface. The chamfered Flexi-Edge is easy to grip and reduces noise. Gravity-fed underside pins prevent lateral movement. EasiLift handles lock into the sections, making installation easier and more ergonomic.



See ad page 43

800-567-9182; www.oxfordplasticsusa.com; Booth 3044

Rival Hydrovac T7

The **T7** from Rival Hydrovac was designed primarily to be a unit that could be loaded with debris and driven within legislated road limits with most types of debris on board. Additionally the unit comes standard with a scale that reads real-time weights both in the cab and on the wireless remote to confirm weights prior to travel. It is operator friendly, and the operating system is engaged through one PTO switch. The remainder of the operation occurs from the rear panel or the wireless remote. The components used in this truck are high performance in nature, and the unit will dig at levels competitive to large units.



See ad page 59

403-550-7997; www.rivalhydrovac.com; Booth 5142

TRUVAC by Vactor Paradigm

Designed for utility, municipal and contractor customers involved in the installation, maintenance and repair of underground water, sewer, gas, electric and telecommunications lines, the versatile **Paradigm** subcompact vacuum excavator from TRUVAC by Vactor can dig holes with water or air; vacuum,



contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools. The truck's Park-n-Dig design minimizes the time between arriving on the job site and excavation, including the ability to dig up to 6 feet in depth without additional pipe and hose. The standard air compressor powers utility tools such as jackhammers and tampers that may be used on the job.

See ad page 51

800-627-3171; www.truvac.com; Booths 1531, N2013

Sonetics wireless headsets

Sonetics **wireless headsets** enable natural conversation in the most challenging environments. Talk hands-free with a crew and protect hearing from dangerous noise. Listen-Through Technology provides control of when and how much outside sound to let in to maintain situational awareness. High audio quality and an auto-leveling, noise-canceling microphone lets the user understand the subtle differences in what they hear — even in the middle of a loud work zone.



See ad page 45

800-833-4558; www.soneticscorp.com; Booth 3706

Underground Magnetics Mag 8

With an easy-to-use interface and the ability to go up to 360 feet deep with the Echo 110 extended range transmitter, the **Mag 8** receiver from Underground Magnetics allows the user to go deep. Even with the standard Echo 50 transmitter, this receiver provides a depth range of up to 160 feet. Bore-To mode is always displayed on both the receiver and display at all times, with no programming required. This locator is easy to operate. Once set up, the operator never needs to press a button to accurately know where the transmitter is and where it is going. It includes the ability to change not only 10 frequencies downhole, but also change between high and low power.



See ad page 53

515-505-0960; www.umaghdd.com; Booth 2956

Super Products Mud Dog

Super Products offers a safe, efficient and versatile alternative to traditional digging equipment with the **Mud Dog** hydroexcavator product line. The Mud Dog is designed for operator convenience and consistent performance in the harshest environments. It is available with 12- or 16-yard debris capacity and has a 1,500- to 2,000-gallon water tank capacity to meet the challenges of a variety of applications, excavation projects and job site conditions.



See ad page 47

800-837-9711; www.superproductsllc.com; Booth 3422

Vactor 2100 Plus

A water recycling system, available as an option for the Vactor **2100 Plus** sewer cleaner, reuses water already in the sewer to clean sewer lines, eliminating the need for clean water. The system helps municipalities save thousands of gallons of freshwater, improve efficiencies, reduce costs and promote sustainability. The system can also increase operator productivity by up to 100%, enabling operators to clean twice the number of lines. The five-stage filtration system combines settling, centrifugal separation and absolute filtration to 100-micron particle sizes, preventing most abrasive solids from entering the jetting system. The filter cleaning system allows the machine to operate continuously at full operating flows and pressures throughout the day.



800-627-3171; www.vactor.com; Booths 1531, N2013

BY CRAIG MANDLI

Backhoe

John Deere BH10B

The BH10B backhoe from John Deere was designed for operators handling light construction, agricultural, landscaping or utility work. The attachment is ideal for those working in tight spaces by offering swing speed control and 180-degree capabilities to help maximize efficiency and improve machine stability. Workspace visibility is optimized with the attachments' sleek, low-profile design. Cushioned cylinders allow for smooth operations and limit shock loads during use. A two-lever control of boom or swing (left lever) and dipperstick or bucket (right lever) allow for precise control and movement. It has a maximum dig depth of 116 inches, with bucket widths from 18 to 36 inches. The heavy-duty buckets feature an easy-clean-out design for the toughest jobs, with three linkage positions to maximize curl, reach or breakout force of up to 5,675 pounds. Standard-tilt seating capabilities offer easy moving between machine ingress and egress. It also has a convenient grab handle and open design for convenient maneuvering.

800-503-3373; www.johndeere.com



Excavating Equipment

Bobcat R-Series E85

R-Series E85 excavators from Bobcat offer a design geared toward increasing operator productivity and comfort, as well as machine uptime protection. Operators will benefit from the performance of the non-diesel particulate filter, turbocharged engine with increased horsepower, and an optimized integrated rear counterweight design that enhances the machine's stability. An optional automatic heating and air conditioning system provides complete control over the cab climate. Strengthened hinges and latches and more ridged, aligned excavator panels reduce vibration in the cab, making for a more enjoyable workday. Along with having the largest cab openings in the industry, there is increased floor space and additional glass surface area, which includes an improved top window and narrower side pillars for increased visibility.

800-743-4340; www.bobcat.com



Hitachi EX1200-7

The EX1200-7 excavator from Hitachi has a fuel-efficient Cummins EPA Final Tier 4 engine with diesel exhaust fluid. For non-regulated countries, a Cummins engine featuring fuel-calibration optimization settings helps contribute to improved efficiency. Additionally, when the machine is in neutral, auto-idle reduces engine speed to save on fuel consumption. It also features a 4.5% increase in bucket capacity with a 9.2-cubic-yard capacity. Equipped with optimized swing control, the new machine also has an improved hydraulic system with a flow regeneration valve to reduce power requirements from the hydraulic system and engine, lowering fuel consumption and improving pump life.

866-973-0394; www.hitachiconstruction.com



Hyundai Construction Equipment Americas R35Z-9A

The 3 1/2-ton class R35Z-9A zero-tail-swing compact excavator from Hyundai Construction Equipment Americas includes a Werk-Brau-compatible thumb bracket, a diverter valve for easy switching between a thumb or attachment, proportional control levers with two-way piping, pin-grabber style dual-locking quick coupler and Q/C piping, enhanced bucket design with lifting-eye and two-piece tooth design for easy replacement, an increased curve profile on the dozer blade for better grade and cutting ability, an easily replaceable cutting edge for the dozer blade, a wider-opening engine compartment and a durable LED work light on the boom for improved job site illumination. An optional feature is a four-way angle dozer blade. It has a boom swing function that can swing 75 degrees to the left and 50 degrees to the right for efficient work in congested areas.

877-509-2254; www.hceamericas.com



Loader

Case Construction Equipment TV450

Case Construction Equipment's TV450 compact track loader provides a 10,610-pound vertical lift with a rated operating capacity of 4,500 pounds at 50% tipping load. It features 9,188 pounds of breakout force and optional high-flow and enhanced high-flow hydraulics for high-power attachments such as mulching heads, stump grinders and cold planers. It is available with either standard mechanical H-pattern controls or optional electrohydraulic controls with H and ISO pattern interchangeability, as well as optional mechanical hand and foot controls. Case electrohydraulic controls provide adjustable speed and control sensitivity settings that can adjust to meet the needs of each application and attachment. Operators are able to switch between H and ISO patterns via a simple rocker switch.

866-542-2736; www.casece.com



Safety/Personal Protection Equipment

Brokk Hydraulic Breaker series

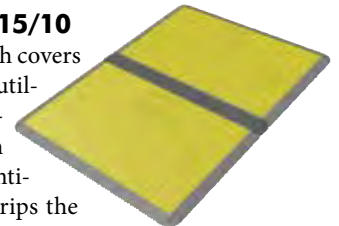
The Brokk Hydraulic Breaker series is matched with the company's full range of remote-controlled demolition robots. Each robot is designed from the attachment backward, providing the exact amount of flow, pressure, backpressure and downward force that the hammer requires. The BHB series includes eight breaker models, starting with the 110-pound BHB 55 breaker for the compact Brokk 60 remote-controlled demolition machine. The range goes all the way up to the 1,543-pound BHB 705 for the recently introduced Brokk 500 and Brokk 520D. The hammer bodies are machined from a solid casting, eliminating side and through bolts, and an integrated, side-mounted accumulator holds a nitrogen gas charge for as long as a year.

800-621-7856; www.brokk.com



Oxford Plastics Systems LowPro 15/10

LowPro 15/10 composite driveway trench covers from Oxford Plastics Systems can be used by utility contractors seeking a safe, easy-to-manuever covering for driveway or sidewalk trench work. The unit has a high-visibility, molded anti-slip surface, with chamfered edging that grips the asphalt. When a longer run of trench requires covering, the Infill accessory joins the covers together, creating a flat surface suitable for pedestrian traffic, and reduces the likelihood of the covers slipping apart. Designed with National Grid, the unit is suitable for up to 3.5-ton vehicles over



a 35-inch-wide trench, and pedestrians over a 47-inch-wide trench. A cover weighs 93 pounds, allowing for easy transport and maneuvering with two-person lift. **800-567-9182; www.oxfordplasticsusa.com**

Skid-Steer

Vermeer S925TX

The Vermeer S925TX mini skid-steer is designed to provide lifting performance and the power to conquer demanding applications. With a tip capacity of 2,643 pounds, a rated operating capacity of 925 pounds and maximum hinge pin height reach of 84.5 inches, the radial lift path makes easy work of lifting and dumping heavy loads. It offers a dual-auxiliary system, which allows the operator to switch between high flow for ground-engaging attachments and low flow for maximum control. It comes with a universal mounting plate that fits a broad range of Vermeer-approved attachments. It is built with a chariot-style platform for optimum operator comfort and pilot-operated ground drive to help the user maintain smooth control on the job site, as well as in tight areas.



641-628-3141; www.vermeer.com

Tracked Trenchers

American Augers T14-54

The T14-54/617 trencher from American Augers has a 64 hp Tier 4 Final emissions-compliant engine and a 54-inch-wide maximum-cut capability. It offers an electronics package that includes a digital operator display in the cab, upgraded software and a telematics package. The telematics enables the rig to gather, log, and transmit real-time operating data used for predictive maintenance, reporting requirements, or overall optimization of trenching operations. The Mercedes engine runs low and quiet and generates torque rated up to 2,139 ft-lbs at 1,300 rpm. Safety enhancements include a new digging drive brake and optional cameras in the cab that increase operator visibility.



800-324-4930; www.americanaugers.com

Ditch Witch HT275

The HT275 heavy-duty trencher from Ditch Witch has a Cummins 275 hp T4 engine and a hydrostatic trencher-chain drive with a variable displacement motor, allowing operators to match chain speeds to soil conditions. The trencher can do installations up to 10 feet deep and 26 inches wide, and it has four hydraulic quick-disconnect blocks that reduce the time it takes to change attachments. The suspension mounts to the center of each track frame, providing the ability to float each track independently, taking stress off the main frame.



800-654-6481; www.ditchwitch.com

Trailer

Talbert AC3-25ART

Talbert offers air ramp and air tilt (deck) trailers for easy loading of small-capacity, low-clearance equipment such as asphalt rollers and machines used for dirt work. The series includes the 20-ton AC-20-ART and 25-ton AC3-25-ART with 7-degree load angle. Low 8-inch headboard and 33-inch loaded deck height offers suitable visibility and additional clearance for transporting taller equipment, increasing versatility and safety. The air brake system and hutch spring suspension provide maximum load control for additional safety and comfort. An air-ride suspension is available upon request.



800-348-5232; www.talbertmfg.com ▼

HORIZONTAL R-8 VERTICAL PIPE BURSTING SYSTEM 1" - 8" PIPES

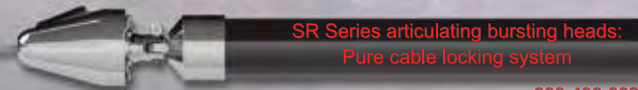


Cylinders:
70lbs.

RODDIE inc.

Frame:
70lbs.

Unit slides apart quickly into two components for easy handling and can be set up vertically or horizontally. Hydraulically powered by your tractor, or power unit. 1"- 8" pipe replacement, cylinders 70lbs., frame 70lbs., dimensions 14" long x 12" wide. 22" high set vertically.



Patent Pending
(16 claims)

Youtube search:
Roddie R-8

888-406-3821
RoddieUnderground.com
Columbia Falls, MT

"There are different ways to excavate soil.

Most people think you're just spraying water on the ground,
but it's a science — there's a right way to do it.

We're here to stay. We've got a good
reputation, and that makes me

want to work even harder. The guys and I

all have something to prove."

Mike Morehouse, Owner
Davids Hydro Vac
White Bear Lake, Minn.



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2019

CONTRACTOR CAPABILITIES

Competent contractors in the alternative excavation industry demand quality products.

See how these partnerships ensure success in this special Contractor Capabilities section.

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Custom-Built GapVax Hydroexcavators Prepared for All Your Digging Needs

GapVax hydroexcavators are multipurpose systems for virtually every wet-dry vacuum project imaginable. The company's HV-55 has a 12 1/2-cubic-yard debris body and water tanks from 400 to 1,400 gallons.

Specs include a positive displacement blower rated at 5,250 cfm with 28 inch Hg. GapVax's patented filtration design includes five cyclones, which prolongs the life of the filter bags and eliminates the costly threat of material entering the vacuum pump. The tailgate is fully opening, field adjustable and also has four fail-safe, individually adjustable locks that assure a complete seal.

Optional equipment includes cold-weather package, sludge pump, wireless remotes, washdown system, stainless steel body and more.

Whether you're excavating, locating utilities, digging potholes, tunneling, slot trenching, conveying dry gravel and sand, or doing general cleanup, the GapVax can handle any of your vacuum needs. A complete list of standard features as well as a full list of optional equipment can be found on the company's website at www.gapvax.com.

COMPANY HISTORY

Gary A. Poborsky originally started building equipment for his own service company, GAP Pollution & Environmental Control Inc. As GAP continued to grow, Poborsky began modifying his equipment so it could withstand the harshness of the industrial cleaning industry. When customers requested only the trucks that Poborsky himself built, he knew he had another business opportunity.

In 1989, GapVax, Inc. was founded with the mission to design and build some of the highest quality industrial vacuum equipment in the industry. Armed with more than 20 years' direct service industry experience and the passion to improve the products used by the workers at the end of the hose, GapVax vacuum trucks today are renowned for high-efficiency filtration, low maintenance and durability.

GapVax's diverse line of products has earned it a reputation of delivering reliable service in the toughest work environments.

GapVax currently spans 15 acres to include 250,000 square feet of manufacturing space at the former U.S. Steel site in Johnstown, Pennsylvania. "We



pride ourselves on keeping manufacturing jobs in Pennsylvania and employ 120 people and counting," says a company spokesperson. "Our second location, GapVax Gulf Coast, opened in 2014 and sits on five acres with a 7,800-square-foot facility for sales, service and parts. Mitchel Halbardier is the operations manager for our Deer Park, Texas, office."

Across the United States and Canada, GapVax has five regional sales managers and 15 dealers (and counting) to meet the needs of its customers. GapVax has a full selection of parts and accessories, not just for your GapVax unit but other brands as well.

"Our Gulf Coast office also has parts on hand," says the spokesperson. "Scott Bair, our parts manager has been a part of the GapVax family for 30 years. His knowledge is second to none."



GapVax is a manufacturer of industrial vacuum trucks and sewer trucks. The company offers a full line of accessories, hoses and replacement parts. GapVax units are custom built by the operator, for the operator. **888-442-7829 | www.gapvax.com | inquiry@gapvax.com**

Maximize Your Hydroexcavation Uptime With Cat Pumps

The high-pressure water pump is critical to hydroexcavating, jetting and hydroblast equipment, with the need to perform in a wide range of environments. That's why operators working in the heat of Texas or the cold of Alberta rely on Cat Pumps to provide long-lasting, reliable products wherever they are used.

Equipment builders and system users stake their reputations on system performance. Lost time, production and customer satisfaction cannot be recovered. This is one reason why Cat Pumps is a leading pump and custom-built power unit provider to the industry. With over 50 years of high-pressure pump manufacturing, Cat Pumps has built a solid reputation.

CAT PUMPS ADVANTAGE

Equipment manufacturers and operators want to feel confident in their equipment's performance, and Cat Pumps prioritizes high productivity with minimal downtime, fewer repairs and reduced maintenance costs, according to company officials.

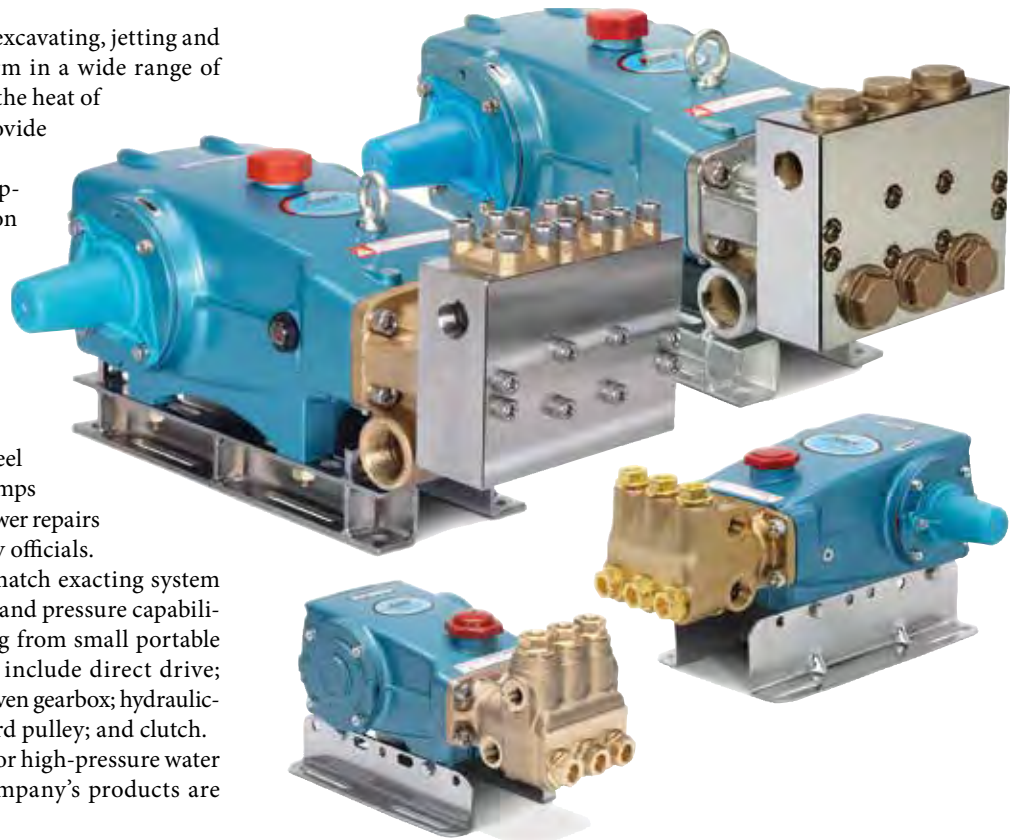
The company offers an extensive product line to match exacting system requirements. With a flow range from 0.13 to 240 gpm and pressure capabilities up to 10,000 psi, Cat Pumps has solutions ranging from small portable electric jetters to large truck-mounted units. Those include direct drive; hollow-shaft pumps (motor or engine driven); engine-driven gearbox; hydraulic or engine-driven solid-shaft pumps; belt drive; standard pulley; and clutch.

When quality counts, Cat Pumps is a go-to choice for high-pressure water pumps and systems. Down to the last detail, the company's products are designed to keep your equipment running longer.

MEETING RIGOROUS DEMANDS

Cat Pumps manufactures and supplies high-end industrial triplex high-pressure plunger and piston pumps and related products. With a reputation of being a premier pump supplier, the family-owned Minneapolis company designs pumps that meet the rigorous requirements of markets like high-pressure cleaning, hydroexcavation, heavy equipment washdown and sea-water reverse osmosis (SWRO) desalination.

From initial design to materials and manufacturing, dedication to quality and service has been the foundation of the Cat Pumps philosophy since its founding over 50 years ago. "The company was started out of necessity to develop a new pump design that was dependable, efficient and long lasting,"



says Scott Bruggeman, vice president of sales and marketing, "We've adhered to those ideals and today Cat Pumps products are in use in thousands of applications around the globe."

Performance capabilities include a flow up to 240 gpm and pressure up to 10,000 psi, while the company's product line boasts more than 1,000 pump models. There's an industry-leading staff on hand to assist with inquiries into everything from troubleshooting to custom system design, and Cat Pumps has a 99.7% order fill rate with 95% of orders shipping within 24 hours, according to Bruggeman.



Cat Pumps embraces a zero-defects manufacturing philosophy with its products produced in ISO 9001-registered facilities. Sales and support operations in the United States, United Kingdom, Belgium and Germany, and a distribution channel that covers the globe, ensure Cat Pumps products and representatives are available everywhere high-pressure water and other fluids are at work.

763-780-5440 | www.catpumps.com | info@catpumps.com

X-Cavator Handles Complex Job Sites While Protecting Existing Infrastructure

Vac-Con offers operators the ability to custom-configure their machine for job site-specific requirements with the X-Cavator hydrovac machine.

Although synonymous with hydrovac and combination machines, big and heavy is not always what the operator is looking for when it comes to job site equipment. With this in mind, Vac-Con offers customers the ability to custom-configure their machines to meet size, height and weight requirements without sacrificing power and functionality.

The X-Cavator is a hydrovac unit that offers operators a precise and efficient method for daylighting, locating underground utilities and excavating. The X-Cavator boasts simple, operator-friendly features along with a range of content options to meet the requirements of any customer. The X-Cavator is designed to operate on both wet and dry excavation work sites.

X-CAVATOR SPECS

The standard X-Cavator is offered with a three-stage centrifugal compressor, dual cyclonic separators and hydrostatic drive. Popular options include an articulating, rear-mounted PowerFlex boom, air compressors up to 185 cfm equipped with air knife, a Quiet package silencer for the centrifugal compressor, and a full range of positive displacement blowers.

Although the larger units have dominated the market, the X-Cavator is available from a 3-cubic-yard debris tank capacity up to 16 cubic yards.

Other options include a 60-degree opening debris tank door with an optional hi-dump function, 500 to 1,500 gallon water tank capacity, 270-degree boom articulation and an 18-inch vacuum Hg at 3,600 cfm.

The X-Cavator is versatile and right at home handling tough jobs such as trenching, potholing, water and sewer repairs, highway and street repairs, propane and gas tank remediation, long distance and congested area excavation, and oil and gas distribution lines.

THE PROOF IS IN THE PRODUCT

The X-Cavator has become a go-to for many contractors and municipalities that rely on it to complete tasks that they otherwise would not be able to accomplish without this unit. "Our flagship hydroexcavator showcased the benefits of hydrovac excavation at a complicated job site," says a company spokesperson for ADP Group Ltd. in North Yorkshire, U.K. The contractor



chose the X-Cavator to complete an intricate project that involved distance, rough terrain and variably aged infrastructure.

The workload included drilling and installation of monitoring boreholes, full-site utility survey and clearance of services including a high-voltage service along the front of the site. The X-Cavator completed the job in record time.

"The Vac-Con X-Cavator safely excavated pre-drill pits working 65-plus meters from the work site, reducing manual handling and costs, all while ensuring that any underground services encountered were not damaged," says the spokesperson.



Vac-Con, Inc. has manufactured more than 8,500 custom-built, truck-mounted machines to serve public and private environmental markets globally since 1986. Located in Green Cove Springs, Florida, it is one of the largest producers of sewer cleaning equipment in North America. Vac-Con employs more than 350 people at its single location and is 100% employee-owned.

904-284-4200 | www.vac-con.com

Ditch Witch HX Vacuum Excavators Enhance Performance on Compact and Large-Scale Jobs

Vacuum excavation has long been an essential practice on underground utility projects. Today, the practice is rapidly expanding in all directions — from damage prevention to fluid-cleanup on horizontal directional drilling (HDD) projects. And, as fiber build-out and utility expansion continues, vacuum excavators will play an integral role in uncovering, digging and cleaning up these jobs.

While contractors continue to rely on vacuum excavators, they're always looking for ways to improve productivity, reduce costs and boost versatility on a variety of municipality and underground construction jobs. In a modern, competitive landscape, finding a vacuum excavator to meet these demands is important.

The new, Ditch Witch HX-Series vacuum excavators feature innovative and patent-pending designs that meet the diverse and evolving customer needs on a range of applications from compact, urban projects to large-scale excavation, potholing, slot trenching and microtrenching applications.



IMPROVE PRODUCTIVITY AND VERSATILITY

The advanced line includes three models — the HX30, HX50 and HX75 — each with outstanding suction and water pressure, and each featuring a patent-pending design for optimized airflow. Each model also features a standard, cyclonic three-stage filtration system, offering the industry's leading filtration for maximum protection of key components.

The HX vacuum excavators also offer improved versatility to easily meet the diverse needs of different municipalities and contractors. The low-profile design allows for easy navigation on any job site without compromising ground clearance, and offers a compact footprint suitable for large-scale applications without compromising power or production.

At the turn of the 21st century, the demand for vacuum excavation led to new designs focused on improving performance on a variety of job sites. Reduced noise, for example, supported the excavators' growing use in residential neighborhood projects, but contractors shouldn't have to compromise machine power for reduced noise.

The HX vacuum excavators are equipped with Kubota Tier 4 final engines, providing a range of 24.8, 49 and 74 hp to the HX30, HX50 and HX75, respectively. The three units provide more fuel capacity than each of their predecessors for longer job durations. And the engines boost power without producing powerful noise. Advanced sound-reducing technology creates minimal disturbance in noise-sensitive areas and contributes to superior operator comfort.

VARIETY TO FIT UNIQUE NEEDS

HX-Series tank options include a choice of a 500- or 800-gallon debris tank to meet the requirements of any sized cleanup. Each is available in a standard or heavy package with various freshwater tank sizes and trailer weights depending on job site needs, and can be configured with an optional power boom or jib boom. All trailer configurations are NATM compliant.



Ditch Witch, a Charles Machine Works Co., is a forerunner in the underground utility construction industry, and today it designs, manufactures and markets a complete line of directional drills, drill pipe, HDD tooling, vacuum excavators, trenchers, chain, teeth and sprockets, mini skid steers and vibratory plows. Handcrafted in the USA, its products are supported by the Ditch Witch dealer network with over 175 locations worldwide. To learn more about the Ditch Witch HX-Series vacuum excavators, contact your local Ditch Witch dealership.

800-654-6481 | info@ditchwitch.com | www.ditchwitch.com

WE'RE IN THIS TOGETHER.

“ Because of the SK and all the attachments, we're able to say 'Yes' to more jobs. Which has helped us grow our business in ways we never imagined. ”

- Bil Davis, Northern Fence

Bill Davis,
Northern Fence

Kyle Davis,
Northern Fence

COME SEE US AT
ICUEE BOOTH K145.

 **Ditch Witch**[®]

WE'RE IN THIS TOGETHER

Pennsylvania Excavator Boosts Productivity With Advanced Machine-Control System

Digging graves is a serious business, and no one takes it more seriously than Cody Taxacher, owner of Taxacher Specialties, an excavation contracting business based in Connellsville, Pennsylvania, 50 miles southeast of Pittsburgh.

Taxacher, who started his business in 2009, handles a variety of excavating and earthmoving jobs for local municipalities, but his main activity is gravedigging. Using a Hyundai R60CR-9A compact excavator equipped with a Trimble machine control system, Taxacher each year digs approximately 500 graves for nearly 50 cemeteries within a 30-mile radius of Connellsville in southeastern Pennsylvania.

“Gravedigging is the biggest part of our business, and with our new excavator and machine control system, we are as fast and accurate as anyone could be,” Taxacher says. “The Hyundai compact excavator is the perfect machine for us, because it doesn’t damage the ground, it’s very maneuverable, it’s got the power we need to dig in any conditions and the machine control system results in a precise dig every time. All the cemeteries in this area know they can depend on us for speed, accuracy and protection of their grounds.”

The R60CR-9A is a 6-ton class, compact-radius design machine with a maximum dig depth of 11 feet, 9 inches. It has a bucket breakout force of 8,228 pounds.

TECHNOLOGY BOOSTS EXCAVATOR PRODUCTIVITY

Taxacher says the addition of an electronic machine control system “adds an extra level of productivity to the excavator.”

He describes the Trimble GCS900 system as an electronic tape measure in the cab. “You just watch the screen and it tells you where you are. You never have to leave the cab to inspect your excavation.”

Taxacher says you can watch the screen for guidance and get a perfect dig, no matter the project. “It shows you an exact 3D profile of the excavation. If someone says they want a waterline 2 feet deep, you don’t have to be out there with a tape measure, you just look at the screen.”

THE RIGHT MACHINE

When it came time to replace his previous compact excavator, Taxacher carefully examined the market for the right machine.

“I tried every excavator on the market when I was looking to purchase a new machine,” he says, noting the Hyundai has a large and comfortable cab. “It has Bluetooth for your telephone. It has a nice touch screen — you can see



all your controls and monitor how much fuel you have. It’s all right there on one screen.”

Another important productivity feature on the excavator is its quick coupler for changing attachments. Among the hydraulic attachments Taxacher uses on the Hyundai excavator are multiple buckets, a tamper, a breaker and a grapple.

“First of all, we change buckets a lot. Second, if we hit a rock while we’re digging a grave, we take the bucket off and put the hydraulic breaker on. We put the bucket back on. We put the hydraulic tamper on to fill the grave and compact the soil. And we’re done.”

He said the excavator’s dozer blade — a standard feature — is handy for leveling the machine and backfilling an excavation.

Regardless of how his business grows, Taxacher says he’s right where he belongs. “I was one of those kids who was always playing with trucks. This is what I always wanted to do.”



Hyundai Construction Equipment Americas Inc. has been part of the global construction industry since 1991. The company’s goal is to go beyond meeting equipment needs for its clients and to make their businesses more successful.

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Melfred Borzall Offers Full-Line of Tooling on Website

In an era of same-day shipping, 24-hour smartphone access, mobile-dominated internet activity and speed-of-light expectations, younger drillers entering the industry have higher technology expectations.

Answers to tough questions involving connection compatibility, torque rating, tooling load capacities, drill fluid recipes and other HDD-specific questions are now expected to instantly be accessible via smartphone.

The reality is that while technology will continue to integrate and speed up processes, talking with someone that has history and industry knowledge is more valuable than ever. There must be a marriage of technological advancement and industry experience.

Melfred Borzall's 73-plus years' experience in the HDD industry has enabled the company to double down on disruptive technology and groundbreaking advances for HDD drillers of all generations using a blend of online and offline resources.

ON-SITE TROUBLESHOOTING

Melfred Borzall's printed resource guide at the back of each catalog has been wildly popular with its HDD-specific solutions to production-hampering problems and unique tools such as a complete drill-rig glossary, drill fluid mixing tips, standards for swivels, depth and pitch guides, conversion charts, and reamer sizing guides.

These resources are now available on the company's website, which means your smartphone now holds 73 years of HDD solutions along with case studies and tooling guides to help even the greenest driller troubleshoot complex situations. Configuring complex setups is equally painless with Melfred Borzall's tooling wizards.

Walk through a complete setup for a reamer, transmitter housing or the patented FastBack System in simple-to-follow steps that result in a fully configured tool for your specific drill rig and ground conditions.

ONLINE ORDERS, LOCAL SUPPORT

Melfred Borzall representatives say making the company's full line of tooling available online was a big decision, but necessary in a world of 24-hour news cycles and around-the-clock jobs. When your crew trips out 20 feet under a river at 2 a.m., you don't want to wait until "working hours" to get replacement tooling ordered. Knowing that situations like this call for experience, that same tooling will ship from your local Melfred Borzall tooling distributor and be supported by it as well.

Blending human experience with the ease of online ordering, Melfred Borzall ensures each order is reviewed by an HDD expert. "Accessing our experts comes on your terms, whether it be chatting online, over the phone, via email or even in-person," says a company spokesperson.

INTUITIVE SEARCH ALGORITHM

The experience you have when shopping on consumer websites is the model for how you shop on melfredborzall.com, but it's complemented with the infrastructure of a complete business-to-business (B2B) experience. This means your driller slang used on the job site is recognizable in the website's search functionality.

Call it a drill head, sonde housing, transmitter housing or just a housing and it will know what you mean. Create an account and save tools to favorite



lists, store methods of payment, track orders and everything else that makes online shopping easy. The B2B structure of the website accommodates the account management of businesses with multiple locations and numerous employees.

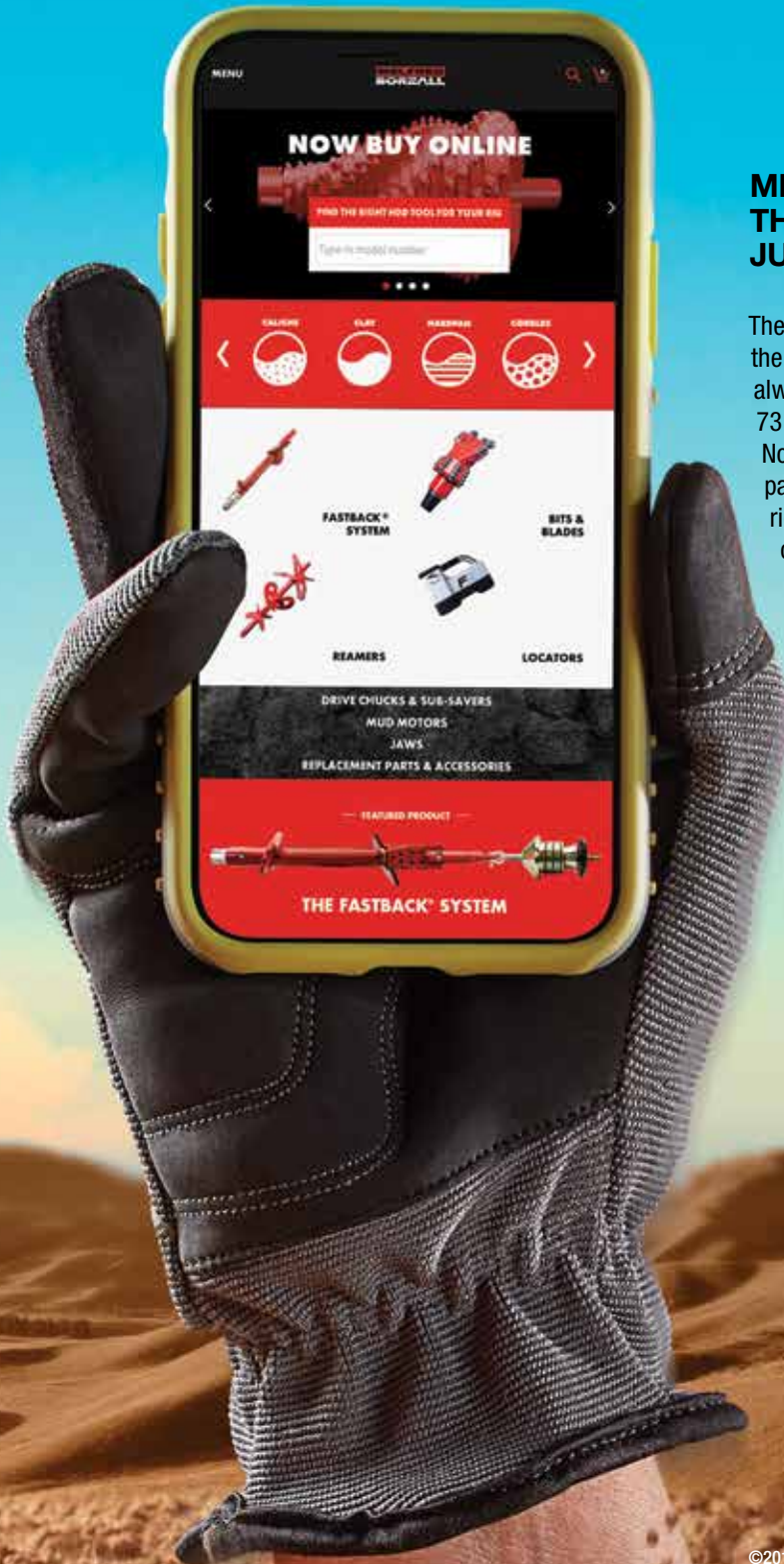
The new melfredborzall.com brings online and offline production-saving resources to the average driller's fingertips and puts him back in control.



Melfred Borzall has developed HDD tools for more than 73 years in an effort to make directional drilling more productive and more profitable. The company's Southern California design and manufacturing plant is ground zero for the HDD tools that changed the way an entire industry drills.

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Maximize Your Dry Excavation Potential With the MTS Dino Series Suction Excavator

The MTS Dino Series Suction Excavator from Ox Equipment is capable of replacing multiple pieces of equipment on a job site, which not only eliminates logistical planning and coordination, but with one crew, it also reduces the cost of labor.

When excavation is required in construction and there are utilities to consider and environmental concerns within the surrounding area, a level of prioritization is required to establish the order and involvement of multiple pieces of equipment. To keep projects on task, the excavation and all of its moving parts need to be planned out, and yet this still manages to cause a lot of work site congestion and project delays. But where the MTS Dino Suction Excavator is concerned, a lot of those logistical elements are removed, allowing equipment to get in and increase project throughput without needing to consider any other equipment.

Digging dry keeps excavated materials unaltered, which means removal, disposal and the need for new backfill materials can all be avoided. In addition, the equipment associated with those tasks isn't required. The combination of those logistical efficiencies, higher project throughput and excavated material management will effectively decrease your overall project costs, according to an Ox Equipment spokesperson.

Currently the standard for safe excavation technologies throughout Europe and Australia, these dry-suction excavators work powerfully without the use of water and eliminate issues related to slurry disposal as well as overweight truck loads. A patented twin-fan system generates over 24,000 cfm and employs a 10-inch diameter suction hose which is precisely manipulated via a mechanical Power Arm. Other innovative features of the MTS Dino Series include functional side-tipping and high-quality air tools on board.

ENGINEERED FOR DRY EXCAVATION

The MTS Dino Series Suction Excavator from Ox Equipment boasts an environmentally safe, nondestructive dry digging solution. Using patented technology that was engineered into the MTS Dino Series, Ox Equipment ensures that every component and moving part optimizes performance and works reliably when introduced to dry materials.

The MTS Dino Series thrives on the job, and exposure to dry materials increases the machine's throughput. Being engineered for excavating dry mate-



rials means that the entire workflow of the MTS Dino Series — from the high-quality tool options, to the filtration system, to dumping and even the maintenance of this equipment — was all carefully considered during the manufacturing process. With downtime mitigated through this advanced technology, you can rest assured the MTS Dino Series will remain in the field getting work done.



Ox Equipment Inc. is the exclusive North American distributor for MTS Dino Series Suction Excavators. With a management team with over 50 years' combined experience in the utility construction business, Ox Equipment is ready and able to deliver cutting-edge excavation technologies throughout North America to its end users from municipalities, utilities and the contractors who serve them.

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What's Driving Demand for Alternative Trench Covers?

When you're seeking the appropriate cover for an open trench or hole, the No. 1 answer to that question is "safety," says Dave Balkan of Joseph L. Balkan Inc. Sewer & Water Main Specialists.

For decades, trench covers have been used often without regard for compliance issues. Having a cover that is properly secured, adequately load-rated, ramped and has a high visibility anti-skid surface, is in compliance for most cities and towns for a reason. Risking it by not using an appropriate cover in the correct way can result in injury or death, according to an Oxford Plastics spokesperson.

ACCESSIBILITY AND AESTHETICS

Another driving force is providing proper accessibility to pedestrians. Especially in public rights-of-way, accommodation must be made for persons with disabilities. This includes pedestrians using wheelchairs, pedestrians with vision loss, individuals with cognitive disabilities and older adults with limited mobility. Details matter, as a properly designed cover can enable safe wayfinding and independence.

Often, cold-patch asphalt is used around the perimeter of covers to ramps, but has proven problematic, says the spokesperson. "Cold patch doesn't always adhere, shifting from position, no longer doing its intended job. Additionally, remnants of cold patch adhere to shoes, tracking into offices and homes."

Aesthetics, especially in high-profile projects, is also creating demand. Project development requires consideration of aesthetic elements of public job sites. Although it's still a construction site, the pursuit of visual appeal, cohesiveness and tidiness is a plus.

Money — the cost of a trench or hole cover — is another dominant determinant. The price of the cover is to be compared, but it's the collective expense of a compliant cover that must be considered, according to Oxford Plastics. "The additional cost to ramp the edges, to apply the anti-skid high-visibility paint to the surface, and to bring in heavy equipment, sums up a more accurate cost comparison."

THE OXFORD SOLUTION

For over 15 years, award-winning manufacturer Oxford Plastics has collaborated with utilities from around the world to develop a range of trench covers that meet high-efficiency, low-cost and safety requirements.

The LowPro 15/10 Driveway Cover is often used by utility contractors seeking a safe, easy-to-manuever covering for driveway or sidewalk trench work. The LowPro 15/10 has a high-visibility, molded anti-slip surface with chamfered edging that grips the asphalt.



Designed in collaboration with National Grid, LowPro 15/10 is suitable for up to 3.5-ton vehicles over a 35-inch-wide trench, and pedestrians over a 47-inch-wide trench.

When a longer run of trench requires covering, LowPro 15/10 covers are butted together, then attached with an infill to create a flat surface suitable for pedestrians, bicycles and other types of personal transportation.

A cover weighs 93 pounds, allowing for easy transport and maneuvering by two people and removing the need for heavy lifting equipment.

In Balkan's words, the LowPro 15/10 has "so many advantages that it has transformed our operation." To hear testimony from Balkan, a New York City utility contractor who uses them every day, search "Composite Trench Cover Testimonial Balkan" on YouTube.



Oxford Plastics manufactures site safety solutions including barriers, road plates, trench covers, ground protection mats, temporary fence solutions and more. The range of covers and road plates address various load ratings

and applications and are available to North American markets.

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LowPro 15/10 Trench Cover



Composite Trench Covers are lighter, easier to install and safer to handle than steel plates. Engineered by Oxford Plastics. *Contact us for more information.*

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Integrated Wireless Communication Delivers Results for Drilling Contractors

Every drilling project presents a unique set of challenges. In order to effectively deal with changing site conditions, maintain safety and meet deadlines, drilling crews must communicate in real time. Without it, delays and misunderstandings can lead to mistakes and accidents.

COMMUNICATION VS. HEARING PROTECTION

Communicating on a job site involves two opposing needs: being able to communicate properly, and protecting ears from the noise of dangerously loud equipment. There are a number of partial solutions that address only half of this dilemma.

PARTIAL SOLUTIONS

Hearing protectors like earmuffs or ear-plugs block out noise, but make it impossible to communicate effectively. Removing hearing protection to enable communication can lead to hearing damage.

Communicating with hand signals can be easily misinterpreted and is dependent on line of sight, which is difficult to achieve around equipment and traffic. Meanwhile, continued shouting is stressful and fails if it isn't heard.

Two-way radios require taking your hand off controls to press and hold the push-to-talk button. Cellphone use distracts operators when their eyes move away from gauges and attention wanders from the task at hand.

None of these traditional communication methods provide hearing protection for crew members in high-noise environments.

What about shutting down loud equipment? This solves noise and communication problems when workers are close by. However, distance remains a limiting factor. Also, frequent work stoppages lower productivity, efficiency, and increase wear and tear on machinery.

It's a Catch-22 scenario: How can operators and locators communicate clearly while wearing effective hearing protection?

BENEFITS OF INTEGRATED WIRELESS COMMUNICATION

Sonetics' Portable Wireless Communication Systems combine hands-free, full-duplex communication with advanced hearing protection to let drilling crews communicate clearly and easily while protecting their hearing.

DECT7 wireless technology provides instant, simultaneous two-way communication — just like a mobile conference call — for crews of up to 15. The voice microphone is continuously live with no need to press and hold a push-to-talk button. Noise-cancellation technology and automatic adjustments prevent background sound from being heard by other team members.

Both the headsets and portable ComHub are wireless, allowing crews to move freely around the work zone without being tethered to equipment. Components are battery operated and provide up to 24 hours of talk time on a four-hour charge.



With a 24 db noise-reduction rating, Sonetics wireless headsets lower all outside sound to safe levels, preventing hearing damage and the risk of permanent hearing loss.

Many workers refuse to wear effective hearing protection due to fear of isolation. Sonetics wireless headsets feature stereo listen-through microphones, providing users with situational awareness and hearing protection at the same time by combining outside sound with voice communication.

"Drilling contractors look for every advantage to help them deliver the highest quality results on or ahead of schedule," says Julie Steding, Sonetics marketing manager. "Sonetics' unique combination of hands-free, wireless communication headsets with integrated hearing protection helps drilling crews be more productive, operate at a higher level of safety, and reduce the stress that comes with daily high-noise exposure."

Sonetics

Sonetics Corp. creates wireless communication solutions that enable natural conversation in challenging environments. Building on a platform of collaboration and rugged performance, the company's team communication systems deliver a productive, safe and enjoyable work experience. With 35 years' experience, Sonetics Corp. and its Sonetics, Flightcom and Firecom product brands deliver innovative solutions to customers, transforming the way they work.

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Safety and Versatility Are Assets for the Efficient Mud Dog Hydroexcavator

Super Products offers a safe, efficient and versatile alternative to traditional digging equipment with the Mud Dog hydroexcavator product line. The Mud Dog is designed for operator convenience and consistent performance in the harshest environments.

The Mud Dog is available with 12-yard or 16-yard debris capacity and has 1,500- to 2,000-gallon water tank capacity to meet the challenges of a variety of applications, excavation projects and job site conditions.

SAFETY FEATURES

These units come standard featuring tilt-ejection unloading, which provides fast, thorough removal of debris from the collector body while ensuring all liquids are cleared quickly and efficiently. It even functions efficiently when unloading in an up-slope, nose-down position, allowing for thorough safe removal of debris and providing easier tank washdowns and cleanups.

Backup cameras and alarms are also built into all units to notify the entire crew that the unit is moving. Additional safety solutions include vacuum breaker, tailgate props, visual and audio alarms (such as when the boom or the body is still up), and emergency stop switches.

VARIABLE-SPEED EFFICIENCY

The Mud Dog operates using variable speed, meaning the blower and water pump can run at different speeds while operating. This enables the user to work as efficiently as possible on the job site by adjusting the speed for the specific function it needs at the time. It also allows for fuel efficiency because you do not have to run full rpm to vacuum up the debris.

The storage of tubes and nozzles allows for easy operator access. The operator does not need to spend a lot of time to find and attach the necessary items to perform the job, according to the manufacturer.

The water tank on the Mud Dog is a quick-filling system that replenishes a 1,500-gallon water supply in less than 10 minutes. It is also made out of a non-cross-linked polyethylene, which is repairable and a weight-saving material.

A VERSATILE MACHINE

Super Products offers an air-excitation option for the Mud Dog, which allows the operator to always choose the best application — water or air — for each job. Hydroexcavation uses high-pressure water to break up solid materials



and is effective in any soil condition, say Super Products representatives. Meanwhile, air excavation uses compressed air to break up soils and materials and is most effective in less compacted soils.

All Mud Dogs are equipped with a rear-mounted boom that can reach 27 feet and has 335-degree rotation and can also move in a 45-degree upward and 25-degree downward pivot. This allows for versatility within the dig areas so that the units do not need to constantly move and readjust the position.

Additionally, Mud Dogs come standard with a boom light package that enables working safely in dark environments.

All Mud Dog units come with hardwired pendant and wireless remote controls that operate boom functions as well as vent door, kill switch, vacuum level, heater, water pump and dump controls. The wireless remote control allows for the operator to be right at the excavation point and not toward the front of the truck.



Super Products, an Alamo Group Co., is a leading manufacturer of hydroexcavators and other vacuum trucks for a variety of industry sectors. **800-837-9711 | www.superproductsllc.com**
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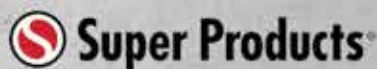
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SPECIFICATIONS	F3 ECO-LITE	F4 ECO-LITE	F5 ECO-LITE
DEBRIS CAPACITY	10 Cubic Yard Volume	12 Cubic Yard Volume	12 Cubic Yard Volume
WATER CAPACITY	1250 US Gallons	1550 US Gallons	1950 US Gallons
STANDARD BLOWER	3800 CFM 27 inHg	3800-6300 CFM 27 inHg	3800-6300 CFM 27 inHg
WATER PUMP	Up to 20 GPM @4050 PSI	Up to 20 GPM @4050 PSI	Up to 20 GPM @4050 PSI
WATER HEATER	690,000 BTU, 12 Volt with full diagnostics	690,000 BTU, 12 Volt with full diagnostics	690,000 BTU, 12 Volt with full diagnostics
BOOM	8' Boom Hose, 26 ft reach @ 342 Degrees	8' Boom Hose, 26 ft reach @ 342 Degrees	8' Boom Hose, 26 ft reach @ 342 Degrees
OFFLOADING	Tornado Concave & Sloped Floor Design	Tornado Concave & Sloped Floor Design	Tornado Concave & Sloped Floor Design
DEBRIS DOOR	48"x52" Hydraulic floor with Hydraulic latch	48"x52" Hydraulic floor with Hydraulic latch	48"x52" Hydraulic floor with Hydraulic latch
VAN BODY	From 42 inches to 70 inches	From 42 inches to 70 inches	From 42 inches to 70 inches
WINTERIZING OPTIONS	Glycol Pod, Water Recirculation Pump	Glycol Pod, Water Recirculation Pump	Glycol Pod, Water Recirculation Pump
WEIGHT	From 16,380Kgs	From 19,800Kgs	From 20,000Kgs

Tornado Announces Updated Line of ECO-LITE Hydrovacs

Tornado Global Hydrovacs is announcing its full line of 2019 ECO-LITE series hydrovacs. From the SPIF 20 spread tandem F3 ECO-LITE to the company's flagship hydrovac, the F5 ECO-LITE, Tornado has it covered.

For 2019, the company has redesigned a number of the ECO-LITE series' features to aid in simplicity and operator safety.

NEW FEATURES

A newly redesigned back end with an oversized 48-by-52-inch mud gate features auto locks and an adjustable splash guard. This design allows for dumping into low-walled flocc tanks and makes off-loading simple, safe and efficient.

The standard wireless remote allows operators to control all of the hydrovac's functions from a single source, giving them total freedom and eliminating any trip hazards associated with corded units.

With a boom grease system, Tornado has relocated its grease manifold to eliminate the need to climb onto the truck, significantly reducing maintenance time and improving employee safety. And the company's Top Gun boom has been updated with a new Speed Access Hatch allowing for quick removal of the deflector plate while still retaining its 26-foot reach and 342-degree rotation.

READY-TO-WORK DESIGN

A ready-to-work design allows you to get to work faster, saving you and your clients time and money. Tornado hydrovacs can achieve a 23-foot dig depth without the need of additional dig tubes, increasing efficiency.

Tornado's tanks now have separate water and debris chambers. "We use the highest quality epoxy coating to extend its service life," says a company spokesperson. "Our new concave sloped debris floor makes Tornado hydrovacs one of the quickest hydrovacs to off-load on the market."

The design also keeps the debris warm in winter, helping you can avoid frozen loads.

DIRECT POSITIVE DISPLACEMENT BLOWERS

Tornado hydrovacs use a direct-drive positive displacement blower, which provides good vacuum power. Over time, positive displacement blowers have proven to be efficient and powerful alternatives to fan drives.

Tornado's engineered dual silencers have a low decibel rating. Its improved cooling efficiency also will extend your blower's life, according to the manufacturer.

WATER PUMP AND HEATER

Wash pump options with flow rates up to 20 gpm and 4,000 psi allow for efficient and reliable production.

The company offers a standard 690,000 Btu, 12-volt diesel-fired water heater. This allows for increased production when digging in frozen or hard-packed mediums. "Our independent diagnostic system allows for ease of operation," says the spokesperson.

VAN BODY AND ELECTRICAL CONTROLS

Tornado's van body is heated and insulated while remaining both lightweight and sturdy. The ergonomic layout is designed for operator safety and comfort. The lockable doors secure critical components while protecting tools from theft, damage and premature wear.

All control components are contained in a protective and reliable all-weather box. The control components also feature independent displays for blower, boiler and pump hours. Every Tornado Hydrovac is equipped with a 3,000-watt power inverter as standard equipment.



Tornado Global Hydrovacs is a premier hydrovac truck manufacturer focused on power and efficiency in excavation operations.
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F4 ECO-LITE



F5 ECO-LITE



TRUVAC Product Line Designed to Meet Demanding Safe-Digging Needs

Established by Vactor Mfg. Inc. to address the critical need for safe digging in the United States and Canada, the newly introduced TRUVAC is committed to promoting quality and safety for underground infrastructure and the men and women who operate vacuum excavation equipment.

TRUVAC is also committed to providing customers with vacuum excavators that deliver safe potholing, precise excavation, slot trenching, line locating and more.

Built to help customers dig smart, TRUVAC equipment gets the job done fast and safe, without damaging underground utilities. TRUVAC vacuum excavators use high-pressure air or water (hydroexcavation) to loosen soil, providing a nondestructive means to safely locate, excavate and uncover underground utilities. The loosened soil is removed through a vacuum hose and deposited into a debris tank for disposal or backfilling.

Designed to meet the most demanding safe-digging needs, the TRUVAC product line includes the versatile Paradigm subcompact vacuum excavator, the Prodigy vacuum excavator that offers power and performance in a smaller footprint, and the HXX series of full-sized vacuum excavators designed to tackle the biggest digging projects.

TRUVAC machines are backed by an expansive network of dealers across the U.S. and Canada providing expert service and support to improve uptime.

INTRODUCING TRUVAC

Introduced in January 2019, the TRUVAC brand of premium vacuum excavator trucks is designed specifically to satisfy the safe-digging requirements

of businesses or organizations that locate and verify underground utility lines and pipes.

The TRUVAC team of dedicated, experienced sales managers, product management, service/support personnel and marketing staff is based at Vactor's headquarters and production facilities in Streator, Illinois, where TRUVAC machines are built.

The TRUVAC Paradigm subcompact vacuum excavator can dig holes with water or air; vacuum, contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools.



Vactor Mfg. Inc. manufactures the Vactor brand of sewer and catch basin cleaners, the Guzzler brand of industrial vacuum loaders, and the TRUVAC brand of vacuum excavators featuring innovative technology and customizable designs. Based in Streator, Vactor has authorized dealers and service centers across North America.

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Underground Magnetics Introduces Game-Changing Mag 8 Guidance System

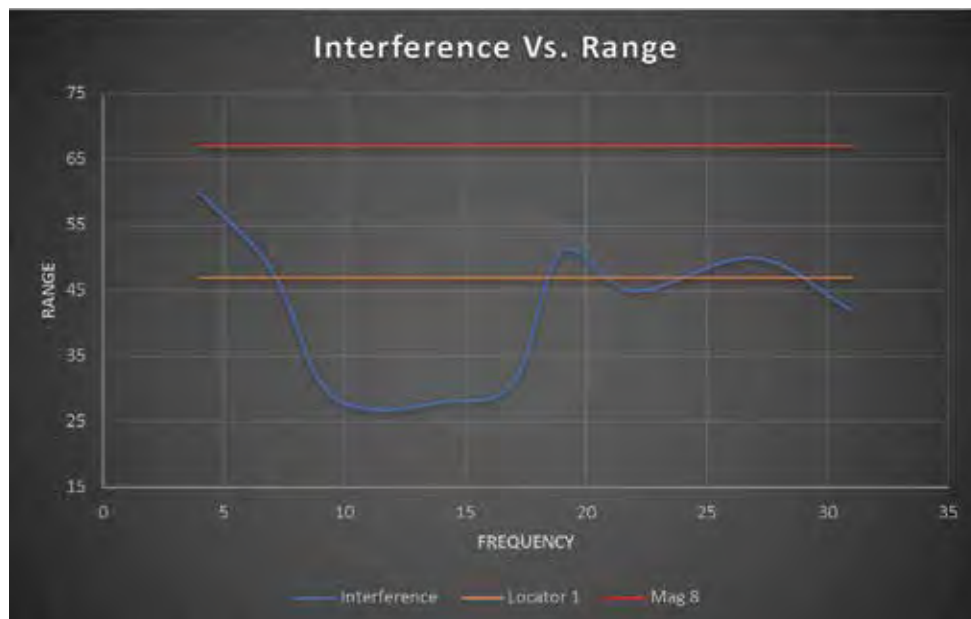
Underground Magnetics is introducing the new Mag 8 HDD Guidance System. Using the new intuitive user interface and Single Point technology, the Mag 8 is one of the easiest systems to use on the market.

Boasting a range of up to 360 feet with the Echo 110 extended range transmitter, the Mag 8 can power through interference. The patented design of Echo 110 allows for both a larger antenna and more battery reserve, resulting in 295 feet of range and 120 hours of operation, or 360 feet and 30 hours in high-power mode.

Range and strength against interference go hand-in-hand. While you may not be drilling deep, the stronger signal gives you the best protection in high-interference areas, according to the manufacturer. “When you run into high-interference areas and lose signal, one way to work through is to switch to a frequency that has lower interference,” says a company spokesperson. “This can often be time consuming and is not the best work around to the problem. A better solution is to increase the range of the system.”

Having a more powerful signal (more range) allows you to maintain signal without having to switch frequencies. The Mag 8 and Echo 110 do just this while still giving you the option to change between 10 frequencies as a backup solution.

Let’s say at a given point the interference is as shown in blue in the chart below. With a lower range system (Locator 1), it is necessary to change to a frequency that would give you a signal higher on the chart than the interference. However, with a stronger signal strength (Mag 8), all frequencies will work and you can carry on boring.



FINISHING IN-DEPTH JOBS

With a system this powerful, your ability to efficiently finish jobs increases, and you’re given options you’ve never had before. Take for example a job a contractor finished recently in Italy. The project was 1,200 feet long with a depth of 150 feet, and the crew was struggling. They were required to hit a tunnel at the end of the bore that was about 40 feet deep. The Mag 8 and Echo 110 were brought in and the contractor finished the bore.

Another benefit of the Mag 8 system is using the unit’s bore-to function across multilane highways to avoid standing in the median to finish the task. Simply drill to the edge, give yourself a visual line that can be seen from the other side, press one button and drill to the receiver. “In many cases, the cost to manage traffic or call in an expensive wire line company can be avoided, and those profits can go back into your pocket,” says the spokesperson.

EXPERIENCED SERVICE TEAM

The Mag 8 design was invented by a team with over 80 years’ experience in designing and servicing the HDD industry. Based out of Underground Magnetics’ new facility in Johnston, Iowa, service is just one call away. With a five-day turnaround time on repairs and cost-free loaner units, projects can continue running with as little down time as possible.

The company’s seasoned team of reps across the country can not only provide training and support, but have years of practical drilling experience. You can meet them at No-Dig Down Under Booth No. 107; the International Society for Trenchless Technology’s No-Dig Florence Booth No. 49; or International Construction & Utility Equipment Exposition Booth No. 2956.



Underground Magnetics designs, engineers and sells HDD locating systems for horizontal directional drilling and trenchless technologies. The company is centered around a core team of industry experts dedicated to designing, producing and servicing locating systems.

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**Chris Allen, General Manager
Eris Underground LLC**

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Foremost 1600 Hydrovac Capable of Urban and Industrial Jobs

For a hydroexcavation truck recommended in all applications — both in urban and industrial settings — the Foremost 1600 Hydrovac is worth consideration.

Featuring a heated 42-inch van body, the 1600 Hydrovac allows for water capacities of 1,600 gallons and a 13-yard debris body. A Robuschi RBDV125 blower provides vacuum power, and a Cat 3560 wash pump and 740,000 Btu boiler are also used on this model.

The 8-inch diameter boom is rear-mounted, fully rotational and controlled by an Omnex wireless controller, which also controls the vehicle rotations per minute, wash and vacuum functions. All off-loading functions can be performed via remote, and are performed with a sloped debris floor design and washout system.

The dump door is 48 by 58 inches, providing a large area to allow for tank cleaning. Optional 4-inch Hydratech off-loading pump systems are available, which allow for pumping off in a contained manner when discharging liquid loads. Complete winterization is standard.



FOREMOST

Foremost is an industry leader in the manufacture, repair, service and maintenance of vacuum trucks and hydrovacs. Its customers bring units from across Western Canada to be taken care of by an expert service and repair team.

With manufacturing capacity in three of its Alberta-based production facilities and U.S. distribution through a relationship with Transwest Trucks in Denver, Foremost is positioned to meet the needs of the industry across North America.

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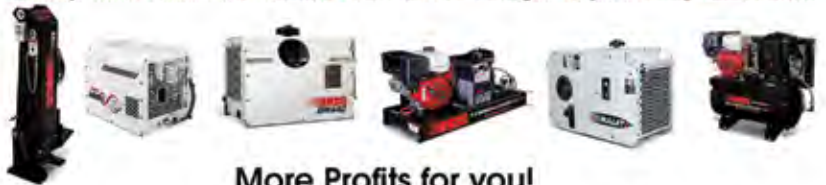
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How to Choose the Right Air Compressor

Many times choosing the right method of air compression is just as important as choosing the capacity (cfm) and pressure (psi). Think about it like this: Do you need continuous air like that used by jackhammers, piercing tools or any air tool running for longer than 20 minutes at a time, or do you need intermittent air like impact wrenches, drills or other short-duration tools?

“If you need continuous air, then you need a rotary screw-type compressor. If you need intermittent air, then you want a piston-type compressor,” says Chuck Hamilton, director of marketing for BOSS Industries.

WHAT’S THE DIFFERENCE?

A rotary screw compressor is air on-demand, meaning you have immediate, continuous air that can run for hours or even days. The bonus is that there’s no air reservoir needed. This design uses two rotating lobes that are in an oil-flooded system. The oil serves primarily three functions: It seals the tolerances between the lobes to create compression, helps lubricate the bearings on the rotors, and transfers the heat from compression to the cooler.

Meanwhile, a piston-type compressor (reciprocating compressor), uses the piston and rings to build pressure and fills an air reservoir. This requires a short pressure build time to fill the appropriate size air reservoir, but is ideal for on/off, short air-usage applications.

WHAT’S NEXT?

You need to define what cfm you need by what tools you will be using. “We recommend sizing your compressor to the rated specifications for your tools to ensure the life span and investment in your air tools,” says Hamilton. “Choosing the right type and size of an air compressor is just as important as choosing the right tool for the job.”

BOSS
engineered AIR systems

BOSS Industries LLC was founded in 1988 and is a leader in PTO-driven rotary screw compressors, engine-driven rotary screw compressors and hydraulically driven rotary screw compressors. The company also has a wide selection of rotary screw air ends for OEM applications and also offers a range of piston air compressors. The company’s compressors are ideal for the utility truck and service truck industry. BOSS Industries is located in La Porte, Indiana, and operates across the world through its distributor network.
800-635-6587 | www.bossair.com

Dynablast Offers Industry-Proven Water Heater and Pump Combo

With an output temperature of 190 degrees F at 9 gpm, 690,000 Btu and a wet-stream option, Dynablast's HV690F-12V hydrovac water heater is an ideal option for digging in colder climates. The unit also improves digging in clay-filled areas.

Like all other Dynablast models, the HV690F-12V comes with ETL certification for safety, which also includes certification on the coil for higher efficiency and heat transfer, along with a stainless steel target plate to increase coil life and momentary override control for better serviceability.

WATER PUMP PACKAGE

Dynablast also offers the Pratisoli KT28ASPF water pump package, which operates at 18.4 gpm at 2,900 psi and 1,450 rpm. It's set up for hydrovac by reducing pump speed to lower water flow, resulting in increased pump life and reduced water bypass.

The package comes equipped with a T13 female spline shaft input and SAE B two- or four-bolt flange for direct mounting the hydraulic motor to reduce weight and space on the truck.

Other advantages of the Pratisoli KT28ASPF include a self-lubricating design; a manifold made of spherical nickel-coated cast iron with a 700 Brinell hardness rating; symmetrical crankcase so it's easy to reverse shaft the pump;

internal fins on an aluminum crankcase providing cooling to lower oil temperature; tapered roller bearing for improved lateral loading; two bore ceramic plungers thicker on the water end to prevent thermal shock; and longer run time between routine maintenance like oil changes.



Dynablast has manufactured hot-water equipment for more than 30 years and has worked 36 years as a national Canadian distributor for Interpump, Pratisoli pumps and PA products.

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56 DIG DIFFERENT

Kuriyama Introduces The Boomer Vacuum Hose for Abrasive Materials

Kuriyama is introducing The Boomer, Alfagomma T704HA series industrial sewer vacuum hose. This hose is made with a 1/4-inch thick red gum rubber tube for abrasion resistance. A corrugated black conductive SBR/NR blend cover provides abrasion and ozone resistance.

This is a suitable hose for dry or wet abrasive materials and can be grounded, making it a popular hose in the vacuum truck industry where a rugged hose product is needed.

The Boomer is available in sizes of 2, 3, 4, 5, 6, 8 and 10 inches in diameter.

LONG SERVICE LIFE

The 1/4-inch gum rubber abrasion-resistant tube is designed for wet or dry applications where severe abrasion is a factor and provides for long hose



service life. Heavy-duty construction features a thick tube and cover, high tensile strength fabric and durable steel helix wire designed for high pressure and vacuum applications.

All sizes are rated to full vacuum, and psi safety factor 3-to-1 for sizes 2 to 8 inches, or 2.5-to-1 for the 10-inch hose. Steel grounding wire helps prevent the build-up of static electricity and to keep material flowing smoothly.

A corrugated outer cover provides increased hose flexibility. The use of Cold-Flex materials allows the hose to remain flexible in subzero temperatures. Soft cuffed ends are available for easy installation and clamping.

The hose also can be used as a drill-cutting suction hose in mobile drilling rigs, and it has a service temperature of -40 degrees F to 212 degrees F.



Kuriyama of America, Inc. is a part of Kuriyama Holdings Corp. and first opened its doors in 1968. Located in Schaumburg, Illinois, the company develops and markets a complete line of thermoplastic hose and accessories.

Today, the Kuriyama of America group of companies includes eight

subsidiaries and six distribution centers, as well as numerous distributors, providing a complete line of thermoplastic, rubber and metal hose products and accessories, including couplings and fittings, for use in industrial and commercial applications.

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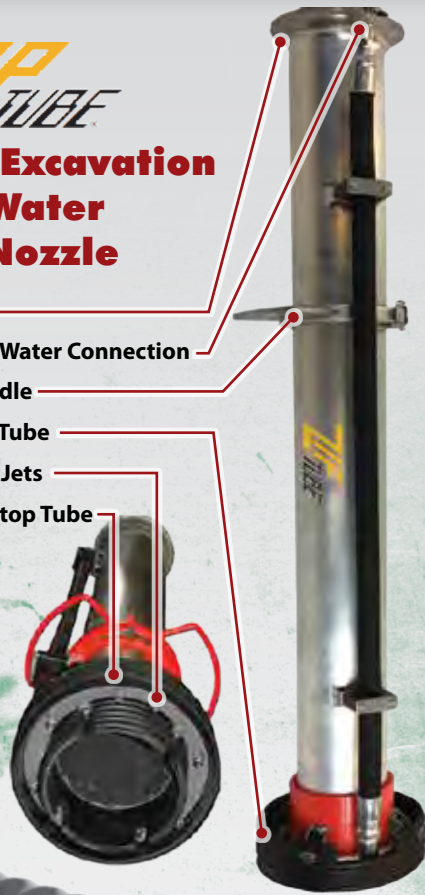
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**Zip Tube Designed
With Durability in Mind**

Milwaukee Rubber Products Inc. has announced it is now distributing the Zip Tube — a new hydroexcavation suction/water erosion nozzle engineered with a rugged build to withstand harsh environments.

The Zip Tube is built with a 0.100-inch wall, 6- or 8-inch Tuff Tube, and is equipped with an external stainless steel water ring containing 10 (6-inch) or 12 (8-inch) stainless steel replaceable jets that pulverize soil with water pressure. Soil is then removed by vacuum suction through the tube.

It's available with a Vector style 6- or 8-inch flange, and Super Products Bandlock or Aquatech connection options.

ENGINEERED FOR SAFETY

Features of the Zip Tube include an adjustable handle with a rubber bump stop inside the water ring. The bump stop protrudes forward to help safeguard the water ring jets against abrasion from rocks, debris and underground services.

There's also a rubber safety tube attached to the exterior of the water ring that helps control the spray of water and eroded material that can splatter during the hydroexcavation process.



Milwaukee Rubber Products Inc. has been in business more than 65 years and is based out of Menomonee Falls, Wisconsin. The company stocks and distributes hoses, couplings, valves, pumps, vacuum accessories and safety equipment. It also custom builds rubber parts to exact specification for its clients.

**800-325-3730 | sales@milwaukeerubber.com
www.milwaukeerubber.com**

Contractors Choosing Rival for Weight-Restricted Applications

Rival Hydrovac has become a popular choice for contractors who need high-performance hydroexcavators, but are concerned about legal weight capacities and truck size. The Rival truck was based on designing the most efficient hydroexcavator possible while insuring it remained road legal with a load of debris in most situations.

Rival's sales approach is to help prospective clients make informed choices about their truck purchases, and in many cases, they're letting clients know they're better off with a larger unit. In situations where it applies, though, Rival has an excellent tool for the job.

Some of the Rival unit's most sought after features include a 7-cubic-yard debris body; 800-gallon freshwater storage; hoist and pressure-off offloading capabilities; Robuschi Robox enclosed blower system with quiet operation, 2,650 cfm and full vacuum; a 12-volt boiler system, 10 gpm water system and full winterization features; full rotation 6-inch boom, extendable to 20 feet; and Western Star or comparable tandem chassis with Cummins power, Allison automatic transmission and full-locking differentials.

In addition, an Aarcom remote system controls boom, water and vacuum while displaying real-time truck weight. A full safety package on the truck includes a railing on top, grounding stud, engineered D-ring tie-offs and bo



Over the years, many trucks designed for energy and industrial applications have moved to the city to work. This caused most companies to endure fines and ongoing liability, or to elect to travel with smaller loads in their large trucks.



Rival Hydrovac is based out of Major, Saskatchewan. The company and truck were designed to help contractors stay compliant.
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Full Range of Configuration Options Available for vLoc3-Pro Utility Locator

The vLoc3-Pro utility locator by Vivax-Metrotech Corp. introduces new innovative tools for locating buried utilities, assuring damage prevention while gathering information for analysis. With two sets of screened 3D antennas, signal distortion is easily detected and displayed on a bright full-color display.

OPERATING MODES

Along with classic locate screens, the vLoc3 series offers new perspective screens, including Vector Locate for fully automatic nonwalkover locating; Transverse Graph showing both peak and null while providing immediate measurement of signal distortion; Plan View showing the relative orientation of the cable at any angle; and a new graphical Sonde screen with guidance arrows leading to the sonde location even if it's vertical.

USER CONFIGURATION

The vLoc3 series is user configurable, containing eight passive locate modes, fault-find mode, SD (showing direction of outgoing current), and a range of frequencies from 16 Hz to 200 kHz.

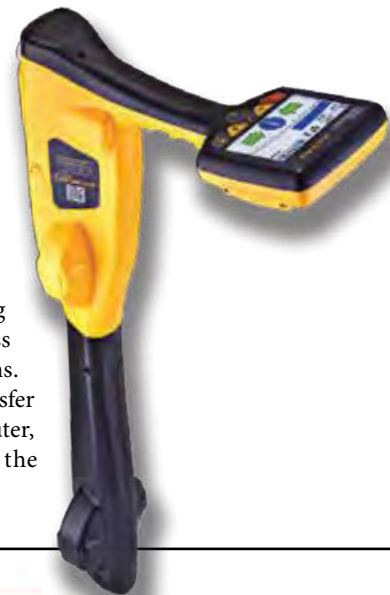
Audio and mechanical vibration alerts also can be programmed by the user to provide warnings for shallow depth, overload, overhead cables and excessive swinging.

Plug-in-play options for the receiver include an optional Bluetooth module useable with external GPS devices, the Marker Locator Adapter EMS foot

to locate buried markers, and an A-frame cable sheath fault locator.

FLEET MANAGEMENT

Manage a fleet of utility locators with the free MyLocator PC software. Users can configure a fleet of locators by turning on or off features, selecting which frequencies the user has access to and creating custom startup screens. The MyLocator software also will transfer data from the locator to a host computer, perform software updates and save the locator's settings.



Vivax-Metrotech Corp. is a worldwide leader in the manufacturing of buried utility locators and video inspection cameras.
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Increase Your Mobility With a Portable Skid Unit Pressure Washer

The Water Cannon Portable Skid Unit is a self-contained pressure-washing system that allows for 100% portable cleaning. These modular units require minimal space and can be easily placed in a pickup truck or trailer bed.

Forklift slots and a lifting eye make loading this unit easy and efficient. There is also a built-in winterization system which makes year-round cleaning and transportation possible.

UNIT FEATURES

The skid unit boasts a highly efficient and serviceable 9.8 hp Kohler gas engine and a heavy duty triplex plunger pump operating at 4 gpm and 3,200 psi. The pump has an oil-bath crankcase, stainless valves, brass manifold, gear-box drive and thermo pump protector.

The unit's heating coil is elliptically wound and stretched with no seam welds. It's structurally braced to reduce vibration and pipe wear, and is sealed with a ceramic blanket.

A Wayne Combustion Systems 12-volt oil-fired burner assembly offers optional high-limit overheat protection.

The frame is made of welded steel and is powder coated. It features a lifting eye, forklift slots, a 225-gallon PolyWater tank and a 10-gallon winterization system.

The Water Cannon Portable Skid Unit also includes a hose reel, 36-inch gun-and-wand assembly with quick couple system, 0-, 15-, 25- and 40-degree nozzles, one soap nozzle, a downstream chemical injection system and 100 feet of high-pressure hose.

Options include a drain cleaning jetter kit, rotary nozzle, wet sandblasting kit and a Honda gas engine.



Water Cannon has supplied pressure washers, parts and accessories for more than three decades. As a result, the company is a leader in professional, commercial, industrial and consumer grade pressure washers and power-washing equipment.

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Invented by a contractor for contractors, Ultra Shore is a division of Trench Shoring Systems Inc. that offers trench shields made with specially corrugated aluminum. It's a lightweight and easy-to-use solution that aims to help contractors save time and money during trench work.

PRODUCT HIGHLIGHTS

All the Ultra Shore panels can be used horizontally or vertically and are stackable. Workers can easily close off one or both ends with quick-release, spring-loaded end-closure panels.

One person can lower a single pair of assembled panels into an excavation. The product transports in a pickup truck and is safe for bury depths up to 12 feet, even in class C soils, according to the manufacturer.

Extra features like leg kits or wheel kits let you take full advantage of OSHA regulations.



Ultra Shore is a division of Trench Shoring Systems, a company that started out in 1972 as a heavy civil contractor working all over the Rocky Mountain West. **800-SHORING | www.shoring.com**

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THE LATEST: Products



1



2



3



4

1. MB Crusher MB-G900 S2 grapple attachment

The MB-G900 S2 grapple is among MB Crusher's most popular attachments. Improved over the years, the MB-G900 is suitable for excavators over 26,000 pounds in weight. Designed for selecting and handling demolition materials with its 360-degree hydraulic rotation, it gives the operator full control of large and unbalanced loads. With a 15.3-foot load capacity and 2,900 psi of pressure, you can tackle tough demolition cleanup jobs with confidence. **855-622-7874; www.mbamerica.com**

2. Vermeer D23x30DR S3 Navigator horizontal directional drill

The Vermeer D23x30DR S3 Navigator horizontal directional drill integrates dual rod technology into a compact machine design to efficiently maneuver through rock in congested cities, busy neighborhoods or tight job sites. Featuring a narrow footprint and a weight of 16,500 pounds, its

light weight is well suited for fiber, electrical, gas and water installation in hard rock, as well as other challenging ground conditions. It has the Vermeer Firestick drill rod dual system that provides a 7% downhole steerability. The unit's threaded outer rod has a rotational torque of 3,000 ft-lbs, while its hex inner rod delivers up to 800 ft-lbs. The drill is powered by a DEUTZ TCD 3.6 L4 diesel engine and a thrust/pullback of 24,000 pounds. **800-837-6337; www.vermeer.com**

3. VMAC UNDERHOOD 70 air compressor for Ram truck

VMAC's UNDERHOOD 70 air compressor is now available for 2019 Ram trucks with a Cummins diesel engine. The rotary screw air compressor is designed specifically to be installed in the engine compartment of the Ram truck. It can produce up to 70 cfm of continuous airflow at 100 psi, with a maximum of 175 psi. The compressor frees up to 25 cubic feet on the truck deck and saves up to 260 pounds, allowing for more tools and equipment or better fuel economy. It also performs well in extreme climates, including arctic and desert environments since it is installed in the engine compartment of the truck and protected from the elements. **800-738-8622; www.vmacair.com**

4. Cat Pumps hydroexcavating pumps

For over 50 years, Cat Pumps has been manufacturing long-lasting and low-maintenance triplex pumps. With dedication to zero-defect manufacturing, ease of service and availability from stock, Cat Pumps designs and builds high-pressure pumps and systems to the highest quality standards for the hydroexcavation industry. Popular models include the Model 3560 with 25 gpm, 3,000 psi or 20 gpm, 4,000 psi; Model 3570 with 30 gpm, 3,000 psi; the Model 660 with 10 gpm, 3,000 psi; and the Model 56 with 5.5 gpm, 3,500 psi or 8 gpm, 2,500 psi. **763-780-5440; www.catpumps.com** ▼

This Issue's Feature:

Gain versatility with mini combo truck

BY JARED RANEY

The **Model 400 ECO**, an 8-foot truck with full jet/vac capabilities from Sewer Equipment, provides an economical choice for municipalities of all sizes.

"The condensed footprint allows this machine to fit into standard 8-foot parking structures and tight urban environments, gaining access to manholes that traditional trucks do not have," says Dave Madole, national sales manager for Sewer Equipment. "The low cost makes it more affordable than a traditional combo truck. Therefore there is a lower level of upfront capital to enter into the vacuum market or even use it as an emergency response vehicle during off hours, with less noise and non-CDL operators."

For those small to midsized utilities aiming to add a vacuum component to their fleet, the mini combo unit offers a low starter cost. It can also function as an efficient and cost-effective emergency response vehicle for larger municipalities while also providing maneuverability in urban areas.

"It gives you all the power of a traditional combination truck in a condensed footprint (maneuverability)," Madole says. "The non-CDL chassis qualifies any driver to be able to operate this machine — no certificates required."

Built off a 19,500 GVWR chassis and 4-yard debris tank, it still provides 18 gpm at 4,000 psi of jetting power and 28 inches Hg on a 4-inch system via a Hibon positive displacement blower.



Model 400 ECO from Sewer Equipment

"This truck touts a powerful vacuum and robust jetting capabilities that allow it to perform any applications that a standard combination truck would be used for," says Ashley Stuart, marketing manager for Sewer Equipment.

Combined with 400 feet of half-inch hose and a 600-gallon stainless steel water tank, it is ideal for 4- to 12-inch lines.

"This truck was a byproduct of many things we heard from customers," Madole says. "Our contractor customers wanted to be able to provide vacuum services, but the upfront cost to enter that market was too high due to the price of a traditional combination truck. Municipalities needed more flexibility to rotate operators, so less operator requirements and increased ease of operation was required. Large cities needed a shorter footprint to navigate busy streets, and contractors needed jet/vac capabilities inside structures with low ceiling heights. From this, the Model 400 ECO was born."

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Happenings

CALENDAR

Sept. 9-11

Breakthroughs in Tunneling Short Course, Knoebel School of Hospitality Management, University of Denver, Denver. Visit www.tunnelingshortcourse.com

Sept. 21-25

92nd Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), McCormick Place, Chicago. Visit www.weftec.org

Oct. 1-3

International Construction & Utility Equipment Exposition (ICUEE), Kentucky Exposition Center, Louisville, Kentucky. Visit www.icuee.com

Nov. 6-7

Pipeline Leadership Conference, Hyatt Regency Houston Intercontinental Airport, Houston. Visit www.plconference.com

Nov. 6-7

National Utility Contractors Association (NUCA) Safety Directors Forum, Fairfield Nashville Downtown/The Gulch, Nashville, Tennessee. Visit www.nuca.com/sdf

Nov. 11-13

WJTA - IMCA Conference and Expo, Ernest N. Morial Convention Center, New Orleans. Visit www.wjta.org

Nov. 15

Utility Construction Career Fair, Dulles Expo Center – North Hall, Chantilly, Virginia. Visit www.nuca.com/careerfair

Jan. 26-31

Underground Contractors Association of Illinois Annual Convention, Grand Fiesta Americana, Puerto Vallarta, Mexico. Visit www.uca.org

Jan. 28-30

Underground Construction Technology (UCT) International Conference & Exhibition, Fort Worth Convention Center, Fort Worth, Texas. Visit www.uctonline.com

Feb. 17-20

Water & Wastewater Equipment, Treatment & Transport (WWETT) Show, Indianapolis Convention Center, Indianapolis. Visit www.wwettshow.com

Dig Different welcomes your contributions to our Happenings column. To recognize members of your team, please send notices of new hires, promotions, service milestones, certifications or achievements. We also invite your national, state or local associations and organizations to post notices, news items and learning opportunities. Send contributions to editor@digdifferent.com. ▼

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THE LATEST: News

McElroy revels in 50 years of fusion

McElroy announced it is celebrating its 50th year as a manufacturer of thermoplastic pipe fusion machines. The 65-year-old company found its niche in the thermoplastic world when, in 1969, Phillips DriscoPipe asked company founder Art McElroy to design a 2-inch prototype for their high-density polyethylene pipe product. After spending the majority of time in outdoor, underground construction, the company started fusing polypropylene pipe for plumbing and mechanical systems in 2014.

Vac-Con welcomes new Michigan dealership

Vac-Con announced that it has added Lakeshore Municipal Equipment to its dealer network. Lakeshore Municipal Equipment is a family-owned company located in Holland, Michigan. It is the primary Vac-Con dealership for the state of Michigan and will support all functions including sales, service and parts. ▼

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What is your company's primary service?

Excavation/Grading Utility Contracting Government/Municipal Vacuum Excavation
 Industrial/Commercial/Municipal Services Dealer/Distributor/Manufacturer

Other _____

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Yes No

When it comes to equipment and other purchasing decisions, what is your role?

Not at all involved Somewhat involved Heavily involved Final decision maker

How many pieces of excavation equipment do you have in service?

1-3 4-5 6-7 8-9 10+

What is your annual equipment budget?

\$1-50K \$51K-75K \$76K-150K \$151K-250K \$251K-350K \$350K+

What services do you perform on a regular basis?

Excavating Vacuum Excavating Trenching Horizontal Directional Drilling
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Other _____

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