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INSPECTION AND REHABILITATION
PROFESSIONALS

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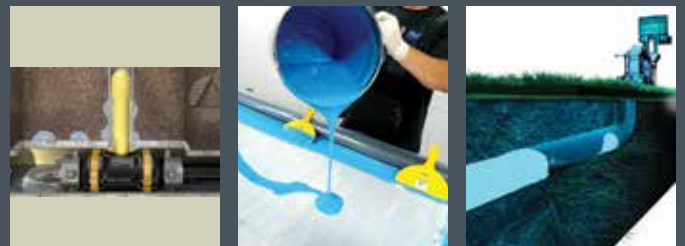
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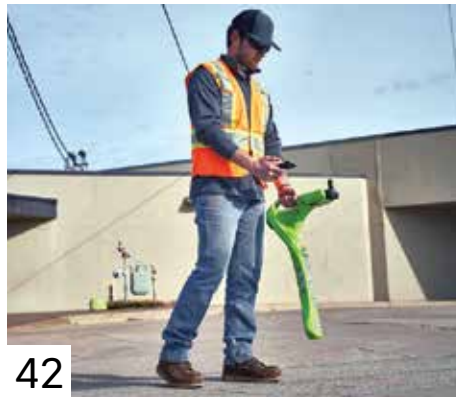
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ON THE COVER // In 1996, Dave Ferrier moved to New York from California at age 18 to work for his uncle, a landscaper. He wasn't really sure exactly what he wanted to do career wise beyond that. But he certainly found his way. In 2000, Ferrier started Dr. Rooter and from humble beginnings he has grown the company into an enterprise generating annual gross revenue of about \$800,000. (Photography by Erica Schroeder)



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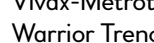




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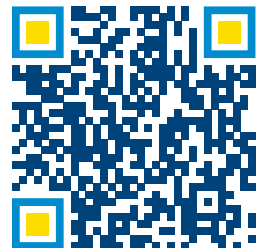


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SHARE YOUR STORY

We all get better by sharing experiences and then reflecting on how any lessons could be applied to our own circumstances

A FEW MONTHS AGO, Cary Hansen gave me a call. The owner of Hansen's Plumbing out in Ventura, California, was responding to a "call for action" I had put toward the end of an editor's column. I had asked readers if they'd recently added any new equipment or tools, and if so, how was it working out for them and improving operations. Hansen told me about how his company had been transitioning to an electric vehicle fleet. That conversation ended up leading to one of the company profiles you'll see in this month's issue.

Hansen's Plumbing was previously profiled in *Cleaner* magazine, back in 2016 prior to my time as editor. But the story didn't end there. Companies evolve over time. It can be worthwhile to share their stories again to see the changes they've had since the last time they graced the pages of *Cleaner*. That was the case with Hansen's Plumbing. The shift to electric service vehicles caught my attention and I thought it would be interesting for readers to learn more about the company's experience making that change from gas to electric — especially since that will continue to become more prominent in the coming years.

Earlier this year, I featured another company, Matt Mertz Plumbing out of Pittsburgh, that had previously been profiled in *Cleaner*. It was a similar situation to Hansen's Plumbing. Mertz reached out, believing he had a good story to share about the journey his business had been on since the last *Cleaner* profile in the March 2015 issue. I agreed.

The profile stories are a snapshot of a company at a point in time. But life goes on. These stories often end with a speculative look to the future. Did the company achieve those goals, or did something cause them to pivot? Did some new, unanticipated plans suddenly emerge? Revisiting these companies can answer those questions. Whether it was five years ago, 10 years ago, or two decades ago, I encourage any formerly featured companies out there to give me a call if you feel like you want to share your story again and update readers.

And likewise if you've never been featured in the magazine before. I will cold call companies I come across that seem like an interesting profile potentially, but many times companies will make first contact with me. Everyone has a story. That's one way we all get better. Sharing experiences and then reflecting on how any lessons could be applied to our own circumstances.

Call me at 715-350-8442 or email editor@cleaner.com if you want to tell your story. In the meantime, enjoy the ones featured in this month's issue. **c**

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REMOTE HELP

Livestreaming Jobs Bolsters Company's Efficiency

Like so many plumbing and drain cleaning business owners today constrained by a tight labor market, Lindsay Goodson needs to make every minute of every day count. So to boost efficiency, the owner of Georgia-based Keith McDonald Plumbing has implemented a program where she and another experienced plumber can walk less-experienced plumbers through problems via a livestreaming platform. “I can talk to technicians and they can talk to me,” she explains. “Everything they can see, I can see, too. It's really quite cool.” Read more about it in this online exclusive. >> cleaner.com/featured



CUSTOMER RETENTION

Diagnostic Inspection Reporting Gains Client Trust

Transparency is an essential element of building customer trust, many times making the difference between a one-time or repeat client. A simple way to enhance transparency is by providing customers with a diagnostic inspection report, a tool that provides visual data to back up verbal communication of an issue before and after work is completed. Brad Yuronich of RIDGID discusses it more in this online exclusive.

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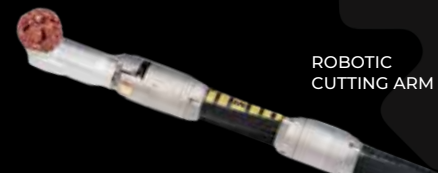
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SHOCKING CHANGE

CALIFORNIA DRAIN CLEANER CONTINUES TO THRIVE BY ADJUSTING TO A SHIFTING BUSINESS LANDSCAPE, INCLUDING A MOVE TO ELECTRIC SERVICE VEHICLES

// By Ken Wysocky



▲ The Hansen's Plumbing leadership team of Taylor Hansen, Cary Hansen, Patti Hansen and Meagan Kunis pose in front of the company's fleet of Ford E-Transit vans. (Photography by Matt Dayka)

There was a time when business at Hansen's Plumbing & Mechanical was heavily weighted more toward plumbing and less toward drain cleaning — about a 60/40 split.

But the company — based in Ventura, California, about 70 miles northwest of downtown Los Angeles — has flipped the script in recent years. Now roughly 65% of its business comes from drain-related work with the remainder from service and repair plumbing, says Cary Hansen, who founded the company in 1987.

The upshot? Improved profitability and cash flow and fewer hassles trying to find and train quality plumbers, which are as rare as a tree-root-free sewer lateral.

“A bigger emphasis on drain cleaning increased our profitability, even though our gross revenue has remained fairly level for a number of years,” Hansen says. “Part of that is efficiency gains from better-trained employees. From dispatchers to plumbers, our employees' skill sets have been so elevated that they're twice as efficient as they used to be.”

As an instructor certified by the National Center for Construction Education and Research (a not-for-profit organization that trains and certifies construction and maintenance professionals who want to be instructors), Hansen does the training himself.

“Doing more drain work has also helped because we now buy a lot fewer faucets, water heaters, parts and so forth,” he says. “Plus we don't have to wait very long to get paid compared to doing commercial plumbing.”

Furthermore, it's much easier to train employees to be drain cleaners than it is for them to become journeyman plumbers, Hansen notes.

» Josiah Cagan, Avery Brooke and Nicholas Garside use a Milwaukee Tool MX FUEL Breaker to bust up concrete during a sewer line repair at a commercial property in Carpinteria, California.

“You can become a pretty reliable sewer-and-drain technician after a year or two, but it takes a minimum of four years to become a reliable plumber,” he says. “There’s also less risk and liability when dealing with sewer and drains than with plumbing, where a failed fitting can flood a home.

“And there’s plenty of drain and sewer work out there.”

TECHNOLOGY INVESTMENTS

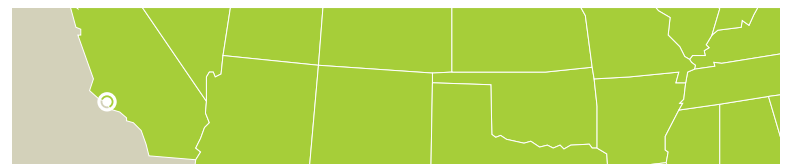
To accommodate the shift to more drain-related work, the company also made two significant investments in machinery that boosted efficiency and profit margins: an R2 pipe bursting system from Roddie and a CV SGT trailer-mounted vacuum excavator from Vac-Tron (a Vermeer MV Solutions brand owned by Vermeer Corp.).

The pipe bursting system dramatically improves productivity for residential sewer lateral replacements and the hydrovac trailer enables crews to dig the small, square pits required for the pipe bursting system significantly faster. It also helps reduce back injuries caused by hand-digging the pits, as well as workers’ compensation claims, Hansen says.

For drain cleaning, the company relies on two RIDGID K-60 sectional drain cleaning machines and three Milwaukee Tool 2818 A-21 battery-operated sectional machines; cable drain machines built by Quadra Plex Inc.; a 4018 trailer jetter made by US Jetting (4,000 psi at 18 gpm); JM-1000 toolbox jettors from General Pipe Cleaners; Maxi Miller and Midi Miller drain machines from Picote Solutions; and inspection camera systems from Milwaukee Tool.

The company also owns a smoke-detection machine from Hurco Industries and a Cold Shot pipe-freezing kit from General Pipe.

For service vehicles, Hansen’s Plumbing owns three Chevy 3/4-ton utility box trucks with 8-foot bodies from Harbor Truck Bodies, a Nissan NV van and a Ford F-350 equipped with a crane from Auto Crane (a brand owned by Ramsay Industries).



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« Cary Hansen sets up the Milwaukee Tool MX FUEL Breaker with amoil point bit.

✓ Nicholas Garside, technician manager for Hansen's Plumbing, uses a Milwaukee Tool M18 120-foot Mid-Stiff Pipeline Inspection System and M18 Locator to verify a clean-out prior to repairs at a commercial property in Carpinteria, California.



CHARGING INTO EVS

But perhaps the biggest equipment investment of all has been the recent purchase of five Ford E-Transit (one 2022 model and four 2023 models) electric-powered service vans. The cost was about \$65,000 per van, or around \$325,000 total, which was about \$10,000 more per van compared to vehicles with gas-powered engines, Hansen says.

California's push to have electric vehicles account for 100% of new car and light truck sales by 2035 nudged Hansen to invest in the E-Transits for his company.

"I'm the president of the Ventura County Contractors Association, so I see a lot of state assembly bills coming down the pipeline," he says. "All signs pointed to the state heading in this direction, plus fuel prices at the time were going through the roof to \$4 and \$5 per gallon."

The purchase of the E-Transits roughly doubled the company's monthly vehicle payments. But fuel costs for whatever gas-powered vehicles the company still uses — the Nissan van and Hansen's Ford pickup truck — have dropped about 90%, a drop to some extent offset by an increase in electricity expenses.

"Overall, my 'fuel' costs, which include electricity, have decreased by about half," Hansen says. "And those costs will drop further after we have a charging station installed at our shop."

"Furthermore, I expect that gas prices will only go up, which will make my calculations for cost savings look even better. When the dust settles, I figure that at worst, it will be mostly a wash in terms of expenses, but we'll also be ahead of the curve for converting to

electric vehicles. And our gas-powered trucks were nearing the end of their life cycles anyway.”

In addition, Hansen expects maintenance costs to be significantly lower on the E-Transits, aside from tires, which reportedly wear faster on EVs.

FINDING THE RANGE

One drawback of the EVs is a lower-than-expected range, Hansen says. He was told the vans would get about 120 miles per full charge, but technicians have learned to not push past 100 miles to avoid getting stranded.

As for finding charging stations, Hansen says it isn't an issue. A map feature on the vans' in-dash monitors shows the locations of charging stations and the installation of the charging station at the Hansen's Plumbing shop will largely render locations a moot point because technicians will be able to recharge their vehicles overnight, when electricity rates are lowest, Hansen notes.



Garstide verifies a cleanout with a Milwaukee Tool M18 120-foot Mid-Stiff Pipeline Inspection System.

“A BIGGER EMPHASIS ON DRAIN CLEANING INCREASED OUR PROFITABILITY, EVEN THOUGH OUR GROSS REVENUE HAS REMAINED FAIRLY LEVEL FOR A NUMBER OF YEARS.”

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CARY HANSEN

“It currently takes about 15 to 30 minutes for our guys to recharge their batteries because they don’t fully deplete them,” he says. “I thought it would be more inconvenient, but it hasn’t been bad at all — and the guys love them. They’re basically rolling computers. They’re awesome.”

MARKETING APPEAL

To maintain a high level of efficiency, technicians are instructed to either eat lunch while they charge the batteries or reorganize their vans, make business phone calls and catch up on paperwork, Hansen says.

“So far, their work efficiency is about the same,” he says. “They know it affects their numbers if they’re inefficient, so they’re very cognizant of wisely using that charging downtime.”

In addition, the driving range forces technicians to be even more



▲ Avery Brooke and Josiah Cagan use a Hilti DCH 300-X electric cutter to cut through sidewalk during a sewer line repair.

conscious than ever about planning ahead to avoid multiple, time-wasting trips to supply houses.

“In that regard, it’s actually made them even better plumbers and drain technicians,” Hansen says.

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HOME SCHOOLING

Concerned about a depleted pipeline for the next generation of plumbers and drain cleaners, Cary Hansen for years has thought about using his company, Hansen's Plumbing & Mechanical in Ventura, California, as an educational launching pad.

That dream became a reality about two years ago when Hansen was certified as a plumbing instructor by the National Center for Construction Education and Research. And about six months ago, he started steering his technicians through a core plumbing curriculum with an emphasis on safety, held during the first half-hour of work every Wednesday, he says.

Hansen's Plumbing is affiliated with the nearby College of the Canyons, sort of like a branch campus, Hansen notes. He credits Lisa Eklund, who owns EP Consulting, a company that promotes careers in the trades through partnerships with businesses, community colleges and high schools, for helping him get the ball rolling.

The ultimate goal: Teach the same curriculum to trades-oriented high school graduates and develop a pipeline of young plumbers.

"I'm doing this in part because there are no local technical schools around here," Hansen explains. "High schools here don't even have woodshop classes anymore. Unless you're in a union, there really isn't anywhere within a one- or two-hour drive from Ventura that does what I'm doing."

Hansen tries to supplement the curriculum with his own personal experiences, stemming from decades as a plumber. This infuses classes

with a practical, real-world feel, he says.

"As for our veteran plumbers, they may know a lot of what I teach, but they don't know it all," Hansen points out.

For example, technicians might use slightly different techniques to solder joints, he says. As such, everyone in the class gets different perspectives on various topics.

It will take four years to go through the entire curriculum and Hansen says he might eventually start holding longer classes during evenings or even on Saturdays.

Wasn't there pushback from employees who feel the mandatory training is redundant, given their experience?

"Not at all," Hansen says. "In fact, for the first three months, they were coming in a half hour early just to be a part of it."

One plumber who participates doesn't even work at the company; he heard about it from a Hansen's Plumbing technician and asked Hansen if he could join.

"It is a little weird," Hansen concedes. "I don't want other companies to think I'm trying to poach their plumbers. But moving forward, I'm going to push for more plumbers from outside our company to take the classes. I want to teach everyone who wants to learn. I'm not worried about helping out the competition. I just think we're better off training up as many technicians as possible and developing young plumbers for both our company and other companies."

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▲ The Hansen's Plumbing staff includes (front row, left to right) Josiah Cagan, Josh Rodesky, Meagan Kunis, Patti Hansen, Cary Hansen, Taylor Hansen, Damen Baldonado, Jose Sanchez, (back row, left to right) Shayne Cheeser, Nicholas Garside, Michael Davis, Avery Brooke and Jason Warfield.

The EVs also provide a marketing boost because they appeal to eco-conscious consumers. Hansen says the vans actually generate sales calls because people see them at charging stations.

"We've actually had people come up to technicians and ask for their business cards," he says. "We've received a lot of positive feedback from people and plan to feature the vehicles in future marketing efforts."

"He's already trying to kick me out," Hansen quips, noting he's winding down his duties at the company, concentrating mostly on backflow testing and small projects. "He's all in on eventually taking over, so in the near future, we want to give him some ownership."

"I'm really proud of what I've built here and Taylor has had a lot to do with it, along with my wife, Patti, and my daughter, Meagan. I'm really stoked about keeping things going as a family business, instead of just selling it and walking away." c

"I'M REALLY STOKED ABOUT KEEPING THINGS GOING AS A FAMILY BUSINESS, INSTEAD OF JUST SELLING IT AND WALKING AWAY."

CARY HANSEN

MORE GROWTH AHEAD

Hansen expects continued growth at the company, which employs 12 people, including 10 technicians. But he anticipates that growth to begin after the business recovers a bit financially from the investments in EVs and the charging station.

"My plan is to eventually buy two or three more EVs and continue to gain market share in our current service area in and around Ventura," Hansen says. "I think it's doable because a lot of contractors I know are quitting and no one is taking their places, so I think we can capitalize on that."

"Geographic expansion into other areas is also on the table."

In addition, Hansen is preparing his son, Taylor, 31, to run the company when he retires.

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RTD130-160	32.0	121.1	2300	160	50.5	36	42	3	128
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RTX70	17.0	64.4	3000	200	33.8	30	23	3	72
RTX85	21.0	85.0	2200	200	31.7	30	28	1	72
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CURING CLOGS

NEW YORK'S DR. ROOTER FINDS A PRESCRIPTION FOR BUSINESS SUCCESS BY LEVERAGING GOOD EQUIPMENT AND BUILDING A STRONG REFERRAL NETWORK OF FELLOW CONTRACTORS

// By Ken Wysocky



▲ Tony Garcia is one of two full-time technicians working for Dr. Rooter and owner Dave Ferrier. He uses a T&T Tools hook to access a manhole.

AS THE OWNER OF DR. ROOTER, A NEW YORK-BASED DRAIN cleaning company, Dave Ferrier has developed a prescription for success: build a large network of contractors that refer clients to him and supplement it with strong doses of great customer service and investments in affordable, productive and reliable equipment.

This formula has boosted Dr. Rooter — located in Nanuet, about 30 miles north of downtown New York City — from humble beginnings to a thriving business that has served roughly 35,000 customers since the company's inception in 2000. Most of those customers are spread throughout the company's primary service area of four counties where New York, New Jersey and Connecticut converge.

"Many of those customers might have called only because they needed, say, a bathtub drain unclogged, then you might not hear from them again for five years," Ferrier explains. "So all those customers aren't calling me all the time.

"But we have a steady flow of eight to 10 customers a day," he says, noting the company's business base is about 60% residential and 40% industrial, commercial and municipal.

In addition, the company posts annual gross revenue of about \$800,000, generated by just Ferrier and his two technicians. The company runs three service vehicles and owns an array of drain cleaning equipment.

Not too shabby for a guy who struck out on his own at age 22 after working for only four years with two drain cleaning firms and a plumbing and heating company.

FINDING A CAREER PATH

Ferrier's career began when he moved to New York from California in 1996 to work for his uncle, a landscaper. He was 18 years old and had no idea what he wanted to do for a career. But when winter hit, which put an end to landscaping work, he got a job at a drain cleaning company.

"I didn't even know anything about it," he says. "I thought drain cleaning involved cleaning gutters and downspouts."

Ferrier subsequently worked for a plumbing and heating company in Manhattan, where he says he really learned the trade for about a year and a half, then took a job with a national drain cleaning franchise.

"I learned a lot about marketing and upselling," Ferrier says. "But I also felt horrible about the high prices I was charging people. So I decided that self-employment was the way to go. I needed to do my own thing.

"I already owned my own truck and equipment because

that's how the company I worked for operated, so I took a gamble. I was eating ramen noodles and living in a rented garage — barely scraping by with about one job a week. But I hit the pavement every day, just to show my face and give people a chance to see my truck."

Ferrier also religiously followed two valuable lessons he learned from old-timers at previous jobs: Always answer the phone — don't leave customers hanging. And never say no to a customer.



Dr. Rooter

NANUET, NEW YORK

OWNER Dave Ferrier

FOUNDED 2000

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SERVICES Drain cleaning, water jetting, pipeline inspections, utility locating, minor plumbing repairs

SERVICE AREA Hudson Valley in New York

WEBSITE www.rooterdoc.com



« Dr. Rooter owner Dave Ferrier performs a sewer inspection. Among the company's inspection equipment are 2400SM and MICROSM 100 models built by Sewer Equipment Company of Nevada (SECON).



« Tony Garcia cleans a line with one of the company's three MyTana M81 drum cable machines.

» Dr. Rooter's lineup of drain cleaning equipment also includes six RIDGID machines — three RIDGID K-750 cable drum machines, recommended for 3- to 6-inch lines; and three RIDGID K-400 drum cable machines for 1 1/2- to 4-inch lines.

"I WAS EATING RAMEN NOODLES AND LIVING IN A RENTED GARAGE — BARELY SCRAPING BY WITH ABOUT ONE JOB A WEEK. BUT I HIT THE PAVEMENT EVERY DAY, JUST TO SHOW MY FACE AND GIVE PEOPLE A CHANCE TO SEE MY TRUCK."

DAVE FERRIER

"Those old-timers took me under their wing because they liked the fact that I was really hungry and ambitious," he says. "Those lessons were critical to my success."

NETWORKING FOR GROWTH

But the real game-changer was building a network of contractors who referred their clients in need of drain cleaning work to Ferrier. This strategy was vital to the company's growth, he notes.

"Networking was the best thing I ever did," Ferrier says. "I learned this from the first company I worked for because they got a lot of referrals for work from plumbers who didn't want to do drain cleaning. So I cold-called a lot of plumbers and some who appreciated how aggressive I was referred work to me. And from there, my reputation spread by word of mouth."

But Ferrier also networks with electricians, handymen, painters, landscapers, excavators, carpenters, heating guys and so forth. Anyone he meets on a job site is fair game, he says.

"My phone is filled with the names of contractors I've met over the years on jobs and I have more than 200 business cards," Ferrier says. "We all basically refer work to each other. And that's where never saying no to a customer comes in, because if I can't do something, I tell people I know a guy who can."

Sometimes customers hire another contractor through Dr. Rooter and Ferrier bills the whole job. Or sometimes customers hire the referred contractor directly.



» Dr. Rooter maintains a fleet of three service vehicles: a 2019 Dodge ProMaster 1500, a 2022 Mercedes-Benz Sprinter 2500 and a 2017 Chevrolet Express cargo van.

“But in the end, everyone has work, everyone makes money and everyone is happy,” Ferrier says. “And I don’t spend a dime on advertising.”

LESSONS LEARNED

Three things are critical for this strategy to work. First of all, Ferrier only networks with contractors who don’t do drain cleaning.

“That way I don’t lose customers because I know those guys won’t steal them away,” he says.

Second, thoroughly vet the contractors to the greatest extent possible. Ferrier says he learned this lesson the hard way.

“You live and you learn,” he says. “It took me a long time to weed out the bad guys and find guys who value me and respect me.”

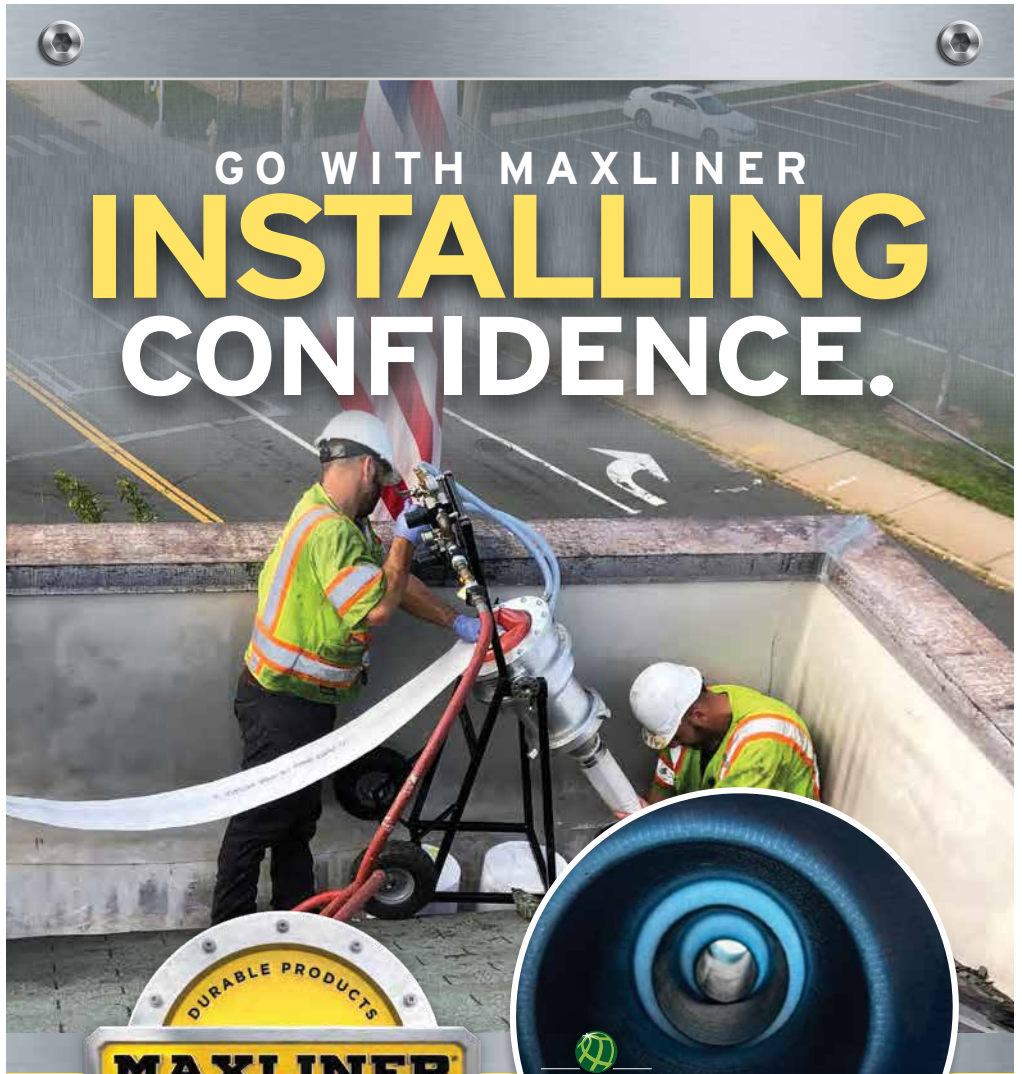
Third, work with contractors who pay quickly, which enhances all-important cash flow, he says.

Business-card refrigerator magnets are also an effective and affordable way to keep Dr. Rooter top-of-mind with customers who might not need service very often. The magnets are somewhat expensive if custom ordered, but Ferrier instead buys refrigerator magnets in bulk from business-supply stores and then applies business cards with an adhesive backing to them.

“Everyone loves to put magnets on their refrigerator,” he says. “We get a lot of repeat business from them.”

EQUIPMENT MATTERS

Over the years, Ferrier has found what equipment works and what doesn’t. For drain machines, the company owns three MyTana M81 drum cable machines, designed for cleaning pipes from 3 to 10 inches in diameter; three RIDGID K-750 cable drum machines, recommended for 3- to 6-inch lines; three RIDGID K-400 drum cable machines for 1 1/2- to 4-inch lines; and a Mini-Rooter XP from General Pipe Cleaners, designed for 1 1/2- to 4-inch lines. Ferrier also bought a J-Drum, an ancillary reel that quickly attaches to the Mini-Rooter and holds smaller-diameter cable for cleaning smaller lines.



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Technician George Vargas uses a Mini-Rooter XP from General Pipe Cleaners, the machine the company breaks out to tackle the smallest lines.

For inspection cameras, Dr. Rooter has invested in 2400SM and MICROS M 100 models built by Sewer Equipment Company of Nevada (SECON) and a Vevor mini-camera.

The company also owns a BossJet cart-mounted electric water jetter (1,500 psi at 1.5 gpm) from Amazing Machinery, used for 1 1/2- to 2-inch pipes; and a JM-2900 cart-mounted water jetter from General Pipe Cleaners (3,000 psi at 4 gpm), used for cleaning small 2- to 6-inch pipes.

“Some guys use a jetter all the time,” Ferrier says. “But I like to snake a line first, then use a jetter if necessary. With a snake, I can tell what I’m hitting — roots, a broken pipe or a grease plug, for instance. We can break those things up with a snake, then give it a good cleaning with the jetter.”

The company also runs three service vehicles: a 2019 Dodge ProMaster 1500, a 2022 Mercedes-Benz Sprinter 2500 and a 2017 Chevrolet Express cargo van.

WARRANTIES AND OPTIONS

Dr. Rooter warranties most of its work for 30 days, depending on what kind of job it is. Ferrier started offering warranties to give customers peace of mind, he says.

“Warranties also give our guys an incentive to do a good job, too, because no one likes callbacks,” he adds.

Based on some bad prior experience with previous employers, Ferrier believes in giving customers different options and price tiers for work that needs to be done, then thoroughly explaining each option. For example, there’s an upcharge for televising a drainline and not everyone can afford that, he says.

CONTINUED >>

LOCATING A NEW REVENUE STREAM

Offering diverse services can pay dividends for drain cleaners. At New York-based Dr. Rooter, for example, owner Dave Ferrier has built a small business within his business by specializing in something that many plumbers and drain cleaners don’t always want to contend with: locating pipelines.

“I actually love pipe locating and that’s what I’m known for,” says Ferrier, who established his business in 2000 in Nanuet, a small community about 30 miles north of downtown New York City. “I like it because it’s clean work and when you do it right, it makes you look great.”

“The funny thing is that a lot of guys have locating equipment, but they don’t know how to use it. You really have to know what you’re doing.”

Ferrier says pipeline locating — which he does for a wide range of customers, including general contractors, municipalities, factories, plumbers and even excavation companies — accounts for 20 to 25% of his company’s annual revenue.

Furthermore, providing the locating service can also lead to drain cleaning work from the same customers.

“I can’t tell you how many times customers have asked me to clean a line while I’m on a job locating a pipe,” Ferrier says. “Locating also goes hand in hand with pipeline inspections.”

Ferrier has invested in three pipe locating machines: a ProtoTek LineFinder 2200 digital locator; an analog ProtoTek Ferris locator, which is used with a flushable transmitter sold separately; and a DD120 digital locator from Leica Geosystems.

“I use the Ferris locator the most because it’s the most precise locator I’ve ever used,” Ferrier says. “It accurately locates lines within inches.”

Ferrier bought three different machines because pipeline locating is a tricky procedure. As such, it’s good to have different options that each work better under certain conditions. Plus, if one breaks down, it’s good to have a backup handy, he explains.

For example, locators often must deal with interference from underground electrical or fiber optic lines. And it’s more difficult to locate pipes in some locations, such as factories filled with equipment, for instance, or others buried deep underground below thick concrete slabs.

“All that equipment or a thick concrete slab can throw off readings — I see it all the time,” he says. “I’ve gone on many jobs where someone else already has located a pipe and the customer spends thousands of dollars to dig it up, only to find the pipe is nowhere near the supposed location.”

Plastic pipes buried a foot deep in sand are far easier to locate than a ductile iron pipe that’s buried 8 feet deep, Ferrier says, citing another example.

“Cement and clay pipes are also difficult to locate,” he adds. “And there’s usually tons of rebar in concrete, which can make readings go pretty crazy and wacky. So you need different tools to get the job done.”

With experience, contractors will develop a feel for locating. “I kind of learned as I went along and it took some time to get good at it,” Ferrier says. “But it’s a great service to add because for a relatively low investment, you can make good money with good margins.”



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◀ Tony Garcia works on a clog through a toilet access.

✔ Dave Ferrier prides himself on being one of the go-to utility locators in his service area. Leica Geosystems is one of the manufacturers the company uses on its locators.



“We give them options and let them decide,” Ferrier says. “Customers love this approach because it’s not intimidating. Some companies focus only on selling, selling and selling — worrying about how much revenue each truck brings in.

“MY PHONE IS FILLED WITH THE NAMES OF CONTRACTORS I’VE MET OVER THE YEARS ON JOBS AND I HAVE MORE THAN 200 BUSINESS CARDS. WE ALL BASICALLY REFER WORK TO EACH OTHER. ... IF I CAN’T DO SOMETHING, I TELL PEOPLE I KNOW A GUY WHO CAN.”

DAVE FERRIER

“But we operate like a small, family-owned and honest business. Sure, I want to make money, but I also want a good reputation and I don’t want to rake people over the coals for something they don’t need. This approach is one reason I don’t have 25 trucks. But I can also sleep at night.”

SEEKING CONTROLLED GROWTH

Looking back, Ferrier agrees he’s come a long way since his early days in the industry. He gives a lot of credit for the company’s growth to his two employees, Tony Garcia, who works nights and weekend shifts seven days a week, and George Vargas, who works day shifts.

“They’re great guys and great workers,” he says. “We’re a well-oiled machine right now.”

Looking ahead, Ferrier would like to grow the company a bit more. But he wants manageable growth that doesn’t compromise the quality work and customer service.

“I’d like to hire one more guy to do more of the stuff I do so I can concentrate on other things and delegate some responsibilities,” he says. “I’d also like to buy a trailer jetter so we don’t have to sub out that work anymore.”

Beyond that, Ferrier has no ambitions to become a huge company. From experience, he knows that less is often more and that when companies get bigger, it’s accompanied by more headaches and hassles.

“I don’t necessarily want to get bigger than four trucks,” he says. “There’s an old saying about stay small and keep it all. I truly believe in that.” **c**

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UP TO THE TASK

Ohio drain cleaner has yet to encounter a clog his versatile Mongoose Model 184 truck-mounted water jetter can't handle // By Ken Wysocky

DURING A 25-YEAR CAREER as a master plumber, Joel George has used — as well as discarded — a wide variety of drain cleaning equipment. But there's one machine he plans to stick with: a Model 184 truck-mounted water jetter from Mongoose (a brand owned by Sewer Equipment Co. of America).

"I've been through a lot of water jetters and many of them are just junk — underpowered machines with little lawnmower engines on them," says George, owner of Drain Doctor in Toledo, Ohio. "But this is a high-quality machine. When you use this to clean a line and then camera it, the results are going to look stellar."

The Model 184 ticks off a lot of boxes for George, who established his company in northwestern Ohio in 2000, employs nine people and runs seven service vehicles. Power? Check. Durability and

DRAIN DOCTOR

TOLEDO, OHIO

OWNER Joel George

MACHINE Model 184 truck-mounted water jetter from Mongoose (a brand owned by Sewer Equipment Co. of America)

FUNCTION Cleaning drainlines up to 12 inches in diameter

FEATURES 300-gallon water tank; five-cylinder, run-dry water pump (4,000 psi at 18 gpm); hydraulic-powered extendable and retractable reel holds 500 feet of 1/2-inch-diameter hose; 49 hp turbo-diesel engine; pulsation system; remote-control operation

COST About \$56,000

WEBSITE www.toledoplumbingcompany.com



reliability? Check. Versatility? Check. Packed with productivity-enhancing features? Absolutely.

"There's nothing this machine can't get through," George says.

George bought the unit almost two years ago for about \$56,000 and paired it with a Ford F-550 equipped with a 14-foot box body from Supreme Corp., insulated for use during winter. He primarily uses Warthog and Reaper nozzles from StoneAge and Hydra-Flex, respectively.

"Those nozzles are the only way to go," George says.

« Joel George, owner of Drain Doctor in Toledo, Ohio, bought his Model 184 truck-mounted water jetter from Mongoose about two years ago and has been more than satisfied by its performance. "There's nothing this machine can't get through," he says.

BUILT TO GET THINGS DONE

The Model 184 that George bought features a 300-gallon water tank; a five-cylinder, run-dry water pump (4,000 psi at 18 gpm); a hydraulic-powered extendable and retractable reel that holds 500 feet of 1/2-inch-diameter hose for pipes up to 12 inches in diameter; a 49 hp turbo-diesel engine; a pulsation system; and remote-control operation.

George also invested in three adapter reels with quick-release mechanisms for quick swap-outs. The reels carry 100 feet of 1/8-inch hose for cleaning 1 1/2- to 2-inch pipes; 200 feet of 1/4-inch hose for 2- to 4-inch drainlines; and 200 feet of 3/8-inch hose to clean 3- to 6-inch pipes.

“Three extra reels — that’s why it’s truly a money machine,” George says. “I can drive to a job and no matter what issue I encounter, I can handle it. That’s one of the things that I like best about the machine. It’s so versatile.”

George also praises the diesel engine, which he says provides more than enough power to maintain pressure at the end of even a 500-foot hose, which he often uses for cleaning stormwater drains and commercial sewer lines.

“It’s hard to find machines powerful enough to push that much pressure to the end of a 500-foot-long hose,” he says.

WORKING REMOTELY

The remote control is a game-changing feature because it enables one-person operation, George says.

“It gives me full control of the machine in my hands,” he says. “I can start and stop the machine at will, retrieve my hose, raise pressure up or down and so on. And I can operate the machine from up to a half-mile away. In my opinion, it’s the best remote control in the industry.”

George says he does a lot of work in rural areas where clean-outs are in basements, not by street curbs. As such, the remote control

is a must to avoid back-and-forth trips to the truck to perform basic operational tasks, or going from manhole to manhole on municipal jobs, he notes.

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MONEY MACHINES

“If you have to keep going up and down basement stairs just to push buttons, you might as well hire somebody to help you,” George says. “This remote is like having a second employee.”

The remote also promotes safety. If the jetter nozzle hits a broken pipe and pops up through the ground, George says he can shut off the machine immediately.



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JOEL GEORGE

“That emergency kill switch is in my hand at all times,” he says. “I use it all the time.”

OPENING DRAINS AND NEW MARKETS

The machine has expanded the company’s business base by enabling George to do work he couldn’t do before, such as cleaning drainlines for municipalities and at industrial plants, restaurants and other commercial businesses.

“You need this kind of machine to do those jobs,” George says. “You’re a sitting duck if you don’t have enough power to get from point A to point B. I have yet to run into a clog that this machine can’t get through.”

As an example, George cites a complex of restaurants in Toledo that periodically fills a 12-inch-diameter sewer line with grease when grease traps overflow.

“Sometimes that main is packed solid with grease for 1,200 feet — right up to the manhole covers,” he says. “This machine makes a job like that easy. It may be time-consuming, but I’m never nervous about whether it’ll be able to do the job. I know I have the best machine and it’s just a matter of time before I unclog that line.”

ENHANCES PRODUCTIVITY, PROFITABILITY

The bottom line is that the Model 184 boosts revenue by enabling the company to do more jobs per day.

“In this business, it’s all about time,” George says. “This literally is a time machine — it saves us time, which tips over the dominoes right down the line because if I’m saving time, I’m saving money and doing more work. People actually call and request that we come out with this machine.”

Furthermore, the machine helps George attract and retain employees.

“I’ve had guys’ jaws drop when they see this machine and all of our other equipment,” he says. “Everyone wants to use it.”

Moreover, the machine provides a great return on investment and has become the company’s workhorse, George says.

“It will easily pay for itself and is very central to my business,” he says. “I think it sets the standard for the industry. I wouldn’t recommend anything else.” c



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Joan Koehne

UNDER WARRANTY

Taking on work through home warranty companies can be a good way to build a customer base, but there are some challenges to keep in mind as well // By Joan Koehne

HOMEOWNERS OFTEN LEARN the hard way that unexpected home repairs can cost thousands of dollars. Aging water and sewer lines are susceptible to breakdowns. The ejector/lift pump or septic system electrical wiring can fail. Mainline stoppages and other issues can pop up unexpectedly.

Many families don't have extra cash on hand to make costly sewer repairs. That's why some homeowners purchase home warranty service contracts. With a home warranty coverage plan, they can protect portions of their systems at minimal cost. Home warranty contracts allow homeowners to protect their home, which is often their biggest investment. Additionally, they gain peace of mind, knowing they won't be solely liable for huge repair or replacement bills.

From a contractor's perspective, home warranty work opens up new opportunities. Contractors can increase their work volume without the added expense of advertising and client acquisition costs. These businesses can benefit from an influx of new customers, each with the potential to become repeat customers if the contractor handles the job right. Year-round service calls and referrals provide a consistent flow of work, keeping employees busy and money rolling in.

DANGER OF BEING THE INTERMEDIARY

But before jumping headfirst into home warranty work, contractors should carefully evaluate which companies to work with and develop procedures to streamline services and protect their reputation.

Daniel LaGarce, CEO of Budget Heating, Cooling and Plumbing in the St. Louis area, has 41 years' experience in the heating, cooling and plumbing trades. He opened Budget in 2009, and he attributes about 30% of gross sales to warranty work. Budget doesn't pump septic tanks, but the company performs drain cleaning and repairs and replaces alarms, lift stations and other septic equipment.

LaGarce says one of the biggest challenges associated with home warranty work is finding your company as the intermediary between the customer and the warranty company.

"You're allowing a billion-dollar company to make decisions for the end-user, the consumer. Now, you're stuck in the middle," LaGarce says. "Through experience, we developed our own systems to balance the two sides out."

For any contractor who does home warranty work, LaGarce recommends brand protection and brand monitoring services. Positive and negative reviews influence consumer shopping decisions for all types of products and services, and a contractor could find themselves the target of a bad review for something out of their control.

"Even with our company, the negative reviews we have are almost always home warranty, and they're upset about some sort of noncoverage," LaGarce says. "The negative reviews are based on decisions we didn't make."

Some homeowners do not take the time to fully familiarize themselves with their home warranty policy. When certain repairs or replacements are not covered, it comes as a shock. They're upset, they don't think they should have to pay anything, and they just assume that the contractor is an extension of the warranty company. So the customer leaves the contractor a negative review. Because of this risk to his company's reputation, LaGarce chooses to partner with only specific home warranty companies.

"The companies we deal with have a 95% coverage rate, and only 5% of claims aren't covered," he says. For the 5% that aren't covered, it's typically because the policy is less than a month old so the problem is a preexisting issue, or there's a design problem or missing part. Sometimes the homeowner disassembles something in the system trying to fix it themselves. This type of claim is automatically denied because the system has been tampered with."

DO THE RESEARCH

LaGarce has been performing warranty work for 23 years, nine years with a previous employer and 14 years at Budget Heating,

Cooling and Plumbing. Over the years, LaGarce has had the opportunity to provide feedback to home warranty companies that welcome contractor input. Other companies aren't as receptive or easy to work with, he says.

"Consumers really need to do their research because there's bad [home warranty] companies out there," LaGarce says. "There are companies that we've had dealings with that look for any reason to deny the claim."

Oftentimes, consumers purchase home warranty contracts when they sell their homes. These contracts ensure that the new buyer won't pester them if something breaks down right after closing. In most cases, the seller's home warranty can transfer to the buyer. Home warranty contracts range from basic to elaborate, covering one or several systems in a home. The septic contracts generally cover mainline stoppages that can be cleared through an existing access or cleaned out without excavation.

"If we're busting up concrete and digging up floors, there's limitations on policies, and we have to talk to the homeowner," LaGarce says.

In addition, home warranties typically cover operational failures of the ejector/lift pump and failures of the septic system electrical wiring, lines, tank and dry (refuse) well due to normal wear and tear. Many service contracts aren't effective until 30 days after their purchase, so preexisting issues are not covered. Other non-covered services involve drainfields, leach beds, aerator systems and electrical supply lines, upgrading the system to a municipal sewage system, and septic tank pumping. Normal wear and tear is the key to understanding covered versus noncovered services.

"Let's say a child flushes a Hot Wheels car — and yes, you'd be surprised by the things we actually pull out — and it causes an obstruction. That's not a normal product that should go through the septic system," LaGarce says. "Those types of items would not be covered by a warranty company."

To help customers understand their policies, Budget Heating, Cooling and Plumbing devotes a page on its website to home warranty.

"ANYBODY WHO'S GOING TO BE IN THE HOME WARRANTY TRADE NEEDS TO HAVE A CLEAR UNDERSTANDING OF HOW THE POLICIES WORK. NOT ONLY THAT, THEY NEED TO HAVE A WAY OF COMMUNICATING TO THE HOMEOWNER WHAT'S COVERED AND NOT COVERED."

DANIEL LAGARCE

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BETTER BUSINESS

GETTING PAID

When a claim is only partially covered, the homeowner becomes responsible for a share of the repair cost. In these situations, Budget uses a formal contract listing a breakdown of the work to be performed and the cost associated with these repairs.

"We will not even put them on the schedule until that e-signature form has been returned to us," LaGarce says.

To make it easier for cash-strapped customers, Budget offers financing programs to help cover out-of-pocket expenses.

LaGarce encourages business owners to do some research and talk with other contractors before signing on with a warranty company. Online forums, professional organizations, and industry groups like Service Nation Alliance can provide information.

"Find some contractors who do your type of work and ask about the pros and cons of working with [a home warranty company]. We all know which ones are good and which ones are bad," he says.

BUILDING THE CUSTOMER BASE

Home warranty work helps contractors build their customer base — not all at once but over time.

"Home warranty is not a sprint," LaGarce says. "You can't just go in there thinking you're going to get all this work. It's a marathon. You're going to build a customer base year after year."

About 70% of home warranty customers renew their annual contracts. The 30% who don't renew might just turn into retail sales, assuming the contractor handled the job right. Budget has 100,000 names in its customer base, due in part to home warranty work.

Home warranty partnerships are attractive to contractors looking for steady work and a foot in the door with new customers. Yet, home warranty opportunities can have drawbacks. Some home warranty companies may be slow to pay contractors. Additionally, contractors might find themselves in an uncomfortable position when the customer expects more than the warranty company is offering. For these reasons, contractors should do their homework before partnering with a home warranty company. They should research warranty companies carefully and develop policies and practices to successfully integrate warranty work into their business model. c

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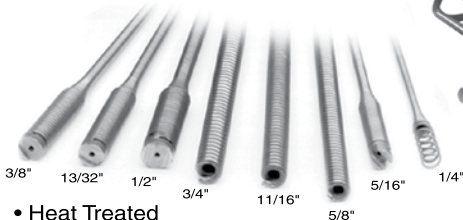
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TRAFFIC JAM

Consider these best practices for conducting locating work in complex and congested underground environments // By Patrick Lyons

IDENTIFYING UTILITIES through locating should be the first step on any underground construction project. Determining where gas mains, electric and fiber cable, and water and sewer lines are located is critical for setting up a smooth job site and mitigating potential damage.

But in today's congested and complex underground environments, simply walking the bore path with a utility locator won't cut it. These congested areas pose major pain points including

issues of interference, unmarked utilities and lack of shared knowledge and data. While an individual locating technician won't be able to eliminate all these issues on their own, there are some best practices for locating in complex ground.

UNDERSTAND YOUR INTERFERENCE

As the underground construction industry grows — especially in urban areas — locating technicians are seeing job sites that are more complex and congested with a variety of utilities. Capable of distorting the locating signal and providing inaccurate information, interference is the most common problem locating technicians face. To determine possible interference, technicians should start by walking the job site path and visually observing previous locate markers, fences and any other infrastructure that could cause interference.

Interference can take an active or passive form. Active interference comes from sources that have their own signal and in turn can distort your target signal. This can potentially cause your signal to bleed off onto an adjacent utility, risking a mismark. Common sources of active interference include cable TV, dog fences, electrical-based irrigation systems and so on. Passive interference comes from sources without an electrical signal such as storm culverts, chain-link fences or even the rebar used in underground construction.

While not all sources of interference are visible, some manufacturers are designing equipment that will scan the job site and inform the locating technician of any potential active interference that is present in the area. One option is Ambient Interference Measurement. Technicians using a locator that has AIM on the receiver can use it to visually see which frequencies have the most or least amount of interference. As a best practice, lower frequencies like 263 Hz through 870 Hz are the best choice when encountering passive interference.

◀ In today's complex and congested underground environments, interference is the top problem utility locating technicians should be aware of.



YOU SHOULD START WITH THE LOWEST POSSIBLE FREQUENCY AND WORK YOUR WAY TO A HIGHER FREQUENCY. IF YOU ARE USING TOO HIGH OF A FREQUENCY, ... YOU RUN THE RISK OF THE SIGNAL BLEEDING OFF ONTO AN ADJACENT UTILITY LINE.

USE THE CORRECT FREQUENCY AND LEVERAGE AVAILABLE RESOURCES

Once possible interference has been identified, the technician must then determine the frequency of the target utility. As a best practice, you should start with the lowest possible frequency and work your way to a higher frequency. If you are using too high of a frequency — between 8.01 kHz and 44.6 kHz — you run the risk of the signal bleeding off onto an adjacent utility line. This can result in a mismatch and potentially lead to a utility strike. However, if you are using too low of a frequency, you run the risk of not picking up a signal at all. When working in highly congested areas, using a locator with multiple frequencies can help technicians easily make the adjustments needed to accurately locate the correct utility.

Every job site is different and poses its own unique challenges. Going through the proper procedure of isolating a utility might sound like a no-brainer, but when technicians are challenged with time constraints due to high workload volume, they might try to find shortcuts.

One shortcut that is a major hindrance to a technician's accuracy is sticking to a favorite frequency. Since all frequencies have the potential of bleeding off and creating a mismatch, it's important not to get into the habit of using the same frequency. This often leads to inaccurate results causing the technician to restart or use a different option because they didn't take the time to properly locate.

PREPARE FOR THE FUTURE WITH DATA

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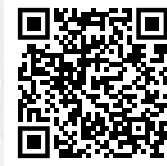
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TECH PERSPECTIVE

Forward-thinking contractors have gone all in on collecting and using data because they know it can help them work smarter. Most modern utility locating devices use automatic, real-time data capture and integrated GPS to help crews accurately and reliably locate underground utilities. The latest versions of the devices with enhanced receivers even allow crews to locate utilities with centimeter-grade accuracy.

These devices allow technicians to map and label identified utilities in real time, and then upload the information to a mapping service. Because all data is recorded and managed digitally, rather than manually, it helps reduce the risk of errors. Future contractors can then better plan for future workloads and more accurately estimate hours for new jobs based on historical job site data. By using technology that's designed to work together, utility locators have the potential to streamline data sharing and access any data, when and where it's needed, making the future of utility locating much simpler. c

ABOUT THE AUTHOR

Patrick Lyons is a utility inspection systems product manager for Subsite.



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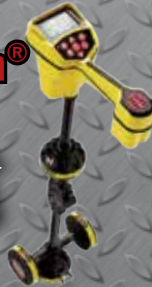
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SEE AD ON PAGE 15	APEX CIPP SOLUTIONS 4545 Samuel St., Sarasota, FL 34233 855-997-0524 • 997-300-0441 www.ApexCIPP.com • info@apexcipp.com	✓	✓		✓		✓	✓	
 SEE AD ON PAGE 43	ARIES INDUSTRIES, INC. 550 Elizabeth St., Waukesha, WI 53186 800-234-7205 www.ariesindustries.com • sales@ariesindustries.com				✓			✓	✓
	AVANTI INTERNATIONAL 822 Bay Star Blvd., Webster, TX 77598 800-877-2570 • 281-486-5600 www.avantigrout.com • info@avantigrout.com				✓	✓	✓		✓
BLACKHAWK SEE AD ON PAGE 74	BLACKHAWK TECH 910 W Wilson St., Batavia, IL 60510 630-326-9061 www.blackhawktechsupply.com ben@blackhawktechsupply.com	✓	✓		✓		✓	✓	
SEE AD ON PAGE 11	BRAWO SYSTEMS GMBH Blechhammerweg 13-17, Kaiserslautern 67659 Germany +4963120561100 www.brawosystems-usa.com Contact.USA@brawosystems.com	✓	✓						
	CHERNE 2300 Vierling Dr. W, Shakopee, MN 55379 800-843-7584 www.cherneind.com	✓				✓			
 SEE AD ON PAGE 31	CUES, INC. 3600 Rio Vista Ave., Orlando, FL 32805 800-327-7791 • (f) 407-425-1569 www.cuesinc.com • salesinfo@cuesinc.com				✓	✓	✓	✓	✓
THE SHOOTER	EMAGINEERED SOLUTIONS, INC. 1830 SE 1st St., Redmond, OR 97756 541-504-0416 www.theshooterccipp.com • ray.i@emagineered.com	✓	✓						
SEE AD ON PAGE 51	EPL SOLUTIONS, INC. 1330 W Collins Ave., Orange, CA 92867 714-453-9769 www.epl-usa.com • sales@epl-usa.com	✓		✓			✓	✓	
 SEE AD ON PAGE 19	FERRATEX SOLUTIONS 901 Holly Dr., Martinsville, VA 24112 804-704-7203 www.ferratex.com • justing@ferratex.com	✓	✓				✓		
SEE AD ON PAGE 69	FORBEST PRODUCTS CO. 44130 Old Warm Springs Blvd., Fremont, CA 94538 877-369-1199 info@forbestusa.com	✓				✓	✓		



FORMADRRAIN INC.
10121 Boul Pkwy., Anjou, QC H1J 1P7 Canada
514-352-6911
carl@formadrain.com

✓

✓

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✓



SEE AD ON PAGE 33

HAMMERHEAD TRENCHLESS
500 S C.P. Ave., Lake Mills, WI 53551
800-331-6653 • 920-648-4848
www.hammerheadtrenchless.com
info@hammerheadtrenchless.com

✓

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SEE ADS ON PAGES 6 & 7

HOTJET USA
14773 S Heritage Crest Way, Riverton, UT 84065
800-624-8186 • 801-545-0777
www.hotjetusa.com • kris@powerlineindustries.com

✓



INFRASTRUCTURE REPAIR SYSTEMS, INC.
4301 34th St. N, Ste. A, St. Petersburg, FL 33714
877-327-4216
www.irsi.net • irsi@irsi.net

✓

✓

✓

SEE AD ON PAGE 25

IPP SOLUTIONS, LLC
PO Box 3879, Avon, CO 81620
970-444-5655
www.ippsolutions.com • info@ippsolutions.com

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800-246-5988 • 418-656-9767 • (f) 418-653-5746
www.logiball.com • info@logiball.com

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SEE AD ON PAGE 57

MASTERLINER INCORPORATED
42305 S Airport Rd., Hammond, LA 70403
888-344-3733 • 985-386-3006
www.masterliner.com • liner@masterliner.com

✓

✓



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MAXLINER
901 Hollie Dr., Martinsville, VA 24112
877-426-5948 • 276-656-1225 • (f) 276-656-0419
www.maxlinerusa.com • info@maxlinerusa.com

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NUFLOW TECHNOLOGIES
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866-430-2134
www.nufLOW.com • info@nufLOWtech.com

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DATEY Co.
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800-321-9532
www.oatey.com/brands/hercules

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OMEGA LINER COMPANY, INC.
515 Noid Rd., Canton, SD 57013
605-558-1020
info@omegauvpipe.com

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SEE AD ON PAGE 69

PICOTE SOLUTIONS
777 W Pinnacle Peak Rd., Ste. B-108, Phoenix, AZ 85027
864-940-0088
www.picotesolutions.com • sales@picotesolutions.com

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PIPELINE REPAIR AND REHABILITATION

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 Pipeline Renewal Technologies 111 Canfield Ave., Ut. C, Randolph, NJ 07869 866-936-8476 www.pipelineret.com • pipelinert@idexcorp.com SEE AD ON PAGE 35		✓		✓		✓	✓	
 PRIME RESINS 2291 Plunkett Rd. NW, Conyers, GA 30012 800-321-7212 • 770-388-0626 • (f) 770-388-0936 www.primeresins.com • info@primeresins.com				✓	✓	✓		✓
 POW-R MOLE TRENCHLESS SOLUTIONS 1400 Commerce Pkwy., Lancaster, NY 14086 800-344-6653 • 716-683-2486 www.powrmole.com SEE AD ON PAGE 24			✓	✓				
 RAPIDVIEW IBAK NORTH AMERICA 1828 W Olson Rd., Rochester, IN 46975 800-656-4225 • 574-224-5426 • (f) 574-223-7953 www.rapidview.com • sales@rapidview.com							✓	
RATECH ELECTRONICS, LTD. 260-7 Spinnaker Way, Concord, ON L4K 4P9 CANADA 800-461-9200 • 905-660-7072 • (f) 905-660-1519 www.ratech-electronics.com • sales@ratech-electronics.com SEE AD ON PAGE 52						✓		
RODDIE INC. 4457 Trumble Creek Rd., Columbia Falls, MT 59912 888-406-3821 • 406-730-1565 www.roddieunderground.com sales@roddieunderground.com SEE AD ON PAGE 46			✓					
 SOURCE ONE ENVIRONMENTAL 300 S Dayton St., Davison, MI 48423 810-412-4740 info@s1eonline.com	✓	✓		✓	✓	✓	✓	✓
 SPARTAN TOOL 1618 Terminal Dr., Niles, MI 49120 800-435-3866 www.spartantool.com • customerservice@spartantool.com SEE AD ON PAGE 80	✓		✓	✓		✓	✓	
 THE STRONG COMPANY, INC. 4505 Emmett Sanders Rd., Pine Bluff, AR 71601 800-982-8009 • 870-535-7617 • (f) 870-850-6933 www.strongseal.com • info@strongseal.com					✓			
TRENCHLESS SUPPLY INC. 25029 Vermont Ave., Harbor City, CA 90710 424-257-0453 www.trenchlessupplyinc.com info@trenchlessupplyinc.com	✓	✓		✓	✓	✓	✓	
 TRIC TOOLS, INC. 415 Pendleton Way, Oakland, CA 94621 888-838-8742 • 510-865-8742 www.trictools.com • johnrafferty@trictools.com			✓	✓				
TRUGRIT TRACTION, INC. PO Box 2084, Winter Park, FL 32790 619-797-7371 www.TruGritTraction.com • tomr@trugrittraction.com SEE AD ON PAGE 75		✓					✓	

RELINING UV CIPP BURSTING LATERAL REHABILITATION MANHOLE REHABILITATION SEALING/ SPOT REPAIR REINSTATEMENT CUTTERS GROUTING

SEE AD ON PAGE 40
TRY TEK MACHINE WORKS, INC.
 250 N Main St., Jacobus, PA 17404
 412-804-1113
 www.trytek.com • dcburger@trytek.com

Thermoform
SEE AD ON PAGE 37

WARRIOR USA LLC (THERMOFORM)
 1400 Commerce Pkwy., Lancaster, NY 14086
 716-601-7760
 www.thermoformliner.com

SEE AD ON PAGE 12
WESTERN DRAIN SUPPLY
 1140 N Kraemer Pl., Anaheim, CA 92806
 714-632-0447
 www.westerndrain.com • nina.nguyen@westerndrain.com

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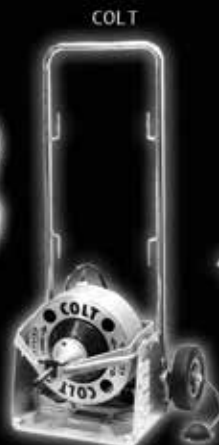
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CIPP LINING METHODS AND PROJECTS

By Craig Mandli

» CIPP EQUIPMENT AND MATERIALS

1 // APPLIED FELTS ENVIROCURE

EnviroCure from **Applied Felts** is a heat-cured, styrene-impermeable, polymer-coated, multilayer all-felt or felt/fiberglass hybrid fabric that vastly reduces if not eliminates styrene emissions and odor on the job site before, during and after installations while also taking away the significant cost and unpredictability of styrene-free resin systems. According to an independent study conducted by IUPUI in October 2021, it reduces on-site styrene emissions to less than 1 part per million. Job sites report no detectable odors in trucks when doors are opened, or in steam flumes or manholes. It provides a safe and less expensive option for all mainline CIPP installations, providing a solution to job site styrene emissions. 276-656-1904; www.appliedfelts.com

2 // EMAGINEERED SOLUTIONS THE SHOOTER

THE SHOOTER from **Emagineered Solutions** is a continuous air-inverter for CIPP. THE SHOOTER 12 has a range of 4 to 12 inches and up to 15 inches with the conversion kit, and a knife gate for after the liner tail passes. It comes with either the self-lubricating hand truck or basic non-oiler cart. THE SHOOTER 24 for 15 to 24 inches is trailer-mounted and comes with a knife gate and remote operating station on the fender. An optional conversion kit expands its range from 6 to 24 inches. Additional equipment offered includes full steam packages with portable dry-steam generators, steam hose, A and B stations, water cure flanges, and LED UV Y adapters. 541-504-0416; www.theshootercipp.com

3 // FORMADRAIN FORMAPOX 101

Formapox 101 from **FORMADRAIN** is a durable steam-cured liner that eliminates the mess and cost of traditional dig-and-replace methods. It is made from a watertight, thin, yet extremely strong composite material and a specially formulated resin. The liner is bright blue in color. It is the mainstay of the company's pushed- or pulled-in-place, steam-cured, fiberglass and epoxy underground pipe repair system. It can be used in line sizes from 2 to 48 inches. The repair is so thin that pipes sustain their original flow capacities, even with a liner installed in such small diameters. 888-337-6764; www.formadrain.com

4 // MAXLINER WOVOLASS

WovoGlass from **MaxLiner** has the ability to line multiple 90-degree turns. It is now available with increased physical properties, a thinner profile capable of more transitions, multiple uses, including inversion, pull-in-place and spot repairs, greater flexibility, less resin needed, and heat, light and ambient cure. The system helps installers looking to add in-building lining to their repertoire with products capable of lining around multiple bends easily and with a quality finish. 877-426-5948; www.maxlinerusa.com





5 // SOURCE ONE ENVIRONMENTAL THUNDER DRUM 800

For high-capacity pipe lining repairs, **Source One Environmental** offers the **Thunder Drum 800** — a versatile CIPP inversion lining drum that rehabilitates pipe diameters 12 inches and below. This range in sizing makes it ideal for sewer laterals or in-home residential repairs. Suitable for ambient, hot water, steam and UV light curing, it is also hand wheel-mountable on both sides, Storz compatible to quickly swap accessories, and has multiple windows to allow for maximum visibility of in-unit liner movement. Built from stainless steel and with premium fittings, it is made for a long service life. In addition, it provides efficient and uniform inversion of the liner into the pipe, ensuring a smooth and consistent installation. 877-450-3701; www.s1eonline.com



6 // WARRIOR TRENCHLESS SOLUTIONS THERMOFORM

Thermoform from **Warrior Trenchless Solutions** is a PVC-alloy structural pipe lining system designed for the trenchless rehabilitation of failing sewer and culvert pipes. It is an environmentally friendly, styrene-free thermoplastic. There are no harmful emissions, and it does not rely on any chemical reaction during installation. Factory-controlled production with rigorous material testing ensures a consistent quality product that conforms to and exceeds the expected standards. The material is highly flexible, allowing it to expand and fit tightly to the host pipe, including changes in shape and dimensions. It is produced in sizes ranging from 4 to 36 inches in diameter, and the wall thickness can be varied according to the application. All installers must be accredited and audited to ensure the highest quality work possible. 716-601-7760; www.thermoformliner.com

» EXCAVATION EQUIPMENT

7 // MR. MANHOLE COOKIE CUTTER



Using the **Cookie Cutter** system from **Mr. Manhole**, the contractor simply drills a 1.25-inch-diameter hole over the affected utility using the included battery-powered drill. They then cut a 74-inch “cookie” through asphalt or concrete in minutes with the cutter that mounts on a skid loader. The operator is protected from silica via the Mr. Mister included on the cutter. The cookie is lifted directly on a waiting truck via the lifter included in the package. A round personnel protection cage is placed in the excavation and vacuum excavating begins. The protective cage slides into place as the excavation is deepened and holds adjacent fill in place. The utility is exposed and repaired as needed. The system is complete with an engineering specification that includes backfill reinstatement guaranteeing a high quality repair of the road. 833-242-2221; www.mrmanhole.com

» HYDROEXCAVATION

8 // DITCH WITCH WARLOCK SERIES W12 HYDROVAC



The **Warlock Series W12 Hydrovac** from **Ditch Witch** boasts an impressive 12-by-8.5-by-36-foot build, making it large enough to take on big jobs yet compact enough to work curbside across neighborhoods and right-of-ways. It was designed to excavate with maximum efficiency utilizing a 2,800 psi water system that features two 10 gpm wands and a 5,000 cfm vac system with a lift of 27 inches Hg. It can efficiently take down both large-scale and soft excavation jobs while removing massive amounts of material with ease. Moreover, the debris tank has a capacity of 12 cubic yards, enabling the crew to minimize time spent offloading and maximize time spent working. 580-336-4402; www.ditchwitch.com

PRODUCT FOCUS

9 // DYNABLAST HV420F-12VRED

The **Dynablast HV420F-12VRED** hydrovac water heater produces 420,000 Btu with an output temperature of 175 degrees F at 5 gpm, making it suitable for colder climates and improved digging in clay-filled areas. All models come with ETL certification for safety, which also includes certification on the coil for higher efficiency and heat transfer, a stainless steel target plate for increased coil life and a design with serviceability in mind utilizing momentary override control. A 19-by-19-inch footprint makes it suitable for compact installations. 905-867-4642; www.dynablast.ca



10 // ENZ USA HYDRO X

The **Hydro X** from **Enz USA** is available in 3/8- or 1/2-inch NPT connecting threads and can function up to 5,000 psi with flow as low as 8 gpm. It combines a powerful, oscillating water jet with the high removal rate of debris. The tungsten carbide front jet ensures a long life. For quick and easy maintenance, a repair kit is available. Due to the simplicity of the nozzle, a repair can be made quickly and efficiently in the field with little downtime. A plastic cover provides protection against harsh and sensitive environments. 877-369-8721; www.enz.com



11 // GAPVAX HV33

Designed to safely transport water and debris in urban areas, the **GapVax HV33** is shorter, smaller and more compact than its predecessor. It is 30 feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, 6- or 8-inch top-mounted telescoping boom with a 14- to 17.5-foot reach, 4,000 cfm power and an inverted, full-opening tailgate. 888-442-7829; www.gapvax.com



12 // HI-VAC X-13

Contractors, municipalities and utility service providers depend on **Hi-Vac X-13** hydroexcavators to safely and efficiently trench for new sewer and wastewater lines with minimal disturbance to surrounding areas. They combine surgically precise hydroexcavating power with low-maintenance components that help minimize downtime. Simple, intuitive controls and quick access to all critical systems mean jobs get done faster. A 13-cubic-yard debris tank, up to 24,500-pound payload capacity and 1,140-gallon freshwater capacity help reduce the number of costly job site returns. Power is provided by a 5,800 cfm, 27-inch Hg high-performance blower and a run-dry water pump that delivers 20 gpm at 2,500 psi. The 360-degree, top-mounted boom provides full accessibility in every direction, and a heavy-duty hydraulic vibrator provides fast and efficient unloading of the debris body. Designed for safe and easy operation, it only requires a short learning curve. 800-752-2400; www.x-vac.com



13 // HOTJET USA VAC'N JET SERIES

The **HotJet USA Vac'n Jet Series** of vacuum trailer jettors are compact and specially engineered to haul equipment and the spoils load, perform hydroexcavation, and clean valve boxes, storm drains and drain/sewer lines. They feature hot and/or cold water operation with a choice of engine options ranging from 23 to 70 hp and gas or diesel operation. They are equipped with premium triplex pumps, a 500-gallon spoils tank, up to 440-gallon water tanks, Gardner Denver vac/blowers, a 4-ton hydraulic dump and a dual filter centrifugal filter system. They can also be custom engineered and designed to meet specifications. 800-624-8186; www.hotjetusa.com





14

14 // HYDRA-FLEX SWITCHBLADE

The **Switchblade** from **Hydra-Flex** was designed specifically for trenching and precision digging applications with its long, linear flow pattern. Choose from one, two or four solid (0-degree) streams that provide greater impingement and allow you to cut through soil faster — at different widths — while using dramatically less water. Use the single stream for extremely accurate and precise digging and the four-stream option to optimize your efficiency. Each nozzle can be customized with individual and replaceable pills to change the flow rate on the fly. These heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and last longer. The nonconductive Hytrel coating on the nozzle body protects both the operator and sensitive underground utilities. 952-808-3640; www.hydraflexinc.com



15

15 // RIVAL HYDROVAC T7 TANDEM

The **T7 Tandem** from **Rival Hydrovac** was designed primarily to be loaded with debris and drive within legislated road limits with most types of debris on board. Standard is a scale that reads real-time weights both in the cab and on the wireless remote to confirm weights prior to travel. The operating system is engaged through one PTO switch. The remainder of the operation occurs from the rear panel or the wireless remote. The truck uses high-performance components and will dig at levels competitive to large units, according to the maker. 403-550-7997; www.rivalhydrovac.com

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PRODUCT FOCUS

16 // SUPER PRODUCTS MUD DOG 700

Mud Dog 700 vacuum excavators from **Super Products** are designed to meet the challenges of compact, urban projects as well as large-scale excavation projects. They offer a compact footprint for excavation in urban environments while maximizing payload and maintaining the power and precision that larger units offer. The unit features a 7-yard debris body and 600-gallon water tank. This model comes standard as a dump body with an electric vibrator offering a 50-degree dump angle with the capability of dumping into a 48-inch container. Additionally, it is equipped with a rear-mounted, extendable, 8-inch-diameter boom that reaches 18 feet, has 270-degree rotation and pivots 10 degrees downward, which minimizes job site restoration and eliminates traffic congestion near roads. 800-837-9711; www.superproducts.com



17 // VAC-CON MUDSLINGER MS800

The **Mudslinger MS800** trailer-mounted hydrovac from **Vac-Con** is designed to provide the same power, suction and capacity of a truck hydroexcavator on a portable, pull-behind trailer. It includes the choice of Tier 4 diesel or gas engine options providing up to 1,190 cfm and 16 inches Hg with a PD blower and 325 gallons of water. It has an 845-gallon debris tank and a 9-foot boom with 24 inches of hydraulic extension providing a full range of motion. It is designed to be a standalone unit, but can also provide support to construction, HDD and public utility fleets. A variety of applications includes daylighting, potholing, culvert and manhole cleaning and utility locating. 904-284-4200; www.vac-con.com



18 // VACALL ALLEXCAVATE AND ALLEXCAVATE2

Vacall AllExcavate and **AllExcavate2** machines feature standard intelligent controls and easy startup operation. Both models are designed to efficiently remove dirt around utility lines and foundations. Water pumps generate 24.5 to 120 gpm and pressures to 3,000 psi. The AE2 model adds air excavation at 185 cfm and dual psi of 110 and 150. Water system, wand, control panel, tools and worker apparel are protected in a heated compartment. An AllSmartFlow CAN bus control system features a programmable LCD display that monitors engine, water flow, air pressure and vacuum performance for precise boom and reel adjustments. Aluminum water tanks with lifetime warranty carry 1,000 to 1,300 gallons. Galvanized debris tanks have a supreme finish, and are available with 8-, 10- and 13-cubic-yard capacities. They use one engine to power the chassis and excavation functions, designed to reduce service and operation costs. 800-382-8302; www.vacall.com



19 // VERMEER VXT300

Vermeer's VXT300 truck vac is outfitted with an 8-cubic-yard spoils tank, 6-inch dig tube and the ability to carry up to 800 gallons of water so crews can maximize productivity on the job. It is designed with a low overall height of 11.5 feet to efficiently transport spoils from the job site to the dump site. The vac truck is built on a Kenworth T370 truck chassis with a 350 hp diesel engine and a six-speed automatic 3,000 RDS Allison transmission. The truck's PTO drive powers its Roots 624 vacuum blower with a maximum flow of 3,500 cfm and maximum suction of 18 inches Hg. The water pump is capable of producing 10 gpm at 3,000 psi for productivity on large jobs as well as when digging at deeper depths. 800-837-6337; www.vermeer.com





» PIPELINE REHABILITATION/LINING

20 // ARIES INDUSTRIES TEST AND SEAL GROUTING SYSTEM

The **Test and Seal Grouting System** from **Aries Industries** reduces setup time and provides efficient hands-on control to quickly seal leaking joints. Grout — pumped to a leaking joint — flows through the leak, sealing the surrounding soil to form an impenetrable barrier. Sixty-gallon tanks and continuous-duty mixers provide high volume to seal large voids. Reels for fast deployment and retrieval, as well as high-power winches, quickly move the packer from joint to joint for high productivity. The unit's 800 feet of color-coded hose allows for long runs. The truck comes with a bench, storage and room to work. The operator tests and seals the joints while working in the control room, where test data and the sealing process are easily viewed, recorded and logged. 800-234-7205; www.ariesindustries.com



21 // AVANTI INTERNATIONAL AV-100

AV-100 chemical grout from **Avanti International** is used to rehabilitate storm and sanitary sewer systems by eliminating infiltration in manholes, mainlines, joints, laterals, lateral connections, and before or after various forms of CIPP lining. It is injected after lining in the annular space between host pipe/liner, and after lateral reinstatement, which are the primary sources of infiltration. It is an ultralow viscosity, chemically reactive gel with a similar viscosity to water. It can permeate anywhere water can travel and has adjustable cure times from seconds to hours, creating an effective, long-lasting water barrier while providing soil stabilization. 800-877-2570; www.avantigrout.com

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22 // FLOW-LINER SYSTEMS NEOFIT+PLUS EXPANDABLE PRESSURE PIPE

Neofit+Plus Expandable Pressure Pipe from **Flow-Liner Systems** is a trenchless technology that creates an impenetrable barrier between drinking water and the existing host pipe. Host pipes (like lead and copper) can leach dangerous levels of toxic materials into drinking water. The Neofit+Plus EPP structural material has been scientifically proven by examining extensive hydrolysis testing, indicating it will last well over 100 years. It often only requires a single small access pit, saving yards, trees, sidewalks and floors from demolition. The speedy process allows for many installations a day and immediate return to service. **800-348-0020; www.flow-liner.com**



23 // PICOTE SOLUTIONS DUAL-COLOR EPOXY BRUSH COATING SYSTEM

The **Dual-Color Epoxy Brush Coating System** from **Picote Solutions** allows technicians to rehabilitate pipes from 1.25 to 12 inches for drains, sewers, water pipes, electrical conduits, and heat and air-conditioning ducts by brush-casting a coating. The coating resin forms a pipe inside the original pipe that is tested, safe and environmentally friendly. The new pipe is damp-proof, corrosion-resistant and wear-resistant. It is ASTM- and NSF-certified (NSF/ANSI 61-5). It is a 100% solids epoxy, and the method allows for clear visual verification during the application process. Apply to small areas or all drains in multistory buildings. The system is practical and easily fits in tight places. **219-440-1404; www.picotesolutions.com**



24 // PRIME RESINS PR10

PR10 acrylamide from **Prime Resins** is a low-viscosity permeation liquid chemical grout that is injected from within the manhole, wicking into the soil outside or used to curtain-grout the exterior. A high-pressure pump injects grout through the manhole wall into the surrounding soil or is injected directly into the surrounding soil, creating an impermeable barrier. The permeation grout doesn't expand, but rather saturates the soil immediately outside of the manhole (with a desired gel time) that permanently stabilizes the soil and prevents further groundwater penetration. **800-321-7212; www.primeresins.com**



>> REINSTATEMENT CUTTERS

25 // CUES CURRAHEE CUTTERS

Small and large **Currahee Cutters** from **CUES** are designed to reinstate wastewater service laterals, remove protruding taps, and brush-finish existing cuts. The cutters function in a range of 5.25- through 36-inch pipe, are equally effective in CIPP or fold and form liners, and can be installed on a CUES K2 truck-mounted cutter system. A 1.9 hp air motor for the small cutter line provides more power, increased productivity, and a smoother cut when operating in 6- to 12-inch relined pipe. Kits are available to retro-fit cutters for use with Kangaroo air-motors, and service kits can be purchased for regular maintenance intervals on existing motors. **800-327-7791; www.cuesinc.com**



26 // RAPIDVIEW IBAK MICROGATOR 2.0 AND MICROGATOR AIR

Air or electric? **RapidView IBAK** offers both when it comes to rehabilitation cutters and grinders. The **MicroGator 2.0** is a single-point electric reinstatement cutter equipped with a powerful motor. The **MicroGator AIR** is a powerful pneumatic cutter and compatible with the IBAK MainLite, making it a complete cutting and inspection system with the addition of an IBAK camera and tractor. The MicroGator 2.0 and MicroGator AIR share fourth-axis articulation, which allows the user ultimate control during advanced cutting operations. The



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27

IBAK CutterCam is also compatible with both cutters and provides the best possible view of the cutting area. Air-curtain technology and a remote wiper system will keep the camera lens clean with the push of a button. 800-656-4225; www.rapidview.com

» UV CIPP

27 // BRAVO SYSTEMS MAGNAVITY SX FOR BRAWOLINER

Magnavity SX from **BRAVO SYSTEMS** offers unique light curing. The compact system has a range of 197 feet. The two LED heads — Nano and Mega — enable the rehabilitation of diameters from DN 100 to DN 300 using BRAWOLINER and the vinyl ester resin BRAVO LR. The curing process is automated and the entire rehabilitation process is documented. It can rehabilitate longer pipes with bends with only one access point. The system is distributed in the U.S. through APEX CIPP Solutions. 941-300-0441; www.apexcipp.com



28

28 // HAMMERHEAD TRENCHLESS BLUELIGHT LED

The redesigned **Bluelight LED** CIPP lining system for laterals and small drainpipes from **HammerHead Trenchless** uses a specially formulated resin that only cures under light in the “blue” wavelength, giving installers a significantly longer working time between liner wet-out and curing. Once installed, the automated curing system pulls the LED light head through the liner, curing the resin almost instantly — up to five times faster than other methods. Instead of waiting hours for the liner to cure, a 50-foot sewer line could be fully cured in under 10 minutes. 800-331-6653; www.hammerheadtrenchless.com



29

29 // OMEGA LINER

Omega Liner is a high-strength GRP UV-cured liner for trenchless rehabilitation of water, wastewater and stormwater piping systems. It is constructed with ECR (corrosion-resistant) fiberglass and advanced UV resins, and uses unsaturated polyester or vinyl ester resins for environmentally conscious projects. It is offered for both circular and noncircular pipes from 6 to 66 inches, has a six-month shelf life, conforms to ASTM F-2019, and meets and exceeds ASTM F-1216. Factory training and support is available, with a small equipment footprint and increased efficiencies. 605-558-1020; www.omegauvpipe.com



30

30 // WATERLINE RENEWAL TECHNOLOGIES LIGHTRAY LR3 LED UV

The **LightRay LR3 LED UV** system from **Waterline Renewal Technologies** is an advanced UV cast-in-place pipe technology allowing complete operator control of the casting process. It is both a push- and pull-in-place spot repair system, providing the flexibility to perform both operations by only changing the cold LED repair packer. The non-VOC resin is pre-impregnated into the high-performance fiberglass liner and shipped ready to install for no-dig pipe infrastructure repairs. Once the install site is prepped, casting times in under 10 minutes can be achieved, eliminating the risk of premature or prolonged casting times due to temperature variations. It repairs pipe diameters of 3 to 12 inches, including transitions. 847-457-1810; www.waterlinerenewal.com c

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CIPP LINING METHODS AND PROJECTS

// By Craig Mandli

HOT TEMPS ARE NO MATCH FOR UV CURE SYSTEM

PROBLEM / Brewers at a Cincinnati craft brewery were troubled when the pipes in their brand-new production facility were failing. The brewery, built in 2018, was specially designed to fit their needs and outfitted with fresh PVC pipes. The pipe network was located under a concrete slab with rows of brew kettles and fermentation tanks, so the brewers needed a solution to fix the pipe issues without tearing up the entire brewery and disrupting production. They turned to CPR, a NuFlow-certified contractor, to solve the problem. When CPR performed a camera inspection of the pipe infrastructure, it found multiple breaks in the joints on the mainline of the system. The extreme temperatures used during the brewing process caused the breaks, resulting in overflow and loss of materials.

SOLUTION / The CPR team recommended lining the pipes to fix the problem with the joints as well as prevent any future issues from the constant high temperatures. While the customer was eager to fix the problem, there were concerns about the process. They did not want to shut down brewery production and wanted to ensure the product could withstand the temperatures regularly used in the brewing process, was resistant to the chemicals used in the cleaning process, and wouldn't affect the quality of the beer. NuFlow recommended using NuCure Cold Cure UV technology. According to NuFlow's technical director Grant Whittle, "The dense cure of the NuCure system results in exceptionally high heat deflection temperature, enabling the NuCure CCUV liners to be utilized in very high temperature applications. It is a perfect application at the brewery to combat extreme temperature fluctuations. The UV system's ability to tolerate high temperatures opens new markets that other lining systems cannot adequately serve."

RESULT / The CPR team worked with the customer to accommodate the production schedule of the brewers and make sure there wasn't interference. Working on site for three days and three nights, they lined 430 feet of 4- and 6-inch mainline PVC and reinstated all the lateral lines. The brewery was very happy with the outcome and the cost was half of the other bid received. **866-430-2134; www.nuflow.com**




SEVERE I&I ISSUES AT HISTORIC PRIVATE SCHOOL SOLVED

PROBLEM / A private school in Massachusetts discovered it was having severe inflow and infiltration problems after the city flagged it. Founded in 1778, the school has a pipe system that was likely installed in a very different landscape and time. Currently the school is near sensitive wetland and wooded areas, raising environmental concerns surrounding pipe lining methods and chemical leaching into the soil. Several access manholes were only accessible by foot or ATV. Combined with backups being caused due to root intrusion and the major I&I issues, the accessibility challenges created a scenario that required both powerful and transportable equipment.



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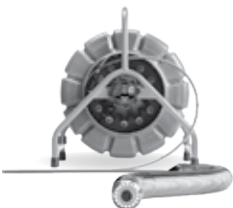
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SOLUTION / New England Pipe Restoration was called in to solve the issues for the school. The team chose **Pipeline Renewal Technologies' SpeedyLight+** for LED-based UV curing and Omega Liner's fully encapsulated UV liner to resolve both access and environmental challenges. LED UV cure meant the project would have no downstream steam condensate to capture and dispose of, and its compact size made transportation to many of the access points possible via an ATV trailer. A total of 1,400 feet of 6-inch pipe was lined, completed in segments of 300 feet each. SpeedyLight+ has a reach of 328 feet, and efficiently tackled each segment.

RESULT / The school was so impressed with the work done that it contracted New England Pipe Restoration for an additional project. 866-936-8476; www.pipelinert.com

STRUCTURAL LINER REHABILITATES 220 LINEAR FEET OF STORM PIPE

PROBLEM / The city of Carmel, Indiana, was in a dire situation when a rusted water pipe ruptured, creating a massive sinkhole in the road at a major intersection. Fortunately, officers arrived at the scene and secured the area surrounding the 12-by-18-foot hole before any accidents occurred. The storm pipe was removed and replaced, but the city was faced with another obstacle: There was another 220 linear feet of storm pipe from the replaced section to a drainage lake that could collapse at any time.

SOLUTION / Removing the remaining pipe was not a practical option due to the location of utilities in the area. Conco Spray Solutions, an Indiana-based contractor, provided the city with an alternative solution: a structural liner that would hold infiltration back and provide a long-term structural solution with a 50-year design life. Once the lake was pumped down, the Conco team prepared the pipe. Conco pressure washed the pipe surface at 5,000 psi. The team then used mortar to repair the rusted voids in the invert and eventually a chemical grout was utilized. Conditions dictated a fully deteriorated protocol with water traffic load. **Sprayroq's SprayWall** lining was applied at a thickness of approximately 630 mils.

RESULT / By providing quick rehabilitation and not removing the existing structure, Conco Spray Solutions minimized the disruption of traffic flow and preserved the natural landscape. 205-957-0020; www.sprayroq.com



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PRODUCT SPOTLIGHT

HYDROVAC TRUCK FITS WEIGHT RESTRICTIONS WHILE PROVIDING BIG POWER

By Tim Dobbins

The VHX Series of hydrovac trucks from GapVax fits the mold for businesses eyeing a solution for all-around hydroexcavation projects in a platform that conforms with Bridge Law weight regulations.

The series consists of a 15,000-pound payload with an overall height of 12 feet, 2 inches.

“Initially, we targeted regions needing a wet or dry vacuum excavation truck that also required legal travel with a payload of 15,000 pounds,” says Matt Hughes, senior vice president of sales at GapVax. “Now it has expanded into projects that are restricted by tight access or low overhead clearance.”

GapVax’s strategy was to tackle weight limit concerns while still delivering as many features as possible. The idea was to shave weight, but not performance, Hughes says.

“First, the concept was modeled with a worst-case scenario in terms of weight, meaning we started with all the must-haves,” he says.

Those essentials include a high-powered blower, a filtration system, full-opening tailgate, dipping boom and low overhead clearance.

“Then we added options to the model like an air compressor, 400,000 Btu burner, heated pump box and extreme-cold-weather provisions,” Hughes says.

From there, GapVax figured out how to get everything on the truck that it wanted to while still making weight. Hughes says the advantage to starting with a worst-case weight scenario is that each option removed from the layout enabled additional payload capacity for customers who don’t need some of the available options.

Users will find wet or dry operation, a cyclone and baghouse filtration system, an 8-inch boom hose, and a blower capable of pushing



4,000 cfm and 28 inches Hg. For the water system, the VHX carries 750 gallons between two 375-gallon poly tanks and uses a hydraulically driven triplex pump to move water at 13 gpm and 3,000 psi. The full-tilting debris body provides quick unloading and simple clean out, getting you in and out of the dump site fast.

Other options customers can choose include a stainless steel debris body, an onboard scale, liquid level indicator, various lighting options, remote wireless controls and various tube racks, and toolboxes and storage.

“The initial feedback has been excellent,” Hughes says. “Operators like the ‘big truck’ performance combined with the maneuverability of compact units. Owners love that they don’t get overweight tickets anymore.” **814-539-3617; www.gapvax.com**

1 // MAKE LIFTING SAFER WITH PATTERSON DAVIT CRANES

The Patterson Davit Crane is built for safer lifting with high-quality materials and an advanced brake that keeps loads in position without creeping. As with all Patterson products, the crane’s design was rigorously tested both digitally and physically to ensure safety and reliability for the entire life of the product, leading to fewer injuries and more productivity. Plus, the easy-to-assemble design and portable nature of the crane allows for service at multiple locations with a single piece of equipment, minimizing upfront investment. For over 160 years, Patterson has been a trusted supplier of products for lifting applications that deliver on the company’s promise of helping businesses run safer, easier and faster. The U.S.-made cranes are available in 1/2- and 1-ton capacities. **800-322-2018; www.pattersonmfg.com/crane-details**



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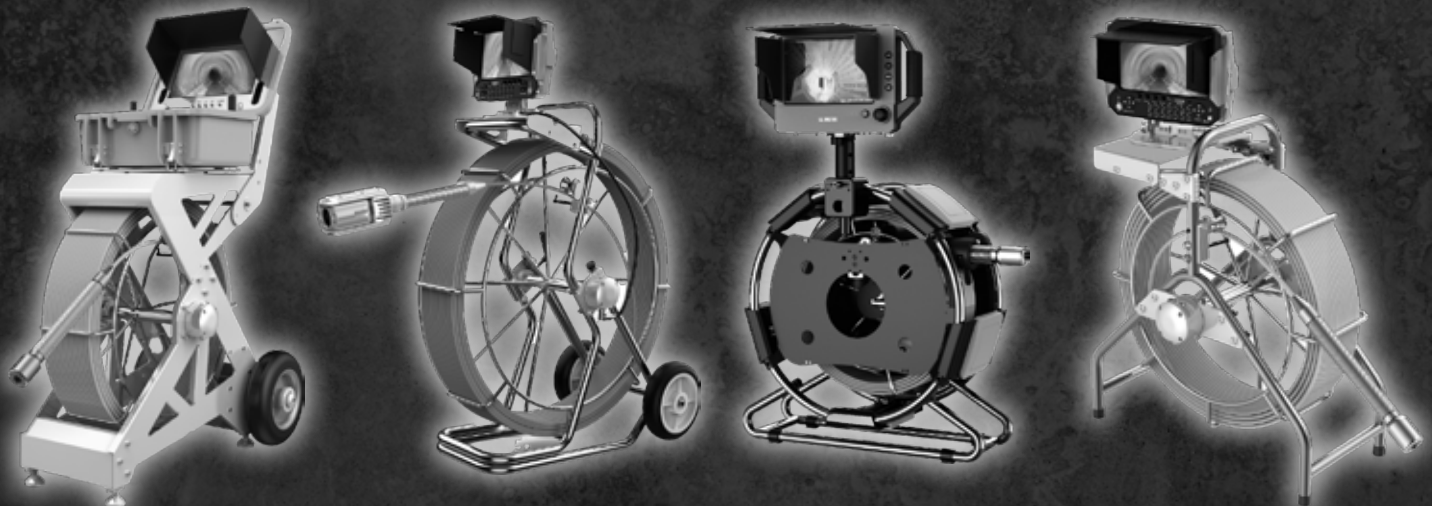
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PRODUCT NEWS

INDUSTRY NEWS



2

2 // SUPERIOR SIGNAL 5E FLEX BATTERY-POWERED SMOKE BLOWER

Superior Signal's new 5E FLEX battery-powered smoke blower is specifically designed for smoke testing, building, plumbing and sewer laterals. The 5E FLEX is compatible with leading 18- to 20-volt tool batteries and, utilizing a high-quality power adapter, the blower integrates seamlessly with an existing electric tool set. Additionally, it can run off any 12- to 24-volt power source — such as a car or truck battery — using the DC clips power adapter. The 5E FLEX gently pushes smoke through the system in only a few minutes and takes seconds to see results. Smoke testing is a cost-effective solution ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. While the 5E blower is popular for a variety of plumbing applications, it is also particularly useful in testing sewer laterals and can clearly illustrate where a fault or leak may occur on private property. U.S.-made, the 5E FLEX comes with an 8-foot industrial-grade hose. Used with Superior's 1A or 2B smoke candles, it creates 4,000 or 8,000 cubic feet of smoke, respectively. Superior's smoke candles are also sold in convenient SealPac cans which extend shelf life. 732-251-0800; www.superiorsignal.com/crflex



3

3 // GENERAL PIPE CLEANERS MODEL DRZ-PH DRAIN CLEANER

The powerful, portable Model DRZ-PH power drain cleaner from General Pipe Cleaners quickly and cleanly clears clogged sink, tub and laundry drains in 1 1/4- to 3-inch lines. Weighing only 30 pounds, the lightweight, compact machine features a variable-speed power cable feed for optimal control feeding and retrieving cable at up to 16 feet per minute. General's 4-foot guide tube and pneumatic foot pedal substantially minimize operator contact with wet, spinning cable during drain cleaning, so hands and job sites stay clean and safe. The Model DRZ-PH can be operated either horizontally or vertically — it's stable both ways. The silent motor won't disturb others, and the convenient carry handle on top of the frame facilitates transport to and from jobs. The rust-resistant aluminum drum carries up to 50 feet of 1/4-inch and 5/16-inch, or 35 feet of 3/8-inch Flexicore wire rope center cable. 800-245-6200; www.drainbrain.com c

Plastics Pipe Institute presents Lifetime Achievement Award

The Plastics Pipe Institute presented Donna Stoughton with its Lifetime Achievement Award in recognition of her many years and number of contributions to the industry. Stoughton, who recently retired from WL Plastics, was the first woman to chair the organization's board of directors since it was founded in 1950. During her 20-year affiliation with PPI, Stoughton served and chaired numerous technical and other committees. PPI President David M. Fink presented the award during the group's annual membership meeting held in Maui, Hawaii, during May.



Donna Stoughton

Apex CIPP and Dancutter USA announce new Florida headquarters

Trenchless pipe repair equipment, materials and training company Apex CIPP and distributor Dancutter USA have moved to a new location in Sarasota, Florida. The company now has an expanded warehouse and dedicated service center to better serve its customers. Independently owned and operated, Apex CIPP sells the robotic Dancutter SuperFlex and other brands such as Renssi, Repiper, BRAWOLINER and more. c



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Dig These New Products at The Utility Expo 2023

BY CRAIG MANDLI

The Utility Expo is the premier event for utility professionals and construction contractors to gain comprehensive insight into the latest technologies, innovations and trends affecting their industry. This year's

event, slated for Sept. 26-28 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 REVOLT

The **REVOLT** from **BOSS Industries** is a revolutionary design that takes advantage of everything a contractor likes about their vehicle and allows them to produce power in a stationary mode to perform the work or play needed. There are no batteries or engines to maintain.



Simply park and engage the power switch like you would with any other PTO-type application and you're off to work or play. By adding an additional custom-designed alternator and controlled through a power distribution system, the 6 kW of power is as clean as if you were plugged into your own home or office. The applications are endless for mobile power requirements.

800-635-6587; www.bossrevolt.com; Booth E1318

CrewPlex DR10 All-In-One Wireless Headset

The **CrewPlex DR10 All-In-One Wireless Headset** combines the great sound quality and excellent performance of the proven DR10 system with the comfortable fit, exceptional noise isolation, and flip-up microphone muting technology of the SmartBoom PRO headset, but without the wire. The new headset is available in single and dual-ear models with field-replaceable batteries. Compatible with DR10 beltpacks, users can use a combination of DR10 wireless all-in-one headsets and traditional DR10 beltpacks as part of the same system.



334-321-1400; www.crewcom.com; Booth S3908

Brokk 120DII

Brokk's 120DII remote-controlled demolition machine pairs with the Brokk Vacuum Excavation Kit for improved maneuverability, safety and versatility in tight vacuum excavation applications. At 31 inches wide, 80 inches long and 49 inches tall, it is ideal for tight spaces where truck-mounted excavation systems can't reach. The package includes a bracket mounted on the rear of the machine and on the three-part arm to secure the hose and transport it from the vacuum excavation truck to the excavation site. A specially designed plate attaches to the end of the arm and includes an opening to hold and stabilize the hose's nozzle. Thanks to the quick hitch, the plate can be rapidly removed and switched with another attachment. A range of electric models can also be equipped with the vacuum excavation kit.



800-621-7856; www.brokk.com; Booth N1855

Dynablast

Dynablast is a Canadian distributor for Interpump, Pratissoli water pumps and PA accessories such as valves, lances, guns and nozzles for the past 35 years. The company currently supplies ETL-certified high-pressure hot water heaters in various sizes for hydrovac trailer or truck applications. They can provide custom hot water heaters and water pump package solutions to meet hydrovac OEM requirements, as well as aftermarket support. Dynablast will be displaying the KTX series water pump, exclusively designed for the hydrovac market, along with 420,000 and 690,000 Btu water heaters.



888-881-6667; www.dynablast.ca; Booth N1624

GapVax VHX Series

The **GapVax VHX Series** hydrovac offers a 15,000-pound payload and low-profile (12 feet 2 inches) making it the ideal combination for all-around hydro-excavation projects. The vacuum system with wet/dry filtration is quiet, reliable and simple. This design includes ultra-efficient centrifugal cyclone separators and long-lasting filter bags. It offers a powerful combination of a 13 gpm, 3,000 psi water system with optional 200 cfm air compressor. The standard full tilting debris body allows for fast unloading and easy clean out. Ease of operation and maintenance keep the operator in mind.



See ad on page 79

888-442-7829; www.gapvax.com; Booth N1339

Kondex Drill Defender HDD Components

Kondex Drill Defender HDD Components provide improved product life and performance from the company's laser cladding application that outlasts hard face welding. Sonde housings, cobble and dirt bits, starter rods and collars improve wear protection characteristics while minimizing labor costs by eliminating the need for hard facing. Get better protection from the start — laser cladding adds a carbide-dense layer of protection that's metallurgically bonded to the base material that won't easily chip or wear off. Its robotic application offers gained wear protection in areas that require pinpoint accuracy to protect.



920-238-2915; www.kondexparts.com; Booth N831

HammerHead Bluelight LED System

The **Bluelight LED** CIPP lining system for laterals and small drain pipes from HammerHead is an advanced light-curing system. The innovative technology empowers CIPP lining pros by alleviating the time pressures of other CIPP systems. The specially formulated resin only cures under light in the blue wavelength, giving installers a significantly longer working time between liner wet-out and curing. Once installed, the automated curing system pulls the LED light head through the liner, curing the resin almost instantly — up to five times faster than other methods. A 50-foot sewer line could be fully cured in under 10 minutes.



See ad on page 33

800-331-6653; www.hammerheadtrenchless.com; Booth N855

Rival Hydrovac T7 and T10

The **T7** from **Rival Hydrovac** was designed as a unit that could be loaded with debris and drive within legislated road limits with most densities of debris on board. Additionally, the unit comes standard with a scale that reads weights both in the cab and on the wireless remote to confirm weights prior to travel. The Rival T10 is built with the same features and operating system, but with larger capacities and components. The T10 is popular with clients who do both utility and industrial work. It is built on three chassis layouts dependent upon weight restrictions in a given area.



403-550-7997; www.rivalhydrovac.com; Booth N1329

Hydra-Flex Ripsaw

The **Ripsaw** HD nozzle from **Hydra-Flex** has revolutionized the hydroexcavation industry with its incredible digging power and proven increased efficiency. Its 0-degree stream rotates at an 18-degree cone of coverage, which increases impingement to dig faster and uses less water. Built with a heavy-duty, nonconductive coating, stainless steel housing, and tungsten carbide wear surfaces, its long-lasting, premium components stand tall against frost, shale, and rocky soil, and provide extra safety for both users and underground utilities.



952-808-3640; www.hydrflexinc.com; Booth N1525

RODDIE DD-1 Bore Glide

The **DD-1 Bore Glide** from **RODDIE** is a user-friendly, compact pit-launched horizontal directional drill with the power of much larger machines. Its over 15,000 pounds of thrust and pullback give it a drill range of up to 400 feet and 6-inch pipe. Because of its design you can set up in a shallow pit as small as 2-by-4 or 3-by-5 feet if you are using the stackable drill containment box. It can be powered by a mini-excavator, skid-steer or stand-alone power pack.



See ad on page 46

888-406-3821; <https://roddieunderground.com>; Booth EH2337

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888-837-6337; www.vermeer.com; Booth K225

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See ad on page 63

800-446-3392; www.vivax-metrotech.com; Booth EH2300

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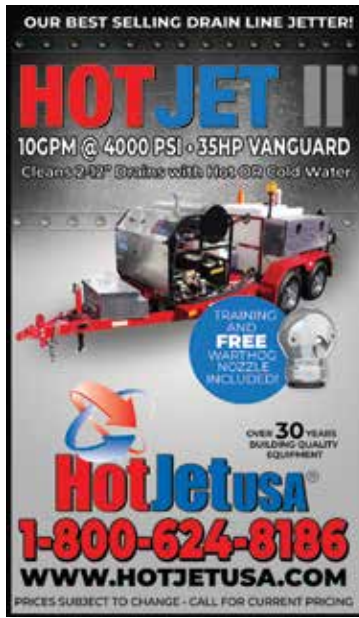
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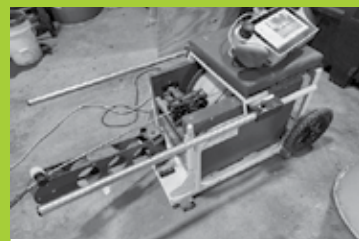


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