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ON THE COVER // Salvador Rodriguez started learning the plumbing trade at a young age, first accompanying his father and an uncle on jobs starting around age 13. He ended up managing a small chain of grocery stores in San Diego but eventually found his way back to the trade as his father contemplated retirement. Now with the help of his two sisters, he's working on growing his own venture, RDZ Plumbing & Drains. "I like to be part of something that helps other people," Rodriquez says. "I know we charge people for what we do. But when you see clients in stressful situations, it feels good knowing you have the knowledge to get things back in order so they're happy again." (Photography by Matt Dayka)

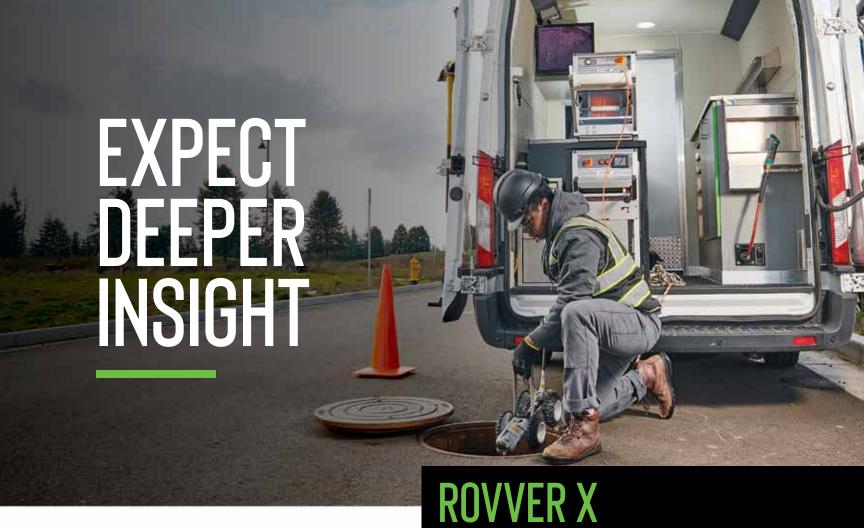






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THE EDITOR

// Kyle Rogers

INVEST IN YOURSELF

Putting money back into your company to upgrade equipment or acquire new technology pays dividends down the line



M AT THE WWETT SHOW in Indianapolis as I write this. You may be a few months removed from attending the very same show as you read this.

I've been to the WWETT Show several times since starting at COLE Publishing in 2014, but this is my first visit in a few years and my first time as Cleaner magazine editor.

This is a buying show. That's a line I heard from an equipment financing company on site, ready to immediately assist any attendees making a big purchase at the show. People come to the WWETT Show with the specific goal of upgrading equipment or buying a new

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tool that will allow them to expand their service offerings or improve operations.

Even when simply window shopping people can be tempted by the impressive display of equipment and new technology. I ran into Steve Allen, owner of Allens Plumbing in Hawaii, featured in the February issue, who was at the show with several members of his team. As busy as he already is, he said he was having difficulty walking the exhibit hall without feeling like he needed to get into every type of service he was seeing equipment for. The pumper trucks were catching his eye. After all, Hawaii has a decent number of cesspools and septic tanks, he said.

I don't know how serious Allen was about actually branching out into the pumping business, but in a general sense he was clearly maintaining an opportunity-focused mindset at the WWETT Show and thinking about ways he could potentially reinvest in his company.

Sometimes you have to spend money to make money, as the adage goes. That principle is on display with one of this month's contractor profiles. RDZ Plumbing & Drains in San Diego is still a fairly young company, having just started up in 2018, so the \$60,000 it spent on a pipe lining system last year was not an insignificant expense. But other companies were doing it and customers were asking about it, so owner Salvador Rodriguez Jr. says he knew it would be a wise investment into the future of his business.

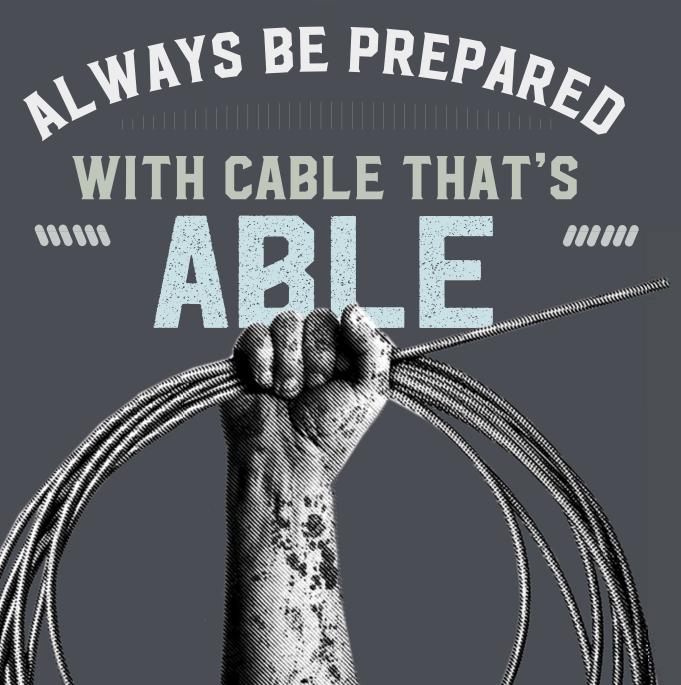
"I look at it as good debt," Rodriguez says of the money he borrowed to finance the purchase. "I'm not at all scared by the debt because I knew that once we received the proper training, we'd make good money with the pipe lining system. Sure, it was a big expense, but the profit margins are very good."

Also in this month's issue is a Money Manager feature focused on business loans and credit lines and what you can do to ensure you'll receive a positive response from financial institutions for any lending requests on those big equipment purchases.

Have you added anything to your company's toolbox recently? Maybe you're one of those companies that views the WWETT Show as a "buying show" and have had your new purchase out in the field for a few months now. I'd love to hear how it's working out for you and improving your operations. Call me at 715-350-8442 or email editor@cleaner.com.

Enjoy this month's issue. c





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INDUSTRY CHALLENGE

Protecting Underground **Utility Lines**

The Common Ground Alliance (CGA), a national nonprofit trade association dedicated to protecting underground utility lines, people who dig near them and their communities, recently issued its "50 in 5" industry challenge to stakeholders with a goal of reducing damages to critical underground utilities by 50% in five years. According to CGA's Damage Information Reporting Tool (DIRT) Report, the annual rate of damages to buried infrastructure in the U.S. has remained stagnant for most of the last decade and costs the U.S. \$30 billion every year. Read more about the "50 in 5" initiative in this online exclusive.

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relevant and interesting plumbing and drain cleaning content across the internet and social media. In our e-newsletters, we regularly highlight that and share what else out there we're reading and watching. For example, this story out of London about six cyclists who had the opportunity to ride their bikes nearly 200 feet below the city's surface inside a 2.8-mile-long sewer. Be sure to sign up for *Cleaner* e-newsletters if you haven't already.

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Drain cleaning with ease and efficiency starts with selecting the right tools for the job. With the type of drain cleaning options on the market continuing to grow, understanding the difference in drain cleaning machines and how to select the best option for the job is essential. Alex Meyer, a product manager for RIDGID, takes a look at the various options in this online exclusive. >> cleaner.com/featured

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GROWTH-GETTER

REINVESTING IN THE BUSINESS BY ADDING EFFICIENCY-ENHANCING TECHNOLOGY HAS SET UP A YOUNG SAN DIEGO PLUMBING AND DRAIN CLEANING FIRM FOR PLENTY OF FUTURE SUCCESS

// By Ken Wysocky

f anyone doubts how investments in technology can change the trajectory of a company, consider the case of RDZ Plumbing & Drains, a small company with growth aspirations.

A roughly \$60,000 investment in a Quick-Shot pipe lining system from Pipe Lining Supply (now owned by Waterline Renewal Technologies) recently jump-started the San Diego-based company's growth plans, says Salvador Rodriguez Jr., who co-owns the business with his sister, Sandra Rodriguez.

"The Quick-Shot system was a game-changer for our company," says Rodriguez, 33, who founded the company in

2018. "It has expanded our customer base geographically and opened up a new market for us, plus it helps us be competitive with other companies."

It was a big decision for such a small company to go into debt to buy the lining system. RDZ Plumbing & Drains employs only six people and runs three service vehicles — two Chevrolet Express vans and a Ford Transit Connect van. But the investment not only underscores the need to keep up with competitors, but also the truth of an old business adage: Companies have to spend money to make money.

The Quick-Shot system does exactly that. Rodriguez says the company now does two to three lining jobs a month, which during the course of a year adds up to hundreds of thousands of dollars in gross revenue.

"I look at it as good debt," says Rodriguez of the money he borrowed to finance the purchase. "I'm not at all scared by the debt because I knew that once we received the proper training, we'd make good money with the pipe lining system. Sure, it was a big expense, but the profit margins are very good."

RDZ Plumbing & Drains SAN DIEGO, CALIFORNIA **OWNERS** Salvador and Sandra Rodriguez FOUNDED 2018 EMPLOYEES 6 SERVICES Plumbing service and repair, drain cleaning and pipe lining SERVICE AREA Metro San Diego area WEBSITE www.rdzplumbing.com

MEETING CUSTOMER DEMAND

RDZ Plumbing & Drains bought the Quick-Shot system in 2022. Rodriguez says his interest in pipe lining was piqued when he noticed more and more contractors lining pipes or using other trenchless pipe rehab methods.





Randy Suarez (left) operates the hose of a BossJet Pro while Rodriguez monitors progress during a residential job in San Diego.

>>> Suarez inspects a root ball removed with the BossJet Pro.

"I knew we had to get into that, just to keep up with competitors," he says. "And when we got invited by a contractor to see how they do it, I was surprised at how easy it was, especially compared to digging up someone's front yard and all the costly labor that excavation requires."

Furthermore, more and more clients were asking Rodriguez if RDZ Plumbing & Drains did pipe lining or used other trenchless methods.

"Customers already knew about it, but we weren't able to do it," he says. "I knew we had to change that."

Rodriguez agrees that pipe lining comes with a degree of risk. But he says that proper training, supplied by Pipe Lining Supply, minimized the chances of jobs going sideways.

In addition, Rodriguez says he spent about \$5,000 on liners and other materials so he and his technicians could practice shooting liners at his house. They practiced straight shots, then graduated to lining 45- and 90-degree pipe bends.

"We practiced and practiced and practiced until we felt comfortable," Rodriguez says. "It wasn't pleasant spending that much money on practice shots, but I felt we had to do it.

"You also need a positive mindset in this game and your workers need to be really focused. And they're motivated because lining pipes is much easier than excavating to replace pipes. When they don't have to dig anymore, they're happy and the customers are happy, too, which motivates us even more."



Rodriguez says it took about three jobs in order to feel completely comfortable about lining pipes. He praises the Quick-Shot system, which is compact and easy to operate. It uses hot water to cure felt liners in about an hour.

"Fitting the inverter in a van is easy and its compact footprint makes it easier to work in areas that might not be accessible with other larger systems," Rodriguez says.

"I'M NOT AT ALL SCARED BY THE DEBT BECAUSE I KNEW THAT ONCE WE RECEIVED THE PROPER TRAINING, WE'D MAKE GOOD MONEY WITH THE PIPE LINING SYSTEM. SURE, IT WAS A BIG EXPENSE, BUT THE PROFIT MARGINS ARE VERY GOOD."

SALVADOR RODRIGUEZ

LINING CHALLENGES

One of the most difficult pipe lining jobs the company has performed involved an 85-footlong shot in 4-inch-diameter clay sewer pipe that ran under a Mexican fast-food restaurant. The job posed a major challenge because about a foot of sewer line at the start of the run was badly degraded cast iron pipe.



Rodriguez removes a long root ball severed with a RIDGID FlexShaft K9-204 snake on a residential job in San Diego.



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>>> Rodriguez and Suarez inspect and do an estimate on a gas pipe job at a residence in San Diego.

"There were cavities in the bottom of the line, so we were afraid to jet it," Rodriguez says. "There also was a failing grease trap, so chunks of grease were falling into the line. At one point, we actually thought about hiring a subcontractor to do pipe bursting instead of lining the pipe. But then I started thinking about how we bought this kind of equipment to do trenchless work, so I decided not to hire it out."

> "I MADE THE MOVE AND NEVER LOOKED BACK, I FINALLY REALIZED THAT THIS IS WHAT I WAS MEANT TO DO."

SALVADOR RODRIGUEZ

The pressure was on because the restaurant owner, who was losing a considerable amount of money by not being able to operate, gave RDZ Plumbing & Drains one day to do the job. Rodriguez consulted with a representative at Pipe Lining Supply who suggested shooting what's called a "skeleton" liner — a thin, pre-liner that serves as a guide for the real liner to pass through the damaged area.

"We knew if the skeleton liner got caught where the pipe cavities were located, we wouldn't be able to line the pipe," Rodriguez says. "So we cleaned the pipe ahead of and behind the damaged portion, then shot about a 60-foot skeleton liner into the pipe. It was such a relief when the skeleton liner got through."

DEEP PLUMBING ROOTS

Rodriguez says he literally was born into the industry because his





alvador Rodriguez Jr. firmly believes that a plumbing and drain cleaning company must be equipped to tackle a variety of different situations to avoid having customers go elsewhere for service. That philosophy explains why RDZ Plumbing & Drains, the small business he co-owns with his sister, Sandra, boasts a fairly large roster of machines.

Three machines in particular have played a crucial role in his company's growth since its inception in 2018: K9-102 and K9-204 drain machines from RIDGID and an RCM-10 drain machine from Renssi Finland Oy.

The Renssi RCM-10 is particularly critical because it's used primarily to descale drainlines prior to pipe lining, which has become one of the company's most lucrative services. The unit cost about \$5,000 and Rodriguez says it has easily paid for itself.

"The Renssi machine automatically is a moneymaker because just about every time we use it, we're shooting a liner," he says. "Every time we use it, we're facing a situation where something bad has happened. But it always does the job. We mostly line cast iron pipes and some clay pipes. I've seen some really bad cast iron lines where I thought we maybe couldn't line them. But we've still been able to descale them enough that we can line the pipe."

One feature Rodriguez says he really appreciates is the safety foot pedal, which enables him to hold the cable with two hands for optimal control and feel while operating the machine with a foot.

"I don't need to have a drill in one hand and only one hand on the cable," he says. "It's also very easy to move around and it's so compact that it doesn't take up a lot of room on a service truck."

Powered by hand drills, the RIDGID FlexShaft machines also enhance productivity and profitability. The smaller K9-102 is designed for cleaning sink, tubs, shower and urinal drainlines. It comes with 50 feet of 1/4-inch-diameter cable and is designed for 1 1/4- to 2-inch pipes. The K9-204 is designed for use in 2- to 4-inch pipes and comes with 70 feet of 5/16-inch cable.

Moreover, both machines can operate while a camera is in the line because the drain cable is enclosed in a nylon sheath.

"They're both super easy to use and the dual camera and cleaning capability saves us a lot of time," Rodriguez says. "The chain attachment spins from wall to wall, so it's truly cleaning the entire pipe. It just destroys clogs."

Rodriguez says he frequently has to go up on a house roof and pop a ventilation cover for drain cleaning access because there's no cleanout, and that's easy to do with the FlexShaft units because they're so light and compact. The K9-102 weighs about 24 pounds and the K9-204 weighs around 37

The K9-102 costs around \$1,100 and the K9-204 is priced around \$1,600. They pay for themselves quickly, Rodriguez says, and boost customer satisfaction by unclogging drains quickly and efficiently.

"To succeed in this industry, you have to be equipped for different situations," he says.

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>>> Sandra Rodriguez, Salvador Rodriguez and Mariana Rodriguez are the sibling team running RDZ Plumbing & Drains.

father, Salvador Rodriguez Sr., was a plumber, as were many uncles and cousins.

"When I was just a young kid, my dad and one of my uncles, Andres Rodriguez, would take me along to jobs every so often," Rodriguez recalls.

But by the time he turned 18, Rodriguez had no desire to be a plumber because he considered it a dirty job. He instead started working in the grocery business and quickly became the director of a small chain of stores in San Diego.

That all changed, however, when Rodriguez's father started thinking about retirement.

"I talked to him and he told me it was time to come back," Rodriguez says. "So I decided to take that big step. Besides, plumbers can make good money."

"WHEN YOU SEE CLIENTS IN STRESSFUL SITUATIONS, IT FEELS GOOD KNOWING YOU HAVE THE KNOWLEDGE TO GET THINGS BACK IN ORDER SO THEY'RE HAPPY AGAIN."

SALVADOR RODRIGUEZ

But the elder Rodriguez also pushed his son to get licensed and eventually open up his own business, which he did after working for his father for around three years. He was 28 years old at the time.

"I made the move and never looked back," Rodriguez says. "I finally realized that this is what I was meant to do."

Going it alone wasn't easy, so his sisters, Sandra and Mariana Rodriguez, came aboard to help out.

"That's when we really started growing," Rodriguez says.

His sisters took responsibilities off his plate, which gave him more time to work in the field, and they also provided a lot of emotional support, he says.

EQUIPMENT INVESTMENTS

As the company grew, so did its fleet of equipment and machines. Today the company owns three Spartan Tool 300 and three Spartan 100 cable drain machines; three cordless M18 Drain Snakes from Milwaukee Tool; a BossJet Max cart-mounted water jetter from Amazing Machinery, equipped with a Cat Pump (5 gpm at 3,000 psi); a Viztrac XSC pipeline inspection camera from Amazing Machinery; and a skid-mounted BossJet (up to 10 gpm at 3,000 psi) water jetter



with a 200-gallon water tank, carried inside a Chevrolet Express van.

RDZ Plumbing & Drains also owns RIDGID FlexShaft K9-102 and K9-204 machines; an RCM-10 drain machine from Renssi Finland Oy, used primarily for descaling drainlines prior to pipe lining; and RIDGID and Milwaukee Tool power tools.

The company's continued investments in productivityenhancing equipment and machinery has been critical to its growth. More equipment also enabled the company to diversify its offerings, which include plumbing service and repair work, remodeling projects, drain cleaning, pipeline inspections and pipe lining, all primarily for residential customers.

RDZ also attracts new customers by providing 24-hour emergency plumbing and drain services. How does Rodriguez handle that with just himself and two other field technicians?

"If anything comes up after normal business hours, I usually handle it," he says. "Soon we're going to start rotating technicians to be on call. But at the end of the day, I feel like it's my business, so I feel responsible for handling those calls. If making more money and staying in business means waking up at 1 a.m., I go out there because I'm the one who needs to take care of business." [[N] | N | E | >>

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 Rodriguez operates a RIDGID NaviTrack Scout to locate a RIDGİD SeeSnake camera under a concrete pool patio during a residential job in San Diego.

NO REGRETS

Looking back, Rodriguez says he has no regrets about carrying on the family's plumbing tradition. What keeps him motivated, aside from making money? Helping people out during emergency situations, he says.

"I like to be part of something that helps other people," Rodriguez says. "I know we charge people for what we do. But when you see clients in stressful situations, it feels good knowing you have the knowledge to get things back in order so they're happy again. That's always a big win for me."

The problem-solving aspects of the job are also rewarding, Rodriguez says.

"I love getting in there and doing what I do," he says. "It's rewarding when jobs challenge your skills and require you to use your experience to solve problems. And you're always gaining new skills, too. Every job teaches you something different."

Looking ahead, Rodriguez says he wants the company to keep growing, but not so fast that he loses control over job quality and decreases customer satisfaction.

"My ultimate goal is to run at least two more vans and hire two more plumbing technicians within the next five years," he says. "I would love to expand further north into Anaheim or Los Angeles.

"But overall, I want to keep it small. I don't want to lose that family-owned feeling. And we don't ever want to drop the ball when it comes to customer service." c

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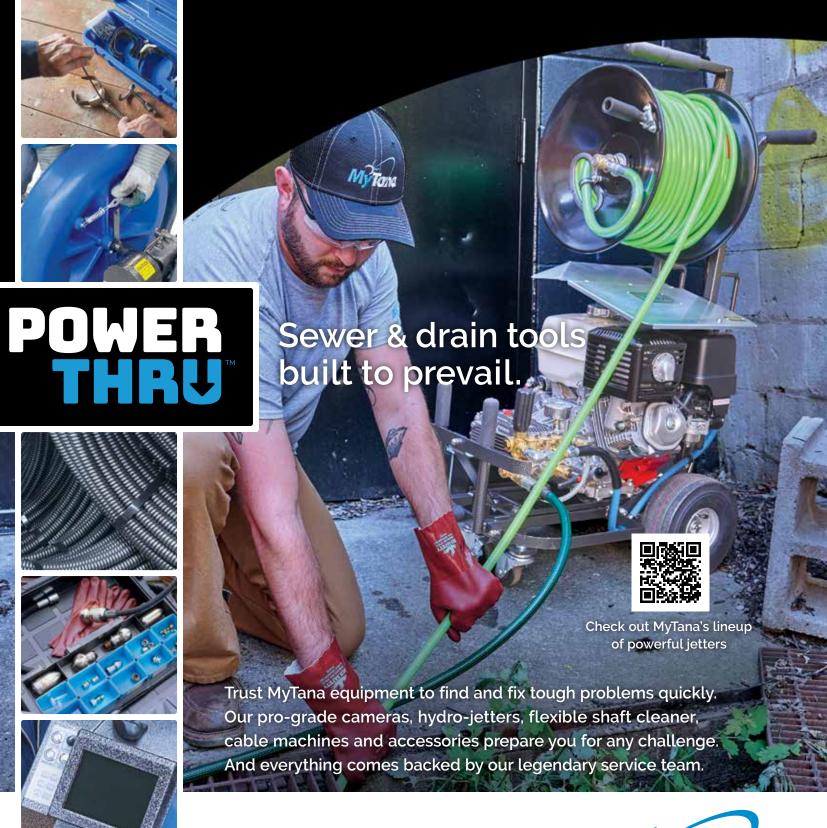
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GOLD CANYON PLUMBING IS NOT YOUR STANDARD PLUMBING BUSINESS. It is nonconforming in its ownership, doesn't have a front office and caters to a customer base that is home only about half of the year.

The Arizona-based company is succeeding, though, and is having fun while doing so.

Kim Yeagley is the woman behind this success story, a native of the Phoenix area and the daughter of a handyman.

"My father was a handyman, my grandfather was a handyman, my uncle was a handyman," she says of the family legacy of workmen who would undertake just about any manual task, including cabinetmaking.

Although Yeagley was around her father's work, she did not actively participate in it. After he developed cancer and began to lose his strength, however, she helped more than before and

absorbed more skills than she may have realized. This became apparent a few years later when she met the plumber she would marry, Ivan Rowe.

"You know your tools!" Rowe said approvingly when she first accompanied him on plumbing calls and demonstrated familiarity with wrenches. Rowe was a partner in Gold Canyon Plumbing, which was founded in 1990. Yeagley began working in plumbing supply houses, which proved invaluable when she eventually got involved in plumbing itself. That occurred when Rowe lost his business associate to a move out of state.

Finally, in 2019, Yeagley decided to fully commit to the enterprise and began the process of becoming owner of the plumbing house. Besides solidifying her position in the company and industry by becoming her own boss, she thereby gave herself freedom to flex her schedule and care for her ailing mother and father-in-law, both of whom now have passed.

KNOWING THE TOOLS

Today, Yeagley is 50% owner of Gold Canyon Plumbing and two auxiliary companies — Coppertop Plumbing and East Valley Locating — and is working toward full ownership. An associate, Brian Kronebusch,

Xim Yeagley begins a drain repair at a residential property using her assortment of Milwaukee Tool equipment.



Photography by Mark Henle





Yeagley shows a customer the view from an inspection camera. She says she clearly advertises that the company is a woman-owned business and often gets calls from female customers for that very reason. "They are more comfortable with me doing the work — they feel safer — and are afraid they are going to get ripped off by a male plumber," Yeagley says. "Me personally doing the work gives them peace of mind."

>>> Yeagley and her husband, Ivan Rowe, remove tools and supplies from the back of their service van while at a residential property in Gold Canyon, Arizona. Most of the company's customers are seasonal, only in Arizona during the winter months.

➤ Yeagley takes pride in knowing that her company is offering customers green ways to plumb. Here, she repairs a reverse osmosis system.

fully operates the locating firm. For commercial plumbing, Yeagley bids jobs through Coppertop Plumbing and subs out the work.

Rowe, who has 30-plus years' plumbing experience, concentrates on residential plumbing through Gold Canyon Plumbing. His colleague in the residential work is 35-year-old Steven Irvin, an unofficial family member.

"Steven adopted us," Yeagley says. "He didn't have a father and said, 'Ivan, I want you to be my dad.' He's one of my kids now."

After 17 years in plumbing, Yeagley knows a lot more than just which tool is a pipe wrench. "I know my plumbing and I like turning wrenches. I can do just about anything," she says. "Soldering. Locating. Conditioners. Toilets. Sinks. I like being hands-on and don't ask the guys to do anything I wouldn't do myself. One of them might help me lift a heater in place, but I can install it."

UNIQUE SERVICE AREA

Three-quarters of Gold Canyon Plumbing's business is service calls. The remaining residential work is for local building contractors. Though the 41-year-old owner is not a master plumber herself — the business, of course, is licensed — she is working toward becoming one.

After all, she's busy. Yeagley largely handles sales, billing and customer service from her Dodge 1500 pickup using a phone and iPad. "My truck is my traveling office. Technology is great," she





"A LOT OF THESE PEOPLE ARE HERE JUST SIX MONTHS OUT OF THE YEAR, SO I DON'T WANT TO SELL THEM STUFF THEY HAVE TO MAINTAIN YEAR-ROUND, I TRY TO FIND OUT EACH CUSTOMER'S NEEDS AND PROVIDE WHAT REALLY FITS THEM."

KIM YEAGLEY

says and notes her mobile office situation is on purpose. "I tell everyone that the key to our success is low overhead. Simplicity."

The company footprint covers East Valley, East Mesa, Apache Junction, parts of Scottsdale, and, of course, Gold Canyon. The latter is an upscale retirement and "winter visitor" area in the foothills of Superstition Mountain.

So-called "snowbirds" residing there flock south as winter approaches in northern climes, effectively doubling the population of the area. They constitute half to two-thirds of Yeagley's customers. Yeagley was asked if providing service to impermanent customers is much different than serving a less transitory residential population.

"The primary difference is a lot of these people are here just six months out of the year, so I don't want to sell them stuff they have to maintain year-round," she says. "I try to find out each customer's needs and provide what really fits them."

The here-and-gone character of the wintervisitor customer is evident during certain times of the year.

"I get a lot of calls in the spring about turning off the water for six months. They need to have a good shutoff," Yeagley says. "They also sometimes need to replumb the system so that, while the house is shut off, the lawn can still get watered in summer heat."

Gold Canyon Plumbing bills itself as a 24/7 company and lives up to that. When the calls come in after hours and into the night, they are answered. Yeagley says she might get two or three emergency calls a week or go months between emergency responses.



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SOCIAL MEDIA FUN

im Yeagley is running a successful residential plumbing company in the Gold Canyon, Arizona, area, carefully managing company growth and building a loyal customer base. But she's having fun, too. Her social media sites are evidence of that.

"I am trying to show a younger generation that you can be in the trades, be a plumber, and still have fun," says Yeagley, owner and operator of Gold Canyon Plumbing and a commercial auxiliary, Coppertop Plumbing. "You don't have to be frumpy. You can be sexy and hot and have fun with your work."

That may sound like Yeagley is too frivolous to lead a plumbing business. The truth is, she's just confident. In operating the company with her husband, Ivan Rowe, Yeagley has found her place. She recalls being told as a young teen that she was "never going to amount to anything" and otherwise was on a dead-end path.

"It made me stronger," Yeagley says. "I began to believe I could be the person I wanted to be. I'm trying to show people that you have to believe in yourself."

Take a look at her Instagram account named Plumberwoman, a profile that has recorded millions of views. Yeagley had Wonder Woman in mind when she launched it. It features some things one might expect in a plumbing media site, such as rusty pipe couplings and intricate copper pipe solutions. Tools are a regular feature.

But then there is Yeagley also modeling Gold Canyon Plumbing attire and looking fetchingly at the camera. Not all that risqué but also not staid advertising.

Yeagley's traditional newspaper advertising is directed at the winter visitors to Gold Canyon and East Valley who are older and not especially internet or social media savvy. But her Instagram and TikTok posts, on the other hand, reach out to an entirely different segment of the customer base.

The social media posts are well-received not only by visitors who are curious what a "plumberwoman" might be, but also by peers in the plumbing industry. For example, her modeling of socks bearing the Apollo brand of fittings and valves, and recurring shots of Milwaukee tools, have attracted other companies wanting her imprimatur on one product or another. The social media posts are fun, but they are also beginning to generate another income stream.

What's next? Yeagley isn't finished having fun yet. Her next project is to offer a line of Plumber Woman swag. Wrenches not included.



"When people call at night, they really are in need of help," she says. "I remember one lady called about 3 a.m. and she was freaking out because her house was being flooded. I tried to walk her through shutting off the ice-maker line, but it started spraying her in the face. We immediately ran out to help."

AWKWARD NO MORE

As a woman owning a business in a male-dominated industry, Yeagley has suffered her share of awkward moments when a customer finds a female plumber standing on the doorstep.

"Once they see that I know my stuff, it's not a huge issue," she says.

In the cases where a customer can't get comfortable, she good-naturedly doesn't push the matter.

"I know when to give up and suggest the customer talk to my husband," Yeagley says. "I let my husband deal with it. You have to kind of know what the mindset is with a customer. Some people are just dead-set against using a female plumber."

On occasion, she has gone ahead and fixed a plumbing problem while her husband distracted the customer with talk.

The flip side of the gender issue is that being a woman owner of a plumbing shop sometimes brings business that might otherwise go elsewhere.

"I advertise on my website that Gold Canyon Plumbing is a woman-owned business and a lot of women call me for that





Plumbing service van. In 2019, Yeagley started the process to take ownership of the company that was founded 33 years ago.

 ➤ Using a RIDGID SeeSnake, Yeagley inspects a

 customer's drain at a residential property.



"I ADVERTISE ON MY WEBSITE THAT GOLD CANYON PLUMBING IS A WOMAN-OWNED BUSINESS AND A LOT OF WOMEN CALL ME FOR THAT REASON. THEY ARE MORE COMFORTABLE WITH ME DOING THE WORK -THEY FEEL SAFER — AND ARE AFRAID THEY ARE GOING TO GET RIPPED OFF BY A MALE PLUMBER."

KIM YEAGLEY





《Rowe talks to a customer. "My customers love my husband and me," Yeagley says. "Often they become our friends. We stop by just to check on them and to say hello, giving them five minutes of our time between calls."

"MY CUSTOMERS LOVE MY HUSBAND AND ME. OFTEN THEY BECOME OUR FRIENDS. WE STOP BY JUST TO CHECK ON THEM AND TO SAY HELLO, GIVING THEM FIVE MINUTES OF OUR TIME BETWEEN CALLS."

KIM YEAGLEY

reason," Yeagley says. "They are more comfortable with me doing the work — they feel safer — and are afraid they are going to get ripped off by a male plumber. Me personally doing the work gives them peace of mind."

The competence of the husband-wife plumbing team and congeniality of Yeagley have proven to be reassuring to the generally retired winter visitors who are their customers. She says that "my customers love my husband"



and me. Often they become our friends. We stop by just to check on them and to say hello, giving them five minutes of our time between calls."

GOING GREEN

Gold Canyon Plumbing is environmentally conscientious. Water in the area contains lots of dissolved minerals — so-called hard water — and begs for treatment. Says Yeagley: "In the valley, our water is very, very hard."

She gives her customers treatment options to deal with it. "When they don't want to mess with lifting heavy bags of salt, I give them salt-free options to soften the water. Whatever they decide, they say they appreciate that I educate them about their choices."

A growing segment of her customers is choosing the Green NAC scale control water treatment system over traditional salt softeners. NAC uses neither electricity nor salt and requires little maintenance. Yeagley believes it is "way better for the environment." Employing a reverse osmosis machine is another common treatment method. Yeagley recommends her customers employ an alkaline system to restore some of the good mineralization into filtered water.

Beyond green alternatives to more traditional water treatment,

Yeagley is a fan of certain plumbing fixture brands, such as Moen and Delta. "Nothing else for me," she says. "They're easy to service and easy to put in and come with lifetime warranties."

She also prefers Milwaukee tools and RIDGID SeeSnake inspection cameras, which she uses on service calls as well as inspections for real estate agents. The company subs out waterjetting when the need arises and rents a mini-excavator if digging out a line becomes part of a plumbing solution.

"If I need a Bobcat, I'll rent it and run it myself," Yeagley says. "On a rough day, it can be nice to sit and dig awhile."

The long-range plan for Gold Canyon Plumbing is to expand some.

"I want to get three trucks on the road," Yeagley says.

She is quick to add though that she doesn't want to grow so large that the company's family feel is sacrificed. There are priorities, after all. **c**





PRODUCTIVE PIPE PREP

Minor features on pipe-milling machine yield major efficiency gains // By Ken Wysocky

HEN MARK CARRASCO DECIDED to name his business Zippity Split Plumbing, he knew he was setting the bar high for fast and responsive service.

As a result, when Carrasco invests in equipment speed, efficiency and productivity are top of mind. A good example is the RotoMidi, a pipe-milling machine from Finland-based Boldan Oy that Carrasco bought from Trenchless Supply in late 2022. The machine cost about \$10,000, but he says it has more than paid for itself through increased efficiency.

"It allows us to do more jobs per year than we otherwise might do," says Carrasco, who established Zippity Split Plumbing in Phoenix in 2019. The company employs 12 people, runs nine service





vehicles and primarily focuses on trenchless pipe lining throughout the metro Phoenix area.

"You literally could pay for this machine with just 10 descaling jobs," he adds, noting he uses the RotoMidi primarily for prepping

3- to 4-inch-diameter cast iron pipes for lining. "Or it could pay for itself with one commercial lining job with 300 to 400 feet of pipe. Quite honestly, if you're in the trenchless pipe rehab space, \$10,000 is not a big investment. But you can't put a price on productivity."

NEXT-LEVEL PIPE PREP

Carrasco says he first heard about the RotoMidi when he visited Trenchless Supply for pipe lining training. What he saw left him impressed.

"I knew that the next time we were ready to buy a new machine, the RotoMidi would be first in line," he says.

The RotoMidi features an aluminum frame; a 86-foot-long, 3/8-inch-diameter cable enclosed in a low-friction casing; a 1.5-kilowatt/230-volt electric motor that gen- erates up to 1,500 rpm; adjustable speed and rotation direction; an emergency stop button; and a foot pedal.

Designed for pipes ranging from 4 to 8 inches in diameter, the machine weighs about 175 pounds. It measures roughly 34 1/2 inches tall by a little more than 35 inches wide by almost 19 inches deep.

Carrasco says he uses Boldan chain knockers for prepping pipes.

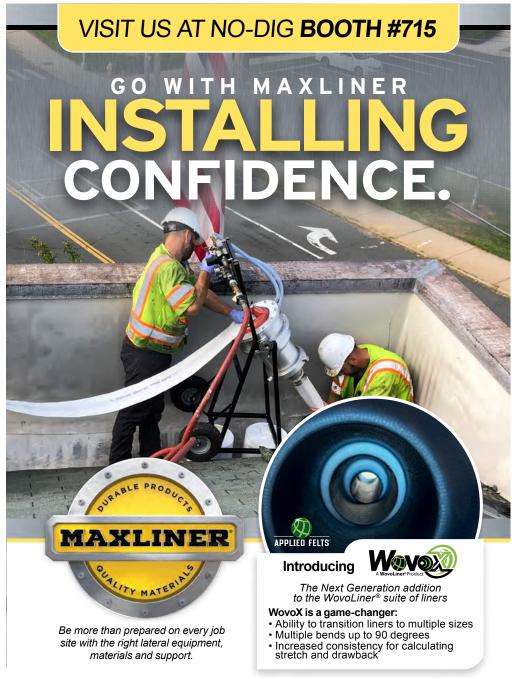
"The design of the teeth on the knockers allows them to clean very well and restore pipes to their original inside diameter," he says.

MANEUVERABILITY MATTERS

Compared to other units he's used, Carrasco says the machine's compact size and features provide a built-in advantage in terms of maneuverability in tight places, which boosts productivity. Take the wheels, for example. Two of them are swiveling caster wheels, which makes it easy to maneuver in a small hallway or bathroom.

"BOLDAN DIDN'T REINVENT THE WHEEL WITH THIS MACHINE, BUT THE COMPANY HAS INCORPORATED A LOT OF LITTLE DESIGN DETAILS THAT IMPROVE OUR EFFICIENCY."

MARK CARRASCO



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"It sounds silly because it's such a small thing," Carrasco says. "But it makes it 10 times easier to swing it 180 degrees in, say, a hallway. It makes the machine much easier to use."

In fact, the caster wheels are only one of several small details that yield big productivity results, Carrasco says. There's the foot pedal that allows an operator to keep both hands on the cable. Furthermore, the pedal is removable and the wires that connect it to the machine can be stored in a compartment.

"One of the biggest problems I've had with other machines is that you can't remove the cord, so the wire always gets kinked to the point that you eventually have to cut it and resplice it," Carrasco says. "And that always seems to happen on a job site, which causes downtime."

EFFICIENT DESIGN

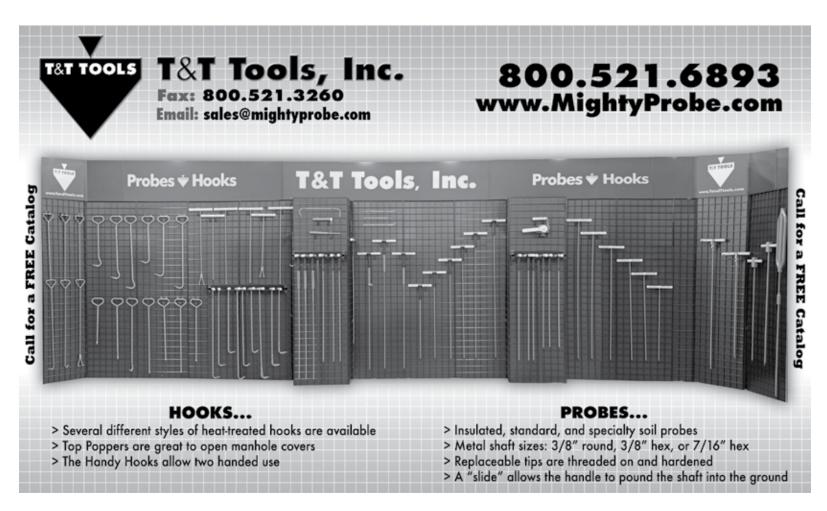
The machine also features four guide holes where the cable can come through off the reel, instead of the two holes found on many machines. Again, that may sound like a minor detail, but it helps jobs move along faster, Carrasco says.

"We don't have to move the machine so that one of the holes, which serves as a guide, faces the pipe," he says. "Instead, we just use a different guide hole. That's actually really handy, especially when you're cleaning multiple lines. The machine is well-engineered to remove small pain points that have big impact on productivity."

In addition, the machine can also be used for reinstating branch lines after pipe lining is complete, Carrasco notes.

So far, the RotoMidi has also been very durable. It withstands the rigors of constantly being taken in and out of service vehicles and trailers, not to mention homes and commercial businesses, Carrasco says.

"It's a very sturdy and well-built machine," he says. "Boldan didn't reinvent the wheel with this machine, but the company has incorporated a lot of little design details that improve our efficiency. As we replace our older machines going forward, this will be the one we continue to buy. We named the company Zippity Split because we feel customers like companies that can save them time and money, and this machine helps us do just that." c





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| JETTERS NORTHWEST 16750 Woodinville-Redmond Rd. NE, Ste. C-101 Woodinville, WA 98072 877-901-1936 • 206-283-5252 www.jettersnorthwest.com info@jettersnorthwest.com | Brute 4009 CART or SKID Brute 3012 SKID or CART EAGLE-200/4010-DWR EAGLE-200/3012-DWR EAGLE-300/ 4020-SW-DWR | 10" 12" 10" 12" 24" | 4000 3000 4000 3000 4000 | 9 12 10 12 20 | Fuel-Injected (EFI) Gas Kohler CH749 or Honda iGX800 Kawasaki EFI Gas 31-HP Kawasaki EFI Gas 31-HP Kawasaki EFI Gas 62-HP (31x2) | | x | X X X | x x | 400' 400' 400' 600' | OPTIONAL YES YES YES YES | Auxiliary Option Auxiliary Option Optional Optional |
| MONGOOSE JETTERS BY SEWER EQUIPMENT 1590 Dutch Rd., Dixon, IL 61021 877-735-4640 www.sewerequipment.com sales@mongoosejetters.com See ad on page 19 | Model 123 Model 184 Model 254 Model 402 Model 747-FR2000 ECO | 6″ 12″ 24″ 36″ 48″ | 3000 4000 4000 2000 2000 | 12 18 25 40 65 | Gas/Diesel Options Gas/Diesel Options Gas/Diesel Options Gas/Diesel Options Gas/Diesel Options | | | X X X X | X X X X | 200' 500' 500' 1000' | YES YES YES YES | YES YES |
| MYTANA LLC 746 Selby Ave., St. Paul, MN 55104 800-328-8170 www.mytana.com • mytana@mytana.com See ad on page 23 | M20T M20 M30 MV84 | 2" 4" 6" 10" | 1500 1500 3000 4000 | 2 2 4.5 8 | 2HP Electric 2HP Electric 390cc Gas 800cc Gas | х | X X X | | | 50' x 1/8" 115' x 1/4" 200' x 3/8" 250' x 3/8" | | YES YES |
| PATRIOT SEWER EQUIPMENT & REPAIR 6390 Columbus St., Riverside, CA 92504 888-318-9888 www.patriot.us • service@patriot.us | Patriot 1776 Heavy Duty Hydro Jetter Patriot 1776 Standard Hydro Jetter Patriot Mini Jet | 8″ 6″ 3″ | 3500 4000 3000 | 11 6 1.4 | 23HP Briggs 23HP Briggs 15Amp / 110 Volt Brushless Motor | х | x | | | 300′ 300′ | YES YES | |
| SECON 6000 S Eastern Ave., Ste. 2C, Las Vegas, NV 89119 702-527-5100 sewerequipmentcompanyofnv@gmail.com See ad on page 44 | SECON-Extreme Jet | 8″ | 4000 | 4.4 | 13НР | | х | x | х | 250′ | | |

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| SPARTAN FOR TOUGH CUSTOMERS. SPARTAN TOOL 1618 Terminal Rd., Niles, MI 49120 800-435-3866 www.SpartanTool.com JShoemaker@SpartanTool.com See ad on page 80 | 717 727 738 Cadet | 1 1/4" to 6" 1 1/4" to 6" 3" to 12" 1 1/4" to 3" | 1500 3000 2000 1500 | 2.2 4 12 1.4 | 2HP Electric Gas Gas w/electric start 1.5HP Electric | x | XX | х | х | 115' 200' 250' 30' | | |
| TROJAN WORLDWIDE, INC. 3306 Ella Blvd Warehouse C, Houston, TX 77018 800-392-4902 • 713-692-1140 • (f) 713-692-1053 www.trojanworldwide.com info@trojanworldwide.com See ad on page 22 | C1500 C4300 TWW2000 TWW3012 TWW3034 | 2" 4" 6" 8" 12" | 1500 4000 3000 2200 2200 | 2 4 10 13 23 | 2HP Electric 13HP Honda w/ Electic Start 29HP Kawasaki Liquid Cooled 31HP Kawasaki Liquid Cooled 50HP Cat Diesel | | X | X X X | | 150' 300' 400' 500' 800' | | YES YES YES |

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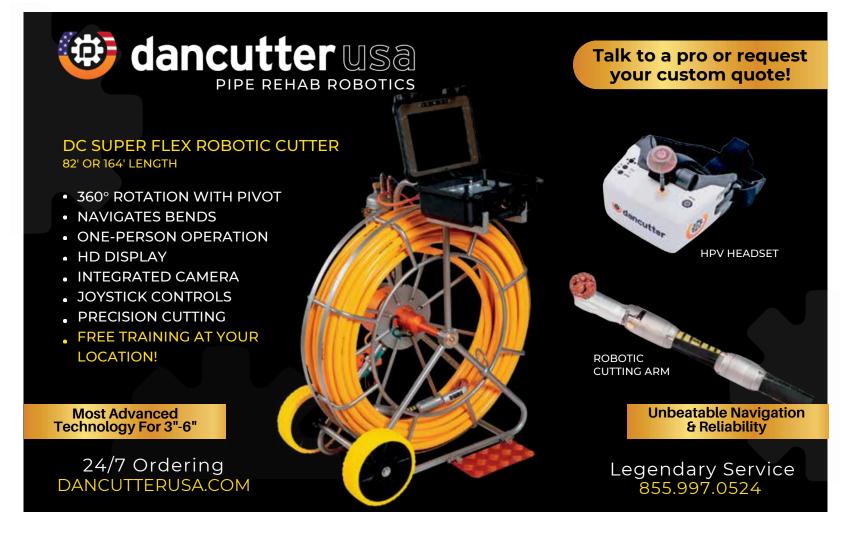


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| GI INDUSTRIES INC. 525 Fan Hill Rd., Monroe, CT 06468 800-724-1944 ◆ 203-452-1944 ◆ (f) 203-452-1943 www.giind.com ◆ sales@giind.com See ad on page 29 | Warlock (High Torque) Merlin (High Speed) Little Wizard (Portable-high speed) | Up to 150' Up to 150' Up to 150' | 1/2" to 24" 1/2" to 24" 1/2" to 24" | |
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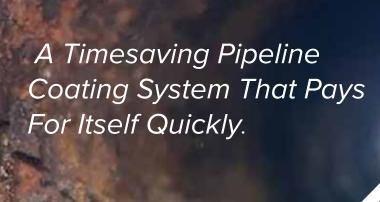
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| THE CABLE CENTER, INC. 8318 Olive Blvd., Saint Louis, MO 63132 800-257-7209 • 314-993-3099 • (f) 314-432-8024 www.thecablecenterinc.com thecablecenterinc@gmail.com See ad on page 7, 69 | | | | Electric Eel Mfg., General Pipe Cleaners, RIDGID, Spartan Tool |
| TROJAN WORLDWIDE INC. 3306 Ella Blvd Warehouse C, Houston, TX 77018 800-392-4902 ● 713-692-1140 ● (f) 713-692-1053 www.trojanworldwide.com info@trojanworldwide.com See ad on page 22 | Trojan Stallion Trojan Pony Trojan Colt Trojan DC Colt DT188 Drill Machine | 162' 110' 105' 105' 45' | 3" to 10" 2" to 6" 1 1/2" to 4" 1 1/2" to 4" 1 1/2" to 2" | |
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TECH PERSPECTIVE

Tech Perspective looks at technology-related issues and provides information and advice that cleaning professionals can apply to equipment selection and to their daily work in the field. Industry members are welcome to offer ideas for this column. Please direct them to editor Kyle Rogers, editor@cleaner.com.

JOINT EFFORT

How utility locators and vacuum excavators work in tandem to support damage mitigation // By Chris Thompson and Rudy Cabello

ODAY'S JOB SITES are becoming increasingly more complex and congested. With a plethora of underground interferences, properly locating a job site is the most effective way for contractors to stay safe and successful. So, whose job is it? As the industry has evolved, damage mitigation has become a team effort with two parties playing key roles — utility locating professionals and vacuum excavation operators.

While locating has been the standard for avoiding underground utilities, vacuum excavation has quickly become an essential tool in the process. In fact, exposing utilities with a vacuum excavator is the most surefire way to prevent a utility strike or cross bore. But it's not one approach or the other. Using both methods can help keep people safe and minimize costly downtime.

SUCCESSFULLY LOCATING A UTILITY

The first step in any underground construction project should be to call 811 and have a utility locating professional come out to the job site to navigate the underground blueprint. From there, contractors can work to develop an educated construction plan.

When the utility locating technician arrives, they'll use a locator to connect to each utility, find the correct frequency to send down the utility line and trace that signal through the ticketed area. The key to tracing the utility through the entire job site is identifying the right frequency to use. Each frequency level has different benefits, but the main challenge is the possibility of job site interference.

Interference refers to objects or sources that can disrupt or distort the frequency of a locater, making it more difficult to trace the utility and potentially leading to a mislocate. Interference can be both active and passive in nature. Active interference comes from sources that have their own electrical signal, such as underground fences or cable lines. Passive interference comes from sources without their own signal, like chain-link fences. A visual inspection of the job site can help locating technicians identify any signs of active or passive interference.

To find the correct frequency, locating technicians should start with the lowest possible frequency, usually between 263hz and 870hz,



Vacuum excavation has become a go-to method for many for locating and avoiding damage of underground utilities. (Photos courtesy of Ditch Witch)

and move up to higher frequencies in small increments if they are unable to find the utility. While higher frequencies like 8.01khz are often easier to pick up by a locater — meaning it's usually easier and faster to complete a locate — they also run a higher risk of bleeding off onto sources of interference, which can lead to a mislocate.

Finding and following the best frequency will allow locating technicians to accurately trace and mark a utility, helping contractors better understand the job site and plan their construction path to mitigate damage.

EXPOSING UTILITIES TO SUPPORT DAMAGE PREVENTION

The next step in making educated decisions on underground construction job sites is to expose the utilities. When used in addition

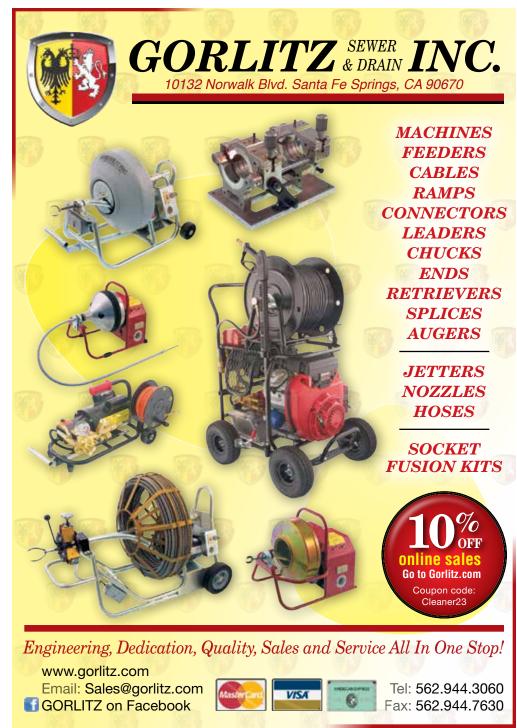
to utility locating, which gives contractors a readout of where utilities are, exposing a utility enables contractors to see it and ensure that they avoid it. There are three primary reasons contractors take the time to expose a utility, also called daylighting.

- 1. If it's near another utility. A utility should always be exposed if it is near a new utility installation, even if the locating technician found the utility deeper or shallower than the level of construction.
- 2. If it's in the path of construction. It's important to expose any utilities that may veer into the path of construction. This is typically done by potholing when



excavation is a good combo for preventing damage to buried lines.

DAMAGE MITIGATION IS A TEAM GAME, AND EVERYONE HAS THE SAME GOAL — KEEP PEOPLE SAFE ON THE JOB AND AVOID UNNECESSARY DOWNTIME.



TECH **PERSPECTIVE**

working parallel to a utility. While every municipality will have its own regulations on potholing, this technique helps contractors confirm that a utility's path is consistent. For example, if construction is 20 feet from a utility, a crew may pothole every 50 feet to confirm the locate.

3. To get visual confirmation. Visually confirming a locate is the most thorough way to avoid utility strikes or cross bores, which reduces the chance of costly and dangerous downtime.

Soft excavation methods are ideal for this, which is why vacuum excavation has become a popular way to expose utilities. To increase operator efficiency, it is essential that contractors keep their vacuum excavator nozzle 8 inches away from the utility to prevent equipment and utility damage. Air or water pressure should be kept below 3,000 psi and the nozzle should be constantly moving when excavating. This allows for the most efficient and safe excavation and will help contractors expose utilities more easily.

WORKING IN TANDEM

Damage mitigation is a team game, and everyone has the same

goal — keep people safe on the job and avoid unnecessary downtime. However, as demand for underground construction projects continues to increase, and more and more infrastructure gets put into the ground, it's important for all underground construction professionals to work together in lockstep.

Properly troubleshooting interference and finding the most accurate locate helps contractors better understand the job site and plan their construction path to mitigate damage. And properly exposing utilities is the best way to confirm there aren't any additional surprises. When the damage prevention duo comes together, utility locating professionals and vacuum excavation operators can support damage prevention, boost productivity and ensure the success of the job site. c

Chris Thompson is the vacuum excavation product manager at Ditch Witch, and Rudy Cabello is the utility locating product manager at Subsite Electronics.





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BUSINESS CREDIT BASICS

Business owners who understand the five C's of credit are more likely to receive a positive response to their lending request // By Joan Koehne

O YOU HAVE YOUR EYE on a new jetter or vacuum truck to replace an over-the-hill model in your fleet? Are you outgrowing your current shop or office space? Is a friend in the industry ready to retire and offering you a golden opportunity to grow your business through acquisition? When it's time to take your business to the next level, without having to open your wallet or ask family or friends for cash, business loans and credit lines are viable options.

While you're looking at the next opportunity, the bank is looking at your credit worthiness and the risk associated with lending you money. According to Jerimiah Janssen, vice president of commercial banking at First Business Bank in Appleton, Wisconsin, each financial institution has its own way of making credit decisions, but many institutions rely on the five C's of credit: character, capacity, capital, collateral and conditions. The five C's pertain to both personal and business finances, which are closely linked for small businesses.

"If you want to borrow money to grow your business, the bank will look at you and the business together," Janssen says.

CHARACTER

Character refers to the borrower's credit history, which is represented in a credit report. A credit report lists an individual's payment history, current debt, loans and other financial obligations. Janssen says business owners should review their credit report before applying for a commercial loan or line of credit. That way, they can find and address any negative information in the credit report and fix

any errors before the lender sees it.



"A BORROWER SHOULD UTILIZE A LINE OF CREDIT FOR ANY TYPE OF PURCHASE THAT WILL BE PAID BACK WITHIN A YEAR."

JERIMIAH JANSSEN

Through www.usa.gov/credit-reports, individuals are entitled to a free annual credit report from three credit reporting agencies: TransUnion, Experian and Equifax. You can request the reports one at a time or all at once. Business owners with excellent credit (740 or above) are considered a better risk by lenders, so Janssen recommends paying mortgages, student loans, car payments and other obligations on time. Watch your credit card spending, also.

"If you have a \$5,000 limit and you're at \$4,900, that's a high utilization of the credit card, and it's going to report negatively compared with paying off the balance every month," Janssen says.

In addition to reviewing personal finances, lenders will review business finances. Lenders determine the character of a business by its "accounts receivable aging" statement.

"What we're looking at is how old is each account? Anything zero to 30 days is considered current. The further out it goes, the less likely you're going to be paid on that. Anything over 90 days is aged," Janssen says. "When you're invoicing, make sure you're following up, especially if things get out there longer than your terms. Just stay on top of that."

Lenders will also review the accounts payable statement to see how well the business pays its vendors.

"Hopefully, you're within 30 days of the agreed-upon terms. Anything other than that, we're going to be asking some questions about why you didn't pay this invoice," Janssen says.

CAPACITY

Capacity refers to the borrower's ability to pay back the loan. A lender looks at the debt-to-income ratio, comparing how much money a business owes to how much money it earns. A lender also looks at a company's EBITDA — earnings before interest, taxes, depreciation and amortization. EBITDA measures a company's overall financial performance.

To improve their capacity in the eyes of a lender, Janssen says businesses should consider these questions: Have they prepared a business plan? Do they have a budget? Have they prepared a 13-month rolling cash flow?

By understanding their monthly cash flow, they can project the cash flow going forward, showing they have the capacity to repay a loan.

A lender will also want to see a pipeline of upcoming sales anticipated in the next couple of days or months.

"That can give us an insight into how strong the company is and how strong the market is as well," Janssen says.

CAPITAL

Capital refers to how much money borrowers have invested in the company and how much they are able to invest in this new opportunity. For example, when buying an asset like a new truck, equipment or garage, a borrower will be asked to foot some of the bill. The more you finance yourself, the less risk the lender takes on, which can result in more favorable finance terms, Janssen says.

The amount of capital you'll be asked to invest depends on many different factors, including the amount of the loan and the payback schedule.

COLLATERAL

Collateral refers to the assets you're willing to pledge against the loan, in case of default. For example, if you take out a loan on a work truck, the lender places a lien on the truck as collateral. In the event of default, the lender may repossess the truck.

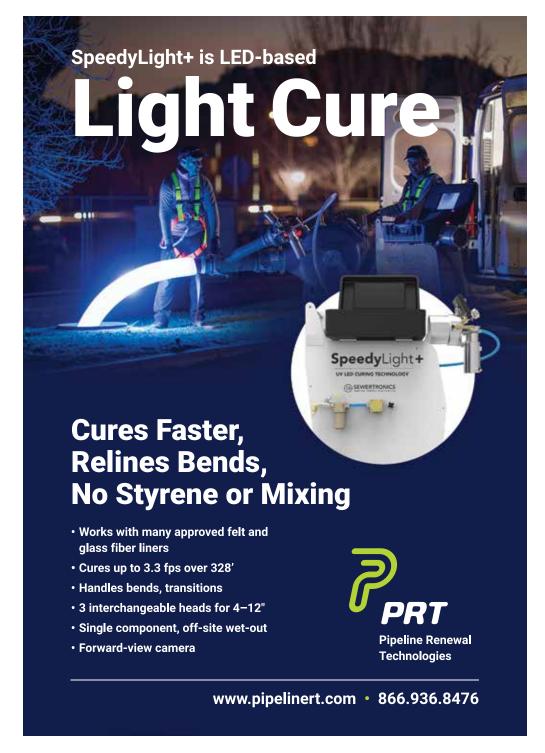
"If we are short on collateral, the financial institution may ask for a mortgage on your personal residence or a second residence. It depends on the type of loan program they are using to structure the request," Janssen says.

Because they have so much to lose, borrowers should carefully assess the collateral they pledge.

CONDITIONS

Conditions refer to the internal and external factors that affect a loan, including the current interest rate and current market conditions.

"One thing we're always looking at is: What is the purpose of the loan? Have you done any calculations as far as your return on investment?" Janssen says. "How quickly are you going to be paid back based on the investment you're putting in?"



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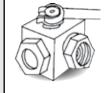




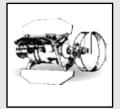
















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MONEY MANAGER

LOAN VS. LINE OF CREDIT

In addition to term loans, businesses can apply for a line of credit. The nice thing about a line of credit is its fluidity, Janssen says. A line of credit has a preset borrowing limit that can be advanced on, repaid and advanced on again. A line of credit should be utilized to finance accounts receivable and inventory.

"Typically, a borrower should utilize a line of credit for any type of purchase that will be paid back within a year," Janssen says.

On the other hand, a term loan works well for assets that will take longer than a year to repay. Term loans are designed for specific, one-off expenses like purchasing a new building, buying machinery, or acquiring another business. Borrowers receive a lump sum of capital that they need to repay at a specific interest rate over a specific time period.

BUSINESS CREDIT APPLICATION PROCESS

When applying for business credit, a borrower will be asked to provide several documents:

- Last three years of personal tax returns
- A personal financial statement
- Last three years of company tax returns
- Last three years of company's prepared financial statements
- Accounts receivable and accounts payable aging reports

BUDGET

Depreciation schedule; equipment, vehicle and machinery list Additionally, a startup may be asked for other documents, including a business plan, resume or a list of skills and qualifications.

THE RIGHT LENDER

Funding a business out-of-pocket has limitations, especially for startups and organizations ready to leap to the next level. Thus, working with a lender can open the door to opportunity. The right lender serves as a trusted adviser and a valuable resource. Lenders not only connect borrowers with financing but also with the people and other elements they need to move their business forward.

"When choosing a lender, ask some questions of the financial institution and determine if they are a good fit for you and your business. See if they have history and experience in financing businesses in your industry," Janssen says.

Before approaching the lender for a business loan or line or credit, assess your company's financial status based on the five C's of credit. Owners who master them are more likely to secure the loans they desire to grow their business. c

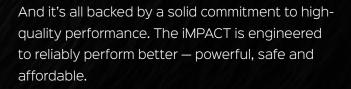
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RESIDENTIAL AND COMMERCIAL SEWER AND PIPE MAINTENANCE

By Craiq Mandli

>> CABLE MACHINES

1 // APEX CIPP SOLUTIONS RENSSI R-MILL-36

The Renssi R-MILL-36, distributed by Apex CIPP Solutions, offers 120 feet of 1/2-inch shaft, with a narrow structure that is easy to move around. It is lightweight at approximately 200 pounds, and includes a detachable power cord and pedal cord, integrated control unit with an easy access while operating, handles in front and back for easy lifting, and rubber feet on the side if it is laid down during transport. It is recommended for use on pipe sizes from 3 to 8 inches, and is available in 110-volt and 230-volt versions. 855-997-0524; www.apexcipp.com

2 // DURACABLE J-MAXX

The J-Maxx from Duracable packs a lot of power in a smaller machine. It is designed to clean 1 1/4- to 4-inch residential roof vents and floor drains. For a machine that holds up to a 19-inch reel, the economical unit is lightweight and easy to transport. Housed in a continuously welded single-tube steel frame, the workings of the machine are bolted directly to the frame for stability. The belt-driven motor powers up to 75 feet of cable, and an optional mini power cable feed and return can be added. Reel changes are quick and easy, providing versatility. Choose a package with 3/8- or 1/2-inch cable, and a 16- or 19-inch open-spoke metal reel or enclosed polyethylene drum. 800-247-4081; www.duracable.com

3 // ELECTRIC EEL MODEL C

The Model C dual-cable sectional drain cleaner from Electric Eel runs up to 200 feet of 1 1/4-inch, self-feeding dual cable in 8- or 10-foot sections that require no handling when rotating. It spins cable at twice the revolutions per minute of a continuous cable machine for cleaning 3- to 10-inch lines for distances up to 200 feet. One-person operation means less time and labor expense. A heavy-duty, 1/2 hp motor comes standard, and 3/4 and 1 hp motors are also available. A custom-designed gearbox ensures higher quality, lower cost and parts availability. The heavy-duty, fully adjustable safety clutch keeps cable and tool breakage to a minimum and provides overload protection. A fold-down handle allows for easy transport, storage and use in crawl spaces. Its carry handle allows for balance and easy transport. 800-833-1212; www.electriceel.com

4 // GORLITZ SEWER & DRAIN MODEL GO 68HD

The Model GO 68HD heavy-duty electric drain cleaning machine from Gorlitz Sewer & Drain is available in two different versions, either an open steel reel or enclosed polyethylene drum, and it can be outfitted with an optional power feeder. Standard configuration is 150 feet of 11/16-inch hollow-core cable, which should reach most blockages with a single reel. Overall weight of the machine is 185 pounds. Adding a loading ramp and electric winch to any vehicle makes transport quick and simple. It is designed to clean pipes from 3 to 8 inches in diameter. 877-446-7548; www.gorlitz.com



















5 // SPARTAN TOOL MODEL 1065

The Model 1065 is Spartan Tool's original professional-grade cable machine. It offers a 250-foot range to clean pipe from 3 to 10 inches in diameter. The Dial-A-Cable power feed allows for quick cable changes and feeds cable in and out easily, while the blockage-sensing smart motor senses the need for more power when encountering a difficult blockage. A fully enclosed drum helps keep customers' living areas clean, and the unit has a rugged design for tough jobs. 800-435-3866; www.spartantool.com

>>> CLEANING NOZZLES

6 // ARTHUR PRODUCTS ALPHA KIT

Arthur Products designed its Alpha Kit for low-flow, low-pressure systems. Available in 1/8-inch FNPT and 1/4-inch FNPT versions, the jets are drilled to the end user's exact pressure and flow specifications. Designed for do-it-yourself property owners with low-pressure systems, the kits are highly versatile. Each kit includes a flusher nozzle, a penetrator nozzle, a de-icer/ degreaser nozzle, a sewer hose (25, 50 or 100 feet), a tip cleaner, a quick disconnect coupling and a carrying case. 800-322-0510; www.arthurproducts.com

7 // ENZ USA CB RANGE

The CB (Cutting Ball) Range from Enz USA is equipped with a carbide root knife or penetrator blade for pipes that are clogged by more than 50%. The CB90, CB70 and CB50 work without impact, but are equipped with a plug that can be removed that creates a vibration in the tool when rotating (except the CB50). The cutters on the side are self-sharpening and maintain their sharpness over their entire service life. The area of application of the cutting ball is diverse. Due to their spherical shape they can easily navigate bends without damaging the pipe. Moreover, the proven braking system ensures for a lower rotation speed. The CB90, CB70 and CB50 are leakage-free and can be operated with recycling water. They are particularly suited for roots in seepage pipes, mineral deposits and lime scale. All are supplied in a case. 877-369-8721; www.enz.com

8 // GENERAL PIPE CLEANERS CLOGCHOPPER

The ClogChopper cutting tool from General Pipe Cleaners has six self-sharpening blades that dig into encrusted debris and root masses, easily grinding up stoppages, scale and crystallized urine, without risking pipe damage. The spherical design maneuvers around tight bends and traps, thoroughly and safely cleaning metal, plastic and clay pipes. It is available in 1-, 1 1/2-, 2-, 2 1/2-, 3-, and 4-inch sizes, and is ideal for downspouts to drain lining and all jobs in between. 800-245-6200; www.drainbrain.com

9 // HYDRA-FLEX RIPSAW HD

Expose underground utilities and pipelines in a non-destructive and safe way using the Ripsaw HD rotating turbo nozzle from Hydra-Flex. It rotates at a slower RPM than other nozzles, which increases digging power, improves control and reduces wear. Its zero-degree stream rotates at an 18-degree cone of coverage that increases impingement to dig effectively with less gpm. Built with heavy-duty coating, stainless steel housing and tungsten carbide wear surfaces, its long-lasting, premium components stand tall against frost, shale and rocky soil. It is designed to be repairable — not replaceable — and repair kits extend the nozzle's life and have a crew back up and running in only 10 minutes. 952-808-3640; www.hydraflexinc.com

10 // SEWERPROSHOP BLUE STAR

SewerProShop's Blue Star sewer cleaning nozzles are manufactured with optimized 3D hydromechanics by Intersewer, located in Germany. Water coming from the pressurized sewer hose is first divided by a conically shaped piece and turned around in the nozzle chamber, then guided directly to the stainless steel nozzle inserts via five-axis computer numerical control precision. The nozzles are made in one piece, reducing the chance of failure under pressure for greater safety and performance. Utilizing case-hardened steel, stainless steel and ceramic inserts, the nozzles can also be used with recycled water. 877-864-9394; www.sewerproshop.com



11 // TRITON HYDROTOOLS SHAMROCK NOZZLES SUPER GRENADE

The Shamrock Nozzles Super Grenade from Triton HydroTools is a heavy-duty workhorse nozzle that is free of the complexity and moving parts that typically require frequent maintenance. It is engineered to remain on the bottom of the pipe, where obstructions and blockages tend to accumulate. The design is ideal for mainline work. Its size, efficiency, durability and relatively low cost make it easy to keep handy across a field service fleet for routine maintenance, as well as those unexpected issues. This is a versatile nozzle that can break up an obstruction and then finish the job with its flushing capabilities. The nozzle is available for 1/2-, 3/4-, 1- and 1 1/4-inch sizes, and can clean pipelines from 3 up to 30 inches. It is fitted with replaceable carbide inserts for long service life, and internal laminar flow improvement provides for greater impact and effectiveness of each individual jet. 800-633-7696; www.shamrocktools.com



12 // USB-USA GATOR AND MINI GATOR

High-performance Gator and Mini Gator nozzles from USB-USA cut and remove roots, grease, blockages and scale in various pipes ranging from 2 to 20 inches. Encased in a compact stainless steel body, the strong reinforced internal design rotates the head. 3D fluid mechanics in the head smoothly direct all the incoming high-pressure water to the four rotating jets in the rear of the head and one in front. These rotating jets create a powerful 360-degree all-around complete cleaning of the pipe, flushing and removing debris in fewer passes. The offset front jet eliminates blockages easily and effectively. The Gator is capable of being used on hose between 3/4 and 1 1/4 inches, while the Mini Gator nozzle can be used on 3/8- to 1/2-inch hose. Also available are case kits that include an additional skid to centralize the nozzle in larger pipe. 844-285-5770; www.usb-usa.com



13 // WARTHOG NOZZLES BY STONEAGE WT-1/2

The WT-1/2 nozzle from Warthog Nozzles by StoneAge has a 1/2-inch inlet option and an R24 head engineered to increase the flow range up to 21 gpm. This configuration enables maximum use of higher-flow pumps for more powerful cleaning, while maintaining the small form factor of the WT for navigating pipe bends, according to the maker. The high flow capacity paired with the company's WT 040-R24-C head allows use of full pump power to tackle the toughest jobs and achieve a higher rate of cleaning. The small form factor is optimized for cleaning 3- to 6-inch pipes with elbows. The nozzle's slow, controlled rotation combined with high flow delivers optimal cleaning power for cutting roots or clearing tough deposits. 866-795-1586; www.warthog-nozzles.com







>>> GREASE TRAP MAINTENANCE

14 // KURIYAMA OF AMERICA GREASE BANDIT

The Grease Bandit from Kuriyama of America is designed for use with grease traps. It has a polymer liner specially designed to handle repeated exposure to grease without damage. Additionally, it has a highly durable, high-density polyethylene outer cover designed to handle the demands of being repeatedly dragged over rough surfaces, such as parking lots. It's also crush-resistant, meaning it will spring back to shape without kinking after being crushed. It has a corrugated cover, with an easy-slide helix for maneuverability, and is extremely lightweight, with a 30-foot hose length weighing 10 pounds. 847-755-0360; www.kuriyama.com

15 // OATEY HERCULES WHAM DRAIN AND WASTE SYSTEM CLEANER

Hercules Wham Drain and Waste System Cleaner from Oatey is a powerful, concentrated, multi-use, chemical emulsifier that liquifies and disperses grease, soap, detergents and other organic waste responsible for system failure. The biodegradable formula is nonacid/noncaustic and an environmentally safe, biodegradable cleaner that dissolves, deodorizes and controls buildup. It is safe to use in metal or PVC plastic piping. It makes cabling a drainline easier and cleans greasy solids from tools and many types of hard surfaces. The floral-scented drain cleaner can be used regularly as a preventive treatment to keep drainlines, septic tanks, grease traps and waste systems at maximum efficiency. 800-321-9532; www.oatey.com

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Powerful Nozzles by enz, StoneAge & Hydra-Flex



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>> HOSE REELS

16 // COXREELS V-100 SERIES

The Coxreels V-100 Series product line has been expanded with the new 1 1/4-inch vacuum hose reel V-112-735 without hose and the V-112H-735 with hose. The new model is a smaller frame size featuring 12-inch-diameter discs instead of the original 17-inch-diameter discs and is designed for use with 35 feet of 1 1/4-inch vacuum hose. The outlet connecting to the hose remains 1 1/2 inches and the 1 1/4-inch hose comes equipped with 1 1/2-inch slip cuffs on both ends for maximum flow. In addition to the new models, the swivel has been improved on the entire product line. The new swivel design still allows for the connection of multiple hose sizes by using the inside and the outside of the housing, but a greater gradual taper has increased the amount of compatible inlet hose cuffs. 800-269-7335; www.coxreels.com



The Heavy-Duty 1500 Series from Hannay Reels is designed to provide durable, reliable pressure washing for pumper and cleaner applications. With 3/16-inch-thick discs, a reinforced frame and an 8-inch-diameter steel 14-gauge drum, the reel counters highpressure hose expansion concerns, provides stability and accommodates hoses with a higher bend radius. Single 3/8- through 5/8-inch I.D. hose and pressures up to 3,000 psi are supported, with optional pressures of 5,000 or 10,000 psi available upon request. With either a manual direct-crank rewind or a chain-and-sprocket drive powered by an electric, hydraulic or air motor, the reels offer simple, swift hose deployment and retraction, while keeping lengthy hose organized, according to the maker. 877-467-3357; www.hannay.com

18 // VALLEY INDUSTRIES HARDCORE HOSE REELS

Valley Industries high-quality, aluminum constructed, Hardcore high-pressure manual and electric hose reels feature a nickel-plated, high-pressure super swivel that can handle up to 5,000 psi. Its compact footprint and universal mounting pattern allow both hose reels to be easily installed to any rig. The chain and sprocket feature, which is powered by a 12-volt 1/3 hp motor, makes cleanup easy by rewinding the hose with the push of a button. Other features include an open core design for simplified hose installation and stainless steel, selfaligning bearings to eliminate any wobble. They are available in 12-inch and 18-inch sizes. Complete the hose reel with a simple, bolt-on stacking kit or avoid pinching and kicking with hose guides. 800-825-5397; www.valleyind.com

>> JET/VAC COMBO UNITS

19 // BUCHER MUNICIPAL NORTH AMERICA FLEXLINE

FlexLine C120 and C60 combination sewer cleaners from Bucher Municipal North America are used for preventive cleaning, emergency cleaning of mains, septic, collection tanks and hydroexcavation. They offer 8- and 15-cubic-yard capacities, 7.2 and 14.5 psi, a jetting hose reel with more than 492 feet of capacity, a 5-inch suction hose with 7-foot extension, a hydraulic end cover that opens upward, minimizing obstructions on roads and sidewalks, two control panels placed for easy operation, and a 5,100 psi at 5 gpm hydroexcavation pump. 704-658-1333; www.buchermunicipal.com

20 // DITCH WITCH HX30G

The HX30G from Ditch Witch offers power in a low-profile design to help increase productivity. It is powered by a 31 hp Vanguard gas engine for suction power and water pressure











to remove slurry and expose water/sewer lines for easy repair. It has a 542 cfm blower, 3,000 psi water pressure capacity and 4.2 gpm water flow, increasing the operator's efficiency and precision on the job site. It comes with the choice of a 500- or 800-gallon tank for a variety of job requirements. The machine is also available in a variety of trailer configurations, including the Ditch Witch VT9 trailer, which when equipped with the 500-gallon tank, does not require a CDL to transport. 800-654-6481; www.ditchwitch.com

21 // HI-VAC AQUATECH B-SERIES

The Aquatech B-Series combination sewer cleaner from Hi-Vac is ideal for any size municipality, water and sewer district, or contractor who is cleaning storm drains, catch basins and/or sewers. It is available with multiple debris tank sizes and water tank capacities combined with various water and vacuum pump options to allow customers to custom fit a unit to any application. The rear-mounted hose reel design with 180-degree hydraulic articulation takes the operator off of the street and away from traffic, providing a full 12-foot work radius beyond the truck's width. The rear-mounted hose reel also makes it easier for drivers to see, providing an unobstructed, 270-degree field of vision. The top-loading boom and one-piece vacuum hose provide unlimited 360-degree operation. Its flexibility means safe, easy placement of the unit regardless of the manhole or excavation location. 800-752-2400; www.aquatechinc.com





22 // SUPER PRODUCTS CAMEL MAX SERIES

Camel Max Series combination sewer cleaners from Super Products allow operators to tackle various applications with jetting, vacuuming and excavating. The product line comes in a variety of model configurations: 900 Dump, 1200 Dump, 1200 Eject and 1200 Wastewater Recycle. All 1200 models come standard with a high-dump subframe, eliminating the need to back up a ramp for debris removal. The 1200 Dump is capable of dumping into a 42-inch container while maintaining a low overhead height and a low center of gravity for increased stability. The 1200 Eject allows operators to have the only controlled way to dump safely into a 48-inch container without the need of additional containment products. The 1200 Wastewater Recycle enables operators to clean sewers without the use of freshwater, and is capable of cleaning nearly 3,000 feet of sewer pipe per day and saving 60,000 gallons of water per week. 800-837-9711; www.superproducts.com

>>> PORTABLE JETTERS

23 // JETTERS NORTHWEST BRUTE PORTABLE CART JETTERS

Brute Portable CART Jetters from Jetters Northwest provide trailer-sized power on four wheels for easy portability. Available at either 9 gpm/4,000 psi (CART-4009) or 12 gpm/3,000 psi (CART-3012), the jetters have the power to run many popular root-cutting nozzles. These compact jetters can also easily be converted to a mountable skid, and can easily be connected to a larger water tank. Fuel-injected engines provide "choke-free" electric-starting and work with the optional wireless remote-control which controls jetting on/off and engine on/throttle/off. They also feature handy panel-mounted controls, 300 feet of jetting hose (400 feet optional) on a 12-volt power-reel (optional hand-crank reel), adjustable pulsation control, and four included jetting nozzles. Propane-fueled engines and many more options/ upgrades are available. 877-901-1936; www.jettersnorthwest.com



24 // RIDGID KJ-2200 WATER JETTER

The RIDGID KJ-2200 Water Jetter propels a highly flexible hose through 1 1/4- to 6-inch lines, blasting through sludge, soap and grease blockages. As users pull the hose back, it power scrubs the line, flushing debris away, restoring drainlines to their full, free-flowing capacity. A working pressure of 2,200 psi and flow of 2.4 gpm provides fast, effective cleaning of lines. It comes standard with a 6.5 hp recoil-start gasoline engine for quick start and a FV-1 foot valve to make remote or indoor operation simple and convenient. The user controls the jetting action at the drain while leaving the jetter outdoors. Simply guide the hose into the drain while the thrust propels the hose down the line. Activate the pulse action to easily navigate difficult bends and traps. The optional H-30 cart makes for easy job site transport. 800-477-3443; www.ridgid.com



>>> PUSH TV CAMERA SYSTEMS

25 // CUES FLEXIPROBE C540C

The CUES flexiprobe C540c system integrates survey reporting, video titling, digital recording and portability into an easy-to-use and intuitive package. Featuring a quick bootup, an intuitive user interface, and a high-definition 10.1-inch TFT display, the C540c lets you concentrate on the job at hand. The controller features a high-capacity internal lithiumion battery, providing power for a full day's typical usage. Also on board is 128 GB of nomoving-parts memory, sufficient for over 90 hours of video recording. A report will be ready to share as soon as the survey is completed, using unique condition codes. Integration

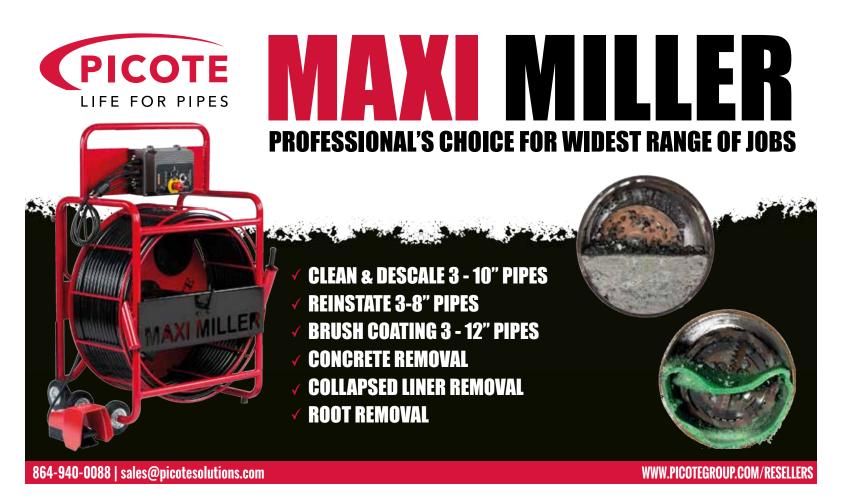


with GraniteNet software will include additional reports for the chosen standard and asset system, including ratings and scores. Onboard Wi-Fi connectivity allows for the use of a personal communications device or dongle as a hotspot, letting the user share the survey with a customer, manager or accounts department. 800-327-7791; www.cuesinc.com

26 // ENVIROSIGHT VERISIGHT PRO+

Envirosight's Verisight Pro+ smart push camera can be used to complete drain, lateral and clean-out inspections quickly and accurately. The stainless steel self-leveling camera captures up to 90 hours of color footage from pipes 2 inches in diameter and larger, regardless of material. It can snake through multiple bends for maximum range, and its integral tri-band sonde (33 kHz, 512 Hz, 640 Hz) works with almost any locator. The rugged welded-steel coiler comes with 130, 200 or 330 feet of pushrod. The entire system runs for 6 hours off internal rechargeable lithium-ion batteries, or off mains or vehicle power. Its controller offers an 8-inch LCD screen that displays footage in real-time, and a full QWERTY keyboard for recording observations. Easily navigate and review recorded inspections using the thumbnail gallery, then transfer them via SD card or USB drive. 866-838-3763; www.envirosight.com





27 // FIBERSCOPE.NET BY MEDIT DURASCOPEWIFI

DuraSCOPE WIFI inspection cameras from Fiberscope.net by Medit are known for the durability of the push cable and their ability to withstand repeated cycles of inspections in harsh environments. The new generation of these CCTV systems has an improved Wi-Fi connection that allows connecting a few smartphones/tablets simultaneously, so co-workers can see the live footage from the other side of the street. The camera is fully portable and runs on an 18-volt Milwaukee battery. No monitor or any other fragile and easy-to-break parts are needed. Just a sturdy, steel frame, premium spiral-wound push cable and a color camera head with 512 Hz sonde. 877-613-2210; www.fiberscope.net

28 // HATHORN INSPECTION CAMERAS H12

The H12 control module from Hathorn Inspection Cameras is equipped with a bright 12.1inch VividHD LCD screen. It is powered by 18-volt Milwaukee (or equivalent) batteries, and is available with PipeStream W-iFi technology, which allows the user to directly stream the video inspection to up to four devices at the same time (Apple or Android). This system also comes with a full keyboard, eight pages of text overlay, dimmable light control, record/pause to USB and sonde control. It is usable in any light condition (including direct sunshine), providing HD picture quality, high contrast and 8X digital pan-and-zoom technology. Command modules are paired with Hathorn Standard reels, which offer nine camera heads (straight view and self-leveling), five different reel sizes, five different rod sizes and lengths from 100 to 500 feet. 866-428-4676; www.hathorncorp.com

29 // MILWAUKEE TOOL M18 MODULAR PIPELINE INSPECTION SYSTEM

Milwaukee Tool's M18 Modular Pipeline Inspection System is built around its M18 500GB Control Hub, which powers the reels and easily swaps between the reels for added versatility. Available in 100-foot flexible, 120- and 200-foot mid-stiff, and 200- and 325-foot stiff reels, technicians can inspect 1.5- to 10-inch sewer and drainlines on one system. Each reel features a high-resolution camera, and the 1080p HD self-leveling camera head features high-intensity LEDs to optimize the light output for better visibility down the line. The push cable is built to withstand harsh conditions when navigating through cast iron, clay and PVC pipes. Technicians can digitally pan and zoom up to 4X, making it easier to narrow in on the point of interest. View, record, edit and share HD images and video recordings from the M18 wireless monitor or the free Milwaukee Pipeline Inspection app on a mobile device. 800-729-3878; www.milwaukeetool.com

30 // MYTANA MS11-NG2 AND MS11+ COMBO KIT

MyTana's versatile MS11-NG2 inspection system inspects 3- to 6-inch lines with a selfleveling mid-size camera head. Add the optional MS11+ Combo Kit with an interchangeable, fixed-position mini camera head to inspect 1.5- to 3-inch lines. Each head has a 512Hz transmitter built in. The high-clarity 6.4-inch daylight-readable monitor is integrated on the reel frame, so you can show the problem to your customer and prove you fixed it. Save footage to internal or removable drives, or stream video wirelessly to a mobile device. The system takes up little room on the truck and weighs only 45 pounds with 200 feet of durable pushrod. The pushrod can be replaced in the shop. 800-328-8170; www.mytana.com C O N T | N U E D >>















| RTD 1000 RPM | N VERSION | SOLID | SHAFT | 35м | м | | | | |
|--------------|------------|--------------|------------|------------|---------------|----------------|--------------|------------------------|----------------|
| Model | Max GPM | Max L/Min | Max PSI | Max Bar | Power EBHP | Bore Dia mm | STROKE MM | CRANKSHAFT ID STAMP | WEIGHT LBS. |
| RTD80-300 | 21.0 | 79.5 | 4350 | 300 | 65.0 | 32 | 42 | 4 | 128 |
| RTD100-200 | 25.0 | 94.6 | 2900 | 200 | 49.8 | 32 | 42 | 3 | 128 |
| RTD100-200SX | 25.0 | 94.6 | 2900 | 200 | 49.8 | 32 | 42 | 3 | 128 |
| RTD130-160 | 32.0 | 121.1 | 2300 | 160 | 50.5 | 36 | 42 | 3 | 128 |
| RTD130-200H | 34.5 | 115.0 | 2900 | 200 | 68.0 | 36 | 42 | 3 | 128 |
| RTD160-130 | 40.0 | 151.4 | 1850 | 130 | 50.8 | 40 | 42 | 3 | 128 |

SX - 180° Rotated Shaft Configuration



| RTD 1450 RPM I | VERSION | 30 x | 80 мм | Solid | SHAFT | | | | |
|----------------|------------|--------------|--------------|------------|---------------|----------------|--------------|------------------------|----------------|
| Model | Max GPM | Max L/Min | Max PSI | Max Bar | Power EBHP | BORE DIA MM | STROKE MM | CRANKSHAFT ID STAMP | WEIGHT LBS. |
| RTX30 | 8.0 | 30.3 | 4350 | 300 | 23.9 | 20 | 23 | 3 | 72 |
| RTX50 | 12.0 | 45.4 | 4350 | 300 | 35.8 | 25 | 23 | 3 | 72 |
| RTX60 | 14.0 | 53.0 | 4350 | 300 | 41.8 | 25 | 28 | 1 | 72 |
| 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 |
| RTX-HW85.150N* | 21.0 | 85.0 | 2200 | 200 | 31.7 | 36 | 23 | 1 | 72 |
| RTX100 | 24.0 | 90.8 | 1800 | 124 | 29.8 | 36 | 23 | 3 | 72 |
| RTX150 | 39.6 | 150 | 1450 | 100 | 36.2 | 40 | 28 | 1 | 72 |

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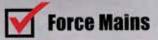
*HW = includes Hot Water Kit

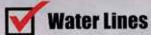
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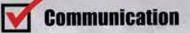
Randy Rowan (768) 999-5405 randyr@arnorthamerica.com

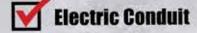


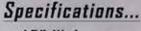




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31 // RAPIDVIEW IBAK NORTH AMERICA MICROLITE PUSHROD SYSTEM

The MicroLite Pushrod System from RapidView IBAK North America is a lightweight, small-diameter push system with durable steel-frame construction that delivers a high-quality image for all contractors and plumbers. Fitted with 100 feet of push cable, powerful LED lighting and an auto-uprighting camera, it is designed to inspect pipelines 2 to 4 inches in diameter. The entire system is powered by rechargeable batteries and is equipped with the positionable MicroLite Command Console, which includes a 10-inch touch-screen monitor, full Windows operating system, two USB connections and recording software. 800-656-4225; www.rapidview.com

32 // RATECH ELECTRONICS PLUMBER'S HELPER JR.

The Plumber's Helper Jr. pipe inspection system from Ratech Electronics is based on a small-scale reel and comes with 100 feet of mini Gel Rod cable, a removable compact command module with 7.1-inch LCD, a built-in battery and an SD recorder for digital images and video. This mini pipe inspection system is available with a full-spectrum, 1.375-inch, self-leveling color camera; a standard color camera; or any of the company's three micro camera heads — 5/8-, 3/4or 1-inch diameter. 905-660-7072; www.ratech-electronics.com

33 // SUBSITE ELECTRONICS PUSH CAMERA SYSTEM

When a transporter isn't an option because of pipe size or limited access, the Subsite Electronics Push Camera allows operators to complete inspections in the most challenging conditions. Ideal for pipes from 1.5 to 12 inches, it features single conductor technology with a rigid 1/4-inch fiber pushrod covered with a durable Hytrel jacketing that allows operators to inspect up to 500 feet down the line. Additionally, the 1/4-inch-diameter single conductor cable provides added strength without weight concerns, allowing operators to complete significantly longer inspections without the cable getting twisted or warped. The 1545 camera with an in-line 512Hz beacon allows the operator to easily locate damage and blockage in the pipe. The camera is controlled by a 1575 controller, which features a rugged, durable and reliable enclosure. 800-846-2713; www.subsite.com

34 // TROJAN WORLDWIDE VISIONHD

The VISIONHD 1080P color camera system from Trojan Worldwide is a reliable easy-to-operate inspection camera system designed for 1.5- to 4-inch lines. The all-in-one enclosed case features a 1-inch high-definition 1080p self-leveling waterproof color camera head with adjustable LED lights and a built-in 512HZ sonde transmitter for locating. The system has 100 feet of durable pushrod and a built-in foot counter. The display module has a 10-inch full HD LCD with DVR and is capable of recording to an SD card or USB flash drive up to 6 hours on a full charge. Other features include a keyboard for text writing and an attachable microphone for voice recording. This system also includes built-in ports to attach larger camera reels to the display module for viewing and recording. Accessories include headphones with a microphone, two skids, charging cord and USB adapter to help center the camera head in the line. 800-392-4902; www.trojanworldwide.com











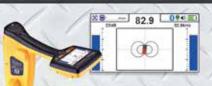
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35 // USA BORESCOPES MINI 13

The versatile Mini 13 compact color camera system from USA Borescopes is small, lightweight and ideal for the optical, nondestructive inspection of pipes, cavities, welding seams, turbines, hollow girder and cast parts. With the help of this mini-camera system, users can detect firmly bonded deposits, abrasions and deformations in narrow, elbowed, hard approachable and dangerous not illuminated locations without cost intensive disassembling of the parts. Detected damages can be stored as picture and/or as video directly to the SD card. The system with a camera head of only 0.51 inches in outer diameter is small enough to negotiate bends in pipes as small as 1.5 inches. This mini camera system is ideal and designed for plumbers, engineers, maintenance professionals as well as other process piping inspectors for quality control and expertise. The rechargeable battery pack offers hours of trouble-free inspection time. 931-362-3304; www.usaborescopes.com

36 // VIVAX-METROTECH VCAM-DRAIN

The vCam-Drain from Vivax-Metrotech can inspect drainlines from 1 1/2 to 3 inches up to a length of 70 feet. It includes a Wi-Fi reel that works with a smartphone or tablet, eliminating the need for a viewer. The vCam Mobile Controller app receives the video from the reel and controls all functions of the reel, including adjusting the camera lights, sonde functions, distance counter and recording to the tablet/smartphone. It gives the user a choice of the standard 0.70-inch nonleveling HD camera head or a 0.78-inch self-leveling HD camera head. Both cameras are field changeable by the user. 800-446-3392; www.vxmt.com

>>> TRUCK/TRAILER JETTERS

37 // AMERICAN JETTER 58 SERIES INFERNO BURNER HOT JETTER

The 58 Series Inferno Burner Hot Jetter from American Jetter offers up to 67% more efficient heat over traditional burners. This super fuel-saving hot water system packs extra cleaning power for grease cutting and deicing. Consistent power comes from a 38 hp EFI Kohler gasoline engine with flows up to 20 gpm and pressure to 5,000 psi. The rear speed control reel provides precise cleaning speeds and easy access to the jet hose with the included hose guide. Low water shutoff stops the engine if the 220-gallon tank runs low. The optional 1-mile open range wireless remote option features water ON/OFF, engine shutdown and hose reel control. The heavy-duty square tubing trailer has a 2-inch ball coupler and standard electric brakes. 866-944-3569; www.americanjetter.com

38 // GAPVAX G7 JETTER

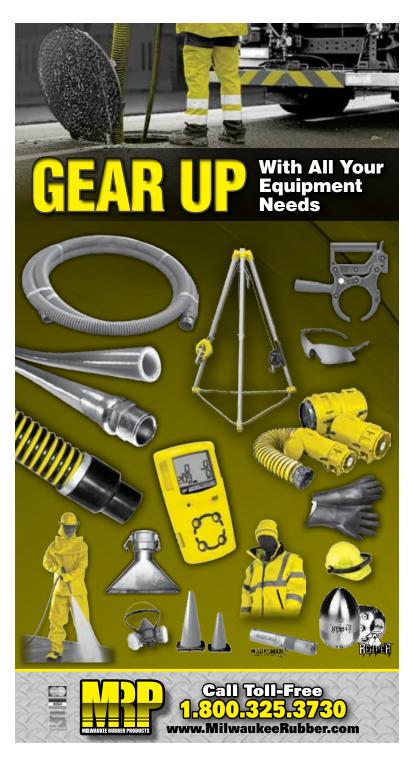
The G7 Jetter from GapVax is built on a heavy-duty, contractor-grade NATM-certified trailer. Several engine choices, including Cummins diesel, are certified and sized appropriately for the water pump combinations. The unit's hose reel is hydraulically powered with a directdrive gearbox and variable-speed control. The hose reel offers a 3-foot (curbside) articulation from center of bearing, 180-degree rotation and a capacity of 800 feet of 3/4-inch jetter hose. The polyethylene plastic water tank is available in 300-, 500-, 600- or 700-gallon capacities. The water pump is center-fed for optimum performance. The controller is interlocked with safety features that will show low fuel levels and low water, and is capable of a complete engine shutdown in an emergency. 888-442-7829; www.gapvax.com C O N T | N U E D >>

















39 // VAC-CON VJ SERIES

The VJ Series of jetters from Vac-Con is designed to provide operators with an economical, portable and powerful system in two configurations. The VJ375 offers a 375-gallon water capacity on a single-axle trailer. The VJ750 boasts 750-gallon water capacity on a tandem-axle trailer. Standard features include Tier 4 diesel engine, cold-weather recirculation and air purge system, hydraulically driven hose reel and a reel-mounted, weatherproof electronic control panel. Units are available in multiple water pump pressure and flow configurations. Optional features include gas engine, wireless remote and an antifreeze tank system for cold-weather use. 904-284-4200; www.vac-con.com

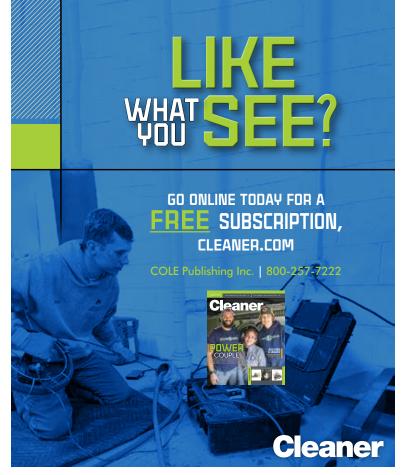


40 // VACALL ALLJET

Vacall's AllJet truck-mounted jetter is an easy-to-operate, efficient sewer root maintenance machine. The hydraulically powered triplex plunger water pump is capable of 87 gpm at 2,000 psi with other power options available. The hose reel telescopes out 54 inches from a retracted position and swivels 200 degrees to properly direct the 600-foot jetting hose. It uses a single-engine PTO design, and a 1,600-gallon UV-resistant polyethylene water tank. Operator-friendly features include four locking aluminum tool storage cabinets, a rear-view camera, roll-up doors and a washdown system, with options including LED lighting packages, an extendable rear canopy and a heating and insulation package inside the all-aluminum rear compartment. 800-382-8302; www.vacall.com c

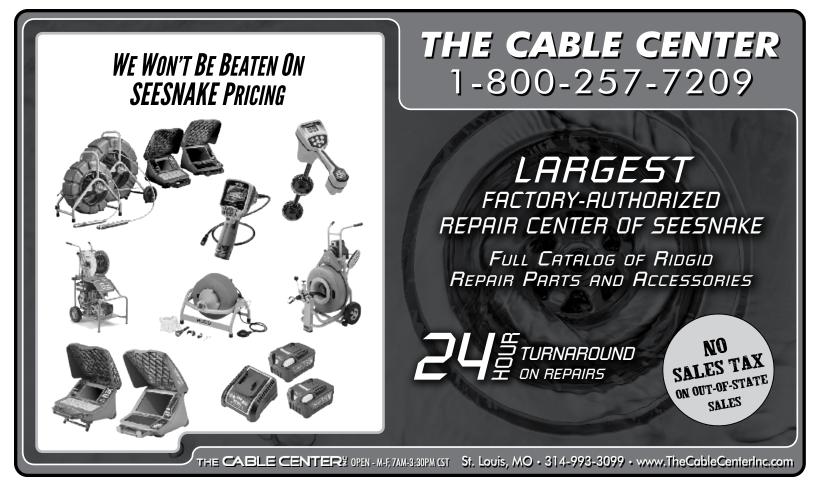








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PRODUCT NEWS



PRODUCT SPOTLIGHT STICK TRANSFER PUMP TAKES STRAIN OFF THE CONTRACTOR

By Craig Mandli

A transfer pump is an effective tool for a drain cleaner helping a homeowner deal with a flooded basement. But traditional, manual pumps can be exhausting for a contractor to use, as they require both hands to pump, leaving no control over the outlet hose.

Milwaukee Tool makes the job easier, though, with its new M12 Stick Transfer Pump. Transferring water without interruption, the water transfer pump delivers superior filtration and eliminates the hassles of manual pumping.

"Our M12 Stick Transfer Pump is powered by our M12 battery platform, which eliminates the repetitive strain and cumbersome process," says Alec Dietzel, product marketing manager for Milwaukee Tool. "The user only needs one hand on the pump, freeing their other hand to direct the outflow. This gives them greater control during the application to effortlessly pump up to 9 gallons per minute."

Featuring a 36-inch submersible aluminum barrel, the stick transfer pump has the reach and inlet control needed to get to water in difficult-to-access areas such as trenches, storm drains, and water meter boxes. HydroPass filter technology maximizes water flow in heavy debris, while the 360-degree filter minimizes downtime caused by clogging, increasing productivity on the job.

"It is an ideal solution for both service and residential plumbers who frequently find themselves needing to pump unwanted water from in-ground, debris-filled applications such as catch basins, cleanouts, water meter boxes, trenches, sump pump pits, and more," Dietzel says. "Our plumbing product teams invest the time to work side-by-



side with real users on service calls across the U.S. to understand the demands of a constantly changing workplace and how we can best deliver solutions for a more productive job."

With a 15-foot max head height and an outlet compatible with a standard 3/4-inch garden hose, this water transfer pump delivers the power to push water out of pits, basins and over walls. It joins the M12 Cordless System focused on delivering durability and power in the tightest spaces. Currently the M12 System is made up of more than 100 solutions.

"The feedback we've received from users has been overwhelmingly positive," Dietzel says. "We've drastically improved a traditionally manual process with a stick transfer pump that can remove unwanted water from tough-to-reach locations with easy operation and best-in-class debris handling without the repetitive strain on the user." 800-729-3878; www.milwaukeetool.com

1 // FIND SOURCES OF SEWER AND PLUMBING ODORS AND INFLOW WITH SUPERIOR 5E SMOKE BLOWER

Smoke testing is a cost-effective solution ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. It's a quick and effective way to find plumbing faults when testing laterals and building plumbing. The Superior 5E Electric Smoke Blower gently pushes smoke throughout the system to find cracks, leaks and quickly identify problems. It takes only minutes to set up the blower and seconds to see the results. Superior's 5E Electric Smoke Blower easily connects to any clean-out, port or vent to smoke test the entire system. Made in the U.S., the durable 5E is complete with 8 feet of industrial grade hose. Use with 1A or 2B Superior smoke candles which create 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/CL5







2 // WORKWAVE SERVMAN MOBILE 2.0 MOBILE APP

WorkWave's ServMan Mobile 2.0 is a new mobile app for HVAC, plumbing and electrical professionals that integrates common tasks and workflows: receiving, completing or creating work orders; collecting payments; providing quotes in the field; adding time and material tracking to orders; attaching images for proof of service and more. The app also includes: broader compatibility, and is fully compatible with both iOS and Android devices; an updated interface to better engage customers in the field; access to key information like customer details, service history and work orders in the field, minimizing calls to the office; and real-time synchronization. 866-926-9820; www.workwave.com

3 // CHERNE HEAVY-DUTY POLY LIFT LINE

Cherne Industries, part of the Oatey family of companies, introduced its heavy-duty poly lift line, engineered to outlast the harshest environments as pipe plugs are inflated or deflated. Available in lengths ranging from 10 to 50 feet, the poly lift line is designed with a 3/8-inch heavy duty inside diameter hose, covered with an industrial-grade, heavy-duty spiral wrap. Its hardware and fittings are made of stainless steel, and a heavy-duty rubber cover protects the line's gauge. The lift line comes with clear-coated zinc-plated steel hooks and industrial quick disconnects. 800-843-7584; www.cherneind.com c



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CASE STUDY

RESIDENTIAL AND COMMERCIAL SEWER AND PIPE MAINTENANCE

// By Craig Mandli

CONNECTOR COVER KEEPS DEBRIS OUT OF COUPLINGS



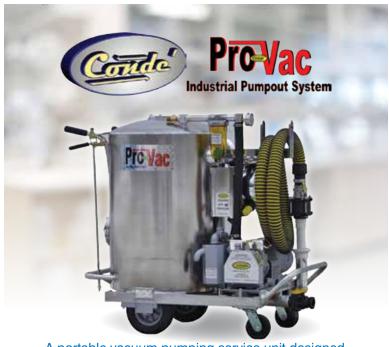
PROBLEM / Hydroexcavation operators constantly struggle with quick-connect couplings on the end of lances. The couplings become inoperable when mud, dirt and spoils that may contain wet sand, clays, gravel and other debris become lodged in the joint. Advanced Plumbing & Mechanical in Monmouth, Illinois, constantly struggles with debris in the couplings.

SOLUTION / **Vactor** offered a connector cover called **The Shield**. This device is retrofittable to all Vactor products in the field, as well as competitor products.

RESULT / Advanced Plumbing & Mechanical experienced The Shield firsthand. "For such a simple concept, The Shield has eliminated all of our previous struggles," says Zach Johnson, the company's owner. "After several days of work, the quick connect couplings are left clean and fully functional." 815-672-3171; www.vactor.com c

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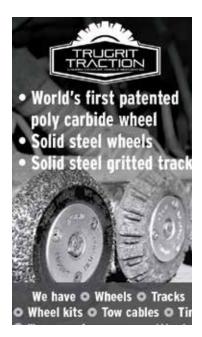
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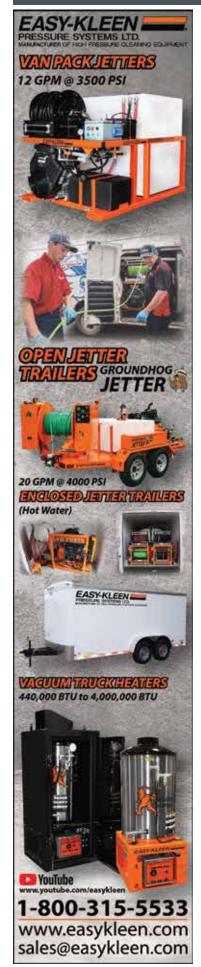


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